Request for Qualifications

for

RFQ 17-UT-001

Progressive Design Build Services for Wastewater Treatment Plant 1 Improvement Project

As Requested by

THE CITY OF RIO RANCHO, NEW MEXICO

RFQ SUBMITTAL DUE DATE

10:00 AM Thursday, October 27, 2016

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Request for Qualifications

Section 1. Background

1.1 Introduction

This request for qualifications (RFQ) for the City of Rio Rancho (City) Wastewater Treatment Plant 1 (WWTP1) project (Project) invites statements of qualifications (SOQs) according to the requirements set forth in this RFQ, including the format and content guidelines in Section 5. The SOQs will be reviewed and evaluated to generate a short list of up to three (3) Respondents, as described in Section 6, which will then be invited to submit Proposals.

The Project is to be designed and constructed in two phases using the progressive design-build delivery method:

- Phase One: Prepare design to 60% complete, as defined in Exhibit B (Scope of Design-Builder Services), and a guaranteed maximum price (GMP) or lump sum proposal
- Phase Two: Complete design, construction and post-construction tasks, including performance testing, startup and commissioning and operator training and support

This RFQ is subject to revision after the date of issuance via written addenda. Any such addenda will be posted on the City's website (www.rrnm.gov). It is each Respondent's responsibility to obtain all RFQ addenda prior to submitting its SOQ and provide confirmation of receipt of addenda in their transmittal letter.

In no event will the City be liable for any costs incurred by any Respondent or any other party in developing or submitting an SOQ.

1.2 RFQ Organization

This RFQ consists of seven Sections and six Exhibits:

- Section 1: Background
- Section 2: Project Overview
- Section 3: Progressive Design-Build Services
- Section 4: Procurement Process
- Section 5: SOQ Submission Requirements
- Section 6: SOQ Evaluation and Selection
- Section 7: Conditions for Respondents
- Exhibit A: Definition of Terms
- Exhibit B: Scope of Design-Builder Services
- Exhibit C: Draft Progressive Design-Build Contract

- Exhibit D: Project Background Documents
- Exhibit E: Project Technical Requirements
- Exhibit F: Forms for Affirmation of Compliance

The contents of the RFQ Exhibits take priority over any conflicting statements in the RFQ Sections.
Certain project background documents are being made available as Exhibit D (Project Background Documents) for the purpose of preparing SOQs. The City is providing these documents only for the informational purpose of obtaining SOQs for the Project and does not confer a license or grant for any other use. The Respondent shall not solely rely on the background information for project development. The extent to which the Design-Builder may rely on such background documents is set forth in Exhibit C (Draft Progressive Design-Build Contract).

1.3 Rio Rancho's Objectives

The City of Rio Rancho's objectives for delivery of the Project are as follows:

- **Quality**: Provide treatment facilities and equipment that will be sustainable and will reliably produce effluent that meets the contractual standards defined for the project over the range of raw water quality conditions set forth in Exhibit E (Project Technical Requirements).
- **Life-cycle Costs:** Optimize life-cycle costs including operation requirements
- **Schedule**: Achieve the scheduled completion date within 18 months of Notice-to-Proceed (within 10 days of contract execution).
- **Risk:** Achieve an optimal balance of risk allocation between the City of Rio Rancho and the Design-Builder and manage risk to reduce the likelihood of change orders.
- **Safety:** Implement an effective safety program incorporating best industry practices.
- **Selection of Qualified Design Builders:** Selection of an experienced design-build team that understands City objectives, has experience in the design-build marketplace, and can design and construct the project at or under the prescribed budget.
- **Innovate Solutions:** Opportunities to provide innovative solutions for accelerated project scheduling, maximum cost control, improved constructability and minimization of operations and maintenance costs.

By selecting the progressive design-build delivery method for the Project, Rio Rancho is committed to working in close collaboration with the Design-Builder during Phase One to develop the Project's design to achieve the Project objectives and to obtain a mutually-agreeable GMP (or lump sum at the city discretion) for delivery of the Project. As set forth in Exhibit E (Project Technical Requirements), Rio Rancho has specific technical requirements and standards that will apply to the Project's design.

Section 2. Project Overview

2.1 Project Scope

The Project scope, design standards and performance requirements are described in more detail in Exhibits B and E (Project Technical Requirements).

2.2 Project Budget and Funding

The cost for design and construction of the Project is budgeted at $22 million including New Mexico Gross Receipt Tax. Such budget does not include Rio Rancho's other project costs, such as professional advisory services, property or access rights. It is the expectation of the City that the project will be delivered for this budget.

2.3 Project Schedule

As indicated in Section 4, it is anticipated that the Progressive Design-Build Contract will be executed on or about February 2017. The design, permitting, construction and performance testing of Project are expected to be completed within 18 months of contract execution.

Section 3. Progressive Design-Build Services

3.1 General

As noted in Section 1 and more fully described in Exhibit B (Scope of Design-Builder Services), the Design-Builder will provide services in two distinct phases.

Phase One services generally consist of preliminary engineering, survey, geotechnical investigations, preparation of construction documents and development of the Project GMP (or lump sum at the city discretion). All this work shall be performed in close collaboration and communication with the City. The proposed GMP (or lump sum) and schedule includes the Project's design developed to City's required level of completion, project schedule, and supporting documentation, such as detailed open-book costing for the GMP. The City is requesting that the design be progressed to the 60% design before execution of the GMP or at the City's discretion the option to convert to a lump sum contract. However, the City is willing to consider execution of the GMP or potential lump sum contract at an earlier design completion phase if the design has progressed sufficiently such that the City has good understanding of the outstanding design issues and confidence in the GMP or lump sum contract at the agreed upon design submittal. Multiple phased GMP's may also be considered.

Phase Two services generally encompass completing the Project's final design, construction and performance testing, start up and commissioning. Permitting activities are included in each Phase for appropriate construction related permits.

3.2 Roles and Responsibilities

City of Rio Rancho: The City of Rio Rancho will cooperate with the Design-Builder and will fulfill its responsibilities in a timely manner to facilitate the Design-Builder's timely and efficient performance of services. Rio Rancho's responsibilities include:

- Review submissions and provide comments to Design-Builder.
- Furnish existing studies and provide data and information regarding the Project, including record drawings, and preliminary studies. *Note: The City is providing these documents only for the informational purpose only and does not confer a license or grant for any other use. The Respondent shall not solely rely on the background information for project development. In addition, the city may not have all records for the existing facilities and the information contained with any existing records may be incorrect or inadequate. It is the Respondents responsibility to check the validity of all information provided.*
- Provide adequate funding equal to the mutually-agreed upon contract price.
- Provide access to the Project site.
- Provide necessary data for project design and to establish contract performance standards (e.g. influent characteristics, effluent permit limits to support project start-up and performance testing).
- Provide potable or recycled water for Project start-up and performance testing.

- Direct its current contract operator to provide operability input and operational data, and other collaboration as required to support the progressive design-build approach.

City of Rio Rancho's Owner Agent: The Owner Agent will support Rio Rancho to fulfill its responsibilities in a timely manner to facilitate the Design-Builder's timely and efficient performance of services.

City of Rio Rancho's Contract Operator: The Contract Operator will cooperate with the Design-Builder and will fulfill its responsibilities in a timely manner to facilitate the Design-Builder's timely and efficient performance of services as directed by the City.

Design-Builder: The Design-Builder will cooperate with Rio Rancho and will provide, in a timely manner the Phase One and Phase Two services necessary to complete the Project scope specified in this RFQ. Design-Builder responsibilities include:

- Prepare design and construction documents.
- Perform all construction related activities
- Supervise subcontractors and Design-Builder personnel.
- Obtain all construction related governmental approvals and permits unless specifically excluded from the Design-Builder scope of work.
- Maintain security of the construction site.
- Conduct performance testing, commissioning and startup.
- Implement and maintain all quality control requirements and activities
- Implementation of an active safety program
- Allow for operation of the existing WWTP1 at all times during the construction on-going activities

Section 4. Procurement Process

4.1 Mandatory Pre Submittal Meeting and Site Tour

Rio Rancho will conduct a mandatory pre-submittal meeting for those interested in responding to the RFQ. **Attendance at this meeting is mandatory.** The meeting will be held at City Hall in the Governing Body Chambers on **October 4, 2016** starting at **9:00 am.** At this meeting, Rio Rancho will offer information about the Project and the procurement process. Those who attend the pre-submittal meeting will have the opportunity to tour the Project site following the meeting to familiarize themselves with site conditions and constraints. Please limit the attendance to 3 members per team for the site tour.

4.2 Communications and Owner Contact

Shonna Ybarra will be the sole point of contact for this RFQ and shall administer the RFQ process. All communications shall be submitted by email, and shall specifically reference this RFQ. All questions or comments should be directed to the City Contact as follows:

Shonna Ybarra
Purchasing and Contracts Manager
City of Rio Rancho – Purchasing Division
3200 Civic Center Circle NE - Ste. 300
Rio Rancho, NM 87144
(505)891-5044
sybarra@rrnm.gov

No oral communications from Rio Rancho's Contact or other individual is binding. No contact with Rio Rancho's staff, Owner's Agent, Contract Operator, Council Members or any public official concerning the Project during the procurement process is allowed. A violation of this provision will result in disqualification of Respondent.

4.3 Procurement Schedule

The RFQ procurement schedule is as follows:

- Issue RFQ — September 9, 2016
- Pre-submittal meeting — October 4, 2016 at 9:00 AM Mountain Standard Time
- Deadline for questions — October 17, 2016; 5:00 PM Mountain Standard Time
- Addendum issued (if needed) — October 20, 2016
- Submit SOQ — October 27, 2016; 10:00 AM Mountain Standard Time
- SOQ evaluation/short list by — November 30, 2016

The tentative RFP procurement schedule is a follows:

- Issue RFP to shortlisted teams — December 5, 2016
- Confidential meetings with Teams — Week of January 2nd
- Question deadline — January 30, 2017
- Addendum — February 2, 2017
- Submit Proposal — February 9, 2017
- Final selection/negotiations — February 2017
- Notice to proceed — within 1 week of contract execution

Section 5. SOQ Submission Requirements

5.1 Submittal Place and Deadline

Six (6) paper documents (one original and 5 copies), as well as 1 electronic versions of the SOQ on CD-ROMs/flash drive in PDF format, must be received no later than October 27, 2016, at 10:00 AM, Mountain Time. SOQ submissions must be mailed/shipped or hand delivered to:

City of Rio Rancho - City Clerk's Office
Attn: Shonna Ybarra, Purchasing and Contracts Manager
3200 Civic Center Circle NE - Ste. 150
Rio Rancho, NM 87144

Proposals must be submitted in a sealed package or envelope listing the following information on the outside:

RFQ Title: Progressive Design Build Services for Wastewater Treatment Plant 1 Improvements Project
RFQ 17-UT-001

Each Respondent assumes full responsibility for the on-time delivery of its SOQ at the required location. Any SOQ received after the submittal deadline will be deemed nonresponsive and returned. The delivered package containing the SOQ documents must be labeled "SOQ Enclosed" in the lower left corner.

5.2 Submission Format

The SOQ must not exceed 20 total pages. The page limits exclude the transmittal letter, table of contents, front and back covers, separation tabs, resumes, and required forms as noted in Part 2. A maximum of 2 of the total pages may be 11 x 17-inch tri-fold format. Twelve point font or larger must be used. Resumes are limited to maximum 2 pages in the appendix. The City strongly advises Respondents to be clear, concise, and brief.

5.3 Submission Content

The content requirements set forth in this RFQ represent the minimum content requirements for the SOQ. It is the Respondent's responsibility to include information in its SOQ to present all relevant qualifications and other materials. The SOQ, however, should not contain standard marketing or other general materials. It is the Respondent's responsibility to modify such materials so that only directly relevant information is included in the SOQ.

The SOQ must include the following information in the order listed:

- Transmittal Letter
- Part 1 – Executive Summary
- Part 2 – Design-Builder Profile
- Part 3 – Project Team
- Part 4 – Experience
- Part 5 - Approach to Innovation, Conformance with Owner Budget and Project Schedule
- Appendix A – Forms for Affirmation of Compliance
- Appendix B – Resumes
- Appendix C – Financial Statements
- Appendix D – Progressive Design-Build Contract Comments (not required)
- Appendix E – Preference Forms if applicable

5.3.1 Transmittal Letter

Respondents must submit a transmittal letter (maximum two pages) on the Respondent's letterhead. It must be signed by a representative of the Respondent who is authorized to sign such material and to commit the Respondent to the obligations contained in the SOQ. The transmittal letter must include the name, address, phone number and email address for the Respondent's Contact, acknowledgement of any addendum to the RFQ and must specify who would be the Design-Builder's signatory to any contract documents executed with the City. Such letter may include other information deemed relevant by the Respondent.

5.3.2 Part 1 – Executive Summary

The executive summary (maximum two pages) must include a concise overview of the key elements of the SOQ and must summarize and refer to information in the SOQ concerning satisfaction of the Minimum Qualification Requirements. The executive summary shall not be used to convey additional information not found elsewhere in the SOQ.

5.3.3 Part 2 – Design-Builder Profile

A detailed and complete description of the company proposed as the Design-Builder must be provided in Part 2 of the SOQ. (The term "company" can refer to either a single entity or a joint venture.) Information concerning Key Personnel and other firms that may be included on the Project Team, such as subconsultants

and subcontractors, should be provided in Part 3 of the SOQ. The Design-Builder Profile must include the following information:

- **General -** Provide general information about the Design-Builder, such as lines of business and service offerings, locations of home and other offices, number of employees in New Mexico (professional and non-professional), years in business, and evidence of required licenses.
- **Legal structure -** Identify whether the Design-Builder is organized as a corporation, limited liability company (LLC), general partnership, joint venture, limited partnership, or other form of legal entity. As applicable, identify the owners of the Design-Builder (*e.g.*, shareholders, members, partners, and the like) who hold an interest of ten percent or more.
- **Project office location -** Identify where the Design-Builder intends to maintain its project office(s) and where the majority of the design work will be performed.
- **Financial condition -** In SOQ Appendix C (Financial Statements), provide audited financial statements for the Design-Builder for the past three years and quarterly financial statements, certified by the chief financial officer, for the current year. If the Design-Builder is a joint venture, LLC, or partnership, such financial statements must be provided for each partner or member.
- **Payment and performance bonds -** A letter from the Design-Builder's surety must be provided to verify the availability of a design-build bond of at least $25 million for this Project. The surety must be authorized by law to do business in the state of New Mexico and must have an A.M. Best Company Rating of A minus or better. The surety must also be listed in the U.S. Department of Treasury's Circular 570. (Not included in the proposal page count.)
- **Insurance -** A letter or Certificate of Insurance from the Design Builder's insurance company must be provided stating its ability to acquire and provide the following minimum limits for the required insurance. The required insurance must be obtained and maintained from insurance companies that have an A.M. Best Rating of A minus or better and are duly licensed or authorized in the State of New Mexico. (Not included in the proposal page count):

  Liability Insurance:

  The limits of liability for the insurance shall provide the following coverages for not less than the following amounts or greater where required by Laws and Regulations.

  Worker's Compensation:

  (1) State: Statutory

  (2) Applicable Federal (e.g., Longshoreman's): Statutory

  (3) Employer's Liability: $1,000,000

  Contractor's Liability Insurance shall also include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor:

  (1) General Aggregate (Except Products-Completed Operations) $1,000,000

  (2) Products-Completed Operations Aggregate $1,000,000

(3) Personal and Advertising Injury (Per Person/Organization) $1,000,000

(4) Each Occurrence (Bodily Injury and Property Damage) $1,000,000

(5) Property Damage liability insurance will provide Explosion, Collapse and Underground coverages where applicable.

(6) Excess Liability
General Aggregate $1,000,000
Each Occurrence $500,000

Automobile Liability Insurance shall include coverage for all owned, non-owned and hired vehicles:

(1) Bodily Injury: Each Person $1,000,000

Each Accident $1,000.00

Property Damage: Each Accident $1,000,000

Or

(2) Combined Single Limit (Bodily Injury and Property Damage): Each Accident $1,000,000

Contractual Endorsement

The Contractual liability coverage shall provide coverage for not less than the following amounts:

(1) General Aggregate $ 1,000,000
(2) Each Occurrence (Bodily Injury and Property Damage) $ 500,000

Additional Insured:

Add the following:
"The City of Rio Rancho."

Property Insurance:

CONTRACTOR shall purchase and maintain property insurance upon the Work at the site in the amount of the full replacement cost thereof. The requirements shall remain unchanged except that the CONTRACTOR is responsible for obtaining and maintaining said property insurance.

Additional Insured:
Add the following:

"The City of Rio Rancho**"**

The SOQ must provide the following additional information in Appendix C pertaining to factors or events that have the potential to adversely impact the Design-Builder's ability to perform its contractual commitments.

- **Material adverse changes in financial position**. Describe any material historical, existing or anticipated changes in financial position, including mergers, acquisitions, takeovers, joint ventures, bankruptcies, divestitures, or any material changes in the mode of conducting business.
- **Legal proceedings and judgments**. List and briefly describe any pending or past (within 10 years) legal proceedings and judgments, or any contingent liability that could adversely affect the financial position or ability to perform contractual commitments to Rio Rancho. If no such proceedings or judgments are listed, provide a sworn statement to that effect from the general counsel.
- **Completion of contracts**. Has the Design-Builder failed to complete any contract, or has any contract been terminated due to alleged poor performance or default within the past 10 years? If so, describe the circumstances.
- **Violation of laws**. Has the Design-Builder been convicted of any criminal conduct or been found in violation of any federal, state, or local statute, regulation, or court order concerning antitrust, public contracting, employment discrimination or prevailing wages within the past 10 years? If so, describe the circumstances.
- **Debarred from bidding**. Has the Design-Builder been debarred within the past 10 years, or is it under consideration for debarment, on public contracts by the federal government or by any state? If so, describe the circumstances.

If any of the above questions are answered in a manner that indicates that any of these unfavorable factors or events are present, it is the Respondent's responsibility to: (1) describe in detail the unfavorable factor or event, and (2) provide sufficient information to demonstrate that the unfavorable factor or event will not adversely impact the Design-Builder's ability to perform its contractual commitments.

The Respondent must notify Rio Rancho of any changes subsequent to submission of the SOQ and before the selection process is completed (and, in the case of the selected Respondent, before execution of the Progressive Design-Build Contract).

5.3.4 Part 3 – Project Team

The composition, organization and management of the Project Team must be described in two separate subsections.

Design-Builder/other firms:

- Identify any other firms (such as subcontractors and subconsultants) included on the Project Team in addition to the Design-Builder and describe the scope of the Design-Builder entity and each firm's services and responsibilities during Phase One and Phase Two of the Project. The firm(s) serving as the Designer and the Builder must be clearly identified.
- Provide Phase One and Phase Two organizational charts showing the reporting relationships and responsibilities of the Design-Builder and any other firms, and describe the Design-Builder's approach to the management of such firms.

Key Personnel

- Identify all Key Personnel (and their firm affiliations) on the Project Team and describe their specific responsibilities during Phase One and Phase Two of the Project. Specific key positions should be defined by the respondent as critical to the overall delivery and success of the project. Respondents' identification of the appropriate type and quantity of key positions will be taken into consideration as part of the Comparative Evaluation Criteria weighting identified in Section 6.4.
- Provide Phase One and Phase Two organizational charts showing the reporting relationships and responsibilities of all Key Personnel and all other named positions (along with their firm affiliations) and describe the Design-Builder's approach to the management of such organization.
- Provide resumes for all Key Personnel in SOQ Appendix B (Resumes). Resumes must be limited to two pages per individual and include:
  - Academic and professional qualifications
  - Professional registration (as applicable)
  - Similar experience as it relates to the Project within the last 5 years and to the individual's specified role on the Project
- For all other named positions and personnel, provide a summary table of relevant experience in SOQ Appendix B

Any change in the firms or Key Personnel included in the SOQ would require Rio Rancho's written approval.

5.3.5 Part 4 – Experience

The SOQ must describe the performance history and experience of the Project Team on similar projects and provide information regarding safety performance.

Reference Projects:

The Respondent shall submit descriptions of reference projects to demonstrate relevant experience with similar size water/wastewater projects delivered by design-build. Individual project descriptions may be applied to any combination of the required experience categories as noted in the Section 6.3 Minimum Qualification Requirements, e.g. a design-build project may be applied to both design and construction experience categories. The respondents experience must be tied to the proposed team experience.

Each project description shall contain at least the following information:

- Name of owner
- Owner reference and contact information
- Role of respondent/Minimum Qualification Requirement Category
- Contract value for 1) the total installed cost of the project and 2) for the scope included in this description, if different
- Schedule for project, both planned and actual, including start and completed dates
- Description of the project showing relevance to this Project
- Firms and key personnel that participated in project and are included in this SOQ, along with a clear description of the project role and responsibility of each
- Indicate which project reference would be a good candidate(s) for the city of Rio Rancho to tour

In addition, a summary table should be provided to cross-reference the Project Team (firms and Key Personnel) with participation in the reference projects.

Safety:

Provide a summary description of the Design-Builder's corporate safety program and include safety statistics or records indicating categories of accidents and their incidence or frequency rates for the past five years. The following safety records must be provided for the Design-Builder for the current and past five years:

- The experience modification rate (EMR) calculated by the National Council on Compensation Insurance or similar rating bureau. (The EMR is also referred to as the experience modification rating, experience modification factor, experience modifier or X-mod.)
- The days-away-from-work injury incidence rate. A day-away-from-work injury is an injury that prevents an employee from returning to his or her next regularly scheduled shift. The incidence rate is calculated by multiplying the number of days-away-from-work injuries for the particular year by 200,000 and then dividing the product by the person-hours worked for that year.

5.3.6 Part 5 - Approach to Innovation, Conformance with Owner Budget, and Project Schedule

The SOQ must describe the teams approach to innovation to meet the City's vision for the project while conforming to the City's budget and project schedule.

5.3.7 Appendix D –Progressive Design-Build Contract Comments

The SOQ may include in Appendix D (Progressive Design-Build Contract Comments) comments on the Draft Progressive Design-Build Contract included in RFQ Exhibit C (Draft Progressive Design-Build Contract). Such comments shall include tracked-changes markup of the draft in Exhibit C. Any such comments will be considered by the Owner before issuance of the RFP. City expressly reserves the right change any provision or provisions of the Progressive Design-Build Contract prior to or following the issuance of the RFP.

Section 6. SOQ Evaluation and Selection

6.1 General

The SOQs will be reviewed and evaluated by Rio Rancho's selection committee (with assistance provided by the City's Owner's Agent) according to the requirements and criteria outlined in this Section 6. During the SOQ evaluation process, written questions or requests for clarifications may be submitted to one or more Respondents regarding its SOQ or related matters. Failure to respond in a timely manner to any such questions or requests may be grounds for elimination of the Respondent from further consideration.

6.2 Responsiveness

Each SOQ will be reviewed to determine whether it is responsive to the RFQ. Failure to comply with the requirements of this RFQ may result in an SOQ being rejected as nonresponsive. At its sole discretion, however, the selection committee may request clarification or additional information to remedy a failure.

6.3 Minimum Qualification Requirements

Each responsive SOQ will be reviewed to determine whether it meets the Minimum Qualification Requirements outlined in this subsection. At its sole discretion, the selection committee may request clarification or additional information. Any SOQ that does not satisfy all the Minimum Qualification Requirements may be rejected.

- **Performance bond**. Ability of the Design-Builder to provide a design-build performance bond in the amount of $25 million.
- **Net worth**. The Design-Builder must have a minimum net worth of $5 million.
- **Material adverse condition**. The Design-Builder must not be subject to a material adverse condition, such as pending litigation, insufficient liquidity, weak operating net income or cash flow, or excessive leverage, that gives rise to reasonable doubt concerning its ability to continue to operate as an ongoing concern, to provide performance bonds or insurance, or to maintain sufficient financial strength to undertake and successfully complete the Project and to mitigate/absorb Project risks.
- **Licensing and registration**. The Design-Builder and each firm must be licensed in the state of New Mexico for the type of work to be performed. The Designer must include in responsible charge an engineer registered in the state of New Mexico at the time of contract execution, and each architect must be registered in the state of New Mexico at the time of contract execution. The Builder must have state contractor license at the time of contract execution.
- **Design experience**. The Designer shall have experience designing of a minimum of three (3) completed water or wastewater treatment plants (W/WWTP) with a peak flow capacity of at least 3 MGD, within the last 5 years, with one (1) of the W/WWTPs having a minimum design fee of $2 million for municipal clients in the United States. The Designer must have a minimum of three (3) completed conveyance projects with pipeline diameter at least 18 inches in diameter and 3 miles long during the same period.

- **Construction experience**. The Builder shall have experience constructing of a minimum of three (3) completed water or wastewater treatment plants (W/WWTP) with a peak flow capacity of at least 3 MGD, within the last 5 years, with one (1) of the W/WWTPs having a minimum design cost of $20 million and one (1) successfully operating for one year for municipal clients in the United States. The Builder must have a minimum of construction three (3) completed conveyance projects with pipeline diameter at least 18 inches in diameter and 3 miles long during the same period.
- **Design-build experience**. The Design-Builder shall have successfully completed at least three (3) projects (water or wastewater, including pipelines) for municipal clients in the United States. Projects on which the Respondent worked with the same team members listed on this proposal which will receive a more favorable review.
- **Safety record.** The Builder must have achieved an experience modification rate (EMR) of not greater than 0.9 for the current and past two years.

6.4 Comparative Evaluation Criteria

The selection committee will evaluate and rank the responsive SOQs that satisfy the Minimum Qualification Requirements by applying the weighted comparative evaluation criteria set forth below to generate a short list of three Respondents. Financial condition is evaluated on a pass/fail basis as part of the Minimum Qualification Requirements.

Experience and capabilities **[35%]**

- Working together on similar projects
- Providing similar services for new or upgraded wastewater facilities
- With permitting requirements in the State of New Mexico for wastewater utilities

Design-Builder Team **[35%]**

- Organization structure
- Qualifications, experience and abilities of key personnel

Respondent's project management approach **[30%]**

- To budget and schedule conformance on progressive design-build projects
- Design enhancement and value engineering to improve constructability, operability and maintainability.

Pass/Fail Criteria:

- **Financial strength of the respondent including:**
  - Current Bonding capacity and current available capacity
  - Insurance
  - Tangible net worth/capitalization
  - Material adverse conditions

- Safety Record, including EMR for the last 5 years
- Legal/Litigation history for the last 10 years
- Licensing and Registration in the state of New Mexico
- Current and future workload for all team members
- Respondent's responsiveness to RFQ

6.5 Selection of Short List

After the evaluation process is complete, Rio Rancho will notify Respondents of the rankings. The top-ranked Respondents will be selected for inclusion in the short list of up to three (3) Respondents for receipt of the RFP.

Section 7. Conditions for Respondents

7.1 Ineligible Firms and Individuals

CH2M HILL Engineers, Inc. is serving in an advisory capacity to the City of Rio Rancho for this Project and is therefore not eligible to assist or participate with any Respondent that submits an SOQ for the Project.

7.2 Proprietary Information

All materials submitted to Rio Rancho become public property. If the SOQ contains proprietary information that the Respondent does not want disclosed, each page containing such information must be identified and marked "PROPRIETARY" at the time of submittal. Rio Rancho will, to the extent provided by law, endeavor to protect such information from disclosure. The final decision as to what information must be disclosed, however, lies with the City of Rio Rancho's legal department. Failure to identify proprietary information will result in all unmarked sections being deemed non-proprietary and available upon public request. Respondents shall not be permitted to mark the entire SOQ as proprietary.

7.3 Rights of the City

In connection with this procurement process, including the receipt and evaluation of SOQs and development of the short list, Rio Rancho reserves to itself (at its sole discretion) all rights available to it under applicable law, including without limitation, with or without cause and with or without notice, the right to:

- Cancel, withdraw, postpone, or extend this RFQ, in whole or in part, at any time, without incurring any obligations or liabilities
- Modify the procurement schedule
- Waive deficiencies, informalities and irregularities in an SOQ and accept and review a non-conforming SOQ
- Suspend and terminate the procurement process or terminate evaluations of SOQs received
- Permit corrections to data submitted with any SOQ
- Hold meetings and interviews, and conduct discussions and correspondence, with one or more of the Respondents to seek an improved understanding of any information contained in an SOQ
- Seek or obtain, from any source, data that has the potential to improve the understanding and evaluation of the SOQs
- Seek clarification from any Respondent to fully understand information provided in the SOQ and to help evaluate and rank the Respondents
- Reject an SOQ containing exceptions, additions, qualifications or conditions not called for in the RFQ or otherwise not acceptable to the City
- Conduct an independent investigation of any information, including prior experience, identified in an SOQ by contacting project references, accessing public information, contacting independent parties, or any other means
- Request additional information from a Respondent during the evaluation of the its SOQ

7.4 Obligation to Keep Project Team Intact

Respondents are advised that all firms and Key Personnel identified in the SOQ shall remain on the Project Team for the duration of the procurement process and execution of the Project. (The anticipated dates for award of the Progressive Design-Build Contract and for completion of the Project are set forth in Section 2.3 of this RFQ.) If extraordinary circumstances require a change, it must be submitted in writing to the Owner Contact, who, at his or her sole discretion, will determine whether to authorize a change, recognizing that certain circumstances (such as termination of employment) may occur that are beyond the Design-Builder's control. Unauthorized changes to the Project Team at any time during the procurement process may result in elimination of the Respondent from further consideration.

7.5 Addenda

If any revisions to the RFQ or procurement process become necessary or desirable (at Rio Rancho's sole discretion), Rio Rancho may issue written addenda. Rio Rancho will post all addenda on the City's website at the following address: (**www.rrnm.gov/bids**). It is Respondent's responsibility to obtain all addenda prior to submitting its SOQ.

7.6 Protests

Any protest to the City's action in connection with this procurement must be filed in writing following shortlist announcement and must be in strict accordance with the Rio Rancho's applicable procedures and with applicable law.

Exhibit A

Definition of Terms

The definitions of some of the capitalized terms used in this RFQ are presented below:

Builder – The Design-Builder or other firm (such as a subcontractor or joint venture partner) that will provide construction services and have responsible charge of construction of the Project.

BODR – Basis of Design Report

Designer – The Design-Builder or other firm (such as a subconsultant or joint venture partner) that will provide professional design services and have responsible charge of the design, including preparation of the construction documents.

Design-Builder – The entity that will enter into the Progressive Design-Build Contract with the City of Rio Rancho (City) and that will be the single point of accountability to the City for delivering the services and the Project.

Draft Progressive Design-Build Contract – The draft contract, including the agreement and all of its attachments, substantially in the form attached hereto as Exhibit C (Draft Progressive Design-Build Contract). The City expressly reserves the right unilaterally to change any provision or provisions of the Draft Progressive Design-Build Contract prior to or following issuance of the RFP.

Key Personnel – The individuals, employed by Design-Builder or other firm included on the Project Team, who would fill certain key roles in delivery of the Project and related services by the Design-Builder, for example, the following typical positions: project manager, safety manager, design manager, lead process engineer, construction manager, and start-up and commissioning lead.

Minimum Qualification Requirements – The requirements set forth in Subsection 6.3 of this RFQ that, at a minimum, must be satisfied in order for the SOQ to be evaluated and ranked according to the comparative evaluation criteria.

City – City of Rio Rancho

Project – Wastewater Treatment Plant 1

Project Team – The Design-Builder, Key Personnel and any additional firms (such as subcontractors and subconsultants) included in the SOQ.

Respondent – The entity responding to this RFQ by submitting the SOQ.

WWTP1 – Wastewater treatment plant 1

Exhibit B

Scope of Design-Builder Services

The Scope of Services described in this Exhibit B pertain to services to be provided under Phase 1 as part of the Progressive Design Build delivery of the City of Rio Rancho WWTP1 Project. As such, the Phase 1 services shall be performed collaboratively with the City and the Design-Builder (DB), and the scope of services during Phase 1 shall incorporate workshops, meetings, and other forms of communication to facilitate the collaborative approach intended.

Phase 1 includes technical evaluations, investigations, design services, planning and estimating, as required to define the WWTP1 Project that best meet the City's goals, considering the priorities listed in the Request for Qualifications (RFQ), and the available funding. Phase 1 services shall conclude with a partial design of the project and a Guaranteed Maximum Price (GMP) for final design and construction of the defined project scope that the Design-Builder and City agree provide the best value for City.

Shortlisted Proponents will be provided a detailed scope of work in the RFP for Phase 1 services on which to base their proposal.

The general scope of services as outlined below and as further detailed in the following pages include the following:

1. WORKSHOPS - Workshops to further advance current concepts, evaluate new concepts, and assist in finalizing the Basis of Design Report (BODR), as more clearly defined in Section 8 below.
2. PHASE 1 DESIGN - Phase 1 Design Services are included, which shall provide engineering evaluations for each of the project components as listed in the RFQ as follows:
    - New WWTP1 plant to replace existing facility.
    - Recycled water pipeline to deliver effluent from WWTP1 to the AWTF.
    - WWTP1 Sara Road entrance widening to allow for trucks entrance off the roadway and to keep truck drivers from impacting oncoming traffic.
    - Incorporation of the drainage improvements design at new WWTP 1 site to eliminate adjacent cemetery property flooding in the SSCAFCA pond, Huitt Zollars, November 24, 2015
    - Demolition of existing plant (budget permitting)
    - Administration Building (budget permitting)
3. As part of the project design development, the DB shall review City-Furnished Documents, including the preliminary engineering report, drainage report, alignment study, and other documents that pertinent to this project.
4. PERMITTING – As part of the Phase 1 services, the DB shall prepare the proper forms and accompanying information for required construction, building and right-of-way permits on the Owner's behalf..
5. PUBLIC INFORMATION – The DB shall provide project support for the City during Phase 1 as it relates to public communication for the project.
6. PHASE 1 GMP DEVELOPMENT AND SCHEDULE – As part of the DB scope of services for Phase 1, preliminary GMP shall be developed. The preliminary budget shall be established as the benchmark for the project, and will ultimately evolve into the GMP as design decisions are made and the ultimate Phase

1 design is completed. The preliminary budget shall include the preliminary overall project schedule which will be developed by the DB. The schedule will also evolve as the preliminary design and pricing progresses during Phase 1, and a GMP Overall Project Schedule shall be developed and submitted as part of the GMP.

7. OTHER SERVICES INCLUDED IN PHASE 1 – As part of this Phase 1, other requirements to be included, but not limited to, include geotechnical, surveying, coordination for right of way acquisition, and competitive procurement materials, subcontractors and equipment.

8. <u>WORKSHOPS: The City requires a series of workshop to discuss the following topics:</u>

   - Project Partnering and Chartering Workshop – The workshop should include the costs of the design-builder's approach to formal partnering and chartering as outlined in the design-builder's proposal. The initial workshop will establish the communication protocol, the team's guidelines and expectations for the project and meetings and provide an opportunity for the City and the DB to review work provided to date and discuss the general design concepts for the project. The discussions and work product from this initial workshop will allow the DB team to further advance current concepts and provide a basis for the more detailed workshops

   - Project Scoping Workshop – This workshop will be held to discuss the DB's anticipated overall scope for the project, and determine the required work breakdown structure necessary to align cost tracking for the design-builder with the City's obligations to other stakeholders.

   - Process Workshop - This workshop will provide the collaborative environment by which the DB will discuss the treatment process, including technology, building layout, site location and other facility considerations including operational considerations, maintenance and other lifecycle cost considerations with the City and the City's Owner's Agent. Where appropriate, a comparative evaluation tool should be used to further refine options and provide the team with a clear understanding of options. This workshop will also include constructability review discussions for further evaluation and determination of opportunities to offer time and/or cost savings, or other best value considerations.

   - Weekly collaboration meetings and/or conference calls to update the project team, including City and City's Owner's Agent, on the progress of the design, updated schedule and cost model, and the near term decisions needed to advance the project progress.

9. <u>PHASE 1 DESIGN</u>

   - The Phase 1 design effort will include interim deliverables as well as the final BODR for the design of the project scope as generally outlined in the RFQ and Section 2 and technical specifications outlined in Exhibit D and E. As part of the workshop efforts outlined above, the Phase 1 design includes the following detailed elements as part of the design effort:

     i. A **Project Execution Plan** (PXP) will be prepared by the DB for review and concurrence by the City. The PXP will include the following elements:

        1. Project description and scope of work
        2. Project organization
        3. Project contacts and lines of communication
        4. Code requirements
        5. Special client requirements
        6. Filing system
        7. Project workflow model

8. Project quality assurance and quality control plan
9. Project budget
10. Project schedule
11. Writing, CADD and drafting standards
12. Electronic File Protocol

ii. Complete designs to the 60% level to produce a GMP based on competitive market pricing

1. Scalable drawings
2. Facility Safety assessments
3. Preliminary Traffic control plan
4. Preliminary Erosion control plan
5. Prepare, submit and discuss progression of design advancement at regularly scheduled time and/or progress intervals during Phase 1 (assumed approximately 30%, and Pre-GMP).

iii. Prepare Overall BODR for review and agreement with City for the Facilities and the Pipeline and submittal to required permitting agencies. The BODR must include Project design data which will be utilized in the development of drawings and specifications. This includes quantities, capacities, rates, and all other pertinent design criteria including redundancy and operational information and criteria. This information must be presented in an organized, easy to read tabular or outline format. Generally, minimal full sentence text is to be used except for introductory explanations, or for sections not conducive to tabular or outline presentation format. The deliverables for this proposal are assumed, but are not limited to, as follows:

1. **WWTP1**

a. Treatment process and facility layout including equipment selection
b. General project scope and background references
c. Applicable codes and standards, including fire and safety codes including code review and approval process
d. CID building, planning, and zoning department requirements including code review and approval process
e. Site considerations, including subsurface conditions, flood elevations, and drainage requirements
f. Allowance in site planning for future contingencies such as plant expansion
g. Process Design Criteria, including a description of redundancy
h. Discipline Design Criteria
i. Preliminary Process Flow Diagram
j. Preliminary Hydraulic Profile and Surge Analysis
k. Site Arrangement

l. Process Building General Arrangement Drawings

m. Preliminary Equipment List

n. Materials of construction

o. Preliminary control systems block diagrams

p. HVAC and plumbing systems descriptions

q. Electrical systems descriptions

r. Preliminary electrical load table

s. Tagging convention

t. Preliminary major process P&IDs; P&ID drawings shall indicate pipe sizing, materials of construction, valves, pumps, as well as instrumentation, following ISA conventions in preparation of P&ID drawings. Local and remote control methods shall be indicated. Discrete and analog input/outs shall be identified

u. Preliminary I/O list for the instrumentation and control system

v. Instrument schedule listing field devices/instruments, a description, ranges, quantity, model numbers, and manufacturers

w. Approach to process control descriptions emphasizing reliability, flexibility, operator input, minimizing equipment start/stop cycles, and minimizes energy consumption

x. Code Classification Table

y. Power distribution functional diagram

z. Process facility sections

aa. Structural design criteria

bb. Architectural plan and elevations

cc. Facility architectural renderings

dd. Communications systems

ee. SCADA will be coordinated with the City's contract operator for interconnection with City's current SCADA system

ff. Miscellaneous support systems

gg. Security systems

hh. Utility requirements

ii. Internal quality control review and refinement before submitting to City

jj. Preliminary cost model

kk. Project schedule update

2. **Recycled Water Pipeline**

a. General project scope and background references

b. Preliminary pipeline alignment

c. Design criteria

d. Pipeline materials of construction

e. Basis of pipe design, design standards, internal pressures, external loads, cover depth, trench width, embedment class, and backfill requirements

f. Hydraulic analysis and profile

g. Anchorage of pipelines against hydraulic forces, including thrust blocks and restrained joints

h. Crossings including utilities and streets

i. Corrosion and cathodic protection requirements

j. Pipeline appurtenances types and locations, including isolation valves, air release/vacuum relief facilities, blow off facilities, fire hydrants, access openings, outlets/taps, connections, metering, groundwater barriers, and marker posts

k. Pressure testing and disinfection requirements and procedures

l. Surface restoration requirements

m. Applicable codes and standards

n. Local and state regulatory and jurisdictional agency's requirements, including permitting requirements

o. Surveying services, including horizontal and vertical controls and datum

p. Easement and rights-of-way requirements

3. <u>On Site Drainage Improvements in accordance with Huitt Zollar's previously prepared design supplemented as needed</u>

4. <u>Sara Road Revised Access Entrance</u>

a. Remove and relocate gate access

b. Surface restoration requirements

iv. Submit four (4) hard copies and one electronic copy of the preliminary drawings and final BODR to City for review.

v. Meet with City to obtain City's comments on the submittal. Resolve any questions and revise documents, if necessary.

10. GMP LEVEL DESIGN

- The GMP will be executed at the 60% design milestone. If however the City is satisfied with the design at an earlier design milestone and the accompanying cost model, at its discretion the City may elect to accept the GMP at an earlier design milestone, or phased milestones. The DB will prepare design and procurement package documents for solicitation of key equipment suppliers, vendors, and construction subcontractors on an open book competitive proposal basis based on the GMP level design deliverables, which are as follows:

i. Site arrangement drawing with horizontal and vertical control

ii. Incorporation of recommendations from the geotechnical investigation report

iii. Site grading and yard piping drawings

iv. Process flow diagram

v. Hydraulic profiles

vi. P&ID drawings; P&ID drawings shall indicate pipe sizing, materials of construction, valves, pumps, as well as instrumentation, following ISA conventions in preparation of P&ID drawings. Local and remote control methods shall be indicated. Discrete and analog input/outs shall be identified

vii. Equipment list

viii. Valve list

ix. Instrument device list

x. I/O list

xi. Pipe schedules

xii. Equipment control descriptions

xiii. Chemical feed system P&ID drawings

xiv. Structural plans and sections

xv. Architectural drawings and schedules

xvi. Mechanical plans and sections

xvii. Preliminary HVAC and plumbing plans

xviii. Commodity materials specifications

xix. Process equipment specifications and/or data sheets

xx. Architectural renderings

xxi. Power distribution one lines

xxii. Motor Control Center one lines

xxiii. Power plans

xxiv. Lighting plans and schedules

xxv. Plan and Profile pipeline drawings, with detailed profile sheets where needed for major crossings

xxvi. Details of pipeline structures and accessories

xxvii. Scope descriptions for all equipment packages

xxviii. Scope descriptions for all subcontract packages

xxix. Internal quality control review and refinement before solicitation of proposals and/or submittal to City

xxx. Update quality assurance and quality control plan and log

xxxi. Project schedule update

- Four (4) hard copy sets and one electronic copy of drawings and specifications shall be provided to the City.

11. PRELIMINARY PRICING AND GMP

- As discussed above, concurrent with the workshop efforts to develop the preliminary estimate for the project, which shall establish the budgeting benchmark for the project for each of the areas of work under Phase 2.
- The preliminary budget shall include a well-defined work breakdown structure, and shall identify the preliminary cost elements of the Phase 2 work based on the known scope of work developed early in the design process. As elements of work are progressed, the preliminary budget shall be refined, and shall include subcontractor and vendor input in order to continue refinement of the preliminary budget. This shall include constructability reviews as part of the Phase 1 design process. The status of the budget shall be discussed during the progression of the design at regularly scheduled intervals, or more often as deemed necessary by the City and the DB. Additionally, the updates shall include vendor pricing efforts, scopes and other supporting documents, along with the estimate and quantities for the pricing effort for City review and comment.
- The preliminary budgeting and pricing shall include the following:
    i. Prepare preliminary conceptual estimate for the cost of Work under Phase 2
    ii. Prepare a preliminary PXP for Phase 2, including the preliminary schedule for the project
    iii. Meet with City to evaluate scope, cost and budget based on the scope of work developed, and evaluation of options based on current pricing
    iv. Produce bid packages for major equipment, and subcontract work and solicit competitive proposals from suppliers and constructors using an “open book” approach (i.e. full disclosure on cost on a transparent basis) that is shared with City, pumps, and other major commodity items.
- As the preliminary design evolves into the BODR, the preliminary budget (progressed and refined) shall be converted into a GMP with the following g information provided as backup for the basis of the GMP.
    i. Finalize detailed scopes of supply for all major equipment purchases.
    ii. Finalize the detailed overall project schedule.
    iii. Develop detailed scopes of supply for all major subcontracts for construction services.
    iv. Develop specifications in one of several formats for attachment to each equipment package and subcontract request for proposals (RFP). Specification formats include bulleted requirements, performance specifications, detailed prescriptive specifications, or manufacturer’s standard specifications depending on what is required to quantify and establish the appropriate quality for the procurement in which it will be used. Appropriate formats will be determined in consultation with City to match City’s definition of Best Value.
    v. Develop design drawings to appropriate levels to define quantities of materials and construction.
    vi. Distribute RFPs including the following list of items, as deemed appropriate and where practical, to a minimum of three (3) suppliers or subcontractors as for each procurement, soliciting priced proposals for each major procurement or subcontract: 1) invitation to bid, 2) scope of supply, 3) Terms & Conditions, 4) specifications, and 5) drawings.

vii. Receive and review proposals and seek clarifications as required.

viii. Assist City with updating the generation estimates based on the guaranteed equipment performance.

ix. Prepare bid tabs with exceptions noted and recommendations.

x. Meet with City to review bid tabs and recommendations. Adjust if required to meet City's definition of Best Value.

xi. Produce construction quantities based on the GMP level design drawings and specifications.

xii. Prepare detailed cost estimate for complete execution of the remaining engineering, procurement and construction necessary to complete the project.

xiii. Submit GMP to City, including the backup information and the draft Phase 2 contract, which will include the terms and conditions based on the current understanding between the DB and the City.

Exhibit C

Draft Progressive Design-Build Contract

The draft contract, including the agreement and all of its attachments, substantially in the form attached hereto as Exhibit C (Draft Progressive Design-Build Contract). The City expressly reserves the right unilaterally to change any provision or provisions of the Draft Progressive Design-Build Contract prior to or following issuance of the RFP.

WATER DESIGN-BUILD COUNCIL
AN ASSOCIATION OF LEADING DESIGN BUILDERS

PROGRESSIVE DESIGN-BUILD AGREEMENT FOR WATER AND WASTEWATER PROJECTS

WDBC Document No. W-1701-2015

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This document is provided by WDBC as a convenient reference tool for owners of water and wastewater facilities to use when drafting progressive design-build agreements that meet their particular needs. This document should not be understood to offer legal advice or another professional service.

If useful as a starting point, the user should review this document with its legal counsel and make necessary modifications to suit the user's particular project. Credit and acknowledgement in the final agreement should be given to WDBC for the source document.

PROGRESSIVE DESIGN-BUILD AGREEMENT
FOR
WATER AND WASTEWATER PROJECTS

This **AGREEMENT** is made effective as of _____, 2015, by and between the following parties, for services in connection with the Project identified below:

OWNER:

(Name and address)

DESIGN-BUILDER:

(Name and address)

PROJECT:

(Project name and location)

In consideration of the mutual covenants and obligations contained herein, Owner and Design-Builder now agree as follows:

Article 1.0 Scope of Work

1.1 Phased Delivery. Owner and Design-Builder will implement the Project on a phased basis.

1.2 Phase 1 Services. Owner has selected Design-Builder on the basis of Design-Builder's proposal for the performance of design, pricing, and other services for the Project during Phase 1. Design-Builder shall perform such services to the level of completion required for Design-Builder and Owner to establish the Contract Price for Phase 2, as set forth in Section 1.3 below. The Contract Price for Phase 2 shall be developed during Phase 1 on an "open-book" basis. Design-Builder's Compensation for Phase 1 Services is set forth in Section 1, *Phase 1*, of Attachment B, *Compensation*. The level of completion required for Phase 1 Services is defined in Attachment A, *Scope of Work* (either as a percentage of design completion or by defined deliverables).

1.3 Phase 2 Services. Design-Builder's Phase 2 services shall consist of the completion of design services for the Project, the procurement of all materials and equipment for the Project, the performance of construction services for the Project, the start-up, testing, and commissioning of the Facility, and the provision of warranty services, all as further described in Attachment A, *Scope of Work*. Upon receipt of Design-Builder's proposed Contract Price for Phase 2, Owner may (a) accept the Contract Price and issue a Notice to Proceed with Phase 2 services, or (b) enter into a negotiation with Design-Builder on the scope and Contract Price, and, if required, on the schedule, for Phase 2 services to achieve a mutually acceptable basis on which to proceed, or (c) reject Design-Builder's proposal for Phase 2 and either (i) cancel the Project, (ii) proceed with another Design-Builder, or (iii) exercise the "off-ramp" final design provisions of Section 1.4, *Off-Ramp*. The Contract Price for Phase 2 Services will be set forth in Section 2, *Phase 2*, of Attachment B, *Compensation*, when mutually agreed between the parties. Once the parties have agreed upon the Contract Price and Owner has issued a Notice to Proceed with Phase 2, Design-Builder shall perform the Phase 2 services, all as further described in Attachment A, *Scope of Work*, as it may be revised.

1.4 Off-Ramp

1.4.1 The parties acknowledge that Owner's ability to successfully complete the Project may be significantly impacted if Owner elects to terminate Design-Builder's services at the end of Phase 1, rather than proceeding to Phase 2 under Section 1.3 ("Phase 2 Services") and certain design subconsultants are not available to continue working on the Project. Consequently, Design-Builder hereby agrees that if Owner terminates Design-Builder for any reason, Owner shall have the right to contract directly with such design subconsultants for design-related services on this Project, and Design-Builder shall take such steps as are reasonably necessary to enable Owner to implement such relationship. Design-Builder shall provide in any design subconsultancy agreements that Owner shall have the right to negotiate directly with such design subconsultants for the continuation of their services with respect to the Project, and that any provisions with respect to copyright or the ownership of instruments of service confirm such right of Owner.

1.4.2 If the parties are unable to reach an agreement on Design-Builder's proposed Contract Price for Phase 2 under Section 1.3 within the time limit for acceptance specified in the Proposal, as may be extended by the mutual agreement of the parties, then the proposed Contract Price shall be deemed withdrawn and of no effect. In such event, Owner and Design-Builder shall meet and confer as to how the Project will proceed, with Owner having the following options:

.1 Owner may declare Phase 1 Services completed and authorize Design-Builder to continue to advance the final design of the Project as an extension of Phase 1 or as an Additional Service, as applicable; or

.2 Owner may terminate the relationship with Design-Builder and proceed to exercise its available options to perform the final design and construction with parties other than Design-Builder.

1.4.3 If Owner fails to exercise either of its options under Section 1.4.2 in a reasonable period of time, Design-Builder may give written notice to Owner that it considers this Agreement completed. If Owner fails to exercise either of the options under Section 1.4.2 within ten (10) days of receipt of Design-Builder's notice, then this Agreement shall be deemed completed.

1.4.4 If Owner terminates the relationship with Design-Builder under Section 1.4.2.2, or if this Agreement is deemed completed under Section 1.4.3, then Design-Builder shall have no further liability or obligations to Owner under this Agreement

1.5 Completion. Once Design-Builder has received a Notice to Proceed with Phase 2, Design-Builder shall perform all design and construction services, and provide all material, equipment, tools, labor, manuals, start-up, commissioning and testing services for the Project necessary to complete the Work described in and reasonably inferable from the Contract Documents, including Section 2 of Attachment A (Scope of Work). A requirement of Substantial Completion of the Work is that Design-Builder shall conduct performance tests to demonstrate that the Facility Performance Criteria have been met.

Article 2.0 Contract Documents

2.1 Contract Documents. The Contract Documents are comprised of the following:

.1 All written modifications, amendments and change orders to this Agreement issued in accordance with Attachment D, *General Condition*s;

.2 Written Supplementary Conditions, if any, to the General Conditions;

.3 The General Conditions set forth as Attachment D to this Agreement;

.4 This Agreement, including all exhibits and attachments;

.5 Construction Documents prepared and reviewed in accordance with GC 2.4;

.6 Wage Rate Determination

.7 The following other documents, if any, attached hereto: *(List, for example, Unit Price Schedules, Design-Builder's allowances, Design-Builder's rates for design services, and any other document Owner and Design-Builder elect to make a Contract Document)*

Article 3.0 Interpretation and Intent

3.1 Contract Documents. The Contract Documents are intended to permit the parties to complete the Work and all obligations required by the Contract Documents within the Contract Time(s) for the Phase 1 Compensation and the agreed Contract Price for Phase 2 Services. The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted in a manner consistent with construction and design industry standards. In the event of any inconsistency, conflict, or ambiguity between or among the Contract Documents, the Contract Documents shall take precedence in the order in which they are listed in Section 2.1 hereof, except that with respect to the attachments to this Agreement, Attachment F shall take precedence over the other attachments.

3.2 Meanings. Terms, words and phrases used in the Contract Documents, including this Agreement, shall have the meanings given them in GC 1.2.

3.3 Entire Agreement. The Contract Documents form the entire agreement between Owner and Design-Builder and by incorporation herein are as fully binding on the parties as if repeated herein in their entirety. No oral representations or other agreements have been made by the parties except as specifically stated in the Contract Documents.

Article 4.0 Ownership of Work Product

4.1 Owner's Limited License upon Payment in Full. Upon Owner's payment in full for the Work performed in Phase 1 under the Contract Documents, Design-Builder shall be deemed to have conveyed to Owner all drawings. Specifications and other documents and electronic data furnished by the Design-Builder to Owner under this Agreement (the "Work Product") developed by Design-Builder for Owner's use in the design, construction, occupancy and maintenance of the Project. Design-Builder shall require a similar provision conveying to Owner their respective Phase 1 design Work Product from each of Design-Builder'sdesign subconsultants. The conveyance of such Work Product shall not include any patent, trade secret, or other intellectual property owned by Design-Builder or its respective subconsultants prior to undertaking the Work hereunder, but Design-Builder and its subconsultants shall grant Owner a nonexclusive license to use such intellectual property included in the Work Product for Owner's design, construction, occupation, operation, maintenance and repair of the Project, but not for use on any other project or facility without Design-Builder's (or its subconsultant's) express written consent. Design-Builder shall include provisions in each of its subconsultants agreements reflecting the conveyance and license provided above.

4.2 Owner's Limited License upon Owner's Termination for Convenience or Design-Builder's Election to Terminate. If (i) Owner terminates the Project for its convenience as set forth in Article 8.0 ("Termination for Convenience"); (ii) Design-Builder elects to terminate this Agreement in accordance with GC 9.5 ("Design-Builder's Right to Terminate for Cause"); (iii) Owner elects the "off ramp" option provided in Section 1.4 of this Agreement Design-Builder shall, upon Owner's payment in full of the amounts due Design-Builder under the Contract Documents, be deemed to have granted Owner a limited license to use the Work Product to complete the Project and subsequently use and occupy the Project, conditioned on the following:

.1 Use of the Work Product is at Owner's sole risk without liability or legal exposure to Design-Builder or anyone working for or through Design-Builder, including Design Consultants of any tier (collectively the "Released Parties").

.2 If Owner elects the "off ramp" option provided in Section 1.4 of this Agreement retains any of the Design-Builder's design subconsultants, then the risk, liability and legal exposure with respect to Work Product shall be as set forth in the agreement or agreements between Owner and such design subconsultant or subconsultants.

4.3 **Owner's Limited License upon Design-Builder's Default**. If this Agreement is terminated due to Design-Builder's default pursuant to GC 9.3 ("Owner's Right to Perform and Terminate for Cause") and (i) it is determined that Design-Builder was in default, and (ii) Owner has fully satisfied all of its obligations under the Contract Documents, then Design-Builder shall grant Owner a limited license to use the Work Product in connection with Owner's completion, use and occupancy of the Project. This limited license is conditioned on Owner's express understanding that its use of the Work Product is at Owner's sole risk and without liability or legal exposure to any Released Party.

4.4 **Owner's Release for Use of Work Product**. Owner recognizes that in the event of an early termination of the Work, whether for convenience or for cause, Design-Builder will not have the opportunity to finish or to finalize its Work Product. Therefore, if Owner uses the Work Product under Sections 4.3 or 4.4 in whole or in part, Owner releases the Released Parties from any and all claims, damages, liabilities, losses and expenses, including attorneys' fees, arising out of or resulting from Owner's use of the Work Product.

Article 5.0 Contract Time

5.1 Dates of Commencement.

5.1.1 Design-Builder's Phase 1 Services shall commence within ten (10) days of Design-Builder's receipt of Owner's Phase 1 Notice to Proceed unless the parties mutually agree otherwise in writing. The parties shall use their best efforts to complete the Phase 1 Services within five (5) monthsfor completing 60% preliminary design following Owner's Phase 1 Notice to Proceed.

5.1.2 The Phase 2 Services shall commence on the date within ten (10) days of Design-Builder's receipt of Owner's Phase 2 Notice to Proceed ("Date of Commencement") unless the parties mutually agree otherwise in writing.

5.2 Substantial Completion and Final Completion

5.2.1 Substantial Completion of the entire Work shall be achieved no later than eighteen (18) months (548) calendar days after the Date of Commencement ("Scheduled Substantial Completion Date").

5.2.2 Interim milestones and/or Substantial Completion of identified portions of the Work shall be achieved in accordance with Attachment C, *Schedule*.

5.2.3 Final Completion of the Work or identified portions of the Work shall be achieved within sixty (60) days after Substantial Completion.

5.2.4 All of the dates set forth in this Article 5.0 shall be subject to adjustment in accordance with the General Conditions.

5.3 **Time is of the Essence.** Owner and Design-Builder mutually agree that time is of the essence with respect to the dates and times set forth in the Contract Documents. Owner agrees to provide all site access, materials, information, data, and approvals required under the Contract Documents in a timely manner, as required for Design-Builder to achieve the interim milestones of the Schedule and the Scheduled Substantial Completion Date.

Liquidated Damages. Design-Builder understands that if Substantial Completion is not achieved by the Scheduled Substantial Completion Date (as it may be extended hereunder), Owner will suffer damages which are difficult to determine and accurately specify. Design-Builder agrees that if Substantial Completion is not achieved by sixty (60) days after the

Scheduled Substantial Completion Date (the "LD Date"), Design-Builder shall pay Owner Five Thousand Dollars ($5,000.00) as liquidated damages for each day that Substantial Completion extends beyond the Substantial Completion Date. Once Substantial Completion is given The Design-Builder shall complete the punch list items and obtain the Owner's approval within 60 days of the Substantial Completion DateThe liquidated damages provided herein shall be in lieu of all liability for any and all extra costs, losses, expenses, claims, penalties and any other damages, whether special or consequential, and of whatsoever nature incurred by Owner which are occasioned by any delay in achieving Substantial Completion.

No Liquidated Damages shall be assessed in the event that Owner takes early beneficial occupancy of the Facility or makes partial use thereof for operating or commercial purposes before Substantial Completion is achieved.

Article 6.0 Compensation and Contract Price

6.1 Phase 1 Compensation. For the Phase 1 Services, Owner shall pay Design-Builder compensation in accordance with Section 1, *Phase 1*, of Attachment B, *Compensation*.

6.2 Phase 2 Contract Price. For the Phase 2 Services, Owner shall pay Design-Builder in accordance with Section 2, *Phase 2*, of Attachment B, *Compensation*, an agreed Contract Price, subject to adjustments made in accordance with the General Conditions.

Article 7.0 Procedure for Payment

7.1 Payment for Phase 1 Services

7.1.1 Owner shall compensate Design-Builder monthly for Phase 1 Services performed under the Agreement on the following basis:

(State whether a stipulated sum, actual cost per applicable clauses of Section 2.2 of Attachment B, or other basis. If a stipulated sum, state what portion of the sum shall be payable each month.)

ACTUAL COST OF WORK COMPLETED

7.1.2 Owner shall pay Design-Builder for Phase 1 Services within thirty (30) days after Owner's receipt of each properly submitted and accurate Application for Payment in accordance with the provisions of GC 5.1 ("Payment for Phase 1 Services") and 5.4 ("Withholding of Payments").

7.2 Progress Payments for Phase 2 Services

7.2.1 Design-Builder shall submit to Owner on or before the twenty-fifth(25th) day of each month, beginning with the first month after the Date of Commencement, Design-Builder's Application for Payment in accordance with GC 5.3 ("Monthly Progress Payments for Phase 2 Services").

7.2.2 Owner shall make payment within twenty-one (21) days after Owner's receipt of each properly submitted and accurate Application for Payment in accordance with GC 5.3, but in each case less the total of payments previously made, and less any amounts properly withheld under GC 5.4 ("Withholding of Payments") and Section 7.3 below ("Close-Out Item").

7.2.3 If Design-Builder's Fee is a fixed amount, the amount of Design-Builder's Fee to be included in Design-Builder's monthly Application for Payment and paid by Owner shall be proportional to the percentage of the Work completed, less payments previously made on account of Design-Builder's Fee.

7.3 Close-Out Item The documents required to close-out the project shall be incidental to the project and shall not be included in the schedule of values. The Contractor shall represent the faithful final completion of the Work, including but not limited to correction of incomplete or deficient items identified in the final inspection; final cleaning and removal of temporary facilities and controls; preparation and delivery of operation and maintenance manuals, record

drawings, and other project records and documents; completion of all required demonstrations and training; completion of all close-out submittals; and all other close-out procedures and requirements, if any, required for the Project. The construction close-out submittals shall be in accordance with the City of Rio Rancho Development Process Manual Volume II, Chapter 7, Section 2.

7.4 **Final Payment**. Design-Builder shall submit its Final Application for Payment to Owner in accordance with GC 5.8 ("Final Payment"). Owner shall make payment on Design-Builder's properly submitted and accurate Final Application for Payment within ten (10) days after Owner's receipt of the Final Application for Payment, provided that Design-Builder has satisfied the requirements for final payment set forth in GC 5.8.2.

7.5 **Interest.** Payments due and unpaid by Owner to Design-Builder, whether progress payments or final payment, shall bear daily interest commencing thirty (30) days after payment is due at the rate equivalent to one percent (1%) per annum, or the maximum rate permitted by applicable law, whichever is less, which Owner shall pay upon presentation of an invoice therefor.

7.6 **Record Keeping and Financial Controls.** Design-Builder acknowledges that this Agreement is to be administered on an "open book" arrangement relative to Costs of the Work, including the development and agreement upon the Contract Price for Phase 2 Services; provided that if Owner and Design-Builder convert to or agree to a lump sum form of compensation for the Phase 2 Contract Price ("Fixed Contract Price"), then the provisions of this Section 7.6 shall not apply to such Fixed Contract Price and any adjustments made on a lump sum basis. Design-Builder shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management, using accounting and control systems in accordance with generally accepted accounting principles, and in such accounts as may be necessary for Owner's utility accounting purposes. During the performance of the Work and for a period of three (3) years after Final Payment, Owner and Owner's accountants shall be afforded access from time to time, upon reasonable notice, to Design-Builder's records, books, correspondence, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to the Work, all of which Design-Builder shall preserve for a period of three (3) years after Final Payment, *provided, however*, that such access, review, and audit rights shall not extend to any compensation amounts established on the basis of fixed rates for overhead or fee, or an agreed fixed sum, or unit rates for any element of cost.

(The following Article 8 should only be used if the Owner and Design-Builder agree to establish their respective representatives at the time the Agreement is executed rather than during the performance of the Project.)

Article 8.0 Representatives of the Parties

8.1 Owner's Representatives

8.1.1 Owner designates the individual listed below as its Senior Representative ("Owner's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under GC 8.2.3: *(Identify individual's name, title, address and telephone numbers)*

8.1.2 Owner designates the individual listed below as its Owner's Representative, which individual has the authority and responsibility set forth in GC 3.4 ("Owner's Representative"): *(Identify individual's name, title, address and telephone numbers)*

8.2 Design-Builder's Representatives

8.2.1 Design-Builder designates the individual listed below as its Senior Representative ("Design-Builder's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under GC 8.2.3: *(Identify individual's name, title, address and telephone numbers)*

8.2.2 Design-Builder designates the individual listed below as its Design-Builder's Representative, which individual has the authority and responsibility set forth in GC 2.1.1: *(Identify individual's name, title, address and telephone numbers)*

Article 9.0 Indemnity, Insurance and Bonds

9.1 **Indemnity**. Indemnification obligations between the parties shall be as set forth in Article 4.0, above, and in Section 1.0, *Indemnity,* of Attachment E, *Indemnity, and Insurance & Bonding.*

9.2 **Insurance**. The parties shall procure the insurance coverages set forth in Attachment E, *Indemnity, Insurance & Bonding*, in accordance with the General Conditions.

9.3 **Bonds and Other Performance Security.** If so required, Design-Builder shall provide a performance bond and labor and material payment bond or other performance security in accordance with Section 8.0, *Bonds*, of Attachment E, *Indemnity, and Insurance & Bonding*.

Article 10.0 Other Provisions

10.1 Other provisions, if any, are as follows: (Insert any additional provisions)

Article 11.0 Limitations of Liability

11.1 **Consequential Damages.** In no event shall Owner be liable for any incidental, indirect, special, punitive, economic or consequential damages, (including but not limited to loss of profits) suffered or incurred by Design-Builder as a result of this Agreement or Design-Builder's performance or non-performance of the Work.

11.2 **Full Effect.** All waivers of and limitations of liability contained in this Agreement shall apply whether such liability is claimed to arise in contract, tort (including but not limited to negligence), breach of warranty, breach of contract, strict liability, or otherwise. This General Condition 2.12 takes precedence over any conflicting article or provision of this Agreement or any document incorporated into it or referred to by it.

In executing this Agreement, Owner and Design-Builder each individually represents that it has the necessary financial resources to fulfill its obligations under this Agreement, arid each has the necessary corporate approvals to execute this Agreement, and perform the services described herein.

OWNER:	**DESIGN-BUILDER:**
_____	_____
(Name of Owner)	*(Name of Design-Builder)*
_____	_____
(Signature)	*(Signature)*
_____	_____
(Printed Name)	*(Printed Name)*

_____	_____
(Title)	*(Title)*

ATTACHMENT A
SCOPE OF WORK

SECTION 1 PHASE 1

1.0 Design-Builder shall exercise reasonable skill and judgment in the furnishing of design services. Architectural and engineering services shall be furnished by licensed employees of Design-Builder, or by consultants or subcontractors as permitted by the law of the state where the Project is located. Design-Builder is responsible for the following Preliminary Design-Build Services:

1.1 Preliminary Evaluation. Design-Builder shall provide a preliminary evaluation of the Project's feasibility based on the Owner's Program and other relevant information.

1.2 Preliminary Schedule. Design-Builder shall provide a preliminary schedule for Owner's written approval. The schedule shall show the activities of Owner and Design-Builder necessary to meet Owner's completion requirements.

1.3 Preliminary Estimate. Design-Builder shall prepare for Owner's written approval a preliminary estimate utilizing area, volume, or similar conceptual estimating techniques. The level of detail for the estimate shall reflect the Owner's Program and any additional available information. If the preliminary estimate exceeds Owner's budget, Design-Builder shall make written recommendations to Owner.

1.4 Preliminary Design Documents. Design-Builder shall submit for Owner's written approval Preliminary Design Documents, based on the Owner's Program and other relevant information. Preliminary Design Documents shall include drawings, outline specifications and other conceptual documents as further defined herein illustrating the Project's basic elements, scale and their relationship to the site. One set of these Documents shall be furnished to Owner. Design-Builder shall update the preliminary schedule and preliminary estimate based on the Preliminary Design Documents.

1.5 Division of Responsibility. Design-Builder shall prepare for Owner's review a proposed Division of Responsibility with respect to the Project, showing (a) equipment, materials, labor, and services to be provided by Design-Builder, (b) access, equipment, materials, data, information, and approvals to be provided by Owner, and (c) any items necessary for the Project to be provided by third parties.

1.6 Contract Price Proposal. Based on the Preliminary Design-Build Services, Design-Builder shall prepare for Owner's consideration a proposed Contract Price for the Phase 2 Services.

1.7 Additional Services. Design-Builder shall provide the following additional services, if any:

[Owner to insert description of additional services for Phase 1. Such additional services, for example, may include the procurement of long lead-time equipment or materials for the Phase 2 construction work.]

ADD:

1. Procurement of long-lead time equipment or materials
2. Easement verification and required plat(s)
3. Land appraisal
4. Coordinating with outside entities (i.e. City of Albuquerque Design Review Committee, the Water Utility Authority, Intel, Club Rio Golf Course.

SECTION 2 PHASE 2

2.1 Completion of Design

2.1.1 Drawings and Specifications

Design-Builder shall submit for Owner's review and written comment Drawings and Specifications based on the Contract Documents and the Preliminary Design Documents prepared under Phase 1 and any further development of Contract Documents that have been approved in writing by Owner. The Drawings and Specifications shall set forth in detail the requirements for construction of the Work, and shall be based upon codes, laws or regulations enacted at the time of their preparation, *provided, however*, that if such codes, law, or regulations have changed between the date on which Design-Builder submitted its proposed Contract Price and the date of preparation, then Design-Builder shall be entitled to an equitable adjustment in the compensation and/or the Schedule. Construction shall be in accordance with these approved Drawings and Specifications. One set of these documents shall be furnished to Owner prior to commencement of construction.

2.1.2 Manuals

Design-Builder shall provide a Commissioning and Startup Manual and an Operations and Maintenance Manual for the Facility, each in such form and in such numbers as the parties may agree, and such other manuals as the parties may agree. All such manuals shall be provided no later than ninety (90) days prior to the scheduled date for the commissioning and startup of the Facility.

2.2 Construction Services

2.2.1 Notice to Proceed Following Owner's written acceptance of Drawings and Specifications under Paragraph 2.1.1 above, Design-Builder will commence the performance of Construction Services.

2.2.2 Completion In order to complete the Work, Design-Builder shall provide all necessary construction supervision, inspection, construction equipment, labor, materials, tools, and subcontracted items.

2.2.3 Compliance Design-Builder shall give all notices and comply with all laws and ordinances legally enacted at the date of execution of the Agreement which govern the proper performance of the Work.

2.2.4 Schedule Design-Builder shall prepare and submit a Schedule of Work in the form of a revised Attachment C, *Schedule*, for Owner's written approval. This Schedule shall indicate the dates for the start and completion of the various stages of the construction including project milestones and the dates when information and approvals are required from Owner. It shall be revised as required by the conditions of the Work. The Schedule of Work shall be the basis for Design-Builder's management and control of the project and its reporting of progress to Owner.

2.2.5 Permits Design-Builder shall obtain permits and governmental approvals as provided in GC 2.6.

2.2.6 Safety and Hazardous Conditions Design-Builder shall take necessary precautions for the safety of its employees on the Project, and shall comply with all applicable provisions of federal, state and municipal safety laws to prevent accidents or injury to persons on, about or adjacent to the Site. Design-Builder, directly or through its Subcontractors, shall erect and properly maintain at all times, as required by the conditions and progress of the Work, necessary safeguards for the protection of workers and the public. However, Design-Builder shall not be responsible for the elimination or abatement of any pre-existing Hazardous Materials at the site or any safety hazards created or otherwise resulting from work at the Site carried on by Owner or its employees, agents, separate contractors or tenants. Owner agrees to cause its employees, agents, separate

contractors, and tenants to abide by and fully adhere to all applicable provisions of federal, state and municipal safety laws and regulations. The above provision shall not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with all applicable provisions of relevant laws.

2.2.7 **Reports** As provided in GC 2.1.2, Design-Builder shall provide monthly written reports to Owner on the progress of the Work. If the form of compensation of the Phase 2 Contract Price is a Guaranteed Maximum Price or Cost Reimbursable plus Fixed Design-Builder's Fee, then such monthly reports shall include a system of cost reporting for the Work, and also including regular monitoring of actual costs for activities in progress and estimates for uncompleted tasks and proposed changes in the Work. If the form of compensation is a stipulated sum, the progress reporting will address progress and payment against an agreed upon schedule of values established prior to the commencement of Phase 2 of the work by the Design-Builder.

2.2.8 **Site Maintenance** At all times Design-Builder shall maintain the Site of the Work free from debris and waste materials resulting from the Work. At the completion of the Work, Design-Builder shall remove from the premises all construction equipment, tools, surplus materials, waste materials and debris.

2.3 Hazardous Material

2.3.1 A Hazardous Material is any substance or material identified now or in the future as hazardous under any federal, state or local law or regulation, or any other substance or material which may be considered hazardous or otherwise subject to statutory or regulatory requirements governing handling, disposal and/or clean-up. Design-Builder shall not be obligated to commence or continue Work until any known or suspected Hazardous Material discovered at the Site has been removed, rendered or determined to be harmless by Owner as certified by an independent testing laboratory and approved by the appropriate government agency.

2.3.2 If after the commencement of the Work, known or suspected Hazardous Material or Hazardous Conditions are discovered at the Site, Owner and Design-Builder shall proceed in accordance with the requirements of GC 4.1 ("Hazardous Conditions & Differing Site Conditions").

2.4 Patents & Copyright

2.4.1 Design-Builder shall pay all royalties and license fees which may be due on the inclusion of any patented or copyrighted materials, methods or systems selected by Design-Builder and incorporated in the Work. Design-Builder agrees to defend, indemnify and hold Owner harmless from all suits or claims for infringement of any patent rights or copyrights arising out of such selection.

2.4.2 Owner shall pay all royalties and license fees which may be due on the inclusion of any patented or copyrighted materials, methods or systems selected by Owner, specified in Attachment F - Owner's Project Criteria or otherwise directed by Owner to be incorporated in the Work. In such event, Owner shall be solely liable for its use of such patented or copyrighted materials, methods or systems selected by Owner, and shall release Design-Builder from any suits or claims of infringement of any patent rights or copyrights arising out of any such patented or copyrighted materials, methods or systems specified by Owner.

2.5 Warranties and Completion

2.5.1 Design-Builder's warranty to Owner with respect to construction, including all materials and equipment furnished as part of the construction, shall be as specified in GC 2.9 ("Construction Warranty").

2.5.2 Design-Builder's warranty to Owner with respect to the performance of the Facility upon completion shall be as specified in GC 2.11 ("Performance Warranty").

2.5.3 Those products, equipment, systems or materials incorporated in the Work at the direction of or upon the specific request of Owner shall be covered exclusively by the warranty of the manufacturer. There are no warranties which extend beyond the description on the face thereof.

2.5.4 **All other warranties, express or implied, including any warranty of merchantability and any warranty of fitness for a particular purpose are expressly disclaimed.**

2.5.5 Design-Builder shall secure required certificates of inspection, testing or approval and deliver them to Owner.

2.5.6 Design-Builder shall collect all written warranties and equipment manuals and deliver them to Owner.

2.5.7 With the assistance of Owner's maintenance personnel, Design-Builder shall direct the checkout of utilities and operations of systems and equipment for readiness, and assist in their commissioning and initial start-up and testing, all in accordance with the Commissioning and Startup Manual to be provided by Design-Builder.

2.6 Limitations of Liability

2.6.1 **Limitation of Liability.** Design-Builder's liability for Owner's damages for any cause or combination of causes (including any liquidated damages), whether based upon contract, tort, breach of warranty, negligence, strict liability, or otherwise, shall be limited as set forth in Article 11 of this Agreement.

2.7 Additional Services

Design-Builder shall provide or procure the following Additional Services upon the request of Owner unless such services are specifically included in the Owner's Program or in an attachment to this Agreement. A written agreement between Owner and Design-Builder shall define the extent of such Additional Services and compensation therefor.

[The additional services described below are illustrative. The Owner should revise as appropriate to the needs of its project.]

2.7.1 Documentation of the Owner's Program, establishing the Project budget (beyond the Cost of the Work), investigating sources of financing, general business planning and other information and documentation as may be required to establish the feasibility of the Project.

2.7.2 Consultations, negotiations, and documentation supporting the procurement of Project financing.

2.7.3 Surveys, site evaluations, legal descriptions and aerial photographs.

2.7.4 Appraisals of existing equipment, existing properties, new equipment and developed properties.

2.7.5 Soils, subsurface and environmental studies, reports and investigations required for submission to governmental authorities or others having jurisdiction over the Project.

2.7.6 Consultations and representations other than normal assistance in securing building permits, before governmental authorities or others having jurisdiction over the Project.

2.7.7 Investigation or making measured drawings of existing conditions or the verification of drawings or other Owner-provided information.

2.7.8 Artistic renderings, models and mockups of the Project or any part of the Project or the Work.

2.7.9 Inventories of existing furniture, fixtures, furnishings and equipment which might be under consideration for incorporation into the Work.

2.7.10 Interior design and related services including procurement and placement of furniture, furnishings, artwork and decorations.

2.7.11 Making revisions to the Preliminary Design, Design Development, or Construction Documents after they have been reviewed by Owner, and which are due to causes beyond the control of Design-Builder.

2.7.12 Design, coordination, management, expediting and other services supporting the procurement of materials to be obtained, or work to be performed, by Owner, including but not limited to telephone systems, computer wiring networks, sound systems, alarms, security systems and other specialty systems which are not a part of this Agreement.

2.7.13 Estimates, proposals, appraisals, consultations, negotiations and services in connection with the repair or replacement of an insured loss.

2.7.14 The premium portion of overtime work ordered by Owner including productivity impact costs.

2.7.15 Document reproduction is incidental to the project.

2.7.16 Obtaining service contractors and training maintenance personnel, assisting and consulting in the use of systems and equipment after the initial startup, and adjusting and balancing of systems and equipment.

2.7.17 Services for tenant or rental spaces or third-party facilities not a part of this Agreement.

2.7.18 Services requested by Owner or required by the Work which are not specified in the Contract Documents and which are not normally part of generally accepted design, construction and start-up and commissioning practice.

2.7.19 Serving or preparing to serve as an expert witness on behalf of Owner in connection with any proceeding, legal or otherwise, regarding the Project.

2.7.20 Preparing reproducible record drawings from marked-up prints, drawings or other documents that incorporate significant changes in the Work made during the Construction Phase.

2.8 Subcontractors. Work not performed by Design-Builder with its own forces shall be performed by Subcontractors. The provisions of this Agreement and the associated Contract Documents shall be incorporated into all major subcontracts for construction.

2.8.1 Retaining Subcontractors Design-Builder shall not retain any Subcontractor to whom Owner has a reasonable and timely objection, *provided* that Owner agrees to compensate Design-Builder for any additional costs incurred by Design-Builder as provided in GC 2.7.3. Design-Builder shall not be required to retain any Subcontractor to whom Design-Builder has a reasonable objection.

2.8.2 Management of Subcontractors Design-Builder shall be responsible for the management of Subcontractors in the performance of their work.

2.8.3 Assignment of Subcontract Agreements Design-Builder shall provide for assignment of subcontract agreements in the event that Owner terminates this Agreement for cause as provided in GC 11.2 ("Owner's Right to Perform and Terminate for Cause"). Following such termination, Owner shall notify in writing those subcontractors whose assignments will be accepted, subject to the rights of sureties.

SECTION 3 OWNER'S RESPONSIBILITIES

3.1 Information and Services Provided by Owner

3.1.1 Owner shall provide full information regarding requirements for the Project in accordance with GC 3.2 and this Section 3.1, including the Owner's Program, Facility Performance Criteria and other relevant information, within the times specified in Attachment C, *Schedule*.

3.1.2 Owner shall provide:

1. all necessary information describing the physical characteristics of the site, including surveys, site evaluations, legal descriptions, existing conditions, subsurface and environmental studies, utilities, reports and investigations;

2. inspection and testing services during construction as required by law or as mutually agreed; and

3. unless otherwise provided in the Contract Documents, necessary approvals, site plan review, rezoning, easements and assessments, necessary permits, fees and charges required for the construction, use, occupancy or renovation of permanent structures, including legal and other require services.

3.1.3 Design-Builder shall be entitled to rely on the completeness and accuracy of the information and services required by this Section 3.1.

3.2 Owner's Responsibilities during Phase 1

3.2.1 If not developed by Owner and Design-Builder under a prior agreement, Owner shall provide the Owner's Program at the inception of the Design Phase. Owner shall review and timely approve schedules, estimates, and design documents furnished during the Design Phase as set forth in Section 3.1.

3.2.2 Owner shall arrange for access to and make all provisions for Design-Builder to enter upon public and private property as required for Design-Builder to perform Phase 1 services hereunder.

3.2.3 Design-Builder shall be entitled to rely on the completeness and accuracy of the information and documents to be provided by Owner under this Section 3.2.

3.3 Owner's Responsibilities during Phase 2 Design and Construction

3.3.1 Owner shall review and approve the Schedule as set forth in Attachment C, *Schedule*, as revised.

3.3.2 If Owner becomes aware of any error, omission or failure to meet the requirements of the Contract Documents or any fault or defect in the Work, Owner shall give written notice to Design-Builder within five (5) days of so becoming aware.

3.3.3 Unless otherwise agreed by Design-Builder, Owner shall communicate with Design-Builder's Subcontractors, Suppliers, and Design Consultants only through Design-Builder. Owner shall have no contractual obligations to Subcontractors or Suppliers or Design Consultants.

3.3.4 Owner may provide insurance for the Project as provided in Attachment E, *Indemnity, Insurance & Bonding*.

3.3.5 Owner shall provide timely, clear and adequate access to the site and any laydown areas.

3.3.6 Owner shall provide all equipment, materials, information, data, and approvals required for Design-Builder's performance of the Work in a timely and complete manner.

3.3.7 Design-Builder shall be entitled to rely on the completeness and accuracy of the information and documents to be provided by Owner under this Section 3.3.

3.4 Owner's Representative

Owner's representative, designated in writing and agreed to by Design-Builder:

.1 shall be fully acquainted with the Project;

.2 agrees to furnish the information and services required of Owner when required so as not to delay the performance of the Work; and

.3 have authority to bind Owner in all matters requiring Owner's approval, authorization or written notice.

If Owner changes its representative or the representative's authority as listed above, Owner shall notify Design-Builder in advance in writing. Design-Builder shall have the right to approve any successor representative.

ATTACHMENT B
COMPENSATION

SECTION 1 PHASE 1 SERVICES

[to be inserted based on RFP and proposal]

SECTION 2 CONTRACT PRICE FOR PHASE 2 SERVICES

1.0 Choice of Compensation Method for Phase 2 Services

1.1 The parties may elect to use the Guaranteed Maximum Price ("GMP") form of compensation, a stipulated sum (lump sum) form of compensation, or a cost-reimbursable form of compensation with a Fixed Fee for the Contract Price for the Phase 2 Services.

2.0 <u>Option 1:</u> Guaranteed Maximum Price ("GMP")

2.1 Use of a GMP for Phase 2 Work

2.1.1 Design-Builder agrees that upon Owner's request it will submit its proposal for the Contract Price on the basis of a GMP for the Phase 2 Services. Design-Builder does not guarantee any specific line item provided as part of the GMP (unless otherwise provided), but agrees that it will be responsible for paying all costs of completing the Work which exceed the GMP, as adjusted in accordance with the Contract Documents. Documents used as a basis for the GMP shall be identified in an agreed revision to this Attachment.

2.1.2 The GMP will include a Contingency which is available for Design-Builder's exclusive use for costs that are incurred in performing the Work that are not included in a specific line item or the basis for a Change Order under the Contract Documents.

2.1.3 If the parties so agree, the Phase 2 Services may be divided into separate work packages or task orders, and Design-Builder shall propose and Owner shall consider for acceptance a separate GMP for each such work package or task order.

2.2 GMP Established at the Commencement Date of Phase 2

2.2.1 GMP Proposal. Design-Builder shall submit to Owner a GMP Proposal for the Contract Price as part of the Phase 1 Services which shall include the following, unless the parties mutually agree otherwise:

.1 A proposed GMP, which shall be the sum of:

i. Design-Builder's Fee as defined in Section 2, *Phase 2*, of Attachment B, *Compensation*; and

ii. the estimated Cost of the Work as defined in Section 2, *Phase 2*, of Attachment B, *Compensation*, inclusive of any Design-Builder's Contingency as defined in Section 1.1.2 above and any allowances and unit prices

.2 A list of the drawings and specifications, including all addenda, used as the basis for the GMP proposal;

.3 A list of the assumptions, exceptions, and clarifications made by Design-Builder in the preparation of the GMP Proposal, which list is intended to supplement the information contained in the drawings and specifications;

.4 The Scheduled Substantial Completion Date upon which the proposed GMP is based, to the extent said date has not already been established under Paragraph 5.2.1of the

Agreement, and a schedule upon which the Scheduled Substantial Completion Date is based;

.5 If applicable, a list of allowances and a statement of their basis;

.6 If applicable, a schedule of alternate prices;

.7 If applicable, a schedule of unit prices;

.8 If applicable, a statement of Additional Services; and

.9 The time limit for acceptance of the GMP Proposal.

2.2.2 **Review and Adjustment to GMP Proposal.** After submission of the GMP Proposal, Design-Builder and Owner shall meet to discuss and review the GMP Proposal. If Owner has any comments regarding the GMP Proposal, or finds any inconsistencies or inaccuracies in the information presented, it shall promptly give written notice to Design-Builder of such comments or findings. If appropriate, Design-Builder shall, upon receipt of Owner's notice, make appropriate adjustments to the GMP Proposal.

2.2.3 **Acceptance of GMP Proposal**. If Owner accepts the GMP Proposal, as may it be amended by Design-Builder, the GMP and its basis shall be set forth in an amendment to this Agreement.

2.2.4 **Failure to Accept the GMP Proposal.** If Owner rejects the GMP Proposal, or fails to notify Design-Builder in writing on or before the date specified in the GMP Proposal that it accepts the GMP Proposal, the GMP Proposal shall be deemed withdrawn and of no effect. In such event, Owner and Design-Builder shall meet and confer as to how the Project will proceed, with Owner having the following options:

.1 Owner may suggest modifications to the GMP Proposal, whereupon, if such modifications are accepted in writing by Design-Builder, the GMP Proposal shall be deemed accepted and the parties shall proceed in accordance with Section 2.2.3 above;

.2 Owner may authorize Design-Builder to continue to proceed with the Work on the basis of reimbursement as provided in Section 2, *Phase 2*, of Attachment B, *Compensation*, without a GMP, in which care all references in this Agreement to the GMP shall not be applicable; or

.3 Owner may terminate this Agreement for convenience in accordance with GC 9.2 ("Termination for Convenience").

If Owner fails to exercise any of the above options, Design-Builder shall have the right to (i) continue with the Work as if Owner had elected to proceed in accordance with Item .2 above, and be paid by Owner accordingly, unless and until Owner notifies it in writing to stop the Work, or (ii) suspend performance of Work in accordance with GC 9.4 ("Design-Builder's Right to Stop Work").

2.2.5 **Conversion**. The parties may agree at any time to convert the agreed GMP to a Fixed Contract Price utilizing a stipulated sum for the completion of the Phase 2 Services.

2.3 **Savings**

2.3.1 **Savings Sharing**. If the Design-Builder's compensation is based upon a GMP, the sum of the actual Cost of the Work and Design-Builder's Fee (and, if applicable, any prices established under Paragraph 6.2 of the Agreement) is less than the GMP, as such GMP may have been adjusted over the course of the Project, the difference ("Savings") shall be shared as follows:

(Choose one of the following :)

_____percent (____%) to Design-Builder and _____ percent (____%) to Owner.

or

The first _____Dollars ($_____) of Savings shall be provided to *(choose either Design-Builder or Owner)* _____with the balance of Savings, if any, shared _____ percent (_____%) to Design-Builder and _____ percent (____%) to Owner.

2.3.2 **Savings Calculation**. Savings shall be calculated and paid as part of Final Payment under Section 7.4 of the Agreement, with the understanding that to the extent Design-Builder incurs costs after Final Completion which would have been payable to Design-Builder as a Cost of the Work, Design-Builder shall be entitled to payment from Owner for that portion of such costs that were distributed to Owner as Savings.

2.4 **Basis.** Documents used as a basis for the GMP shall be identified in a mutually agreed revision to this Attachment.

3.0 **<u>Option</u> 2: Fixed Contract Price based upon a Stipulated Sum**

3.1 If the parties initially agree that the Phase 2 Services shall be performed on the basis of a Stipulated Sum, then the Design-Builder shall develop the proposed Contract Price on an "open book" basis and present it to Owner for review and approval. Such Fixed Contract Price Proposal shall include all the items listed in subsection 2.2.1 for a GMP Proposal, unless otherwise agreed.

3.2 Once the Fixed Contract Price is agreed, then this Agreement shall be amended to establish the Fixed Contract Price as the basis for the performance of the Phase 2 Services and such Fixed Contract Price shall not be subject to financial audit, nor shall Design-Builder be required to report or otherwise provide information to Owner as to actual costs incurred.

ATTACHMENT C
SCHEDULE

ATTACHMENT D
GENERAL CONDITIONS

GC 1.0 General

1.1 Mutual Obligations

1.1.1 Owner and Design-Builder agree to cooperate fully with each other at all time, to permit each party to realize the benefits afforded under the Contract Documents.

1.1.2 These General Conditions ("GC") may be supplemented, varied, or revised through Supplementary Conditions ("SC"), as attached.

1.2 Basic Definitions

1.2.1 *Agreement* refers to the executed contract between Owner and Design-Builder with respect to the Project.

1.2.2 *Bonus Date* has the meaning given in Section 5.5 of the Agreement.

1.2.3 *Change in Law* has the meaning given in GC 8.1.2.

1.2.4 *Changed Condition* has the meaning given in GC 8.1.

1.2.5 *Change Order* has the meaning given in GC 7.1.

1.2.6 *Construction Warranty* has the meaning given in GC 2.9.

1.2.7 *Construction Warranty Period* is that period specified in GC 2.10.1.

1.2.8 *Contract Documents* has the meaning given in Section 2.1 of the Agreement.

1.2.9 *Contract Price* has the meaning given in Section 6.2 of the Agreement and Section 2 of Attachment B, Compensation.

1.2.10 *Contract Time(s)* shall mean the times for performance of the Work by Design-Builder and the delivery of items and approvals by Owner set forth in Article 5 ("Contract Time") of the Agreement and Attachment C, Schedule.

1.2.11 *Day* or *Days* shall mean calendar days unless otherwise specifically noted in the Contract Documents.

1.2.12 *Design Consultant*, if any, is a qualified, licensed design professional who is not an employee of Design-Builder, but is retained by Design-Builder, or employed or retained by anyone under contract with Design-Builder or Subcontractor, to furnish design services required under the Contract Documents.

1.2.13 *Design Criteria* means those documents which define the Owner's criteria for the scope, quality, and function of the proposed facility, and which may be expanded to outline Owner's project cost limitations and schedule requirements.

1.2.14 *Differing Site Conditions* has the meaning given in GC 4.2.1.

1.2.15 *Early Completion Bonus* has the meaning given in Section 5.5 of the Agreement.

1.2.16 *Electronic Data* has the meaning given in GC 11.1.1.

1.2.17 *Extended Performance Warranty* is Design-Builder's warranty under GC 2.11.2 that the completed Facility shall be capable of meeting the Performance Standards in Attachment F throughout the Performance Warranty Period.

1.2.18 *Facility* is the physical facility to be designed and constructed for Owner as part of the Project.

1.2.19 *Facility Performance Criteria* means the Owner's criteria for the performance of the Facility once constructed, and may be divided into two parts, (i) program requirements such as the physical, functional, and quantitative needs of the project, and (ii) performance requirements for the Facility and its component parts, including considerations of the specified quantitative and qualitative limits for inputs, the desired condition of Facility outputs, and the efficiency of the Facility in producing such outputs.

1.2.20 *Final Acceptance* of the Project shall be deemed to have occurred upon final payment pursuant to GC 5.8.

1.2.21 *General Conditions* refer to this Attachment D, *General Conditions*.

1.2.22 *Guaranteed Maximum Price or GMP* means the aggregate amount of the Design-Builder's Fee and the Cost of the Work that Owner shall be obligated to pay Design-Builder for performance of the Phase 2 Services.

1.2.23 *Hazardous Conditions* are any materials, wastes, substances and chemicals deemed to be hazardous under applicable Legal Requirements, or which handling, storage, remediation, or disposal are regulated by applicable Legal Requirements.

1.2.24 *Hazardous Materials* has the meaning given in Section 2.3 of Attachment A, Scope of Work.

1.2.25 *Released Parties*, with respect to Work Product, has the meaning given in Section 4.3.1 of the Agreement.

1.2.26 *Legal Requirements* are all federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the Project or Site, the practices involved in the Project or Site, or any Work which are applicable as of the date of Design-Builder's proposal to Owner, and, subject to the Change in Law provisions of GC 8.1.2, which become applicable during the Contract Time.

1.2.27 *Liquidated Damages* means such damages as may be assessed under Section 5.4 of the Agreement.

1.2.28 *Liquidated Damages Date* has the meaning given in Section 5.4 of the Agreement.

1.2.29 *Manuals* means the Commissioning and Startup Manual and the Operations and Maintenance Manual provided for in Section 2.1.2 of the Agreement, and such other manuals as the parties may agree to be provided.

1.2.30 *Owner's Program* means the overall definition of Owner's requirements for the Project, including Owner's Project Criteria, all materials, equipment and other items to be provided by Owner, and all items to be provided by third parties.

1.2.31 *Owner's Project Criteria* are developed by or for Owner to describe Owner's Program requirements and objectives for the Project, including use, space, price, time, site and expandability requirements, as well as submittal requirements and other requirements governing Design-Builder's performance of the Work. Owner's Project Criteria may include conceptual documents, Design Criteria, Facility Performance Criteria, performance tests, wage rate requirements, MBE/WBE requirements, and other Project-specific technical materials and requirements.

1.2.32 *Owner's Representative* means the individual selected and authorized by Owner to act upon Owner's behalf with respect to Design-Builder and the performance of this Agreement, in accordance with GC 3.4, and identified by Owner in writing within ten (10) days of execution of this Agreement.

1.2.33 *Performance Warranty* has the meaning given in GC 2.11.

1.2.34 *Performance Warranty Period* means the period ending eighteen (18) months following successful completion of the performance tests.

1.2.35 *Project* is the design and construction of the Owner's Facility, including start-up and the provision of manuals, warranties, as-built drawings and specifications, spare parts, and all other items required to be provided under this Agreement.

1.2.36 *Schedule* means that Schedule for the performance of the Work in accordance with the Contract Time(s) set forth in Attachment C, *Schedule*, as revised from time to time.

1.2.37 *Site* is the land or premises on which the Facility is located, including any separate laydown or storage areas.

1.2.38 *Subcontractor* is any person or entity retained by Design-Builder as an independent contractor to perform a portion of the Work and shall include materialmen and suppliers.

1.2.39 *Sub-Subcontractor* is any person or entity retained by a Subcontractor as an independent contractor to perform any portion of a Subcontractor's Work and shall include materialmen and suppliers.

1.2.40 *Substantial Completion* is the date on which the Work, or an agreed upon portion of the Work, is sufficiently complete (including performance testing) so that Owner can occupy and use the Project or a portion thereof for its intended purposes.

1.2.41 *Certificate of Substantial Completion* is that Certificate issued by Owner to Design-Builder pursuant to GC 5.7.1.

1.2.42 *Uncontrollable Circumstances* are those acts, omissions, conditions, events, or circumstances beyond the control of Design-Builder and due to no fault of its own or those for whom Design-Builder is responsible. By way of example (and not limitation), Uncontrollable Circumstances include acts or omissions of Owner or anyone under Owner's control (including separate contractors), changes in the Work, Differing Site Conditions, Hazardous Conditions, wars, floods, labor disputes, unusual delay in transportation, epidemics, earthquakes, adverse weather conditions not reasonably anticipated, and other circumstances beyond the reasonable control of the party affected.

1.2.43 *Work* is comprised of all Design-Builder's design, construction, start-up, warranty, and other services required to by the Contract Documents, including procuring and furnishing all materials, equipment, services and labor reasonably inferable from the Contract Documents, plus manuals and documentation required by the Contract Documents.

GC 2.0 Design-Builder's Services and Responsibilities

2.1 General Services

2.1.1 Design-Builder's Representative shall be reasonably available to Owner and shall have the necessary expertise and experience required to supervise the Work. Design-Builder's Representative shall communicate regularly with Owner and shall be vested with the authority to act on behalf of Design-Builder. Design-Builder's Representative may be replaced only with the mutual agreement of Owner and Design-Builder.

2.1.2 Design-Builder shall provide Owner on a monthly basis a status report detailing the progress of the Work, including whether (i) the Work is proceeding according to schedule, (ii) discrepancies, conflicts, or ambiguities exist in the Contract Documents that require resolution, (iii) health and safety issues exist in connection with the Work, (iv) other items require resolution so as not to jeopardize Design-Builder's ability to complete the Work for the Contract Price and within the Contract Time(s), and (v) such other items as Owner may reasonably require.

2.1.3 Design-Builder shall prepare and submit, at least three (3) days prior to the meeting contemplated by GC 2.1.4, a preliminary schedule for the execution of the Work for Owner's review and response. The schedule shall indicate the dates for the start and completion of the various stages of Work, including the dates when Owner information and approvals are required to enable Design-Builder to achieve the Contract Time(s). When agreed between the parties, such schedule shall be attached hereto as Attachment C, Schedule. The Schedule shall be revised as required by conditions and progress of the Work, but such revisions shall not relieve Design-Builder of its obligations to complete the Work within the Contract Time(s), as such dates may be adjusted in accordance with the Contract Documents. Owner's review of and response to the Schedule shall not be construed as relieving Design-Builder of its complete and exclusive control over the means, methods, sequences and techniques for executing the Work.

2.1.4 The parties will meet, within seven (7) days after execution of the Agreement, to discuss issues affecting the administration of the Work and to implement the necessary procedures, including those relating to submittals, review and approval turn-around times contained in the Schedule, and payment, to facilitate the ability of the parties to perform their obligations under the Contract Documents.

2.1.5 At the completion of Phase 1 Services, the parties may agree upon a revised Schedule to reflect the intended scope of Phase 2 Services and as the basis for the Contract Price to be agreed for the Phase 2 services.

2.2 Design Professional Services

2.2.1 Design-Builder shall, consistent with applicable state licensing laws, provide through qualified, licensed design professionals employed by Design-Builder, or procured from a qualified, independent licensed Design Consultant, the necessary design services, including architectural, engineering and other design professional services, for the preparation of the required drawings, specifications and other design submittals to permit Design-Builder to complete the Work consistent with the Contract Documents. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any independent Design Consultant.

2.3 Standard of Care for Design Professional Services

2.3.1 The standard of care for all design professional services performed to execute the Work shall be the care and skill ordinarily used by members of the design profession practicing under similar conditions at the same time and locality of the Project. Design-Builder, its Design Consultants, and its Subcontractors may reasonably rely on the accuracy and completeness of Owner's Project Criteria.

2.4 Design Development Services

2.4.1 Design-Builder and Owner shall, consistent with any applicable provision of the Contract Documents, agree upon any interim design submissions that Owner may wish to review, which interim design submissions may include design criteria, drawings, diagrams and specifications setting forth the Project requirements. Such agreement may specify the percentage completion of the design documents to be submitted for such review and comment. On or about the time of the scheduled submissions, Design-Builder and Owner shall meet and confer about the submissions, with Design-Builder identifying during such meetings, among other things, the evolution of the design and any significant changes or deviations from the Contract Documents, or, if applicable, previously submitted design submissions. Minutes of the meetings will be maintained by Design-Builder and provided to all attendees for review. Following the design review meeting, Owner shall review and comment on the interim design submissions in a time frame that is consistent with the turnaround times set forth in the Schedule.

2.4.2 Design-Builder shall submit to Owner Construction Documents setting forth in detail drawings and specifications describing the requirements for construction of the Work. The Construction Documents shall be consistent with the latest set of interim design submissions; as such submissions may have been modified in a design review meeting. The parties shall have a design review meeting to discuss, and Owner shall review and may comment on the Construction Documents in accordance with the procedures set forth GC 2.4.1. Design-Builder shall proceed with construction in accordance with the approved Construction Documents and shall submit one set of approved Construction Documents to Owner prior to commencement of construction.

2.4.3 Owner's review and approval of interim design submissions and the Construction Documents is for the purpose of mutually establishing a conformed set of Contract Documents compatible with

the requirements of the Work. Neither Owner's review nor approval of any interim design submissions and Construction Documents shall be deemed to transfer any design liability from Design-Builder to Owner.

2.4.4 To the extent not prohibited by the Contract Documents or Legal Requirements, Design-Builder may prepare interim design submissions and Construction Documents for a portion of the Work to permit construction to proceed on that portion of the Work prior to completion of the Construction Documents for the entire Work.

2.5 Legal Requirements

2.5.1 Design-Builder shall perform the Work in accordance with all Legal Requirements and shall provide all notices applicable to the Work as required by the Legal Requirements.

2.5.2 The Contract Price and/or Contract Time(s) shall be adjusted to compensate Design-Builder for the effects of any changes in the Legal Requirements enacted after the date of the Agreement affecting the performance of the Work. Such effects may include, without limitation, revisions Design-Builder is required to make to the Construction Documents because of changes in Legal Requirements.

2.6 Government Approvals and Permits

2.6.1 Except as identified in Attachment G, *Owner's Permit List*, Design-Builder shall obtain and pay for all necessary permits, approvals, licenses, government charges and inspection fees required for the prosecution of the Work by any government or quasi-government entity having jurisdiction over the Project.

2.6.2 Design-Builder shall provide reasonable assistance to Owner in obtaining those permits, approvals and licenses that are Owner's responsibility.

2.7 Design-Builder's Phase 2 Construction Services

2.7.1 Unless otherwise provided in the Contract Documents to be the responsibility of Owner or a separate contractor, Design-Builder shall provide through itself or Subcontractors the necessary supervision, labor, inspection, testing, start-up, material, equipment, machinery, temporary utilities and other temporary facilities to permit Design-Builder to complete construction of the Project consistent with the Contract Documents.

2.7.2 Design-Builder shall perform all construction activities efficiently and with the requisite skill and competence to satisfy the requirements of the Contract Documents. Design-Builder shall at all times exercise complete and exclusive control over the means, methods, sequences and techniques of construction.

2.7.3 Design-Builder shall employ only Subcontractors who are duly licensed and qualified to perform the Work consistent with the Contract Documents. Owner may reasonably object to Design-Builder's selection of any Subcontractor, provided that the Contract Price and/or Contract Time(s) shall be adjusted to the extent that Owner's decision impacts Design-Builder's cost and/or time of performance.

2.7.4 Design-Builder shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, national origin or ancestry, or physical or mental handicap. Design-Builder will take affirmative action to ensure that applicants for employment are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, age, national origin or ancestry, physical or mental handicap. Such action shall include but not be limited to the following: employment, upgrading, demotion, transfer, recruitment, recruitment advertising, layoff, termination, disciplinary actions and grievances, rates of pay or other forms of compensation, other terms and conditions of employment and

selection for training, including apprenticeship. Design-Builder shall include the provisions of this Paragraph in every Subcontract or purchase order so that such provisions shall be binding upon every Subcontractor.

2.7.5 Design-Builder assumes responsibility to Owner for the proper performance of the Work of Subcontractors and any acts, errors or omissions in connection with such performance. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any Subcontractor or Sub-Subcontractor, including but not limited to any third-party beneficiary rights.

2.7.6 Design-Builder shall coordinate the activities of all Subcontractors.

2.7.7 If Owner performs other work on the Project or at the Site with separate contractors under Owner's control, Design-Builder agrees to reasonably cooperate and coordinate its activities with those of such separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption. Unreasonable disruption or interference by Owner's separate contractors may result in a request for a Contract Adjustment under GC 8.1.3.

2.7.8 Design-Builder shall keep the Site reasonably free from debris, trash and construction wastes to permit Design-Builder to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas.

2.7.9 Upon Substantial Completion of the Work, or a portion of the Work, Design-Builder shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit Owner to occupy the Project or a portion of the Project for its intended use. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents.

2.8 Design-Builder's Responsibility for Project Safety

2.8.1 Design-Builder recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting, (ii) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site, and (iii) all other property at the Site or adjacent thereto. Design-Builder assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work. Design-Builder shall, prior to commencing construction, designate a Safety Representative with the necessary qualifications and experience to supervise the implementation and monitoring of all safety precautions and programs related to the Work, and shall develop a Project Safety Program which shall be implemented at the Project Site during the performance of the Work. Unless otherwise required by the Contract Documents, Design-Builder's Safety Representative shall be an individual stationed at the Site who may have responsibilities on the Project other than safety. The Safety Representative shall make routine daily inspections of the Site and shall hold weekly safety meetings with Design-Builder's personnel, Subcontractors and others as applicable.

2.8.2 Design-Builder and Subcontractors shall comply with all Legal Requirements relating to safety, as well as any Owner-specific safety requirements set forth in the Contract Documents and incorporated into the Project Safety Program, provided that such Owner-specific requirements do not violate any applicable Legal Requirement. Design-Builder will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to Owner's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-

government authorities having jurisdiction over safety-related matters involving the Project or the Work.

2.8.3 Design-Builder's responsibility for safety under this GC 2.8 is not intended in any way to relieve Subcontractors and Sub-Subcontractors of their own contractual and legal obligations and responsibility for (i) complying with all Legal Requirements, including those related to health and safety matters, and (ii) taking all necessary measures to implement and monitor all safety precautions and programs to guard against injury, losses, damages or accidents resulting from their performance of the Work.

2.8.4 Owner shall require that its officers, employees, guests, visitors, and other contractors entering the Project Site comply with the Project Safety Program then in effect.

2.9 Construction Warranty

2.9.1 Design-Builder warrants to Owner that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship. Design-Builder's warranty obligation excludes defects caused by abuse, alterations, or failure to maintain the Work by persons other than Design-Builder or anyone for whose acts Design-Builder may be liable.

2.9.2 Nothing in this warranty is intended to limit any manufacturer's warranty which provides Owner with greater warranty rights than set forth in this GC 2.9 or the Contract Documents. Design-Builder will provide Owner with all manufacturers' warranties upon Substantial Completion.

2.10 Correction of Defective Work

2.10.1 **Construction Warranty Period**. Design-Builder agrees to correct any Work that is found not to be in conformance with the Contract Documents, including that part of the Work subject to GC 2.9, within a period of eighteen (18) months from the date of Substantial Completion of the Work or any portion of the Work, or within such longer period to the extent required by the Contract Documents.

2.10.2 **Correction of Non-Conforming Work**. Design-Builder shall, within seven (7) days of receipt of written notice from Owner that the Work is not in conformance with the Contract Documents, take meaningful steps to commence correction of such nonconforming Work, including the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work affected by the nonconforming Work. If Design-Builder fails to commence the necessary steps within such seven (7) day period, Owner may, in addition to any other remedies provided under the Contract Documents, provide Design-Builder with written notice that Owner will commence correction of such nonconforming Work with its own forces. If Owner does perform such corrective Work, Design-Builder shall be responsible for all reasonable costs incurred by Owner in performing such correction. If the nonconforming Work creates an emergency requiring an immediate response, the seven (7) day periods identified herein shall be deemed inapplicable.

2.10.3 The one (1) year period referenced in GC 2.10.1 applies only to Design-Builder's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies Owner may have regarding Design-Builder's other obligations under the Contract Documents.

2.11 Performance Warranty

2.11.1 Design-Builder warrants to Owner that the Facility will meet the Facility Performance Criteria set forth in Attachment F, *Owner's Project Criteria*. Such Performance Warranty shall be satisfied

upon successful completion of the Performance Tests set forth in Attachment F, *Owner's Project Criteria*.

[The Owner may determine or the parties may agree (1) that the Extended Performance Warranty provided below in subsections 2.11.2 through 2.11.4 is not appropriate or required for the project and therefore such sections should be labeled "Not Used" or (2) that an extended commissioning period with active participation by Design-Builder in Owner's operation subsequent to Substantial Completion should be required for the project.]

2.11.2 Design-Builder also warrants, subject to GC 2.11.3 and 2.11.4, that the completed Facility shall be capable of meeting the Performance Standards in Attachment F throughout the Performance Warranty Period ("Extended Performance Warranty").

2.11.3 Design-Builder shall have no responsibility under the Extended Performance Warranty to the extent that any failure of the Work is due to: (1) Owner action or non-action, such as (i) provision of inadequate staffing, (ii) failure to operate or maintain the Project in accordance with methods, standards and procedures generally recognized and accepted as good industry practices and with the Operation and Maintenance Information Systems prepared by Design-Builder, (iii) abuse, negligence or willful misconduct, or (iv) alteration of the Work; (2) Uncontrollable Circumstances; (3) Change in Law; (4) noncompliant operating conditions, such as raw [water or wastewater] influent not conforming to the parameters in Attachment F or other conditions exceeding the Project's design criteria in Attachment F; (5) unavailability of supplies, spare parts, chemicals, power or other consumables or items necessary for operation and maintenance; or (6) impossibility or frustration of purpose.

2.11.4 If the Work fails to satisfy the Extended Performance Warranty, Design-Builder shall, upon written notice from Owner delivered not later than ten (10) days after any such failure, promptly begin and continue to take necessary actions (including training or support of Owner's operation and maintenance staff; revision of operating or maintenance procedures; or modification or correction of equipment or facilities) to satisfy the Extended Performance Warranty. The costs of any such training or support of Owner's operations staff or revision of operating procedures that are effective in achieving satisfaction of the Extended Performance Warranty shall be paid by Owner. The costs of any such modification or correction of equipment or facilities required to achieve satisfaction of the Extended Performance Warranty shall be paid by the Design-Builder without reimbursement from Owner, subject to any applicable limitation of liability set forth in this Agreement. Before any necessary correction or modification of equipment or facilities is initiated by the Design-Builder, all reasonable efforts to satisfy the Performance Warranty through operational training, support and revision shall be completed and a plan indicating the scope and schedule for such work shall be prepared by the Design-Builder and approved by Owner.

GC 3.0 Owner's Services and Responsibilities

3.1 Duty to Cooperate

3.1.1 Owner shall, throughout the performance of the Work, cooperate with Design-Builder and perform its responsibilities, obligations and services in a timely manner to facilitate Design-Builder's timely and efficient performance of the Work and so as not to delay or interfere with Design-Builder's performance of its obligations under the Contract Documents.

3.1.2 Owner shall provide reviews and approvals of interim design submissions and Construction Documents consistent with the turn-around times set forth in the Schedule. Owner's review does not constitute acceptance of design errors or omissions, or transfer of any design liability to Owner.

3.2 Furnishing of Services and Information

3.2.1 Unless expressly stated to the contrary in the Contract Documents, Owner shall provide, at its own cost and expense, for Design-Builder's information and use the following, all of which Design-Builder is entitled to rely upon in performing the Work:

.1 Surveys describing the property boundaries, topography and reference points for use during construction, including existing service and utility lines;

.2 Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;

.3 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper design and construction of the Project, access to the Site and any off-site storage or lay-down areas, and to enable Design-Builder to perform the Work;

.4 A legal description of the Site;

.5 To the extent available, as-built and record drawings of any existing structures and utilities at the Site; and

.6 To the extent available, environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, in existence at the Site.

3.2.2 Owner is responsible for securing and executing all necessary agreements with adjacent land or property owners that are necessary to enable Design-Builder to perform the Work. Owner is further responsible for all costs, including attorneys' fees, incurred in securing these necessary agreements.

3.3 Financial Information

3.3.1 Design-Builder shall cooperate with the reasonable requirements of Owner's lenders or other financial sources.

3.3.2 Notwithstanding the preceding sentence, after execution of the Agreement Design-Builder shall have no obligation to execute for Owner or Owner's lenders or other financial sources any documents or agreements that require Design-Builder to assume obligations or responsibilities greater than those existing obligations Design-Builder has under the Contract Documents.

3.3.3 [*Optional language*: Design-Builder shall not be required as a condition of award or contract to waive or subordinate its mechanic's lien rights, if any, to Owner's construction lender(s).]

3.4 Owner's Representative

3.4.1 Owner's Representative shall be responsible for providing Owner-supplied information and approvals in a timely manner to permit Design-Builder to fulfill its obligations under the Contract Documents. Owner's Representative shall also provide Design-Builder with prompt notice if it observes any failure on the part of Design-Builder to fulfill its contractual obligations, including any errors, omissions or defects in the performance of the Work.

3.4.2 [*Optional language*: If Owner retains a third party as Owner's Engineer or Owner's Program Manager, separately from Owner's Representative, then Owner shall designate such third party in writing to Design-Builder, together with a statement of the respective roles, responsibility, and authority of each such party with respect to the administration of the contract, the approval of drawings and specifications, the issuance of instructions and change orders, the resolution of disputes, and the relative priority of the authority of such parties.]

3.5 Government Approvals and Permits

3.5.1 Owner shall obtain and pay for all necessary permits, approvals, licenses, government charges and inspection fees set forth in the Owner's Permit List attached as part of Attachment F, *Owner's Project Criteria*.

3.5.2 Owner shall provide reasonable assistance to Design-Builder in obtaining those permits, approvals and licenses that are Design-Builder's responsibility.

3.6 Owner's Separate Contractors

3.6.1 Owner is responsible for all work performed on the Project or at the Site by separate contractors under separate agreements with Owner. Owner shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, Design-Builder in order to enable Design-Builder to timely complete the Work consistent with the Contract Documents.

3.6.2 Owner recognizes the importance that all work performed on the Project or at the Site by separate contractors under separate agreements with Owner is performed in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting, (ii) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site, and (iii) all other property at the Site or adjacent thereto. Owner shall require such separate contractors to assume responsibility for implementing and monitoring all safety precautions and programs related to the performance of their work.

GC 4.0 Hazardous Conditions and Differing Site Conditions

4.1 Hazardous Conditions

4.1.1 Unless otherwise expressly provided in the Contract Documents to be part of the Work, Design-Builder is not responsible for any Hazardous Conditions encountered at the Site. Upon encountering any Hazardous Conditions, Design-Builder will stop Work immediately in the affected area and duly notify Owner and, if required by Legal Requirements, all government or quasi-government entities with jurisdiction over the Project or Site.

4.1.2 Upon receiving notice of the presence of suspected Hazardous Conditions, Owner shall take the necessary measures required to ensure that the Hazardous Conditions are remediated or rendered harmless. Such necessary measures shall include Owner retaining qualified independent experts to (i) ascertain whether Hazardous Conditions have actually been encountered, and, if they have been encountered, (ii) prescribe the remedial measures that Owner must take either to remove the Hazardous Conditions or render the Hazardous Conditions harmless.

4.1.3 Design-Builder shall be obligated to resume Work at the affected area of the Project only after Owner's expert provides it with written certification that (i) the Hazardous Conditions have been removed or rendered harmless and (ii) all necessary approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project or Site.

4.1.4 Design-Builder will be entitled, in accordance with these General Conditions, to an equitable adjustment in its Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance have been adversely impacted by the presence of Hazardous Conditions.

4.1.5 Design-Builder, Design Consultants, Subcontractors and Subsubcontractors, and their respective agents, officers, directors and employees shall have no liability for any and all claims, damages, losses, costs and expenses, whether direct, indirect or consequential, arising or resulting from the presence of any Hazardous Material in or about the area of the Work, except to the extent that such person would be liable for the same under applicable law.

4.1.6 Notwithstanding the preceding provisions of this GC 4.1, Owner is not responsible for Hazardous Conditions introduced to the Site by Design-Builder, Design Consultants, Subcontractors or anyone for whose acts they may be liable. Design-Builder shall indemnify, defend and hold harmless Owner and Owner's officers, directors, employees and agents from and against all claims, losses, damages, liabilities and expenses, including attorneys' fees and expenses, arising out of or resulting from those Hazardous Conditions introduced to the Site by the parties identified in the first sentence of this GC 4.1.6.

4.1.7 The terms of this GC 4.1 shall survive the completion of the Work under this Agreement and/or any termination of this Agreement.

4.2 Differing Site Conditions

4.2.1 Concealed or latent physical conditions or subsurface conditions at the Site that (i) materially differ from the conditions indicated in the Contract Documents or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the Work, are collectively referred to herein as "Differing Site Conditions." If Design-Builder encounters a Differing Site Condition, Design-Builder will be entitled to an equitable adjustment in the Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance are adversely impacted by the Differing Site Condition.

4.2.2 Upon encountering a Differing Site condition, Design-Builder shall provide prompt written notice to Owner of such condition, which notice shall not be later than seven (7) days after such condition has been encountered. Design-Builder shall, to the extent reasonably possible, provide such notice before the Differing Site Condition has been substantially disturbed or altered.

GC 5.0 Payment

5.1 Payment for Phase 1 Services

5.1.1 Design-Builder will submit an Application for Payment to Owner each month covering Phase 1 services performed to date. Each Application for Payment will be prepared in the standard form agreed to by the parties and supported by required documentation.

5.2 Schedule of Values for Phase 2 Services

5.2.1 Within ten (10) days of the Commencement Date, Design-Builder shall submit for Owner's review and approval a schedule of values for Phase 2 of the Work. The Schedule of Values will (i) subdivide the Work into its respective parts, (ii) include values for all items comprising the Work and (iii) serve as the basis for monthly progress payments made to Design-Builder throughout the Work.

5.3 Monthly Progress Payments

5.3.1 On or before the date established in the Agreement, Design-Builder shall submit for Owner's review and approval its Application for Payment requesting payment for all Work performed as of the date of the Application for Payment. The Application for Payment shall be accompanied by all supporting documentation required by the Contract Documents and/or established at the meeting required by GC 2.1.4.

5.3.2 The Application for Payment may request payment for equipment and materials not yet incorporated into the Project, provided that (i) Owner is satisfied that the equipment and materials are suitably stored at either the Site or another acceptable location, (ii) the equipment and materials are protected by suitable insurance and (iii) upon payment, Owner will receive the equipment and materials free and clear of all liens and encumbrances.

5.3.3 The Application for Payment shall constitute Design-Builder's representation that the Work has been performed consistent with the Contract Documents, has progressed to the point indicated in the Application for Payment, and that title to all Work will pass to Owner free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the Work into the Project, or upon Design-Builder's receipt of payment, whichever occurs earlier.

5.4 Withholding of Payments; Payment of Undisputed Amounts

5.4.1 On or before the date established in the Agreement, Owner shall pay Design-Builder all amounts properly due, including the release of retention under Section 7.3.1 of the Agreement. If Owner determines that Design-Builder is not entitled to all or part of an Application for Payment, it will notify Design-Builder in writing at least five (5) days prior to the date payment is due. The notice shall indicate the specific amounts Owner intends to withhold, the reasons and contractual basis for the withholding, and the specific measures Design-Builder must take to rectify Owner's concerns. Design-Builder and Owner will attempt to resolve Owner's concerns prior to the date payment is due. If the parties cannot resolve such concerns, Design-Builder may pursue its rights under the Contract Documents, including those under GC 8.0.

5.4.2 Notwithstanding anything to the contrary in the Contract Documents, Owner shall pay Design-Builder all undisputed amounts in an Application for Payment within the times required by the Agreement.

5.5 Right to Stop Work and Interest

5.5.1 If Owner fails to pay Design-Builder any amount that becomes due, Design-Builder, in addition to all other remedies provided in the Contract Documents, may stop Work pursuant to GC 9.4. All payments due and unpaid shall bear interest at the rate set forth in Section 7.5 of the Agreement.

5.6 Design-Builder's Payment Obligations

5.6.1 Design-Builder will promptly pay any Subcontractors and Design Consultants, in accordance with NMSA 13-4-11 and all applicable laws and its contractual obligations to such parties, all the amounts Design-Builder has received from Owner on account of their work. Design-Builder will impose similar requirements on Subcontractors and Design Consultants to pay those parties with whom they have contracted.

5.6.2 Providing that Owner is not in breach of its contractual obligation to make payments to Design-Builder for the Work, Design-Builder shall indemnify, defend and hold harmless Owner from any claims or mechanic's liens brought against Owner or against the Project as a result of the failure of Design-Builder, or those for whose acts it is responsible, to pay for any services, materials, labor, equipment, taxes or other items or obligations furnished or incurred for or in connection with the Work. Within ten (10) days of receiving written notice from Owner that such a claim or mechanic's lien has been filed, Design-Builder shall commence to take the steps necessary to discharge said claim or lien, including, if necessary, the furnishing of a mechanic's lien bond. If Design-Builder fails to do so, Owner will have the right to discharge the claim or lien and charge Design-Builder with any costs and expenses incurred, including attorneys' fees.

5.7 Substantial Completion

5.7.1 Design-Builder shall notify Owner when it believes the Work, or to the extent permitted in the Contract Documents, a portion of the Work, is substantially complete (including the completion of performance testing). Within five (5) days of Owner's receipt of Design-Builder's notice, Owner and Design-Builder will jointly inspect such Work to verify that it is substantially complete in accordance with the requirements of the Contract Documents. If such Work is

substantially complete, Owner shall prepare and issue a Certificate of Substantial Completion that will set forth (i) the date of Substantial Completion of the Work or portion thereof, (ii) the remaining items of Work that have to be completed before final payment, (iii) provisions (to the extent not already provided in the Contract Documents) establishing Owner's and Design-Builder's responsibility for the Project's security, maintenance, utilities and insurance pending final payment, and (iv) an acknowledgment that warranties commence to run on the date of Substantial Completion, except as may otherwise be noted in the Certificate of Substantial Completion.

5.7.2 Upon Substantial Completion of the entire Work or, if applicable, any portion of the Work, Owner shall release to Design-Builder all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less an amount equal to the reasonable value of all remaining or incomplete items of Work as noted in the Certificate of Substantial Completion.

5.7.3 Owner, at its option, may use a portion to the Work which has been determined to be substantially complete, provided that (i) a Certificate of Substantial Completion has been issued for the portion of Work addressing the items set forth in GC 5.7.1, (ii) Design-Builder and Owner have obtained the consent of their sureties and insurers, and (iii) Owner and Design-Builder, agree that Owner's use or occupancy will not interfere with Design-Builder's completion of the remaining Work.

5.7.4 Upon Substantial Completion, Design-Builder shall conduct performance testing of the Facility using Owner's operations and maintenance staff to demonstrate that the Performance Criteria set forth in Attachment F, *Owner's Project Criteria*, have been satisfied and that the Performance Guarantees have been met.

5.8 Final Payment

5.8.1 After receipt of a Final Application for Payment from Design-Builder, Owner shall make final payment by the time required in the Agreement, *provided* that Design-Builder has completed all of the Work in conformance with the Contract Documents.

5.8.2 At the time of submission of its Final Application for Payment, Design-Builder shall provide the following information:

1) an affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect Owner's interests;
2) a general release executed by Design-Builder waiving, upon receipt of final payment by Design-Builder, all claims, except those claims previously made in writing to Owner and remaining unsettled at the time of final payment;
3) consent of Design-Builder's surety, if any, to final payment;
4) a certificate demonstrating that performance testing is complete and that the Performance Guarantees set forth in Attachment F, *Owner's Project Criteria*, have been met;
5) all operating manuals, warranties and other deliverables required by the Contract Documents;
6) certificates of insurance confirming that required coverages will remain in effect consistent with the requirements of the Contract Documents;
7) affidavit of wages paid for Design-Builder and all subcontractors; and
8) copy of signed substantial completion and copy of signed final completion.

5.8.3 Upon making final payment, Owner waives all claims against Design-Builder except claims relating to (i) Design-Builder's failure to satisfy its payment obligations, if such failure affects Owner's interests, (ii) Design-Builder's failure to complete the Work consistent with the Contract

Documents, including defects appearing after Substantial Completion, (iii) the terms of any special warranties required by the Contract Documents, and (iv) claims which are identified as unsettled at the time of making final payment.

5.8.4 Final payment by Owner shall constitute Final Acceptance of the Project for all purposes hereunder, subject to Design-Builder's remaining warranty obligations and any remaining indemnity obligations hereunder.

5.8.5 Acceptance of final payment by the Design-Builder, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

GC 6.0 Time

6.1 Obligation to Achieve the Contract Times

6.1.1 Design-Builder agrees that it will commence performance of the Work and achieve the Contract Time(s) in accordance with Article 5.0 of the Agreement.

6.2 Delays to the Work

6.2.1 If Design-Builder is delayed in the performance of the Work due to Uncontrollable Circumstances, the Contract Time(s) for performance shall be reasonably extended by Change Order, and the Schedule adjusted accordingly.

6.2.2 In addition to Design-Builder's right to a time extension for delays in the Work under GC 6.2.1, Design-Builder shall also be entitled to an equitable adjustment of the Contract Price and equitable commutation of any Liquidated Damages under Section 5.4 of the Agreement.

GC 7.0 Changes to the Contract Price and Time

7.1 Change Orders

7.1.1 A Change Order is a written instrument issued after execution of the Agreement signed by Owner and Design-Builder, stating their agreement upon all of the following:

.1 The scope of the change in the Work;

.2 The amount of the adjustment to the Contract Price; and

.3 The extent of the adjustment to the Contract Time(s) and Schedule.

7.1.2 All changes in the Work authorized by applicable Change Order shall be performed under the applicable conditions of the Contract Documents. Owner and Design-Builder shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for such changes.

7.2 Work Change Directives

7.2.1 A Work Change Directive is a written order prepared and signed by Owner, directing a change in the Work prior to agreement on an adjustment in the Contract Price and/or the Contract Time(s).

7.2.2 Owner and Design-Builder shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for the Work Change Directive. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the agreement.

7.2.3 [*Optional language*: If Owner has requested a proposal for a change in the Work from Design-Builder, Owner shall notify Design-Builder as expeditiously as possible whether such proposal is accepted. Design-Builder shall not commence changed work until a written Work Change Directive or Change Order has been delivered by Owner. The parties recognize that delay in response to such proposals may increase the impact or cost of the Change.]

7.3 Minor Changes in the Work

7.3.1 Minor changes in the Work do not involve an adjustment in the Contract Price and/or Contract Time(s) and do not materially and adversely affect the Work, including the design, quality, performance and workmanship required by the Contract Documents. Design-Builder may make minor changes in the Work consistent with the intent of the Contract Documents, *provided, however*, that Design-Builder shall promptly inform Owner, in writing, of any such changes and record such changes on the documents maintained by Design-Builder.

7.4 Contract Price Adjustments

7.4.1 The increase or decrease in Contract Price resulting from a change in the Work shall be determined by one or more of the following methods:

.1 unit prices set forth in the Agreement or as subsequently agreed between the parties (which may include daily or monthly overhead rates for the extension of services);

.2 a mutually-accepted lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by Owner;

.3 costs, fees and any other markups set forth in the Agreement; and

.4 if an increase or decrease cannot be agreed to as set forth in items .1 through .3 above and Owner issues a Work Change Directive, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in the Agreement. If the net result of both additions and deletions to the Work is an increase or a decrease in the Contract Price, overhead and profit shall be calculated on the basis of the net increase or decrease to the Contract Price. Design-Builder shall maintain a documented, itemized accounting evidencing the expenses and savings associated with such changes.

7.4.2 If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices will cause substantial inequity to Owner or Design-Builder because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.

7.4.3 If Owner and Design Builder disagree upon whether Design-Builder is entitled to be paid for any services required by Owner, or if there are any other disagreements over the scope of Work or proposed changes to the Work, Owner and Design-Builder shall resolve the disagreement pursuant to GC 8.0. As part of the negotiation process, Design-Builder shall furnish Owner with a good faith estimate of the costs to perform the disputed services in accordance with Owner's interpretations. If the parties are unable to agree and Owner expects Design-Builder to perform the services in accordance with Owner's interpretations, Design-Builder shall proceed to perform the disputed services, conditioned upon Owner issuing a written order to Design-Builder (i) directing Design-Builder to proceed and (ii) specifying Owner's interpretation of the services that are to be performed.

7.4.4 Unless otherwise agreed by the parties, the Design-Builder's markup for indirect costs and profit on additional costs included in an adjustment to the Contract Price under this section 7.4 shall be equal to fifteen percent (15%) of such additional costs.

7.5 Emergencies

7.5.1 In any emergency affecting the safety of persons and/or property, Design-Builder shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price and/or Contract Time(s) on account of emergency work shall be determined as provided in this GC 7.0.

GC 8.0 Contract Adjustments and Disputes

8.1 Requests for Contract Adjustments and Relief

8.1.1 If either Design-Builder or Owner believes that it is entitled to relief against the other for any Changed Condition arising out of or related to the Work or Project, such party shall provide written notice to the other party of the basis for its claim for relief.

8.1.2 A Changed Condition may include a Change in Law following the date of Design-Builder's proposal to Owner which has a material impact on the cost of the Work, the Schedule, the Performance Criteria, or other aspects of Design-Builder's performance hereunder.

8.1.3 Changed Conditions may include Uncontrollable Circumstances having an impact on Design-Builder's cost of the Work, the Schedule, the Performance Criteria, or other aspects of Design-Builder's performance hereunder.

8.1.4 Such notice shall, if possible, be made prior to incurring any cost or expense and in accordance with any specific notice requirements contained in applicable sections of these General Conditions. In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed twenty-one (21) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later.

8.1.5 Such notice shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, and, if then available, the specific contractual adjustment or relief requested and the basis of such request.

8.2 Dispute Avoidance and Resolution

8.2.1 The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, Design-Builder and Owner each agree to resolve such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work.

8.2.2 Design-Builder and Owner will first attempt to resolve disputes or disagreements at the Project level through discussions between Design-Builder's Representative and Owner's Representative.

8.2.3 If a dispute or disagreement cannot be resolved through Design-Builder's Representative and Owner's Representative, upon the request of either party, then the matter shall be referred to the Senior Representatives of each party for resolution. Design-Builder's Senior Representative and Owner's Senior Representative shall meet as soon as conveniently possible, but in no case later than thirty (30) days after such a request is made, to attempt to resolve such dispute or disagreement. Prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute or disagreement.

8.2.4 If, after meeting, the Senior Representatives determine that the dispute or disagreement cannot be resolved on terms satisfactory to both parties, then the parties shall submit the dispute or disagreement to non-binding mediation. The mediation shall be conducted by a mutually agreeable impartial mediator, or if the parties cannot so agree, a mediator designated by the American Arbitration Association ("AAA") pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator.

8.3 Arbitration

8.3.1 Any claims, disputes or controversies between the parties arising out of or relating to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures set forth in GC 8.2, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the AAA then in effect, unless the parties mutually agree otherwise.

8.3.2 The award of the arbitrator(s) shall be final and binding upon the parties without the right of appeal to the courts. Judgment may be entered upon it in accordance with applicable law by any court having jurisdiction thereof.

8.3.3 Design-Builder and Owner expressly agree that any arbitration pursuant to this GC 8.3 may be joined or consolidated with any arbitration involving any other person or entity (i) necessary to resolve the claim, dispute or controversy, or (ii) substantially involved in or affected by such claim, dispute or controversy. Both Design-Builder and Owner will include appropriate provisions in all contracts they execute with other parties in connection with the Project to require such joinder or consolidation.

8.3.4 In any arbitration, or any other final, binding dispute proceeding upon which the parties may agree, each party shall be responsible for its own legal costs, including attorneys' fees.

8.3.5 The arbitration shall be held at the location of the Project, unless the parties mutually agree to another acceptable site for the arbitration. The law applicable to the arbitration shall be the law of the jurisdiction in which the Project is located.

8.4 Duty to Continue Performance

8.4.1 Unless provided to the contrary in the Contract Documents, Design-Builder shall continue to perform the Work and Owner shall continue to satisfy its payment obligations to Design-Builder, pending the final resolution of any dispute or disagreement between Design-Builder and Owner.

GC 9.0 Suspension and Termination

9.1 Owner's Right to Stop Work

9.1.1 Owner may, without cause and for its convenience, order Design-Builder in writing to stop and suspend the Work. Such suspension shall not exceed sixty (60) consecutive days or aggregate more than ninety (90) days during the duration of the Project.

9.1.2 Design-Builder is entitled to an equitable adjustment of the Contract Price and/or Contract Time(s) if its cost or time to perform the Work has been adversely impacted by any suspension of stoppage of work by Owner.

9.2 Termination for Convenience

9.2.1 Upon ten (10) days' written notice to Design-Builder, Owner may, for its convenience and without cause, elect to terminate this Agreement. In such event, Owner shall pay Design-Builder for the following:

- **.1** All Work executed and for proven loss, cost or expense in connection with such Work;
- **.2** The reasonable costs and expenses attributable to such termination, including demobilization costs and amounts due in settlement of terminated contracts with Subcontractors and Design Consultants; and
- **.3** The fair and reasonable sums for overhead and profit on the sum of items **.1** and **.2** above.

9.2.2 If Owner terminates this Agreement pursuant to GC 9.2.1 and proceeds to design and construct the Project through its employees, agents or third parties, Owner's rights to use the Work product

shall be as set forth in Section 4.3 ("Owner's Limited License upon Owner's Termination for Convenience or Design-Builder's Election to Terminate").

9.3 Owner's Right to Perform and Terminate for Cause

9.3.1 *If* Design-Builder persistently falls to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, Subcontractors, (v) prosecute the Work with promptness and diligence to ensure that the Work is completed by the Contract Time(s), as such times may be adjusted, or (vi) perform material obligations under the Contract Documents, *then* Owner, in addition to any other rights and remedies provided in the Contract Documents or by law, shall have the rights set forth in GC 9.3.2, 9.3.3, and 9.3.4.

9.3.2 Upon the occurrence of an event set forth in GC 9.3.1, Owner may provide written notice to Design-Builder that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Design-Builder's receipt of such notice. If Design-Builder fails to cure, or reasonably commence to cure, such problem, then Owner may give a second written notice to Design-Builder of its intent to terminate within an additional seven (7) day period. If Design-Builder, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Owner may declare the Agreement terminated for default by providing written notice to Design-Builder of such declaration.

9.3.3 Upon declaring the Agreement terminated pursuant to GC 9.3.2, Owner may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which Design-Builder hereby transfers, assigns and sets over to Owner for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items.

9.3.4 In the event of such termination, Design-Builder shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, if the unpaid balance of the Contract Price exceeds the cost and expense incurred by Owner in completing the Work, such excess shall be paid by Owner to Design-Builder. Notwithstanding the preceding sentence, if the Agreement establishes a Guaranteed Maximum Price, Design-Builder will only be entitled to be paid for Work performed prior to its default. If Owner's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Design-Builder shall be obligated to pay the difference to Owner. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by Owner in connection with the reprocurement and defense of claims arising from Design-Builder's default, subject to the waiver of consequential damages set forth in GC 2.12.2.

9.3.5 If Owner improperly terminates the Agreement for cause, the termination for cause will be converted to a termination for convenience in accordance with the provisions of GC 9.2.

9.4 Design-Builder's Right to Stop Work

9.4.1 Design-Builder may, in addition to any other rights afforded under the Contract Documents or at law, stop work for the following reasons:

.1 Owner's failure to pay amounts properly due under Design-Builder's Application for Payment.

9.4.2 Should an event set forth in GC 9.4.1 occur, Design-Builder may provide Owner with written notice that Design-Builder will stop work unless such event is cured within seven (7) days from Owner's receipt of Design-Builder's notice. If Owner does not cure the problem within such

seven (7) day period, Design-Builder may stop work. In such case, Design-Builder may make a claim for adjustment to the Contract Price and Contract Time(s) to the extent it has been adversely impacted by such stoppage.

9.5 Design-Builder's Right to Terminate for Cause

9.5.1 Design-Builder, in addition to any other rights and remedies provided in the Contract Documents or by law, may terminate the Agreement for cause for the following reasons:

.1 The Work has been stopped for sixty (60) consecutive days, or more than ninety (90) days during the duration of the Project, because of a court order, any government authority having jurisdiction over the Work, or orders by Owner under GC 9.1.1, *provided* that such stoppages are not due to the acts or omissions of Design-Builder or anyone for whose acts Design-Builder may be responsible; or

.2 Owner's failure to provide Design-Builder with any information, permits or approvals that are Owner's responsibility under the Contract Documents which result in the Work being stopped for sixty (60) consecutive days, or more than ninety (90) days during the duration of the Project, even though Owner has not ordered Design-Builder in writing to stop and suspend the Work pursuant to GC 9.1.1; or

.3 Owner's failure to cure the problems set forth in GC 9.4.1 after Design-Builder has stopped the Work.

9.5.2 Upon the occurrence of an event set forth in GC 9.5.1, Design-Builder may provide written notice to Owner that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Owner's receipt of such notice. If Owner fails to cure, or reasonably commence to cure, such problem, then Design-Builder may give a second written notice to Owner of its intent to terminate within an additional seven (7) day period. If Owner, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Design-Builder may declare the Agreement terminated for default by providing written notice to Owner of such declaration. In such case, Design-Builder shall be entitled to recover in the same manner as if Owner had terminated the Agreement for its convenience under GC 9.2.

9.6 Bankruptcy of Owner or Design-Builder

9.6.1 If either Owner or Design-Builder institutes or has instituted against it a case under the United States Bankruptcy Code (such party being referred to as the "Bankrupt Party"), such event may impair or frustrate the Bankrupt Party's ability to perform its obligations under the Contract Documents. Accordingly, should such event occur:

.1 The Bankrupt Party, its trustee or other successor, shall furnish, upon request of the non-Bankrupt Party, adequate assurance of the ability of the Bankrupt Party to perform all future material obligations under the Contract Documents, which assurances shall be provided within ten (10) days after receiving notice of the request; and

.2 The Bankrupt Party shall file an appropriate action within the bankruptcy court to seek assumption or rejection of the Agreement within sixty (60) days of the institution of the bankruptcy filing and shall diligently prosecute such action.

If the Bankrupt Party fails to comply with its foregoing obligations, the non-Bankrupt Party shall be entitled to request the bankruptcy court to reject the Agreement, declare the Agreement terminated and pursue any other recourse available to the non-Bankrupt Party under this GC 9.0.

9.6.2 The rights and remedies under GC 9.6.1 shall not be deemed to limit the ability of the non-Bankrupt Party to seek any other rights and remedies provided by the Contract Documents or by

law, including its ability to seek relief from any automatic stays under the United States Bankruptcy Code or the right of Design-Builder to stop Work under any applicable provision of these General Conditions.

GC 10.0 Miscellaneous

10.1 Assignment

10.1.1 Neither Design-Builder nor Owner shall without the written consent of the other, assign, transfer or sublet any portion or part of the Work or the obligations required by the Contract Documents.

10.2 Successorship

10.2.1 Design-Builder and Owner intend that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.

10.3 Governing Law

10.3.1 The Agreement and all Contract Documents shall be governed by the laws of the place of the Project, without giving effect to its conflict of law principles.

10.4 Severability

10.4.1 If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal, or otherwise unenforceable pursuant to any applicable Legal Requirements, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

10.5 No Waiver

10.5.1 The failure of either Design-Builder or Owner to insist, in any one or more instances, on the performance of any of the obligations required by the other under the Contract Documents shall not be construed as a waiver or relinquishment of such obligation or right with respect to future performance.

10.6 Headings

10.6.1 The headings used in these General Conditions or any other Contract Document, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

10.7 Notice

10.7.1 Whenever the Contract Documents require that notice be provided to the other party, notice will be deemed to have been validly given (i) if delivered in person to the individual intended to receive such notice, (ii) four (4) days after being sent by registered or certified mail, postage prepaid to the address indicated in the Agreement , (iii) if transmitted by facsimile, by the time stated in a machine-generated confirmation that notice was received at the number of the intended recipient, or (iv) if transmitted by e-mail to the individual to whom such notice is required to be given, by the time stated in a machine-generated confirmation that notice was received at the e-mail address of the intended recipient.

10.8 Amendments

10.8.1 The Contract Documents may not be changed, altered, or amended in any way except in writing signed by a duly authorized representative of both parties.

10.9 Third Parties

10.9.1 The services to be performed by Design-Builder are intended solely for the benefit of the Owner. No person or entity not a signatory to this Agreement shall be entitled to rely on the Design-Builder's performance of its services hereunder, and no right to assert a claim against the Design-Builder by assignment of indemnity rights or otherwise shall accrue to a third part.

GC 11.0 Electronic Data

11.1 Electronic Data.

11.1.1 The parties recognize that Contract Documents, including drawings, specifications and three-dimensional modeling (such as Building Information Models) and other Work Product may be transmitted among Owner, Design-Builder and others in electronic media as an alternative to paper hard copies (collectively "Electronic Data").

11.2 Transmission of Electronic Data

11.2.1 Owner and Design-Builder shall agree upon the software and the format for the transmission of Electronic Data. Each party shall be responsible for securing the legal rights to access the agreed-upon format, including, if necessary, obtaining appropriately licensed copies of the applicable software or electronic program to display, interpret and/or generate the Electronic Data.

11.2.2 Neither party makes any representations or warranties to the other with respect to the functionality of the software or computer program associated with the electronic transmission of Work Product. Unless specifically set forth in the Agreement, ownership of the Electronic Data does not include ownership of the software or computer program with which it is associated, transmitted, generated or interpreted.

11.2.3 By transmitting Work Product in electronic form, the transmitting party does not transfer or assign its rights in the Work Product. The rights in the Electronic Data shall be as set forth in Article 4.0 of the Agreement ("Ownership of Work Product"). Under no circumstances shall the transfer of ownership of Electronic Data be deemed to be a sale by the transmitting party of tangible goods.

11.3 Electronic Data Protocol

11.3.1 The parties acknowledge that Electronic Data may be altered or corrupted, intentionally or otherwise, due to occurrences beyond their reasonable control or knowledge, including but not limited to compatibility issues with user software, manipulation by the recipient, errors in transcription or transmission, machine error, environmental factors, and operator error. Consequently, the parties understand that there is some level of increased risk in the use of Electronic Data for the communication of design and construction information and, in consideration of this, agree, and shall require their independent contractors, Subcontractors and Design Consultants to agree, to the following protocols, terms and conditions set forth in this GC 11.3.

11.3.2 Electronic Data will be transmitted in the format agreed upon in GC 11.2.1, including file conventions and document properties, unless prior arrangements are made in advance in writing.

11.3.3 The Electronic Data represents the information at a particular point in time and is subject to change. Therefore, the parties shall agree upon protocols for notification by the author to the recipient of any changes which may thereafter be made to the Electronic Data, which protocol shall also address the duty, if any, to update such information, data or other information contained in the electronic media if such information changes prior to Final Completion of the Project.

11.3.4 The transmitting party specifically disclaims all warranties, expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with respect to the media transmitting the Electronic Data. However, transmission of the Electronic Data by electronic means shall not invalidate or negate any duties pursuant to the applicable standard of care with respect to the creation of the Electronic Data, unless such data is materially changed or altered after it is transmitted to the receiving party, and the transmitting party did not participate in such change or alteration.

ATTACHMENT E
INDEMNITY, INSURANCE & BONDING

1.0 Indemnity

1.1 To the fullest extent permitted by law, Design-Builder shall defend, indemnify and hold Owner harmless from all claims by third parties for bodily injury and property damage (other than to the Work itself and other property insured hereunder) that may arise from the performance of the Work, except that Design-Builder shall have no duty to defend Owner from claims arising from acts, omissions or negligence of Owner, Owner's employees, or agents.

1.2 If an employee of Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them, or anyone for whose acts any of them may be liable has a claim against Owner, its officers, directors, employees, or agents, then Design-Builder's indemnity obligation set forth in Section 1.1 above shall not be limited by any limitation on the amount of damages, compensation, or benefits payable by or for Design-Builder, Design Consultants, Subcontractors, or other entity under any employee benefit acts, including workers' compensation or disability acts.

2.0 Design-Builder's Liability Insurance

2.1 Design-Builder shall obtain and maintain insurance coverage for the following claims which may arise out of the performance of this Agreement, whether resulting from Design-Builder's operations or by the operations of any Subcontractor, anyone in the employ of any of them, or by an individual or entity for whose acts they may be liable:

[The claims and limits described below are illustrative. Owner should revise as appropriate to the needs of its project.]

2.1.1 workers' compensation, disability and other employee benefit claims under acts applicable to the Work;

2.1.2 under applicable employers' liability law, bodily injury, occupational sickness, disease or death claims of Design-Builder's employees with limits of $1,000,000 per accident or employee disease;

2.1.3 bodily injury, sickness, disease or death claims for damages to persons not employed by Design-Builder;

2.1.4 usual personal injury liability claims for damages directly or indirectly related to the person's employment by Design-Builder or for damages to any other person;

2.1.5 damage to or destruction of tangible property, including resulting loss of use, claims for property other than the Work itself and other property of third parties;

2.1.6 bodily injury, death or property damage claims resulting from motor vehicle liability in the use, maintenance or ownership of any motor vehicle; and

2.1.7 contractual liability claims involving Design-Builder's obligations under Paragraph 1.1.

2.2 Design-Builder's Commercial General and Automobile Liability Insurance as required by Paragraph 2.1 shall be written for the following limits of liability:

[Owner should consult with its insurance or risk management personnel or advisor is setting limits of liability for the insurance coverages required for its project.]

1.	Commercial General Liability Insurance		
	a.	Each Occurrence Limit	$ 1,000,000.00
	b.	General Aggregate	$ 1,000,000.00
	c.	Products/Completed Operations Aggregate	$ 1,000,000.00
	d.	Personal and Advertising Injury Limit	$ 1,000,000.00
	e.	Contractual Liability	$ 1,000,000.00
2.	Commercial Automobile Liability Insurance		
	a.	Combined Single Limit Bodily Injury and Property Damage	$ 1,000,000.00 Each Occurrence
	or		
	b.	Bodily Injury	$ 1,000,000.00 Each Person $ 1,000,000.00 Each Occurrence
	c.	Property Damage	$ 1,000,000.00 Each Occurrence

Owner shall be an Additional Insured on Commercial General Liability insurance and the Commercial Automobile Liability insurance obtained by Design-Builder pursuant to this clause.

Excess Liability Insurance above the required Commercial General, Commercial Automobile, and Employer's Liability insurance in the additional amount of [insert value] annual aggregate limit. [Owner should consult with its insurance or risk management personnel or advisor is setting limits of liability for the insurance coverages required for its project.]

Contractor's Pollution Liability Errors and Omissions Insurance in the amount of [insert value] per loss and annual aggregate limit of [insert value]. [Owner should consult with its insurance or risk management personnel or advisor is setting limits of liability for the insurance coverages required for its project.]

2.3 The policies shall contain a provision that coverage will not be canceled or not renewed until at least thirty (30) days' prior written notice has been given to Owner. Certificates of insurance showing required coverage to be in force shall be filed with Owner prior to commencement of the Work.

2.4 Products and Completed Operations insurance shall be maintained for a minimum period of at least two year(s) after either ninety (90) days following the date of Substantial Completion or final payment, whichever is earlier.

2.5 The insurance limits stated in this Attachment E may be satisfied through a combination of underlying and excess or umbrella coverage.

2.6 **Subcontractors**. Design-Builder shall require that all Subcontractors working on the Project secure and maintain the same insurance coverages required for Design-Builder for workers' compensation insurance, employer's liability insurance, commercial automotive liability insurance and commercial general liability insurance and other financial sureties required by

applicable law in connection with their presence and the performance of their duties pursuant to this Agreement; provided that Owner may approve lower limits for specific subcontractors pursuant to a request submitted by Design-Builder to Owner prior to any work being performed by the subcontractor. Design-Builder shall require that all subcontractors performing engineering services and all subcontractors performing work with potential pollution liability risk secure and maintain Professional Liability or Pollution Liability insurance coverage, respectively, with such coverage limits commensurate with the scope of the subcontract work performed. Owner, Design-Builder and all other parties required of Design-Builder shall be named as additional insured on subcontractor's required commercial general liability insurance policy. Alternatively, Design-Builder may obtain and maintain said policies and sureties on the subcontractor's behalf.

3.0 Professional Liability Insurance

Professional liability insurance for claims arising from the negligent performance of professional services under this Agreement shall be written for $_____ per claim and in the annual aggregate with a deductible not to exceed $_____. These requirements shall be continued in effect for two year(s) after the date of Substantial Completion. If the Design-Builder retains consultants for a portion of the design, Owner may approve lower limits for specific Design Consultants pursuant to a request submitted by Design-Builder to Owner prior to any work being performed by such Design Consultants. [Owner should consult with its insurance or risk management personnel or advisor is setting limits of liability for the insurance coverages required for its project.]

4.0 Owner's Liability Insurance

4.1 Owner shall be responsible for obtaining and maintaining its own liability insurance. Insurance for claims arising out of the performance of this Agreement may be purchased and maintained at Owner's discretion.

4.2 If Owner hires separate contractors for with respect to the Project or for any portion of the Work, then Owner shall require that such separate contractors waive any insurers' rights of subrogation against the Design-Builder and its Subcontractors, Design Consultants, and their officers, directors, and employees.

5.0 Insurance to Protect Project

5.1 Design-Builder shall obtain and maintain Builder's Risk Property Insurance including work and materials, upon the entire project for the full replacement cost at the time of loss. This insurance shall include as named insureds Owner, Design-Builder, Subcontractors and Subsubcontractors. The policy shall insure against direct risk of physical loss or damage including flood or other water damage, earthquake, transit, off-premises storage, boiler and machinery, delay in opening, testing (both hot and cold) [*and damage resulting from defective design, faulty workmanship or materials*]. Minimum deductible for all risks perils is [insert value] except flood and earthquake which shall be [insert value] and [insert value] respectively. Subcontractors shall be responsible for up to a [insert value] deductible per the Subcontract Terms and Conditions.

[Note 1: The deductibles available for flood and earthquake may vary by year and by location of project. Consult with your insurance or risk management personnel or advisor.*]*

[Note 2: It may not be feasible to obtain Builder's Risk Property Insurance coverage which includes "damage resulting from defective design, faulty workmanship or materials." Consult with your insurance or risk management personnel or advisor.*]*

The Builder's Risk Property Insurance shall contain provisions to the effect that in the event of payment of any loss or damage, the insurers will have no rights of recovery against any of the insureds or additional insureds. Owner, Design-Builder, Subcontractors and Subsubcontractors and Suppliers of any tier waive all rights and claims against each other and their respective officers, directors, employees and agents for all loss or damages including loss due to business interruption, loss of use or other consequential damage extending beyond direct physical loss or damage to Owner's property or the work whether or not insured by Owner, caused by, arising out of or resulting from any of the perils covered by such insurance and any other property insurance applicable to the Work during construction and after. None of the waivers will extend to the rights of any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy issued.

Owner and Subcontractor(s) shall maintain at their option, separate all risk commercial property insurance to cover their property, tools and equipment not covered by the Builder's Risk Insurance Policy.

5.2 If Owner occupies or uses a portion of the Project prior to its Substantial Completion, such occupancy or use shall not commence prior to a time mutually agreed to by Owner and Design-Builder and to which the insurance company or companies providing the property insurance have consented by endorsing the policy or policies. This insurance shall not be canceled or lapsed on account of partial occupancy. Consent of Design-Builder to such early occupancy or use shall not be unreasonably withheld.

5.3 Owner shall obtain and maintain boiler and machinery insurance as necessary. The interests of Owner, Design-Builder, Subcontractors and Subsubcontractors shall be protected under this coverage.

5.4 Upon Substantial Completion and during any period of startup, testing, commissioning, or initial operation of the Project, Owner shall obtain and maintain insurance with respect thereto consistent with that insurance which Owner obtains and maintains with respect to any damage or loss to its permanent plant during commercial operation. Design-Builder, Subcontractors and Subsubcontractors shall be named as additional insured on such insurance, and Owner hereby waives any rights of subrogation with respect thereto.

6.0 Property Insurance Loss Adjustment

6.1 Any insured loss shall be adjusted with Owner and Design-Builder and made payable to Owner and Design-Builder as trustees for the insureds, as their interests may appear, subject to any applicable mortgagee clause.

6.2 Upon the occurrence of an insured loss, monies received will be deposited in a separate account and the trustees shall make distribution in accordance with the agreement of the parties in interest, or in the absence of such agreement, in accordance with a mediation agreement, or, if not resolved through mediation, then by an arbitration award pursuant to arbitration. If the trustees are unable to agree between themselves on the settlement of the loss, such dispute shall also be submitted for resolution by mediation or arbitration.

7.0 Waiver of Subrogation

7.1 Owner and Design-Builder waive all rights against each other, and any of their respective employees, agents, consultants, subcontractors and subsubcontractors for damages caused by risks covered by insurance provided in Section 5.0 to the extent they are covered by that insurance, except such rights as they may have to the proceeds of such insurance held by Owner and Design-Builder as trustees. Design-Builder shall require similar waivers from all

Subcontractors, and shall require each of them to include similar waivers in their subsubcontracts and consulting agreements.

7.2 Owner waives subrogation against Design-Builder, Subcontractors and Subsubcontractors on all property and consequential loss policies carried by Owner on adjacent properties and under property and consequential loss policies purchased for the Project after its completion.

7.3 If the policies of insurance referred to in this Section require an endorsement to provide for continued coverage where there is a waiver of subrogation, the owners of such policies will cause them to be so endorsed.

[NOTE: With respect to Bonding, the Owner and Design-Builder may agree that bonds are not required for a particular project, or that the amount of the bonds can be less than 100% of Contract Price.

If the parties agree that bonds are required, in section 8.2 below, select Option 1 for conventional construction-type Performance and Payment Bonds, or select Option 2 for Design-Build Performance and Payment Bonds, which may require a higher bond premium.]

8.0 Bonding

8.1 Design-Builder will provide Performance and Payment Bonds for the Phase 2 Services. The costs of such bonds shall be in addition to the Contract Price.

Design-Builder shall furnish Performance and Payment Bonds, each in an amount equal to the Contract Price, as security for the faithful performance of all Design-Builder's contractual obligations hereunder with respect to both design and construction of the Project, and as security for payment of all Design-Builder's obligations to furnish, provide and pay for Construction and related materials under the Contract Documents.

8.2 These Bonds shall remain in effect after the date of Substantial Completion at least until expiration of the warranty period, except as provided otherwise by Laws or Regulations or by the Contract Documents.

8.3 All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

8.4 **Licensed Sureties** All Bonds required by the Contract Documents to be purchased and maintained by Design-Builder shall be obtained from surety companies that are duly licensed or authorized to issue bonds in the jurisdiction in which the Project is located to issue Bonds for the limits and coverages so required.

ATTACHMENT F
OWNER'S PROJECT SCOPE AND CRITERIA

1.0 Project Scope

[Owner should insert a description of the scope of its project.]

2.0 Design Criteria

[Owner should insert required or preferred preliminary design criteria for its project that may be available at the time the Agreement is signed and such preliminary criteria should be refined by agreement of Owner and Design-Builder during the Phase 1 Services. Alternatively, these criteria can be developed during the Phase 1 Services.]

3.0 Facility Performance Criteria

[Owner should insert required or preferred preliminary facility performance criteria for its project that may be available at the time the Agreement is signed and such preliminary criteria should be refined by agreement of Owner and Design-Builder during the Phase 1 Services. Alternatively, these criteria can be developed during the Phase 1 Services.]

4.0 Performance Tests

[Owner should insert required or preferred preliminary requirements for performance tests for its project that may be available at the time the Agreement is signed and such preliminary requirements should be refined by agreement of Owner and Design-Builder during the Phase 1 Services. Alternatively, these requirements can be developed during the Phase 1 Services.]

ATTACHMENT G
OWNER'S PERMIT LIST

[Owner should add a list of the permits and other governmental approvals that it will bear responsibility to obtain.]

Exhibit D

Project Background Documents

- Preliminary Engineering Report (PER) for City of Rio Rancho WWTP 1 Rebuild – October 2015, with contents listed below.
    - Section 1 – Introduction. Project background, overview of the project objectives of the report, and report organization.
    - Section 2 – Project Planning. Describes the project planning area, service area for WWTP 1, the location, environmental resources present, growth areas, and projected population and wastewater flow.
    - Section 3 – Existing Facilities. Provides a description of the existing wastewater treatment plant, including the location, history, condition, and financial status of the existing operating facilities.
    - Section 4 – Need for Project. Establishes the need for the project in terms of health and sanitation, regulatory requirements, system operation and maintenance, growth, and other identified needs.
    - Section 5 – Alternatives Considered. Develops the alternatives for the WWTP 1 treatment options, design criteria, and pump and pipeline alternatives. The specific alternatives include a detailed description, a process flow diagram, environmental impacts, land requirements, construction problems, cost estimates, and a comparison of alternatives.
    - Section 6 – Selection of Alternative. Proposes a project based on a decision analysis process and weighting criteria and presents the capital cost and net present worth analysis.
    - Section 7 – Proposed Project. Summarizes the recommended project and includes the system layout for the treatment process, pumping stations, and pipeline and includes implementation items such as the project schedule, permit requirements, project costs, and funding options.
    - Section 8 – Conclusions and Recommendations. Summarizes the conclusions and recommendations and includes any additional findings and recommendations that may be considered in development of the project.
- Rio Rancho Reuse Alignment Update, Huitt-Zollars, September 18, 2015
- Storm Drainage Improvement Project at WWTP 1 Plans; Huitt Zollars, February 19, 2015
    - WWTP 1 Storm Drain Improvements
    - Plan and profile drawings of new storm drain improvements, Vista Verde Memorial Park Cemetery plat map and Engineer's Opinion of Probable Cost.
- AWTF influent requirements as stated in NMED direct injection permit
- Diurnal flow variations to WWTP 1
- Components of design annual average and maximum monthly flow.
- Effluent data from WWTP 6:
    - Effluent data from August 2015 – July 2016
- Sara Road access point and revised access entrance off Sara Road:
    - Conceptual Auto turn drawing
- General map of collection system showing diversion to WWTP 1

Exhibit E

Project Technical Requirements

The purpose of this project is to construct a new wastewater treatment plant on the site of the existing WWTP 1, located at 4300 Sara Road SE in Rio Rancho, NM. The existing WWTP 1 was constructed in the early 1970's and is well beyond its originally planned service life.

The City of Rio Rancho is implementing a water resource recovery program that includes the production of Class 1A effluent as defined by the New Mexico Environment Department Guidelines for the Above Ground Use of Reclaimed Domestic Wastewater dated January 2007, for use on irrigation sites across the city and as feed water for the Advanced Water Treatment Facility (AWTF). The City has already constructed two Membrane Bioreactor (MBR) WWTPs serving the Mariposa (WWTP 5) and Cabezon (WWTP 6) housing developments, with the WWTP 6 currently producing an average of 0.4 mgd of effluent. This project is intended to provide treatment for flow currently treated at WWTP 1 (0.4 mgd average, 0.8 mgd peak hour) from the gravity sewer system noted in Figure 1), plus up to 1 mgd of flow diverted from Lift Station 10 that is currently treated at WWTP 2.

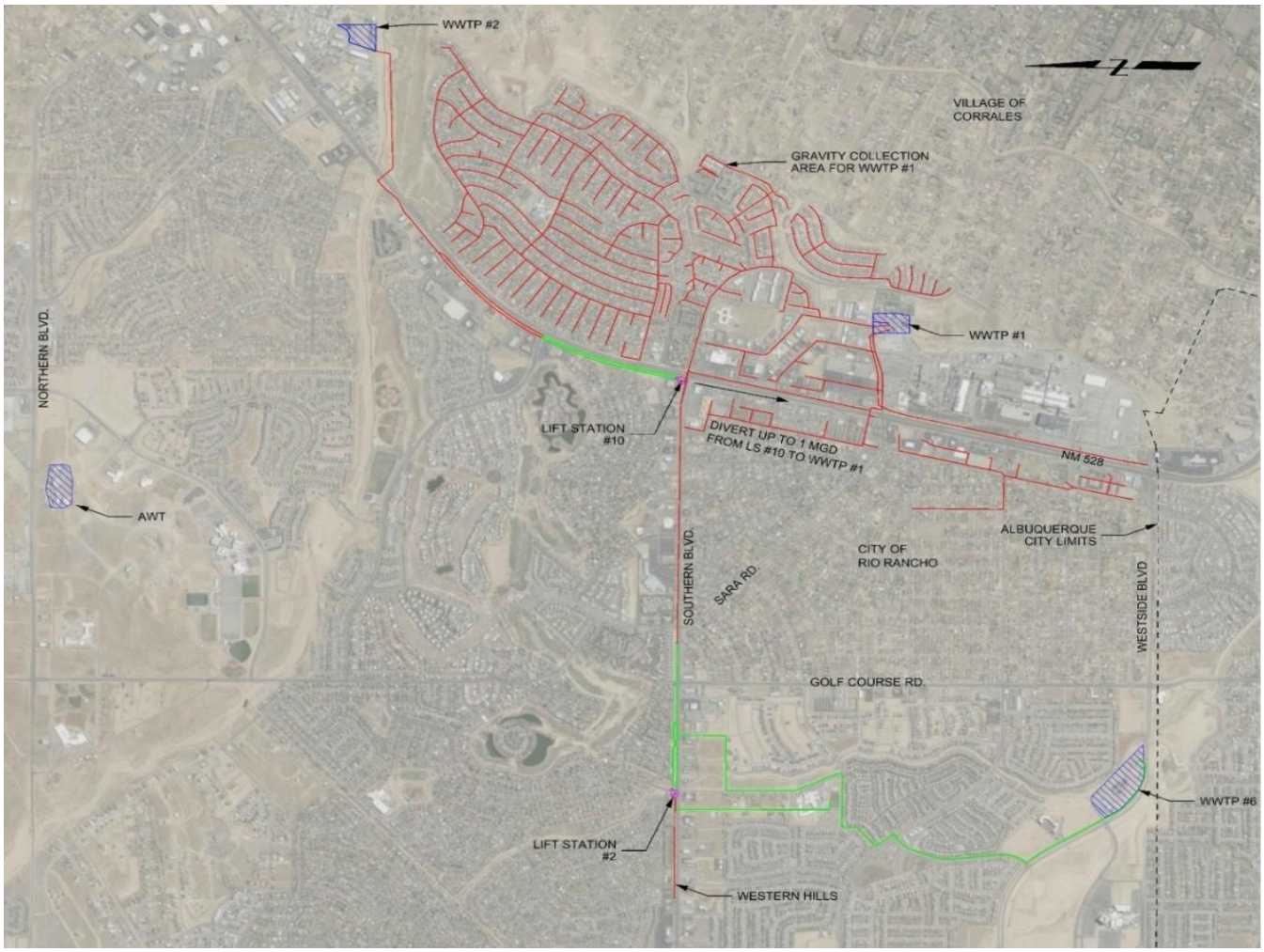

Figure 1 – Collection System for WWTP1 Project

Influent Flows and Concentrations

The design influent flows and concentrations for this project are provided in Table 1. Equipment is to be installed for Phase 1 flows and basins are to be constructed for Phase 2 flows.

Annual Average Flow, mgd	0.75 (Phase 1) 1.5 (Phase 2)
Maximum Month Flow, mgd	0.8 (Phase 1) 1.6 (Phase 2)
Peak Day Flow, mgd	1 (Phase 1) 2 (Phase 2)
Peak Hour Flow, mgd	1.1 (Phase 1) 2.2 (Phase 2)
Minimum Influent Temperature, °C	18
Average Influent Temperature, °C	22
BOD_5, mg/L	300
TSS, mg/L	300
Total Phosphorus, mg/L	8
Total Kjeldahl Nitrogen (TKN), mg/L	50

Treatment Process - General

While the PER recommendation is for a MBR process, to encourage innovation, the City does not want to limit the treatment process technology to that option. Therefore, treatment process alternatives that provides equivalent effluent quality to MBR may be considered. This effluent quality is provided in Table 2.

Table 2 – Effluent Requirements for new WWTP 1

Parameter	Limit	Measuring Type/Frequency
BOD_5	3 mg/L (30-d avg), 5 mg/L (max)	6-hour composite, 1/2 weeks
Total Nitrogen (TKN + NO_3)	8 mg/L (30-d avg), 10 mg/L (max)	Quarterly
E.Coli	0 cfu/100 mL (30-d avg), 2 cfu/100 mL (max)	Grab at peak flow, 1/week
Turbidity	0.1 NTU (30-d avg), 0.3 NTU (max)	Continuously recorded

The purpose of the AWTF is to provide further treatment of the effluent prior to direct injection into the city's ground water being used as the municipal water supply, also known as indirect potable reuse (IPR). The AWTF is currently under construction with an anticipated completion date of April 2017. A pilot study was conducted by the city consisting of treatment of the WWTP 6 effluent by advanced oxidation (ozone/peroxide) and granular activated carbon (GAC) filtration. The successful results of this study formed the basis of the current AWTF project. Because this pilot study used effluent filtered with ultrafiltration (UF) membranes, a membrane filtration process with a pore size no greater than the current UF membranes being used at WWTP 6 will be required for this project.

Although innovation is encouraged on this project, certain minimum technical requirements for the unit processes are provided below. The primary purpose of these requirements is to reduce the potential for protracted discussions during the preliminary design (Phase 1) of the project on fundamental design concepts and facilitate compliance with the aggressive schedule of this project.

Headworks (Screening and Grit Removal)

For the MBR option, two-stage screening with grit removal preceding the 2nd Stage fine screen is required. The 1st Stage coarse screen shall be a bar screen with bar openings no greater than 9.5 mm and no less than 6 mm. Grit removal shall follow the 1st Stage screen and shall be a process proven to provide 95% removal of 100 micron particles, as defined by sand equivalent size settling velocity determinations using wet sieving. The 2nd Stage fine screen shall be a perforated plate screen with openings of 1-2 mm. Flow through the fine screen shall be "inside-out" type, creating a physical barrier against debris carrying over into the screened flow and possibly damaging the membranes. If a tertiary membrane filtration (TMF) process is proposed only the 1st Stage screen and grit removal process is required, although a means of preventing windblown and other floating debris that may carry over from the secondary clarification process from entering the TMF process shall be provided.

Secondary Process

The secondary process shall provide a fully nitrified effluent and total nitrogen removal to less than 10 mg/L at all times. Because this is an IPR application, the process shall provide a minimum aerobic solids retention time (SRT) of 10 days at design maximum month flow and concentrations listed in Table 1. The secondary process shall be sized using an accepted mechanistic modeling program (BioWin™ preferred). Influent characteristics in Table 1 are estimates only and additional influent characterization is being performed of WWTP 1 and LS 10 flows and will be provided during Phase 1 of the project that will allow for determination of influent COD fractions. The model files will be provided to the Owner and used by the Owner's agent for checking the respondents' proposed design. Consideration shall be given to future effluent phosphorus limits in the final layout of the facilities.

Membrane Filtration Process

The membrane filtration process shall use ultrafiltration membranes with a maximum pore size of 0.1 µm. The membrane filtration system shall be equipped with auxiliary systems to keep the membranes clean and maintain the manufacturer's specified range of net specific flux rates of the system. The membranes shall carry at 10 year prorated warranty allowing for membrane replacement during the first 5 years at no additional cost to the Owner. Membrane replacement during the following 5 years of the membrane warranty period will be provided at a prorated cost based on the guaranteed membrane purchase cost. The DB shall guarantee the maximum membrane purchase cost for 10 years following the date of Substantial Completion of the construction contract.

Effluent Disinfection and Storage

For proposers utilizing sodium hypochlorite cleaning systems for the membrane filtration system, sodium hypochlorite shall also be used for effluent disinfection. Alternative disinfectant systems shall be considered if sodium hypochlorite is not used for membrane filtration system cleaning. Sizing of the disinfection systems shall take into account the high quality of membrane filtered secondary effluent and need to control regrowth in the effluent reuse lines. For membranes with backwashing capability, a sufficiently sized permeate storage tank shall be provided to ensure an adequate amount of permeate for a "worst-case" backwash cycle.

Waste Activated Sludge (WAS) Solids Handling

WAS shall be transported in liquid form to WWTP 2 for dewatering. A WAS storage tank shall be provided of sufficient size to maintain peak WAS flow for a period of two days.

Odor Control

Complete containment and treatment of odors from the headworks shall be provided. The odor control system shall be designed to achieve no detectable odor at the fence line. If MBR is used, the bioreactor and membrane tanks will be covered and ventilated with a dispersion stack.

Reliability/Redundancy

For all critical plant equipment, a redundant unit shall be provided. For multiple units of various size, plant capacity shall be achievable with the largest unit out of service. This is particularly important for the MBR fine screens as membrane warranties can be voided with the lack of fine screening. Due to the relatively small plant size, a redundant bioreactor is not feasible but multiple bioreactors shall be provided to allow maintenance of a viable biomass while servicing a portion of the process aeration and mixing equipment while diverting flow to one of the other city WWTPs. A generator will be required to maintain power to the critical elements of the plant.

SCADA

For all SCADA systems and components power will be provided via UPS to provide constant operation of SCADA and supporting equipment. PLC's shall have redundant PLC online backup and coordinated with Advanced Treatment Equipment supplier requirements. Full plant control shall be available from other City sites through SCADA system along with all historical data.

Reuse conveyance to WWTP 6:

The City of Rio Rancho completed the Reuse Master Plan Update, September 18, 2015. The report identified three alternatives. However, the City is open to teams identifying other potential routes that are feasible.

Utilities

A reuse water system utilizing the high quality effluent shall be used for all plant utility water.

Site Drainage

DB is to confirm the need for the storm water drainage improvements provided in Attachment D as being necessary to avoid flooding of the adjacent cemetery. While use of the existing effluent storage pond is not encouraged either for raw sewage equalization or high quality effluent storage, it may be considered to manage storm water flow.

Existing Plant Demolition

Given the lack of redundancy and extreme age of the existing plant, reuse of existing structures is not encouraged and demolition of the existing plant shall be an additive alternative to the GMP.

Exhibit F: Forms

- **Local/Area/Resident/Resident Veteran/Recycled Content Goods Preference Certification Forms.** Respondents shall refer to the following instructions to properly apply for the available preferences utilizing the forms attached hereto.

- **Return of Acknowledgement Form for Distribution List.** Respondents should return the Acknowledgement Form, attached hereto, via email, fax, hand deliver or registered mail to have their firm placed on the procurement distribution list. Failure to return this form will prevent the potential Respondent's firm name from appearing on the procurement distribution list. The procurement distribution list will be used for distribution of important information regarding this procurement. A valid email address must be provided.

- **Required Information Form.** Respondents must submit a completed Required Information Form, attached hereto, signed by party authorized to bind the entity submitting the proposal. This form should include the following items:
    a. The Identity of Respondent including the name of the firm, central address, email address, telephone number, fax number, etc.
    b. Disclosure of any Potential Conflicts of Interest. A conflict of interest shall be cause for disqualifying an Respondent from consideration. A potential conflict of interest includes, but is not limited to: (1) Accepting an assignment where duty to the client would conflict with the Respondent's personal interest, or interest of another client. (2)Performing work for a client or having an interest which conflicts with this contract.
    c. This page has been signed by a signatory with the authority to bind the Respondent. By signing this Signature Page, through the undersigned representative who has the authority to bind the Respondent, and by submitting a proposal in response to this RFQ, the Respondent agrees to perform the services required by such RFQ and to adhere to all requirements, specifications, terms and conditions of the RFP. Respondent further agrees to be bound by this proposal for a minimum of 90 days from the date proposals were due.

Instruction for Application of Resident, Veteran, Local, Area, and Recycled Content Goods Preference.

DEFINITIONS:

- LOCAL BUSINESS means a Resident Business or Resident Contractor which:
  (a) Is authorized to do and is doing business under the laws of the State of New Mexico;
  (b) Possesses a current city business registration;
  (c) Maintains its principal place of business within the corporate limits of the city; and
  (d) Agrees to furnish evidence, in a form suitable to the city, of its payment of New Mexico Gross Receipts Tax.
- AREA BUSINESS means a Resident Business or Resident Contractor which:
  (a) Is authorized to do and is doing business under the laws of the State of New Mexico;
  (b) Possesses a current city business registration;
  (c) Maintains a bona fide place of business within the corporate limits of the city, and agrees to conduct its activities pursuant to the contract for which it is bidding or proposing, to the extent practicable, from that place of business; and

(d) Agrees to furnish evidence, in a form suitable to the city, of its payment of New Mexico Gross Receipts Tax.

- RECYCLED CONTENT GOODS has the meaning set forth in NMSA 1978 § 13-1-21(A)(6), as amended from time to time.
- RESIDENT BUSINESS has the meaning set forth in NMSA 1978 § 13-1-21(A)(5), as amended from time to time.
- RESIDENT CONTRACTOR has the meaning set forth in NMSA 1978 § 13-4-2(A)(5), as amended from time to time.
- RESIDENT VETERAN BUSINESS has the meaning set forth in NMSA 1978 § 13-1-22(A)(7), as amended from time to time.
- RESIDENT VETERAN CONTRACTOR has the meaning set forth in NMSA 1978 § 13-4-2(A)(6), as amended from time to time.
- STATUTORY PREFERENCE means the preference for Resident Businesses, Resident Contractors, Resident Veteran Businesses, Resident Veteran Contractors, and Recycled Content Goods provided in NMSA 1978 §§ 13-1-21 or 13-4-5, as amended from time to time.
- QUALIFYING COMPANY means a company that qualifies for a Statutory Preference under NMSA 1978 §§ 13-1-21 or 13-4-5, as amended from time to time.

INSTRUCTIONS:

- In all invitations for bid and requests for proposals, the Statutory Preferences shall be applied in the manner set forth in NMSA 1978 §§ 13-1-21 or 13-4-5, as amended from time to time.
- A copy of a valid Resident Business Certificate, Resident Veteran Business, Resident Veteran Contractor or Resident Contractor Certificate issued by the New Mexico Taxation & Revenue Department. Information regarding resident preference can be obtained by contacting the Point of Contact as listed herein.
- In addition to the Statutory Preferences, a preference for Local Businesses and Area Businesses shall be administered in the same manner as the Statutory Preferences, as follows:
  (1) in the event a Local Business submits a qualifying bid or proposal and one or more Qualifying Companies also submits a bid or proposal, the Local Business shall receive a two percent (2%) preference in addition to (and not in lieu of) the Statutory Preference; and
  (2) in the event an Area Business submits a qualifying bid or proposal and one or more Qualifying Companies also submits a bid or proposal, the Area Business shall receive a one percent (1%) preference in addition to (and not in lieu of) the Statutory Preference.
- An Respondent or bidder can only qualify as either a Local Business or an Area Business, not both.
- In addition to the definitions and criteria set forth in this section, the central purchasing office may impose additional requirements regarding the nature, size and/or location of Respondents or bidders in any request for proposals or invitation for bids. As a result, companies responding to such solicitations should review the solicitation documents thoroughly.
- Information regarding the City's Procurement Code and the application of the local and resident preference can be obtained by contacting the Point of Contact as listed herein.
- For consideration for the Area, Local, and Recycled Content Goods preference, the Respondent must complete the Preference Certification Form, attached hereto, in accordance with the instructions and return the form with its Technical Proposal.
- In addition to the definitions and criteria set forth in the section, when a joint bid or joint proposal is submitted by both resident and non-resident businesses, the resident business preference provided pursuant to Subsection B or C of the NMSA 1978 §§ 13-1-21 or 13-4-5, as amended from time to time , shall be reduced in proportion to the percentage of the contract, based on the dollar amount of the goods or services provided under the contract, that will be performed by a non-resident business as specified in the join bid or proposal.

Local/Area/Resident/Resident Veteran/Recycled Content Goods Preference Certification Form

Business Name: _____
Principal Place of Business: _____
Address: _____
State _____ ZIP _____

DEFINITIONS:

Recycled content goods has the meaning set forth in NMSA 1978 § 13-1-21(A)(6) , as amended from time to time.

RESIDENT BUSINESS has the meaning set forth in NMSA 1978 § 13-1-21(A)(5) , as amended from time to time.

RESIDENT CONTRACTOR has the meaning set forth in NMSA 1978 § 13-4-2(A)(5) , as amended from time to time.

RESIDENT VETERAN BUSINESS has the meaning set forth in NMSA 1978 § 13-1-21(A)(7), as amended from time to time.

RESIDENT VETERAN CONTRACTOR has the meaning set forth in NMSA 1978 § 13-4-2(A)(6), as amended from time to time.

STATUTORY PREFERENCE means the preference for Resident Businesses, Resident Contractors, Resident Veteran Businesses, Resident Veteran Contractors, and Recycled Content Goods provided in NMSA 1978 §§ 13-1-21 or 13-4-5, as amended from time to time.

Qualifying company means a company that qualifies for a Statutory Preference under NMSA 1978 §§ 13-1-21 or 13-4-5, as amended from time to time.

LOCAL BUSINESS means a Resident Business or Resident Contractor which:
(a) Is authorized to do and is doing business under the laws of the State of New Mexico;
(b) Possesses a current city business registration;
(c) Maintains its principal place of business within the corporate limits of the city; and
(d) Agrees to furnish evidence, in a form suitable to the city, of its payment of New Mexico Gross Receipts Tax.

AREA BUSINESS means a Resident Business or Resident Contractor which:
(a) Is authorized to do and is doing business under the laws of the State of New Mexico;
(b) Possesses a current city business registration;
(c) Maintains a bona fide place of business within the corporate limits of the city, and agrees to conduct its activities pursuant to the contract for which it is bidding or proposing, to the extent practicable, from that place of business; and
(d) Agrees to furnish evidence, in a form suitable to the city, of its payment of New Mexico Gross Receipts Tax.

No bid or proposal shall receive both the Local Business and Area Business preferences.

INSTRUCTIONS:

In all invitations for bid and requests for proposals, the Statutory Preferences shall be applied in the manner set forth in NMSA 1978 §§ 13-1-21 or 13-4-5, as amended from time to time.

In addition to the Statutory Preferences, a preference for Local Businesses and Area Businesses shall be administered in the same manner as the Statutory Preferences, as follows:

(1) in the event a Local Business submits a qualifying bid or proposal and one or more Qualifying Companies also submits a bid or proposal, the Local Business shall receive a two percent (2%) preference in addition to (and not in lieu of) the Statutory Preference; and

(2) in the event an Area Business submits a qualifying bid or proposal and one or more Qualifying Companies also submits a bid or proposal, the Area Business shall receive a one percent (1%) preference in addition to (and not in lieu of) the Statutory Preference.

No bid or proposal shall receive both the Local Business and Area Business preferences.

In addition to the definitions and criteria set forth in this section, the central purchasing office may impose additional requirements regarding the nature, size and/or location of Respondents or bidders in any request for proposals or invitation for bids. As a result, companies responding to such solicitations should review the solicitation documents thoroughly.

A COPY OF A RESIDENT BUSINESS OR CONTRACTOR / VETERAN BUSINESS OR CONTRACTOR CERTIFICATE ISSUED BY THE NEW MEXICO TAXATION AND REVENUE DEPARTMENT IS REQUIRED TO BE SUBMITTED ALONG WITH YOUR BID / OFFER IN ORDER TO QUALIFY FOR THE STATUTORY RESIDENT / VETERAN PREFERENCE. In addition, the attached Resident Veterans Preference Certification form must accompany any bid/offer and any business wishing to receive a resident veteran's preference must complete and sign the form.

REQUESTS FOR RECYCLED CONTENT GOODS PREFERENCE MUST BE ACCOMPANIED BY OFFICIAL / VERIFIABLE EVIDENCE THAT THE MATERIAL BEING BID / OFFERED CONTAINS THE MINIMUM RECYCLED CONTENT REQUIRED BY STATE STATUE.

THIS FORM MUST BE SUBMITTED AT THE TIME BIDS / OFFERS IN ORDER TO CLAIM LOCAL, AREA, RESIDENT, VETERAN OR RECYCLED CONTENT GOODS PREFERENCE.

PLEASE INDICATE THE TYPE OF PREFERENCE CLAIMED:

If your firm is a Qualifying Company please circle the type of preference for which your firm qualifies and indicate your appropriate annual revenue threshold:

RECYCLED CONTENT GOODS

RESIDENT BUSINESS

RESIDENT CONTRACTOR

RECYCLED CONTENT GOODS RESIDENT VETERAN BUSINESS
❑ Annual revenue up to $3,000,000.00
❑ Annual revenue more than $3,000,000.00 or more

RESIDENT VETERAN BUSINESS
❑ Annual revenue up to $3,000,000.00
❑ Annual revenue more than $3,000,000.00 or more

RESIDENT VETERAN CONTRACTOR
❑ Annual revenue up to $3,000,000.00
❑ Annual revenue more than $3,000,000.00 or more

If your firm is applying for either a Local or Area Preference, please circle the type of preference for which your firm qualifies. **(Select only one)**:

LOCAL BUSINESS AREA BUSINESS

CITY OF RIO RANCHO BUSINESS LICENSE REGISTRATION NUMBER: _____
(Must be provided if claiming Local Business or Area Business Preference)

If submitting a joint bid/proposal please indicated proportion of work to be completed by qualifying company:

_____%

CERTIFICATION: I hereby certify that the information which I have provided on this form is true and correct, that I am authorized to sign on behalf of the business set out above and if requested by the City will provide, within 10 days of notice, the necessary documents to substantiate the information provided on this form.

By: _____ Title: _____ Date:_____

Resident Veterans Preference Certification

_____(NAME OF CONTRACTOR) hereby certifies the following in regard to application of the resident veterans' preference to this procurement:

Please check one box only:

☐ I declare under penalty of perjury that my business prior year revenue starting January 1 ending December 31 is less than $3M allowing me the 10% preference discount on this solicitation. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

"I agree to submit a report, or reports, to the State Purchasing Division of the General Services Department declaring under penalty of perjury that during the last calendar year starting January I and ending on December 31, the following to be true and accurate:

"In conjunction with this procurement and the requirements of this business' application for a Resident Veteran Business Preference/Resident Veteran Contractor Preference under Sections 13-1-21 or 13-1-22 NMSA 1978, when awarded a contract which was on the basis of having such veterans preference, I agree to report to the State Purchasing Division of the General Services Department the awarded amount involved. I will indicate in the report the award amount as a purchase from a public body or as a public works contract from a public body as the case may be.

"I understand that knowingly giving false or misleading information on this report constitutes a crime."

I declare under penalty of perjury that this statement is true to the best of my knowledge. I understand that giving false or misleading statements about material fact regarding this matter constitutes a crime.

_____ _____

(Signature of Business Representative)* (Date)

*Must be an authorized signatory for the Business.

The representations made in checking the boxes constitutes a material representation by the business that is subject to protest and may result in denial of an award or unaward of the procurement involved if the statements are proven to be incorrect.

CITY OF RIO RANCHO
DDEPARTMENT OF FINANCIAL SERVICES

RFQ 17-UT-001
Progressive Design Build for Wastewater Treatment Plant 1

Acknowledgment Form

Please complete this form and return it to the City of Rio Rancho Financial Services Department. Failure to return this form will not exclude a firm from submitting a statement of qualification; however, only those prospective respondents who elect to return this form will receive addenda, if issued, and/or other information pertaining to this solicitation.

Name of Firm: _____

Firm Representative: _____

Title: _____

Phone: _____ **Fax**: _____

E-Mail: (required) _____

Address: _____

City: _____ **State:** _____ **Zip:** _____

When completed, please email, fax or mail this form to the following contact:

Shonna Ybarra, Purchasing and Contracts Manager
CITY OF RIO RANCHO
DEPARTMENT OF FINANCIAL SERVICES
3200 CIVIC CENTER CIRCLE
RIO RANCHO, NM 87144
Phone: (505) 891-5044
Fax: (505) 891-5762
sybarra@ci.rio-rancho.nm.us

CITY OF RIO RANCHO
DDEPARTMENT OF FINANCIAL SERVICES

RFQ 17-UT-001
Progressive Design Build for Wastewater Treatment Plant 1

Required Information Form

1. IDENTITY OF RESPONDENT:

FIRM NAME: _____

ADDRESS: _____

_____

E-MAIL ADDRESS: _____

ALTERNATE EMAIL CONTACT: _____
(City may attempt to contact Respondent via email please provide additional email contact information if available.)

TELEPHONE #: _____

NEW MEXICO TAX # (if any) _____

NEW MEXICO STATE CORPORATION COMMISSION # _____

CONTACT PERSON FOR PROPOSAL _____

2. DISCLOSURE OF ANY POTENTIAL CONFLICTS OF INTEREST
Please indicate any potential conflicts of interest including, but is not limited to:

- Accepting an assignment where duty to the client would conflict with the Respondent's personal interest, or interest of another client.
- Performing work for a client or having an interest which conflicts with this contract.

_____

_____

_____

_____

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_____

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_____

_____

_____

_____

(Please attach additional pages if necessary)

3. SIGNATURE

This page has been signed by a signatory with the authority to bind the Respondent. By signing this Signature Page, through the undersigned representative who has the authority to bind the Respondent, and by submitting a proposal in response to RFQ 17-UT-001, the Respondent agrees to perform the services required by such RFQ and to adhere to all requirements, specifications, terms and conditions of the RFQ. Respondent further agrees to be bound by this proposal for a minimum of 90 days from the date proposals were due. By signing this Signature Page, the undersigned representative is also acknowledging receipt of all addenda that may be issued in regards to said RFQ.

SIGNED BY:

_____
Name (print)

_____
Signature

_____
Title

_____
Date

FINAL REPORT

Preliminary Engineering Report for City of Rio Rancho WWTP 1 Rebuild – Project #: WW1494

Prepared for

City of Rio Rancho

October 2015

3721 Rutledge Rd
NE Suite B-1
Albuquerque, NM 87109

JULIE PETROCCO-SAMORA
NEW MEXICO
12009
REGISTERED PROFESSIONAL ENGINEER

Julie P. Samora
10/10/15

Executive Summary

The City of Rio Rancho (City) is located just north of the City of Albuquerque in Sandoval County. The City is one of the fastest growing cities in New Mexico with a population estimate of over 91,900 based on the 2013 U.S. Census data. The City has adopted a vision that incorporates innovative and proactive approaches to water management to develop a sustainable community. The City has responded to the water supply challenges in the community and has been aggressive in developing recycled water planning that includes alternative uses, addresses regulatory issues, best management practices, and considers beneficial recycling of water, including aquifer recharge.

The existing Wastewater Treatment Plant (WWTP) 1 is an aging treatment facility constructed in the early 1970s and has exceeded its useful life. The City intends to construct a new WWTP at the same site to treat wastewater flows, accommodate increased flows in the service area, have the ability to meet the stringent effluent quality standards required for the City's Advanced Water Treatment Facility (AWTF), and possibly provide reuse for an industrial client (IC). The WWTP 1 Annual Average Flow (AAF) is projected to be 1.50 mgd with a peak month of 1.6 mgd and peak hour of 3.0 mgd.

Alternative treatment processes evaluated considered future capacity, efficient operation, low odor production, reliability and redundancy, and ability to meet the stringent effluent quality standards. Based on these requirements, a Membrane Bioreactor (MBR) treatment process was selected.

The MBR treatment plant main components include screening and grit removal, aeration basins, membrane tanks, odor control facilities, membrane operations building, standby generator, and disinfection system. Support facilities and site improvements include site utilities, roadways and parking, drainage, supervisory control and data acquisition (SCADA) system, influent raw sewage pipeline, and effluent reuse pipeline to existing reuse system. Figure ES-1 shows a potential layout for the new WWTP 1.

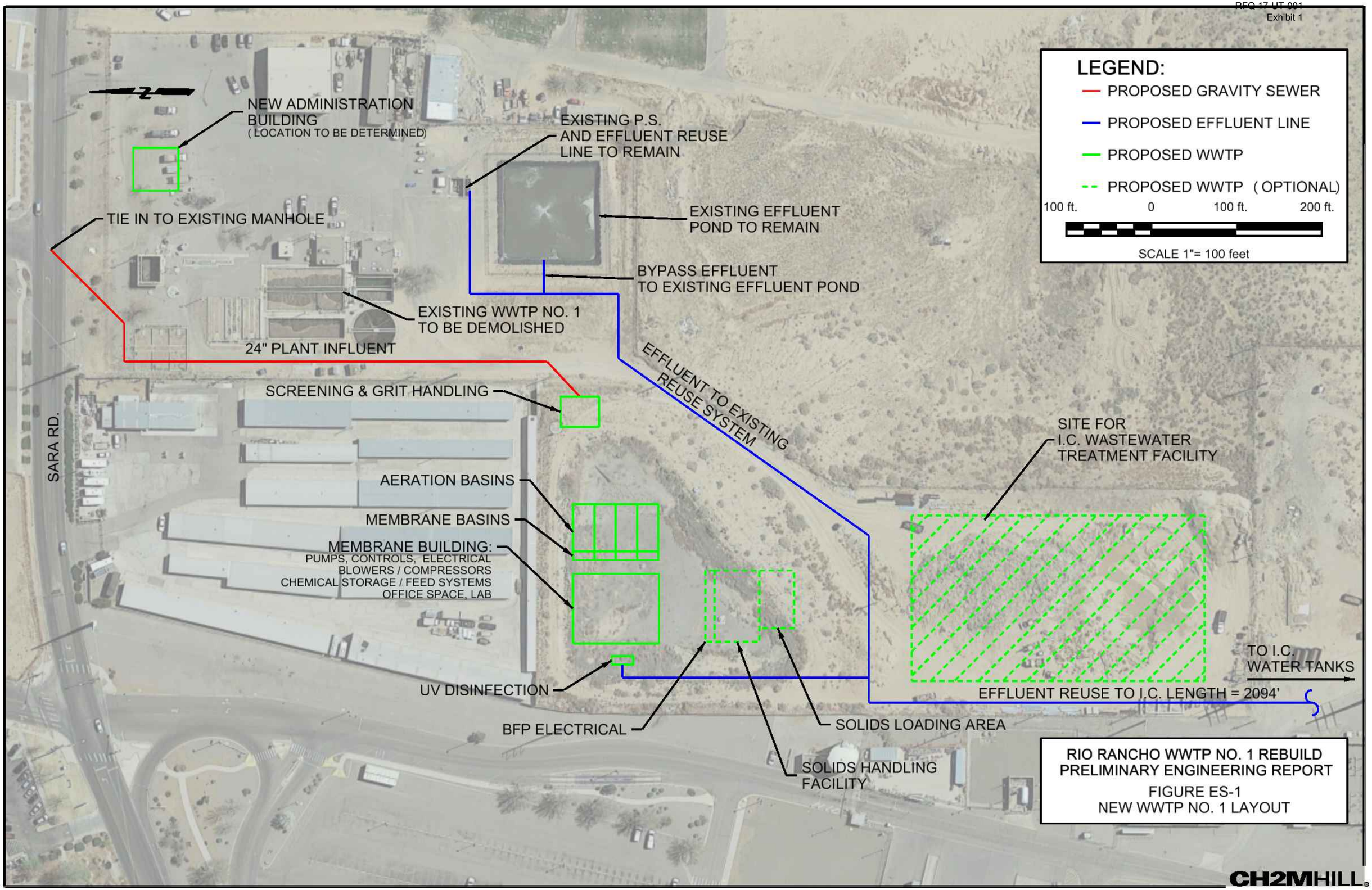
The projected budget for the baseline MBR treatment facility is $26,040,000 inclusive of the current New Mexico Gross Receipts Tax (NMGRT). The budget, including NMGRT, for recycle pump and pipeline components to pump from WWTP 1 to the proposed 3 million gallon tank at Well 10A (necessary to be able to use the recycle water for the AWTF) is in the range of $2,390,000 to $4,930,000 depending on the route that is selected.

Budget for the additional (but not critical) facilities is $5,920,000, including NMGRT. The breakdown for each possible additional components including NMGRT is:

- Storm Drain Improvements = $400,000
- New Administration Building = $720,000
- Demolition of the Existing Plant = $450,000
- Recycled Water Pipeline to the IC = $560,000
- Waste Activated Sludge (WAS) Thickening/Belt Filter Press (BFP) = $3,790,000

The future pump and pipeline budget to convey the Unit 16E future flows and the IC domestic wastewater flows through a new lift station and new forcemain to the WWTP 1 is $3,460,000 (includes NMGRT). The budget to connect the IC domestic flows to the existing LS 16 is $530,000 (includes NMGRT).

Time is critical for this project due to the failing condition of the existing facilities. The City wishes to pursue financing to expedite construction of the new plant and utilize alternative methods of delivery, specifically a lump sum design-build (DB) method of delivery. Cost estimates presented in this report are based on the Association for Advancement of Cost Engineering International Class 4 standards, which have an estimated accuracy range from -30 to +50 percent and assume design-build delivery.


LEGEND:
PROPOSED GRAVITY SEWER
PROPOSED EFFLUENT LINE
PROPOSED WWTP
PROPOSED WWTP (OPTIONAL)
100 ft. 0 100 ft. 200 ft.
SCALE 1"= 100 feet
NEW ADMINISTRATION BUILDING
(LOCATION TO BE DETERMINED)
EXISTING P.S. AND EFFLUENT REUSE LINE TO REMAIN
EXISTING EFFLUENT POND TO REMAIN
TIE IN TO EXISTING MANHOLE
BYPASS EFFLUENT TO EXISTING EFFLUENT POND
EXISTING WWTP NO. 1 TO BE DEMOLISHED
24" PLANT INFLUENT
EFFLUENT TO EXISTING REUSE SYSTEM
SCREENING & GRIT HANDLING
SARA RD.
SITE FOR I.C. WASTEWATER TREATMENT FACILITY
AERATION BASINS
MEMBRANE BASINS
MEMBRANE BUILDING:
PUMPS, CONTROLS, ELECTRICAL
BLOWERS / COMPRESSORS
CHEMICAL STORAGE / FEED SYSTEMS
OFFICE SPACE, LAB
TO I.C. WATER TANKS
UV DISINFECTION
EFFLUENT REUSE TO I.C. LENGTH = 2094'
BFP ELECTRICAL
SOLIDS LOADING AREA
SOLIDS HANDLING FACILITY
RIO RANCHO WWTP NO. 1 REBUILD
PRELIMINARY ENGINEERING REPORT
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CH2MHILL

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Acronyms and Abbreviations

AWT	advanced water treatment
BFP	belt filter press
BNRAS	biological nutrient removal activated sludge
BOD	biological chemical demand
CPES	CH2M Parametric Estimating System
DB	design-build
DBB	design-bid-build
DP	discharge permit
EPA	United States Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FY	fiscal year
gpcd	gallons per capita per day
gpm	gallons per minute
GWQB	Groundwater Quality Bureau
IC	industrial client
LSDB	lump sum design-build
MBR	membrane bioreactor
mgd	million gallons per day
MLSS	mixed liquor suspended solids
NMED	New Mexico Environment Department
NMWQCC	New Mexico Water Quality Control Commission
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resources Conservation Service
O&M	operation and maintenance
PER	Preliminary Engineering Report
PLC	programmable logic controller
pph	persons per household
RAS	return activated sludge
SCADA	supervisory control and data acquisition
TDS	total dissolved solids
TKN	total Kjeldahl nitrogen
TM	Technical Memorandum

TOC	total organic carbon
TSS	total suspended solids
USGS	United States Geological Survey
UV	ultraviolet
WAS	waste activated sludge
WRF	water reclamation facility
WWTP	wastewater treatment plant

SECTION 1

Introduction

The City of Rio Rancho (City) is located just north of the City of Albuquerque in Sandoval County. The City is one of the fastest growing cities in New Mexico with a population estimate of more than 91,900 based on the 2013 U.S. Census data. The City was developed initially in the early 1960s by a land developer who marketed the area to the Midwest and eastern states and experienced rapid growth in the years since. The City was incorporated in 1981 and acquired the water and wastewater utilities in 1995. The City has adopted a vision that incorporates innovative and proactive approaches to water management to develop a sustainable community. The City has responded to the water supply challenges in the community and has been aggressive in developing water reuse planning that include alternative uses, addresses regulatory issues, best management practices, and considers beneficial reuse and recycling of water, including aquifer recharge. Numerous and detailed studies have been completed from 2001 to the present that address the water reuse strategies and issues. This project is consistent and integral to that overall reuse strategy.

1.1 Project Background

The existing Wastewater Treatment Plant (WWTP) 1 is an activated sludge wastewater treatment facility with a nominal design capacity of 1.25 million gallons per day (mgd). The facility was built in the 1970s and has one treatment train with no redundancy. The aging facility is in poor condition, and the ability to effectively treat the wastewater has been greatly diminished. The City intends to decommission the existing facility and construct a new WWTP to address existing and future wastewater needs.

1.2 Report Objectives

This report provides a comprehensive plan for the wastewater treatment facilities needed for the service area currently served by the existing WWTP 1. The planning period is a 20-year period consistent with the industry standards for wastewater planning from 2015 to 2035.

The report objectives are as follows:

- Describe the planning (service) area and develop existing and growth estimates for the wastewater flow that is reasonable for the 20-year planning period.
- Describe the regulatory framework for the wastewater discharges and viable options for the City that are consistent with the City's ultimate recycled water plans.
- Document and describe the existing conditions of the WWTP 1 facilities.
- Develop alternatives for the WWTP 1 rebuild project to meet the goals and objectives of the City's overall wastewater reuse plans.
- Develop the ancillary facility components necessary for the complete system – pumping and pipeline components for the future connections and effluent recycled water facilities.
- Summarize and provide a conceptual design and cost estimate for the proposed facilities.

1.3 Report Organization

The report organization is consistent with the New Mexico Environment Department (NMED) accepted Preliminary Engineering Report (PER) format, which is consistent with the Rural Utility Services outline. The report is organized in the following sections:

- **Section 1 – Introduction.** This section discusses the project background, overview of the project, objectives of the report, and report organization.
- **Section 2 – Project Planning.** This section describes the project planning area, service area for WWTP 1, the location, environmental resources present, growth areas, and projected population and wastewater flow.
- **Section 3 – Existing Facilities.** This section provides a description of the existing wastewater treatment plant, including the location, history, condition, and financial status of the existing operating facilities.
- **Section 4 – Need for Project.** This section establishes the need for the project in terms of health and sanitation, regulatory requirements, system operation and maintenance, growth, and other identified needs.
- **Section 5 – Alternatives Considered.** This section develops the alternatives for the WWTP 1 treatment options, design criteria, and pump and pipeline alternatives. The specific alternatives include a detailed description, a process flow diagram, environmental impacts, land requirements, construction problems, cost estimates, and a comparison of alternatives.
- **Section 6 – Selection of Alternative.** This section proposes a project based on a decision analysis process and weighting criteria and presents the capital cost and net present worth analysis.
- **Section 7 – Proposed Project.** This section summarizes the recommended project and includes the system layout for the treatment process, pumping stations, and pipeline and includes implementation items such as the project schedule, permit requirements, project costs, and funding options.
- **Section 8 – Conclusions and Recommendations.** This section summarizes the conclusions and recommendations and includes any additional findings and recommendations that may be considered in development of the project.

SECTION 2

Project Planning

The project planning area for this Preliminary Engineering Report (PER) is the service area for the wastewater flows to WWTP 1, which is described in this section, including the location of the facility, service area boundaries, planning period, environmental resources present, growth and population trends, and community engagement.

2.1 Location

The City of Rio Rancho is located in southern Sandoval County, New Mexico, near the Bernalillo County boundary and just north of Albuquerque. The planning area for this project is the service (drainage) area of wastewater flows into WWTP 1 within the City of Rio Rancho's wastewater system. Figure 2-1 shows the location of WWTP 1 and the service area, which is between NM 528 and the Village of Corrales border, and south of Arroyo de los Montoyas. The address for the facility is 4300 Sara Road SE and the property consists of approximately 5.2 acres. The service area also includes businesses on the west side of NM 528 between Westside Boulevard and Southern Boulevard. Figure 2-1 shows the location of the Unit 16 East (16E) residential area just west of NM 528, consisting of 1,382 existing houses currently using onsite septic systems for waste disposal.

2.2 Environmental Resources Present

Rio Rancho is located in central New Mexico and is the largest city is Sandoval County. It is bordered by the City of Albuquerque, Santa Ana Pueblo, and the Town of Bernalillo. The northeast corner of the City is bound by the Rio Grande. As shown on Figure 2-1, the area impacted by this project is in a highly developed, densely populated area. The land use is characterized by a mix of residential and commercial development, and utility corridors. The service area includes residential homes, commercial properties along NM 528, and a few empty lots spread throughout.

The climate in Rio Rancho is similar to Albuquerque with four distinct seasons. Summers include many warm sunny days with temperatures reaching the high 90s. Winters are mild with annual snowfall around 11 inches. The area is relatively arid with an average annual rainfall of under 9 inches.

The location of the project is primarily within the property of the existing WWTP 1, which is approximately 5.2 acres of land at an elevation of approximately 5,260 feet above mean sea level. The new WWTP will be located in an area that was previously used for water storage and has since been decommissioned. The residual pond materials will have to be disposed of in accordance with the conditions of the DP-215, which requires pumping out any liquid waste contained in abandoned waste treatment units and disposing in accordance with all local, state, and federal regulations. The existing pond has been abandoned for some time so materials contained within it are expected to be dry and not in liquid form. Coordination will be required with State officials to ensure any existing solids materials are disposed of properly in preparation of this site.

Additional project elements include offsite piping and pump modifications for the recycled water from WWTP to be pumped to the proposed 3 MG recycle storage tank located at Well 10A (RWT). This proposed option will include an in-line booster station and 50,000 gallon storage tank at WWTP 1 and a duplicate in-line booster station to be located in the vicinity of the East Lake and pump through a pipeline to the Well 10A/3 MG tank.

The geology in the area is known as the Rio Grande Rift. The community is located above several hundred feet of sediment that fills the rift trough. The east-west boundary of the rift is defined by the Rio Puerco Valley and the Sandia Mountains. Based on the Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2008), the soils in the area are mostly loamy fine sands consisting of the

Sheppard (Map Unit Symbol 183) loamy fine sand with 8 to 15 percent slopes and the Grieta (Map Unit Symbol 142) fine sandy loam, 1 to 4 percent. These soils are considered to be well to somewhat excessively drained and with no ponding or flooding frequency.

The Federal Emergency Management Agency (FEMA) maintains Flood Insurance Rate Maps (FIRM) for the City of Rio Rancho. The FEMA map for this area (Map Number 35043C2107D, Revised March 18, 2008) was reviewed to verify WWTP 1 is not within a designated floodplain area.

Wetlands, as protected under Section 404 of the Clean Water Act, are defined as having a dominance of hydrophilic vegetation, hydric soils, and wetland hydrology. Given the restrictive and developed area of the project site, wetlands have not been identified.

The project is located within the Rio Grande watershed. The water resources impacted by this project include the surface water of the river and groundwater resources. Any discharges to the Rio Grande are regulated through a National Pollutant Discharge Elimination System (NPDES) permit. The groundwater aquifer system is known as the Rio Grande aquifer system, which consists of unconsolidated sediment along parts of the river valley. The Rio Grande aquifer system consists of unconsolidated gravel, sand, silt, and clay, or party consolidated sedimentary or volcanic materials. Recharge to the Rio Grande aquifer system is primarily from precipitation in the mountainous area that surround the basins. The depth to groundwater at WWTP 1 site and the service area is approximately 500 feet (U.S. Geological Survey [USGS] well data) but there could be the potential for a perched aquifer. The project involves recycled water for non-potable purposes and discharge of treated effluent to the Rio Grande through WWTP 2.

Air quality issues include the composition of air with respect to quantities of pollutants. Mitigation efforts will be implemented to control dust from the site during construction activities. The control of particulate matter from the various construction activities will be conducted in accordance with all applicable federal and state regulations.

Biological resources are limited at the site as the area is already cleared/disturbed and in use for the existing wastewater operations. The project area has been cleared of vegetation and wildlife. With constant activity at the existing plant site, there is no expected disruption of wildlife or threatened and endangered species.

There are no known archeological, cultural, or historic resources identified at the existing WWTP 1 site due to its already disturbed state. Consideration will be taken during any construction to mitigate possible disturbances of any unidentified sites that may be encountered.

The proposed project is not expected to have an adverse or disproportional impact on low income or minority populations. The project is being constructed at a site that already has a wastewater treatment facility. The project will have a beneficial impact on the planning area by providing better wastewater treatment facilities and by providing eventual treatment for the areas currently not being served. The eventual connection of the Unit 16E residential area will result in taking more than 1,400 homes currently on septic tanks and connecting them to the City's sewer system.

Other resources include public health and safety issues, energy, transportation, visual impact, and noise. The proposed project is not expected to have an adverse or significant impact to public safety. The project will be constructed in accordance with City, State and Federal guidelines and requirements. While the detailed energy consumption information has not been calculated at this early stage in the planning, it is expected that energy consumption should improve due to more updated, efficient operations, instrumentation and controls, and equipment. Increased traffic and transportation is not expected at the treatment facility with the exception of increased traffic during construction. The visual impacts of the project are expected to be minimal. The new facility will be constructed on the existing

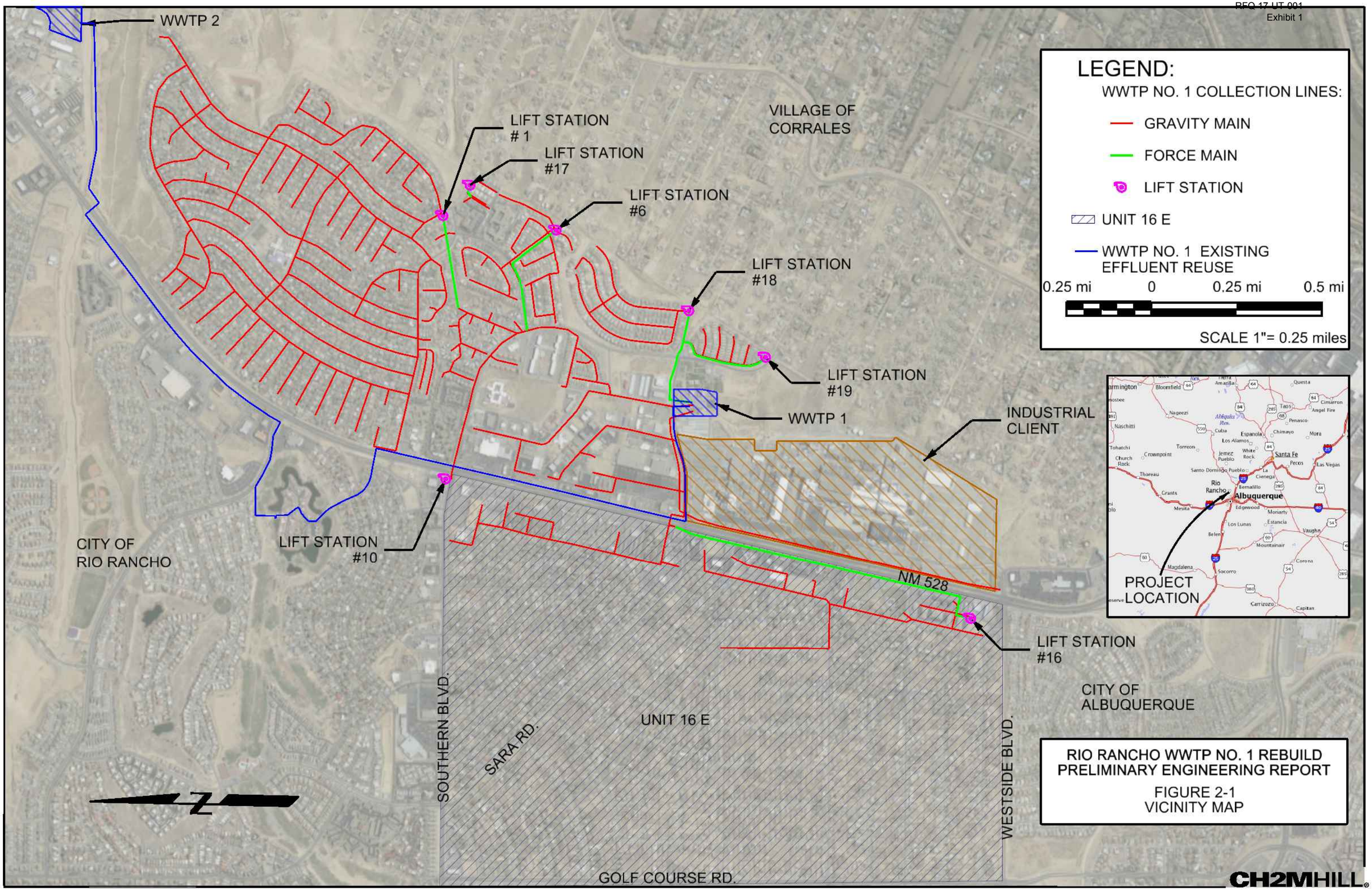

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FIGURE 2-1
VICINITY MAP

treatment plant site and will be located in an area where visual impacts are reduced. Noise impacts for the new facility are expected to be minimal. The new WWTP will be covered to mitigate the noise from the operations.

2.3 Growth Areas and Population Trends

The planning period for this PER is 20 years, to the year 2035. Typically, population growth for the area is developed for the 20-year period. While the City of Rio Rancho continues to see growth in its population, the service area for WWTP 1 is fairly restricted to an area that is already densely populated. As shown on Figure 2-1, the service area is filled in with commercial properties along the NM Highway 528 corridor and residential homes in the northern part. Based on the review of the existing service area and the lack of vacant land for infill, the population growth within the service area is expected to be minimal.

The additional flow into WWTP 1 will include domestic flows from a potential IC and Unit 16E residential homes currently on septic tank systems. The development of the wastewater flows and loadings is described in detail in Section 4, Need for Project.

2.4 Community Engagement

The City of Rio Rancho has an open and informative community engagement program that is highlighted with its comprehensive user friendly website, located at http://ci.rio-rancho.nm.us. The *News & Highlights, Events Calendar,* and *Spotlight* sections keep the public informed about upcoming projects, including this PER. The website has a specific link for customer service, to assist the customers in setting up accounts for water and water service, making changes, paying bills, and turning water on at properties.

The City will engage the community in the project planning process. The intent of public involvement is to help the community develop an understanding of the need for the project, the utility operational service levels required, and funding and revenue strategies to meet these requirements. The level of community engagement will depend on how the project is funded. If the project is funded through a Clean Water State Revolving Loan Fund (CWSRLF) which is administered through the New Mexico Environment Department (NMED) Construction Programs Bureau (CPB), there are specific public involvement process that must be followed. A formal public hearing is required with proper notification through the local newspaper. The public hearing provides a platform to discuss the project and present the findings from the Preliminary Engineering Report and the Environmental Information Document (EID). Comments from the public and stakeholders are received during the public hearing and after for a certain period of time. A formal transcript of the hearing is required. If the project is funded through bond funds, the community will be involved and engaged through meetings, public events, and updates through the City's website.

SECTION 3

Existing Facilities

This section of the PER describes the location of the facility, the history and condition of the existing facility, financial status of the utility, and describes any water and wastewater audits.

3.1 Location Map

The City of Rio Rancho WWTP 1 is located at 4300 Sara Road, Rio Rancho, New Mexico 87124 as shown on Figure 2-1 of the previous section.

3.2 History

WWTP 1 was built in the early 1970s and was designed as an activated sludge plant with a nominal design flow of 1.25 mgd. The treated effluent is delivered to the Vista Verde Cemetery and the Club Rio Golf Course. In the event these customers do not need recycled water, the effluent is discharged to WWTP 2 for blending with that plants' effluent prior to discharge to the river. Recently, CH2M completed an analysis that evaluated the condition of the existing WWTP 1 and recommended interim critical repairs to the plant. The report titled: *The Evaluation of Options for Critical Repairs at City of Rio Rancho Wastewater Treatment Plant 1 Technical Memorandum (TM)*, February 2015 provides the basis for much of the discussion on condition of existing facilities in this section and is located in Appendix A for reference.

3.3 Condition of Existing Facilities

WWTP 1 was designed as a contact stabilization activated sludge plant. The influent first passes through a manual bar screen that removes major solids and debris. These solids are collected and taken offsite to the landfill for final disposal. The wastewater then flows through an influent Parshall flume where the flow rate is measured. After exiting the Parshall flume, wastewater flows through a grit chamber and into the aeration basin where oxygen is introduced using a series of blowers and diffusers. The raw sewage is mixed with return activated sludge (RAS) and aerated in a contact basin. The solids are separated from the treated effluent by sedimentation and the RAS is sent to the stabilization tank where it is further aerated. A portion of the return sludge is wasted to maintain the desired mixed liquor suspended solids (MLSS) in the stabilization tank. The wastewater is then discharged to the final clarifier where the solids are settled, wasted, and clarified wastewater is pumped into the finished water holding pond. The treatment plant was designed as an activated sludge plant with tertiary treatment through sand filters. The support structure of the filters has collapsed and currently are not functioning. Disinfection consists of adding sodium hypochlorite directly into the pipe, after exiting the clarifier, to provide mixing before the clarified wastewater enters the finished water holding pond. The effluent is then either sold as recycled water or sent to WWTP 2 for discharge to the Rio Grande. WWTP 1 is a single train facility with no redundancy and there is no way to bypass the process basins to make repairs. The facility has been operating beyond its intended useful life and continued operation for any significant period of time could create an emergency situation if a catastrophic failure of the plant occurs.

The condition of existing facilities was evaluated based on site visits and discussions with operations staff. The existing facilities are operable but are in need of critical repairs as noted in this discussion and documented in a previously referenced TM. Table 3-1 provides a summary of the main components of existing WWTP 1 and its current condition. In order for the existing plant to continue operating and producing effluent suitable for reuse, critical repairs would have to be made to the aeration basin and primary clarifier. These repairs are costly and temporary in nature as they do not resolve the overall

poor condition of the aged facility nor mitigate the lack of redundancy and reliability. As the existing plant does not have any redundancy to treat influent while processes are offline for repairs, temporary treatment facilities or bypass pumping would be required to handle influent while processes are offline. The Critical Repairs TM describes the options for temporary treatment or bypass pumping at WWTP 1. The existing plant does not have any backup power, other than to the effluent pumps. In the event of a power outage, there is no backup power source.

Table 3-1. Summary of Condition of Wastewater Treatment Components at WWTP 1

Component	Description/Dimensions	Condition/Operational Issues
Manual Bar Screen	3’0” x 2’0”manual bar screen in a 2’0” x 4’0” ft. channel.	• Influent can be split between two channels. • Manual bar screen is on the west side and requires regular cleaning. • The large screen spacing allows rags and other debris to enter the plant, which can clog pumps and disrupt the treatment process.
Grinder	3-HP 460V mechanical “Muffin Monster” grinder.	• Mechanical grinder is used to pulverize solids coming into the plant. • Grinder is on the east side of the split channel. • Grinder is currently out of service due to corrosion from hydrogen sulfide.
Influent Flow Meter - Parshall Flume	Parshall flume reduces to two 2’ channels into one 1’ channel where flow is measured.	• Flume is operable and flow meter is currently functioning. • Flow is also being measured as it exits the plant.
Odor Control Device	Granular activated carbon filter with mechanical blower.	• Located just east of the influent channel. • Odor control device is currently out of service.
Wash Water Piping	Wash water piping for general plant maintenance.	• Piping is cracked and leaking underneath the plant and system is no longer functioning.
West Aeration Basin	Concrete basin 60’0” x 24’4” x 13’10” deep with a series of air diffusers to introduce oxygen. Capacity: 151,071 gallons	• Basin is in need of repairs to concrete due to cracking along walls and walkways around basin. • Blower airline is corroded and leaking and multiple diffusers have broken at the stem from the header. • Debris forming ropes within basin. • Blow-off piping broken.
East Aeration Basin	Concrete basin 90’2” x 24’4” x 13’10” deep with a series of air diffusers to introduce oxygen. Capacity: 227,026 gallons.	• Basin is in need of repairs to concrete due to cracking along walls and walk ways around the basin. • Blower airline is corroded and leaking and multiple diffusers have broken at the stem from the header. • Some diffusers are broken from headers. • Debris forming ropes within basin.
Re-aeration Basin	Concrete basin 30’4” x 24’4” x 13’10” deep with RAS return and air diffusers Capacity: 76,165 gallons.	• RAS conveyance cracked and leaking. • Basin is in need of repairs to concrete due to cracking.
Primary Digester	29’4” x 25’0” x 11’ deep. Concrete basin with air diffusers. Capacity: 60,335 gallons.	• Diffusers are functioning. • Basin is in need of repairs to concrete and other general maintenance. • No drain in basin requiring staff to enter basin and remove sludge periodically.
Secondary Digester	90’ x 23’10” x 14’ deep. Concrete basin with air diffusers and sludge removal pumping. Capacity: 224,624 gallons.	• Basin is in need of repairs to concrete due to cracking along walls and walk ways around the basin. • Debris forming ropes within basin.

Table 3-1. Summary of Condition of Wastewater Treatment Components at WWTP 1

Component	Description/Dimensions	Condition/Operational Issues
Sludge Drying Beds	Six concrete drying beds total; each bed approximately 51' x 20'.	• Drying beds are currently not in use. Sludge from the secondary digester is currently trucked to a landfill.
Clarifier	50' diameter x 8'11" deep concrete basin with skimmer, weir, inlet well, and scum box. Capacity: 130,280 gallons.	• Weir braces separating from wall due to corrosion. • Water not draining from weir equally due to corrosion. • Skimmer track bent. • Launderers bent and clarifier arm is broken.
Sand Filters	Concrete basin with filtering sand over underdrains	• Underdrains are clogged. • Sand filters are not operational. • Support structure of sand filter has collapsed.
Chlorine Contact Chamber	Concrete basin with hypochlorite injection.	• Chlorine contact chamber is not operational.
Chlorine Injection	Sodium hypochlorite is injected directly into effluent piping from clarifier to finished water holding pond.	• Injection of sodium hypochlorite provides adequate residual. • Contact time and efficient mixing is limited.
Finished Water Holding Pond	Lined pond with surface aerators. Approximately 700,000 gallon capacity.	• Pond liner is in good condition. • Flooding has caused sediment to fill the northwest corner of the pond which requires dredging.
Sodium Bisulfite Injection	Sodium bisulfite is injected directly into effluent piping for de-chlorination after exiting the finished water holding pond.	• Injection of sodium bisulfite provides adequate dechlorination.
Effluent Pumping	2-75 HP (900 gpm) effluent pumps to convey water to for re-use (cemetery or to East Lake reuse ponds for golf. Water can then be gravity fed to WWTP 2.	• Constructed in the late 1990s. • Treated effluent is pumped for re-use at a nearby cemetery.

[a] Based on several site visits, communications with operations staff, and conclusions from the *Evaluation of Options for Critical Repairs at City of Rio Rancho Wastewater Treatment Plant 1* T*echnical Memorandum (TM),* February 2015.

3.4 Financial Status of Existing Facilities

This section provides a description of the financial aspects of the existing operational facilities, including the current rate schedules, annual costs and budgets for the operations and maintenance (O&M), revenue earned, and existing debt and required reserve amounts. The City funds its utilities through a variety of sources, including utility bonds and loan proceeds, wastewater impact fees, utility net revenues, state and county grants, and environmental gross receipts tax revenue. The wastewater capital program has been historically heavily supported by debt financing pledging the net revenue of the system. The City's wastewater system includes 5 Wastewater Treatment Plants, 26 lift stations, and 368 miles of wastewater pipelines, a 6 mgd booster station, 3 mgd effluent reservoir, and relocation of Lift Station 10. The City pursued a $20 million NMED loan for the expansion of the WWTP 6 (Cabezon) to assist with the investment in wastewater capital assets. Appendix B includes the detailed Rio Rancho financial Information.

3.4.1 Rate Schedules

The City has established wastewater and recycled water rates that are implemented by the Utility Service Division per City Ordinance Chapter 51 and are calculated by the Utility Accounting Division. Monthly wastewater service charges for each customer are based on a fixed monthly rate for all meter sizes. A wastewater volumetric charges is added based on the average daily use of water for the previous winter months of December, January, and February, and divided by the total number of days in

the 3-month billing period. The average daily usage is then multiplied by 30.42 days to arrive at a monthly usage for billing purposes. The rate per 1,000 gallons is applied to the monthly usage determined to arrive at the volumetric charge for the month. The current rate schedule is shown in Table 3-2. The minimum monthly charge effective July 1, 2015 for all customers regardless of meter size is $13.75. The volume charge per 1,000 gallons of water use is $9.65 for residential and commercial and $9.17 for City uses.

Table 3-2. City of Rio Rancho Sewer Rate Schedule – 2015[a]

Meter Size	Minimum Monthly Charge	Wastewater Volume Charge (Charge per 1,000 Gallons of Water Use)
Minimum Charge		
All Meter Sizes	$13.75	
Wastewater Volume Charge		
Residential, Multi-Family Commercial		$9.65
City		$9.17

[a] Based on City of Rio Rancho Rate Schedules. See Appendix B for details.

3.4.2 Annual Revenue and Expenses

The City maintains a Utility Fund that operates as an enterprise fund for water and wastewater. Table 3-3 summarizes the revenue and expenses based on Fiscal Year (FY) 2014 for the Utilities Fund. The City did not issue any new Utility Revenue Bonds in 2014. The existing bonds payable as of last FY are over $94 million and notes payable on utility projects are close to $31.8 million.

Table 3-3. City of Rio Rancho Annual Revenue and Expense Summary – FY 2014

Item	Utilities Fund [a]
Operating Revenues	
Charges for Services	$41,303,410
Total Revenues	$41,303,410
Operating Expenses	
General and Administrative	$5,306,064
Production Costs	$18,282,424
Depreciation	$7,262,069
Total Expenses	$30,850,557
Operating Income (Loss)	$10,452,853
Non-Operating Revenue (Expenses)	(4,323,576)
Capital Contributions and Transfers	$2,688,714
Net Position – Beginning	$179,806,695
Net Position – Ending	$188,624,686
Net Cash by Operating Activities	$19,009,162

Table 3-3. City of Rio Rancho Annual Revenue and Expense Summary – FY 2014

Item	Utilities Fund [a]
Total Utility Bonds Payable	$94,829,110
Debt Service – Notes Payable on Utility Projects	$31,819,391

[a] Based on Financial Statements for Utility Enterprise, FY Ended June 30, 2014. See Appendix B for details.

3.5 Water/Energy/Waste Audits

The City's contract operators have conducted extensive condition assessments and rehabilitation services for the WWTP 1 facility. An Asset Management Plan (AMP) has been completed for the entire utility, including WWTP 1. Effective asset management is an integrated set of processes to minimize the life-cycle costs of owning, operating and maintaining assets at an acceptable level of risk, while continuously delivering established levels of service. Understanding the risk of asset failure provides the basis for prioritizing capital investments for the future, optimizing O&M, planning for investing in condition assessment, and provides a uniform and rigorous format to make defensible decisions. The AMP feeds into priority setting and programming processes to generate a work program for delivery. Key elements include "strategic and systematic", "throughout their lifecycle", "quality information", and "well-defined objectives". These elements are important for the Public Works department to use as a rational and comprehensive approach to maintain infrastructure, including for the long term.

The data collected for the Rio Rancho system is analyzed using process tools such as a computerized system-Maintenance Connection (MC), Asset condition Evaluation System (ACES), and a Maintenance Model (MM) to conduct tradeoff scenarios to determine which mix of investments will provide the optimum system conditions for the longest period. The structure followed for the Rio Rancho utilities is based on the manual, Asset Management: A guide for Water and Wastewater Systems, written by the New Mexico Environmental Finance Center (NM EFC). The most recent 2015 AMP for the City's utilities is available for review. The latest asset description, condition assessment, and risk analysis for the WWTP 1 was completed in September of 2015. These documents are extensive and are referenced and summarized in the PER. They can be reviewed and referenced through the City's operations contractor.

SECTION 4

Need for Project

The City's existing WWTP 1 is in need of replacing due to its poor condition, lack of redundancy, and diminished capacity. It is anticipated that the existing plant will have difficulty meeting its permit conditions in the near future due to the plant's failing condition. The existing plant does not have the capacity for any additional flow or growth. Health, sanitation, and regulatory requirements are discussed in this section.

4.1 Health, Sanitation, and Security

The existing treatment plant is an aging and failing facility that was built in the 1970s and is in dire need of replacement. The condition of the existing facilities was described in Section 3 of the PER. These existing conditions illustrate the potential for failure of this plant and the resulting threat to the health, sanitation, and security of the facility. The existing plant is currently able to meet the regulatory permits but is limited on the amount of flow it can accept and treat due to its poor condition. The City has a comprehensive effluent reuse program and WWTP 1 is a critical component of that overall plan. The new wastewater facility must be able to provide the effluent quality required for the City's recycled water program and water portfolio, which includes indirect potable reuse.

4.1.1 Regulatory Requirements

The regulatory requirements relevant for this project include the NPDES, which is a federal requirement, and state groundwater quality requirements and sludge disposal regulations. These are discussed below.

4.1.1.1 National Pollutant Discharge Elimination System

In New Mexico, surface water quality is administered by the U.S. Environmental Protection Agency (EPA) Region VI office in Dallas, Texas, pursuant to the 1977 Clean Water Act. The National Pollutant Discharge Elimination System (NPDES) program is a federal requirement for any wastewater that is discharged to a stream or body of water in the United States and is subject to NPDES regulations as legislated by the Clean Water Act. Owners of wastewater treatment facilities that discharge effluent to waterways are responsible for maintaining a discharge permit, which is issued and administered in New Mexico by the EPA. The NMED develops water quality standards used by the EPA to establish effluent limits in the permits and also provides assistance and oversight to the NPDES program related to New Mexico. NPDES permits are typically issued for a 5-year period.

The WWTP 1's effluent discharge is regulated by an existing NPDES permit in conjunction with WWTP 2, which discharges to the Rio Grande. The NPDES permit, No. NM0027987, was issued to the City in 2010 and includes discharge limits for the WWTP 2 and specific effluent limits for seasonal discharges from WWTP 1. The NPDES permit is included in Appendix C. When discharging from WWTP 1, the permit requires that samples be taken for Outfall 101 when discharging from the facility at the manhole located to the west of the sludge belt building where the flow from WWTP 1 enters WWTP 2 upstream of the effluent box. Both treatment plants are in full compliance with the NPDES permit at this time.

An update to this NPDES permit was submitted in early 2015 to the USEPA Region 6. The amended permit requests additional discharge of up to 1.2 mgd of treated wastewater from WWTP 6 from Outfall 001 at WWTP 2. The modification would allow for discharge of up to 8.2 mgd of treated effluent at Outfall 001, consisting of the currently permitted 5.5 mgd from WWTP2, 1.5 mgd from WWTP 1 on a seasonal (generally December and January) and as needed, and an additional 1.2 mgd from WWTP 6. The amendment acknowledges the City's plans to upgrade WWTP 1 to a membrane bioreactor plant in the near future. This modification to NPDES No. NM0027987 is also included in Appendix C.

4.1.1.2 New Mexico Water Quality Requirements

The State of New Mexico regulates the discharge of water into the groundwater in accordance with the New Mexico Water Quality Act, NMSA 1978, 74-6-1 through 74-6-17, and the New Mexico Water Quality Control Commission (NMWQCC) regulations, 20.6.2 NMAC. The regulations include both land application of wastewater effluent and residual sludge, and require that no effluent or leachate discharge be allowed to migrate directly or indirectly into groundwater without an approved groundwater discharge plan. Groundwater discharge standards for various contaminants are included in the NMWQCC Regulations, 20.6.2 NMAC.

The NMED has issued a guidance document for the above ground use of reclaimed domestic wastewater. This document, *NMED Ground Water Quality Bureau Guidance: Above Ground Use of Reclaimed Domestic Wastewater* (January 2007), is intended to provide direction in submitting an application for a Groundwater Quality Bureau (GWQB) Discharge Permit (DP) that includes the aboveground use of reclaimed wastewater. The guidance document is used by the NMED to propose groundwater discharge permit conditions for the aboveground discharges of reclaimed wastewater. The guidance requirements are deemed to protect public health and the environment, but do not prevent communities from adopting more stringent requirements.

The guidance document provides specific quality levels for classes of wastewater treatment for all approved uses of reclaimed domestic wastewater including irrigation of food crops, seed crops, and landscapes. The guidance document is included in Appendix D.

The City has an existing NMED GWQB DP-215, a groundwater permit issued for WWTP Nos. 1, 2, 3, and 6. Specific to WWTP 1, the DP allows for treatment up to 1.5 mgd of domestic wastewater in the extended aeration/activated sludge treatment plant equipped with a sand filter. Following treatment and disinfection, wastewater from the City's WWTPs will be reused at various locations within the City or discharged to the Rio Grande (NPDES Permit NM0027987). An amendment to DP-215 was submitted to the NMED and a draft permit provided in August of 2015. The City is currently working with the NMED on the provisions of this draft permit modification.

In addition, the City has a specific NMED GWQB DP-1650 for the Rio Rancho Direct Injection Aquifer Recharge Demonstration Project. This permit allows for up to 1.0 mgd of advanced treated and disinfected reclaimed wastewater directly injected into the ground water to supplement regional aquifer recharge. Class 1A reclaimed wastewater is obtained from the Rio Rancho recycled water distribution system and further treated prior to injection. The permit further specifies the Class 1A reclaimed wastewater is from the Cabezon Water Reclamation Facility (WRF). The onsite advanced water treatment system (AWT) includes an ozone-based advanced oxidation process, multiple granular and biologically activated carbon units, an in-line particle filtration system, and in-line membrane degasser system, followed by final disinfection using ultraviolet (UV) radiation and/or chorine prior to injection. The AWT is treated to drinking water standards and discharged directly into the regional aquifer for the purpose of recharging the Middle Rio Grande aquifer system. Copies of the NMED groundwater discharge permits are included in Appendix E.

The Office of the State Engineer (OSE) granted the City a Permit for Underground Storage and Recovery for continuous and full-scale operations of the project. This OSE permit allows the City to implement the full-scale underground storage and recovery project in the form in which the demonstration project had been applied for and completed. The OSE permit is included in Appendix F.

4.1.1.3 Sludge Disposal

The City's wastewater biosolids removal system consists of belt filter presses at WWTP 2 that provides dewatering of sludge from its process as well as from WWTP's. 1, 3, 5, and 6. The biosolids are trucked from the WWTP's 1, 3, 5 and 6. Operation of the unit process utilizes a polymer feed system to condition the sludge prior to entry into the filter presses and conveyor system to move the sludge cake solids from

the filter press to truck for disposal. The belt filter press reduces the sludge moisture to meet a solids concentration below 20 percent by weight with no free liquid. The average sludge disposed of 5 days per week is 950 dry metric tons/year. The solids cake is hauled by the City and disposed of in the Waste Management Sandoval landfill, which is permitted to accept wastewater sludge.

NPDES Permit NM027987 includes sewage sludge requirements and specifically addresses municipal solid waste landfill disposal. The permittee is required to handle and dispose of sewage sludge in accordance with Section 405 of the Clean Water Act. Sewage sludge meet met the requirements of 40 CFT 258 for quality of sludge disposed in the municipal solids waste landfill. This permit is located in Appendix C for reference. For sludge being disposed of in a landfill, specific requirements must also be met through the New Mexico Solid Waste Bureau. The landfill must be specially permitted to accept sludge. Other requirements include, but are not limited to, pathogen reduction, dewatering to meet the paint filter test, and toxicity characteristic leaching procedures. The sludge is typically mixed with the solid waste.

4.1.2 Future Effluent Discharge Limits

Table 4-1 provides a summary of the effluent quality requirements based on the NMED Class 1A Reuse standards, the influent requirements for the AWT (currently permitted to accept recycled water from the WWTP 6 Cabezon WRF), and the existing applicable discharge permit requirements.

The effluent requirements for the future WWTP 1 should consider the most stringent requirements. It should be noted that DP-1650 for the direct injection includes language that allows for recycled water be sent to the AWT facility from the Cabezon facility, which is an MBR treatment process. For purposes of setting design criteria for the future WWTP 1, it is assumed that the values should be consistent with the Cabezon MBR plant (WWTP 6). The proposed effluent quality for the new WWTP 1 is shown in the last column of Table 4-1 and is based on supplying recycled water that is consistent with the existing WWTP 6 (Cabezon) plant to the City's AWT and direct aquifer injection site. This level of effluent quality is needed at a minimum to provide recycled water to the IC.

Table 4-1. Summary of Existing Effluent Discharge Limits

			Discharge Limitations – Existing Permits				
Parameter	**Units**	**Class 1A Wastewater [a]**	**Influent Requirements for AWT[b]**	**Existing Recycled Water Requirements[c]**	**Existing NPDES (NM0027987) Permit[d]**	**Direct Injection DP-1650[e]**	**Proposed Effluent Quality for WWTP 1[f]**
pH	s.u.		7.3				7.5
5-Day Biochemical Oxygen Demand (BOD_5)	mg/l	10	0.9	30	30	NA	<5
Total Suspended Solids (TSS)	mg/l	NA	0.7	30	30	NA	<5
Turbidity (30 day average)	NTU	3	0.9	NA	NA	<3	1.0
Nitrate	mg/l	NA	6.0	NA	NA	NA	6.0
Total Kjedahl Nitrogen (TKN)	mg/l	NA	1.2	NA	2.14	NA	1.5
Fecal Coliform (30 day average)	100 ml	5	0.3	100	NA	ND	0.5

Table 4-1. Summary of Existing Effluent Discharge Limits

			Discharge Limitations – Existing Permits				
Parameter	**Units**	**Class 1A Wastewater [a]**	**Influent Requirements for AWT[b]**	**Existing Recycled Water Requirements[c]**	**Existing NPDES (NM0027987) Permit[d]**	**Direct Injection DP-1650[e]**	**Proposed Effluent Quality for WWTP 1[f]**
TRC or UV Transmissivity		Monitor only	NA	NA	NA	>90%	NA
Total Organic Carbon (TOC)	mg/l	NA	NA	NA	NA	<3	NA

[a] Based on NMED Guidance document for a Class 1A effluent.
[b] Based on WWTP 6 - Cabezon WRF effluent quality – Design criteria used for AWT facility. Cabezon WRF AWT Pilot Study, June 19, 2010.
[c] Based on discharge requirements per DP-215 specific to WWTP 1.
[d] NPDES – NM0027987 Outfall 101 Seasonal flows from WWTP 1 include BOD and TSS only as indicated on the Table for these constituents.
[e] DP-1650 Direct Injection Discharge Permit. Also includes the following: 2-log removal/inactivation for *Giardia lamblia*, 3-log removal/inactivation for *Cryptosporidium*, 4-log removal/inactivation for viruses.
[f] Assumed effluent quality for WWTP 1 that is appropriate for treatment at the AWT.

4.2 Aging Infrastructure

The condition of the existing WWTP 1 was provided in Section 3, Existing Facilities. This section included a detailed assessment on the condition and capacity, and O&M issues with the existing facilities. As noted in this section, the plant was constructed in the early 1970s, is in very poor condition with reduced capacity.

4.3 Reasonable Growth

The planning period for this project, as described in Section 2, is for a 20-year period ending in 2035. As discussed in Section 2 of the PER, WWTP 1 is an existing plant that has a defined service or drainage area. This area is densely populated and filled in with commercial properties along the NM 528 corridor and residential homes in the northern part of the service area. Based on the review of the existing service area and the lack of vacant land for infill, any additional flows will be from the domestic flows from the IC, Unit 16E flows, and diverted flows from Lift Station 10. There is some potential for growth within Unit 16E, which has been taken into account when estimating the potential wastewater flow from Unit 16E.

The wastewater alternatives reviewed for the PER area are based on the current flows to WWTP 1, the addition of a potential future IC domestic flows, possible future flows from Unit 16E, and the optional diversion of flows from Lift Station 10.

4.3.1 Current Wastewater Flows and Loadings

The initial assessment of flow into WWTP 1 was based on historical data provided by O&M staff at WWTP 1. Based on this data, the Annual Average Flow (AAF) to WWTP 1 between 2009 and 2013 was 0.62 mgd. Recent flow metering results over the past month resulted in an AAF of 0.50 mgd. To verify the accuracy of the existing flow metering data available for WWTP 1, wastewater flows to the plant were estimated using two alternate methods: 1) commercial buildings and house counts used to calculate the estimated wastewater flow, and 2) City water usage data for the area converted to estimated wastewater flow.

Using the first method, the house count method, the number of homes and businesses in the service area as shown in Figure 2-1 were counted. U.S. Census data was referenced to determine the average

household size of owner-occupied and renter-occupied units of 2.77 and 2.79 persons per household (pph), respectively (U.S. Census Bureau, 2014). Based on this information, a conservative assumption of three persons per household was made for wastewater flow calculations. Water consumption per capita for the City has decreased over the years due to water conservation efforts. The average value for water usage over the past 5 years is estimated to be approximately 140 gallons per capita per day (gpcd) and reduced to 136 gpcd in 2013. The percent of water returned to the waste stream is estimated to be about 50 percent. This is based on the ratio of return flow credits to the river plus any water used for reuse and the water produced for 2014 (*Rio Rancho Water Production and Return Flow Credit Report for December 2014*). Based on the 2014 water consumption data over the past 5 years and 50 percent of the water used going to the wastewater stream, the wastewater generated per person is estimated to be 68 gpcd, or 204 gallons per household. The WWTP 1 service area contains approximately 1,968 homes, 92 commercial properties, and 26 vacant lots that may be developed in the future.

The second method to determine the wastewater flows included obtaining and evaluating average total daily water usage records for the service area. There are numerous and varying commercial properties along NM 528 that include restaurants, shopping areas, gas stations, and hotels. The average water usage from 2012 to 2014 for the 105 commercial properties was 0.14 mgd, and the water usage from the customers designated as residential was 0.70 mgd.

Table 4-2 provides a summary of the estimated flows from the WWTP 1 service area based on the two methods described above. For Method 1 – House Counts, the AAF is estimated to be 0.51 mgd. It should be noted that the flow generated from commercial properties for this method is based on water usage records due to the large variation in businesses and the difficulty in assigning a wastewater flow to those businesses. For Method 2 – Water Usage, the AAF is estimated to be 0.42 mgd. This is based on using 50 percent return of water to the waste stream, which results in a total commercial wastewater flow of 0.07 mgd and residential flow of 0.35 mgd for a total of 0.42 mgd. Flow calculations for this method can be found in Appendix G

Table 4-2. Rio Rancho WWTP 1 Current Wastewater Flows Based on House Counts and Water Usage Records

	Method 1 – House Counts		**Method 2 – Water Usage**	
WWTP#1 Service Area Type	**Commercial Property and House Counts[a]**	**Wastewater Flow based on Counts[b] (mgd)**	**Water Usage Records (mgd)[c]**	**Wastewater Flow (50%) (mgd)[d]**
Commercial (Businesses)	92	0.11[e]	0.14	0.07
Residential	1,968	0.40	0.70	0.35
Total	**2,060**	**0.51**	**0.84**	**0.42**

[a] Based on commercial property and house count for WWTP 1 service area (Google Earth Pro).
[b] Wastewater flow based on counts: 1,968 residential houses * 3 pph * 68 gpcd plus commercial flow based on water usage.
[c] Based on water usage records obtained from Rio Rancho.
[d] Estimates 80 percent of water usage results in wastewater flow entering the collections system.
[e] Wastewater for commercial area is estimated using the water usage data.

Based on the two methods to determine wastewater flows generated and the existing flow data records, the current AAF to WWTP 1 ranges from 0.42 to 0.51 mgd. A reasonable existing AAF that could be expected at the new WWTP 1 based on the service area and this flow analysis is 0.51 mgd.

Historical monthly data for influent BOD and TSS to WWTP 1 from 2012 to 2014 was analyzed to determine the annual average and maximum month concentrations is presented in Table 4-3. The number of data points included in the analysis represent grab samples that were collected approximately two to three times per week during the period of study.

Table 4-3. Rio Rancho WWTP 1 Historic Influent Wastewater BOD and TSS Concentrations

Parameter	BOD (mg/L)	TSS (mg/L)
Annual Average Concentration	329	230
Maximum Month Concentration	381	334
Number of Data Points in Data Set	465	465

* Based on lab data from WWTP 1 from January 1, 2012 to December 31, 2014.

4.3.2 Wastewater Flow Projections

Flows for the service area are projected out for 20 years to the Year 2035. The City plans to rebuild WWTP 1 to provide sufficient capacity for the existing service area, growth within the existing service area, domestic flows from a large IC, and future flows from Unit 16E homes. The Unit 16E area is a large residential area with homes that are currently on septic tanks. Figure 2-1 of the previous section shows the location of the Unit 16E area. Flows for Unit 16E were developed based on house counts and using previous assumptions of 3 people per home (pph) and 68 gallons per capita per day (gpcd) wastewater generated. Vacant lots were counted so that an estimate of future flows could be made assuming all empty lots will eventually be filled in with houses.

The City plans to provide a steady flow of 1.5 mgd to WWTP 1 by diverting flow from the WWTP 2 service area to WWTP 1 via Lift Station No. 10 (LS10). An upgrade to LS10 is planned for construction and has been designed to pump up to 1.0 mgd to WWTP 1. The WWTP 1 conceptual design is based on an average annual flow of 1.5 mgd with a peak month flow of 1.6 mgd (peak month peaking factor of 1.05) and a peak hour flow of 3.0 mgd (peak hour peaking factor of 2.0).

Table 4-4 provides a summary of the future wastewater flows for WWTP 1, including the peaking factors previously discussed. The future average annual flows are projected to be 1.50 mgd, which is a reasonable capacity that allows for efficient operation of the facility, allows for the addition of the IC domestic flows and Unit 16E flows, and allows for the flexibility of diverting flows from LS10 that are currently conveyed to WWTP 2. Peak month is projected to be 1.6 mgd

Table 4-4. Future Wastewater Flows to WWTP 1 – Year 2035

Parameter	Flow (mgd)
Base Flow – City of Rio Rancho [a]	0.51
Additional Flow from LS #10 [b]	0.60 to 0.65
IC Flows [c]	0.05 to 0.10
Potential Future Unit #16 East Flows [d]	0.29
Total Future Annual Average Flows (AAF)	1.5
Future Peak Month Flows [e]	1.6
Future Peak Hour Flows [f]	3.0

[a] Flows for WWTP No.1 based on the current service area (See Table 4-2).
[b] Based on ability to divert flow from LS 10 to WWTP 1 - Up to 1 mgd maximum. LS10 would be automated to regulate flows to WWTP 1 to maintain a steady AAF of 1.5 mgd, a maximum month flow of 1.6 mgd, and a peak hour flow of 3.0 mgd.
[c] Based on projected domestic flows from IC.
[d] Unit 16E - based on house count of existing homes (1,382) plus vacant lots (54) for a total of 1,436 houses * 3 pph * 68 gpcd = 0.29 mgd.
[e] Peak month peaking factor = 1.05 (applied to average annual values)
[f] Peak hour peaking factor = 2.0 (applied to average annual values).

The existing base flow to WWTP 1 is approximately 0.51mgd. A partial flume flow meter on the WWTP 1 influent channel will monitor flow entering the plant and the WWTP1's control system will manage flow at LS10 to divert flow to WWTP 1 as needed. The flow from LS10 will be used to buffer the flow from the WWTP 1 collection system so flow to WWTP 1 never exceeds the peak month flow of 1.6 mgd. If future flows, including peak flows, are in excess of this capacity, additional equalization will have to be considered at the WWTP.

SECTION 5

Alternatives

This section of the PER considers treatment alternatives for the WWTP 1 based on the capacity needs and effluent quality to meet the stringent water quality requirements for non-potable and potential future indirect potable reuse.

5.1 Development of Treatment Alternatives

Several parameters were considered in developing the alternatives presented herein. As described in Section 3, Existing Facilities, and Section, 4 Need for Project, WWTP 1 is an aging facility that lacks redundancy and requires numerous critical repairs. WWTP 1 needs to be replaced. The main factors in developing alternatives for the rebuild of WWTP 1 include: 1) ability of WWTP 1 to have the capacity needed for the existing service area flows and the additional flows that may be expected from the IC and the Unit 16E residential area, 2) the ability to provide treatment technologies that offer efficient operation, low odor production, and reliability and redundancy, and 3) the ability to meet the stringent effluent quality standards required for the reuse water influent to the City's AWT facility and possible reuse for the IC.

5.2 Process Requirements

Treatment alternatives are developed based on the need to meet the influent recycled water quality requirements to the AWT facility, which are the most stringent permit requirements. The wastewater treatment alternatives are modeled using historical and projected flow and loading data. Table 5-1 includes a summary of the influent flow and water quality constituent values. As noted in the table, the average design flow is 1.5 mgd. The majority of the influent values are from actual data from WWTP 1. Where data were not available, values from the WWTP 2 were used or estimated values based on wastewater design standards and noted as such.

Table 5-1. City of Rio Rancho WWTP 1 Process Modeling Influent Wastewater Design Values

Parameter	Value (Influent)[a]	Source
Flow Projections (mgd):		
Annual Average Flow	1.5 mgd	See Table 4-4 for Details
Peak Month Flow	1.6 mgd	PF of 1.05 estimated from existing WWTP 1 flow data.
Peak Month 5-Day BOD_5	381 mg/l	Data from WWTP 1
Peak Month TSS	334 mg/l	Data from WWTP 1
Peak Month BOD Load	5,084 lbs/day	Computed using peak month flow and BOD concentration
Peak Month TSS Load	4,456 lbs/day	Computed using peak flow and TSS concentration
Turbidity (30 day average)	NA	
Ammonia	40 mg/l	Estimated Value (Metcalf & Eddy – Medium to High Strength Domestic Wastewater)
Nitrate	NA	
Total Kjeldahl Nitrogen (TKN)	45 mg/l	Estimated Value (Metcalf & Eddy – Medium to High Strength Domestic Wastewater)
Fecal Coliform	NA	
Influent Flow Temperature	29/14 ^{O}C	Based on WWTP 2 Values
Alkalinity	230 mg/l	Based on WWTP 2 Values

5.3 Wastewater Treatment Plant Alternatives

During the scoping of the PER effort, it was determined that based on the stringent effluent requirements for WWTP 1, the treatment alternatives would include an MBR plant and one other advanced treatment alternative that would meet the required effluent limits. For each alternative, a description and process flow diagram is included, and environmental impacts, land requirements, construction, sustainability, and costs are considered for each. The no-action alternative is typically a required option to consider if the existing treatment plant is adequate. The no-action alternative is not viable due to the condition and capacity issues at the existing plant. The no-action alternative does not address the capacity, compliance, and O&M issues and was not considered further.

5.3.1 Process Modeling

Each alternative was evaluated using CH2M's Pro2D2 wastewater plant simulation program. Pro2D2 is a whole-plant simulator that uses several mathematical modules to represent an individual unit process. Modules within Pro2D2 use stoichiometric and kinetic relationships that track usage and conversion of various compounds, nutrients and microorganisms. This proven design tool provides an overall mass balance throughout the plant based on the influent wastewater characteristics, physical unit process configurations, and operational criteria that are unique to the City. A summary of the results from the Pro2D2 models for the treatment processes are provided in Appendix H.

The two alternatives use a biological nutrient removal activated sludge (BNRAS) configuration to optimize total nitrogen removal. Process models were run at the minimum design temperature to determine the BNRAS volume. Summer temperatures must be considered during plant design to provide sufficient low pressure air capacity. The process models were used to develop the preliminary sizes for the basins and tanks for each alternative and calculate input requirements such as air and chemicals.

5.3.2 Alternative 1 – New Membrane Bioreactor Treatment Plant

Alternative 1 is a BNRAS design using an MBR treatment process. A description and process flow diagram are provided, and environmental impacts, land requirements, and construction issues are discussed for this alternative.

5.3.2.1 Description/Process Flow

The MBR activated sludge process uses the membranes to filter contaminants from the wastewater. The use of the membrane eliminates the need for clarification basins that are typically used in the conventional activated sludge settling process. The membrane filters also provide tertiary treatment. The MBR process use of the membrane units at a high MLSS of between 8,000 and 12,000 mg/L results in a treatment facility footprint that is smaller than the conventional activated sludge process. Figure 5-1 shows the MBR process flow diagram.

For the MBR process, wastewater initially flows through a coarse screen followed by grit vortexes for removal of sand/grit and then through 2 mm fine screens (typically drum screens) to remove fine solids and debris from the wastewater that could clog the membrane filters. The wastewater flows through the BNR basins, initially to anoxic basins where the incoming raw wastewater is mixed with nitrified wastewater and MLSS from the MBR basins, thus allowing denitrification to occur. The denitrification stage regenerates alkalinity lost during nitrification, and helps to maintain a stable pH within the overall treatment process. The anoxic stage of the process helps to promote the growth of a suitable biomass for the MBR process and improve overall membrane filterability. Wastewater is pumped or flows by gravity to aeration basins where sufficient aeration is supplied to the aeration basins to maintain a low dissolved oxygen concentration to achieve simultaneous nitrification and denitrification.

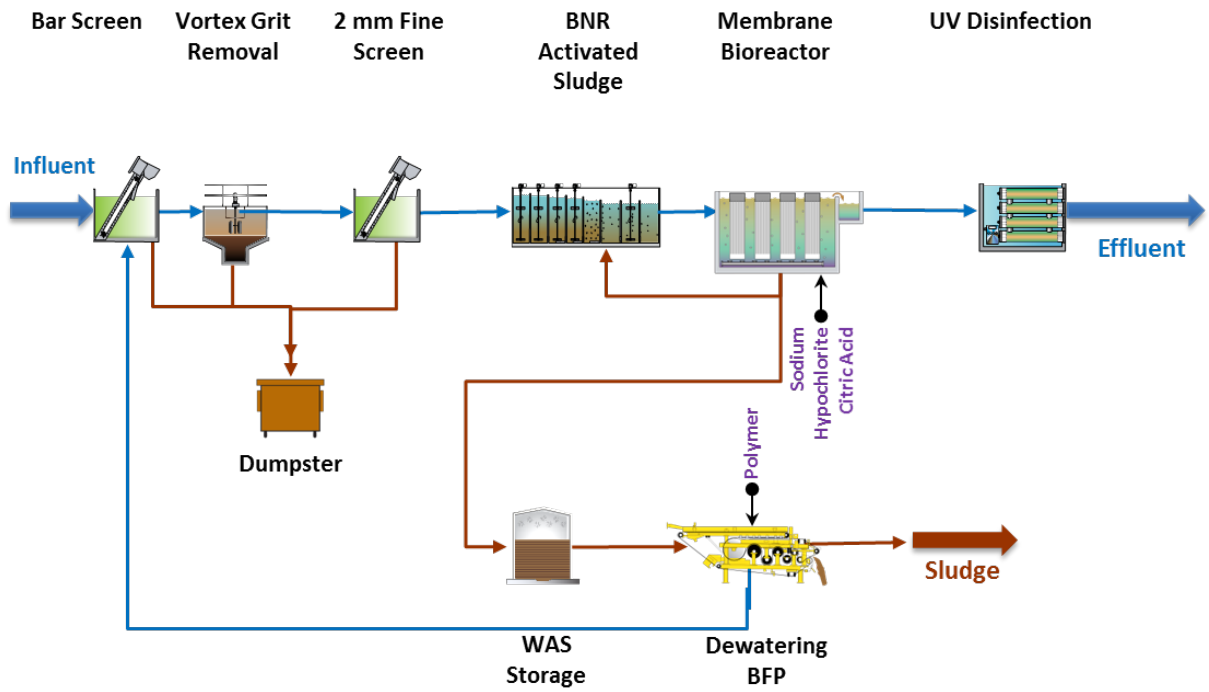


Figure 5-1. Alternative 1 - MBR Process Flow Diagram

The aeration basins also provide additional treatment capacity during periods of high flows and loading. The aeration basins operate as a conventional activated sludge process but at higher MLSS concentrations (8,000 mg/l to 12,000 mg/l) to reduce the required basin size and provide additional process capacity.

The wastewater flows from the aeration basins to the MBR basins where the wastewater is mixed with the active biomass and oxygen in a traditional aeration basin stage of the activated sludge process. The majority of the organics in the wastewater are oxidized and ammonia is converted to nitrate. Diffusers on the membrane units supply air and mixing. This configuration uses immersed membranes to provide biomass separation and the removal of fine solids. The type of membranes that are used results in variations in the configuration of the air diffusers and piping components.

The clarification stage of the MBR process differs substantially from conventional processes that include a separate clarification stage via clarifiers. For the MBR process, the treated wastewater is separated from the biomass solids by passing through submerged membranes in the basin. Clarified effluent then flows by gravity to the disinfection systems prior to pumping effluent for reuse. Pumps draw permeate through the membranes. The City conducted a life cycle analysis to determine the best long-term approach to solids handling and concluded that trucking solids to the belt filter presses at WWTP2 for additional dewatering and processing was the most cost effective and practical manner to handle the solids for the new WWTP 1.

Effluent from the membranes is disinfected utilizing an in-pipe UV light disinfection system and discharged to the City's reuse system. The City will also be evaluating discharge to a local industrial customer for reuse. A summary table of the results from the Pro2D2 simulation model for Alternative 1 is presented in Appendix H.

5.3.2.2 Environmental Impacts

The environmental impacts for this proposed alternative are minimal, as the new structures will be built on land that is already dedicated to the existing wastewater treatment facilities. The actual location of the new WWTP is within an existing decommissioned holding pond. The environmental impacts of the proposed project will be largely positive, as the quality of the effluent discharged to the City's reuse

system and the river will improve, odors at the WWTP will be treated and controlled, noise will be mitigated with covered basins and more efficiently operated equipment, and sludge quality for disposal at the landfill will improve with additional solids handling at this location. Any negative impacts will likely occur within the property boundaries during construction. This may include additional dust, noise, and temporary increase in truck traffic.

5.3.2.3 Land Requirements

The land required for the MBR alternative is approximately 1 acre and fits on the location of the decommissioned holding pond. With the higher MLSS and the elimination of a secondary clarifier and tertiary treatment, the footprint of the MBR is smaller than a typical process. The MBR plant will be located within the existing WWTP 1 project site just to the south of the existing plant in a disturbed area that previously was used as an effluent holding pond.

5.3.2.4 Construction Considerations

Construction challenges include working around the existing WWTP to ensure it remains in operation until the new plant is constructed. Roadways around the property are already in place but will be graded and paved as needed. The decommissioned holding pond where the new WWTP is located will be cleared and graded but the already excavated nature of the pond can be used to the benefit of the construction of the new basins. A Subsurface Utility Engineering (SUE) plan should be completed consistent with guidelines provided by the Federal Highway Administration. The American Society of Civil Engineers (ASCE) has developed standard of care guidelines for collection and depiction of existing subsurface utility data (CI/ASCE 38-02). These include four quality levels of utility depiction which range from a low end of deriving information from existing records or oral recollections (Quality Level D) to the high end of precise horizontal and vertical location of utilities obtain by the actual exposure and subsequent measurement of subsurface utilities, usually at a specific point (Quality Level A).

5.3.2.5 Sustainability Considerations

Sustainable utility management practices include environmental, social, and economic benefits that aid in creating a resilient utility. The goal for the project should be to enhance sustainability of infrastructure through economic, social and environmental impacts.

Water and Energy Efficiency. The MBR (Alternative 1) allows for water and energy efficiency. This alternative addresses water efficiency by allowing for more effective recycle and reuse of the wastewater which impacts water conservation in a positive manner. The new facilities will allow for more energy efficient design and practices. The MBR may use more electricity but the carbon footprint is significantly reduced due to the smaller, more compact size.

Green Infrastructure. Alternative 1 provides for recycle and reuse of the treated effluent. This process aids in water conservation for the community. Stormwater is addressed on site through a drainage area.

Other Sustainability Considerations. Alternative 1 has a higher level of automation and is highly resistant to process upsets with no clarifiers. MBR technology is advantageous when considering potential future regulatory issues with module construction that allows for phased investment in treatment capacity as demand grows.

5.3.3 Alternative 2 – New BNRAS with Tertiary Filtration

Alternative 2 is a BNRAS design with tertiary filtration. This section provides the description of treatment alternative including a flow diagram, and discusses the environmental impacts, land requirements, and construction issues for this alternative.

5.3.3.1 Description/Process Flow

This alternative is a BNRAS process that will provide for nutrient removal with a tertiary filter to provide the quality of water required. The wastewater initially flows through a course screen followed by grit vortexes for removal of sand/grit. The wastewater flows through the BNR basins where the incoming raw wastewater is mixed with nitrified wastewater and MLSS from the secondary clarifiers, thus allowing denitrification to occur. The wastewater then flows to a tertiary filter system and flows by gravity to the disinfection systems prior to pumping to the effluent reuse system or the IC. Tertiary filter processes include a cloth disk filter and submerged membrane filtration. Wastewater sludge generated from the process is pumped to the WAS storage facilities and then trucked to WWTP 2 for further dewatering and solids processing and disposal, consistent with the operations of the other treatment plants. Figure 5-2 provides a process flow diagram for Alternative 2.

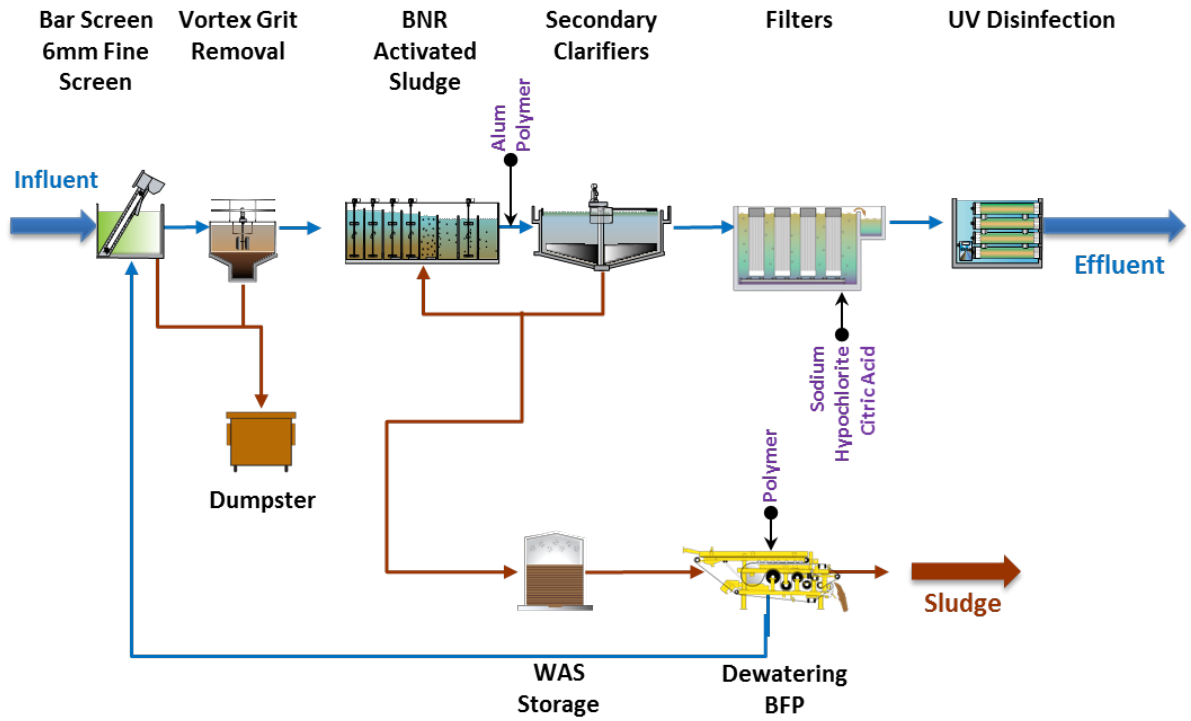


Figure 5-2. Alternative 2 – BNRAS with Tertiary Filters

5.3.3.2 Environmental Impacts

The environmental impacts for this proposed alternative are similar to Alternative 1. The new facilities will be constructed on dedicated land at the existing decommissioned holding pond. The environmental impacts of the proposed project will be largely positive. The quality of the effluent discharged to the City's reuse system and the river will improve, odors at the WWTP will be treated and controlled, noise should be mitigated with covered basins and more efficiently operated equipment, and sludge quality for disposal at the landfill will improve with additional solids handling at this location. Any negative impacts will likely occur within the property boundaries during construction. This may include additional dust, noise, and a temporary increase in truck traffic.

5.3.3.3 Land Requirements

As with Alternative 1, the new plant will be located within the existing project site just to the south of the existing plant in a previously disturbed area that was used as an effluent holding pond. The land area required for the BNRAS tertiary alternative is greater than the MBR footprint but would fit on the acreage available at the abandoned holding pond.

5.3.3.4 Construction Considerations

Construction challenges are similar to Alternative 1. The existing WWTP will remain in operation until the new plant is fully constructed and operating. Existing roadways will have to be improved and the existing pond will have to be cleared and graded to accommodate the new plant. Existing buried utilities will have to be located. Similar to the discussion on Alternative 1, a Subsurface Utility Engineering (SUE) plan would be completed at the appropriate level.

5.3.3.5 Sustainability Considerations

Sustainable utility management practices include environmental, social, and economic benefits that aid in creating a resilient utility. The goal for the project should be to enhance sustainability of infrastructure through economic, social and environmental impacts.

Water and Energy Efficiency. Alternative 2 allows for recycle/reuse of the effluent but is not as water or energy efficient at Alternative 1. The carbon footprint of Alternative 2 is greater than Alternative 1.

Green Infrastructure. Alternative 2 provides for recycle and reuse of the treated effluent. This process aids in water conservation for the community. Stormwater is addressed on site through a drainage area.

Other Sustainability Considerations. Alternative 2 does not provide for the same level of automation as Alternative 1. It includes more process components such as a clarifier which makes it more susceptible to plant upsets. Considering the ability to phase the process and increase capacity, Alternative 2 does not provide as much flexibility as Alternative 1.

5.4 Opinion of Probable Costs

Capital costs for each alternative were prepared in accordance with the Association for the Advancement of Cost Engineering International Class 4 standards, which have an estimated accuracy range from -30 to +50 percent. Capital costs were developed primarily using CH2M's Parametric Cost Estimating System (CPES), which generates detailed costs estimated based on standard facility designed developed from the design of actual projects and using the outputs from the process models developed in Pro2D. Typical markups, additional project costs and non-construction costs were applied and included in the capital cost. The inputs used to develop the capital cost are presented in Table 5-2.

Table 5-2. Capital Cost Inputs

Parameter	Input Value
Markups	
Overhead	10%
Profit	5%
Mobilization/Bond/Insurance	5%
Contingency	30%
Additional Project Costs	
Demolition	Separate Line Item
Overall Site work	2%
Plant Computer System	1.4%
Yard Electrical	4.6%
Yard Piping	2.75%
Non-Construction Cost Factors[a]	
Engineering/Permitting	7%
Services During Construction/Commissioning and Startup	6%

[a.] Engineering and Services during Construction percentages have been lowered in anticipation of a Design-Build method of delivery. If the traditional Design-Bid-Build method is used, the percentages will increase.

More accurate project costs will be developed during later phases, which will include actual quantity take-offs estimates. The final project costs will be dependent on labor and material costs, competitive market conditions, actual site conditions, final project scope, implementation schedule, and other variable factors at the time of project bidding or the design-build stage. As a result, the final project costs will vary from the estimate presented here. Because of these factors, project feasibility, benefit/cost ratios, risks, and funding needs must be carefully reviewed prior to making specific financial decisions or establishing project budgets to help ensure proper project evaluation and adequate funding.

O&M costs were developed in the CPES around a set of operation conditions and unit costs shown in Table 5-3. O&M costs inputs includes unit costs for power, consumables (i.e., membrane replacement), chemicals, solids disposal, and labor. Life-cycle costs for each alternative were developed in CPES using the capital and O&M costs.

Table 5-3. Operation and Maintenance Cost Inputs

Parameter	Unit	Input Value
Flow		
Annual Average Flow (AAF)	mgd	1.5
Peak Monthly Flow	mgd	1.6
Power Cost	$/kW-hr	0.10
Facility Electricity	Watt/SF	2.0
Annual Plant Operating Usage		
Day per Year Used	Days	365
Hours per Day Used	Hours	24
Maintenance, Repair, and Replacement Costs		
Maintenance and Repair Costs		Included
Replacement Costs		Included
Consumable Costs		
Submerged Membrane Replacement Cost	$/module	$1,200
Submerged Membrane Replacement Frequency	Years	10
Chemical Costs		
Alum	$/dry ton	$500
Ferric Chloride	$/dry ton	$670
Sodium Hypochlorite (12.5%)	$/dry ton	$2,000
Citric Acid	$/dry ton	$2.900
Sodium Hydroxide (50%)	$/dry ton	$1,100
Sodium Bisulfate (40%)	$/dry ton	$1,200
Liquid Polymer	$/dry ton	$3,000
Miscellaneous Costs		
Solids Disposal Costs	$/yd^3	$75
Hauling Costs	$/yd^3	$20.50
Labor Costs		
Average Labor Rate	$/hr.	$20.00

[a] Equipment replacements are not included in these costs. Costs for consumables and chemicals were included based on the assumptions listed.

Costs are computed for construction and operational costs based on the process described in this section for the two treatment alternatives and developed using CPES. Table 5-4 provides the estimated alternative costs for projects, including the main treatment components, ancillary pump and piping systems, additional project costs such as site work, plant computer systems, yard electrical, yard piping, engineering, contractor overhead and markups, escalation, contingency and taxes. Capital costs, including taxes, are $26.04 million for Alternative 1 and $32.88 million for Alternative 2. The 20-year Net Present Value of these costs, including annual O&M costs, are estimated to be $51.13 million for Alternative 1 and $57.34 million for Alternative 2. As noted in Table 5-4, the capital costs are higher for Alternative 2 and O&M costs are slightly lower, but the Net Present Worth is lowest for Alternative 1. The development of the estimated costs is included in Appendix I.

Table 5-4. Cost Summary of Alternatives

Cost Parameter	Alternative 1 –Membrane Bioreactor	Alternative 2 – BNRAS with Tertiary Treatment
Total Capital Project Costs	$26.04	$32.88
Annual O&M Cost	$2.02	$1.97
Net Present Value	$51.13	$57.34

Notes: Capital costs for each alternative were prepared in accordance with the Association for the Advancement of Cost Engineering International Class 4 standards, which have an estimated accuracy range from -30 to +50 percent. All costs are shown in millions of dollars. Net Present Worth Calculations: Annual Discount Rate = 5.0%, Number of Years = 20, and Annual Inflation Rate = 1.5%

SECTION 6

Selection of Alternative

A decision model developed by the City and the consultant was developed to compare and evaluate the monetary and non-monetary benefits of each treatment alternative considered for the City of Rio Rancho's WWTP 1 Rebuild.

6.1 Decision Analysis Process

The decision analysis process used to evaluate the treatment alternatives considered in Section 5 of this PER includes the development of non-monetary evaluation criteria and the ranking of each alternative using the non-monetary criteria. Cost criteria were used in a detailed benefit/cost analysis. Both cost and non-monetary criteria were combined to develop relative benefit rankings for the wastewater treatment alternatives. The relative benefit rankings for each alternative was reviewed. These non-monetary criteria ranking combined with overall present worth costs were reviewed to select the preferred alternative.

6.1.1 Non-Monetary Evaluation Criteria

The following non-monetary criteria were used in the evaluation of the wastewater treatment alternatives:

- **Regulatory Compliance:** This criterion addresses the City's ability to comply with applicable state and federal regulations pertaining to the plant effluent quality and disposal of residual solids. It also includes how the processes can be adapted to changes in regulatory requirements, land use changes, and public opinion.
- **Public Acceptance/Odor Considerations:** This criterion is used to evaluate the potential odors from the wastewater treatment and solids processing facilities, assuming they are properly managed and operated. The new WWTP should be esthetically acceptable to the public and pose no health or safety risk to the public.
- **Operational Complexity:** The criterion applies to the overall complexity of the wastewater treatment and solids processing equipment as they relate to the City's operations staff members and their ability to consistently operate the equipment. The WWTP components should not require frequent repair or adjustment and be easily accessible by operators without posing health and safety risks.
- **Site Efficiency, Land Issues, and Constructability:** This criterion is used to rank the ability of the wastewater treatment and solid processing equipment efficiently use the existing land available, and allow for ease of construction.
- **Expandability/Modularity:** This criterion is similar to the flexibility criterion, except that expandability/modularity focuses on the ability of an alternative to accommodate future expansions of the WWTP. Phased implementation of modular facilities allows for expansion and helps reduce initial capital expenditures by phasing and deals with a potential limited City budget.
- **Reliability/Redundancy:** This criterion is used to evaluate the reliability of the wastewater treatment and solids processing facilities. It encompasses issues such as mechanical reliability, planned downtime, and consistent operation of equipment. It also addresses potential operational limitations such as weather and security-related issues. For this analysis, reliability is defined as the tendency for minimal mechanical equipment failure resulting in downtime.

- **Carbon Footprint and Sustainability:** This criterion is used to evaluate the overall carbon footprint for the alternatives and sustainability considerations, such as water and energy efficiency, green infrastructure, and other sustainability elements.

6.1.2 Monetary Evaluation and Present-Worth Analysis

This section presents the relative cost differences between the treatment alternatives based on capital and annual O&M costs combined to determine the present worth costs for each alternatives. The development of the costs was described in the previous section. The lower net present worth represents the overall best value for the City. The alternatives PWV's are provided in Table 6-1. The cost estimates are provided in Appendix I.

Table 6-1. City of Rio Rancho WWTP 1 Rebuild - Alternatives Present Worth Values

Alternative	Cost Estimates	
Alternative 1 – 1.5 mgd Membrane Bioreactor	Annual O&M	$2.02
	O&M Present Worth	$25.09
	Capital Cost	$26.04
	Present Worth Value	$51.13
Alternative 2 – 1.5 mgd BNRAS with Tertiary Filters	Annual O&M	$1.97
	O&M Present Worth	$24.46
	Capital Cost	$32.88
	Present Worth Value	$57.34

Note: O&M costs are approximate for alternative comparison.

6.2 Summary of Alternative Comparison

Table 6-2 provides a value ranking of the non-monetary and cost criteria for each alternative described and summarized previously. The rankings of each criterion are summed and the alternative that has the highest score is recommended. Both alternatives area considered very favorable in terms of regulatory compliance and ability to achieve the stringent effluent requirements that are required. Based on the location of the new facilities and the advanced treatment processes proposed, the public acceptance and odor control factors are considered favorable for both alternatives. Both alternatives are mid-range in rating for operational complexity because the advanced treatment processes can be more difficult for operators to use than conventional activated sludge processes, although Alternative 1 is considered slightly more favorable due to being more fully automated. Both alternatives are very favorable considering site efficiency, land issues, and constructability, with Alternative 1 slightly favored due to its smaller footprint. Both alternatives are considered reliable and include redundancies. Alternative 1 is ranked higher than Alternative 2 in terms of carbon footprint and sustainability because the MBR is a smaller footprint. Alternative 1 ranks more favorably than Alternative 2 on costs due to the additional capital costs associated with Alternative 2.

TABLE 6-2. Decision Criteria and Scores for Alternatives

Criteria	Alternative 1 – Membrane Reactor Treatment	Alternative 2 – BNRAS with Tertiary Treatment
Regulatory Compliance	5	5
Public Acceptance/Odor Control	4	4
Operational Complexity	3	2
Site Efficiency, Land Issues, and Constructability	5	4
Expandability/Modularity	4	3
Reliability/Redundancy	4	4
Carbon Footprint and Sustainability	5	4
Cost Consideration	4	3
Total Score	34	29

Note: Scoring based on a scale of 1 to 5 with 1 being the least favorable and 5 being the most favorable.

6.3 Recommended Alternative

Based on the alternative analysis and comparison, Alternative 1, MBR treatment process, was selected. Section 7 provides the details for proposed project based on Alternative 1.

SECTION 7

Proposed Project

Details on the recommended project for the City of Rio Rancho's WWTP 1 are presented in this section. As discussed in Section 6, Alternative 1, the MBR process was selected for implementation. This section discusses the site plan, the treatment plant process elements, support facilities and site requirements, other design considerations such as architectural features, provisions for the future, and phased implementation of the treatment process. This section also presents the ancillary pump and pipeline components for the immediate and future proposed project. Conceptual layouts are described for the new reuse pipeline from WWTP 1 to the IC water tanks and to the existing reuse system. The existing effluent pipeline and pump system to WWTP 2 are evaluated and presented. The options to convey domestic wastewater flows from the IC to WWTP 1 using the existing infrastructure, and the future conveyance of Unit 16E wastewater flows to WWTP 1 are evaluated in detail and discussed in this section. This section also discusses the project schedule, including delivery options, permit considerations, sustainability, and funding considerations.

7.1 Development of Site Plan

Figure 7-1 shows the WWTP 1 layout that includes the existing plant, location of the new MBR facility, as well as the necessary pump and pipeline options. As shown on Figure 7-1, the 24-inch raw sewage influent pipeline will be extended to the new WWTP 1, just south of the existing facility. The new WWTP 1 will be located in the area of an existing decommissioned storage pond. The footprint for the MBR process was approximated using model outputs from Pro2D and CPES. The footprints of non-process facilities were estimated using CPES, specific site requirements, and experience from the design of other treatment facilities. Facilities are distributed to make efficient use of the project site and the space available within the existing property. The layout is conceptual at this time but consideration should be given to allow for possible expansion of the facility where feasible during the design phase.

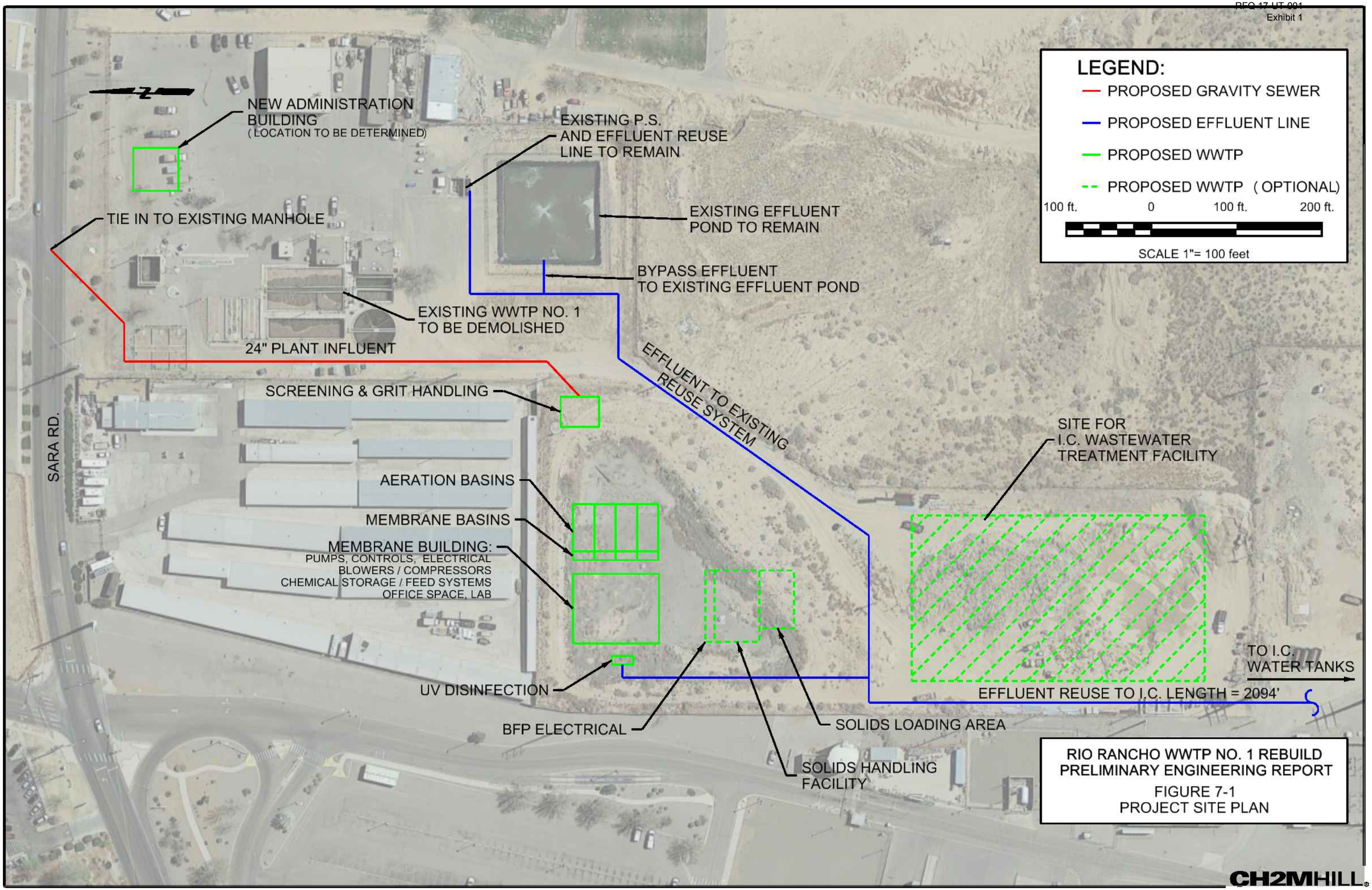
The new WWTP 1 will be located on approximately 1.3 acres of land as shown on Figure 7-1. The existing roadways around this site will need to be improved. The new Administration Building will be located separate from the main treatment process at a location near Sara Road and the entrance to the site. The location to the south of the new plant site will be dedicated to the IC treatment facilities as needed. Other components of the site plan include the new effluent pump station, proposed pipeline to the IC non-potable water tanks, and new pipeline to the existing reuse system.

7.2 Treatment Process

The MBR treatment system provides the effluent quality the City desires, uses the existing space efficiently, and provides flexibility for reuse purposes for the Industrial Client (IC) and the City's overall reuse strategy. The process design aspects, specific treatment plant components, other design considerations, provisions for future, and possible phased construction are discussed.

7.2.1 Process Design

The MBR is an activated sludge process that uses the membranes to filter contaminants from the wastewater. The use of the physical membrane essentially eliminates the need for secondary clarification basins typically used in the conventional activated sludge settling process. The membrane filters also provide tertiary treatment and provide a very high quality level of treatment. The MBR process use of the membrane units at a MLSS of between 8,000 and 12,000 mg/L results in a treatment facility footprint that is smaller than the conventional activated sludge process.


LEGEND:
PROPOSED GRAVITY SEWER
PROPOSED EFFLUENT LINE
PROPOSED WWTP
PROPOSED WWTP (OPTIONAL)
100 ft. 0 100 ft. 200 ft.
SCALE 1"= 100 feet
NEW ADMINISTRATION BUILDING
(LOCATION TO BE DETERMINED)
EXISTING P.S. AND EFFLUENT REUSE LINE TO REMAIN
EXISTING EFFLUENT POND TO REMAIN
TIE IN TO EXISTING MANHOLE
BYPASS EFFLUENT TO EXISTING EFFLUENT POND
EXISTING WWTP NO. 1 TO BE DEMOLISHED
24" PLANT INFLUENT
EFFLUENT TO EXISTING REUSE SYSTEM
SCREENING & GRIT HANDLING
SARA RD.
SITE FOR I.C. WASTEWATER TREATMENT FACILITY
AERATION BASINS
MEMBRANE BASINS
MEMBRANE BUILDING:
PUMPS, CONTROLS, ELECTRICAL
BLOWERS / COMPRESSORS
CHEMICAL STORAGE / FEED SYSTEMS
OFFICE SPACE, LAB
TO I.C. WATER TANKS
UV DISINFECTION
EFFLUENT REUSE TO I.C. LENGTH = 2094'
BFP ELECTRICAL
SOLIDS LOADING AREA
SOLIDS HANDLING FACILITY
RIO RANCHO WWTP NO. 1 REBUILD
PRELIMINARY ENGINEERING REPORT
FIGURE 7-1
PROJECT SITE PLAN
CH2MHILL

The MBR alternative was evaluated using CH2M's Pro2D2 model simulation. Pro2D2 is a whole-plant simulator that uses several mathematical modules to represent an individual unit process. Modules within Pro2D2 use stoichiometric and kinetic relationships that track utilization and conversion of various compounds, nutrients, and microorganisms. This proven design tool provides an overall mass balance throughout the plant based on the influent wastewater characteristics, physical unit process configurations, and operational criteria that are unique to the City. Summary tables of the Pro2D2 simulation model are included in Appendix H for the selected process.

Figure 7-2 provides a potential layout of the treatment process. The major components of the baseline treatment process include the following and are described in detail in this section:

- Screening and Grit Removal
- Main Treatment Process - Aeration Basins and MBR
- MBR Membrane Tank
- Disinfection System
- Odor Control Facilities
- Membrane Building with Laboratory and Operations Office

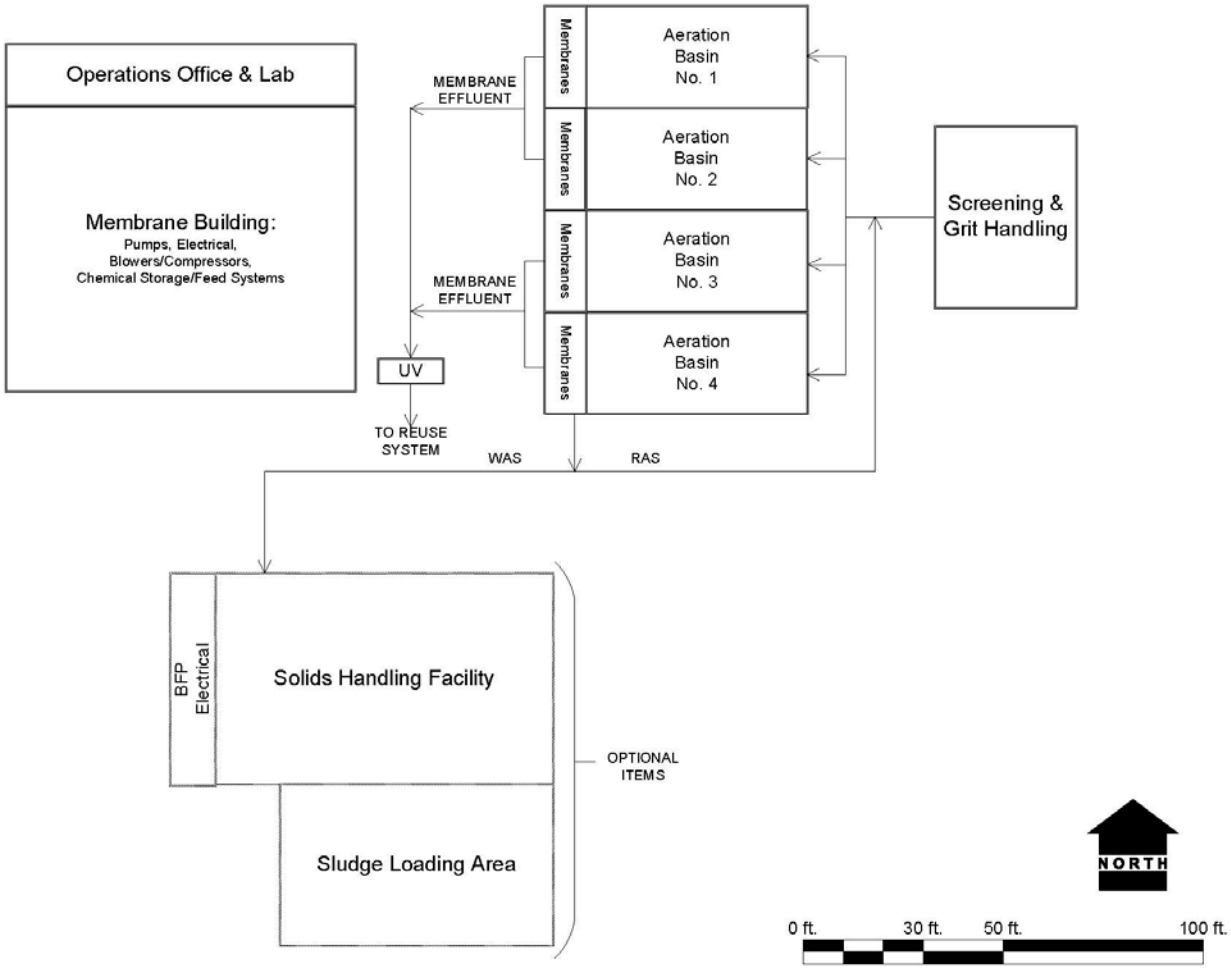


Figure 7-2. Schematic Layout of the MBR Treatment Facility

7.2.1.1 Screening and Grit Removal

Screening and grit removal are critical to the success of the MBR process. Grit that is allowed through the process can erode pumps, and mechanical equipment and can accumulate in channels and basins, which can decrease the capacity of the basins and cause operational problems. It is proposed for this alternative that a dual-stage screening (coarse and fine) be implemented at the new headworks. The coarse screens will be located upstream of the grit removal to remove the larger debris to protect the downstream mechanical devices from damage.

A vortex grit removal system will be located downstream of the coarse screens to remove grit, which consists of sand, gravel, cinders, or other heavy solids materials. The grit from the grit chamber will be pumped out, washed, classified, and discharged into a screenings/grit dumpster for eventual trucking and disposal. Screen channels, grit removal system, and the dumpster will be covered and odor controlled.

Fine screening downstream of the grit removal and upstream of the MBR system is required to protect the membrane units by removing finer debris. The screenings collected will be washed, dewatered, compacted, and then stored in a screenings/grit dumpster before disposal. Two fine screens with 2 mm diameter perforated openings will be installed for the full capacity of the plant and one standby to provide 100 percent redundancy of the fine screens to protect the downstream membranes.

7.2.1.2 Main Treatment Process System - Aeration Basin

As shown on Figure 7-2, the wastewater flows to the aeration basins to a minimum of two separate treatment trains to allow for redundancy. Wastewater is pumped to aeration basins where sufficient aeration is supplied to the basins to maintain a low dissolved oxygen concentration to achieve simultaneous nitrification and denitrification. The incoming raw wastewater is mixed with nitrified wastewater and MLSS from the MBR basins, thus allowing denitrification to occur. Baffling within the aeration basins allow for an anoxic zone to promote the growth of a suitable biomass for the MBR process and improve overall membrane filterability. The aeration basins also provide additional treatment capacity during periods of high flows and loading.

7.2.1.3 Membrane Bioreactor

The wastewater flows from the aeration basins to the MBR basins where the wastewater is mixed with the active biomass and oxygen in a traditional aeration basin stage of the activated sludge process. The majority of the organics in the wastewater are oxidized and ammonia is converted to nitrate. Diffusers on the membrane units supply air and mixing.

For the MBR process, the treated wastewater is separated from the biomass solids by passing through the submerged membranes in the basin. Clarified effluent then flows by gravity to the disinfection systems prior to discharge. Wastewater sludge generated from the process is taken directly from the MBR basins to the sludge handling facilities. The type of membranes that may be used for this process will require some variation in the process and piping configurations. For purposes of the modeling and for developing costs, the GE Zenon hollow fiber tube membranes were considered.

There are two active membrane for each anaerobic/anoxic/aeration train and one standby membrane train. Each sub-train includes membrane cassettes with some room to add extra cassettes if additional membrane surface area is required to meet capacity. The number of membrane sub-trains and cassettes per sub-train is based on meeting the design fluxes with one sub-train out of service.

There is one permeate pump designated for each sub-train. The discharge from each pump is routed to a common permeate header that discharges into the disinfection process. These pumps provide head to facilitate conveyance of the effluent to the downstream process. There are two WAS pumps to waste mixed liquor from the membrane basin effluent/overflow channel (RAS). The wasting rate will depend on the target process solids retention time (SRT). The membrane basins are configured to allow mixed

liquor to flow from the aerobic basins by gravity. The RAS is then pumped (or flows by gravity) through to the aeration basins using high-flow low-head pumps.

The system employs blowers to provide air flow necessary for the process. Chemical cleaning of the membranes uses sodium hypochlorite and citric acid.

7.2.1.4 Ultraviolet Disinfection System

The MBR system will achieve a significant total coliform removal and generate effluent with a typical coliform count of 10 to 1000 MPN/100 milliliter (mL). An inline UV disinfection system will be provided to further disinfect the MBR effluent to meet the Class 1A reclaimed water standards and virus removal. A closed-conduit inline UV system was selected as the most appropriate system for being cost effective and having ease of O&M. Effluent is pumped directly to the effluent pipeline or the IC non-potable reservoirs. It is assumed the residual disinfection is not required in the distribution system as sodium bisulfite is currently added to effluent as it passes from the existing effluent holding pond to the reuse distribution system for the purposes of chlorine removal. The existing effluent holding pond will be bypassed during standard operations, so algae growth in this basin should not be concern. The existing effluent holding pond will be maintained in service for effluent storage during peak flow conditions when flow through the plant exceeds the capacity of the existing effluent pipeline and pump station.

7.2.1.5 Odor Control Facilities

Controlling odors at the treatment facility will be important for wastewater treatment plant operations and as such odor control equipment is included in the baseline cost estimate for this study. Biofilters are an odor treatment technology that use biological processes as treatment mechanism. The City utilizes biofilters at WWTP 6 and is satisfied with their performance. Biofilters are considered to be a green approach to odor control because they use microorganisms to oxidize odor and air emission compounds to carbon dioxide, water, and other benign byproducts such as chloride and sulfate. The byproducts are either emitted in the outlet air, drained from the biofilter, or consumed by the microorganisms. The biological activity in a biofilter is similar to the activities performed by the microorganisms in activated-sludge secondary wastewater treatment processes.

An open bed biofilter is constructed partially belowground and consists of an air distribution plenum, media support, and media. The air flow through the biofilter may be distributed by several methods. The outer walls of the air plenum may be formed by earth berms, concrete walls, or other support mechanisms. The air plenum below the media bed may be open air space formed by the walls with grating forming the top, with railroad ties forming the support and top of the plenum, or it could be formed with perforated air distribution piping buried in a coarse rock bed. If the rock bed is used, special consideration must be given to the type of rock. Limestone and other soft rock cannot be used because it breaks down in the acidic environment and may obstruct air flow.

Media may be purchased from manufacturers or blended based on a recipe from locally available media constituents, such as wood chips, bark, and other soil media constituents. Moisture control may be accomplished by pre-humidification of the air in a mist chamber with spray nozzles, with a packed tower humidification chamber, by keeping the media wet using soaker piping within the media beds, surface irrigation with spray nozzles, or a combination of these methods.

Advantages of open bed biofilters include simple operation, effective removal of a wide array of odorous compounds, low capital and maintenance costs and no need for chemicals. One disadvantage of open bed biofilters would be the annual cost for organic media replacement every 4 to 6 years.

7.2.1.6 Membrane Operations Building

The Membrane Operations Building will be adjacent to the membrane basins. The building includes a process area housing blowers, pumps, and the chemicals required for the main treatment process. It also has electrical and motor control center rooms, a workshop for maintaining and repairing plant equipment, and an office/control/lab area. A separate Administration Building will be located near the main entrance.

7.2.2 Support Facilities and Site Requirements

Support facilities and site requirements for the MBR treatment process include the new administration building, general site work and utilities, Supervisory Control and Data Acquisition System, and existing effluent reuse pond, piping and pumps. Figure 7-1 provides a layout of the facilities on the existing site.

7.2.2.1 Administration Building and Process Building with Operator Office and Lab Space

The Administration Building if selected for inclusion in this project would be located near the site entrance and visible from Sara Road. The architectural concept for these facilities will be determined as part of the design process. In general, the new Administration Building will be similar in size to the existing administration building and will include a reception area, four offices, a medium sized conference room with audio-video equipment, and rest room facilities. The Administration Building will be located near the main road at the entrance and will be visible from the street. The exterior will have a finished appearance and be designed to conform to current City of Rio Rancho zoning ordinance and building code requirements, including occupancy, accessibility and fire protection requirements.

The Process Building is necessary for plant operations and is included in the baseline cost estimate will be co-located with the treatment facilities, which will be set back away from the street in the location of the existing (decommissioned) holding pond. The Process Building will include an office for operators, small process laboratory, restroom, and equipment necessary for plant operations: membrane pumps, electric room, supervisory control and data acquisition (SCADA), blowers/compressors, and chemical storage and feed systems.

7.2.2.2 Site Requirements and Utilities

The proposed treatment facility will be located to the south of the existing plant at the location of the existing decommissioned pond, which is triangular in shape (350 feet by 350 feet by 450 feet) and 8 feet deep. The existing roadway to the plant will be improved to this area, with appropriate drive access throughout the site provided for equipment maintenance, solids removal, chemical deliveries, and general operations. Parking will be occupancy appropriate and located at both the Administration Building and the Process Building at the main treatment facilities. The existing site is fenced in so additional fencing will not be required. Drainage around the site will need to be adjusted. Recent drainage issues on the highly sloped area to the southeast of the property have been temporarily resolved for the reoccurring storm water runoff problem. Utilities such as gas, electric and potable water will be extended to the new treatment facilities. A standby electrical generator will be included.

7.2.2.3 Supervisory Control and Data Acquisition System

The SCADA system will be implemented for the new treatment facilities and will follow the existing Rio Rancho water and wastewater system design concepts. The existing WWTP 1 has one programmable logic controller (PLC), a master radio, and a SCADA workstation. The existing PLC is used to control all of the processes at the WWTP 1. The master radio is used to monitor the sewage lift stations that provide wastewater to WWTP 1 and WWTP 2. The signals from these lift stations and from the WWTP 1 PLC are transmitted to the SCADA system at WWTP 2. The SCADA workstation at WWTP 1 gets all of its data from the SCADA servers at WWTP 2.

For the new plant, it is recommended that a new Modicon PLC is installed with the new equipment. This PLC should be a Modicon M340 or M580, based on the number of input/output points. It is also recommended that a new SCADA workstation is added to monitor the WWTP 1 processes. The master radio that currently communicates to the lift stations should be moved from the existing plant to the new plant and all of these signals will be transmitted to the SCADA servers at WWTP 2.

7.2.2.4 Existing Effluent Pond

The site has an existing effluent pond. It is unclear when the structure was built but it appears to have been constructed sometime after the initial facility with later improvements that included replacing the liner and aerators. The pond is lined and has floating surface aerators. The effluent is then pumped through the existing pumps and recycled water line to the City's recycled system that supplies recycled water to the golf course and cemetery. The existing pond will remain in service as optional storage to offset flows beyond the 1.6 mgd capacity of the existing effluent pipeline. Typical operations will pump water directly from the new WWTP to the recycled line; however, a pipeline and valves will be installed to allow flows in excess of the 1.6 mgd capacity to enter the existing effluent pond.

7.2.2.5 Existing Pump and Pipeline to Recycle and WWTP 2

The effluent from the existing WWTP 1 is conveyed to either the City's reuse system or to the WWTP 2 through an existing effluent pipeline. The existing effluent pump station is located just north of the effluent pond and includes two 75 HP, 900 gpm pump. The existing effluent pipeline is an asbestos cement pipeline constructed when the original plant was built in the early 1970s. The pipeline includes approximately 3,810 feet of 10-inch line and 5,569 feet of 8-inch line.

During the irrigation season, the effluent is pumped to the golf course as needed. During the off-irrigation season, the effluent is sent to the WWTP 2 for discharge to the Rio Grande. Piping and valves at the East Lake allow the effluent water to either enter the lake or bypass the lake and continue on to WWTP 2.

Currently, the existing plant effluent flows to an effluent holding pond to store and equalize the flow prior to discharge to the effluent pipeline. The existing pumps are rated at 900 gpm with a pressure rating of 235 feet. In reviewing with the operations staff, the maximum these pumps have operated at is 825 gpm and more typically in the range of 700 to 750 gpm. The pumps operate in 12-hour cycles. An evaluation was completed on the pipeline based on the existing pumps. Details on this evaluation are located in Appendix J. Based on this evaluation and the existing operation at the plant, the pipeline may be able to convey as much as 1.6 mgd. However, even with the two existing pumps operating (alternating), the max flow through this pipeline is about 1.2 mgd. For the full build out to 1.5 mgd with peak month flows of 1.6 mgd, the existing pipeline would be adequate for these flows.

If the City needed to replace this pipeline in the future due to any failures and need for increased capacity, there are several issues that would have to be addressed. The pipe is asbestos cement so disruption and disposal would be a major issue. The existing pipeline would have to remain in operation during any replacement and the construction would require major disruption along the NM 528 corridor. Replacing the existing pipe using methods such as pipe bursting or pipe reaming could be an issue because once the pipe is disrupted or crushed, it becomes a regulated waste. If the 8-inch portion of the line was replaced, it would make sense to leave the existing line in place and construct a new 10-inch pipeline to replace the existing full length of the 10-inch pipe.

Asbestos cement pipe is durable and capable of withstanding high pressures but it tends to get brittle and may crack under stress. It also tends to settle with the existing pressures so adding another pump and sending more flow through the pipe could cause problems with the pipeline.

Investigation and testing of the existing pipe may include:

- Pressure testing—the pipe could be pressure tested (1.5 times the operating pressure). If it passes that test, then the pipeline could be used up to that pressure. If it does not pass this test, the rehab or replace as needed.
- Corrosivity survey—measure corrosion activity and assess corrosion protection and cathodic protection to determine the potential for concrete deterioration.
- Closed circuit television (manned entry shut down would be required) to examine the inside condition of the pipe.

A condition assessment of the pipeline could include some of the following elements:

1. Records review (leak/break repairs, drawings, specs, reports, and soil information).
2. Obtain samples of the AC pipe and have it tested.
3. Statistical analysis of available data – GIS mapping that discusses soil data, breaks, etc.
4. Site reconnaissance such as accessibility, traffic conditions, other utilities impacts.
5. Inspection planning (shut downs, bypass, permits, alternatives).

The need to replace the existing effluent pipeline was considered in a report in 2014 (Huitt-Zollars, October 2014) that evaluated several alignments to pump directly from WWTP 1 to WWTP 2 if the flows are increased and the IC was not able to use the treated effluent. A preferred alignment may be some variation of the Alternative 4 alignment identified in the report that turns east along Sara Road and continues on the west side of the Thompson fence line but with some adjustment as needed to avoid the Montoyas Arroyo if possible. The capacity calculations for this existing effluent pipeline are included in Appendix J.

7.2.2.6 New Effluent Recycled Water Lines

New recycled water lines are proposed to either pump to the existing reuse system or to the non-potable water tanks at the IC facility. The previously referenced Figure 7-1 provides a layout of the new WWTP 1 and the recycled water lines.

The permeate pumps from the membrane basins would have sufficient head to pump to the IC water tanks and the existing holding pond. The proposed pipeline to the IC includes approximately 2,000 feet of 10-inch PVC pipe to the existing non-potable water tanks on the IC property. The pipeline to the existing holding pond includes approximately 700 feet of 10-inch PVC pipe. A summary of the conceptual layout and computations for the new recycle water lines is included in Appendix J.

7.2.2.7 Recycled Water from WWTP 1 to Proposed 3 MG Recycled Water Tank at Well 10A

A letter report was developed, Reuse Master Plan Update, Huitt-Zollars, Date September 18, 2015, that provided additional analysis of three route alternatives for moving recycled water from the new WWTP 1 to the proposed 3 MG recycled water tank(RWT) at Well 10A RWT through several methods. Each of the alternatives incorporate identical in-line booster stations and a 50,000 gallon tank at the WWTP 1 to provide buffer capacity between the WWTP booster station and the off-site booster station. The route alternatives are summarized as follows with the details provided in the report located in Appendix K:

Route Alternative 1 – WWTP 1 to Well 10A 3 MG Recycle Storage Tank via East Lake –Route 1-A connects WWTP 1 to an in-line booster station at the golf course. Route 1-B connects WWTP 1 to an in-line booster station at the Presbyterian site on High Resort Boulevard.

Route Alignment 2 – WWTP 1 to WWTP 2 – Connects WWTP 1 booster station to the existing AC effluent pipeline. A new 10-inch transmission main would connect to the existing 8-inch AC line at the East Lake and extend to WWTP 2. The new 10-inch main would discharge to a new 50,000 gallon ground storage tank at WWTP 2. A new booster station would pump from the new WWTP 2 tank back into the

existing 16-inch recycled water line and connect with the existing 24-inch transmission main that extends to the RWT and AWTF.

Route Alignment 3 – WWTP 1 to WWTP 6. Connects the new WWTP 1 booster station to a new 10-inch recycled water transmission main to the WWTP 6.

7.2.2.8 On-Site Solids Handling Facility

An on-site solids handling facility could be installed; however, this facility has not been included in the baseline cost estimate. The solids from WWTP 1 are currently hauled off by tanker truck for processing at WTTP 2, which is a process that can continue for the new facility. A separate study was conducted by CH2M that considered the cost to install a solids handling facility at WWTP 1 compared to the current practice of hauling liquid sludge to determine the payback period for this capital investment. The Technical Memorandum titled *Biosolids Options at Wastewater Treatment Plant #1*, dated June 24, 2015, is provided in Appendix L for reference. The study concluded that the current option of continuing to haul liquid biosolids produced at WWTP 1 to WWTP 2 was the least costly option in the short term. The study concluded that WWTP 2 is in need of upgrades and modifications in order to continue to treat and handle all the biosolids from the other WWTP's.

7.2.3 Other Design Considerations

Other important design criteria and features for the project include:

- Reliability and redundancy
- Structural and architectural considerations
- Demolition of existing plant

7.2.3.1 Reliability and Redundancy

The Pro2D modeling completed for this study includes provisions for redundancy throughout the proposed system. This includes the aeration and membrane process trains, and major process equipment, pumps, blowers, and other industry standard requirements.

7.2.3.2 Structural and Architectural Considerations

The MBR facilities will be constructed with cast-in-place reinforced concrete for the tankage. Construction materials and architectural surface treatment for the building will be consistent with other treatment plant architecture. A process building will include the membrane permeate pumps, electric room, blowers, chemical storage and feed systems, and a small office space and lab. The architecture of the MBR process building will be consistent with the overall concept for the treatment plant for an industrial type setting such as pre-fabricated metal buildings. The Administration Building will have masonry construction and have a finished appearance as it will be a focal point for the site that is visible from the street.

All of the facilities (structures, buildings, and channels) will be covered and ventilated. Exhaust foul air will be directed to the odor control system as appropriate. All equipment that is a significant source of noise, such as blowers and pumps, will be enclosed within buildings to mitigate the noise effects.

7.2.3.3 Demolition of Existing Plant

The existing plant will be decommissioned and could be demolished once the new WWTP 1 is constructed and ready for operation. Demolition of the existing plant is not included in the baseline cost estimate for this project. Decommissioning of the plant would include capping the existing influent piping and removing wastewater and solids from the existing pipes and basins. If included in the project, demolition would include breaking up the concrete and structures and hauling waste materials to the landfill. The DB Contractor would be encouraged to reuse waste materials in the new construction where possible. Excavation and backfill of the existing site would be required to level the footprint of the existing plant, provide appropriate stormwater flow paths, and stabilize the site to prevent

stormwater and wind scour. This includes the existing aeration basins, digester tanks, sand filters, entrance works structure, and other decommissioned structures.

7.2.4 Provisions for Future

The new WWTP 1 was developed based on a projected MBR plant and sized based on the AAF of 1.5 mgd, Maximum Month flow of 1.6 mgd, and Peak Hour flow of 3.0 mgd. This capacity is considered adequate for the facility given the developed nature of the service area and the future flows that are anticipated. If these flows are exceeded for any reason in the future, the City should consider additional equalization storage at the plant. Consideration should be given during the detailed design phase to allow for minor additions or upgrades in the future.

7.3 Project Design—Future Pump and Pipeline Systems

An evaluation of future pump and pipeline systems for the WWTP 1 is included in this section and include:

- Conveyance of the IC domestic wastewater flows to WWTP 1
- Conveyance of Unit 16E flows to WWTP 1

Each of these ancillary facilities is discussed in detail in this section, including descriptions and computations. The estimated costs are summarized in the cost opinion section that includes the treatment process and other project elements. Conceptual design considerations for the future pump and pipeline systems are provided in Appendix J.

7.3.1 Conveyance of IC Domestic Wastewater Flows

The option to convey the domestic flows from the neighboring IC was evaluated for the PER. These facilities have not been included in the baseline cost for this project. The existing domestic flows from the IC are estimated to be 0.05 mgd with projected flow of 0.10 mgd if the facility ever expands in the future. Several meetings occurred with the City's staff and the IC staff to discuss options and determine the best location to intercept the domestic waste flow stream. Figure 7-3 presents the various alternatives, which included: 1) a separate sewer line that extends along the back (east) side property line of the IC's facility to the new WWTP 1, 2) either using an existing 18-inch gravity sewer line (or new pipe in same utility corridor) that runs on the west side of the facility and extending that north to Sara Road and into the influent manhole, and 3) connecting to the existing Lift Station 16 through a new pipeline under NM 528 and then conveying to WWTP 1 through the existing forcemain. The first option of a pipeline along the east side of the property was not considered after consulting with the IC due to sensitivity issues around that property boundary. The second option to construct a pipeline on the west side of the property line was also discussed with the IC and determined to not be feasible due to existing utilities in the area and concerns over disruption near the highly used and visible NM 528 corridor. In addition, this pipeline is currently being used to convey some wastewater flow by the IC. The third option that conveys the IC domestic flows by gravity to the existing Lift Station 16 was determined to be a feasible option and was evaluated in detail.

This option includes a gravity sewer line from the IC's sewer system that connects to the City's Lift Station 16. Figure 7-3 shows the location and layout for this option. As shown on Figure 7-3, the IC's sewer would be connected to WWTP 1's collection system at a manhole located near Westside Boulevard. After reviewing the existing plans and estimating the depth of the IC's domestic wastewater outfall, it was determined that a 6-inch gravity line would be adequate to handle the existing and future domestic wastewater flows. The gravity line would be installed under NM 528 and connect downstream to an existing manhole (MH-B07-00027) where it would flow through approximately 87 feet of existing 8-inch sewer to Lift Station 16. The 6-inch pipe would have to be tunneled, or bored under NM 528 and would be about 250 feet of distance at an average depth of 10 feet.

The existing Lift Station 16 was evaluated for capacity and determine to have a design flow rate of 400 gpm (Wilson & Company Record Drawing, 2011). There was no long-term data of actual flows into the lift station so existing flow was measured as 80 percent of water consumption for the customers connected to Lift Station 16 based off of 2012–2014 data provided by the water utility. An average flow of 30 gpm was calculated and a peak flow of three multiplied by the average flow was calculated to be 90 gpm. Based on available existing data, Lift Station 16 was determined to be adequate to handle the existing flows.

The domestic flows from the IC facility were estimated at 50,000 gpd (IC discussions) with a peak flow of 150,000 gpd or 104 gpm (peaking factor of 3). To allow for some future growth, this estimate was doubled to 208 gpm to determine the impact on the existing lift station and forcemain.

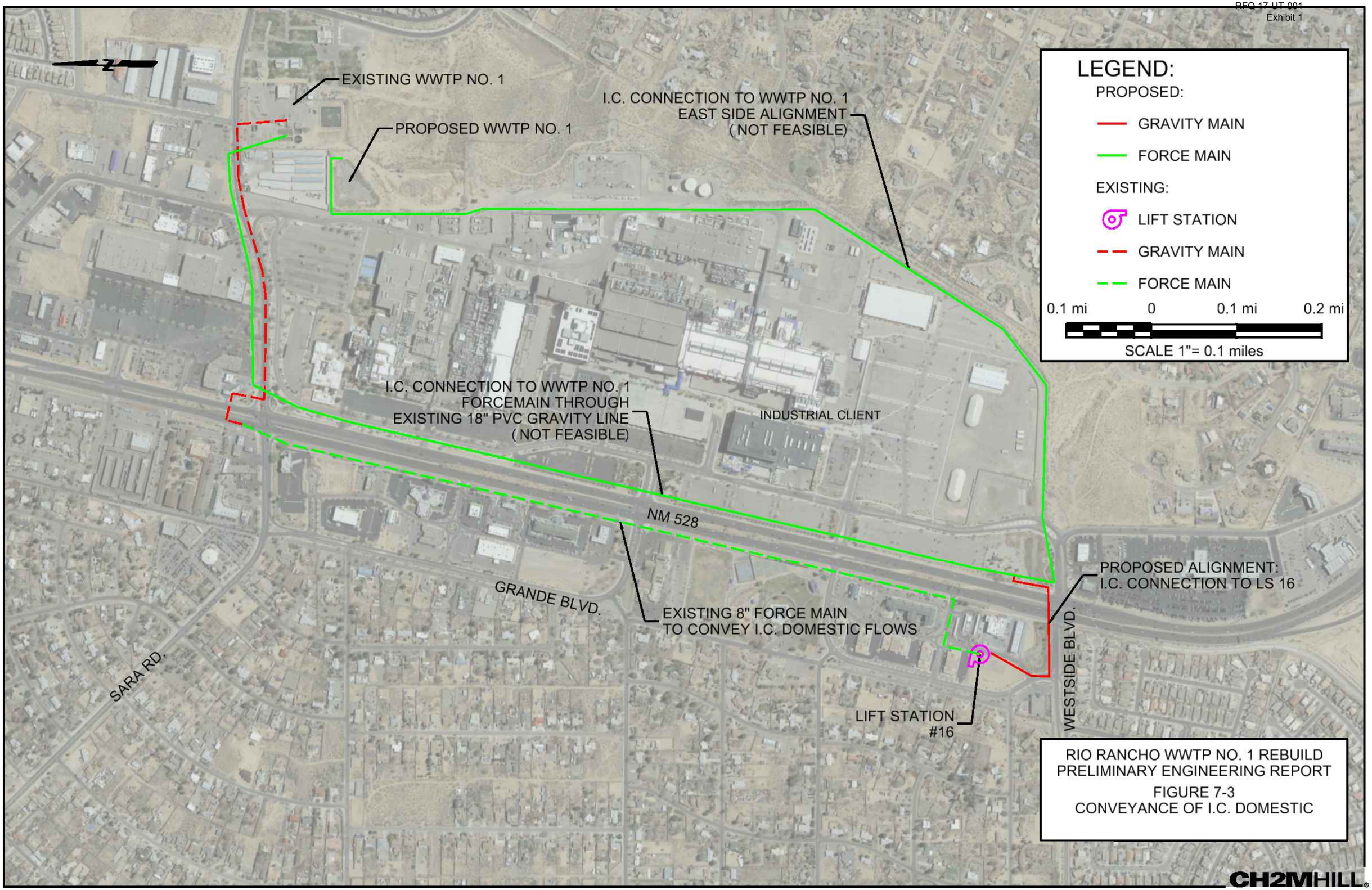
With the potential IC's domestic flows of 208 gpm, the peak flow that could be expected at Lift Station 16 was calculated to be 296 gpm. The existing pumps in Lift Station 16 have a design pumping rate of 400 gpm. The increased flows would result in pump cycle times that are within the recommended range of 5 to 30 minutes. Based on this analysis, the existing Lift Station 16 would be adequate to handle the addition of domestic wastewater from the IC. The existing forcemain from Lift Station 16 to the existing WWTP 1 was also evaluated and determined to be adequate for these additional flows.

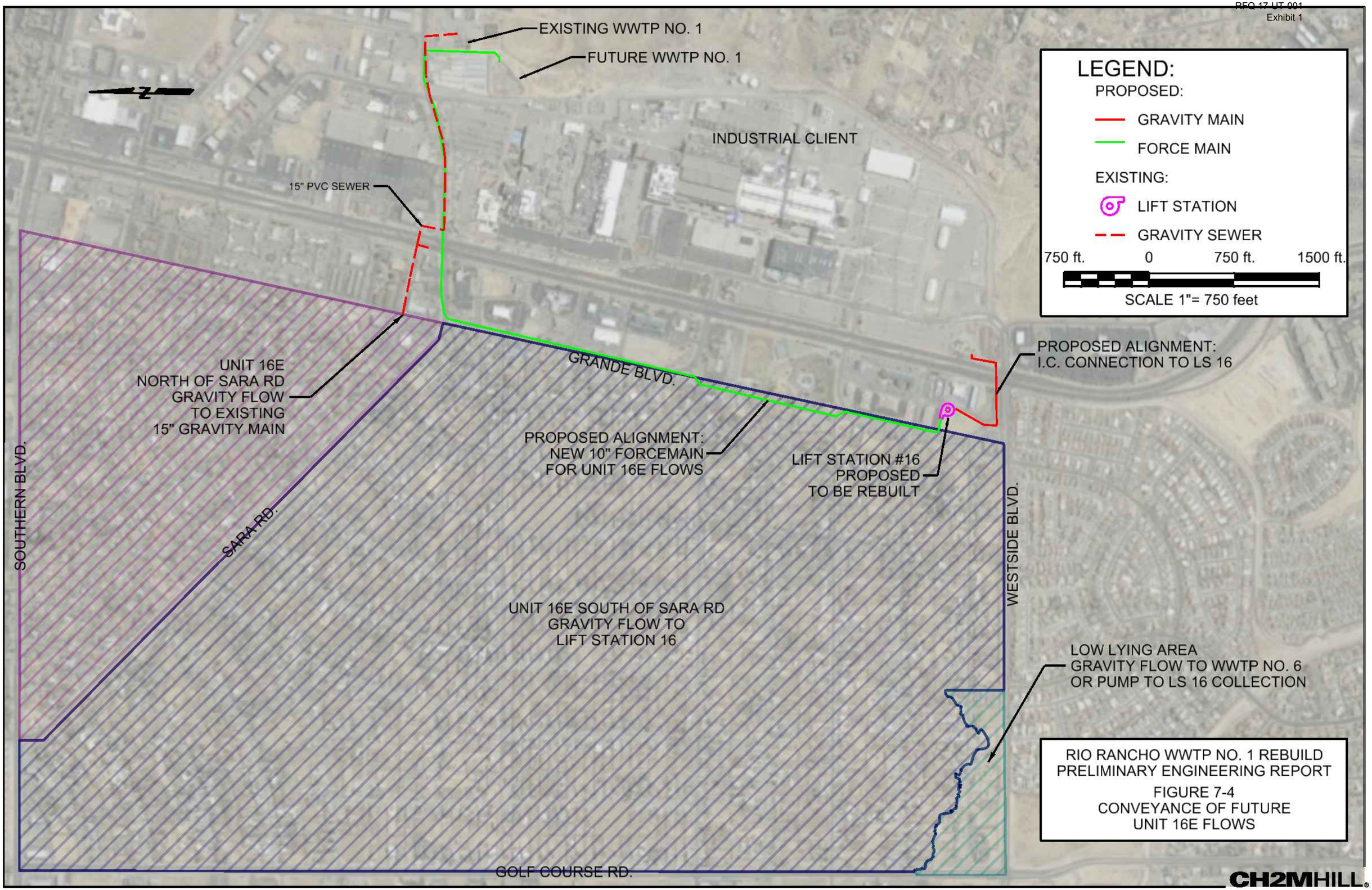
7.3.2 Conveyance of Unit 16E Flows to WWTP 1

Pipeline and pumping options were evaluated for the future conveyance of Unit 16E flows to the WWTP 1 facilities. These facilities have not been included in the baseline cost for this project. As discussed in Section 4 of the PER, the Unit 16E is a large residential area with homes currently on septic tanks. The Unit 16E area includes 1,382 existing homes and 54 vacant lots for a total projected full build-out of 1,436 homes. The resident would be billed in accordance with the City's sewer ordinance rate structure and be required to meet City's ordinances and requirements for the utility at the time they are connected to the system. Using an estimated 68 gallons per capita day and an average of three occupants per home, the projected wastewater flow from this area is approximately 0.29 mgd. Figure 7-4 shows the Unit 16E area is bounded by Westside Boulevard on the south, Southern Boulevard on the north, Rio Rancho Boulevard (NM 528) on the east, and Golf Course Road on the west. The Unit 16E area would require a detailed analysis for a sewer collection system, which is beyond the scope of this PER. However, the general drainage for the area and the impact on the existing collection system, Lift Station 16 pump station and the existing forcemain to the WWTP 1 were evaluated on a conceptual basis.

In reviewing the topography and slopes for the Unit 16E area, the wastewater flows could be split along Sara Road. The area to the north of Sara Road would flow by gravity sewer to an existing 15-inch sewer line at Grande Boulevard and Hilltop Plaza. The area to the south of Sara Road would flow by gravity to Lift Station 16 and be pumped to WWTP 1 through a new 10-inch forcemain.

The slope from the NE and NW points of the area to the north of Sara Road to the proposed connection point were calculated to ensure that this area could gravity flow to the existing 15-inch sewer line. The lowest slope was 0.92 percent, which would exceed the minimum slope for an 8-inch gravity pipe specified in the Rio Rancho Water and Wastewater Design Criteria. The existing 15-inch sewer would receive peak flows of 181 gpm in addition to the existing peak flow of 80 gpm for a total of 261 gpm. The pipeline was evaluated using the minimum slope available and Manning's equation at a depth/diameter of 75 percent, was determined to have a flow capacity of 742 gpm, which would be sufficient to convey the additional wastewater flow.


EXISTING WWTP NO. 1
PROPOSED WWTP NO. 1
I.C. CONNECTION TO WWTP NO. 1
EAST SIDE ALIGNMENT
(NOT FEASIBLE)
LEGEND:
PROPOSED:
GRAVITY MAIN
FORCE MAIN
EXISTING:
LIFT STATION
GRAVITY MAIN
FORCE MAIN
0.1 mi
0
0.1 mi
0.2 mi
SCALE 1"= 0.1 miles
I.C. CONNECTION TO WWTP NO. 1
FORCEMAIN THROUGH
EXISTING 18" PVC GRAVITY LINE
(NOT FEASIBLE)
INDUSTRIAL CLIENT
NM 528
GRANDE BLVD.
EXISTING 8" FORCE MAIN
TO CONVEY I.C. DOMESTIC FLOWS
PROPOSED ALIGNMENT:
I.C. CONNECTION TO LS 16
WESTSIDE BLVD.
SARA RD.
LIFT STATION
#16
RIO RANCHO WWTP NO. 1 REBUILD
PRELIMINARY ENGINEERING REPORT
FIGURE 7-3
CONVEYANCE OF I.C. DOMESTIC
CH2MHILL



RIO RANCHO WWTP NO. 1 REBUILD
PRELIMINARY ENGINEERING REPORT

FIGURE 7-4
CONVEYANCE OF FUTURE
UNIT 16E FLOWS

The area in Unit 16E that is south of Sara Road was evaluated to determine if sufficient slope to gravity flow wastewater to Lift Station 16 is available. The southwest corner of the unit is in a low spot and does not have the elevation to gravity flow to Lift Station 16. This low lying area encompasses approximately 21 houses that would need to be pumped up the collection lines in Unit 16E or gravity flowed into the collection for WWTP 6. For the purpose of sizing Lift Station 16 pumps and forcemain, it was assumed that the wastewater from these houses would flow to Lift Station 16.

The existing Lift Station 16 was evaluated based on these future conditions. It was determined that the Lift Station 16 would have to be rebuilt to allow for a larger and deeper wet well and higher capacity pumps. In order to maintain a minimum 0.8 percent design slope in the pipeline to convey wastewater flow from the Unit 16E area to the Lift Station 16, the invert of Lift Station 16 would need to be lowered to 5,192 feet from 5,201 feet. The additional flows into Lift Station 16 would consist of the flows from Unit 16E south of Sara Road (716 gpm peak), flows from the IC (208 gpm peak including future expansion for the IC), and the existing peak flow into Lift Station 16 (88 gpm peak). The total new peak flow would be 1,099 gpm and would require that the pumps serving Lift Station 16 be replaced with higher capacity pumps. The rebuild of Lift Station 16 would consist of an increase in the wet well diameter to 12 feet and the depth to 27 feet below grade. The lift station pumps would be replaced by two pumps capable of 1099 gpm.

The existing 8-inch forcemain serving Lift Station 16 was evaluated based on these future conditions and determined to be inadequate. The forcemain would be replaced by a 10-inch forcemain located along Grande Boulevard and Sara Road to WWTP 1. A portion of the 10-inch forcemain (approximately 250 feet) would be tunneled, or bored under NM 528 at an average depth of 5 feet. Figure 7-4 provides a layout of these improvements.

7.4 Estimate of Costs

Conceptual level construction cost estimates were developed for the MBR alternative and ancillary components to develop the overall project costs in accordance with the Association for Advancement of Cost Engineering International Class 4 standards, for which the estimated accuracy range is from -30 to +50 percent. Capital costs were developed primarily using CH2M's CPES, which generates detailed costs estimates based on standard facility design developed from the design of actual projects and using the output from the process models developed in Pro2D.

The capital cost estimates include escalation factors, typical markups, additional project costs, and non-construction costs. The final costs of the project and resulting feasibility will depend on actual labor and material costs, competitive market conditions, actual site conditions, final project scope, implementation schedule, continuity of personnel and engineering, and other variable factors. Other factors such as the method for construction through a traditional design-bid-build (DBB) or alternate delivery of DB, will impact the project costs. As a result, the final project costs will vary from the estimate presented in this report. Because of these factors, project feasibility, benefit/cost ratios, risks, and funding needs must be carefully reviewed prior to making specific financial decisions or establishing project budgets to help ensure proper project evaluation and adequate funding.

The conceptual cost estimate is considered a Class 4 cost estimate that includes contingency and New Mexico Gross Receipts Tax (NMGRT) of 7.4375 percent. The cost estimate for the total project based on an AAF of 1.5 mgd is summarized in Table 7-1. The baseline capital cost, illustrated in Figure 7-5, includes the following facilities: manhole connection to the existing 24-inch sewer and a new 24-inch raw sewage pipeline to the new plant headworks (course and fine screens followed by grit removal), aeration basins, MBR basins with permeate pumps sized to pump reuse water to the golf course, membrane building with basic process laboratory and operator office, and UV disinfection, new effluent reuse pipeline connection to the existing reuse pipeline, new effluent reuse pipeline bypass connection to the existing effluent holding pond, generator, and odor control facilities. The costs include associated

plant SCADA, site civil and grading, electrical, and yard piping. The total construction costs include DB engineering costs, DB services during construction and startup, contractor markups such as overhead, mobilization, bonds, and insurance, contractor profit, and 30% contingency. Facilities that are not included in the baseline project cost include the administration building, demolition of the existing WWTP, recycle pipeline to the IC facility, and the WAS thickening/BFP. These additional facilities are included as separate line items in Table 7-1. The total baseline project cost is $26,040,000 as shown in Table 7-1 including NMGRT. The cost for the additional facilities that may be added at a future date is $5,920,000 including NMGRT as shown on Table 7-1. The development of the opinion of costs is provided in Appendix I.

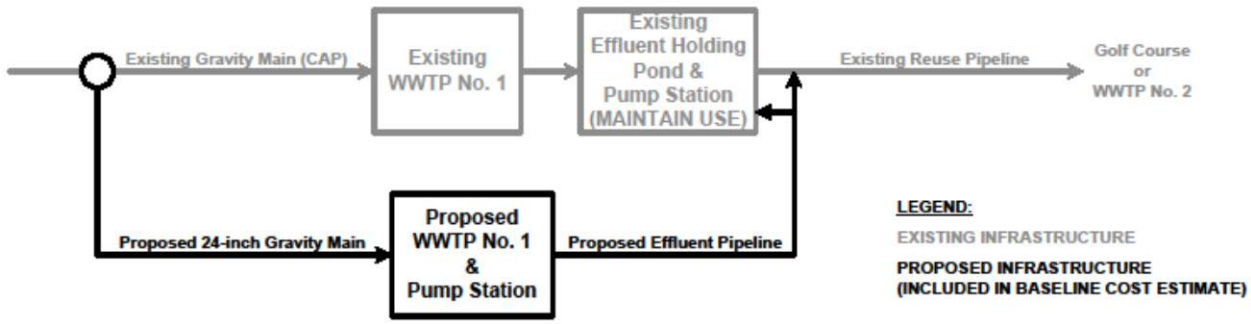


Figure 7-5. Baseline project schematic. Note that this does not include solids handling facilities.

Table 7-1. Estimated Costs for MBR Treatment Process – to 1.5 mgd Capacity

Cost Component	Estimated Cost
Capital Costs – Main Treatment Facility	
MBR Treatment Facility: Main Facility (Including ancillary facilities, DB Engineering & SDS, contractor overhead and mark-up, 30% contingency, and escalation)	$23,490,000
Program Management Services	$750,000
Subtotal Project Costs – Main Facility	**$24,240,000**
Total Project Costs Main Facility (with NMGRT)	**$26,040,000**
Capital Costs – Future Additional Facilities	
Storm Drain Improvements	$380,000
New Administration Building	$670,000
Demolition of Existing Plant	$410,000
Reuse Pipeline to IC	$520,000
WAS Thickening/BFP	$3,530,000
Subtotal Costs of Additional Facilities	**$5,510,000**
Total Costs of Additional Facilities (with NMGRT)	**$5,920,000**

Footnotes:

- Estimates are based on the Association for Advancement of Cost Engineering International Class 4 standards, which have an estimated accuracy range from -30 to +50 percent. Engineering and Services during Construction percentages have been lowered in anticipation of a Design-Build method of delivery. If the traditional Design-Bid-Build method is used, the percentages will increase. Cost estimates are provided in Appendix I.
- All items include contractor overhead and markup, engineering and SDS, 30 percent contingency, escalation, and NMGRT of 7.4375 percent.

In addition to these project items, costs were developed for the various reuse alignments for pumping from WWTP 1 to Well 10A/3MG tank (RWT). As noted previously, these recycle alignments were analyzed in a reuse master plan amendment by Huitt-Zollars (Appendix K). The recycled pump and pipeline system is a necessary component to be able to supply recycled water to the RWT and the AWTF. The costs, including materials, labor, contractor mark-up and overhead, engineering and SDS's, contingency, and NMGRT range from $2.4 million to$ 2.67 million for Route 1, which pumps from WWTP 1 via the East Lake to an off-site booster station located at either the Golf Course or the Presbyterian site and then pumps up to the Well 10A/3 MG Tank; $3.45 million for Route 2, which pumps from WWTP 1 to WWTP 2 and then up to the RWT; and $4.93 million for Route 3, which pumps from WWWTP 1 to WWTP 6, which is connected to the AWTF.

Cost estimates were developed for the future pump and pipeline options and are summarized in Table 7-2. The costs include all contractor markups and overhead, engineering and SDS services, escalation, contingency, and NMGRT. The estimated costs to convey the IC domestic flows to the existing Lift Station 16 is $530,000 and includes a 6-inch PVC, trenching and backfill, jack and bore under NM 528, and various connections.

The estimated cost for conveying the future Unit 16E flows through a new lift station and new forcemain to the WWTP 1 is $3,460,000. Conceptual considerations and details for these future options are included in Appendix G and costs estimates provided in Appendix I.

Table 7-2. Summary of Estimated Costs - Future Pump and Pipeline Options

Cost Component	Estimated Cost
Conveyance of IC Domestic Flow to WWTP 1[a]	$530,000
Conveyance of Unit 16E Flows to WWTP 1 [b]	$3,460,000
Total Costs for Pump and Pipelines (including NMGRT)	$3,990,000

[a] Domestic wastewater flows from IC to existing Lift Station 16.
[b] Includes new Lift Station 16 and forcemain to WWTP 1. Does not include costs for sewer collection system of Unit 16E.
Footnotes:

- Estimates are based on the Association for Advancement of Cost Engineering International Class 4 standards, which have an estimated accuracy range from -30 to +50 percent.

7.5 Delivery Options

Historically, the project delivery method most widely used by public utilities is the traditional design-bid-build (DBB) delivery method. Public utilities and public agencies have been seeking alternative methods of project delivery to offset the adversarial nature of the traditional DBB model and to help accelerate delivery and save on costs for the project.

The public transportation industry was the first group to initiate change to allow for alternative delivery models, resulting in the support of national organizations such as the Design-Build Institute of America and more recently, the Water Design-Build Council. The State of New Mexico recently passed legislation that allows alternatives delivery for utility projects.

There is a wide spectrum of alternative delivery methods that are currently being used in the industry. These include the traditional DBB, construction management at risk, progressive design-build, lump sum DB (LSDB), and design-build-operate (DBO).

The City has reviewed these options and consulted with experts on the alternative delivery options and has determined that the LSDB method is the best alternative for this project. A model of the LSDB method is shown in the Figure 7-6.

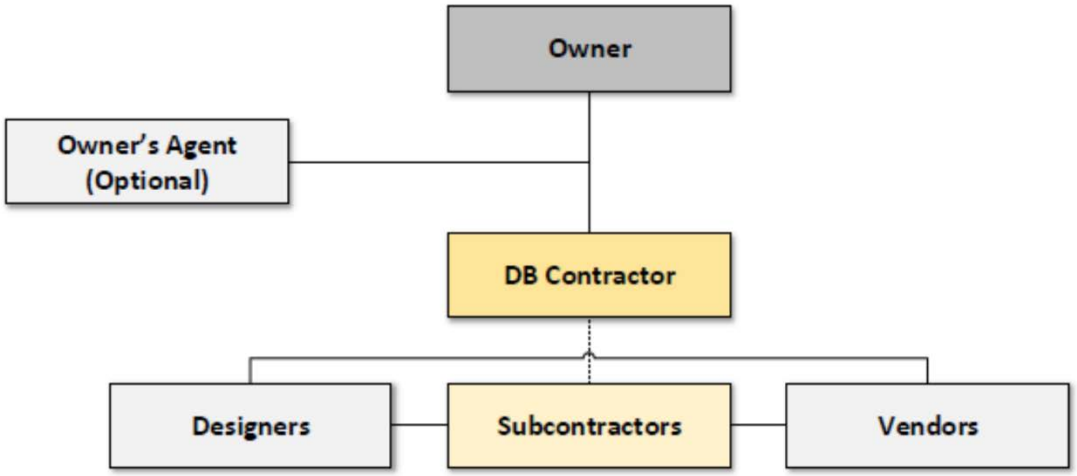


Figure 7-6. Lump Sum Design/Build Contracting Model

The DB model is a good option for the WWTP 1 rebuild for the following reasons:

- There is an immediate need for critical repairs at the plant – the existing plant is failing!
- The timeline is critical to replace this failing WWTP – the DB model expedites the schedule by up to 12 months.
- Water quality challenges lead to innovations.
- Funding and budget constraints allow DB and innovations (less prescriptive – more performance-based) lead to lower costs.
- Economic development drivers – related to timeline and budget issues.

LSDB fuses the designer and the contractor under a single contract. The two-step process is typical and includes a pre-qualification of contractors prior to the development of the lump sum proposal. The quality-based selection criteria may be applied along with the price to create a best value selection process. The design-builder who submits the most cost-competitive solution, including design, procurement, and construction, is generally awarded the contract.

Contractually, LSDB offers the owner a single point of responsibility for design and construction services and typically guarantees the performance of the facility. The LSDB procurement can be either a performance-based or a prescriptive approach. Under the performance-based approach, the owner specified the basic boundaries of the project—influent quality, effluent quality, key interfaces with the existing system—and then leaves it up to the design-builder to use innovation to develop the best solution to meet the owner's needs. This approach allows for the most innovation and savings. The prescriptive approach provides much more of the details of the project prior to issuing the request for proposals. Some of the features, benefits, and challenges of the LSDB method are noted in Table 7-3.

Table 7-3. Features, Benefits, And Challenges of Lump Sum Design-Build

Features	Benefits	Challenges
Single responsible party for engineering, procurement, and construction	Single point of responsibility	Relatively limited input from owner after proposal is accepted.
Early fixed price	Provide early, fixed price	Less owner control over finished construction details
Process/schedule guarantee	Lower design costs (20% cost savings) from traditional	Limited oversight by independent owner's agent
Less design required	Cost saving by eliminating redundant construction and construction administration duties	
Less owner input	Time saving, shorter schedule due to reduced design, and early start construction.	
Owner has one contract with design-builder	One point of responsibility	
Design-builder holds contract and risks	Allocates risk to design-builder	

7.6 Project Schedule

The City is pursuing the DB option for this project. A typical DBB delivery schedule is noted in Table 7-4. The projected startup date for the WWTP 1 would be in the summer of 2019. If the DB method of delivery is selected, the schedule can be streamlined as shown in Table 7-5, with a WWTP 1 startup in summer of 2018, a full year ahead of the traditional DBB method. These schedules are estimates only and a more detailed timeline will be developed as the project progresses.

Table 7-4. Estimated Design-Bid-Build Delivery Schedule for WWTP 1

Major Milestone	Completion Date
Draft PER Completed	September 2015
Final PER Approved	November 2015
RFP Development	February 2016
Design Firm Selection/Contract Negotiation	May 2016
Final 30 Percent Design Completed	September 2016
Final 60 Percent Design Completed	January 2017
Final 90 Percent Design Completed	April 2017
Stamped Design Ready for Construction	June 2017
Solicit for Bids/Bids Received	August 2017
Contractor Notice to Proceed	October 2017
WWTP 1 Startup	Fall 2019

Table 7-5. Estimated Design-Build Delivery Schedule for WWTP 1

Major Milestone	Completion Date
Draft PER Completed	June 2015
Final PER Approved	October 2015
RFQ/RFP Development	April 2016
RFQ Solicitation Issued for DB Contract	May 2016
DB Qualifications Submittals Received	June 2016
RFP Solicitation Issued to Qualified DB Contractors	July 2016
DB Proposal Submittal Received	October 2016
DB Contractor Selection/Negotiations Complete/NTP	December 2016
WWTP 1 Startup	Fall 2018

7.7 Permit Requirements

The existing permits for the facilities were described in detail in Section 4 of the PER. These include a NPDES permit and NMED GWQB DPs, which are located in Appendix C and Appendix D.

The existing NDPES Permit (NM0027987) that regulates discharges from WWTP 1 and WWTP 2 would have to be modified for the new conditions at the new WWTP 1. In accordance with the permit conditions, the permit may be reopened and modified during the life of the permit if information is received at the time of the permit issuance are different. Permit modifications will reflect the results of any of these action and follow the regulations listed in 40 CFT Part 124.5. The existing permit would be modified to reflect the advanced treatment process for the new WWTP 1 and increased future flows specific to the sampling point identified in the permit.

The NMED GWQB DP-215 issued for WWTPs 1, 2, 3, and 6 would have to be modified to address the changed conditions for the new plant. Any modification and/or amendments needs to follow the NMED process. NMED must be notified of any changes to the wastewater treatment and disposal system, including changes in the wastewater flow rate or volume of wastewater storage, or any other changes to the operations or processes that would result in any significant change in the discharge of water contaminants. The permittee must obtain NMED's approval and have the permit formally approved prior to any increases in quantities discharged, or any increase in concentration of water contaminants discharged. The modifications to the treatment processes are positive so it is anticipated that the amendment process could be processed without major difficulties.

The permitting for the Direct Injection Aquifer Recharge Demonstration (DP-1650) was a challenging process that set the initial boundaries for the City's pursuit of additional direct injection to the aquifer in the future. The City can build on this model for future endeavors into this critical piece of its reuse program. The OSE recently granted the City a Permit for Underground Storage and Recovery for continuous and full-scale operations of the project. This OSE permit allows the City to implement the full-scale underground storage and recovery project in the form in which the demonstration project had been applied for and completed. Copies of the NMED GWQB DPs are located in Appendix E and the OSE permit is located in Appendix F.

7.8 Sustainability Considerations

Sustainable considerations for the project include environmental economic, and social goals. Environmental includes a portfolio approach to balance the impacts from power, natural gas, water and

chemical use, incorporating sustainable principles into the facilities, enhancing the water quality of the effluent from the WWTP, limiting greenhouse gas (GHG) emissions, and balancing competing environmental priorities. Economic considerations include optimizing power, natural gas, water and chemical use, maximizing resource recovery and provide flexibility to market changes, maintain flexibility for processes to meet future regulations, and be cost effective for customers. Social considerations include being an asset to the community and leady in stainability, mitigate odors, raise awareness of environmental stewardship (air quality/water quality GHG emissions), and to form partnerships to contribute to sustainable community development.

The CH2M uses a proprietary Pro2D2 dynamic wastewater treatment plant simulator that was used to develop the conceptual plan for the Membrane Bioreactor treatment plant for WWTP 1. This is integrated with the Life Cycle cost estimating to provide for energy and consumption savings. These tools provide for the best methods of recovering energy, carbon, and nutrients from the waste and solids processing systems.

As noted in the previous Section 5, alternatives, the Membrane Bioreactor wastewater treatment process allows for water and energy efficiency. This facility allows for more effective recycle and reuse of the wastewater which impacts water conservation for the City in a positive manner and complement the City's overall recycle program. The new facilities will allow for more energy efficient design and practices. The MBR has a higher level of automation and is highly resistant to process upsets with no clarifiers that could be prone to overflows. MBR technology is advantageous when considering potential future regulatory issues with module construction that allows for phased investment in treatment capacity as demand grows. By providing new infrastructure, the project would be designed to provide energy saving where possibly. BY providing energy efficient equipment, the O&M costs can also be reduced.

The U.S. Environmental Protection Agency (EPA) describes green infrastructure as "an approach that communities can choose to maintain healthy waters, provide multiple environmental benefits and support sustainable communities. By weaving natural processes into the built environment, green infrastructure provides not only stormwater management, but also flood mitigation, air quality management, and much more." An example of green infrastructure is the installation of vegetation and soil to manage rainwater where it falls, rather than a lined stormwater channel or piped grey water system.

Design and maintenance of green infrastructure can be provided in the design of the facilities. Design of the selected alternative will be tailored to provide green infrastructure where applicable to maximize resources, providing beneficial impacts to the environment and community. Routine maintenance of green infrastructure should be incorporated into the operations processes.

The project is intended to be a design-build (DB) which also lends itself to sustainable principles. The DB approach can encourage a performance based rather that prescriptive processes which further allows for sustainable concepts.

The project can promote sustainable technologies: LEED – Leadership in Energy and Environmental Design) certification – for buildings, consider carbon footprint – energy uses – solar energy, building system efficiency, sustainability of materials that are used.

The project can also incorporate the SIPRS (Sustainable Infrastructure Project Rating System) Certification – new system for heavy construction, considers long-term sustainable performance, impacts of construction, life-cycle costs, sourcing and use of recycled materials.

7.9 Funding Considerations

A description of the City's existing financial status, utility enterprise budget, and rate schedules were provided in detail in Section 3 of the PER. The financial statements and rate schedules are included in Appendix B.

The City is pursuing various options to fund this project. Funding options include financing through utility bonds or securing a loan through the State's Clean Water State Revolving Loan Fund administered by the NMED. The City is already on the priority list for these loan funds. If the Clean Water State Revolving Loan Fund is used, the project will have to be expanded to include the National Environmental Policy Act process, developing an Environmental Information Document and associated public hearing processes.

The City has undertaken an extensive utilities rate study conducted by Red Oak Consulting in 2012 which analyzed the utilities finances and financial plans through fiscal year 2017. The purpose of the study was to examine the financial status of the utilities and recommend rate adjustments to assure the utilities continued financial variability. The outcome of the study noted that the water and wastewater systems serve more than 31,300 accounts and the customer rates produce 95 percent of the utilities operating income. This rate study provides details on the proposed rate schedule to project income for the existing and proposed new users in the system. The study recommended a yearly rate increase through 2017 to pay down excess debt, provide a reserve fund, and to address essential water and wastewater system improvements. The financial planning and rate study is extensive and detailed and should be referred to for any details on the financial aspects for the WWTP 1 project, which is part of the overall utilities financial planning strategy.

SECTION 8

Conclusions and Recommendations

The Rio Rancho WWTP 1, originally constructed in the early 1970s as a 1.25 mgd treatment facility, is at capacity, in disrepair, and in need of replacement to address the existing and future wastewater treatment needs for the City. The recommended treatment alternative is to replace the existing plant with a new 1.5 mgd Membrane Bioreactor plant. The estimated total project costs for the main facility is $26.04 million. Additional costs for recycle pump and pipelines to pump from WWTP 1 to the proposed 3 million gallon tank at Well 10A, which is necessary to be able to use the recycle water for the City's Advanced Water Treatment Facility, ranges from $2.39 million to $4.93 million depending on the route that is selected. Additional project components that may be considered in the future is estimated to be $5.92 million and include storm drainage improvements, new administration building, demolition of the existing plant, recycled pipeline to the Industrial Client, and sludge thickening/belt filter press. Cost estimates are based on the Association for Advancement of Cost Engineering International Class 4 standards, which have an estimated accuracy range from -30 to +50 percent. Engineering and Services during Construction percentages have been lowered in anticipation of a Design-Build method of delivery. If the traditional Design-Bid-Build method is used, the percentages will increase.

By expanding the plant's capacity, the City will have sufficient treatment capacity to allow for some growth in the service area and the addition of a large residential area that is currently on on-site septic tank systems. Removal of these septic systems will enhance the environment and protect groundwater and surface water resources.

Due to the emergency natures of the failing treatment facility, the design-build method of delivery would expedite the construction schedule and move the needed facilities forward more quickly. In addition, the design-build method of delivery typically results in lower costs.

RioRancho
City of Vision

The new rates effective July 1, 2015 will be reflected in your bill as approved by the City of Rio Rancho's Governing Body in Ordinance Title V: Public Works, Chapter 51.12.

WATER:

Monthly Base Charges: Based on Meter size for all classes:

5/8" Meter…….	$10.69
1" Meter……	$12.21

Volume Charges per 1,000 Gallons:
Rate is based on class:

Single Family Residential Per Thousand

First 6,000 Gallons……	$4.94
7,000 – 10,000 Gallons…….	$5.35
More than 10,000 Gallons…….	$5.76
Multi-Family Residential……..	$5.03
Commercial……...	$5.23
Commercial Irrigation……...	$5.76
City	$5.49

Water Rights Acquisition Fee..... $6.00
The greater of the minimum fee ($6.00) or the volume fee ($0.50 per 1,000 gallons billed)

WASTEWATER (SEWER):

Monthly Base Charges: Based on meter size for all classes:
All sizes……. $13.75

Volume Charges per 1,000 Gallons:
Based on class and your Winter Quarter Average (WQA) which is calculated by your winter's month's average usage:

All Classes except City…….	$9.65
City……...	$9.17

RECYCLED WATER:

Currently Not Available

If you have any questions about the rate change on other Classes or meter sizes please call our Utility Services Division at: (505) 891-5020.

Appendix C
NPDES Permit NM0027987

RioRancho
City of Vision

Department of Public Works
Utilities Division

March 5, 2015

Certified No. 7011 2000 0000 3788 3569

Ms. Jenelle Hill
USEPA Region 6
1445 Ross Ave
Mail Code: 6WQ-P
Dallas, TX 75202-2733

Subject: NPDES Permit to Discharge Water of the Unite States
Permit Number NM0287987 – Rio Rancho Wastewater Treatment Facility 2

Dear Mrs. Hill:

The City of Rio Rancho (City) is submitting the enclosed application to modify the National Pollutant Discharge Elimination System (NPDES) permit (NM0287987) for Wastewater Treatment Plant (WWTP) 2. Enclosed are all the completed forms, which include the facility layout, site topography, flow diagrams, data tables, chain of custodies, and certificates of analysis for all the required analytes. Please note that in the analytical data sets a value of "0" represents a non-detect value according to the laboratory analysis. The average flow values represent the expected discharge from WWTP 2 and the contributing wastewater treatment plants (WWTP 1 and WWTP 6).

The purpose of this application is to request a modification to NPDES Permit NM0027987 to allow an additional discharge of up to 1.2 MGD of treated wastewater from WWTP 6 from Outfall 001 at WWTP 2. Currently wastewater effluent treated at WWTP 6 is discharged to an infiltration gallery under a New Mexico Groundwater Discharge Permit DP-215. Development in the WWTP 6 area will exceed the capacity of the infiltration gallery. The City of Rio Rancho is requesting a modification of NPDES Permit NM 0027987 to discharge treated effluent from WWTP 6 to the Rio Grande at Outfall 001. Effluent flow and testing data for WWTP 1 and WWTP 6 are and will continue to be monitored at the respective plants. Internal outfalls have been assigned and labelled in this modification.

With this modification NPDES Permit NM0027987 would allow for discharges of up to 8.2 MGD of treated effluent at Outfall 001. The discharge will consist of the following:

- Currently permitted up to 5.5 MGD from WWTP 2 consisting of domestic wastewater treated in an extended aeration/activated sludge treatment plant equipped with a final UV disinfection unit.

- Currently permitted up to 1.5 MGD from WWTP 1 on a seasonal (generally in December and January) and as needed basis consisting of domestic wastewater treated in an extended aeration/activated sludge equipped with a sand filter. Effluent from WWTP 1 combines with the effluent of WWTP 2 before the UV disinfection unit. Currently WTTP 1 is processing a volume of wastewater much lower than designed as it is the oldest and most data system. An upgrade to an MBR system at WTTP 1 is anticipated within the next three years.

- Requested permit modification for up to 1.2 MGD from WWTP 6 consisting of domestic wastewater treated in a membrane bioreactor.

Please contact Larry Webb at the City of Rio Rancho at (505) 896-8715 if you have any questions or comments regarding this application.

Sincerely,

Larry Webb
Utilities Division Manager
City of Rio Rancho

Cc: Scott Sensanbaugher, Public Works Director (w/o enclosures)
Steve Gallegos, Utilities System Engineer (w/o enclosures)
Jeremiah Mecham, Project Manager (w/o enclosures)
Eddie Delara, Wastewater Operations Manager (w/o enclosures)
Kelly Collins, CDM (w/o enclosures)
File

Please print or type in the unshaded areas only.

Form Approved. OMB No. 2040-0086.

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
GENERAL INFORMATION
Consolidated Permits Program
(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: S F 100000079764 T/A C D

LABEL ITEMS	
I. EPA I.D. NUMBER	PLEASE PLACE LABEL IN THIS SPACE
III. FACILITY NAME	
V. FACILITY MAILING ADDRESS	
VI. FACILITY LOCATION	

GENERAL INSTRUCTIONS
If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)	X (16)	(17)	X (18)	B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)	(19)	X (20)	(21)
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)	X (22)	(23)	(24)	D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)	(25)	X (26)	(27)
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	(28)	X (29)	(30)	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)	(31)	X (32)	(33)
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)	(34)	X (35)	(36)	H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)	(37)	X (38)	(39)
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)	(40)	X (41)	(42)	J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)	(43)	X (44)	(45)

III. NAME OF FACILITY

1 SKIP City of Rio Rancho WWTP #2

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*: 2 Webb, Larry Utilities Division Manager

B. PHONE *(area code & no.)*: (505) 896-8715

V. FACILTY MAILING ADDRESS

A. STREET OR P.O. BOX: 3 3200 Civic Center Circle NE

B. CITY OR TOWN: 4 Rio Rancho

C. STATE: NM

D. ZIP CODE: 87144

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: 5 100 Industrial Park Loop

B. COUNTY NAME: Sandoval

C. CITY OR TOWN: 6 Rio Rancho

D. STATE: NM

E. ZIP CODE: 87124

F. COUNTY CODE *(if known)*:

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
7 4952 (specify) Sewage Treatment Facilities	7 (specify)
C. THIRD	**D. FOURTH**
7 (specify)	7 (specify)

VIII. OPERATOR INFORMATION

A. NAME: 8 City of Rio Rancho Utilities

B. Is the name listed in Item VIII-A also the owner? ☑ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box: if "Other," specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

M (specify)

D. PHONE *(area code & no.)*: A (505) 896-8715

E. STREET OR P.O. BOX: 3200 Civic Center Circle NE

F. CITY OR TOWN: B Rio Rancho

G. STATE: NM

H. ZIP CODE: 87144

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☑ NO

X. EXISTING ENVIRONMENTAL PERMITS

	C	T	I	Number
A. NPDES *(Discharges to Surface Water)*	9	N		NM0027987
D. PSD *(Air Emissions from Proposed Sources)*	9	P		
B. UIC *(Underground Injection of Fluids)*	9	U		
E. OTHER *(specify)*	9	D		DP-215 (specify) Discharge Permit
C. RCRA *(Hazardous Wastes)*	9	R		
E. OTHER *(specify)*	9			(specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

The purpose of this application is to request a modification to NPDES Permit NM0027987 to allow an additional discharge of up to 1.2 mgd of treated wastewater from WWTP 6. Currently wastewater effluent treated at WWTP 6 is discharged to an infiltration gallery under a New Mexico Groundwater Discharge Permit DP-179. Development in the WWTP 6 area will exceed the capacity of the infiltration gallery. The City of Rio Rancho is requesting a modification of NPDES Permit NM 0027987 to discharge treated effluent from WWTP 6 to the Rio Grande at Outfall 001.

With this modification NPDES Permit NM0027987 would allow for discharges of up to 8.2 mgd of treated effluent at Outfall 001. The discharge will consist of the following:

- Currently permitted up to 5.5 mgd from WWTP 2 consisting of domestic wastewater treated in an extended aeration/activated sludge treatment plant equipped with a final UV disinfection unit.
- Currently permitted up to 1.5 mgd from WWTP 1 on a seasonal basis (December and January) consisting of domestic wastewater treated in an extended aeration/activated sludge equipped with a sand filter.
- Requested Permit modification for up to 1.2 mgd from WWTP 6 consisting of domestic wastewater treated in a membrane bioreactor

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
Larry Webb, Utilities Division Manager	Larry Webb	3/5/15

COMMENTS FOR OFFICIAL USE ONLY

C

FACILITY NAME AND PERMIT NUMBER:
City of Rio Rancho WWTP #2 (NM0027987)

Form Approved 1/14/99
OMB Number 2040-0086

FORM 2A NPDES

NPDES FORM 2A APPLICATION OVERVIEW

APPLICATION OVERVIEW

Form 2A has been developed in a modular format and consists of a "Basic Application Information" packet and a "Supplemental Application Information" packet. The Basic Application Information packet is divided into two parts. All applicants must complete Parts A and C. Applicants with a design flow greater than or equal to 0.1 mgd must also complete Part B. Some applicants must also complete the Supplemental Application Information packet. The following items explain which parts of Form 2A you must complete.

BASIC APPLICATION INFORMATION:

A. **Basic Application Information for all Applicants.** All applicants must complete questions A.1 through A.8. A treatment works that discharges effluent to surface waters of the United States must also answer questions A.9 through A.12.

B. **Additional Application Information for Applicants with a Design Flow ≥ 0.1 mgd.** All treatment works that have design flows greater than or equal to 0.1 million gallons per day must complete questions B.1 through B.6.

C. **Certification.** All applicants must complete Part C (Certification).

SUPPLEMENTAL APPLICATION INFORMATION:

D. **Expanded Effluent Testing Data.** A treatment works that discharges effluent to surface waters of the United States and meets one or more of the following criteria must complete Part D (Expanded Effluent Testing Data):

1. Has a design flow rate greater than or equal to 1 mgd,
2. Is required to have a pretreatment program (or has one in place), or
3. Is otherwise required by the permitting authority to provide the information.

E. **Toxicity Testing Data.** A treatment works that meets one or more of the following criteria must complete Part E (Toxicity Testing Data):

1. Has a design flow rate greater than or equal to 1 mgd,
2. Is required to have a pretreatment program (or has one in place), or
3. Is otherwise required by the permitting authority to submit results of toxicity testing.

F. **Industrial User Discharges and RCRA/CERCLA Wastes.** A treatment works that accepts process wastewater from any significant industrial users (SIUs) or receives RCRA or CERCLA wastes must complete Part F (Industrial User Discharges and RCRA/CERCLA Wastes). SIUs are defined as:

1. All industrial users subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations (CFR) 403.6 and 40 CFR Chapter I, Subchapter N (see instructions); and
2. Any other industrial user that:
   a. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions); or
   b. Contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
   c. Is designated as an SIU by the control authority.

G. **Combined Sewer Systems.** A treatment works that has a combined sewer system must complete Part G (Combined Sewer Systems).

ALL APPLICANTS MUST COMPLETE PART C (CERTIFICATION)

FACILITY NAME AND PERMIT NUMBER:
City of Rio Rancho WWTP #2 (NM0027987)

Form Approved 1/14/99
OMB Number 2040-0086

BASIC APPLICATION INFORMATION

PART A. BASIC APPLICATION INFORMATION FOR ALL APPLICANTS:

All treatment works must complete questions A.1 through A.8 of this Basic Application Information packet.

A.1. Facility Information.

Facility name: City of Rio Rancho WWTP #2

Mailing Address: 3200 Civic Center Circle NE
Rio Rancho, NM 87144

Contact person: Larry Webb

Title: Utilities Division Manager

Telephone number: (505) 896-8715

Facility Address (not P.O. Box): 100 Industrial Park Loop
Rio Rancho, NM 87124

A.2. Applicant Information. If the applicant is different from the above, provide the following:

Applicant name: N/A

Mailing Address: N/A

Contact person: N/A

Title: N/A

Telephone number: N/A

Is the applicant the owner or operator (or both) of the treatment works?

✓ owner ____ operator

Indicate whether correspondence regarding this permit should be directed to the facility or the applicant.

____ facility ✓ applicant

A.3. Existing Environmental Permits. Provide the permit number of any existing environmental permits that have been issued to the treatment works (include state-issued permits).

NPDES	NM0027987	PSD	N/A
UIC	N/A	Other	NMED Discharge Permit DP-215
RCRA	N/A	Other	N/A

A.4. Collection System Information. Provide information on municipalities and areas served by the facility. Provide the name and population of each entity and, if known, provide information on the type of collection system (combined vs. separate) and its ownership (municipal, private, etc.).

Name	Population Served	Type of Collection System	Ownership
City of Rio Rancho	91,956	Separate	Municipal
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Total population served 91,956

FACILITY NAME AND PERMIT NUMBER:
City of Rio Rancho WWTP #2 (NM0027987)

Form Approved 1/14/99
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A.5. Indian Country.

a. Is the treatment works located in Indian Country?

____ Yes ✓ No

b. Does the treatment works discharge to a receiving water that is either in Indian Country or that is upstream from (and eventually flows through) Indian Country?

✓ Yes ____ No

A.6. Flow. Indicate the design flow rate of the treatment plant (i.e., the wastewater flow rate that the plant was built to handle). Also provide the average daily flow rate and maximum daily flow rate for each of the last three years. Each year's data must be based on a 12-month time period with the 12th month of "this year" occurring no more than three months prior to this application submittal.

a. Design flow rate 8.20 mgd

See Attachment A.6.1 for three year data.

	Two Years Ago	Last Year	This Year	
b. Annual average daily flow rate	4.31	4.65	4.62	mgd
c. Maximum daily flow rate	6.20	5.80	5.60	mgd

A.7. Collection System. Indicate the type(s) of collection system(s) used by the treatment plant. Check all that apply. Also estimate the percent contribution (by miles) of each.

✓ Separate sanitary sewer 100.00 %

____ Combined storm and sanitary sewer ____ %

A.8. Discharges and Other Disposal Methods.

a. Does the treatment works discharge effluent to waters of the U.S.? ✓ Yes ____ No

If yes, list how many of each of the following types of discharge points the treatment works uses:

i. Discharges of treated effluent 3

ii. Discharges of untreated or partially treated effluent 0

iii. Combined sewer overflow points 0

iv. Constructed emergency overflows (prior to the headworks) 0

v. Other N/A 0

b. Does the treatment works discharge effluent to basins, ponds, or other surface impoundments that do not have outlets for discharge to waters of the U.S.? ____ Yes ✓ No

If yes, provide the following for each surface impoundment:

Location: ____

Annual average daily volume discharged to surface impoundment(s) ____ mgd

Is discharge ____ continuous or ____ intermittent?

c. Does the treatment works land-apply treated wastewater? ✓ Yes ____ No

If yes, provide the following for each land application site:

Location: See Attachment A.8.C for the full list of land application sites.

Number of acres: See Attachment A.8.C.

Annual average daily volume applied to site: See Attachment A.8.C. Mgd

Is land application ____ continuous or ✓ intermittent?

d. Does the treatment works discharge or transport treated or untreated wastewater to another treatment works? ____ Yes ✓ No

FACILITY NAME AND PERMIT NUMBER:
City of Rio Rancho WWTP #2 (NM0027987)

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If yes, describe the mean(s) by which the wastewater from the treatment works is discharged or transported to the other treatment works (e.g., tank truck, pipe).

N/A

If transport is by a party other than the applicant, provide:

Transporter name: N/A

Mailing Address: N/A

Contact person: N/A

Title: N/A

Telephone number: N/A

For each treatment works that receives this discharge, provide the following:

Name: N/A

Mailing Address: N/A

Contact person: N/A

Title: N/A

Telephone number:

If known, provide the NPDES permit number of the treatment works that receives this discharge. N/A

Provide the average daily flow rate from the treatment works into the receiving facility. N/A mgd

e. Does the treatment works discharge or dispose of its wastewater in a manner not included in A.8.a through A.8.d above (e.g., underground percolation, well injection)? ____ Yes ✓ No

If yes, provide the following for each disposal method:

Description of method (including location and size of site(s) if applicable):

N/A

Annual daily volume disposed of by this method: N/A

Is disposal through this method N/A continuous or N/A intermittent?

FACILITY NAME AND PERMIT NUMBER:
City of Rio Rancho WWTP #2 (NM0027987)

Form Approved 1/14/99
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WASTEWATER DISCHARGES:

If you answered "yes" to question A.8.a, complete questions A.9 through A.12 **once for each outfall** (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. **If you answered "no" to question A.8.a**, go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

A.9. Description of Outfall.

a. Outfall number: 001 (from WWTP 1,2 and 6)

b. Location: Corrales (City or town, if applicable) — 87124 (Zip Code)
Sandoval (County) — New Mexcio (State)
35 15' 23" North (Latitude) — 106 35' 32" West (Longitude)

c. Distance from shore (if applicable): 0.00 ft.

d. Depth below surface (if applicable): 0.00 ft.

e. Average daily flow rate: 4.62 mgd

f. Does this outfall have either an intermittent or a periodic discharge? ____ Yes ✓ No (go to A.9.g.)

If yes, provide the following information:

Number of times per year discharge occurs: Continuous

Average duration of each discharge: Continuous

Average flow per discharge: 4.62 mgd

Months in which discharge occurs: All months

g. Is outfall equipped with a diffuser? ____ Yes ✓ No

A.10. Description of Receiving Waters.

a. Name of receiving water: Rio Grande River Basin

b. Name of watershed (if known): Montoya's Arroyo Watershed

United States Soil Conservation Service 14-digit watershed code (if known): Not available

c. Name of State Management/River Basin (if known): NMED/ Middle Rio Grande Basin

United States Geological Survey 8-digit hydrologic cataloging unit code (if known): 13020203

d. Critical low flow of receiving stream (if applicable):
acute 9.32 cfs chronic N/A cfs

e. Total hardness of receiving stream at critical low flow (if applicable): N/A mg/l of $CaCO_3$

FACILITY NAME AND PERMIT NUMBER:
City of Rio Rancho WWTP #2 (NM0027987)

Form Approved 1/14/99
OMB Number 2040-0086

A.11. Description of Treatment.

a. What levels of treatment are provided? Check all that apply.

✓ Primary ✓ Secondary
___ Advanced ✓ Other. Describe: Nitrogen Removal

b. Indicate the following removal rates (as applicable):

Design BOD_5 removal or Design $CBOD_5$ removal	96.00	%
Design SS removal	96.00	%
Design P removal	30.00	%
Design N removal	70.00	%
Other N/A	N/A	%

c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe.

UV Disinfection

If disinfection is by chlorination, is dechlorination used for this outfall? ___ Yes ✓ No

d. Does the treatment plant have post aeration? ___ Yes ✓ No

A.12. Effluent Testing Information. All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.

Outfall number: 001 (from WWTP# 2 only) See Attachment A.12.1 through A.12.6 for detailed data.

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.87	s.u.			
pH (Maximum)	8.12	s.u.			
Flow Rate	5.20	MGD	3.83	MGD	1,034.00
Temperature (Winter)	17.50	C	17.40	C	1,034.00
Temperature (Summer)	26.90	C	26.10	C	1,034.00

* For pH please report a minimum and a maximum daily value

POLLUTANT		MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
		Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.								
BIOCHEMICAL OXYGEN	BOD-5	7.00	mg/L	4.40	mg/L	475.00	5210B-2001	2 mg/L
DEMAND (Report one)	CBOD-5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FECAL COLIFORM		N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL SUSPENDED SOLIDS (TSS)		15.00	mg/L	7.80	mg/L	475.00	2540D-2000	1 mg/L

END OF PART A.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:
City of Rio Rancho WWTP #2 (NM0027987)

Form Approved 1/14/99
OMB Number 2040-0086

WASTEWATER DISCHARGES:

If you answered "yes" to question A.8.a, complete questions A.9 through A.12 **once for each outfall** (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. **If you answered "no" to question A.8.a**, go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

A.9. Description of Outfall.

a. Outfall number: 101 (from WWTP #1)

b. Location: Rio Rancho (City or town, if applicable); 87124 (Zip Code)
Sandoval (County); New Mexcio (State)
35°13'49.84"N (Latitude); 106°39'7.99"W (Longitude)

c. Distance from shore (if applicable): 0.00 ft.

d. Depth below surface (if applicable): 0.00 ft.

e. Average daily flow rate: 0.40 mgd

f. Does this outfall have either an intermittent or a periodic discharge? ✓ Yes ____ No (go to A.9.g.)

If yes, provide the following information:

Number of times per year discharge occurs: 1

Average duration of each discharge: 2 Months

Average flow per discharge: 0.40 mgd

Months in which discharge occurs: December through January

g. Is outfall equipped with a diffuser? ____ Yes ✓ No

A.10. Description of Receiving Waters.

a. Name of receiving water: Rio Grande River Basin

b. Name of watershed (if known): Montoya's Arroyo Watershed

United States Soil Conservation Service 14-digit watershed code (if known): Not available

c. Name of State Management/River Basin (if known): NMED/ Middle Rio Grande Basin

United States Geological Survey 8-digit hydrologic cataloging unit code (if known): 13020203

d. Critical low flow of receiving stream (if applicable):
acute 9.32 cfs chronic N/A cfs

e. Total hardness of receiving stream at critical low flow (if applicable): N/A mg/l of $CaCO_3$

FACILITY NAME AND PERMIT NUMBER:
City of Rio Rancho WWTP #2 (NM0027987)

Form Approved 1/14/99
OMB Number 2040-0086

A.11. Description of Treatment.

a. What levels of treatment are provided? Check all that apply.

✓ Primary ✓ Secondary

___ Advanced ___ Other. Describe: ___

b. Indicate the following removal rates (as applicable):

Design BOD_5 removal or Design $CBOD_5$ removal	92.00	%
Design SS removal	92.00	%
Design P removal	30.00	%
Design N removal	30.00	%
Other ___	___	%

c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe.

Chlorination

If disinfection is by chlorination, is dechlorination used for this outfall? ___ Yes ✓ No

d. Does the treatment plant have post aeration? ___ Yes ✓ No

A.12. Effluent Testing Information. All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.

Outfall number: 101 (from WWTP #1 only)

See Attachment A.12.1 through A.12.6 for detailed data.

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.78	s.u.			
pH (Maximum)	9.88	s.u.			
Flow Rate	1.20	MGD	0.40	MGD	1,034.00
Temperature (Winter)	15.20	C	14.00	C	1,034.00
Temperature (Summer)	25.20	C	23.90	C	1,034.00

* For pH please report a minimum and a maximum daily value

POLLUTANT		MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
		Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.								
BIOCHEMICAL OXYGEN	BOD-5	10.00	mg/L	5.80	mg/L	285.00	5210B-2001	2 mg/L
DEMAND (Report one)	CBOD-5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FECAL COLIFORM		14.00	CFU/100ml	3.00	CFU/100ml	285.00	9222 D	1 CFU/dl
TOTAL SUSPENDED SOLIDS (TSS)		26.00	mg/L	14.20	mg/L	285.00	2540D-2000	1 mg/L

END OF PART A.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:
City of Rio Rancho WWTP #2 (NM0027987)

Form Approved 1/14/99
OMB Number 2040-0086

WASTEWATER DISCHARGES:

If you answered "yes" to question A.8.a, complete questions A.9 through A.12 **once for each outfall** (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. **If you answered "no" to question A.8.a,** go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

A.9. Description of Outfall.

a. Outfall number: 102 (from WWTP #6)

b. Location: Rio Rancho (City or town, if applicable); 87124 (Zip Code)
Sandoval (County); New Mexcio (State)
35°13'12.58"N (Latitude); 106°41'7.33"W (Longitude)

c. Distance from shore (if applicable): 0.00 ft.

d. Depth below surface (if applicable): 0.00 ft.

e. Average daily flow rate: 1.00 mgd

f. Does this outfall have either an intermittent or a periodic discharge? ____ Yes ✓ No (go to A.9.g.)

If yes, provide the following information:

Number of times per year discharge occurs: N/A

Average duration of each discharge: N/A

Average flow per discharge: 1.00 mgd

Months in which discharge occurs: N/A

g. Is outfall equipped with a diffuser? ____ Yes ✓ No

A.10. Description of Receiving Waters.

a. Name of receiving water: Rio Grande River Basin

b. Name of watershed (if known): Montoya's Arroyo Watershed

United States Soil Conservation Service 14-digit watershed code (if known): Not available

c. Name of State Management/River Basin (if known): NMED/ Middle Rio Grande Basin

United States Geological Survey 8-digit hydrologic cataloging unit code (if known): 13020203

d. Critical low flow of receiving stream (if applicable):
acute 9.32 cfs chronic N/A cfs

e. Total hardness of receiving stream at critical low flow (if applicable): N/A mg/l of $CaCO_3$

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A.11. Description of Treatment.

a. What levels of treatment are provided? Check all that apply.

✓ Primary ✓ Secondary
___ Advanced ✓ Other. Describe: Nitrogen Removal

b. Indicate the following removal rates (as applicable):

Design BOD_5 removal or Design $CBOD_5$ removal	99.70	%
Design SS removal	99.70	%
Design P removal	30.00	%
Design N removal	80.00	%
Other _____	_____	%

c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe.

Chlorination

If disinfection is by chlorination, is dechlorination used for this outfall? ___ Yes ✓ No

d. Does the treatment plant have post aeration? ___ Yes ✓ No

A.12. Effluent Testing Information. All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.

Outfall number: 102 (from WWTP#6) See Attachment A.12.1 through A.12.6 for detailed data.

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.77	s.u.			
pH (Maximum)	8.32	s.u.			
Flow Rate	0.90	MGD	0.39	MGD	1,034.00
Temperature (Winter)	20.70	C	20.50	C	1,034.00
Temperature (Summer)	28.20	C	28.00	C	1,034.00

* For pH please report a minimum and a maximum daily value

POLLUTANT		MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
		Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.								
BIOCHEMICAL OXYGEN	BOD-5	1.00	mg/L	1.00	mg/L	95.00	5210B-2001	2 mg/L
DEMAND (Report one)	CBOD-5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FECAL COLIFORM		1.00	CFU/100ml	2.00	CFU/100ml	95.00	9222 D	1 CFU/dl
TOTAL SUSPENDED SOLIDS (TSS)		0.00	mg/L	0.00	mg/L	95.00	N/A	1 mg/L

END OF PART A.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

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BASIC APPLICATION INFORMATION

PART B. ADDITIONAL APPLICATION INFORMATION FOR APPLICANTS WITH A DESIGN FLOW GREATER THAN OR EQUAL TO 0.1 MGD (100,000 gallons per day).

All applicants with a design flow rate ≥ 0.1 mgd must answer questions B.1 through B.6. All others go to Part C (Certification).

B.1. Inflow and Infiltration. Estimate the average number of gallons per day that flow into the treatment works from inflow and/or infiltration.

0.00 gpd

Briefly explain any steps underway or planned to minimize inflow and infiltration.

Inflow and Infiltration is insignificant. No remedial actions planned at this time.

B.2. Topographic Map. Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. (You may submit more than one map if one map does not show the entire area.)

a. The area surrounding the treatment plant, including all unit processes.

b. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.

c. Each well where wastewater from the treatment plant is injected underground.

d. Wells, springs, other surface water bodies, and drinking water wells that are: 1) within 1/4 mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.

e. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.

f. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, and/or disposed.

B.3. Process Flow Diagram or Schematic. Provide a diagram showing the processes of the treatment plant, including all bypass piping and all backup power sources or redundancy in the system. Also provide a water balance showing all treatment units, including disinfection (e.g, chlorination and dechlorination). The water balance must show daily average flow rates at influent and discharge points and approximate daily flow rates between treatment units. Include a brief narrative description of the diagram.

B.4. Operation/Maintenance Performed by Contractor(s).

Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a contractor? ✓ Yes ___ No

If yes, list the name, address, telephone number, and status of each contractor and describe the contractor's responsibilities (attach additional pages if necessary).

Name: OMI/CH2MHill

Mailing Address: 100 Industrial Park Loop
Rio Rancho, NM 87124

Telephone Number: (505) 891-5022

Responsibilities of Contractor: Operation and maintenance of wastewater facilities in the City of Rio Rancho

B.5. Scheduled Improvements and Schedules of Implementation. Provide information on any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses to question B.5 for each. (If none, go to question B.6.)

a. List the outfall number (assigned in question A.9) for each outfall that is covered by this implementation schedule.

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b. Indicate whether the planned improvements or implementation schedule are required by local, State, or Federal agencies.

___ Yes ✓ No

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c If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable).
N/A

d. Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible.

Implementation Stage	Schedule MM / DD / YYYY	Actual Completion MM / DD / YYYY
– Begin construction	___/___/_____	___/___/_____
– End construction	___/___/_____	___/___/_____
– Begin discharge	___/___/_____	___/___/_____
– Attain operational level	___/___/_____	___/___/_____

e. Have appropriate permits/clearances concerning other Federal/State requirements been obtained? ____Yes ✓ No

Describe briefly: Remodel of WWTP #1 into a Membrane Bioreactor Plant (MBR); Still in the pre-design phase. Full design and construction will be executed when the priority has risen.

B.6. EFFLUENT TESTING DATA (GREATER THAN O.1 MGD ONLY).

Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall Number: 001 (WWTP #2) See Attachment B.6.1 through B.6.12 for detailed data.

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
	Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.							
AMMONIA (as N)	0.70	mg/L	0.50	mg/L	780.00	4500NH3-F-1997	Varies
CHLORINE (TOTAL RESIDUAL, TRC)	0.00	µg/L	0.00	µg/L	1,034.00	4500CL-D - 2000	Varies
DISSOLVED OXYGEN	6.10	mg/L	6.00	mg/L	780.00	LDO Probe	N/A
TOTAL KJELDAHL NITROGEN (TKN)	2.80	mg/L	2.10	mg/L	36.00	SM4500 NORG C	Varies
NITRATE PLUS NITRITE NITROGEN	16.00	mg/L	11.70	mg/L	22.00	EPA 300.0	Varies
OIL and GREASE	19.00	mg/L	17.00	mg/L	156.00	1664A	2.1 mg/L
PHOSPHORUS (Total)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL DISSOLVED SOLIDS (TDS)	894.30	mg/L	736.30	mg/L	36.00	SM2540C	Varies
OTHER	8.40	µg/L	7.60	µg/L	312.00	200.8 ICPMS	3.6 µg/L

END OF PART B.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

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BASIC APPLICATION INFORMATION

PART C. CERTIFICATION

All applicants must complete the Certification Section. Refer to instructions to determine who is an officer for the purposes of this certification. All applicants must complete all applicable sections of Form 2A, as explained in the Application Overview. Indicate below which parts of Form 2A you have completed and are submitting. By signing this certification statement, applicants confirm that they have reviewed Form 2A and have completed all sections that apply to the facility for which this application is submitted.

Indicate which parts of Form 2A you have completed and are submitting:

✓ Basic Application Information packet

Supplemental Application Information packet:

✓ Part D (Expanded Effluent Testing Data)

✓ Part E (Toxicity Testing: Biomonitoring Data)

✓ Part F (Industrial User Discharges and RCRA/CERCLA Wastes)

____ Part G (Combined Sewer Systems)

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title: Larry Webb, Utilities Division Manager

Signature: Larry Webb

Telephone number: (505) 896-8715

Date signed: March 5, 2015

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

SEND COMPLETED FORMS TO:

FACILITY NAME AND PERMIT NUMBER:
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SUPPLEMENTAL APPLICATION INFORMATION

PART D. EXPANDED EFFLUENT TESTING DATA

Refer to the directions on the cover page to determine whether this section applies to the treatment works.

Effluent Testing: 1.0 mgd and Pretreatment Treatment Works. If the treatment works has a design flow greater than or equal to 1.0 mgd or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information and any other information required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analyses conducted using 40 CFR Part 136 methods. In addition, these data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old. See Attachment D for detailed data.

Outfall number: 001 (WWTP #2) (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS, AND HARDNESS.											
ANTIMONY	0.00082	mg/L	0.026	lb/day	0.00046	mg/L	0.015	lb/day	3	EPA 200.8	Varies - Attachment D
ARSENIC	0.0085	mg/L	0.257	lb/day	0.00827	mg/L	0.254	lb/day	3	EPA 200.8	Varies - Attachment D
BERYLLIUM	0.0	mg/L	0.0	lb/day	0.0	mg/L	0.0	lb/day	3	EPA 200.7	Varies - Attachment D
CADMIUM	0.0	mg/L	0.0	lb/day	0.0	mg/L	0.0	lb/day	3	EPA 200.7	Varies - Attachment D
CHROMIUM	0.0	mg/L	0.0	lb/day	0.0	mg/L	0.0	lb/day	3	EPA 200.7	Varies - Attachment D
COPPER	0.014	mg/L	0.413	lb/day	0.01167	mg/L	0.358	lb/day	3	EPA 200.8	Varies - Attachment D
LEAD	0.0005	mg/L	0.015	lb/day	0.00036	mg/L	0.011	lb/day	3	EPA 200.8	Varies - Attachment D
MERCURY	0.0	mg/L	0.0	lb/day	0.0	mg/L	0.0	lb/day	3	EPA 245.1	Varies - Attachment D
NICKEL	0.0	mg/L	0.0	lb/day	0.0	mg/L	0.0	lb/day	3	EPA 200.7	Varies - Attachment D
SELENIUM	0.0014	mg/L	0.045	lb/day	0.00077	mg/L	0.024	lb/day	3	EPA 200.8	Varies - Attachment D
SILVER	0.0076	mg/L	0.235	lb/day	0.00253	mg/L	0.078	lb/day	3	EPA 200.7	Varies - Attachment D
THALLIUM	0.0	mg/L	0.0	lb/day	0.0	mg/L	0.0	lb/day	3	EPA 200.8	Varies - Attachment D
ZINC	0.071	mg/L	2.094	lb/day	0.06567	mg/L	2.018	lb/day	3	EPA 200.7	Varies - Attachment D
CYANIDE	0.0	mg/L	0.0	lb/day	0.0	mg/L	0.0	lb/day	3	EPA 335.4	0.01
TOTAL PHENOLIC COMPOUNDS	0.09	mg/L	2.655	lb/day	0.030	mg/L	0.885	lb/day	3	EPA 420	0.05
HARDNESS (AS $CaCO_3$)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer.											

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Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
VOLATILE ORGANIC COMPOUNDS.											
ACROLEIN	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
ACRYLONITRILE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
BENZENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
BROMOFORM	2.1	µg/L	0.062	lb/day	0.70	µg/L	0.021	lb/day	3	EPA 624	Varies - Attachment D
CARBON TETRACHLORIDE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
CLOROBENZENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
CHLORODIBROMO-METHANE	13.0	µg/L	0.472	lb/day	4.33	µg/L	0.157	lb/day	3	EPA 624	Varies - Attachment D
CHLOROETHANE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
2-CHLORO-ETHYLVINYL ETHER	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
CHLOROFORM	18.0	µg/L	0.531	lb/day	6.0	µg/L	0.177	lb/day	3	EPA 624	Varies - Attachment D
DICHLOROBROMO-METHANE	16	µg/L	0.383	lb/day	5.33	µg/L	0.128	lb/day	3	EPA 624	Varies - Attachment D
1,1-DICHLOROETHANE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
1,2-DICHLOROETHANE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
TRANS-1,2-DICHLORO-ETHYLENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
1,1-DICHLOROETHYLENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
1,2-DICHLOROPROPANE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
1,3-DICHLORO-PROPYLENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
ETHYLBENZENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
METHYL BROMIDE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
METHYL CHLORIDE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
METHYLENE CHLORIDE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
1,1,2,2-TETRACHLORO-ETHANE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
TETRACHLORO-ETHYLENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
TOLUENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D

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Outfall number: 001 (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
1,1,1-TRICHLOROETHANE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
1,1,2-TRICHLOROETHANE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
TRICHLORETHYLENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
VINYL CHLORIDE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 624	Varies - Attachment D
Use this space (or a separate sheet) to provide information on other volatile organic compounds requested by the permit writer.											
ACID-EXTRACTABLE COMPOUNDS											
P-CHLORO-M-CRESOL	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
2-CHLOROPHENOL	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
2,4-DICHLOROPHENOL	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
2,4-DIMETHYLPHENOL	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
4,6-DINITRO-O-CRESOL	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
2,4-DINITROPHENOL	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
2-NITROPHENOL	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
4-NITROPHENOL	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
PENTACHLOROPHENOL	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
PHENOL	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
2,4,6-TRICHLOROPHENOL	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
Use this space (or a separate sheet) to provide information on other acid-extractable compounds requested by the permit writer.											
BASE-NEUTRAL COMPOUNDS.											
ACENAPHTHENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
ACENAPHTHYLENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
ANTHRACENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
BENZIDINE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
BENZO(A)ANTHRACENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
BENZO(A)PYRENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5

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POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
3,4 BENZO-FLUORANTHENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
BENZO(GHI)PERYLENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
BENZO(K)FLUORANTHENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
BIS (2-CHLOROETHOXY) METHANE	0.0	µg/	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
BIS (2-CHLOROETHYL)-ETHER	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
BIS (2-CHLOROISO-PROPYL) ETHER	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
BIS (2-ETHYLHEXYL) PHTHALATE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
4-BROMOPHENYL PHENYL ETHER	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
BUTYL BENZYL PHTHALATE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
2-CHLORONAPHTHALENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
4-CHLORPHENYL PHENYL ETHER	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
CHRYSENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
DI-N-BUTYL PHTHALATE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
DI-N-OCTYL PHTHALATE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
DIBENZO(A,H) ANTHRACENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
1,2-DICHLOROBENZENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
1,3-DICHLOROBENZENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
1,4-DICHLOROBENZENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
3,3-DICHLOROBENZIDINE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
DIETHYL PHTHALATE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
DIMETHYL PHTHALATE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
2,4-DINITROTOLUENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
2,6-DINITROTOLUENE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5
1,2-DIPHENYLHYDRAZINE	0.0	µg/L	0.0	lb/day	0.0	µg/L	0.0	lb/day	3	EPA 625	0.5

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PART E. TOXICITY TESTING DATA

POTWs meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points: 1) POTWs with a design flow rate greater than or equal to 1.0 mgd; 2) POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403); or 3) POTWs required by the permitting authority to submit data for these parameters.

- At a minimum, these results must include quarterly testing for a 12-month period within the past 1 year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute and/or chronic toxicity, depending on the range of receiving water dilution. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- In addition, submit the results of any other whole effluent toxicity tests from the past four and one-half years. If a whole effluent toxicity test conducted during the past four and one-half years revealed toxicity, provide any information on the cause of the toxicity or any results of a toxicity reduction evaluation, if one was conducted.
- If you have already submitted any of the information requested in Part E, you need not submit it again. Rather, provide the information requested in question E.4 for previously submitted information. If EPA methods were not used, report the reasons for using alternate methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E.

If no biomonitoring data is required, do not complete Part E. Refer to the Application Overview for directions on which other sections of the form to complete.

E.1. Required Tests. See Attachment E for laboratory details.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years.

✓ chronic ____ acute

E.2. Individual Test Data. Complete the following chart for each whole effluent toxicity test conducted in the last four and one-half years. Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.

	Test number: 1	Test number: 2	Test number: 3
a. Test information.			
Test species & test method number	Ceriodaphnia Dubia (1002.0)	Pimephales Promelas (1000.0)	Ceriodaphnia Dubia (1002.0)
Age at initiation of test	<24 Hours	<24 Hours	<24 Hours
Outfall number	001	001	001
Dates sample collected	10/05/2014	10/05/2014	08/17/2014
Date test started	10/07/2014	10/07/2014	08/19/2014
Duration	7 Days	7 Days	7 Days
b. Give toxicity test methods followed.			
Manual title	Short Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Freshwater Organisms		
Edition number and year of publication	4th Edition, 2002	4th Edition, 2002	4th Edition, 2002
Page number(s)	EPA-821-R-02-013	EPA-821-R-02-013	EPA-821-R-02-013
c. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used.			
24-Hour composite			
Grab			
d. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each)			
Before disinfection			
After disinfection			
After dechlorination			

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	Test number: 1.00	Test number: 2.00	Test number: 3.00
e. Describe the point in the treatment process at which the sample was collected.			
Sample was collected:	Post Disinfection/Outfall	Post Disinfection/Outfall	Post Disinfection/Outfall
f. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both.			
Chronic toxicity	Chronic Toxicity	Chronic Toxicity	Chronic Toxicity
Acute toxicity			
g. Provide the type of test performed.			
Static			
Static-renewal	Static Renewal	Static Renewal	Static Renewal
Flow-through			
h. Source of dilution water. If laboratory water, specify type; if receiving water, specify source.			
Laboratory water	Very Hard Synthetic Water	Very Hard Synthetic Water	Very Hard Synthetic Water
Receiving water			
i. Type of dilution water. It salt water, specify "natural" or type of artificial sea salts or brine used.			
Fresh water	Fresh Water	Fresh Water	Fresh Water
Salt water			
j. Give the percentage effluent used for all concentrations in the test series.			
[illegible]	15%, 11%, 8%, 6%, and 5%	15%, 11%, 8%, 6%, and 5%	15%, 11%, 8%, 6%, and 5%
[illegible]			
[illegible]			
k. Parameters measured during the test. (State whether parameter meets test method specifications)			
pH	Yes	Yes	Yes
Salinity	No	No	No
Temperature	Yes	Yes	Yes
Ammonia	No	No	No
Dissolved oxygen	Yes	Yes	Yes
l. Test Results.			
Acute:			
Percent survival in 100% effluent	%	%	%
LC_{50}			
95% C.I.	%	%	%
Control percent survival	%	%	%
Other (describe)			

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Chronic:			
NOEC	15.00 %	15.00 %	15.00 %
IC_{25}	15.00 %	15.00 %	15.00 %
Control percent survival	100.00 %	98.00 %	100.00 %
Other (describe)			

m. Quality Control/Quality Assurance.

Is reference toxicant data available?	Yes	Yes	Yes
Was reference toxicant test within acceptable bounds?	Yes	Yes	Yes
What date was reference toxicant test run (MM/DD/YYYY)?	10/04/2014	10/04/2014	08/19/2014
Other (describe)			

E.3. Toxicity Reduction Evaluation. Is the treatment works involved in a Toxicity Reduction Evaluation?

____Yes ✓ No If yes, describe: _____

E.4. Summary of Submitted Biomonitoring Test Information. If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results.

Date submitted: N/A (MM/DD/YYYY)

Summary of results: (see instructions)

END OF PART E.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

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PART E. TOXICITY TESTING DATA

POTWs meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points: 1) POTWs with a design flow rate greater than or equal to 1.0 mgd; 2) POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403); or 3) POTWs required by the permitting authority to submit data for these parameters.

- At a minimum, these results must include quarterly testing for a 12-month period within the past 1 year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute and/or chronic toxicity, depending on the range of receiving water dilution. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- In addition, submit the results of any other whole effluent toxicity tests from the past four and one-half years. If a whole effluent toxicity test conducted during the past four and one-half years revealed toxicity, provide any information on the cause of the toxicity or any results of a toxicity reduction evaluation, if one was conducted.
- If you have already submitted any of the information requested in Part E, you need not submit it again. Rather, provide the information requested in question E.4 for previously submitted information. If EPA methods were not used, report the reasons for using alternate methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E.

If no biomonitoring data is required, do not complete Part E. Refer to the Application Overview for directions on which other sections of the form to complete.

E.1. Required Tests. See Attachment E for laboratory details.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years.

✓ chronic ____ acute

E.2. Individual Test Data. Complete the following chart for each whole effluent toxicity test conducted in the last four and one-half years. Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.

	Test number: 4	Test number: 5	Test number: 6
a. Test information.			
Test species & test method number	Pimephales Promelas (1000.0	Pimephales Promelas (1000.0)	Ceriodaphnia Dubia (1002.0)
Age at initiation of test	<24 Hours	<24 Hours	<24 Hours
Outfall number	001	001	001
Dates sample collected	08/17/2014	05/11/2014	05/11/2014
Date test started	08/19/2014	05/13/2014	05/13/2014
Duration	7 Days	7 Days	7 Days
b. Give toxicity test methods followed.			
Manual title	Short Term Methods for Estimating	the Chronic Toxicity of Effluent and	Receiving Waters to Freshwater Organisms
Edition number and year of publication	4th Edition, 2002	4th Edition, 2002	4th Edition, 2002
Page number(s)	EPA-821-R-02-013	EPA-821-R-02-013	EPA-821-R-02-013
c. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used.			
24-Hour composite			
Grab			
d. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each)			
Before disinfection			
After disinfection			
After dechlorination			

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	Test number: 4.00	Test number: 5.00	Test number: 6.00
e. Describe the point in the treatment process at which the sample was collected.			
Sample was collected:	Post Disinfection/Outfall	Post Disinfection/Outfall	Post Disinfection/Outfall
f. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both.			
Chronic toxicity	Chronic Toxicity	Chronic Toxicity	Chronic Toxicity
Acute toxicity			
g. Provide the type of test performed.			
Static			
Static-renewal	Static Renewal	Static Renewal	Static Renewal
Flow-through			
h. Source of dilution water. If laboratory water, specify type; if receiving water, specify source.			
Laboratory water	Very Hard Synthetic Water	Very Hard Synthetic Water	Very Hard Synthetic Water
Receiving water			
i. Type of dilution water. It salt water, specify "natural" or type of artificial sea salts or brine used.			
Fresh water	Fresh Water	Fresh Water	Fresh Water
Salt water			
j. Give the percentage effluent used for all concentrations in the test series.			
[illegible]	15%, 11%, 8%, 6%, and 5%	15%, 11%, 8%, 6%, and 5%	15%, 11%, 8%, 6%, and 5%
[illegible]			
[illegible]			
k. Parameters measured during the test. (State whether parameter meets test method specifications)			
pH	Yes	Yes	Yes
Salinity	No	No	No
Temperature	Yes	Yes	Yes
Ammonia	No	No	No
Dissolved oxygen	Yes	Yes	Yes
l. Test Results.			
Acute:			
Percent survival in 100% effluent	%	%	%
LC_{50}			
95% C.I.	%	%	%
Control percent survival	%	%	%
Other (describe)			

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Chronic:			
NOEC	15.00 %	15.00 %	15.00 %
IC_{25}	15.00 %	15.00 %	15.00 %
Control percent survival	93.00 %	100.00 %	100.00 %
Other (describe)			

m. Quality Control/Quality Assurance.

Is reference toxicant data available?	Yes	Yes	Yes
Was reference toxicant test within acceptable bounds?	Yes	Yes	Yes
What date was reference toxicant test run (MM/DD/YYYY)?	08/19/2014	06/02/2014	06/02/2014
Other (describe)			

E.3. Toxicity Reduction Evaluation. Is the treatment works involved in a Toxicity Reduction Evaluation?

____Yes ✓ No If yes, describe: _____

E.4. Summary of Submitted Biomonitoring Test Information. If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results.

Date submitted: N/A (MM/DD/YYYY)

Summary of results: (see instructions)

END OF PART E.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

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PART E. TOXICITY TESTING DATA

POTWs meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points: 1) POTWs with a design flow rate greater than or equal to 1.0 mgd; 2) POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403); or 3) POTWs required by the permitting authority to submit data for these parameters.

- At a minimum, these results must include quarterly testing for a 12-month period within the past 1 year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute and/or chronic toxicity, depending on the range of receiving water dilution. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- In addition, submit the results of any other whole effluent toxicity tests from the past four and one-half years. If a whole effluent toxicity test conducted during the past four and one-half years revealed toxicity, provide any information on the cause of the toxicity or any results of a toxicity reduction evaluation, if one was conducted.
- If you have already submitted any of the information requested in Part E, you need not submit it again. Rather, provide the information requested in question E.4 for previously submitted information. If EPA methods were not used, report the reasons for using alternate methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E.

If no biomonitoring data is required, do not complete Part E. Refer to the Application Overview for directions on which other sections of the form to complete.

E.1. Required Tests. See Attachment E for laboratory details.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years.

✓ chronic ____ acute

E.2. Individual Test Data. Complete the following chart for each whole effluent toxicity test conducted in the last four and one-half years. Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.

	Test number: 7	Test number: 8	Test number: ____
a. Test information.			
Test species & test method number	Ceriodaphnia Dubioa (1002.0)	Pimephales Promelas (1000.0)	
Age at initiation of test	<24 Hours	<24 Hours	
Outfall number	001	001	
Dates sample collected	02/17/2014	02/17/2014	
Date test started	02/18/2014	02/18/2014	
Duration	7 Days	7 Days	
b. Give toxicity test methods followed.			
Manual title	Short Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Freshwater Organisms		
Edition number and year of publication	4th Edition, 2002	4th Edition, 2002	
Page number(s)	EPA-821-R-02-013	EPA-821-R-02-013	
c. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used.			
24-Hour composite	✓	✓	
Grab			
d. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each)			
Before disinfection			
After disinfection	✓	✓	
After dechlorination			

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	Test number: 7.00	Test number: 8.00	Test number:
e. Describe the point in the treatment process at which the sample was collected.			
Sample was collected:	Post Disinfection/Outfall	Post Disinfection/Outfall	
f. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both.			
Chronic toxicity	Chronic Toxicity	Chronic Toxicity	
Acute toxicity			
g. Provide the type of test performed.			
Static			
Static-renewal	Static Renewal	Static Renewal	
Flow-through			
h. Source of dilution water. If laboratory water, specify type; if receiving water, specify source.			
Laboratory water	Very Hard Synthetic Water	Very Hard Synthetic Water	
Receiving water			
i. Type of dilution water. It salt water, specify "natural" or type of artificial sea salts or brine used.			
Fresh water	Fresh Water	Fresh Water	
Salt water			
j. Give the percentage effluent used for all concentrations in the test series.			
[illegible]	15%, 11%, 8%, 6%, 5%, 0%	15%, 11%, 8%, 6%, 5%, 0%	
[illegible]			
[illegible]			
k. Parameters measured during the test. (State whether parameter meets test method specifications)			
pH	Yes	Yes	
Salinity	No	No	
Temperature	Yes	Yes	
Ammonia	No	No	
Dissolved oxygen	Yes	Yes	
l. Test Results.			
Acute:			
Percent survival in 100% effluent	%	%	%
LC_{50}			
95% C.I.	%	%	%
Control percent survival	%	%	%
Other (describe)			

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Chronic:			
NOEC	15.00 %	15.00 %	%
IC_{25}	15.00 %	15.00 %	%
Control percent survival	90.00 %	98.00 %	%
Other (describe)			

m. Quality Control/Quality Assurance.

Is reference toxicant data available?	Yes	Yes	
Was reference toxicant test within acceptable bounds?	Yes	Yes	
What date was reference toxicant test run (MM/DD/YYYY)?	03/11/2014	03/11/2014	
Other (describe)			

E.3. Toxicity Reduction Evaluation. Is the treatment works involved in a Toxicity Reduction Evaluation?

____Yes ✓ No If yes, describe: _____

E.4. Summary of Submitted Biomonitoring Test Information. If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results.

Date submitted: N/A (MM/DD/YYYY)

Summary of results: (see instructions)

END OF PART E.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

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SUPPLEMENTAL APPLICATION INFORMATION

PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete Part F.

GENERAL INFORMATION:

F.1. Pretreatment Program. Does the treatment works have, or is it subject to, an approved pretreatment program?

✓ Yes ___ No

F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works.

a. Number of non-categorical SIUs. 1.00

b. Number of CIUs. 16.00

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Insight Lighting

Mailing Address: 4341 Fulcrum Way NE
Rio Rancho, NM 87144

F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge.

Production of Ceramic Metal halide and LED lighting instruments.

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Ceramic Metal halide and LED lighting instruments

Raw material(s): Iron Phosphate, Alkalines

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

4,556.00 gpd (___ continuous or ✓ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0.00 gpd (___ continuous or ___ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ✓ Yes ___ No

b. Categorical pretreatment standards ✓ Yes ___ No

If subject to categorical pretreatment standards, which category and subcategory?

40CFR 433

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F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

____Yes ✓ No If yes, describe each episode.

RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:

F.9. RCRA Waste. Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe? ____Yes ✓ No (go to F.12.)

F.10. Waste Transport. Method by which RCRA waste is received (check all that apply):

_____Truck _____Rail _____Dedicated Pipe

F.11. Waste Description. Give EPA hazardous waste number and amount (volume or mass, specify units).

EPA Hazardous Waste Number	Amount	Units

CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:

F.12. Remediation Waste. Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

____Yes (complete F.13 through F.15.) ✓ No

Provide a list of sites and the requested information (F.13 - F.15.) for each current and future site.

F.13. Waste Origin. Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

F.14. Pollutants. List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary).

F.15. Waste Treatment.

a. Is this waste treated (or will it be treated) prior to entering the treatment works?

____Yes ____No

If yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?

____Continuous ____Intermittent If intermittent, describe discharge schedule.

END OF PART F.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

REGION 6
1445 ROSS AVENUE
DALLAS, TEXAS 75202-2733

NPDES Permit No NM0027987

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 et. seq; the "Act"),

City of Rio Rancho WWTP #2
4100 Southern Blvd. Suite 100
Rio Rancho, NM 87124

is authorized to discharge to receiving waters named Rio Grande, in Waterbody Segment Code No. 20.6.4.106, from a facility located at 100 Industrial Park Loop, Rio Rancho, Sandoval County, New Mexico.

The discharge is located on that water at the following coordinates:

Outfall 001: Latitude 35° 15' 23" North, Longitude 106° 35' 32" West,

in accordance with this cover page and the effluent limitations, monitoring requirements, and other conditions set forth in Part I, Part II, Part III, and Part IV hereof.

This permit supersedes and replaces NPDES Permit No. NM0023485 issued December 31, 2003.

This permit shall become effective on November 1, 2010

This permit and the authorization to discharge shall expire at midnight, October 31, 2015

Issued on September 24, 2010

Miguel I. Flores
Division Director
Water Quality Protection Division (6WQ)

Prepared by

Laurence E. Giglio
Environmental Engineer
Permits & Technical Section (6WQ-PP)

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PART I – REQUIREMENTS FOR NPDES PERMITS

SECTION A. LIMITATIONS AND MONITORING REQUIREMENTS

1. OUTFALL 001: FINAL Effluent Limits – 5.5 MGD Design Flow

During the period beginning the effective date of the permit and lasting through the expiration date of the permit (unless otherwise noted), the permittee is authorized to discharge treated municipal wastewater to the Rio Grande, in Segment Number 20.6.4.106, from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS		DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		lbs/day, unless noted			mg/l, unless noted (*1)				
POLLUTANT	STORET CODE	30-DAY AVG	DAILY MAX	7-DAY AVG	30-DAY AVG	DAILY MAX	7-DAY AVG	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	50050	Report MGD	Report MGD	Report MGD	***	***	***	Continuous	Totalizing Meter
Biochemical Oxygen Demand, 5-day	00310	459	N/A	688	10	N/A	15	Five/Week	24-Hour Composite
Total Suspended Solids	00530	688	N/A	1056	15	N/A	23	Five/Week	24-Hour Composite
E. Coli Bacteria	51040	9.80×10^9 (*2, *3)	N/A	N/A	47 (*2)	88 (*2)	N/A	Five/Week	Grab
Dissolved Oxygen	00300	N/A	N/A	N/A	Report (*4)			Five/Week (*4)	Grab (*4)
Total Residual Chlorine	50060	N/A	N/A	N/A	N/A	11 ug/l	N/A	Daily (*5)	Instantaneous Grab (*5)
Ammonia, Total, as N	00610	98	147	N/A	2.14	3.21	N/A	Five/Week	24-Hour Composite
Arsenic, Total	01002	0.71	1.06	N/A	15.4 ug/l	23.1 ug/l	N/A	Two/Week (*9)	24-Hour Composite
PCBs	39516	N/A	Report (*6)	N/A	N/A	Report (*6)	N/A	Once (*6)	24-Hour Composite

EFFLUENT CHARACTERISTICS		DISCHARGE LIMITATIONS Standard Units		MONITORING REQUIREMENTS	
POLLUTANT	STORET CODE	MINIMUM	MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH	00400	6.6	9.0	Daily	Grab

EFFLUENT CHARACTERISTICS	DISCHARGE MONITORING		MONITORING REQUIREMENTS	
WHOLE EFFLUENT TOXICITY TESTING (7-Day NOEC) (*7)	30-DAY AVG MINIMUM 11%	7-DAY MINIMUM 11%	MEASUREMENT FREQUENCY	SAMPLE TYPE
Ceriodaphnia dubia	Report	Report	Once/Quarter (*8)	24-Hr Composite
Pimephales promelas	Report	Report	Once/Quarter (*8)	24-Hr Composite

Footnotes:

*1 See **Appendix A of Part II** of the permit for minimum quantification limits.

*2 Colony forming units (cfu) per 100 ml.

*3 Conversion factor to determine loading limit is 3.79 x 107 x Flow in MGD x cfu/100 ml in effluent.

*4 Daily minimum. Samples taken between 10:00 am and 2:00 pm.

*5 The effluent limitation for TRC is the instantaneous maximum grab sample taken during periods of chlorine use and cannot be averaged for reporting purposes. TRC shall be measured during periods when chlorine is used as either backup bacteria control or when disinfection of plant treatment equipment is required. Regulations at 40 CFR Part 136 define "instantaneous grab" as analyzed within 15 minutes of collection.

*6 PCB Testing shall be one time during the first 12-months after the permit effective date. Test shall use Method 1668A, as revised: Chlorinated Biphenyl Congeners in Water, Soil, Sediment and Tissue by High Resolution Gas Chromatography/High Resolution Mass Spectrometry (HRGC/HRMS).

*7 Monitoring and reporting requirements begin on the effective date of this permit. See PART II, Whole Effluent Toxicity testing requirements for additional WET monitoring and reporting conditions.

*8 Monitoring frequency reductions are available. See Part II, Whole Effluent Toxicity testing requirements for applicable conditions.

*9 At least two samples for each week shall be at least three (3) days apart.

2. OUTFALL 101: FINAL Effluent Limits - Seasonal Discharges from WWTP No. 1

During the period beginning the effective date of the permit and lasting through the expiration date of the permit (unless otherwise noted), the permittee is authorized to discharge from Internal Outfall 101. Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS		DISCHARGE LIMITATIONS mg/l, unless noted (*1)			MONITORING REQUIREMENTS	
POLLUTANT	STORET CODE	30-DAY AVG	DAILY MAX	7-DAY AVG	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	50050	***	***	***	Continuous	Totalizing Meter
Biochemical Oxygen Demand, 5-day	00310	30	N/A	45	Three/Week	12-Hour Composite
Total Suspended Solids	00530	30	N/A	45	Three/Week	12-Hour Composite

Samples taken in compliance with the monitoring requirements specified above for Outfall 101 shall be taken when discharging from WWTP No. 1, at the manhole located to the West of the Sludge Belt Building where the flow from Rio Rancho Plant #1 enters Rio Rancho #2 before going to the effluent box.

Footnotes:
*1 See **Appendix A of Part II** of the permit for minimum quantification limits.

FLOATING SOLIDS, VISIBLE FOAM AND/OR OILS

There shall be no discharge of floating solids or visible foam in other than trace amounts. There shall be no discharge of visible films of oil, globules of oil, grease or solids in or on the water, or coatings on stream banks.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the discharge from the final treatment unit prior to the receiving stream.

B. SCHEDULE OF COMPLIANCE

NONE

C. MONITORING AND REPORTING (MAJOR DISCHARGERS)

1. The permittee shall effectively monitor the operation and efficiency of all treatment and control facilities and the quantity and quality of the treated discharge.

2 Monitoring results must be reported either using the electronic or paper Discharge Monitoring Report (DMR) approved formats to EPA. If using paper DMR forms, the report shall be also sent to NMED and the Pueblo of Sandia. See Part III, D.4 of the permit. *See* Part III, D.4 of the permit.

a. Reporting periods shall end on the last day of each month.

b. The permittee is required to submit regular monthly reports as described above postmarked no later than the 15th day of the month following each reporting period.

c. The annual sludge report required in Part IV of the permit is due on February 19 of each year and covers the previous calendar year from January 1 through December 31.

3 If any 30 day average, monthly average, 7 day average, weekly average, or daily maximum value exceeds the effluent limitations specified in Part I.A, the permittee shall report the excursion in accordance with the requirements of Part III.D.

4 Any 30 day average, monthly average, 7 day average, weekly average, or daily maximum value reported in the required Discharge Monitoring Report which is in excess of the effluent limitation specified in Part I.A shall constitute evidence of violation of such effluent limitation and of this permit.

5 Other measurements of oxygen demand (e.g., TOC and COD) may be substituted for five day Biochemical Oxygen Demand (BOD_5) or for five day Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), as applicable, where the permittee can demonstrate long term correlation of the method with BOD_5 or $CBOD_5$ values, as applicable. Details of the correlation procedures used must be submitted and prior approval granted by the permitting authority for this procedure to be acceptable. Data reported must also include evidence to show that the proper correlation continues to exist after approval.

6. The permittee shall report all overflows with the Discharge Monitoring Report submittal. These reports shall be summarized and reported in tabular format. The summaries shall include: the date, time, duration, location, estimated volume, and cause of the overflow; observed environmental impacts from the overflow; actions taken to address the overflow; and ultimate discharge location if not contained (e.g., storm sewer system, ditch, tributary). Any noncompliance which may endanger health or the environment shall also be orally reported to the Pueblo of Sandia at (505) 867-4533, and the New Mexico Environment Department at (505) 827-0187, as soon as possible, but within 12 hours from the time the permittee becomes aware of the circumstance. A written report of overflows which endanger health or the environment shall be provided to EPA, New Mexico Environment Department and the Pueblo of Sandia within 5 days of the time the permittee becomes aware of the circumstance.

7. The permittee shall submit a copy of an annual summary of the data that results from whole effluent toxicity testing to:

Field Supervisor
U.S. Fish and Wildlife Service
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, NM 87113

and

Pueblo of Sandia Environmental Department
Water Quality Manager
Pueblo of Sandia
481 Sandia Loop
Bernalillo, NM 87004

8. The permittee shall submit a copy of:

a. Either its most recent Drinking Water compliance report or Consumer Confidence Report.

b. Actual monitoring data for Arsenic used in the report referenced in Item A above, inclusive of analysis method and detection levels.

c. Quarterly reporting of arsenic analysis performed during routine operations of the wastewater treatment plant.

to: Pueblo of Sandia Environmental Department
Water Quality Manager
Pueblo of Sandia
481 Sandia Loop
Bernalillo, NM 87004

D. OVERFLOW REPORTING

The permittee shall report all overflows with the DMR submittal. These reports shall be summarized and reported in tabular format. The summaries shall include: date, time, duration, location, estimated volume, and cause of the overflow. They shall also include observed environmental impacts from the overflow; actions taken to address the overflow; and, the ultimate discharge location if not contained (e.g., storm sewer system, ditch, tributary).

Overflows that endanger health or the environment shall be orally reported to EPA at (214) 665-6595, NMED Surface Water Quality Bureau at (505) 827-0187, and the Pueblo of Sandia at (505) 867-4533, within 12 hours from the time the permittee becomes aware of the circumstance. A written report of overflows that endanger health or the environment shall be provided to EPA, NMED Surface Water Quality Bureau, and the Pueblo of Sandia within 5 days of the time the permittee becomes aware of the circumstance.

E. POLLUTION PREVENTION REQUIREMENTS

The permittee shall institute a program within 12 months of the effective date of the permit (or continue an existing one) directed towards optimizing the efficiency and extending the useful life of the facility. The permittee shall consider the following items in the program:

a. The influent loadings, flow and design capacity;
b. The effluent quality and plant performance;
c. The age and expected life of the wastewater treatment facility's equipment;
d. Bypasses and overflows of the tributary sewerage system and treatment works;
e. New developments at the facility;
f. Operator certification and training plans and status;
g. The financial status of the facility;
h. Preventative maintenance programs and equipment conditions and;
i. An overall evaluation of conditions at the facility.

PART II - OTHER CONDITIONS

A. MINIMUM QUANTIFICATION LEVEL (MQL)

See list of MQL's at Appendix A of Part II below. For pollutants listed on Appendix A of Part II below with MQL's, analyses must be performed to the listed MQL. If any individual analytical test result is less than the MQL listed, a value of zero (0) may be used for that pollutant result for the Discharge Monitoring Report (DMR) calculations and reporting requirements.

In addition, any additional pollutant sampling for purposes of this permit, including renewal applications or any other reporting, shall be tested to the MQL shown on the attached Appendix A of Part II. Results of analyses that are less than the listed MQL maybe reported as "non detect" (ND).

B. 24-HOUR ORAL REPORTING: DAILY MAXIMUM LIMITATION VIOLATIONS

Under the provisions of Part III.D.7.b.(3) of this permit, violations of daily maximum limitations for the following pollutants shall be reported orally to EPA Region 6, Compliance and Assurance Division, Water Enforcement Branch (6EN-W), Dallas, Texas, and concurrently to Pueblo of Sandia and NMED within 24 hours from the time the permittee becomes aware of the violation followed by a written report in five days.

E. Coli Bacteria
Arsenic
TRC
Ammonia

C. PERMIT MODIFICATION AND REOPENER

In accordance with 40 CFR Part 122.44(d), the permit may be reopened and modified during the life of the permit if relevant portions of the Pueblo of Sandia and/or New Mexico's Water Quality Standards for Interstate and Intrastate Streams are revised, or new Pueblo of Sandia and/or State of New Mexico water quality standards are established and/or remanded.

In accordance with 40 CFR Part 122.62(s)(2), the permit may be reopened and modified if new information is received that was not available at the time of permit issuance that would have justified the application of different permit conditions at the time of permit issuance. Permit modifications shall reflect the results of any of these actions and shall follow regulations listed at 40 CFR Part 124.5.

D. WHOLE EFFLUENT TOXICITY LIMITS (7 DAY CHRONIC NOEC FRESHWATER)

It is unlawful and a violation of this permit for a permittee or his designated agent, to manipulate

test samples in any manner, to delay sample shipment, or to terminate or to cause to terminate a toxicity test. Once initiated, all toxicity tests must be completed unless specific authority has been granted by EPA Region 6 or the State NPDES permitting authority.

1. SCOPE AND METHODOLOGY

a. The permittee shall test the effluent for toxicity in accordance with the provisions in this section.

APPLICABLE TO FINAL OUTFALL(S):	001
REPORTED ON DMR AS FINAL OUTFALL:	001
CRITICAL DILUTION (%):	11%
EFFLUENT DILUTION SERIES (%):	5%, 6%, 8%, 11%, and 15%
COMPOSITE SAMPLE TYPE:	Defined at PART I
TEST SPECIES/METHODS:	40 CFR Part 136

Ceriodaphnia dubia chronic static renewal survival and reproduction test, Method 1002.0, EPA/821/R-02-013, or the most recent update thereof. This test should be terminated when 60% of the surviving females in the control produce three broods or at the end of eight days, whichever comes first.

Pimephales promelas (Fathead minnow) chronic static renewal 7 day larval survival and growth test, Method 1000.0, EPA/821/R-02-013, or the most recent update thereof. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

b. The NOEC (No Observed Effect Concentration) is herein defined as the greatest effluent dilution at and below which toxicity that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Chronic lethal test failure is defined as a demonstration of a statistically significant lethal effect at test completion to a test species at or below the critical dilution. Chronic sub-lethal test failure is defined as a demonstration of a statistically significant sub-lethal effect (i.e., growth or reproduction) at test completion to a test species at or below the critical dilution.

c. The conditions of this item are effective beginning with the effective date of the WET limit. When the testing frequency stated above is less than monthly and the effluent fails the lethal or sub-lethal endpoint at or below the critical dilution, the permittee shall be considered in violation of this permit limit and the frequency for the affected

species will increase to monthly until such time compliance with the No Observed Effect Concentration (NOEC) effluent limitation is demonstrated for a period of three consecutive months, at which time the permittee may return to the testing frequency stated in PART I of this permit. During the period the permittee is out of compliance, test results shall be reported on the DMR for that reporting period. The purpose of additional tests (also referred to as 'retests' or confirmation tests) is to determine the duration of a toxic event. A test that meets all test acceptability criteria and demonstrates significant toxic effects does not need additional confirmation. Such testing cannot confirm or disprove a previous test result.

d. This permit may be reopened to require chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.

2. REQUIRED TOXICITY TESTING CONDITIONS

a. Test Acceptance

The permittee shall repeat a test, including the control and all effluent dilutions, if the procedures and quality assurance requirements defined in the test methods or in this permit are not satisfied, including the following additional criteria:

i. The toxicity test control (0% effluent) must have survival equal to or greater than 80%.

ii. The mean number of Ceriodaphnia dubia neonates produced per surviving female in the control (0% effluent) must be 15 or more.

iii. 60% of the surviving control females must produce three broods.

iv. The mean dry weight of surviving Fathead minnow larvae at the end of the 7 days in the control (0% effluent) must be 0.25 mg per larva or greater.

v. The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for: the young of surviving females in the Ceriodaphnia dubia reproduction test, the growth and survival of the Fathead minnow test.

vi. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal or nonlethal effects are exhibited for: the young of surviving females in the Ceriodaphnia dubia reproduction test; the growth and survival endpoints in the Fathead minnow test.

vii. A Percent Minimum Significant Difference (PMSD) range of 13 - 47 for Ceriodaphnia dubia reproduction;

viii. A PMSD range of 12 - 30 for Fathead minnow growth.

Test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.

b. Statistical Interpretation

i. For the Ceriodaphnia dubia survival test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be Fisher's Exact Test as described in EPA 821 R 02 013 or the most recent update thereof.

ii. For the Ceriodaphnia dubia reproduction test and the Fathead minnow larval survival and growth test, the statistical analyses used to determine if there is a significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in EPA 821 R 02 013, or the most recent update thereof.

iii. If the conditions of Test Acceptability are met in Item 2.a above and the percent survival of the test organism is equal to or greater than 80% in the critical dilution concentration and all lower dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report a survival NOEC of not less than the critical dilution for the DMR reporting requirements found in Item 3 below.

c. Dilution Water

i. Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness, and alkalinity to the closest downstream perennial water where the receiving stream is classified as intermittent or where the receiving stream has no flow due to zero flow conditions.

ii. If the receiving water is unsatisfactory as a result of instream toxicity (fails to fulfill the test acceptance criteria of Item 2.a), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:

(A) a synthetic dilution water control which fulfills the test acceptance requirements of Item 2.a was run concurrently with the receiving water control;

(B) the test indicating receiving water toxicity has been carried out to completion (i.e., 7 days);

(C) the permittee includes all test results indicating receiving water toxicity with the full report and information required by Item 3.a below; and

(D) the synthetic dilution water shall have a pH, hardness, and alkalinity similar to that of the receiving water or closest downstream perennial water not adversely affected by the discharge, provided the magnitude of these parameters will not cause toxicity in the synthetic dilution water.

d. Samples and Composites

i. The permittee shall collect a minimum of three flow weighted composite samples from the outfall(s) listed at Item 1.a above.

ii. The permittee shall collect second and third composite samples for use during 24 hour renewals of each dilution concentration for each test. The permittee must collect the composite samples such that the effluent samples are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on an intermittent basis.

iii. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 72 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to 6 degrees Centigrade during collection, shipping, and/or storage.

iv. If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions and the sample holding time are waived during that sampling period. However, the permittee must collect an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple days. The effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Item 3 of this section.

v. MULTIPLE OUTFALLS: If the provisions of this section are applicable to multiple outfalls, the permittee shall combine the composite effluent samples in proportion to the average flow from the outfalls listed in Item 1.a above for the day the sample was collected. The permittee shall perform the toxicity test on the flow weighted composite of the outfall samples.

3. REPORTING

a. The permittee shall prepare a full report of the results of all tests conducted pursuant to this section in accordance with the Report Preparation Section of EPA 821 R 02 013, or the most current publication, for every valid or invalid toxicity test initiated whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART III.C.3 of this permit. The permittee shall submit full reports upon the specific request of the Agency. For any test which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for agency review.

b. The permittee shall report the Whole Effluent Toxicity values for the 30 Day Average Minimum and the 7 Day Minimum under Parameter No. 22414 on the DMR for that reporting period in accordance with PART III.D.4 of this permit.

If more than one valid test for a species was performed during the reporting period, the test NOECs will be averaged arithmetically and reported as the DAILY AVERAGE MINIMUM NOEC for that reporting period.

If more than one species is tested during the reporting period, the permittee shall report the lowest 30 Day Average Minimum NOEC and the lowest 7 Day Minimum NOEC for Whole Effluent Toxicity.

A valid test for each species must be reported on the DMR during each reporting period specified in PART I of this permit. Only ONE set of biomonitoring data for each species is to be recorded on the DMR for each reporting period. The data submitted should reflect the LOWEST lethal and sub-lethal effects results for each species during the reporting period. All invalid tests, repeat tests (for invalid tests), and retests (for tests previously failed) performed during the reporting period must be attached to the DMR for EPA review.

c. The permittee shall submit the results of the valid toxicity test on the DMR for that reporting period in accordance with PART III.D.4 of this permit, as follows below. Submit retest information clearly marked as such with the following month's DMR. Only results of valid tests are to be reported on the DMR.

i. Pimephales promelas (Fathead Minnow)

A. If the No Observed Effect Concentration (NOEC) for lethal effects is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP6C

B. Report the NOEC value for survival, Parameter No. TOP6C

C. Report the Lowest Observed Effect Concentration (LOEC) value for survival, Parameter No. TXP6C

D. Report the NOEC value for growth, Parameter No. TPP6C

E. Report the LOEC value for growth, Parameter No. TYP6C

F. If the No Observed Effect Concentration (NOEC) for growth is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP6C

G. Report the highest (critical dilution or control) Coefficient of Variation, Parameter No. TQP6C

ii. Ceriodaphnia dubia

A. If the NOEC for lethal effects is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TLP3B

B. Report the NOEC value for survival, Parameter No. TOP3B

C. Report the LOEC value for survival, Parameter No. TXP3B

D. Report the NOEC value for reproduction, Parameter No. TPP3B

E. Report the LOEC value for reproduction, Parameter No. TYP3B

F. If the No Observed Effect Concentration (NOEC) for reproduction is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TGP3B

G. Report the higher (critical dilution or control) Coefficient of Variation, Parameter No. TQP3B

4. MONITORING FREQUENCY REDUCTION

a. The permittee may apply for a testing frequency reduction upon the successful completion of the <u>first eight consecutive quarters</u> of testing for one or both test species, with no significant lethal or sublethal effects demonstrated at or below the critical dilution. If granted, the monitoring frequency for that test species may be reduced to not less than once per year for the less sensitive species (usually the Fathead minnow) and not less than twice per year for the more sensitive test species (usually the Ceriodaphnia dubia).

b. CERTIFICATION - The permittee must certify in writing that no test failures

have occurred over the past five years (at least 20 quarterly tests must be performed) and that all tests meet all test acceptability criteria in item 3.a. above. In addition the permittee must provide a list with each test performed including test initiation date, species, NOECs for lethal/sublethal effects and the maximum coefficient of variation for the controls. Upon review and acceptance of this information the agency will issue a letter of confirmation of the monitoring frequency reduction. A copy of the letter will be forwarded to the agency's Permit Compliance System section to update the permit reporting requirements.

c. FAILURES - If any test fails the lethal/sublethal endpoint at any time during the life of this permit, three monthly retests are required and the monitoring frequency for the affected test species shall be increased to once per quarter until the permit is re-issued. Monthly retesting is not required if the permittee is performing a TRE.

d. This monitoring frequency reduction applies only until the expiration date of this permit, at which time the monitoring frequency for both test species reverts to once per quarter until the permit is re-issued.

E. CONTRIBUTING INDUSTRIES AND PRETREATMENT REQUIREMENTS

1. The permittee shall operate an industrial pretreatment program in accordance with Section 402(b)(8) of the Clean Water Act, the General Pretreatment Regulations (40 CFR Part 403)and the approved POTW pretreatment program submitted by the permittee. The pretreatment program was approved on 5/22/2007. The Sewer Use Ordinance and the Pretreatment Program have not been modified to come into compliance with the current 40 CFR 403 regulations. The permittee shall submit all necessary proposed modifications to the EPA within 6 months of the effective date of this permit. The POTW pretreatment program is hereby incorporated by reference and shall be implemented in a manner consistent with the following requirements:

   (a) Industrial user information shall be updated at a frequency adequate to ensure that all IU's are properly characterized at all times;

   (b) The frequency and nature of industrial user compliance monitoring activities by the permittee shall be commensurate with the character, consistency and volume of waste. The permittee must inspect and sample the effluent from each Significant Industrial User in accordance with 40 CFR 403.8(f)(2)(v). This is in addition to any industrial self-monitoring activities;

   (c) The permittee shall enforce and obtain remedies for noncompliance by any industrial users with applicable pretreatment standards and requirements;

   (d) The permittee shall control through permit, order, or similar means, the contribution to

the POTW by each Industrial User to ensure compliance with applicable Pretreatment Standards and Requirements. In the case of Industrial Users identified as significant under 40 CFR 403.3(v), this control shall be achieved through individual or general control mechanisms, in accordance with 40 CFR 403.8(f)(1)(iii). Both individual and general control mechanisms must be enforceable and contain, at a minimum, the following conditions:

(i) Statement of duration (in no case more than five years);

(ii) Statement of non-transferability without, at a minimum, prior notification to the POTW and provision of a copy of the existing control mechanism to the new owner or operator;

(iii) Effluent limits, including Best Management Practices, based on applicable general Pretreatment Standards, categorical Pretreatment Standards, local limits, and State and local law;

(iv) Self-monitoring, sampling, reporting, notification and recordkeeping requirements, including an identification of the pollutants to be monitored (including the process for seeking a waiver for a pollutant neither present nor expected to be present in the Discharge on accordance with § 403.12(e)(2), or a specific waiver for a pollutant in the case of an individual control mechanism), sampling location, sampling frequency, and sample type, based on the applicable general Pretreatment Standards in 40 CFR 403, categorical Pretreatment Standards, local limits, and State and local law;

(v) Statement of applicable civil and criminal penalties for violation of Pretreatment Standards and requirements, and any applicable compliance schedule. Such schedules may not extend the compliance date beyond federal deadlines; and

(vi) Requirements to control slug discharges, if determined by the POTW to be necessary.

(e) The permittee shall evaluate, whether each Significant Industrial User needs a plan or other action to control slug discharges, in accordance with 40 CFR 403.8(f)(2)(vi);

(f) The permittee shall provide adequate staff, equipment, and support capabilities to carry out all elements of the pretreatment program; and,

(g) The approved program shall not be modified by the permittee without the prior approval of the Agency.

2. The permittee shall establish and enforce specific limits to implement the provisions of 40 CFR Parts 403.5(a) and (b), as required by 40 CFR Part 403.5(c). POTWs may develop

Best Management Practices (BMPs) to implement paragraphs 40 CFR 403.5 (c)(1) and (c)(2). Such BMPs shall be considered local limits and Pretreatment Standards. Each POTW with an approved pretreatment program shall continue to develop these limits as necessary and effectively enforce such limits.

In accordance with EPA policy and with the requirements of 40 CFR Part 403.8(f)(4) and 40 CFR Part 403.5(c), the permittee shall conduct a headworks analysis to determine if technically based local limits are necessary to implement the general and specific prohibitions of 40 CFR Parts 403.5(a) and (b). This evaluation should be conducted in accordance with EPA's "Local Limits Development Guidance", July 2004. Local limits must be revised and submitted to the Agency in approvable form based upon the findings of the technical evaluation within 6 months of the effective date of this permit. At the same time, a draft Sewer Use Ordinance including the proposed, modified local limits and any necessary modifications to bring the ordinance into compliance with current General Pretreatment Regulations (40 CFR 403) must be submitted. Additional modifications to the Pretreatment Program, including an Enforcement Response Plan, must also be submitted at this time.

All specific prohibitions or limits developed under this requirement are deemed to be conditions of this permit. The specific prohibitions set out in 40 CFR Part 403.5(b) shall be enforced by the permittee unless modified under this provision.

3. The permittee shall analyze the treatment facility influent and effluent for the presence of the toxic pollutants listed in 40 CFR 122 Appendix D (NPDES Application Testing Requirements) Table II at least **once/12 months** and the toxic pollutants in Table III at least **once/3 months**. If, based upon information available to the permittee, there is reason to suspect the presence of any toxic or hazardous pollutant listed in Table V, or any other pollutant, known or suspected to adversely affect treatment plant operation, receiving water quality, or solids disposal procedures, analysis for those pollutants shall be performed at least **once/3 months** on both the influent and the effluent.

   The influent and effluent samples collected shall be composite samples consisting of at least 12 aliquots collected at approximately equal intervals over a representative 24 hour period and composited according to flow. **Sampling and analytical procedures shall be in accordance with guidelines established in 40 CFR 136**. **The effluent samples shall be analyzed to a level at least as low as required in (6) below.** Where composite samples are inappropriate, due to sampling, holding time, or analytical constraints, at least 4 grab samples, taken at equal intervals over a representative 24 hour period, shall be taken.

4. The permittee shall prepare annually a list of Industrial Users which during the preceding twelve months were in significant noncompliance with applicable pretreatment requirements. For the purposes of this Part, significant noncompliance shall be determined based upon the more stringent of either criteria established at 40 CFR Part 403.8(f)(2)(viii)

[rev. 10/14/05] or criteria established in the approved POTW pretreatment program. This list is to be published annually in a newspaper of general circulation that provides meaningful public notice within the jurisdiction(s) served by the POTW during the month of **June**.

In addition, during the month of **June** the permittee shall submit an updated pretreatment program status report to EPA and the State containing the following information:

(a) An updated list of all significant industrial users and identify which Industrial Users are Non-Significant Categorical Industrial Users (NSCIUs) or Middle Tier CIUs. The list must also identify:

- Industrial Users subject to categorical Pretreatment Standards that are subject to reduced monitoring and reporting requirements under 40 CFR 403.12(e)(2) & (3),

- Industrial Users subject to the following categorical Pretreatment Standards [Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) (40 CFR part 414), Petroleum Refining (40 CFR part 419), and Pesticide Chemicals (40 CFR part 455)] and for which the Control Authority has chosen to use the concentration-based standards rather than converting them to flow-based mass standards as allowed at 40 CFR 403.6(c)(6).

- Categorical Industrial Users subject to concentration-based standards for which the Control Authority has chosen to convert the concentration-based standards to equivalent mass limits, as allowed at 40 CFR 403.6(c)(5).

- General Control Mechanisms used for similar groups of SIUs along with the substantially similar types of operations and the types of wastes that are the same, for each separate General Control Mechanism, as allowed at 40 CFR 403.8(f)(1)(iii).

- Best Management Practices or Pollution Prevention alternatives required by a categorical Pretreatment Standard or as a local limit requirement that are implemented and documentation to demonstrate compliance, as required at 40 CFR 403.12 (b), (e) and (h).

<u>For each industrial user listed the following information shall be included:</u>

(i) Standard Industrial Classification (SIC) or NAISC code and categorical determination;

(ii) Control document status. Whether the user has an effective control document, and the date such document was last issued, reissued, or modified, (indicate which industrial users were added to the system (or newly identified) within the previous

12 months);

(iii) A summary of all monitoring activities performed within the previous 12 months. The following information shall be reported:

* total number of inspections performed;
* total number of sampling visits made;

(iv) Status of compliance with both effluent limitations and reporting requirements. Compliance status shall be defined as follows:

* Compliant (C) - no violations during the previous 12 month period;
* Non-compliant (NC) - one or more violations during the previous 12 months but does not meet the criteria for significantly noncompliant industrial users;
* Significant Noncompliance (SN) - in accordance with requirements described in 4. above; and

(v) For significantly noncompliant industrial users, indicate the nature of the violations, the type and number of actions taken (notice of violation, administrative order, criminal or civil suit, fines or penalties collected, etc.) and current compliance status. If **ANY** industrial user was on a schedule to attain compliance with effluent limits, indicate the date the schedule was issued and the date compliance is to be attained;

(b) A list of all significant industrial users whose authorization to discharge was terminated or revoked during the preceding **12 month** period and the reason for termination;

(c) A report on any interference, pass through, upset or POTW permit violations known or suspected to be caused by industrial contributors and actions taken by the permittee in response;

(d) The results of all influent and effluent analyses performed pursuant to Part II (A)(3) above;

(e) A copy of the newspaper publication of the significantly noncompliant industrial users giving the name of the newspaper and the date published;

(f) The information requested may be submitted in tabular form as per the example tables provided for your convenience; and

(g) The monthly average water quality based effluent concentration necessary to meet the state water quality standards as developed in the approved technically based local limits.

(5) The permittee shall provide adequate notice of the following:

(a) Any new introduction of pollutants into the treatment works from an indirect discharger which would be subject to Sections 301 and 306 of the Act if it were directly discharging those pollutants; and

(b) Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of the permit.

Adequate notice shall include information on (i) the quality and quantity of effluent to be introduced into the treatment works, and (ii) any anticipated impact of the change on the quality or quantity of effluent to be discharged from the POTW.

(6) **All effluent monitoring conducted in accordance with Part (II) (A) (3) above shall meet the Minimum Quantification Levels (MQLs) shown in Appendix A of Part II attached**.

MONITORING RESULTS[1] FOR THE ANNUAL PRETREATMENT REPORT, REPORTING YEAR: _____, 200__ TO _____, 200__
TREATMENT PLANT : _____ NPDES PERMIT NO.

POLLUTANT	MAHL, if applicable, in µg/L[2]	Influent Values (in µg/L) on Dates Sampled				Daily Average Effluent Limit in µg/L[3]	Effluent Values (in µg/L)on Dates Sampled			
Antimony (Total)										
Arsenic (Total)										
Beryllium (Total)										
Cadmium (Total)										
Chromium (Total)										
Copper (Total)										
Lead (Total)										
Mercury (Total)										
Molybdenum (Total)										
Nickel (Total)										
Selenium (Total)										
Silver (Total)										
Thallium (Total)										
Zinc (Total										
Cyanide (Total)										
4										

1 It is advised that the influent and effluent samples are collected considering flow detention time through each plant. Analytical MQLs should be used so that the data can also be used for Local Limits assessment and NPDES application purposes.
2 Maximum Allowable Headworks Loading limitation in µg/L. Only complete for pollutants that have approved Technically Based Local Limits.
3 Daily average effluent limit in the NPDES permit OR the applicable state Water Quality Standard calculated to an equivalent permit effluent limit.
4 Record the names of any pollutants [40 CFR 122, Appendix D, Table II and/or Table V] detected and the quantity in which they were detected.

PRETREATMENT PROGRAM STATUS REPORT
UPDATED SIGNIFICANT INDUSTRIAL USERS LIST

INDUSTRIAL USER	SIC CODE	CATE-GORICAL DETER-MINATION	CONTROL DOCUMENT		NEW USER	TIMES INSPECTED	TIMES SAMPLED	COMPLIANCE STATUS				
								REPORTS				EFFLUENT LIMITS
			Y/N	LAST ACTION				BMR	90-DAY COMPLIANCE	SEMI-ANNUAL	SELF MONITORING	

SIGNIFICANTLY NONCOMPLIANT USERS - ENFORCEMENT ACTIONS TAKEN

INDUSTRIAL USER	NATURE OF VIOLATION		NUMBER OF ACTIONS TAKEN					PENALTIES COLLECTED	COMPLIANCE SCHEDULE		CURRENT STATUS	COMMENTS
	REPORTS	LIMITS	NOV	A.O.	CIVIL	CRIMINAL	OTHER		DATE ISSUED	DATE DUE		

APPENDIX A of PART II

The following Minimum Quantification Levels (MQL's) are to be used for reporting pollutant data for NPDES permit applications and/or compliance reporting.

POLLUTANTS	MQL µg/l	POLLUTANTS	MQL µg/l
METALS, RADIOACTIVITY, CYANIDE and CHLORINE			
Aluminum	2.5	Molybdenum	10
Antimony	60	Nickel	0.5
Arsenic	0.5	Selenium	5
Barium	100	Silver	0.5
Beryllium	0.5	Thalllium	0.5
Boron	100	Uranium	0.1
Cadmium	1	Vanadium	50
Chromium	10	Zinc	20
Cobalt	50	Cyanide	10
Copper	0.5	Cyanide, weak acid dissociable	10
Lead	0.5	Total Residual Chlorine	33
Mercury *1	0.0005		
	0.005		
DIOXIN			
2,3,7,8-TCDD	0.00001		
VOLATILE COMPOUNDS			
Acrolein	50	1,3-Dichloropropylene	10
Acrylonitrile	20	Ethylbenzene	10
Benzene	10	Methyl Bromide	50
Bromoform	10	Methylene Chloride	20
Carbon Tetrachloride	2	1,1,2,2-Tetrachloroethane	10
Chlorobenzene	10	Tetrachloroethylene	10
Clorodibromomethane	10	Toluene	10
Chloroform	50	1,2-trans-Dichloroethylene	10
Dichlorobromomethane	10	1,1,2-Trichloroethane	10
1,2-Dichloroethane	10	Trichloroethylene	10
1,1-Dichloroethylene	10	Vinyl Chloride	10
1,2-Dichloropropane	10		
ACID COMPOUNDS			
2-Chlorophenol	10	2,4-Dinitrophenol	50
2,4-Dichlorophenol	10	Pentachlorophenol	5
2,4-Dimethylphenol	10	Phenol	10
4,6-Dinitro-o-Cresol	50	2,4,6-Trichlorophenol	10

POLLUTANTS	MQL µg/l	POLLUTANTS	MQL µg/l
BASE/NEUTRAL			
Acenaphthene	10	Dimethyl Phthalate	10
Anthracene	10	Di-n-Butyl Phthalate	10
Benzidine	50	2,4-Dinitrotoluene	10
Benzo(a)anthracene	5	1,2-Diphenylhydrazine	20
Benzo(a)pyrene	5	Fluoranthene	10
3,4-Benzofluoranthene	10	Fluorene	10
Benzo(k)fluoranthene	5	Hexachlorobenzene	5
Bis(2-chloroethyl)Ether	10	Hexachlorobutadiene	10
Bis(2-chloroisopropyl)Ether	10	Hexachlorocyclopentadiene	10
Bis(2-ethylhexyl)Phthalate	10	Hexachloroethane	20
Butyl Benzyl Phthalate	10	Indeno(1,2,3-cd)Pyrene	5
2-Chloronapthalene	10	Isophorone	10
Chrysene	5	Nitrobenzene	10
Dibenzo(a,h)anthracene	5	n-Nitrosodimethylamine	50
1,2-Dichlorobenzene	10	n-Nitrosodi-n-Propylamine	20
1,3-Dichlorobenzene	10	n-Nitrosodiphenylamine	20
1,4-Dichlorobenzene	10	Pyrene	10
3,3'-Dichlorobenzidine	5	1,2,4-Trichlorobenzene	10
Diethyl Phthalate	10		
PESTICIDES AND PCBS			
Aldrin	0.01	Beta-Endosulfan	0.02
Alpha-BHC	0.05	Endosulfan sulfate	0.02
Beta-BHC	0.05	Endrin	0.02
Gamma-BHC	0.05	Endrin Aldehyde	0.1
Chlordane	0.2	Heptachlor	0.01
4,4'-DDT and derivatives	0.02	Heptachlor Epoxide	0.01
Dieldrin	0.02	PCBs	0.2 *2
Alpha-Endosulfan	0.01	Toxaphene	0.3

(MQL's Revised November 1, 2007)

Footnotes:

*1 Default MQL for Mercury is 0.005 unless Part I of your permit requires the more sensitive Method 1631 (Oxidation / Purge and Trap / Cold vapor Atomic Fluorescence Spectrometry), then the MQL shall be 0.0005.

*2 See Section A, Part II of the Permit for changes to PCB analytical MQLs.

PART III - STANDARD CONDITIONS FOR NPDES PERMITS

A. GENERAL CONDITIONS

1. INTRODUCTION
In accordance with the provisions of 40 CFR Part 122.41, et. seq., this permit incorporates by reference ALL conditions and requirements applicable to NPDES Permits set forth in the Clean Water Act, as amended, (hereinafter known as the "Act") as well as ALL applicable regulations.

2. DUTY TO COMPLY
The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

3. TOXIC POLLUTANTS

   a. Notwithstanding Part III.A.5, if any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the Act for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition.

   b. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that established those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

4. DUTY TO REAPPLY
If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit. The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date. Continuation of expiring permits shall be governed by regulations promulgated at 40 CFR Part 122.6 and any subsequent amendments.

5. PERMIT FLEXIBILITY
This permit may be modified, revoked and reissued, or terminated for cause in accordance with 40 CFR 122.62-64. The filing of a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

6. PROPERTY RIGHTS
This permit does not convey any property rights of any sort, or any exclusive privilege.

7. DUTY TO PROVIDE INFORMATION
The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, 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.

8. CRIMINAL AND CIVIL LIABILITY
Except as provided in permit conditions on "Bypassing" and "Upsets", nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Any false or materially misleading representation or concealment of information required to be reported by the provisions of the permit, the Act, or applicable regulations, which avoids or effectively defeats the regulatory purpose of the Permit may subject the Permittee to criminal enforcement pursuant to 18 U.S.C. Section 1001.

9. OIL AND HAZARDOUS SUBSTANCE LIABILITY
Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

10. STATE LAWS
Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Act.

11. SEVERABILITY
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.

B. PROPER OPERATION AND MAINTENANCE

1. NEED TO HALT OR REDUCE NOT A DEFENSE
It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. The permittee is responsible for maintaining adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failure either by means of alternate power sources, standby generators or retention of inadequately treated effluent.

2. DUTY TO MITIGATE
The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

3. PROPER OPERATION AND MAINTENANCE

a. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by permittee as efficiently as possible and in a manner which will minimize upsets and discharges of excessive pollutants and will achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

b. The permittee shall provide an adequate operating staff which is duly qualified to carry out operation, maintenance and testing functions required to insure compliance with the conditions of this permit.

4. BYPASS OF TREATMENT FACILITIES

a. BYPASS NOT EXCEEDING LIMITATIONS
The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts III.B.4.b. and 4.c.

b. NOTICE

(1)ANTICIPATED BYPASS
If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

(2)UNANTICIPATED BYPASS
The permittee shall, within 24 hours, submit notice of an unanticipated bypass as required in Part III.D.7.

c. PROHIBITION OF BYPASS

(1) Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:

(a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and,

(c) The permittee submitted notices as required by Part III.B.4.b.

(2) The Director may allow an anticipated bypass after considering its adverse effects, if the Director determines that it will meet the three conditions listed at Part III.B.4.c(1).

5. UPSET CONDITIONS

   a. EFFECT OF AN UPSET
   An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Part III.B.5.b. are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

   b. CONDITIONS NECESSARY FOR A DEMONSTRATION OF UPSET
   A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   (1) An upset occurred and that the permittee can identify the cause(s) of the upset;

   (2) The permitted facility was at the time being properly operated;

   (3) The permittee submitted notice of the upset as required by Part III.D.7; and,

   (4) The permittee complied with any remedial measures required by Part III.B.2.

   c. BURDEN OF PROOF
   In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

6. REMOVED SUBSTANCES
   Unless otherwise authorized, solids, sewage sludges, filter backwash, or other pollutants removed in the course of treatment or wastewater control shall be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters.

7. PERCENT REMOVAL (PUBLICLY OWNED TREATMENT WORKS)
   For publicly owned treatment works, the 30-day average (or Monthly Average) percent removal for Biochemical Oxygen Demand and Total Suspended Solids shall not be less than 85 percent unless otherwise authorized by the permitting authority in accordance with 40 CFR 133.103.

C. MONITORING AND RECORDS

1. INSPECTION AND ENTRY
   The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by the law to:

   a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

   c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and

   d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

2. REPRESENTATIVE SAMPLING
   Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. RETENTION OF RECORDS
   The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the Director at any time.

4. RECORD CONTENTS
   Records of monitoring information shall include:

   a. The date, exact place, and time of sampling or measurements;

b. The individual(s) who performed the sampling or measurements;

c. The date(s) and time(s) analyses were performed;

d. The individual(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of such analyses.

5. MONITORING PROCEDURES

a. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit or approved by the Regional Administrator.

b. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instruments at intervals frequent enough to insure accuracy of measurements and shall maintain appropriate records of such activities.

c. An adequate analytical quality control program, including the analyses of sufficient standards, spikes, and duplicate samples to insure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory.

6. FLOW MEASUREMENTS
Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than 10% from true discharge rates throughout the range of expected discharge volumes.

D. REPORTING REQUIREMENTS

1. PLANNED CHANGES

a. INDUSTRIAL PERMITS
The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR Part 122.29(b); or,

(2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements listed at Part III.D.10.a.

b. MUNICIPAL PERMITS
Any change in the facility discharge (including the introduction of any new source or significant discharge or significant changes in the quantity or quality of existing discharges of pollutants) must be reported to the permitting authority. In no case are any new connections, increased flows, or significant changes in influent quality permitted that will cause violation of the effluent limitations specified herein.

2. ANTICIPATED NONCOMPLIANCE
The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. TRANSFERS
This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act.

4. DISCHARGE MONITORING REPORTS AND OTHER REPORTS
Monitoring results must be reported to EPA on either the electronic or paper Discharge Monitoring Report (DMR) approved formats. Monitoring results can be submitted electronically in lieu of the paper DMR Form. To submit electronically, access the NetDMR website at www.epa.gov/netdmr and contact the R6NetDMR.epa.gov in-box for further instructions. Until you

are approved for Net DMR, you must report on the Discharge Monitoring Report (DMR) Form EPA. No. 3320-1 in accordance with the "General Instructions" provided on the form. No additional copies are needed if reporting electronically, however when submitting paper form EPA No. 3320-1, the permittee shall submit the original DMR signed and certified as required by Part III.D.11 and all other reports required by Part III.D. to the EPA at the address below. Duplicate copies of paper DMR's and all other reports shall be submitted to the appropriate State agency (ies) at the following address (es):

EPA:
Compliance Assurance and Enforcement Division
Water Enforcement Branch (6EN-W)
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue
Dallas, TX 75202-2733

New Mexico:
Program Manager
Surface Water Quality Bureau
New Mexico Environment Department
P.O. Box 5469
1190 Saint Francis Drive
Santa Fe, NM 87502-5469

5. ADDITIONAL MONITORING BY THE PERMITTEE
If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report (DMR). Such increased monitoring frequency shall also be indicated on the DMR.

6. AVERAGING OF MEASUREMENTS
Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

7. TWENTY-FOUR HOUR REPORTING

a. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall be provided within 5 days of the time the permittee becomes aware of the circumstances. The report shall contain the following information:

(1) A description of the noncompliance and its cause;

(2) The period of noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and,

(3) Steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.

b. The following shall be included as information which must be reported within 24 hours:

(1) Any unanticipated bypass which exceeds any effluent limitation in the permit;

(2) Any upset which exceeds any effluent limitation in the permit; and,

(3) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in Part II (industrial permits only) of the permit to be reported within 24 hours.

c. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

8. OTHER NONCOMPLIANCE
The permittee shall report all instances of noncompliance not reported under Parts III.D.4 and D.7 and Part I.B (for industrial permits only) at the time monitoring reports are submitted. The reports shall contain the information listed at Part III.D.7.

9. OTHER INFORMATION
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, it shall promptly submit such facts or information.

10. CHANGES IN DISCHARGES OF TOXIC SUBSTANCES
All existing manufacturing, commercial, mining, and silvacultural permittees shall notify the Director as soon as it knows or has reason to believe:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant listed at 40 CFR Part 122, Appendix D, Tables II and III (excluding Total Phenols) which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(1) One hundred micrograms per liter (100 µg/L);
(2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2, 4-dinitro-phenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;

(3) Five (5) times the maximum concentration value reported for that pollutant in the permit application; or

(4) The level established by the Director.

b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(1) Five hundred micrograms per liter (500 µg/L);

(2) One milligram per liter (1 mg/L) for antimony;

(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application; or

(4) The level established by the Director.

11. SIGNATORY REQUIREMENTS
All applications, reports, or information submitted to the Director shall be signed and certified.

a. ALL PERMIT APPLICATIONS shall be signed as follows:

(1) FOR A CORPORATION - by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(a)A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation; or,

(b)The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(2) FOR A PARTNERSHIP OR SOLE PROPRIETORSHIP - by a general partner or the proprietor, respectively.

(3) FOR A MUNICIPALITY, STATE, FEDERAL, OR OTHER PUBLIC AGENCY - by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(a)The chief executive officer of the agency, or

(b)A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

b. ALL REPORTS required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described above;

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility, or an individual or position having overall responsibility for environmental

matters for the company. A duly authorized representative may thus be either a named individual or an individual occupying a named position; and,

(3) The written authorization is submitted to the Director.

c. CERTIFICATION
Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

12. AVAILABILITY OF REPORTS
Except for applications, effluent data permits, and other data specified in 40 CFR 122.7, any information submitted pursuant to this permit may be claimed as confidential by the submitter. If no claim is made at the time of submission, information may be made available to the public without further notice.

E. PENALTIES FOR VIOLATIONS OF PERMIT CONDITIONS

1. CRIMINAL

a. NEGLIGENT VIOLATIONS
The Act provides that any person who negligently violates permit conditions implementing Section 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 year, or both.

b. KNOWING VIOLATIONS
The Act provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

c. KNOWING ENDANGERMENT
The Act provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 303, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than $250,000, or by imprisonment for not more than 15 years, or both.

d. FALSE STATEMENTS
The Act provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or by both. (See Section 309.c.4 of the Clean Water Act)

2. CIVIL PENALTIES
The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed $27,500 per day for each violation.

3. ADMINISTRATIVE PENALTIES
The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty, as follows:

a. CLASS I PENALTY
Not to exceed $11,000 per violation nor shall the maximum amount exceed $27,500.

b. CLASS II PENALTY
Not to exceed $11,000 per day for each day during which the violation continues nor shall the maximum amount exceed $137,500.

F. DEFINITIONS

All definitions contained in Section 502 of the Act shall apply to this permit and are incorporated herein by reference. Unless otherwise specified in this permit, additional definitions of words or phrases used in this permit are as follows:

1. ACT means the Clean Water Act (33 U.S.C. 1251 et. seq.), as amended.

2. ADMINISTRATOR means the Administrator of the U.S. Environmental Protection Agency.

3. APPLICABLE EFFLUENT STANDARDS AND LIMITATIONS means all state and Federal effluent standards and limitations to which a discharge is subject under the Act, including, but not limited to, effluent limitations, standards or performance, toxic effluent standards and prohibitions, and pretreatment standards.

4. APPLICABLE WATER QUALITY STANDARDS means all water quality standards to which a discharge is subject under the Act.

5. BYPASS means the intentional diversion of waste streams from any portion of a treatment facility.

6. DAILY DISCHARGE means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in terms of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the sampling day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the sampling day. "Daily discharge" determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the "daily discharge" determination of concentration shall be arithmetic average (weighted by flow value) of all samples collected during that sampling day.

7. DAILY MAXIMUM discharge limitation means the highest allowable "daily discharge" during the calendar month.

8. DIRECTOR means the U.S. Environmental Protection Agency Regional Administrator or an authorized representative.

9. ENVIRONMENTAL PROTECTION AGENCY means the U.S. Environmental Protection Agency.

10. GRAB SAMPLE means an individual sample collected in less than 15 minutes.

11. INDUSTRIAL USER means a non-domestic discharger, as identified in 40 CFR 403, introducing pollutants to a publicly owned treatment works.

12. MONTHLY AVERAGE (also known as DAILY AVERAGE) discharge limitations means the highest allowable average of "daily discharge(s)" over a calendar month, calculated as the sum of all "daily discharge(s)" measured during a calendar month divided by the number of "daily discharge(s)" measured during that month. When the permit establishes daily average concentration effluent limitations or conditions, the daily average concentration means the arithmetic average (weighted by flow) of all "daily discharge(s)" of concentration determined during the calendar month where C = daily concentration, F = daily flow, and n = number of daily samples; daily average discharge =

$$\frac{C_1F_1 + C_2F_2 + ... + C_nF_n}{F_1 + F_2 + ... + F_n}$$

13. NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the Act.

14. SEVERE PROPERTY DAMAGE means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

15. SEWAGE SLUDGE means the solids, residues, and precipitates separated from or created in sewage by the unit processes of a publicly owned treatment works. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and storm water runoff that are discharged to or otherwise enter a publicly owned treatment works.

16. TREATMENT WORKS means any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage and industrial wastes of a liquid nature to implement Section 201 of the Act, or necessary to recycle or reuse water at

the most economical cost over the estimated life of the works, including intercepting sewers, sewage collection systems, pumping, power and other equipment, and their appurtenances, extension, improvement, remodeling, additions, and alterations thereof.

17. UPSET means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

18. FOR FECAL COLIFORM BACTERIA, a sample consists of one effluent grab portion collected during a 24-hour period at peak loads.

19. The term "MGD" shall mean million gallons per day.

20. The term "mg/L" shall mean milligrams per liter or parts per million (ppm).

21. The term "µg/L" shall mean micrograms per liter or parts per billion (ppb).

22. MUNICIPAL TERMS

    a. 7-DAY AVERAGE or WEEKLY AVERAGE, other than for fecal coliform bacteria, is the arithmetic mean of the daily values for all effluent samples collected during a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The 7-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar week.

    b. 30-DAY AVERAGE or MONTHLY AVERAGE, other than for fecal coliform bacteria, is the arithmetic mean of the daily values for all effluent samples collected during a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. The 30-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar month.

    c. 24-HOUR COMPOSITE SAMPLE consists of a minimum of 12 effluent portions collected at equal time intervals over the 24-hour period and combined proportional to flow or a sample collected at frequent intervals proportional to flow over the 24-hour period.

    d. 12-HOUR COMPOSITE SAMPLE consists of 12 effluent portions collected no closer together than one hour and composited according to flow. The daily sampling intervals shall include the highest flow periods.

    e. 6-HOUR COMPOSITE SAMPLE consists of six effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.

    f. 3-HOUR COMPOSITE SAMPLE consists of three effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.

MAJOR - SEWAGE SLUDGE REQUIREMENTS

INSTRUCTIONS TO PERMITTEES

Select only those Elements and Sections which apply to your sludge reuse or disposal practice.

If your facility utilizes more than one type of disposal or reuse method (for example, Element I and Element II apply) or the quality of your sludge varies (for example, Section II and Section III of Element I apply) use a separate Discharge Monitoring Report (DMR) for each Section that is applicable.

The sludge DMRs shall be due by February 19th of each year and shall cover the previous January through December time period. (The sludge DMRs for permits in Texas shall be due by September 1 of each year, with the reporting period of August 1 to July 31)

The sludge conditions do not apply to wastewater treatment lagoons where sludge is not wasted for final reuse/disposal. If the sludge is not removed, the permittee shall indicate on the DMR "No Discharge".

ELEMENT 1 - LAND APPLICATION

SECTION I: Page 2 - Requirements Applying to All Sewage Sludge Land Application

SECTION II: Page 6 - Requirements Specific to Bulk Sewage Sludge for Application to the Land Meeting Class A or B Pathogen Reduction and the Cumulative Loading Rates in Table 2, or Class B Pathogen Reduction and the Pollutant Concentrations in Table 3

SECTION III: Page 10 - Requirements Specific to Bulk Sewage Sludge Meeting Pollutant Concentrations in Table 3 and Class A Pathogen Reduction Requirements

SECTION IV: Page 11 - Requirements Specific to Sludge Sold or Given Away in a Bag or Other Container for Application to the Land that does not Meet the Pollutant Concentrations in Table 3

ELEMENT 2 - SURFACE DISPOSAL

SECTION I: Page 13 - Requirements Applying to All Sewage Sludge Surface Disposal

SECTION II: Page 18 - Requirements Specific to Surface Disposal Sites Without a Liner and Leachate Collection System

SECTION III: Page 20 - Requirements Specific to Surface Disposal Sites With a Liner and Leachate Collection System

ELEMENT 3 - MUNICIPAL SOLID WASTE LANDFILL DISPOSAL

SECTION I: Page 21 - Requirements Applying to All Municipal Solid Waste Landfill Disposal Activities

ELEMENT 1 - LAND APPLICATION

SECTION I. REQUIREMENTS APPLYING TO ALL SEWAGE SLUDGE LAND APPLICATION

A. General Requirements

1. The permittee shall handle and dispose of sewage sludge in accordance with Section 405 of the Clean Water Act and all other applicable Federal regulations to protect public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants which may be present in the sludge.

2. If requirements for sludge management practices or pollutant criteria become more stringent than the sludge pollutant limits or acceptable management practices in this permit, or control a pollutant not listed in this permit, this permit may be modified or revoked and reissued to conform to the requirements promulgated at Section 405(d)(2) of the Clean Water Act. If new limits for Molybdenum are promulgated prior to permit expiration, then those limits shall become directly enforceable.

3. In all cases, if the person (permit holder) who prepares the sewage sludge supplies the sewage sludge to another person for land application use or to the owner or lease holder of the land, the permit holder shall provide necessary information to the parties who receive the sludge to assure compliance with these regulations.

4. The permittee shall give prior notice to EPA (Chief, Permits Branch, Water Management Division, Mail Code 6W-P, EPA Region 6, 1445 Ross Avenue, Dallas, Texas 75202) of any planned changes in the sewage sludge disposal practice, in accordance with 40 CFR Part 122.41(l)(1)(iii). These changes may justify the application of permit conditions that are different from or absent in the existing permit. Change in the sludge use or disposal practice may be cause for modification of the permit in accordance with 40 CFR Part 122.62(a)(1).

B. Testing Requirements

1. Sewage sludge shall be tested once during the life of the permit within one year from the effective date of the permit in accordance with the method specified at 40 CFR 268, Appendix I (Toxicity Characteristic Leaching Procedure (TCLP)) or other approved methods. Sludge shall be tested after final treatment prior to leaving the POTW site. Sewage sludge determined to be a hazardous waste in accordance with 40 CFR Part 261, shall be handled according to RCRA standards for the disposal of hazardous waste in accordance with 40 CFR Part 262. The disposal of sewage sludge determined to be a hazardous waste, in other than a certified hazardous waste disposal facility shall be prohibited. The Information Management Section, telephone no. (214) 665-6750, and the appropriate state agency shall be notified of test failure within 24 hours. A written report shall be provided to this office within 7 days after failing the TCLP. The report will contain test results, certification that unauthorized disposal has not occurred and a summary of alternative disposal plans that comply with RCRA standards for the disposal of hazardous waste. The report shall be addressed to: Director, Multimedia Planning and Permitting Division, EPA Region 6, Mail Code 6PD, 1445 Ross Avenue, Dallas, Texas 75202. A copy of this report shall be sent to the Chief, Water Enforcement Branch, Compliance Assurance and Enforcement Division, Mail Code 6EN-W, at the same street address.

2. Sewage sludge shall not be applied to the land if the concentration of the pollutants exceed the pollutant concentration criteria in Table 1. The frequency of testing for pollutants in Table 1 is found in Element 1, Section I.C.

TABLE 1

Pollutant	Ceiling Concentration (milligrams per kilogram)*
Arsenic	75
Cadmium	85
Copper	4300
Lead	840
Mercury	57
Molybdenum	75

Nickel	420
PCBs	49
Selenium	100
Zinc	7500

* Dry weight basis

3. Pathogen Control

All sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site shall be treated by either the Class A or Class B pathogen requirements. Sewage sludge that is applied to a lawn or home garden shall be treated by the Class A pathogen requirements. Sewage sludge that is sold or given away in a bag shall be treated by Class A pathogen requirements.

a. Six alternatives are available to demonstrate compliance with Class A sewage sludge. All 6 options require either the density of fecal coliform in the sewage sludge be less than 1000 Most Probable Number (MPN) per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge be less than three MPN per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land. Below are the additional requirements necessary to meet the definition of a Class A sludge. Alternatives 5 and 6 are not authorized to demonstrate compliance with Class A sewage sludge in Texas permits.

Alternative 1 - The temperature of the sewage sludge that is used or disposed shall be maintained at a specific value for a period of time. See 503.32(a)(3)(ii) for specific information. This alternative is not applicable to composting.

Alternative 2 - The pH of the sewage sludge that is used or disposed shall be raised to above 12 and shall remain above 12 for 72 hours. The pH shall be defined as the logarithm of the reciprocal of the hydrogen ion concentration measured at 25°C or measured at another temperature and then converted to an equivalent value at 25°C.

The temperature of the sewage sludge shall be above 52 degrees Celsius for 12 hours or longer during the period that the pH of the sewage sludge is above 12.

At the end of the 72 hour period during which the pH of the sewage sludge is above 12, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50 percent.

Alternative 3 - The sewage sludge shall be analyzed for enteric viruses prior to pathogen treatment. The limit for enteric viruses is one Plaque-forming Unit per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 503.32(a)(5)(ii) for specific information. The sewage sludge shall be analyzed for viable helminth ova prior to pathogen treatment. The limit for viable helminth ova is less than one per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 503.32(a)(5)(iii) for specific information.

Alternative 4 - The density of enteric viruses in the sewage sludge shall be less than one Plaque-forming Unit per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed or at the time the sludge is prepared for sale or give away in a bag or other container for application to the land.

The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed or at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land.

Alternative 5 - Sewage sludge shall be treated by one of the Processes to Further Reduce Pathogens (PFRP) described in 503 Appendix B. PFRPs include composting, heat drying, heat treatment, and thermophilic aerobic digestion.

Alternative 6 - Sewage sludge shall be treated by a process that is equivalent to a Process to Further Reduce Pathogens, if individually approved by the Pathogen Equivalency Committee representing the EPA.

b. Three alternatives are available to demonstrate compliance with Class B sewage sludge. Alternatives 2 and 3 are not authorized to demonstrate compliance with Class B sewage sludge in Texas permits.

Alternative 1 - (i) Seven representative samples of the sewage sludge that is used shall be collected for one monitoring episode at the time the sewage sludge is used or disposed.

(ii) The geometric mean of the density of fecal coliform in the samples collected shall be less than either 2,000,000 MPN per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

Alternative 2 - Sewage sludge shall be treated in one of the Processes to significantly Reduce Pathogens described in 503 Appendix B.

Alternative 3 - Sewage sludge shall be treated in a process that is equivalent to a PSRP, if individually approved by the Pathogen Equivalency Committee representing the EPA.

In addition, the following site restrictions must be met if Class B sludge is land applied:

i. Food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of sewage sludge.

ii. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of sewage sludge when the sewage sludge remains on the land surface for 4 months or longer prior to incorporation into the soil.

iii. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than 4 months prior to incorporation into the soil.

iv. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of sewage sludge.

v. Animals shall not be grazed on the land for 30 days after application of sewage sludge.

vi. Turf grown on land where sewage sludge is applied shall not be harvested for 1 year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.

vii. Public access to land with a high potential for public exposure shall be restricted for 1 year after application of sewage sludge.

viii. Public access to land with a low potential for public exposure shall be restricted for 30 days after application of sewage sludge.

4. Vector Attraction Reduction Requirements

All bulk sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site shall be treated by one of the following alternatives 1 through 10 for Vector Attraction Reduction. If bulk sewage sludge is applied to a home garden, or bagged sewage sludge is applied to the land, only alternative 1 through alternative 8 shall

be used.

Alternative 1 - The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent.

Alternative 2 - If Alternative 1 cannot be met for an anaerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. Volatile solids must be reduced by less than 17 percent to demonstrate compliance.

Alternative 3 - If Alternative 1 cannot be met for an aerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge with a percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. Volatile solids must be reduced by less than 15 percent to demonstrate compliance.

Alternative 4 - The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius.

Alternative 5 - Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40 degrees Celsius and the average temperature of the sewage sludge shall be higher than 45 degrees Celsius.

Alternative 6 - The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali shall remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container.

Alternative 7 - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials at the time the sludge is used. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Alternative 8 - The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials at the time the sludge is used. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Alternative 9 -

(i) Sewage sludge shall be injected below the surface of the land.

(ii) No significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected.

(iii) When sewage sludge that is injected below the surface of the land is Class A with respect to pathogens, the sewage sludge shall be injected below the land surface within eight hours after being discharged from the pathogen treatment process.

Alternative 10 -

(i) Sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.

(ii) When sewage sludge that is incorporated into the soil is Class A with respect to pathogens, the sewage sludge shall be applied to or placed on the land within

eight hours after being discharged from the pathogen treatment process.

C. Monitoring Requirements

Toxicity Characteristic Leaching Procedure (TCLP) Test - Once/Permit Life, performed within one year from the effective date of the permit

PCBs - Once/Year

All other pollutants shall be monitored at the frequency shown below:

Amount of sewage sludge* (metric tons per 365 day period)	Frequency
0 ≤ Sludge < 290	Once/Year
290 ≤ Sludge < 1,500	Once/Quarter
1,500 ≤ Sludge < 15,000	Once/Two Months
15,000 ≤ Sludge	Once/Month

* Either the amount of bulk sewage sludge applied to the land or the amount of sewage sludge received by a person who prepares sewage sludge that is sold or given away in a bag or other container for application to the land (dry weight basis).

Representative samples of sewage sludge shall be collected and analyzed in accordance with the methods referenced in 40 CFR 503.8(b).

SECTION II. REQUIREMENTS SPECIFIC TO BULK SEWAGE SLUDGE FOR APPLICATION TO THE LAND MEETING CLASS A or B PATHOGEN REDUCTION AND THE CUMULATIVE LOADING RATES IN TABLE 2, OR CLASS B PATHOGEN REDUCTION AND THE POLLUTANT CONCENTRATIONS IN TABLE 3

For those permittees meeting Class A or B pathogen reduction requirements and that meet the cumulative loading rates in Table 2 below, or the Class B pathogen reduction requirements and contain concentrations of pollutants below those listed in Table 3 found in Element I, Section III, the following conditions apply:

1. Pollutant Limits

Table 2

Pollutant	Cumulative Pollutant Loading Rate (kilograms per hectare)
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Molybdenum	Report
Nickel	420
Selenium	100
Zinc	2800

2. Pathogen Control

All bulk sewage sludge that is applied to agricultural land, forest, a public contact site, a reclamation site, or lawn or home garden shall be treated by either Class A or Class B pathogen reduction requirements as defined above in Element 1, Section I.B.3.

3. Management Practices

a. Bulk sewage sludge shall not be applied to agricultural land, forest, a public contact site, or a reclamation site that is flooded, frozen, or snow-covered so that the bulk sewage sludge enters a wetland or other waters of the U.S., as defined in 40 CFR 122.2, except as provided in a permit issued pursuant to section 404 of the CWA.

b. Bulk sewage sludge shall not be applied within 10 meters of a water of the U.S.

c. Bulk sewage sludge shall be applied at or below the agronomic rate in accordance with recommendations from the following references:

i. STANDARDS 1992, Standards, Engineering Practices and Data, 39th Edition (1992) American Society of Agricultural Engineers, 2950 Niles Road, St. Joseph, MI 49085-9659.

ii. National Engineering Handbook Part 651, Agricultural Waste Management Field Handbook (1992), P.O. Box 2890, Washington, D.C. 20013.

iii. Recommendations of local extension services or Soil Conservation Services.

iv. Recommendations of a major University's Agronomic Department.

d. An information sheet shall be provided to the person who receives bulk sewage sludge sold or given away. The information sheet shall contain the following information:

i. The name and address of the person who prepared the sewage sludge that is sold or given away in a bag or other container for application to the land.

ii. A statement that application of the sewage sludge to the land is prohibited except in accordance with the instructions on the label or information sheet.

iii. The annual whole sludge application rate for the sewage sludge that does not cause any of the cumulative pollutant loading rates in Table 2 above to be exceeded, unless the pollutant concentrations in Table 3 found in Element I, Section III below are met.

4. Notification requirements

a. If bulk sewage sludge is applied to land in a State other than the State in which the sludge is prepared, written notice shall be provided prior to the initial land application to the permitting authority for the State in which the bulk sewage sludge is proposed to be applied. The notice shall include:

i. The location, by either street address or latitude and longitude, of each land application site.

ii. The approximate time period bulk sewage sludge will be applied to the site.

iii. The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) for the person who prepares the bulk sewage sludge.

iv. The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) for the person who will apply the bulk sewage sludge.

b. The permittee shall give 60 days prior notice to the Director of any change planned in the sewage sludge practice. Any change shall include any planned physical alterations or additions to the permitted treatment works, changes in the permittee's sludge use or disposal practice, and also alterations, additions, or deletions of disposal sites. These changes may justify the application of permit conditions that are different from or absent in the existing permit, including notification of

additional disposal sites not reported during the permit application process or absent in the existing permit. Change in the sludge use or disposal practice may be cause for modification of the permit in accordance with 40 CFR 122.62(a)(1).

c. The permittee shall provide the location of all new sludge disposal/use sites where previously undisturbed ground is proposed for disturbance to the State Historical Commission within 90 days of the effective date of this permit. In addition, the permittee shall provide the location of any new disposal/use site to the State Historical Commission prior to use of the site.

The permittee shall within 30 days after notification by the State Historical Commission that a specific sludge disposal/use area will adversely effect a National Historic Site, cease use of such area.

5. Recordkeeping Requirements - The sludge documents will be retained on site at the same location as other NPDES records.

The person who prepares bulk sewage sludge or a sewage sludge material shall develop the following information and shall retain the information for five years. If the permittee supplies the sludge to another person who land applies the sludge, the permittee shall notify the land applier of the requirements for recordkeeping found in 40 CFR 503.17 for persons who land apply.

a. The concentration (mg/Kg) in the sludge of each pollutant listed in Table 3 found in Element I, Section III and the applicable pollutant concentration criteria (mg/Kg), or the applicable cumulative pollutant loading rate and the applicable cumulative pollutant loading rate limit (kg/ha) listed in Table 2 above.

b. A description of how the pathogen reduction requirements are met (including site restrictions for Class B sludges, if applicable).

c. A description of how the vector attraction reduction requirements are met.

d. A description of how the management practices listed above in Section II.3 are being met.

e. The recommended agronomic loading rate from the references listed in Section II.3.c. above, as well as the actual agronomic loading rate shall be retained.

f. A description of how the site restrictions in 40 CFR Part 503.32(b)(5) are met for each site on which Class B bulk sewage sludge is applied.

g. The following certification statement:

"I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in §503.14 have been met for each site on which bulk sewage sludge is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

h. A certification statement that all applicable requirements (specifically listed) have been met, and that the permittee understands that there are significant penalties for false certification including fine and imprisonment. See 40 CFR 503.17(a)(4)(i)(B) or 40 CFR Part 503.17(a)(5)(i)(B) as applicable to the permittees sludge treatment activities.

i. The permittee shall maintain information that describes future geographical areas where sludge may be land applied.

j. The permittee shall maintain information identifying site selection criteria regarding land application sites not identified at the time of permit application submission.

k. The permittee shall maintain information regarding how future land application sites will be managed.

The person who prepares bulk sewage sludge or a sewage sludge material shall develop the following information and shall retain the information indefinitely. If the permittee supplies the sludge to another person who land applies the sludge, the permittee shall notify the land applier of the requirements for recordkeeping found in 40 CFR 503.17 for persons who land apply.

a. The location, by either street address or latitude and longitude, of each site on which sludge is applied.

b. The number of hectares in each site on which bulk sludge is applied.

c. The date and time sludge is applied to each site.

d. The cumulative amount of each pollutant in kilograms/hectare listed in Table 2 applied to each site.

e. The total amount of sludge applied to each site in metric tons.

f. The following certification statement:

"I certify, under penalty of law, that the information that will be used to determine compliance with the requirements to obtain information in §503.12(e)(2) have been met for each site on which bulk sewage sludge is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the requirements to obtain information have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

g. A description of how the requirements to obtain information in §503.12(e)(2) are met.

6. Reporting Requirements - The permittee shall report annually on the DMR the following information:

a. Pollutant Table (2 or 3) appropriate for permittee's land application practices.

b. The frequency of monitoring listed in Element 1, Section I.C. which applies to the permittee.

c. Toxicity Characteristic Leaching Procedure (TCLP) results (Pass/Fail).

d. The concentration (mg/Kg) in the sludge of each pollutant listed in Table 1 (defined as a monthly average) as well as the applicable pollutant concentration criteria (mg/Kg) listed in Table 3 found in Element 1, Section III, or the applicable pollutant loading rate limit (kg/ha) listed in Table 2 above if it exceeds 90% of the limit.

e. Level of pathogen reduction achieved (Class A or Class B).

f. Alternative used as listed in Section I.B.3.(a. or b.). Alternatives describe how the pathogen reduction requirements are met. If Class B sludge, include information on how site restrictions were met in the DMR comment section or attach a separate sheet to the DMR.

g. Vector attraction reduction alternative used as listed in Section I.B.4.

h. Annual sludge production in dry metric tons/year.

i. Amount of sludge land applied in dry metric tons/year.

j. Amount of sludge transported interstate in dry metric tons/year.

k. The certification statement listed in 503.17(a)(4)(i)(B) or 503.17(a)(5)(i)(B) whichever applies to the

permittees sludge treatment activities shall be attached to the DMR.

l. When the amount of any pollutant applied to the land exceeds 90% of the cumulative pollutant loading rate for that pollutant, as described in Table 2, the permittee shall report the following information as an attachment to the DMR.

i. The location, by either street address or latitude and longitude.

ii. The number of hectares in each site on which bulk sewage sludge is applied.

iii. The date and time bulk sewage sludge is applied to each site.

iv. The cumulative amount of each pollutant (i.e., kilograms/hectare) listed in Table 2 in the bulk sewage sludge applied to each site.

v. The amount of sewage sludge (i.e., metric tons) applied to each site.

vi. The following certification statement:

"I certify, under penalty of law, that the information that will be used to determine compliance with the requirements to obtain information in 40 CFR 503.12(e)(2) have been met for each site on which bulk sewage sludge is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the requirements to obtain information have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

vii. A description of how the requirements to obtain information in 40 CFR 503.12(e)(2) are met.

SECTION III. REQUIREMENTS SPECIFIC TO BULK OR BAGGED SEWAGE SLUDGE MEETING POLLUTANT CONCENTRATIONS IN TABLE 3 AND CLASS A PATHOGEN REDUCTION REQUIREMENTS

For those permittees with sludge that contains concentrations of pollutants below those pollutant limits listed in Table 3 for bulk or bagged (containerized) sewage sludge and also meet the Class A pathogen reduction requirements, the following conditions apply (Note: All bagged sewage sludge must be treated by Class A pathogen reduction requirements.):

1. Pollutant limits - The concentration of the pollutants in the municipal sewage sludge is at or below the values listed.

Table 3

Pollutant	Monthly Average Concentration (milligrams per kilogram)*
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Molybdenum	Report
Nickel	420
Selenium	100
Zinc	2800

* Dry weight basis

2. Pathogen Control

All bulk sewage sludge that is applied to agricultural land, forest, a public contact site, a reclamation site, or lawn or home garden shall be treated by the Class A pathogen reduction requirements as defined above in Element I, Section I.B.3. All bagged sewage sludge must be treated by Class A pathogen reduction requirements.

3. Management Practices - None.

4. Notification Requirements - None.

5. Recordkeeping Requirements - The permittee shall develop the following information and shall retain the information for five years. The sludge documents will be retained on site at the same location as other NPDES records.

   a. The concentration (mg/Kg) in the sludge of each pollutant listed in Table 3 and the applicable pollutant concentration criteria listed in Table 3.

   b. A certification statement that all applicable requirements (specifically listed) have been met, and that the permittee understands that there are significant penalties for false certification including fine and imprisonment. See 503.17(a)(1)(ii) or 503.17(a)(3)(i)(B), whichever applies to the permittees sludge treatment activities.

   c. A description of how the Class A pathogen reduction requirements are met.

   d. A description of how the vector attraction reduction requirements are met.

6. Reporting Requirements - The permittee shall report annually on the DMR the following information:

   a. Pollutant Table 3 appropriate for permittee's land application practices.

   b. The frequency of monitoring listed in Element 1, Section I.C. which applies to the permittee.

   c. Toxicity Characteristic Leaching Procedure (TCLP) results. (Pass/Fail).

   d. The concentration (mg/Kg) in the sludge of each pollutant listed in Table 1 (defined as a monthly average) found in Element 1, Section I. In addition, the applicable pollutant concentration criteria listed in Table 3 should be included on the DMR.

   e. Pathogen reduction Alternative used for Class A bagged or bulk sludge as listed in Section I.B.3.a.

   f. Vector attraction reduction Alternative used as listed in Section I.B.4.

   g. Annual sludge production in dry metric tons/year.

   h. Amount of sludge land applied in dry metric tons/year.

   i. Amount of sludge transported interstate in dry metric tons/year.

   j. The certification statement listed in 503.17(a)(1)(ii) or 503.17(a)(3)(i)(B), whichever applies to the permittees sludge treatment activities, shall be attached to the DMR.

SECTION IV. REQUIREMENTS SPECIFIC TO SLUDGE SOLD OR GIVEN AWAY IN A BAG OR OTHER CONTAINER FOR APPLICATION TO THE LAND THAT DOES NOT MEET THE MINIMUM POLLUTANT CONCENTRATIONS

1. Pollutant Limits

Table 4

Pollutant	Annual Pollutant Loading Rate (kilograms per hectare per 365 day period)
Arsenic	2
Cadmium	1.9
Copper	75
Lead	15
Mercury	0.85
Molybdenum	Report
Nickel	21
Selenium	5
Zinc	140

2. Pathogen Control

All sewage sludge that is sold or given away in a bag or other container for application to the land shall be treated by the Class A pathogen requirements as defined in Section I.B.3.a.

3. Management Practices

Either a label shall be affixed to the bag or other container in which sewage sludge that is sold or given away for application to the land, or an information sheet shall be provided to the person who receives sewage sludge sold or given away in an other container for application to the land. The label or information sheet shall contain the following information:

a. The name and address of the person who prepared the sewage sludge that is sold or given away in a bag or other container for application to the land.

b. A statement that application of the sewage sludge to the land is prohibited except in accordance with the instructions on the label or information sheet.

c. The annual whole sludge application rate for the sewage sludge that will not cause any of the annual pollutant loading rates in Table 4 above to be exceeded.

4. Notification Requirements - None.

5. Recordkeeping Requirements - The sludge documents will be retained on site at the same location as other NPDES records.

The person who prepares sewage sludge or a sewage sludge material shall develop the following information and shall retain the information for five years.

a. The concentration in the sludge of each pollutant listed above in found in Element I, Section I, Table 1.

b. The following certification statement found in 503.17(a)(6)(iii).

"I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in §503.14(e), the Class A pathogen requirement in §503.32(a), and the vector attraction reduction requirement in (insert vector attraction reduction option) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices, pathogen requirements, and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment".

c. A description of how the Class A pathogen reduction requirements are met.

d. A description of how the vector attraction reduction requirements are met.

e. The annual whole sludge application rate for the sewage sludge that does not cause the annual pollutant loading rates in Table 4 to be exceeded. See Appendix A to Part 503 - Procedure to Determine the Annual Whole Sludge Application Rate for a Sewage Sludge.

6. Reporting Requirements - The permittee shall report annually on the DMR the following information:

a. List Pollutant Table 4 appropriate for permittee's land application practices.

b. The frequency of monitoring listed in Element 1, Section I.C. which applies to the permittee.

c. Toxicity Characteristic Leaching Procedure (TCLP) results (Pass/Fail).

d. The concentration (mg/Kg) in the sludge of each pollutant listed above in Table 1 (defined as a monthly average) found in Element 1, Section I.

e. Class A pathogen reduction Alternative used as listed in Section I.B.3.a. Alternatives describe how the pathogen reduction requirements are met.

f. Vector attraction reduction Alternative used as listed in Section I.B.4.

g. Annual sludge production in dry metric tons/year.

h. Amount of sludge land applied in dry metric tons/year.

i. Amount of sludge transported interstate in dry metric tons/year.

j. The following certification statement found in § 503.17(a)(6)(iii) shall be attached to the DMR.

"I certify, under penalty of law, that the information that will be used to determine compliance with the management practice in §503.14(e), the Class A pathogen requirement in §503.32(a), and the vector attraction reduction requirement (insert appropriate option) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel gather and evaluate the information used to determine that the management practice, pathogen requirements, and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

ELEMENT 2- SURFACE DISPOSAL

SECTION I. REQUIREMENTS APPLYING TO ALL SEWAGE SLUDGE SURFACE DISPOSAL

A. General Requirements

1. The permittee shall handle and dispose of sewage sludge in accordance with Section 405 of the Clean Water Act and all other applicable Federal regulations to protect public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants which may be present.

2. If requirements for sludge management practices or pollutant criteria become more stringent than the sludge pollutant limits or acceptable management practices in this permit, or control a pollutant not listed in this permit, this permit may be modified or revoked and reissued to conform to the requirements promulgated at Section 405(d)(2) of the Clean Water Act.

3. In all cases, if the person (permit holder) who prepares the sewage sludge supplies the sewage sludge to another person (owner or operator of a sewage sludge unit) for disposal in a surface disposal site, the permit holder shall provide all necessary information to the parties who receive the sludge to assure compliance with these regulations.

4. The permittee shall give prior notice to EPA (Chief, Permits Branch, Water Management Division, Mail Code 6W-P, EPA Region 6, 1445 Ross Avenue, Dallas, Texas 75202) of any planned changes in the sewage sludge disposal practice, in accordance with 40 CFR Part 122.41(l)(1)(iii). These changes may justify the application of permit conditions that are different from or absent in the existing permit. Change in the sludge use or disposal practice may be cause for modification of the permit in accordance with 40 CFR Part 122.62(a)(1).

5. The permittee or owner/operator shall submit a written closure and post closure plan to the permitting authority 180 days prior to the closure date. The plan shall include the following information:

   (a) A discussion of how the leachate collection system will be operated and maintained for three years after the surface disposal site closes if it has a liner and leachate collection system.

   (b) A description of the system used to monitor continuously for methane gas in the air in any structures within the surface disposal site. The methane gas concentration shall not exceed 25% of the lower explosive limit for methane gas for three years after the sewage sludge unit closes. A description of the system used to monitor for methane gas in the air at the property line of the site shall be included. The methane gas concentration at the surface disposal site property line shall not exceed the lower explosive limit for methane gas for three years after the sewage sludge unit closes.

   (c) A discussion of how public access to the surface disposal site will be restricted for three years after it closes.

B. Management Practices

1. An active sewage sludge unit located within 60 meters of a fault that has displacement in Holocene time shall close by March 22, 1994.

2. An active sewage sludge unit located in an unstable area shall close by March 22, 1994.

3. An active sewage sludge unit located in a wetland shall close by March 22, 1994.

4. Surface disposal shall not restrict the flow of the base 100-year flood.

5. The run-off collection system for an active sewage sludge unit shall have the capacity to handle run-off from a 25-year, 24-hour storm event.

6. A food crop, feed crop, or a fiber crop shall not be grown on a surface disposal site.

7. Animals shall not be grazed on a surface disposal site.

8. Public access shall be restricted on the active surface disposal site and for three years after the site closes.

9. Placement of sewage sludge shall not contaminate an aquifer. This shall be demonstrated through one of the following:

   (a) Results of a ground-water monitoring program developed by a qualified ground-water scientist.

   (b) A certification by a qualified ground-water scientist may be used to demonstrate that sewage sludge placed on an active sewage sludge unit does not contaminate an aquifer.

10. When a cover is placed on an active surface disposal site, the concentration of methane gas in air in any structure within the surface disposal site shall not exceed 25 percent of the lower explosive limit for methane gas during the period that the sewage sludge unit is active. The concentration of methane gas in air at the property line of the surface disposal site shall not exceed the lower explosive limit for methane gas during the period that the sewage sludge unit is active. Monitoring shall be continuous.

C. Testing Requirements

1. Sewage sludge shall be tested once during the life of the permit within one year from the effective date of the permit in accordance with the method specified at 40 CFR 268, Appendix I (Toxicity Characteristic Leaching Procedure (TCLP)) or other approved methods. Sludge shall be tested after final treatment prior to leaving the POTW site. Sewage sludge determined to be a hazardous waste in accordance with 40 CFR Part 261, shall be handled according to RCRA standards for the disposal of hazardous waste in accordance with 40 CFR Part 262. The disposal of sewage sludge determined to be a hazardous waste, in other than a certified hazardous waste disposal facility shall be prohibited. The Information Management Section, telephone no. (214) 665-6750, and the appropriate state agency shall be notified of test failure within 24 hours. A written report shall be provided to this office within 7 days after failing the TCLP. The report will contain test results, certification that unauthorized disposal has not occurred and a summary of alternative disposal plans that comply with RCRA standards for the disposal of hazardous waste. The report shall be addressed to: Director, Multimedia Planning and Permitting Division, EPA Region 6, Mail Code 6PD, 1445 Ross Avenue, Dallas, Texas 75202. A copy of this report shall be sent to the Chief, Water Enforcement Branch, Compliance Assurance and Enforcement Division, Mail Code 6EN-W, at the same street address.

2. Sewage sludge shall be tested at the frequency show below in Element 2, Section I.D. for PCBs. Any sludge exceeding a concentration of 50 mg/Kg shall not be surface disposed.

3. Pathogen Control

All sewage sludge that is disposed of in a surface disposal site shall be treated by either the Class A or Class B pathogen requirements unless sewage sludge is placed on an active surface disposal site and is covered with soil or other material at the end of each operating day. When reporting on the DMR, list pathogen reduction level attained as A, B, or C (daily cover). When reporting how compliance was met, list Alternative 1, 2, 3, 4, 5 or 6 for Class A, or Alternative Number 1, 2, 3, or 4 for Class B, on DMR.

(a) Six alternatives are available to demonstrate compliance with Class A sewage sludge. All 6 alternatives require either the density of fecal coliform in the sewage sludge be less than 1000 MPN per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land. Below are the additional requirements necessary to meet the definition of a Class A sludge. Alternatives 5 and 6 are not authorized to demonstrate compliance with Class A sewage sludge in Texas permits.

Alternative 1 - The temperature of the sewage sludge that is used or disposed shall be maintained at a specific value for a period of time. See 503.32(a)(3)(ii) for specific information. This alternative is not applicable to composting

Alternative 2 - The pH of the sewage sludge that is used or disposed shall be raised to above 12 and shall remain above 12 for 72 hours. The pH shall be defined as the logarithm of the reciprocal of the hydrogen ion concentration measured at 25°C or measured at another temperature and then converted to an equivalent value at 25°C.

The temperature of the sewage sludge shall be above 52 degrees Celsius for 12 hours or longer during the period that the pH of the sewage sludge is above 12.

At the end of the 72 hour period during which the pH of the sewage sludge is above 12, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50 percent.

Alternative 3 - The sewage sludge shall be analyzed for enteric viruses prior to pathogen treatment. The limit for enteric viruses is one Plaque-forming Unit per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 503.32(a)(5)(ii) for specific information. The sewage sludge shall be analyzed for viable helminth ova prior to pathogen treatment. The limit for viable helminth ova is less than one per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 503.32(a)(5)(iii) for specific information.

Alternative 4 - The density of enteric viruses in the sewage sludge shall be less than one Plaque-forming Unit

per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed or at the time the sludge is prepared for sale or give away in a bag or other container for application to the land.

The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed or at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land.

Alternative 5 - Sewage sludge shall be treated by one of the Processes to Further Reduce Pathogens (PFRP) described in 503 Appendix B. PFRPs include composting, heat drying, heat treatment, and thermophilic aerobic digestion.

Alternative 6 - Sewage sludge shall be treated by a process that is equivalent to a Process to Further Reduce Pathogens, if individually approved by the Pathogen Equivalency Committee representing the EPA.

(b) Four alternatives are available to demonstrate compliance with Class B sewage sludge. Alternatives 2, 3, and 4 are not authorized to demonstrate compliance with Class B sewage sludge in Texas permits.

Alternative 1 - (i) Seven representative samples of the sewage sludge that is disposed shall be collected for one monitoring episode at the time the sewage sludge is used or disposed.

(ii) The geometric mean of the density of fecal coliform in the samples collected shall be less than either 2,000,000 Most Probable Number per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

Alternative 2 - Sewage sludge shall be treated in one of the Processes to significantly Reduce Pathogens described in 503 Appendix B.

Alternative 3 - Sewage sludge shall be treated in a process that is equivalent to a PSRP, if individually approved by the Pathogen Equivalency Committee representing the EPA.

Alternative 4 - Sewage sludge placed on an active surface disposal site is covered with soil or other material at the end of each operating day.

4. Vector Attraction Reduction Requirements

All sewage sludge that is disposed of in a surface disposal site shall be treated by one of the following alternatives 1 through 11 for Vector Attraction Reduction.

Alternative 1 - The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent.

Alternative 2 - If Alternative 1 cannot be met for an anaerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. Volatile solids must be reduced by less than 17 percent to demonstrate compliance.

Alternative 3 - If Alternative 1 cannot be met for an aerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge with a percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. Volatile solids must be reduced by less than 15 percent to demonstrate compliance.

Alternative 4 - The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius.

Alternative 5 - Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40 degrees Celsius and the average temperature of the sewage sludge shall be higher than 45 degrees Celsius.

Alternative 6 - The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali shall remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours at the time the sewage sludge is disposed.

Alternative 7 - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or an anaerobic treatment process at the time the sewage sludge is disposed.

Alternative 8 - The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials at the time the sewage sludge is disposed. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or an anaerobic treatment process.

Alternative 9 -

(i) Sewage sludge shall be injected below the surface of the land.

(ii) No significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected.

(iii) When sewage sludge that is injected below the surface of the land is Class A with respect to pathogens, the sewage sludge shall be injected below the land surface within eight hours after being discharged from the pathogen treatment process.

Alternative 10 -

(i) Sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.

(ii) When sewage sludge that is incorporated into the soil is Class A with respect to pathogens, the sewage sludge shall be applied to or placed on the land within eight hours after being discharged from the pathogen treatment process.

Alternative 11 - Sewage sludge placed on an active sewage sludge unit shall be covered with soil or other material at the end of each operating day.

5. Methane Gas Control Within a Structure On Site

When cover is placed on an active surface disposal site, the methane gas concentration in the air in any structure shall not exceed 25% of the lower explosive limit (LEL) for methane gas during the period that the disposal site is active.

6. Methane Gas Control at Property Line

The concentration of methane gas in air at the property line of the surface disposal site shall not exceed the LEL for methane gas during the period that the disposal site is active.

D. Monitoring Requirements

Toxicity Characteristic Leaching Procedure (TCLP) Test - Once/Permit Life, performed within one year from the effective date of the permit

PCBs - Once/Year

Methane Gas in covered structures on site - Continuous

Methane Gas at property line - Continuous

All other pollutants shall be monitored at the frequency shown below:

Amount of sewage sludge* (metric tons per 365 day period)	Frequency
0 ≤ Sludge < 290	Once/Year
290 ≤ Sludge < 1,500	Once/Quarter
1,500 ≤ Sludge < 15,000	Once/Two Months
15,000 ≤ Sludge	Once/Month

* Amount of sewage sludge placed on an active sewage sludge unit (dry weight basis).

Representative samples of sewage sludge shall be collected and analyzed in accordance with the methods referenced in 40 CFR 503.8(b).

SECTION II. REQUIREMENTS SPECIFIC TO SURFACE DISPOSAL SITES WITHOUT A LINER AND LEACHATE COLLECTION SYSTEM.

1. Pollutant limits - Sewage sludge shall not be applied to a surface disposal site if the concentration of the listed pollutants exceed the corresponding values based on the surface disposal site boundary to the property line distance:

TABLE 5

Unit boundary to property line distance (meters)	Pollutant Concentrations* Arsenic (mg/kg)	Chromium (mg/kg)	Nickel (mg/kg)	PCB's (mg/kg)
0 to less than 25	30	200	210	49
25 to less than 50	34	220	240	49
50 to less than 75	39	260	270	49
75 to less than 100	46	300	320	49
100 to less than 125	53	360	390	49
125 to less than 150	62	450	420	49
≥ 150	73	600	420	49

* Dry weight basis

2. Management practices - Listed in Section I.B. above.

3. Notification requirements -

   a. The permittee shall assure that the owner of the surface disposal site provide written notification to the subsequent site owners that sewage sludge was placed on the land.

b. The permittee shall provide the location of all new sludge disposal/use sites where previously undisturbed ground is proposed for disturbance to the State Historical Commission within 90 days of the effective date of this permit. In addition, the permittee shall provide the location of any new disposal/use site to the State Historical Commission prior to use of the site.

The permittee shall within 30 days after notification by the State Historical Commission that a specific sludge disposal/use area will adversely affect a National Historic Site, cease use of such area.

4. Recordkeeping requirements - The permittee shall develop the following information and shall retain the information for five years. The sludge documents will be retained on site at the same location as other NPDES records.

a. The distance of the surface disposal site from the property line and the concentration (mg/Kg) in the sludge of each pollutant listed above in Table 5, as well as the applicable pollutant concentration criteria listed in Table 5.

b. A certification statement that all applicable requirements (specifically listed) have been met, and that the permittee understands that there are significant penalties for false certification including fine and imprisonment. See 503.27(a)(1)(ii) or 503.27(a)(2)(ii) as applicable to the permittees sludge disposal activities.

c. A description of how either the Class A or Class B pathogen reduction requirements are met, or whether sewage sludge placed on a surface disposal site is covered with soil or other material at the end of each operating day.

d. A description of how the vector attraction reduction requirements are met.

e. Results of a groundwater monitoring program developed by a qualified ground-water scientist, or a certification by a qualified groundwater scientist may be used to demonstrate that sewage sludge placed on an active sewage sludge unit does not contaminate an aquifer. A qualified groundwater scientist is an individual with a baccalaureate or post graduate degree in the natural sciences or engineering who has sufficient training and experience in groundwater hydrology and related fields, as may be demonstrated by State registration, professional certification or completion of accredited university programs, to make sound professional judgements regarding groundwater monitoring, pollutant fate and transport, and corrective action.

5. Reporting Requirements - The permittee shall report annually on the DMR the following information:

a. Report No for no liner and leachate collection system at surface disposal site.

b. The frequency of monitoring listed in Element II, Section I.D. which applies to the permittee.

c. Toxicity Characteristic Leaching Procedure (TCLP) results (Pass/Fail).

d. The concentration (mg/Kg) in the sludge of each pollutant listed in Table 5 as well as the applicable pollutant concentration criteria listed in Table 5.

e. The concentration (mg/Kg) of PCB's in the sludge.

f. The distance between the property line and the surface disposal site boundary.

g. Level of pathogen reduction achieved (Class A or Class B), unless Vector attraction reduction alternative no. 11 is utilized.

h. List Alternative used as listed in Section I.C.3.(a. or b.). Alternatives describe how the pathogen reduction requirements are met.

i. Vector attraction reduction Alternative used as listed in Section I.C.4.

j. Annual sludge production in dry metric tons/year.

k. Amount of sludge surface disposed in dry metric tons/year.

l. Amount of sludge transported interstate in dry metric tons/year.

m. A narrative description explaining how the management practices in §503.24 are met shall be attached to the DMR.

n. The certification statement listed in 503.27(a)(1)(ii) or 503.27(a)(2)(ii) as applicable to the permittees sludge disposal activities, shall be attached to the DMR.

SECTION III. REQUIREMENTS SPECIFIC TO SURFACE DISPOSAL SITES WITH A LINER AND LEACHATE COLLECTION SYSTEM.

1. Pollutant limits - None.

2. Management Practices - Listed in Section I.B. above.

3. Notification requirements -

a. The permittee shall assure that the owner of the surface disposal site provide written notification to the subsequent owner of the site that sewage sludge was placed on the land.

b. The permittee shall provide the location of all new sludge disposal/use sites where previously undisturbed ground is proposed for disturbance to the State Historical Commission within 90 days of the effective date of this permit. In addition, the permittee shall provide the location of any new disposal/use site to the State Historical Commission prior to use of the site.

The permittee shall within 30 days after notification by the State Historical Commission that a specific sludge disposal/use area will adversely affect a National Historic Site, cease use of such area.

4. Recordkeeping requirements - The permittee shall develop the following information and shall retain the information for five years. The sludge documents will be retained on site at the same location as other NPDES records.

a. The following certification statement found in 503.27(a)(1)(ii):

"I certify, under penalty of law, that the information that will be used to determine compliance with the pathogen requirements (define option used) and the vector attraction reduction requirements (define option used) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine the (pathogen requirements and vector attraction reduction requirements, if appropriate) have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

b. A description of how either the Class A or Class B pathogen reduction requirements are met or whether sewage sludge placed on a surface disposal site is covered with soil or other material at the end of each operating day.

c. A description of how the vector attraction reduction requirements are met.

d. Results of a ground-water monitoring program developed by a qualified ground-water scientist. A certification by a qualified ground-water scientist may be used to demonstrate that sewage sludge

placed on an active sewage sludge unit does not contaminate an aquifer.

5. Reporting Requirements - The permittee shall report annually on the DMR the following information:

a. Report YES for liner and leachate collection system at surface disposal site.

b. The frequency of monitoring listed in Element 2, Section I.D. which applies to the permittee.

c. Toxicity Characteristic Leaching Procedure (TCLP) results (Pass/Fail).

d. The concentration (mg/Kg) in the sludge of PCBs.

e. Level of pathogen reduction achieved (Class A or Class B), unless Vector attraction reduction alternative no. 11 is used.

f. List Alternative used as listed in Section I.C.3.(a. or b.). Alternatives describe how the pathogen reduction requirements are met.

g. Vector attraction reduction Alternative used as listed in Section I.B.4.

h. Annual sludge production in dry metric tons/year.

i. Amount of sludge surface disposed in dry metric tons/year.

j. Amount of sludge transported interstate in dry metric tons/year.

k. A narrative description explaining how the management practices in §503.24 are met shall be attached to the DMR.

l. A certification statement that all applicable requirements (specifically listed) have been met, and that the permittee understands that there are significant penalties for false certification including fine and imprisonment (See 503.27(a)(1)(ii) or 503.27(a)(2)(ii) whichever applies to the permittees sludge disposal activities) shall be attached to the DMR.

ELEMENT 3 - MUNICIPAL SOLID WASTE LANDFILL DISPOSAL

SECTION I. REQUIREMENTS APPLYING TO ALL SEWAGE SLUDGE DISPOSED IN A MUNICIPAL SOLID WASTE LANDFILL

1. The permittee shall handle and dispose of sewage sludge in accordance with Section 405 of the Clean Water Act and all other applicable Federal regulations to protect public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants that may be present. The permittee shall ensure that the sewage sludge meets the requirements in 40 CFR 258 concerning the quality of the sludge disposed in the municipal solid waste landfill unit.

2. If requirements for sludge management practices or pollutant criteria become more stringent than the sludge pollutant limits or acceptable management practices in this permit, or control a pollutant not listed in this permit, this permit may be modified or revoked and reissued to conform to the requirements promulgated at Section 405(d)(2) of the Clean Water Act.

3. If the permittee generates sewage sludge and supplies that sewage sludge to the owner or operator of a MSWLF for disposal, the permittee shall provide to the owner or operator of the MSWLF appropriate information needed to be in compliance with the provisions of this permit.

4. The permittee shall give prior notice to EPA (Chief, Permits Branch, Water Management Division, Mail Code 6W-P, EPA Region 6, 1445 Ross Avenue, Dallas, Texas 75202) of any planned changes in the sewage sludge disposal practice, in accordance with 40 CFR Part 122.41(l)(1)(iii). These changes may justify the application of permit conditions that are different from or absent in the existing permit. Change in the sludge use or

disposal practice may be cause for modification of the permit in accordance with 40 CFR Part 122.62(a)(1).

5. The permittee shall provide the location of all new sludge disposal/use sites where previously undisturbed ground is proposed for disturbance to the State Historical Commission within 90 days of the effective date of this permit. In addition, the permittee shall provide the location of any new disposal/use site to the State Historical Commission prior to use of the site.

   The permittee shall within 30 days after notification by the State Historical Commission that a specific sludge disposal/use area will adversely affect a National Historic Site, cease use of such area.

6. Sewage sludge shall be tested once during the life of the permit within one year from the effective date of the permit in accordance with the method specified at 40 CFR 268, Appendix I (Toxicity Characteristic Leaching Procedure (TCLP)) or other approved methods. Sludge shall be tested after final treatment prior to leaving the POTW site. Sewage sludge determined to be a hazardous waste in accordance with 40 CFR Part 261, shall be handled according to RCRA standards for the disposal of hazardous waste in accordance with 40 CFR Part 262. The disposal of sewage sludge determined to be a hazardous waste, in other than a certified hazardous waste disposal facility shall be prohibited. The Information Management Section, telephone no. (214) 665-6750, and the appropriate state agency shall be notified of test failure within 24 hours. A written report shall be provided to this office within 7 days after failing the TCLP. The report will contain test results, certification that unauthorized disposal has not occurred and a summary of alternative disposal plans that comply with RCRA standards for the disposal of hazardous waste. The report shall be addressed to: Director, Multimedia Planning and Permitting Division, EPA Region 6, Mail Code 6PD, 1445 Ross Avenue, Dallas, Texas 75202. A copy of this report shall be sent to the Chief, Water Enforcement Branch, Compliance Assurance and Enforcement Division, Mail Code 6EN-W, at the same street address.

7. Sewage sludge shall be tested as needed, or at a minimum, once/year in accordance with the method 9095 (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Pub. No. SW-846).

8. Recordkeeping requirements - The permittee shall develop the following information and shall retain the information for five years.

   a. The description, including procedures followed, and results of the Paint Filter Tests performed.

   b. The description, including procedures followed, and results of the TCLP Test.

9. Reporting requirements - The permittee shall report annually on the Discharge Monitoring Report the following information:

   a. Results of the Toxicity Characteristic Leaching Procedure Test conducted on the sludge to be disposed (Pass/Fail).

   b. Annual sludge production in dry metric tons/year.

   c. Amount of sludge disposed in a municipal solid waste landfill in dry metric tons/year.

   d. Amount of sludge transported interstate in dry metric tons/year.

   e. A certification that sewage sludge meets the requirements in 40 CFR 258 concerning the quality of the sludge disposed in a municipal solid waste landfill unit shall be attached to the DMR.

Appendix D
NMED Ground Water Quality Bureau Guidance: Above Ground Use of Reclaimed Domestic Wastewater (January 2007)

NMED GROUND WATER QUALITY BUREAU GUIDANCE:

ABOVE GROUND USE OF RECLAIMED DOMESTIC WASTEWATER

January 2007

PURPOSE

This document provides guidance for the above ground use of reclaimed domestic wastewater necessary to ensure protection of public health and the environment. The New Mexico Environment Department (NMED) has developed this guidance document to promote the safe use of reclaimed wastewater to offset the use of limited potable water resources in the State. This guidance document is intended to provide direction for any person seeking to submit an application for a Ground Water Discharge Permit that includes the above ground use of reclaimed wastewater. This document is used by NMED technical staff to ensure consistency in the application review process and in the development of permit requirements. This guidance document will also be made available to the regulated community and their consultants to provide a basis for future facility planning.

Ground Water Discharge Permit applications for above ground use of reclaimed domestic wastewater that follow this guidance document will be approved. However, applicants may make alternative demonstrations to NMED that the existing or proposed discharge of reclaimed domestic wastewater at a specific facility is protective of public health and the environment. NMED encourages the development and implementation of new processes and equipment, and will favorably consider them on a case by case basis.

The generator of the reclaimed wastewater is responsible for discharges of reclaimed wastewater unless this responsibility is assumed by a separate entity pursuant to an approved Ground Water Discharge Permit. Implementation of the requirements for existing dischargers will be determined on an individual facility basis at the time of permit renewal and/or modification.

Finally, the discharge of reclaimed wastewater may also be regulated by the New Mexico Construction Industries Division (CID). For example, the use of reclaimed wastewater for indoor plumbing (e.g., toilet flushing, fire suppression) requires approval from CID.

DEFINITIONS

The following definitions are used in this guidance document:

Agronomic Rate: the rate of application of nutrients to plants that is necessary to satisfy the plants' nutritional requirements while strictly minimizing the amount of nutrients that run off to surface waters or which pass below the root zone of the plants.

Class 1A Reclaimed Wastewater: the highest quality reclaimed wastewater described in this guidance document and can be most broadly utilized except for direct consumption. [approved uses listed in Table 1]

Class 1B Reclaimed Wastewater: the second highest quality reclaimed wastewater described in this guidance document and is suitable for uses in which public exposure is likely. [approved uses listed in Table 1]

Class 2 Reclaimed Wastewater: reclaimed wastewater suitable for uses in which public access and exposure is restricted. [approved uses listed in Table 1]

Class 3 Reclaimed Wastewater: reclaimed wastewater suitable for uses in which public access and exposure is prohibited. [approved uses listed in Table 1]

Domestic wastewater: wastewater containing human excreta and water-carried waste from typical residential plumbing fixtures and activities, including but not limited to wastes from toilets, sinks, bath fixtures, clothes or dishwashing machines and floor drains.

Dwelling unit: a structure which contains bedrooms.

Establishment: a structure used as a place of business, education, or assembly.

Flood Irrigation: land application of reclaimed wastewater by ditches, furrows, pipelines, low flow emitters and other non-sprinkler methods.

Food Crops: any crop intended for human consumption.

Grab Sample: an individual sample collected in less than 15 minutes.

Major WWTP: any treatment plant with a maximum design capacity of 1,000,000 gallons or more per day.

Minor WWTP: any treatment plant with a maximum design capacity of less than 1,000,000 gallons per day.

Monthly Geometric Mean: value calculated by taking the sum of the logarithms (sum log x) of each of the data points from the previous calendar month, dividing the sum by the number of data points and then taking the anti-logarithm of the result (10^y = anti-logarithm of 'y').

NTU: nephelometric turbidity units, measured by a nephelometer.

Occupied establishment: any establishment that is occupied regularly at the time of irrigation.

Peak hourly flow: the highest hourly flow rate within a 24 hour period.

Reclaimed wastewater: domestic wastewater that has been treated to the specified levels for the defined uses set forth in this guidance document and other applicable local, state, or federal regulations.

Spray Irrigation: land application of reclaimed wastewater by dispersing it in the air utilizing equipment which provides a low trajectory application and which minimizes misting of the reclaimed wastewater.

3-hour Composite Sample: three effluent portions collected no closer together than one hour (collected between 8:00 am and 4:00 pm) and composited in proportion to flow.

6-hour Composite Sample: six effluent portions collected no closer together than one hour (collected between 8:00 am and 4:00 pm) and composited in proportion to flow.

24-hour Composite Sample: twenty-four effluent portions collected no closer together than one hour and composited in proportion to flow.

30-day Average:

> *For fecal coliform bacteria*: the geometric mean of the values for all effluent samples collected during a calendar month.
>
> *For other than for fecal coliform bacteria*: the arithmetic mean of the daily values for all effluent samples collected during a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

BACKGROUND

This guidance document supersedes the New Mexico Environmental Improvement Division (NMEID) 1985 Policy for the Use of Domestic Wastewater Effluent for Irrigation and NMED's 2003 Policy for the Above Ground Use of Reclaimed Domestic Wastewater. This guidance document establishes reclaimed wastewater quality levels, site restrictions, management practices, and uses for different categories of reclaimed wastewater that are approvable by NMED. Unless an alternative demonstration is proposed by the applicant and accepted by NMED, NMED will propose Ground Water Discharge Permit conditions for above ground discharges of reclaimed wastewater based on the recommendations set forth in this guidance document. While the requirements set forth in this guidance document are deemed protective of public health and the environment, the guidance document does not prevent communities from adopting more stringent requirements.

WASTEWATER TREATMENT PROCESSES

The specified quality levels for Class 1B, Class 2, and Class 3 assume a minimum of conventional secondary wastewater treatment plus disinfection. Class 1A assumes treatment to remove colloidal organic matter, color, and other substances that interfere with disinfection, thereby allowing for the use of the reclaimed wastewater for urban landscaping adjacent to dwelling units or occupied establishments.

GENERAL ABOVE GROUND USE PERMIT CONDITIONS

A. ALL APPROVED USES

1. Whenever reclaimed wastewater is used for any use approved in this guidance document, the wastewater should meet the minimum requirements set forth in this guidance document, unless a demonstration is made that an alternate requirement offers an equivalent protection of public health. The burden of proof for an alternative demonstration rests upon the discharger.
2. Whenever reclaimed wastewater other than Class 1A is used in areas with public access, it should be applied at times and in a manner that minimizes public contact.
3. Whenever reclaimed wastewater is used in areas with restricted public access, the public should be excluded from entering the area.
4. Reclaimed wastewater should only be used for soil compaction or dust control in construction areas where application procedures minimize aerosol drift to public areas.
5. Reclaimed wastewater quality requirements should be measured at the discharge point of the wastewater treatment plant.
6. Signs (in English and Spanish) should be placed at the entrance to areas receiving reclaimed wastewater, and other locations where public access may occur stating: "**NOTICE – THIS AREA IS IRRIGATED WITH RECLAIMED WASTEWATER – DO NOT DRINK**"; "**AVISO – ESTA ÁREA ESTÁ REGADA CON AGUAS NEGRAS RECOBRADAS – NO TOMAR**". Alternate wording may be approved by NMED.
7. All piping, valves and outlets should be color-coded in purple pursuant to the latest revision of the New Mexico Plumbing and Mechanical Code to differentiate piping or fixtures used to convey reclaimed wastewater from piping or fixtures used for potable or other water. All valves, outlets, and sprinkler heads used in reclaimed wastewater systems should be of a type that can only be operated by authorized personnel. Those

portions of reclaimed wastewater systems that are underground and were installed prior to the adoption of this guidance document are exempt from the purple color-coding requirement if all accessible portions of the reclaimed wastewater system are colored purple or clearly labeled as being part of a reclaimed wastewater distribution system.

8. Reclaimed wastewater systems should have no direct or indirect cross connections with potable water systems pursuant to the latest revision of the New Mexico Plumbing and Mechanical Code. For reclaimed wastewater systems that were installed prior to the adoption of this guidance document, the absence of cross connections may be demonstrated via hydrostatic testing or as-built drawings, supported by an affidavit under oath that no cross connection exists.
9. Above ground use of reclaimed wastewater should not result in excessive standing or pooling of wastewater, and should be applied at the appropriate agronomic rate. Irrigation should not be conducted at times when the receiving area is saturated or frozen.
10. The discharge of reclaimed wastewater should be confined to the area designated and approved for receiving the wastewater. Irrigation should be postponed at times when windy conditions may result in drift of reclaimed wastewater outside the designated area of application.
11. Treatment facilities that provide reclaimed wastewater to parks, golf courses, schools and other areas where human exposure is likely must have an emergency storage pond or alternate disposal method where reclaimed wastewater can be diverted during periods when conditions are unfavorable for approved uses or when the quality requirements defined in this guidance document cannot be met.

B. IRRIGATION OF FOOD CROPS

1. Reclaimed wastewater should not be used for the spray irrigation of food crops.
2. Reclaimed wastewater should not be used for surface irrigation of food crops except where there is no contact between the edible portion of the crop and the wastewater, and the wastewater should have a level of quality no less than Class 1B Reclaimed Wastewater (Table 2).

C. IRRIGATION OF FODDER, FIBER AND SEED CROPS

1. Reclaimed wastewater used for the irrigation of pasture to which milking cows or goats have access should have a level of quality no less than Class 2 Reclaimed Wastewater (Table 2).
2. Except pasture for milk-producing animals, reclaimed wastewater used for the irrigation of fodder, fiber and seed crops should have a level of quality no less than Class 3 Reclaimed Wastewater (Table 2).

D. IRRIGATION OF LANDSCAPES

1. Reclaimed wastewater used for irrigation should be applied such that direct and windblown spray is confined to the area designated and approved for application.
2. Reclaimed wastewater used for the irrigation of freeway landscapes and landscapes in other areas where the public has similarly limited access or exposure should have a level of quality no less than Class 2 Reclaimed Wastewater (Table 2). Public access to the irrigation site must be restricted during the period of application.

3. Reclaimed wastewater used for the irrigation of parks, playgrounds, schoolyards, golf courses, cemeteries and other areas where the public has similarly open access should have a level of quality no less than Class 1B Reclaimed Wastewater (Table 2), and the irrigation system should have low trajectory spray nozzles. *Areas which are spray irrigated and located within 100 feet of a dwelling unit or occupied establishment should only receive Class 1A Reclaimed Wastewater* (Tables 2 & 3).

CLASSIFICATION AND USES OF RECLAIMED WASTEWATER

This guidance document identifies four classes of reclaimed wastewater (Class 1A, Class 1B, Class 2, and Class 3) based on reclaimed wastewater quality and the likelihood of public exposure. Table 1 presents the approved uses.

Table 1. Approved Uses for Reclaimed Wastewater by Class

Class of Reclaimed Wastewater	Approved Uses
Class 1A	All Class 1 uses. *No setback limit* to dwelling unit or occupied establishment.
	Backfill around potable water pipes
	Irrigation of food crops[1]
Class 1B	Impoundments (recreational or ornamental)
	Irrigation of parks, school yards, golf courses [2]
	Irrigation of urban landscaping [2]
	Snow making
	Street cleaning
	Toilet flushing
	Backfill around non-potable piping
Class 2	Concrete mixing
	Dust control
	Irrigation of fodder, fiber, and seed crops for milk-producing animals
	Irrigation of roadway median landscapes
	Irrigation of sod farms
	Livestock watering
	Soil compaction
Class 3	Irrigation of fodder, fiber, and seed crops for non-milk-producing animals
	Irrigation of forest trees (silviculture)

[1] Irrigation of food crops should only be allowed for food crops when there is no contact between the edible portion of the crop and the wastewater. Spray irrigation is prohibited for food crops.

[2] If reclaimed wastewater is applied using spray irrigation, the setback limitation of Table 3 "Spray Irrigation" should be observed.

Class 1A reclaimed wastewater may be used for any purpose except direct consumption, food handling and processing, and spray irrigation of food crops. Class 1B reclaimed wastewater may be used where public exposure is likely, and where the appropriate setback requirements are met (Table 3, page 9). Class 2 and Class 3 reclaimed wastewater may be used where public access is restricted with correspondingly less stringent requirements for treatment and disinfection. Any reclaimed wastewater treated to higher quality than the lower classes may be used for the purposes established for the lower classes. *Other uses of reclaimed wastewater not included in Table 1 will be evaluated on a case by case basis by NMED to determine the appropriate water quality classification for the given use.*

WASTEWATER QUALITY LEVELS AND MONITORING PROTOCOL

This section identifies minimum wastewater quality levels and monitoring frequencies for the various classes of reclaimed wastewater. The frequency of wastewater quality monitoring is patterned after U.S. Environmental Protection Agency (USEPA) requirements for discharges of treated and disinfected wastewater to surface waters. Monitoring requirements are dependent on the quality of reclaimed wastewater produced at the treatment plant and the design capacity of the treatment plant. For example, a “major” wastewater treatment plant (having a maximum design capacity of 1 million gallons or more per day) producing Class 1A Reclaimed Wastewater has the most stringent monitoring requirements. The wastewater quality levels and monitoring frequencies for the various classes of reclaimed wastewater are presented in Table 2. In the event that a facility proposes alternative wastewater quality levels and/or monitoring frequencies, it is the responsibility of the facility owner/operator to demonstrate that the alternative proposal provides an equivalent measure of public health protection as the measures set forth in this guidance document.

Table 2. Wastewater Quality Requirements and Monitoring Frequencies by Class of Reclaimed Wastewater

Class of Reclaimed Wastewater	Wastewater Quality Parameter	Wastewater Quality Requirements		Wastewater Monitoring Requirements	
		30-Day Average	Maximum	Sample Type	Measurement Frequency
Class 1A	BOD_5	10 mg/l	15 mg/l	Minimum of 6-hour composite	3 tests per week for major WWTP[1]; 1 test per 2 weeks for minor WWTP
	Turbidity	3 NTU	5 NTU	Continuous	Continuous
	Fecal Coliform	5 per 100 ml	23 per 100 ml	Grab sample at peak flow	3 tests per week for major WWTP; 1 test per week for minor WWTP
	TRC or UV Transmissivity	Monitor Only	Monitor Only	Grab sample or reading at peak flow	Record values at peak hourly flow when Fecal Coliform samples are collected
Class 1B	BOD_5	30 mg/l	45 mg/l	Minimum of 6-hour composite	3 tests per week for major WWTP[1]; 1 test per 2 weeks for minor WWTP
	TSS	30 mg/l	45 mg/l	Minimum of 6-hour composite	3 tests per week for major WWTP[1]; 1 test per 2 weeks for minor WWTP
	Fecal Coliform	100 organisms per 100 ml	200 organisms per 100 ml	Grab sample at peak flow	3 tests per week for major WWTP; 1 test per week for minor WWTP
	TRC or UV Transmissivity	Monitor Only	Monitor Only	Grab sample or reading at peak flow	Record values at peak hourly flow when Fecal Coliform samples are collected

Table 2. Wastewater Quality Requirements and Monitoring Frequencies by Class of Reclaimed Wastewater (continued)

Class of Reclaimed Wastewater	Wastewater Quality Parameter	Wastewater Quality Requirements		Wastewater Monitoring Requirements	
		30-Day Average	Maximum	Sample Type	Measurement Frequency
Class 2	BOD_5	30 mg/l	45 mg/l	Minimum of 6-hour composite for major WWTP; Grab sample for minor WWTP	1 test per week for major WWTP; 1 test per month for minor WWTP
	TSS	30 mg/l	45 mg/l	Minimum of 6-hour composite for major WWTP; Grab sample for minor WWTP	1 test per week for major WWTP; 1 test per month for minor WWTP
	Fecal Coliform	200 organisms per 100 ml	400 organisms per 100 ml	Grab sample at peak hourly flow	1 test per week for major WWTP; 1 test per month for minor WWTP
	TRC or UV Transmissivity	Monitor Only	Monitor Only	Grab sample or reading at peak hourly flow	Record values at peak hourly flow when Fecal Coliform samples are collected
Class 3	BOD_5	30 mg/l	45 mg/l	Minimum of 3-hour composite for major WWTP[5]; Grab sample for minor WWTP	1 test per week for major WWTP; 1 test per month for minor WWTP
	TSS	75 mg/l	90 mg/l	Minimum of 3-hour composite for major WWTP; Grab sample for minor WWTP	1 test per week for major WWTP; 1 test per month for minor WWTP
	Fecal Coliform	1,000 organisms per 100 ml	5,000 organisms per 100 ml	Grab sample at peak hourly flow	1 test per week for major WWTP; 1 test per month for minor WWTP
	TRC or UV Transmissivity	Monitor Only	Monitor Only	Grab sample or reading at peak hourly flow	Record values at peak hourly flow when Fecal Coliform samples are collected

Note: *E*. coli may be used in place of Fecal Coliform as an indicator organism, once an equivalency has been established.

ACCESS RESTRICTIONS AND SET-BACK REQUIREMENTS

Table 3 presents the access controls and setback distances necessary to minimize direct and indirect public exposure to reclaimed wastewater. Setback distances recommended in this guidance document are in all cases the distance from the edge of any area receiving reclaimed wastewater to well casings, dwelling units, or occupied establishments.

In addition to the setbacks described in Table 3, all water supply wells within 200 feet of a wetted irrigation area must be evaluated for adequate well head construction and irrigation practices to ensure protection of ground water. NMED may impose additional setbacks as needed to make certain that the application of reclaimed wastewater does not threaten ground water resources.

Table 3. Access Restrictions and Set Back Requirements

Class of Reclaimed Wastewater	Spray Irrigation	Flood Irrigation and Surface Drip Irrigation
Class 1A	• No access control • No setback to dwelling unit or occupied establishment • Low pressure/low trajectory irrigation system only	• No access control
Class 1B	• No access control; irrigate at times when public exposure is unlikely • 100 ft set-back from dwelling unit or occupied establishment • Low pressure/low trajectory irrigation system only	• No access control; irrigate at times when public exposure is unlikely
Class 2	• Access restricted by perimeter fencing using 4-strand barbed wire and locking gate or other NMED approved access controls • 100 ft set-back from dwelling unit or occupied establishment • Low pressure/low trajectory irrigation system only	• Access restricted by perimeter fencing using 4-strand barbed wire and locking gate, or other NMED approved access controls
Class 3	• Access restricted by perimeter fencing using 4-strand barbed wire and locking gate • 500 ft set-back from dwelling unit or occupied establishment • Low pressure/low trajectory irrigation system only	• Access restricted by perimeter fencing using 4-strand barbed wire and locking gate • 100 ft set-back to dwelling unit or occupied establishment.

Appendix E
NMED Ground Water Discharge Permits – DP-215, DP-1650

[redacted]

State of New Mexico
ENVIRONMENT DEPARTMENT
Ground Water Quality Bureau
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Telephone (505) 827-2918
Fax (505) 827-2965

BILL RICHARDSON
GOVERNOR

RON CURRY
SECRETARY

DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

December 12, 2005

RECEIVED
DEC 19 2005
UTILITIES-ADMIN

Larry Webb, Director
City of Rio Rancho - Wastewater Treatment Plants 1, 2, 3 and 6
PO Box 15550
Rio Rancho, NM 87124

RE: Discharge Permit Renewal and Modification, City of Rio Rancho - Wastewater Treatment Plants 1, 2, 3 and 6, DP-215

Dear Mr. Webb:

The New Mexico Environment Department (NMED) issues the enclosed Discharge Permit Renewal and Modification, DP-215, to the City of Rio Rancho pursuant to the New Mexico Water Quality Act (WQA), NMSA 1978 §§74-6-1 through 74-6-17, and the New Mexico Water Quality Control Commission (WQCC) Regulations (copy previously provided), 20.6.2 NMAC.

The Discharge Permit contains terms and conditions that shall be complied with by the City of Rio Rancho and are enforceable by NMED pursuant to 20.6.2.3104 NMAC, WQA, NMSA 1978 §74-6-5 and §74-6-10. Issuance of this Discharge Permit does not relieve the City of Rio Rancho of its responsibility to comply with the WQA, WQCC Regulations, and any other applicable federal, state and/or local laws and regulations, such as zoning requirements and nuisance ordinances.

Pursuant to 20.6.2.3109.H.4 NMAC, the term of the Discharge Permit shall be five years from the date of issuance and will expire on December 12, 2010. You must submit an application for renewal at least 180 days before the permit expiration date.

If you have any questions, please contact Robert George at 505-476-3648. Thank you for your cooperation during this Discharge Permit review.

Sincerely,

George Schuman for W. Olson

William C. Olson, Chief
Ground Water Quality Bureau

WO:KV

enc: Discharge Permit Renewal and Modification
NMED Policy for the Above Ground Use of Reclaimed Domestic Wastewater, dated August 7, 2003
NMED Monitoring Well Construction and Abandonment Guidelines, dated June 6, 2000

cc: Thomas Skibitski, District Manager, NMED District I (permit)
NMED Rio Rancho Field Office (permit)
Paul Saavedra, State Engineer's Office (permit)

GROUND WATER DISCHARGE PERMIT RENEWAL AND MODIFICATION
City of Rio Rancho - Wastewater Treatment Plants 1, 2, 3 and 6, DP-215

I. INTRODUCTION

The New Mexico Environment Department (NMED) issues this Discharge Permit Renewal and Modification, DP-215, to the City of Rio Rancho (permittee) pursuant to the New Mexico Water Quality Act (WQA), NMSA 1978 §§74-6-1 through 74-6-17, and the New Mexico Water Quality Control Commission (WQCC) Regulations, 20.6.2 NMAC.

NMED's purpose in issuing this Discharge Permit, and in imposing the requirements and conditions specified herein, is to control the discharge of water contaminants from the City of Rio Rancho - Wastewater Treatment Plants 1, 2, 3 and 6 into ground and surface water, so as to protect ground and surface water for present and potential future use as domestic and agricultural water supply and other uses and protect public health. In issuing this Discharge Permit, NMED has determined that the requirements of 20.6.2.3109.C NMAC have been met.

The activities that produce the discharge, the location of the discharge, and the quantity, quality and flow characteristics of the discharge are briefly described as follows:

The City of Rio Rancho will receive and treat up to 8.64 million gallons per day (mgd) of municipal wastewater at four wastewater treatment plants (WWTP) as follows: WWTP 1 will receive and treat up to 1.5 mgd domestic wastewater in an extended aeration/activated sludge treatment plant equipped with a sand filter. During peak flows into WWTP 1, wastewater is diverted to a 3.5 million gallon capacity synthetically lined pond (pond 3) where it is stored until being returned to the plant headworks during non-peak flows for treatment. WWTP 2 will receive and treat up to 5.5 mgd of municipal wastewater in an extended aeration/activated sludge treatment plant. WWTP 3 will receive and treat up to 0.85 mgd of municipal wastewater in an extended aeration/activated sludge treatment plant. WWTP 6 (Cabezon) will receive and treat up to 0.79 mgd of municipal wastewater in a membrane bioreactor system. Following treatment and disinfection wastewater from the City of Rio Rancho WWTP's will be reused at various locations within the city (permitted under groundwater Discharge Permit DP-179) or discharged to the Rio Grande in accordance with NPDES Permits (NM0027987, NM0029602). Treated wastewater from WWTP 6 may also be disposed of in a leachfield. The discharge contains water contaminants or toxic pollutants that may be elevated above the standards of 20.6.2.3103 NMAC. The facilities are located in Rio Rancho in Sections 11, 21, and 32, T12N, R03E, and T12N, R02E, Sandoval County. Ground water below the sites is at depths ranging from approximately 15 feet to 300 feet and has a total dissolved solids concentration of approximately 245 milligrams per liter.

This Discharge Permit contains modifications to the previously issued Discharge Permit. The modification is to permit operation and maintenance of the City of Rio Rancho WWTP's under DP-215 and to permit irrigation of all City of Rio Rancho reuse areas under DP-179.

The permittee's Discharge Plan consists of the materials submitted by the City of Rio Rancho dated December 19, 2003. In addition, the Discharge Plan includes information and materials

submitted as part of the original Discharge Permit issued on August 16, 1982 and the materials for renewal and/or modification dated May 14, 1987, July 2, 1992, and July 23, 1999. The discharge shall be managed in accordance with the Discharge Plan as conditioned by this Discharge Permit.

Pursuant to 20.6.2.3109 NMAC, NMED reserves the right to require a Discharge Permit Modification in the event NMED determines that the requirements of 20.6.2 NMAC are being or may be violated or the standards of 20.6.2.3103 NMAC are being or may be violated. This may include a determination that structural controls and/or management practices approved under this Discharge Permit are not protective of ground water quality, and that more stringent requirements to protect and/or remediate ground water quality may be required by NMED. These requirements may include lining/relining lagoons, expanding land application areas, changing waste management practices, expanding monitoring requirements, and/or implementing abatement of water pollution.

Issuance of this Discharge Permit does not relieve the City of Rio Rancho of its responsibility to comply with the WQA, WQCC Regulations, and any other applicable federal, state and/or local laws and regulations, such as zoning requirements and nuisance ordinances.

The following abbreviations may be used in this permit:

Abbreviation	Explanation	Abbreviation	Explanation
BOD_5	biochemical oxygen demand (5-day)	NMSA	New Mexico Statutes Annotated
CFR	Code of Federal Regulations	NO_3-N	nitrate-nitrogen
CFU	colony forming units	NTU	nepholometric turbidity units
Cl	chloride	TDS	total dissolved solids
LADS	land application data sheet(s)	TKN	total Kjeldahl nitrogen
mg/L	milligrams per liter	TSS	total suspended solids
ml	milliliters	total nitrogen	TKN+NO_3-N
NMAC	New Mexico Administrative Code	WQCC	Water Quality Control Commission
NMED	New Mexico Environment Department		

II. FINDINGS

In issuing this Discharge Permit, NMED finds:

1. The City of Rio Rancho is discharging effluent or leachate from the City of Rio Rancho - Wastewater Treatment Plants 1, 2, 3 and 6 so that such effluent or leachate may move directly or indirectly into ground water within the meaning of 20.6.2.3104 NMAC.

2. The City of Rio Rancho is discharging effluent or leachate from the City of Rio Rancho - Wastewater Treatment Plants 1, 2, 3 and 6 so that such effluent or leachate may move

into ground water of the State of New Mexico which has an existing concentration of 10,000 milligrams per liter or less of total dissolved solids within the meaning of 20.6.2.3101.A NMAC.

3. The discharge from the City of Rio Rancho - Wastewater Treatment Plants 1, 2, 3 and 6 is not subject to any of the exemptions of 20.6.2.3105 NMAC.

III. CONDITIONS

The following conditions shall be complied with by the City of Rio Rancho and are enforceable by NMED. The City of Rio Rancho is permitted to discharge water contaminants subject to the following conditions:

OPERATIONAL PLAN

#	Terms and Conditions
1.	The permittee shall implement the following operational plan to ensure compliance with Title 20, Chapter 6, Parts 1 and 2 NMAC. [20.6.2.3106(C) NMAC][20.6.2.3107 NMAC]
2.	The permittee shall operate in a manner such that standards and requirements of 20.6.2.3103 including human health, other domestic water supply and irrigation standards are not violated. [20.6.2.3103 NMAC]
3.	The permittee is authorized to receive and treat up to 8.64 million gallons per day (mgd) of municipal wastewater at four wastewater treatment plants (WWTP) as follows: WWTP 1 will receive and treat up to 1.5 mgd domestic wastewater in an extended aeration/activated sludge treatment plant equipped with a sand filter. During peak flows into WWTP 1, wastewater is diverted to a 3.5 million gallon capacity synthetically lined pond (pond 3) where it is stored until being returned to the plant headworks during non-peak flows for treatment. WWTP 2 will receive and treat up to 5.5 mgd of municipal wastewater in an extended aeration/activated sludge treatment plant. WWTP 3 will receive and treat up to .85 mgd of municipal wastewater in an extended aeration/activated sludge treatment plant. WWTP 6 (Cabezon) will receive and treat up to .79 mgd of municipal wastewater in a membrane bioreactor system. Following treatment and disinfection wastewater from City of Rio Rancho WWTP's will be reused at various locations within the City of Rio Rancho (permitted under ground water Discharge Permit DP-179) or discharged to the Rio Grande in accordance with NPDES Permits (NM0027987, NM0029602). Treated wastewater from WWTP 6 may also be disposed of in a leachfield. [20.6.2.3109 NMAC, 20.6.2.3106 NMAC]
4.	Treated and disinfected wastewater discharged from WWTP 1, 2, and 3 shall not exceed the following limitations: TN: 20 mg/L (quarterly average of three monthly samples) Fecal coliform bacteria: 100 CFU/100 (30 day average) and 200 CFU/100 ml (maximum) BOD5: 30 mg/L (30 day average) and 45 mg/L (maximum) TSS: 30 mg/L (30 day average) and 45 mg/L (maximum). [20.6.2.3109 NMAC]

5.	Treated and disinfected wastewater discharged from WWTP 6 shall not exceed the following limitations: TN=10mg/L Fecal coliform bacteria: 5 CFU/100 (30 day average) and 23 CFU/100 ml (maximum)
	BOD5: 10 mg/L (30 day average) and 15 mg/L (maximum) Turbidity: 3 NTU (30 day average) and 5 NTU (maximum) [20.6.2.3109 NMAC]
6.	The permittee shall remove solids from the treatment plants as needed, depending on process control testing (e.g., 30-minute settleometer test). The solids shall be contained, transported, and disposed of in accordance with all local, state, and federal (40 CFR Part 503) regulations. Records of solids removal and disposal shall be submitted to NMED in the quarterly monitoring reports. [20.6.2.3109 NMAC]
7.	The permittee shall maintain fences around the wastewater treatment facilities. The fences shall be constructed in a manner which prevents access by children or dogs (e.g., chain link, field/woven fencing). The permittee shall post signs indicating that the water is not potable at the facility entrance and other areas where public contact is likely. [20.6.2.3109 NMAC]
8.	The permittee shall employ operators, certified by the State of New Mexico at the appropriate level, to operate the wastewater collection, treatment, disposal and reuse systems. All operations and maintenance of all or any part of the wastewater system shall be performed by, or under the direct supervision of, a certified operator. [20.7.4 NMAC]

MONITORING, REPORTING, AND OTHER REQUIREMENTS

#	**Terms and Conditions**
9.	The permittee shall conduct the monitoring, reporting, and other requirements listed below. [20.6.2.3107 NMAC]
10.	METHODOLOGY - Unless otherwise approved in writing by NMED, the permittee shall conduct sampling and analysis in accordance with the most recent edition of the following documents: a) American Public Health Association, Standard Methods for the Examination of Water and Wastewater; b) U.S. Environmental Protection Agency, Methods for Chemical Analysis of Water and Waste; c) U.S. Geological Survey, Techniques for Water Resources Investigations of the U.S. Geological Survey; d) American Society for Testing and Materials, Annual Book of ASTM Standards, Part 31. Water; e) U.S. Geological Survey, et al., National Handbook of Recommended Methods for Water Data Acquisition; and f) Methods of Soil Analysis: Part I Physical and Mineralogical Methods, and Part 2 Chemical and Microbiological Properties, Second Edition, American Society of Agronomy. [20.6.2.3107(B) NMAC]
11.	The permittee shall submit quarterly monitoring reports to NMED by March, June, September, and December 28 of each year. As detailed in other conditions in this permit, the reports shall include depth-to-water measurements, analytical results from wastewater and ground water sampling, and a record of solids pumping and disposal. These requirements are summarized on the attached sheet. Any inadvertent omissions from this summary of a

	monitoring or reporting requirement shall not relieve the permittee of responsibility for compliance with that requirement. [20.6.2.3107 NMAC]
12.	The permittee shall measure the monthly volume of treated wastewater discharged to the land application areas using totalizing flow meters installed on the transfer lines from WWTP 1, 2, 3, and 6. The permittee shall measure the volume of treated wastewater discharged form WWTP 6 to the leachfield using a totalizing meter. The monthly discharge volumes and meter readings shall be submitted to NMED in the quarterly monitoring reports. [20.6.2.3109(H)1 NMAC]
13.	The permittee shall sample wastewater from WWTP 1 according to the following schedule: BOD5: twelve-hour composite sample, 3 tests per week from holding pond TSS: twelve-hour composite sample, 3 tests per week from holding pond Fecal coliform bacteria: 3 tests per week from chlorine contact chamber at peak hourly flow Residual chlorine: 3 tests per week following chlorine contact chamber at peak hourly flow NO_3-N, TKN, TDS, chloride: monthly from holding pond Analytical results shall be submitted to NMED in the quarterly monitoring report. [20.6.2.3107 NMAC]
14.	The permittee shall sample wastewater from WWTP 2 according to the following schedule: BOD5: 24-hour composite sample, 3 tests per week from plant outfall TSS: 24-hour composite sample, 3 tests per week from plant outfall Fecal coliform bacteria: 3 tests per week from reuse tank Residual chlorine: 3 tests per week from reuse tank at peak hourly flow NO_3-N, TKN, TDS, chloride: monthly from reuse tank Analytical results shall be submitted to NMED in the quarterly monitoring report. [20.6.2.3107 NMAC]
15.	The permittee shall sample wastewater from WWTP 3 according to the following schedule: BOD5: three-hour composite sample, 1 test per week from plant outfall TSS: three-hour composite sample, 1 test per week from plant outfall Fecal coliform bacteria: 1 test per week from plant outfall Residual chlorine: 1 test per week following chlorine contact chamber at peak hourly flow NO_3-N, TKN, TDS, chloride: monthly from plant outfall Analytical results shall be submitted to NMED in the quarterly monitoring report. . [20.6.2.3109 NMAC]
16.	The permittee shall sample wastewater from WWTP 6 according to the following schedule: <u>Wastewater discharged for above ground reuse</u> BOD: 6-hour composite, 1 tests per 2 weeks Turbidity: continuous Fecal Coliform: grab sample at peak hourly flow, 1 test per week Total Residual Chlorine: grab sample at peak hourly flow <u>Wastewater discharged to leachfield or for above ground reuse</u> TKN, NO_3-N, TDS, chloride: quarterly Analytical results shall be submitted to NMED in the quarterly monitoring report. [20.6.2.3109 NMAC]
17.	The permittee shall perform semi-annual ground water sampling in 2 monitoring wells at WWTP 1. The ground water sampling shall be performed according to the following

	procedure: (1) measure the depth to ground water to the nearest hundredth of a foot (including the Intel piezometer); (2) purge three well volumes of water from the well prior to sample collection; and (3) obtain samples from the well to be analyzed for NO_3-N, TKN, TDS, and Cl. Depth-to-water measurements and analytical results shall be submitted to NMED in the quarterly monitoring reports due March and Sept. 28th. See Monitoring Details sheet for summary. [20.6.2.3107 NMAC]

CONTINGENCY PLAN

#	Terms and Conditions
18.	In the event that monitoring indicates ground water standards are violated during the term of this Discharge Permit, upon closure of the facility or during post-closure monitoring, the permittee shall collect a confirmatory sample from the monitoring well(s) within 15 days to confirm the initial sampling results. Within 30 days of confirmation of ground water contamination, the permittee shall submit a plan to NMED to abate water pollution that includes a site investigation to define the source, nature and extent of contamination; a proposed abatement option; and a schedule for its implementation. The site investigation and abatement option shall be consistent with the requirements and provisions of 20.6.2.4101, 4103, 4106, 4107, and 4112 NMAC. The abatement plan shall be implemented within 30 days of NMED approval. [20.6.2.3107(A)10 NMAC]
19.	In the event of a spill or release that is not prescribed under this Discharge Permit, the permittee shall initiate the notifications and corrective actions as required in 20.6.2.1203 NMAC. The permittee shall take immediate corrective action to contain and remove or mitigate the damage caused by the discharge. Within 24 hours after discovery of the discharge, the permittee shall verbally notify NMED and provide the information required by 20.6.2.1203.A.1 NMAC. Within 7 days of discovering the discharge, the permittee shall submit a written report to NMED verifying the oral notification and providing any additional information or changes. The permittee shall submit a corrective action report within 15 days after discovery of the discharge. [20.6.2.1203 NMAC]
20.	If NMED or the permittee identify any other failures of the discharge plan or system not specifically noted below, NMED may require the permittee to develop for NMED approval contingency plans and schedules to cope with the failures. [20.6.2.3107(A)10 NMAC]
21.	In the event that analytical results of a reclaimed wastewater sample exceed a total nitrogen limitation set in Condition 4 and/or 5 of this Discharge Permit, the permittee shall enact the following contingency plan: a) NMED shall be notified immediately that the contingency plan is being enacted. b) Wastewater sampling and analysis for TKN and NO_3-N required in Condition 13, 14, 15 or 16, as appropriate, shall be done twice monthly. c) The permittee shall examine the operation and maintenance log, required under the Record Keeping section of this Discharge Permit, for improper operational procedures. The permittee shall also conduct a physical inspection of the treatment system to detect abnormalities. Any abnormalities discovered shall be corrected.

	d) If analytical results from wastewater sampling still exceed the limitation after 30 days, the permittee shall submit a corrective action plan for NMED approval to modify operational procedures and/or upgrade the treatment process to achieve the effluent limit. This plan shall be submitted within 60 days of originally confirming that the effluent limit was exceeded. The corrective action plan shall be implemented immediately upon NMED approval. e) When analytical results from three consecutive months of wastewater sampling do not exceed the limitation, the permittee shall return to normal monitoring. [20.6.2.3107(A)10 NMAC]. [20.6.2.3107(A)10 NMAC]
22.	In the event that analytical results of a reclaimed domestic wastewater sample exceed any of the maximum limitations for BOD5, TSS, turbidity, or fecal coliform bacteria set by this Discharge Permit, the permittee shall re-sample within 24 hours of becoming aware of the exceedance to confirm the initial results. If the exceedance of any of the maximum limitations is confirmed, or if any of the 30-day average limitations is exceeded, the permittee shall enact the following contingency plan: a) NMED shall be notified immediately that the contingency plan is being enacted. b) The permittee shall immediately cease discharging reclaimed domestic wastewater to the land application area. c) The permittee shall examine the operation and maintenance log, required under the Record Keeping section of this Discharge Permit, for improper operational procedures. The permittee shall also conduct a physical inspection of the treatment system to detect abnormalities. Any abnormalities discovered shall be corrected. d) When the analytical results from samples of reclaimed domestic wastewater, sampled as required by this Discharge Permit, no longer exceed any of the maximum limitations, the permittee may resume discharging reclaimed wastewater to the land application area. If a facility is required to enact the contingency plan more than once in any quarterly monitoring period or more than two times in a calendar year, the permittee shall submit a corrective action plan for NMED approval to modify operational procedures and/or upgrade the treatment process to achieve consistent compliance with the maximum and 30-day average limitations. Additional sampling of stored reclaimed wastewater prior to discharge to the land application area may be required as part of the corrective action plan. [20.6.2.3107(A)10 NMAC]

CLOSURE PLAN

#	Terms and Conditions
23.	Upon closure of the facility, the permittee shall perform the following closure measures: a) Remove or plug all pipes to and from all treatment and pre-treatment units so that a discharge can no longer occur. b) Pump out any liquid waste contained in the abandoned waste treatment units and pump stations, and dispose of pumpings in accordance with all local, state, and federal regulations.

	c) Perforate tanks and liners and backfill the abandoned treatment units and pump stations with clean fill or remove units from the site. d) Continue ground water monitoring as described in Condition 17 of this permit for two years after closure to confirm the absence of ground water contamination. If monitoring results show that the ground water standards in 20.6.2.3103 NMAC are being exceeded, the permittee shall implement the contingency plan described in Condition 18 of this permit. e) Following notification from NMED that post-closure monitoring may cease, the permittee shall plug and abandon the monitoring well(s) in accordance with NMED for Monitoring Well Construction and Abandonment Guidelines (copy enclosed). f) When all post-closure requirements have been met, the permittee may request to terminate the discharge permit. [20.6.2.3107(A)11 NMAC]

GENERAL TERMS AND CONDITIONS

#	Terms and Conditions
24.	RECORD KEEPING - The permittee shall maintain at its facility a written record of all data and information related to field measurements, sampling, and analysis conducted pursuant to this Discharge Permit. The following information shall be recorded and shall be made available to the NMED upon request: a. The dates, exact place and times of sampling or field measurements; b. The name and job title of the individuals who performed each sample collection or field measurement; c. The date of the analysis of each sample; d. The name and address of the laboratory and the name and job title of the person that performed the analysis of each sample; e. The analytical technique or method used to analyze each sample or take each field measurement; f. The results of each analysis or field measurement, including raw data; g. The results of any split sampling, spikes or repeat sampling; and h. A description of the quality assurance and quality control procedures used. [20.6.2.3107(A) NMAC]
25.	RECORD KEEPING - The permittee shall maintain a written record of any spills, seeps, and/or leaks of effluent, and of leachate and/or process fluids not authorized by this Discharge Permit. [20.6.2.3107(A) NMAC]
26.	RECORD KEEPING - The permittee shall maintain a written record of the operation, maintenance, and repair of all facilities/equipment used to treat, store or dispose of wastewater; to measure flow rates, to monitor water quality, or to collect other data required by this Discharge Permit. This record shall include repair, replacement or calibration of any monitoring equipment and repair or replacement of any equipment used in the permittee's waste or wastewater treatment and disposal system. [20.6.2.3107(A) NMAC]
27.	RECORD KEEPING - The permittee shall maintain a written record of the amount of wastewater that is discharged from WWTP's 1, 2, 3, and 6. [20.6.2.3107(A) NMAC]
28.	RECORD KEEPING - The permittee shall retain records of all monitoring information, including all calibration and maintenance records, copies of all reports required by this Discharge Permit, and records of all data used to complete the application for this Discharge Permit for a period of at least five years from the date of the sample collection,

	measurement, report or application. This period may be extended by request of the Secretary at any time. [20.6.2.3107(A) NMAC]
29.	INSPECTION and ENTRY - The permittee shall allow the Secretary or an authorized representative, upon the presentation of credentials, to: a. Enter at regular business hours or at other reasonable times upon the permittee's premises or other location where records must be kept under the conditions of this Discharge Permit, or under any federal or WQCC regulation. b. Inspect and copy, during regular business hours or at other reasonable times, any records required to be kept under the conditions of this Discharge Permit, or under any federal or WQCC regulation. c. Inspect, at regular business hours or at other reasonable times, any facility, equipment (including monitoring and control equipment or treatment works), practices or operations regulated or required under this Discharge Permit, or under any federal or WQCC regulation. d. Sample or monitor, at reasonable times for the purpose of assuring compliance with this Discharge Permit or as otherwise authorized by the New Mexico Water Quality Act, any effluent, water contaminant, or receiving water at any location before or after discharge. [20.6.2.3107(D) NMAC][74-6-9.B & E WQA]
30.	INSPECTION and ENTRY - Nothing in this Discharge Permit shall be construed as limiting in any way the inspection and entry authority of NMED under the WQA, the WQCC Regulations, or any other applicable law or regulation. [20.6.2.3107 NMAC]
31.	DUTY to PROVIDE INFORMATION - The permittee shall furnish to the NMED, within a reasonable time, any documents or other information which it may request to determine whether cause exists for modifying, terminating and/or renewing this Discharge Permit or to determine compliance with this Discharge Permit. The permittee shall also furnish to the NMED, upon request, copies of documents required to be kept by this Discharge Permit. [20.6.2.3107(D) NMAC][74-6-9.B & E WQA]
32.	SPILLS, LEAKS, and OTHER UNAUTHORIZED DISCHARGES - This Discharge Permit authorizes only those discharges specified herein. Any unauthorized discharges violate 20.6.2.3104 NMAC, and must be reported to the NMED and remediated as required by 20.6.2.1203 NMAC. This requirement applies to all seeps, spills, and/or leaks discovered from the wastewater collection, treatment, and disposal system. [20.6.2.1203 NMAC]
33.	MODIFICATIONS and/or AMENDMENTS - The permittee shall notify NMED of any changes to the permittee's wastewater treatment and disposal system, including any changes in the wastewater flow rate or the volume of wastewater storage, or of any other changes to operations or processes that would result in any significant change in the discharge of water contaminants. The permittee shall obtain NMED's approval, as a modification to this Discharge Permit pursuant to 20.6.2.3109.E, F, or G NMAC, prior to any increase in the quantity discharged, or any increase in the concentration of water contaminants discharged, above those levels approved in this Discharge Permit. [20.6.2.3107(C) NMAC]
34.	ENFORCEMENT - Any violation of the requirements and conditions of this Discharge Permit, including any failure to allow NMED staff to enter and inspect records or facilities, or any refusal or failure to provide NMED with records or information, may subject the permittee to an enforcement action. Pursuant to WQA 74-6-10.A and B, such action may include a compliance order requiring compliance immediately or in a specified time, assessing a civil penalty, modifying or terminating the Discharge Permit, or any combination of the foregoing; or an action in district court seeking injunctive relief, civil

	penalties, or both. Pursuant to WQA 74-6-10.C and 74-6-10.1, civil penalties of up to $15,000 per day of noncompliance may be assessed for each violation of the WQA 74-6-5, the WQCC regulations, or this Discharge Permit, and civil penalties of up to $10,000 per day of noncompliance may be assessed for each violation of any other provision of the WQA, or any regulation, standard, or order adopted pursuant to such other provision. For certain violations specified in WQA 74-6-10.2, criminal penalties may also apply. In any action to enforce this Discharge Permit, the permittee waives any objection to the admissibility as evidence of any data generated pursuant to this Discharge Permit. [74-6 Water Quality Act]
35.	COMPLIANCE WITH OTHER LAWS - Nothing in this Discharge Permit shall be construed in any way as relieving the Permittee of its obligation to comply with all applicable federal, state, and local laws, regulations, permits or orders. [20.6.2 NMAC]
36.	RIGHT to APPEAL - The permittee may file a petition for hearing before the WQCC on this Discharge Permit. Such petition shall be in writing to the WQCC within thirty (30) days of the receipt of this Discharge Permit. Unless a timely petition for hearing is made, the decision of NMED shall be final. [74-6-5.N Water Quality Act]
37.	TRANSFER of DISCHARGE PERMIT - Prior to the transfer of any ownership, control, or possession of this permitted facility or any portion thereof, the permittee shall notify the proposed transferee in writing of the existence of this Discharge Permit and include a copy of this Discharge Permit with the notice. The permittee shall deliver or send by certified mail to NMED a copy of the notification and proof that such notification has been received by the proposed transferee. [20.6.2.3111 NMAC]
38.	TERM - Pursuant to the WQA 74-6-5.H, and 20.6.2.3109.H NMAC, the term of this Discharge Permit is five (5) years, and the Discharge Permit will automatically terminate five (5) years from the date it is issued. To renew this Discharge Permit, the permittee must submit an application for renewal at least 180 days before the termination date. [20.6.2.3109(H) NMAC][74-6-5.H WQA]

EFFECTIVE DATE: December 12, 2005
EXPIRATION DATE: December 12, 2010

George Schuman for W. Olson

William C. Olson
Chief, Ground Water Quality Bureau
New Mexico Environment Department

New Mexico Environment Department Ground Water Quality Bureau
Discharge Permit Renewal and Modification
Summary of Required Actions, Monitoring and Reporting

City of Rio Rancho, DP-215
Effective Date: December 12, 2005

Draft

Required Actions

#	Description of Required Actions	Due Date
1.	Submit Monitoring Reports, containing items specified below.	quarterly by the 28th of Mar, June, Sept, Dec

Monitoring and Reporting Requirements

#	Description of Monitoring and Reporting Requirements	Monitoring Frequency	Reporting Due Dates
1.	Measure depth to water from 2 monitoring wells and intel piezometer and analyze ground water samples from 2 monitoring wells for NO_3-N, TKN, TDS, Cl. Submit measurements and analytical results (laboratory reports or bench sheets).	Semi-annually	28th of Mar and Sept
2.	Analyze treated wastewater sample from WWTP's 1, 2, 3, and 6 for TKN, NO_3-N, TDS, Cl. Submit analytical results (laboratory reports or bench sheets).	quarterly	28th of Mar, June, Sept, Dec
3.	Analyze reclaimed wastewater from WWTP 6 for:		
	a. BOD_5 (6-hour composite sample). Submit analytical results.	1 test/2 weeks	28th of Mar, June, Sept, Dec
	b. Fecal coliform bacteria (grab sample at peak daily flow). Submit analytical results.	1 test/week	
	c. Turbidity. Submit monthly average and monthly maximum values.	continuous	
	d. Analyze TRC (grab sample at peak flow). Submit analytical results.	1 test/week	
4.	Analyze reclaimed wastewater from the WWTP #1 holding pond for:		
	a. BOD_5 and TSS (12-hour composite sample). Submit analytical results.	3 tests / week	28th of Mar, June, Sept, Dec
	b. Analyze TRC (grab sample at peak flow following chlorine contact chamber). Submit analytical results. Submit recorded values.	3 tests / week	
	c. Fecal coliform bacteria (grab sample at peak daily flow from chlorine contact chamber). Submit analytical results.	3 tests / week	
5.	Analyze reclaimed wastewater from the WWTP #2 outfall for:		
	a. BOD_5 and TSS (24-hour composite sample). Submit analytical results.	3 tests / week	28th of Mar, June, Sept, Dec
	b. Fecal coliform bacteria (grab sample at peak daily flow from reuse tank discharge line). Submit analytical results.	3 tests / week	
	c. Analyze TRC (grab sample at peak daily flow from reuse tank). Submit analytical results.	3 test / week	
6.	Analyze reclaimed wastewater from the WWTP #3 outfall for:		

Summary of Required Actions, Monitoring and Reporting, DP-215
Page 2

#	Description of Monitoring and Reporting Requirements	Monitoring Frequency	Reporting Due Dates
	a. BOD_5 and TSS (3-hour composite sample). Submit analytical results.	1 test / week	28th of Mar, June, Sept, Dec
	b. Fecal coliform bacteria (grab sample at peak daily flow from chlorine contact chamber). Submit analytical results.	1 test / week	
	c. Analyze TRC (grab sample at peak flow following chlorine contact chamber). Submit analytical results.	1 test / week	
7.	Remove solids from the treatment plant as needed based on process control testing. Submit record of solids removal and disposal.	as needed	28th of Mar, June, Sept, Dec
8.	Record monthly meter readings and calculate discharge volumes. Submit meter readings and discharge volumes.	monthly	28th of Mar, June, Sept, Dec

NOTE: See Discharge Permit for full requirement details.

Submit all reports to:

NMED Ground Water Quality Bureau
PO Box 26110
Santa Fe, New Mexico 87502

draft

New Mexico Environment Department Ground Water Quality Bureau
Discharge Permit Renewal and Modification
Summary of Required Actions, Monitoring and Reporting

City of Rio Rancho, DP-215
Effective Date: December 12, 2005

Required Actions

#	Description of Required Actions	Due Date
1.	Submit Monitoring Reports, containing items specified below.	quarterly by the 28th of Mar, June, Sept, Dec

Monitoring and Reporting Requirements

#	Description of Monitoring and Reporting Requirements	Monitoring Frequency	Reporting Due Dates
1.	Measure depth to water from 2 monitoring wells and Intel piezometer and analyze ground water samples from 2 monitoring wells for NO_3-N, TKN, TDS, Cl. Submit measurements and analytical results (laboratory reports or bench sheets).	Semi-annualy	28th of Mar and Sept
2.	Analyze treated wastewater sample from WWTP's 1, 2, 3, and 6 for TKN, NO_3-N, TDS, Cl. Submit analytical results (laboratory reports or bench sheets).	quarterly	28th of Mar, June, Sept, Dec
3.	Analyze reclaimed wastewater from WWTP 6 for:		
	a. BOD_5 (6-hour composite sample). Submit analytical results.	1 test/2 weeks	28th of Mar, June, Sept, Dec
	b. Fecal coliform bacteria (grab sample at peak daily flow). Submit analytical results.	1 test/week	
	c. Turbidity. Submit monthly average and monthly maximum values.	continuous	
	d. Analyze TRC (grab sample at peak flow). Submit analytical results.	1 test/week	
4.	Analyze reclaimed wastewater from the WWTP #1 holding pond for:		
	a. BOD_5 and TSS (12-hour composite sample). Submit analytical results.	3 tests / week	28th of Mar, June, Sept, Dec
	b. Analyze TRC (grab sample at peak flow following chlorine contact chamber). Submit analytical results. Submit recorded values.	3 tests / week	
	c. Fecal coliform bacteria (grab sample at peak daily flow from chlorine contact chamber). Submit analytical results.	3 tests / week	
5.	Analyze reclaimed wastewater from the WWTP #2 outfall for:		
	a. BOD_5 and TSS (24-hour composite sample). Submit analytical results.	3 tests / week	28th of Mar, June, Sept, Dec
	b. Fecal coliform bacteria (grab sample at peak daily flow from reuse tank discharge line). Submit analytical results.	3 tests / week	
	c. Analyze TRC (grab sample at peak daily flow from reuse tank). Submit analytical results.	3 test / week	
6.	Analyze reclaimed wastewater from the WWTP #3 outfall for:		
	a. BOD_5 and TSS (3-hour composite sample). Submit analytical results.	1 test / week	28th of Mar, June, Sept, Dec
	b. Fecal coliform bacteria (grab sample at peak daily flow from chlorine contact chamber). Submit analytical results.	1 test / week	

Summary of Required Actions, Monitoring and Reporting, DP-215
Page 2

#	Description of Monitoring and Reporting Requirements	Monitoring Frequency	Reporting Due Dates
	c. Analyze TRC (grab sample at peak flow following chlorine contact chamber). Submit analytical results.	1 test / week	
7.	Remove solids from the treatment plant as needed based on process control testing. Submit record of solids removal and disposal.	as needed	28th of Mar, June, Sept, Dec
8.	Record monthly meter readings and calculate discharge volumes. Submit meter readings and discharge volumes.	monthly	28th of Mar, June, Sept, Dec

NOTE: See Discharge Permit for full requirement details.

Submit all reports to:

NMED Ground Water Quality Bureau
PO Box 26110
Santa Fe, New Mexico 87502

New Mexico Environment Department Ground Water Quality Bureau
Discharge Permit Summary

Facility Information

Facility Name City of Rio Rancho - Wastewater Treatment Plants 1, 2, 3 and 6
Discharge Permit Number DP-215

Legally Responsible Party Larry Webb, Utilities Director
City of Rio Rancho
PO Box 15550
Rio Rancho, NM 87124
505-896-8768

Treatment, Disposal and Site Information

Primary Waste Type Domestic
Facility Type MUNI-Wastewater

Treatment Methods

Treatment Type	Designation	Description & Comments
Equalization Basin/Tank	Pond #3	EQ Basin at WWTP #1
Wastewater Treatment System	WWTP #3	Extended aeration/activated sludge
Wastewater Treatment System	WWTP #2	Extended aeration/activated sludge
Wastewater Treatment System	WWTP #1	Extended aeration/activated sludge with sand filter
Wastewater Treatment System	WWTP #6, Cabezon	Membrane bioreactor

Discharge Locations

Discharge Type	Designation
Wastewater	WWTP #6 leachfield

Depth to Ground Water 15-300 feet
Total Dissolved Solids (TDS) 245 mg/L

Permit Information

Application Received December 19, 2003
Public Notice Published October 28, 2005
Discharge Permit Approved December 12, 2005
Discharge Permit Expires December 12, 2010
Permitted Discharge Volume 8,640,000 gallons per day

NMED Contact Information

Mailing Address Ground Water Quality Bureau
PO Box 26110

	Santa Fe, New Mexico 87502
Telephone Number	505-827-2900
NMED Lead Staff	Robert George
Lead Staff Telephone Number	505-476-3648
Lead Staff E-Mail	robert.george@state.nm.us

NM ENVIRONMENT DEPARTMENT - GROUND WATER POLLUTION PREVENTION SECTION
MONITORING WELL CONSTRUCTION AND ABANDONMENT GUIDELINES

Purpose: These guidelines provide minimum construction and abandonment standards for drilled monitoring wells to be sampled for general chemistry analyses. There may be additional requirements if hydrocarbons or other chemicals are involved. Different guidelines may also apply for other types of well construction (eg., driven wells)

General Drilling Specifications:

1. No contaminants shall be present in the drilling fluids.
2. All drill bits, drill rods, and down-hole tools shall be thoroughly cleaned immediately prior to the start of drilling.
3. The bore hole diameter shall be drilled a minimum of 4 inches larger than the casing diameter to allow for the emplacement of sand and sealant.
4. After completion, the well should be allowed to stabilize for 24 hours before development is initiated.
5. The well shall be developed so that formation water flows freely through the screen and is not turbid, and all sediment has been removed from the well.

Well Specifications: (Refer to figure on reverse side.)

1. Schedule 40 or heavier PVC pipe, not less than 2 inches ID, shall be used as casing. The casing shall extend from the top of the screen to at least one foot above ground surface. No glues shall be used at casing joints; threaded PVC is preferred. The top of the casing must be protected by a cap, and the exposed casing must be protected by a locking shroud. The shroud shall be large enough in diameter to allow easy access for removal of the plastic cap on the PVC casing.
2. A 20-foot section of machine slotted or other manufactured screen shall be installed. A slot size of 0.010-inch is generally adequate for most installations. (No hack-saw slotting.)
3. The top of the screen shall be 5 feet above the water table to allow for seasonal fluctuations. A variance should be sought for screening intervals in very shallow groundwater (< 10 feet).
4. The screen section shall have centralizers at the top and bottom.
5. The annular space from 2 feet below the bottom of the screen to 2 feet above the top of the screen shall be packed with clean, medium to coarse sand. The sand pack shall be properly sized to prevent fine particles in the formation from entering the well. For wells deeper than 30 feet, the sand shall be placed by a tremmie pipe. The well should be surged or bailed to settle the sand pack and additional sand added, if necessary, before the bentonite/cement is emplaced.
6. The annular space above the sand pack shall be grouted or sealed at least 2 feet above the sand pack. Pressure grouting with bentonite or cement using a tremmie pipe is preferred. An alternative is to form a bentonite seal by emplacing and hydrating bentonite pellets (0.25 or 0.5 inch in size). Adequate time should be allowed for the bentonite/cement to cure before placing materials on top of the seal.
7. The annular space above the bentonite/cement seal can be filled with uncontaminated drill cuttings, clean sandy clay or fine grained soil to within 10 feet of the ground surface. The remaining 10 feet must be sealed with a bentonite-cement grout seal (2 to 8% bentonite by weight) and allowed to cure for at least 24 hours before installing a surface pad.
8. A 2-foot minimum radius, 4-inch minimum thickness concrete pad shall be poured around the shroud. The concrete and surrounding soil shall be sloped to direct rainfall and runoff away from the shroud.

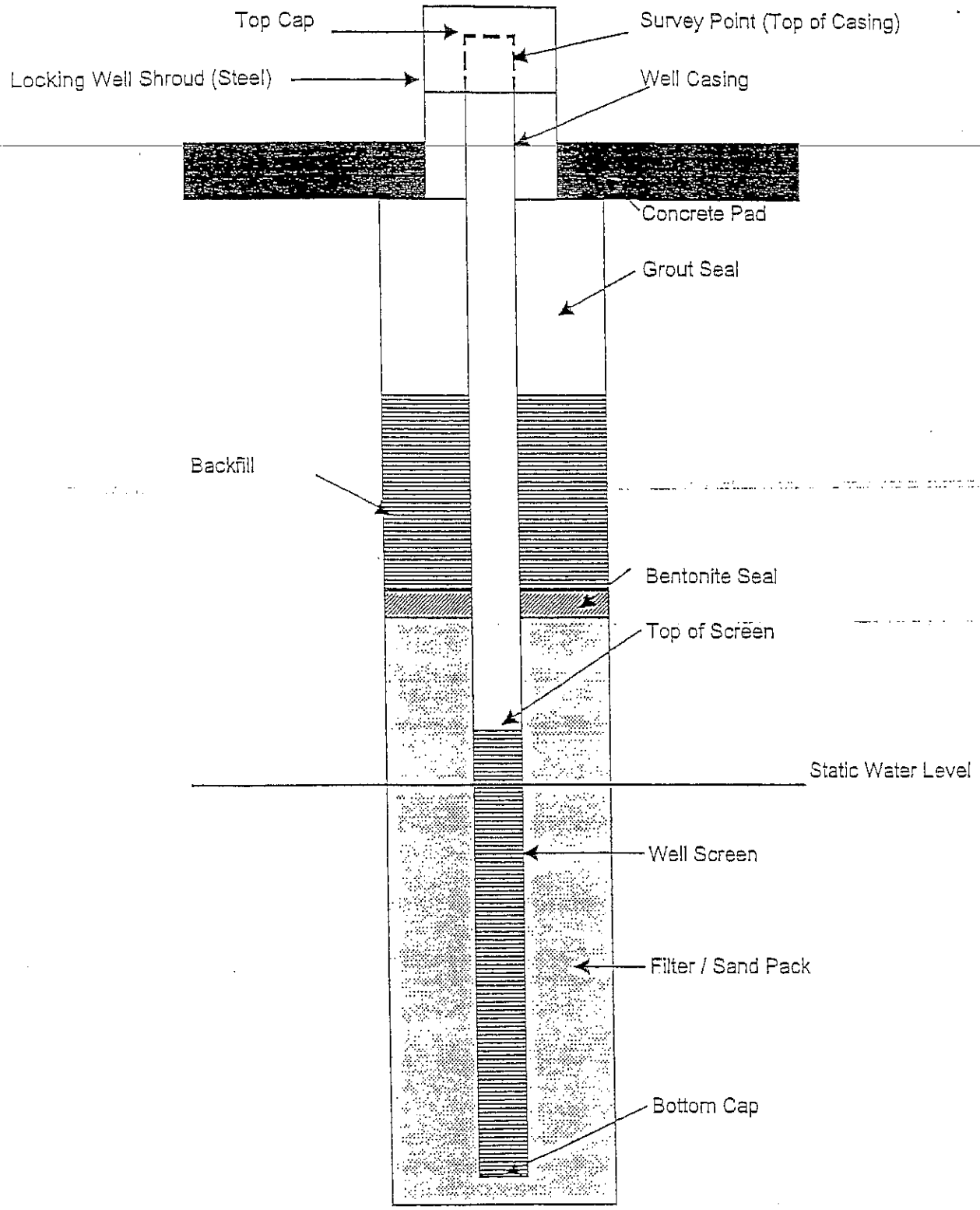
Abandonment:

1. Monitoring wells no longer in use shall be plugged in such a manner as to prevent migration of surface runoff or ground water along the length of the well casing. Where possible, this shall be accomplished by removing the well casing and pumping expanding cement from the bottom to the top of the well using a tremmie pipe. If the casing cannot be removed, the casing shall be ripped or perforated and pressure grouted along its entire length.
2. Filling with bentonite pellets from the bottom to the top is an acceptable alternative to pressure grouting.
3. After abandonment, written notification must be submitted to the GWPPS with date and method of abandonment.

Variances: Requests for variances from these guidelines shall be submitted in writing to the Program Manager, NMED Ground Water Pollution Prevention Section (GWPPS), 1190 St. Francis Drive, P.O. Box 26110, Santa Fe, NM 87502. Each request shall explain in detail the evidence supporting the request. The GWPPS approval also shall be in writing.

Signed: _____ Date: 6-6-2000

Maura Hanning, Program Manager, GWPPS



Generalized Monitoring Well Schematic (Not to Scale)

NEW MEXICO
ENVIRONMENT DEPARTMENT

Harold Runnels Building
1190 St. Francis Drive
P.O. Box 5469, Santa Fe, New Mexico 87502-5469
Phone (505) 827-2855 Fax (505) 827-2965
www.nmenv.state.nm.us

SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

RYAN FLYNN
Secretary

BUTCH TONGATE
Deputy Secretary

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

November 14, 2014

Larry Webb, Utilities Division Manager
City of Rio Rancho
3200 Civic Center Circle NE
Rio Rancho, NM 87144

RE: Discharge Permit, DP-1650, Rio Rancho Direction Injection Aquifer Recharge Demonstration

Dear Mr. Webb:

The New Mexico Environment Department (NMED) issues the enclosed Discharge Permit, DP-1650 to the City of Rio Rancho (permittee) pursuant to the New Mexico Water Quality Act (WQA), NMSA 1978 §§74-6-1 through 74-6-17, and the New Mexico Water Quality Control Commission (WQCC) Regulations, 20.6.2 NMAC.

The Discharge Permit contains terms and conditions that shall be complied with by the permittee and are enforceable by NMED pursuant to Section 20.6.2.3104 NMAC, WQA, NMSA 1978 §74-6-5 and §74-6-10. Please be aware that this Discharge Permit may contain conditions that require the permittee to implement operational, monitoring or closure actions by a specified deadline. Such conditions are listed at the beginning of the operational, monitoring and closure plans of this Discharge Permit.

Issuance of this Discharge Permit does not relieve the permittee of the responsibility to comply with the WQA, WQCC Regulations, and any other applicable federal, state and/or local laws and regulations, such as zoning requirements and nuisance ordinances.

Pursuant to Paragraph (4) of Subsection H of 20.6.2.3109 NMAC, the term of the Discharge Permit shall be seven years from the effective date (i.e., date) or five years from the date the

discharge commences, whichever occurs first. Prior to discharging, written notification shall be given to NMED stating the date the discharge is to commence.

NMED requests that the permittee submit an application for renewal (or renewal and modification) at least 180 days prior to the date the Discharge Permit term ends.

An invoice for the Discharge Permit Fee of $7,000 is being sent under separate cover. Payment of the Discharge Permit Fee must be received by NMED within 30 days of the date the Discharge Permit is issued.

If you have any questions, please contact Steve Huddleson at (505) 827-2936. Thank you for your cooperation during this Discharge Permit review.

Sincerely,

Jerry Schoeppner, Chief
Ground Water Quality Bureau

JS:SMH/smh

Encs: Discharge Permit, DP-1650
Most Stringent Enforceable Standards (MSES)

cc: Bill Chavez, District Manager, NMED District I (electronic copy)
NMED Rio Rancho Field Office (electronic copy)
John Romero, Office of the State Engineer (electronic copy)
Robert Marley, Daniel B. Stephens & Associates, Inc., 6020 Academy NE, Suite 100, Albuquerque, NM

GROUND WATER DISCHARGE PERMIT
Rio Rancho Direct Injection Aquifer Recharge Demonstration, DP-1650

I. INTRODUCTION

The New Mexico Environment Department (NMED) issues this Discharge Permit (Discharge Permit), DP-1650, to the City of Rio Rancho (permittee) pursuant to the New Mexico Water Quality Act (WQA), NMSA 1978 §§74-6-1 through 74-6-17, and the New Mexico Water Quality Control Commission (WQCC) Regulations, 20.6.2 NMAC.

NMED's purpose in issuing this Discharge Permit, and in imposing the requirements and conditions specified herein, is to control the discharge of water contaminants from the Rio Rancho Direct Injection Aquifer Recharge Demonstration Facility (facility) into ground and surface water, so as to protect ground and surface water for present and potential future use as domestic and agricultural water supply and other uses and protect public health. In issuing this Discharge Permit, NMED has determined that the requirements of Subsection C of 20.6.2.3109 NMAC have been or will be met. Pursuant to Section 20.6.2.3104 NMAC, it is the responsibility of the permittee to comply with the terms and conditions of this Discharge Permit; failure may result in an enforcement action(s) by NMED (20.6.2.1220 NMAC).

The activities which produce the discharge, the location of the discharge, and the quantity, quality and flow characteristics of the discharge are briefly described as follows:

Up to 1.0 million gallons per day (MGD) of advanced treated and disinfected reclaimed wastewater is directly injected into ground water to supplement regional aquifer recharge. Class 1A reclaimed wastewater is obtained from the Rio Rancho re-use distribution system and further treated at the demonstration facility prior to injection. The on-site advanced water treatment system includes an ozone-based advanced oxidation process, multiple granular and biologically activated carbon units, followed by final disinfection using ultraviolet (UV) radiation and/or chlorine prior to direct injection. Discharge volumes will be greatest during the months of October through March when municipal and public demand for reclaimed wastewater is limited. The discharge may contain trace organic compounds, contaminants listed in Section 20.6.2.3103 NMAC, and/or the presence of toxic pollutants as defined in Subsection WW of 20.6.2.7 NMAC.

The facility is located at 3354 8th Avenue NE, approximately 0.5 miles southeast of the intersection of Broadmoor Drive and Northern Boulevard in Rio Rancho, Section 18, Township 12 North, Range 03 East, Sandoval County. Ground water most likely to be affected is at a depth of approximately 560 to 1,750 feet below ground surface (bgs) and has a total dissolved solids concentration of approximately 360 - 460 milligrams per liter.

The application (i.e., discharge plan) consists of the materials submitted by the permittee dated June 13, 2012 and materials contained in the administrative record prior to issuance of this Discharge Permit. The discharge shall be managed in accordance with all conditions and requirements of this Discharge Permit.

Pursuant to Section 20.6.2.3109 NMAC, NMED reserves the right to require a Discharge Permit Modification in the event NMED determines that the requirements of 20.6.2 NMAC are being or may be violated or the standards of Section 20.6.2.3103 NMAC are being or may be violated. This may include a determination that structural controls and/or management practices approved under this Discharge Permit are not protective of ground water quality, and that more stringent requirements to protect ground water quality may be required by NMED. The permittee may be required to implement abatement of water pollution and remediate ground water quality.

Issuance of this Discharge Permit does not relieve the permittee of the responsibility to comply with the WQA, WQCC Regulations, and any other applicable federal, state and/or local laws and regulations, such as zoning requirements and nuisance ordinances.

The following acronyms and abbreviations may be used in this Discharge Permit:

Abbreviation	Explanation		Abbreviation	Explanation
BOD_5	biochemical oxygen demand (5-day)		NTU	nephelometric turbidity units
CFR	Code of Federal Regulations		Org	Organisms
Cl	Chloride		TDS	total dissolved solids
EPA	United States Environmental Protection Agency		TKN	total Kjeldahl nitrogen
gpd	gallons per day		total nitrogen	= TKN + NO_3-N
LADS	land application data sheet(s)		TOC	Total Organic Carbon
mg/L	milligrams per liter		TRC	Total Residual Chlorine
mL	Milliliters		TSS	total suspended solids
ND	Non-detect		UPC	Uniform Plumbing Code
NMAC	New Mexico Administrative Code		WQA	New Mexico Water Quality Act
NMED	New Mexico Environment Department		WQCC	Water Quality Control Commission
NMSA	New Mexico Statutes Annotated		WWTF	Wastewater Treatment Facility
NO_3-N	nitrate-nitrogen			

II. FINDINGS

In issuing this Discharge Permit, NMED finds:

1. The permittee is discharging effluent or leachate from the facility so that such effluent or leachate may move directly or indirectly into ground water within the meaning of Section 20.6.2.3104 NMAC.

2. The permittee is discharging effluent from the facility so that such effluent may move into ground water of the State of New Mexico which has an existing concentration of 10,000 mg/L or less of TDS within the meaning of Subsection A of 20.6.2.3101 NMAC.

3. The discharge from the facility is not subject to any of the exemptions of Section 20.6.2.3105 NMAC.

4. The permittee is operating a Class V underground injection control (UIC) recharge well within the meaning of 20.6.2.5002A(1) and 20.6.2.5002B(5)(d)(iii) NMAC which is subject to the prohibition(s) listed under 20.6.2.5004A(4) NMAC.

III. AUTHORIZATION TO DISCHARGE

Pursuant to 20.6.2.3104 NMAC, it is the responsibility of the permittee to ensure that discharges authorized by this Discharge Permit are consistent with the terms and conditions herein.

The permittee is authorized to receive and treat up to 1.0 million gallons per day (MGD) of Class 1A reclaimed wastewater from the Cabezon Water Reclamation Facility and discharge directly to the regional aquifer using a direct injection well (AR-1). The reclaimed wastewater is transferred to the advanced water treatment (AWT) Facility using Rio Rancho's re-use distribution system, and is subsequently treated to drinking water standards and discharged directly into the regional aquifer for the purpose of recharging the Middle Rio Grande aquifer system. The on-site advanced water treatment system consists of an ozone-based advanced oxidation process (AOP), granular and biologically activated carbon (GAC/BAC) units, an in-line particle filtration system, an in-line membrane degasser system, and a final disinfection process that will use continuous ultraviolet radiation and/or chlorine dosing methods prior to direct injection.

For the purposes of this Discharge Permit, advanced treated reclaimed wastewater that is discharged into the aquifer using direct injection methods is referred to as "recharge water" and the operational period is referred to as the "recharge period".

[20.6.2.3104 NMAC, Subsection C of 20.6.2.3106 NMAC, Subsection C of 20.6.2.3109 NMAC]

IV. CONDITIONS

NMED issues this Discharge Permit for the discharge of water contaminants subject to the following conditions:

A. OPERATIONAL PLAN

#	Terms and Conditions
1.	The permittee shall implement the following operational plan to ensure compliance with Title 20, Chapter 6, Parts 1 and 2 NMAC. [Subsection C of 20.6.2.3109 NMAC]
2.	The permittee shall operate in a manner such that standards and requirements of Sections

#	Terms and Conditions
	20.6.2.3101 and 20.6.2.3103 NMAC are not violated. [20.6.2.3101 NMAC, 20.6.2.3103 NMAC, Subsection C of 20.6.2.3109 NMAC]

Operational Actions with Implementation Deadlines

#	Terms and Conditions
3.	Prior to discharging from the AWT Facility and to the direct injection well (AR-1), the permittee shall submit written notification to NMED stating the date the discharge is to commence. [Subsection A of 20.6.2.3107 NMAC]
4.	Prior to discharging from the AWT Facility to the direct injection well (AR-1), the permittee shall complete construction of the advanced treatment system in accordance with the final construction plans and specifications submitted to NMED (dated June 13, 2012 by the professional engineer of record). The permittee shall submit record drawings that bear the seal and signature of a licensed New Mexico professional engineer (pursuant to the New Mexico Engineering and Surveying Practice Act and the rules promulgated under that authority) for the constructed facility to NMED within 30 days of the effective date of the Discharge Permit. [Subsections A and C of 20.6.2.1202 NMAC, Subsection C of 20.6.2.3109 NMAC, NMSA 1978, §§ 61-23-1 through 61-23-32]
5.	Prior to discharging from the AWT Facility to the direct injection well (AR-1), the permittee shall submit documentation that the AWT facility meets the following operational criteria: • 2-log removal/inactivation for Giardia lamblia • 3-log removal/inactivation for Crysptosporidium • 4-log removal/inactivation for viruses The permittee shall submit documentation of calculations for disinfection contact times or filtration techniques that attain the EPA log removal guidelines to NMED within 30 days of the effective date of the Discharge Permit. [Subsections A and C of 20.6.2.1202 NMAC, Subsection C of 20.6.2.3109 NMAC, NMSA 1978, §§ 61-23-1 through 61-23-32]
6.	Prior to discharging from the AWT Facility to the direct injection well (AR-1), the permittee shall submit documentation describing the infrastructure necessary to transfer reclaimed wastewater from the Cabezon Water Reclamation Facility to the AWT

#	**Terms and Conditions**
	Facility. Documentation of the distribution system installation shall consist of a narrative statement including the system type and location, pump stations with locations, and the method of backflow prevention employed (if applicable). [Subsection C of 20.6.2.3106 NMAC, Subsection A of 20.6.2.3107 NMAC, Subsection C of 20.6.2.3109 NMAC]
7.	Prior to discharging from the AWT Facility to the direct injection well (AR-1), the permittee shall install fences around the facility to control access by the general public and animals. The fences shall consist of a minimum of six-foot chain link or field fencing, and locking gates. [Subsections B and C of 20.6.2.3109 NMAC, NMSA 1978, § 74-6-5.D]
8.	Prior to discharging from the AWT Facility to the direct injection well (AR-1), the permittee shall post signs indicating that the reclaimed wastewater at the facility is not potable. Signs shall be posted at the facility entrance and other areas where there is potential for public contact with reclaimed wastewater. All signs shall be printed in English and Spanish. [Subsections B and C of 20.6.2.3109 NMAC, NMSA 1978, § 74-6-5.D]

Operating Conditions

#	**Terms and Conditions**
9.	Recharge water discharged from the AWT Facility shall not exceed the Most Stringent Enforceable Standards (MSES) as specified in the water supply regulations, "Drinking Water" (20.7.10 NMAC), adopted by the Environmental Improvement Board under the Environmental Improvement Act, and the standards listed in Section 20.6.2.3103 NMAC, whichever are enforceable and more stringent. Enforceable is defined as the combination of primary drinking water standards and standards listed in Section 20.6.2.3103 (secondary drinking water standards are not enforceable) .These standards are listed in the attachment titled: ***Most Stringent Enforceable Standards (MSES)***. [Subsection C of 20.6.2.3109 NMAC]
10.	Recharge water discharged from the AWT Facility, prior to the direct injection well (AR-1), shall comply with the following limitations: **Parameter** — **Limit** Total Nitrogen — < 10 mg/L TOC — < 3 mg/L Turbidity — < 0.3 NTU

#	**Terms and Conditions**
	<table><tr><th>Parameter</th><th>Limit</th></tr><tr><td>*E. Coli*</td><td>ND</td></tr><tr><td>UV Transmissivity</td><td>> 90 %</td></tr></table> [Subsections B and C of 20.6.2.3109 NMAC, NMSA 1978, § 74-6-5.D]
11.	Reclaimed wastewater from the Cabezon Water Reclamation Facility must meet Class 1 A reclaimed wastewater requirements prior to entering the AWT Facility for additional treatment. [Subsections B and C of 20.6.2.3109 NMAC, NMSA 1978, § 74-6-5.D]
12.	The permittee shall use a nine month minimum residence time between the injection of recharge water and extraction of ground water by domestic and public supply wells within the area. The permittee can demonstrate the residence time through the particle tracking model used in the *Discharge Permit Application*. The permittee must maintain the minimum residence time requirement for the duration of all recharge operations. [Subsections B and C of 20.6.2.3109 NMAC, NMSA 1978, § 74-6-5.D]
13.	The permittee shall maintain fences around the facility to control access by the general public and animals. The fences shall consist of a minimum of six-foot chain link or field fencing and locking gates. Fences shall be maintained throughout the term of this Discharge Permit. [Subsections B and C of 20.6.2.3109 NMAC, NMSA 1978, § 74-6-5.D]
14.	The permittee shall maintain signs indicating that the reclaimed wastewater and recharge water at the facility is not potable. Signs shall be posted at the facility entrance and other areas where there is potential for public contact with wastewater. All signs shall be printed in English and Spanish remain visible and legible for the term of this Discharge Permit. [Subsections B and C of 20.6.2.3109 NMAC, NMSA 1978, § 74-6-5.D]
15.	The permittee shall properly manage all solids/sludge generated by the advanced water treatment facility to maintain effective operation by removing solids/sludge as necessary in accordance with accepted process control methods. Solids removed from the advanced treatment process shall be disposed of in accordance with all local, state, and federal regulations. [Subsection A of 20.6.2.3107 NMAC, Subsection C of 20.6.2.3109 NMAC]

B. MONITORING AND REPORTING

#	Terms and Conditions
16.	The permittee shall conduct the following monitoring, reporting, and other requirements listed below in accordance with the monitoring requirements of this Discharge Permit. [Subsection A of 20.6.2.3107 NMAC, Subsection C of 20.6.2.3109 NMAC]
17.	METHODOLOGY – Unless otherwise approved in writing by NMED, the permittee shall conduct sampling and analysis in accordance with the most recent edition of the following documents: a) American Public Health Association, Standard Methods for the Examination of Water and Wastewater (18th, 19th or current) b) U.S. Environmental Protection Agency, Methods for Chemical Analysis of Water and Waste c) U.S. Geological Survey, Techniques for Water Resources Investigations of the U.S. Geological Survey d) American Society for Testing and Materials, Annual Book of ASTM Standards, Part 31. Water e) U.S. Geological Survey, et al., National Handbook of Recommended Methods for Water Data Acquisition f) Federal Register, latest methods published for monitoring pursuant to Resource Conservation and Recovery Act regulations g) Methods of Soil Analysis: Part 1. Physical and Mineralogical Methods; Part 2. Microbiological and Biochemical Properties; Part 3. Chemical Methods, American Society of Agronomy [Subsection B of 20.6.2.3107 NMAC]
18.	The permittee shall submit quarterly monitoring reports to NMED for the most recently completed quarterly period by the 1st of February, May, August, and November of each year. The quarterly reports shall document the volume of influent and discharge from the AWT Facility, compiled recharge water sampling results (weekly, monthly, and quarterly sampling), quarterly ground water sampling results, and any operations/maintenance activities performed for the prior quarter. Quarterly monitoring shall be performed during the following periods and submitted as follows: • January 1st through March 31st (first quarter) – **due by May 1st** • April 1st through June 30th (second quarter) – **due by August 1st** • July 1st through September 30th (third quarter) – **due by November 1st** • October 1st through December 31st (fourth quarter) – **due by February 1st**

#	Terms and Conditions
	[Subsection A of 20.6.2.3107 NMAC]
19.	On an annual basis, the permittee shall verify the estimated average length of time that recharge water resides in the Middle Rio Grande aquifer, prior to recovery by the City of Rio Rancho public water supply wells. The updated average residence time estimation shall be reported to NMED in the ***fifth year*** of operation using the particle tracking model utilized in the *Discharge Permit Application.* [20.6.2.3109 NMAC, 20.6.2.5004 NMAC]

Monitoring Actions with Implementation Deadlines

#	Terms and Conditions
20.	Prior to discharging from the facility, the permittee shall install the following flow meters: a) One totalizing flow meter installed on the above-ground discharge line from the AWT Facility to the direct injection well (AR-1) to measure the volume of recharge water discharged to the direct injection well. Confirmation of meter installation, type, calibration and locations shall be submitted to NMED prior to discharging from the facility. [Subsection A of 20.6.2.3107 NMAC, Subsection C of 20.6.2.3109 NMAC]

Ground Water Monitoring Conditions

#	Terms and Conditions
21.	The permittee shall perform groundwater analysis for the ***first three quarters of each year*** for the ***subset*** parameters representative of contaminate groups on the MSES list (see Table 2) for the term of the Discharge Permit. In addition, the permittee shall perform ground water analysis for the ***complete*** MSES list ***annually*** in the ***fourth quarter of each year*** for the term of the Discharge Permit (see Table 1). The permittee shall perform quarterly ground water sampling in the following monitoring wells and analyze the samples for MSES (complete or subset), total nitrogen, TOC, and the presence/absence of *E. coli*: • MW-1A: deep monitoring zone, 75 feet north of the direct injection well (screened at 1550-1650 ft below ground surface) • MW-1B: intermediate monitoring zone, 75 feet north of the direct injection well (screened at 1150-1250 ft below ground surface)

#	**Terms and Conditions**
	• MW-1C: shallow monitoring zone, 75 feet north of the direct injection well (screened at 750-850 ft below ground surface) Quarterly and annual ground water samples shall be collected for two years of operation and analyzed for the subset and complete list of MSES, respectively. If there are no exceedances of constituents, then the permittee can request a reduction in sampling frequency and/or a reduced MSES list. Total nitrogen, TOC, and *E. coli* should be analyzed for every quarterly period. Ground water sample collection, preservation, transport, and analysis shall be performed in accordance with the following: a) Measure the depth to ground water from the top of the well casing to the nearest hundredth of a foot. b) Purge and sample collection flow rate shall remain between 5-15 gallons per minute. c) Field parameter measurements shall be collected at appropriate time intervals to determine stability of ground water. Stability is defined as obtaining three consecutive measurements that have pH within ±0.1 standard units, conductivity within ±10%, and temperature within ±1°C. d) Ground water samples shall be collected from the well following the determination that stability has been achieved. e) Properly prepare, preserve, and transport samples. Depth to ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the quarterly monitoring reports. [Subsection A of 20.6.2.3107 NMAC]
22.	The permittee shall perform ***annual*** ground water sampling in the following monitoring wells and analyze the samples for MSES, total nitrogen, TOC, and the presence/absence of *E. coli*: • MW-2: intermediate monitoring zone, 125 feet southeast of direct injection well (screened at 1150-1250 ft below ground surface) • MW-3: intermediate monitoring zone, 160 feet southwest of the direct injection well (screened at 1150-1250 ft below ground surface) Ground water sample collection, preservation, transport, and analysis shall be performed in accordance with Condition #21. Depth to ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well

#	Terms and Conditions
	shall be submitted to NMED in the quarterly monitoring reports. [Subsection A of 20.6.2.3107 NMAC]
23.	The permittee shall perform ground water sampling in monitoring wells MW-1A, MW-1B, MW-1C, MW-2, and MW-3, and analyze the samples for ***trace organics*** (endocrine disruptors, pharmaceuticals, and personal care products) as described in the *June 13, 2012 Groundwater Discharge Permit Application* at the end of the ***first and third year of operation.*** Ground water sample collection, preservation, transport, and analysis shall be performed in accordance with Condition #21. Depth to ground water measurements, analytical results, including the laboratory QA/QC summary report, and a facility layout map showing the location and number of each well shall be submitted to NMED in the quarterly monitoring reports. [Subsection A of 20.6.2.3107 NMAC]
24.	The permittee shall develop a ground water elevation contour map on a quarterly basis using the top of casing elevation data from the monitoring well survey and quarterly depth-to-most-shallow ground water measurements obtained from the ground water monitoring wells required by this Discharge Permit. The ground water elevation contour map shall depict the ground water flow direction based on the ground water elevation contours. Ground water elevations between monitoring well locations shall be estimated using common interpolation methods. A contour interval appropriate to the data shall be used, but in no case shall the interval be greater than two feet. Ground water elevation contour maps shall depict the ground water flow direction, using arrows, based on the orientation of the ground water elevation contours, and the location and identification of each monitoring well and contaminant source. The ground water elevation contour map shall be submitted to NMED in the quarterly monitoring reports. [Subsection A of 20.6.2.3107 NMAC]

Facility Monitoring Conditions

#	Terms and Conditions
25.	The permittee shall measure the totalized volume of reclaimed wastewater transferred from the Cabezon Water Reclamation Facility to the AWT Facility each month using a totalizing flow meter located the influent pipe. The totalized influent volumes for each month shall be submitted to NMED in the quarterly monitoring reports.

#	**Terms and Conditions**
	[Subsection A of 20.6.2.3107 NMAC, Subsections C and H of 20.6.2.3109 NMAC]
26.	The permittee shall measure the monthly volume of recharge water discharged from the advanced water treatment system to the direct injection well (AR-1). The permittee shall obtain readings from an in-line totalizing flow meter located on the above-ground injection well piping on a monthly basis and calculate the monthly and average daily discharge volume. The monthly meter readings, and calculated monthly and average daily discharge volumes shall be submitted to NMED in the quarterly monitoring reports. [Subsection A of 20.6.2.3107 NMAC, Subsections C and H of 20.6.2.3109 NMAC]
27.	All flow meters shall be capable of having their accuracy ascertained under actual working (field) conditions. A field calibration method shall be developed for each flow meter and that method shall be used to check the accuracy of each respective meter. Field calibrations shall be performed upon repair or replacement of a flow measurement device and, at a minimum, on an annual basis. Flow meters shall be calibrated to within plus or minus 10 percent of actual flow, as measured under field conditions. Field calibrations shall be performed by an individual knowledgeable in flow measurement and in the installation/operation of the particular device in use. A flow meter calibration report shall be prepared for each flow measurement device at the frequency calibration is required. The flow meter calibration report shall include the following information: a) The location and meter identification. b) The method of flow meter field calibration employed. c) The measured accuracy of each flow meter prior to adjustment indicating the positive or negative offset as a percentage of actual flow as determined by an in-field calibration check. d) The measured accuracy of each flow meter following adjustment, if necessary, indicating the positive or negative offset as a percentage of actual flow of the meter. e) Any flow meter repairs made during the previous year or during field calibration. The permittee shall maintain records of flow meter calibration(s) at a location accessible for review by NMED during facility inspections. [Subsection A of 20.6.2.3107 NMAC, Subsections C and H of 20.6.2.3109 NMAC]
28.	The permittee shall visually inspect flow meters on a monthly basis for evidence of malfunction. If a visual inspection indicates a flow meter is not functioning as required by this Discharge Permit, the permittee shall repair or replace the meter within 30 days of discovery. For *repaired* meters, the permittee shall submit a report to NMED with the next monitoring report following the repair that includes a description of the

#	**Terms and Conditions**
	malfunction; a statement verifying the repair; and a flow meter field calibration report completed in accordance with the requirements of this Discharge Permit. For *replacement* meters, the permittee shall submit a report to NMED with the next monitoring report following the replacement that includes a design schematic for the device and a flow meter field calibration report completed in accordance with the requirements of this Discharge Permit. [Subsection A of 20.6.2.3107 NMAC, Subsection C of 20.6.2.3109 NMAC]
29.	During any week that the discharge of recharge water occurs, the permittee shall continuously monitor recharge water for the following parameters: • Dissolved Oxygen (mg/L): continuously monitor • Ultraviolet transmittance (%): continuously monitor and record whenever *E.coli* samples are collected if chlorine disinfection methods are not utilized • Turbidity (NTU): continuously monitor effluent for turbidity after the final treatment process and while discharging; record the average and maximum turbidity values for each calendar month • Specific conductance (µS/cm): continuously monitor • pH (S.U.): continuously monitor • Temperature (°C): continuously monitor • Chlorine Residuals (mg/L): continuously monitor effluent for TRC if UV disinfection methods are not utilized. Monitoring these parameters will control water quality and to ensure the facility is operating at optimal conditions. Monthly average, daily average, daily minimum, and daily maximum values for each parameter shall be submitted to NMED in the quarterly monitoring reports. [Subsection A of 20.6.2.3107 NMAC, Subsections B, C and H of 20.6.2.3109 NMAC, NMSA 1978, § 74-6-5.D]
30.	During any week or month that the injection of recharge water occurs, the permittee shall perform the following analyses on recharge water samples collected at the sample point after the final treatment process and prior to the direct injection well (AR-1) using the following sampling method (grab unless otherwise noted) and frequency: • *E.Coli*: presence/absence once per week • TOC: once per month • Total nitrogen: once per month If in two years of operation, there are no repeat exceedances of *E. Coli* as explained in the Contingency Plan of the Discharge Permit, the permittee can propose a reduction in

#	Terms and Conditions
	sampling frequency to monthly. Samples shall be properly prepared, preserved, transported, and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results and a copy of the log of UV transmissivity values OR TRC concentrations shall be submitted to NMED in the quarterly monitoring reports. [Subsection A of 20.6.2.3107 NMAC, Subsections B, C and H of 20.6.2.3109 NMAC, NMSA 1978, § 74-6-5.D]
31.	The permittee shall perform the following analyses on recharge water samples collected at the sample point located prior to the direct injection well (AR-1) using the following sampling method (grab unless otherwise noted) and frequency: • MSES: once per quarter • Trace organics (endocrine disruptors, pharmaceuticals, and personal care products): at the end of the first and third year of operation The permittee may propose a reduction in sampling frequency *and/or* a subset of the MSES list after two years of system operation. However, NMED shall have sole discretion whether to amend the sampling frequency or parameters required by the Discharge Permit. Samples shall be properly prepared, preserved, transported, and analyzed in accordance with the methods authorized in this Discharge Permit. Analytical results and a copy of the log of UV transmissivity values OR TRC concentrations shall be submitted to NMED in the quarterly monitoring reports. [Subsection A of 20.6.2.3107 NMAC, Subsections B, C and H of 20.6.2.3109 NMAC, NMSA 1978, § 74-6-5.D]

C. CONTINGENCY PLAN

#	Terms and Conditions
32.	In the event that monitoring indicates that the New Mexico primary drinking water maximum contaminant levels (MCLs), as specified in the water supply regulations, "Drinking Water" (20.7.10 NMAC), adopted by the Environmental Improvement Board under the Environmental Improvement Act or the standards of Section 20.6.2.3103 NMAC, whichever is enforceable and more stringent, are exceeded in ground water during the term of this Discharge Permit, upon closure of the facility or during post-closure monitoring, the permittee shall collect a confirmatory sample from the monitoring well(s) within 7 days after becoming aware of the potential violation to confirm the initial sampling results. These standards are listed in the attachment titled:

#	Terms and Conditions
	Most Stringent Enforceable Standards (MSES). Within 24 hours of confirmation of the ground water exceedance(s), the permittee shall notify NMED of the violation and shall cease discharging to the direct injection well (AR-1). Within 90 days of confirmation of the ground water exceedance(s), the permittee shall submit a corrective action plan to NMED that proposes measures to mitigate damage from the discharge including, at a minimum, source control measures and an implementation schedule. **The effective standards that are to be protected in ground water are summarized in the attachment titled: *Most Stringent Enforceable Standards (MSES).*** For the purposes of this Discharge Permit, the New Mexico primary drinking water MCLs and the standards in Section 20.6.2.3103 NMAC are written so that in general: 1. If the background concentration of any water contaminant in ground water is less than the standard of the New Mexico primary drinking water MCLs or of the standards in Section 20.6.2.3103 NMAC, degradation of the ground water up to the limit of the standard will be allowed; and 2. If the background concentration of any water contaminant in ground water exceeds the standard of the New Mexico primary drinking water MCLs or of the standards in Section 20.6.2.3103 NMAC, no degradation of the ground water beyond the existing concentration will be allowed. The permittee may be required to abate water pollution pursuant to Sections 20.6.2.4000 through 20.6.2.4115 NMAC, if the corrective action plan will not result in compliance with the standards and requirements set forth in Section 20.6.2.4103 NMAC within 180 days of confirmation of ground water contamination. [20.6.2.1203 NMAC, 20.6.2.3101 NMAC, 20.6.2.4105.A(8) NMAC, 20.6.2.5004 NMAC, 20.7.10 NMAC]
33.	In the event that analytical results of a recharge water sample indicate an exceedance of any of the maximum limitations for total nitrogen, TOC, or if a positive result indicating the presence of *E.coli,* the permittee shall enact the following contingency plan: <u>Contingency Plan</u> a) Collect a confirmatory sample within 24 hours of becoming aware of the potential violation. The confirmatory recharge water sample shall be analyzed for all parameters that exceeded the contaminant levels in the initial sample. b) Within 24 hours of becoming aware of a confirmed exceedance (as identified above), the permittee shall:

#	**Terms and Conditions**
	i) notify NMED that the contingency plan is being enacted; and ii) submit copies of the recent analytical results indicating an exceedance to NMED; c) The permittee shall immediately cease discharging recharge water to the direct injection well (AR-1). d) The permittee shall examine the operation and maintenance log, required by the Record Keeping conditions of this Discharge Permit, for improper operational procedures. e) The permittee shall conduct a physical inspection of the treatment system to detect abnormalities. Any abnormalities discovered shall be corrected. A report detailing the corrections made shall be submitted to NMED within 30 days following correction. When the analytical results from samples of recharge water, sampled as required by this Discharge Permit, no longer indicate an exceedance of any of the maximum limitations, the permittee may resume discharging recharge water to the direct injection well. If a facility is required to enact the contingency plan more than two times in a 12-month period, the permittee shall propose to modify operational procedures and/or upgrade the treatment process to achieve consistent compliance with the maximum limitations by submitting a corrective action plan for NMED approval. The plan shall include a schedule for completion of corrective actions and shall be submitted within 60 days following the second sample analysis date. The permittee shall initiate implementation of the plan following approval by NMED. Prior to recommencing discharge to the re-use area, additional sampling of any stored recharge water may be required by NMED in response to the submitted corrective action plan. [Subsection A of 20.6.2.3107 NMAC, Subsection C of 20.6.2.3109 NMAC]
34.	In the event that a release (commonly known as a "spill") occurs that is not authorized under this Discharge Permit, the permittee shall take measures to mitigate damage from the unauthorized discharge and initiate the notifications and corrective actions required in Section 20.6.2.1203 NMAC and summarized below. Within <u>24 hours</u> following discovery of the unauthorized discharge, the permittee shall verbally notify NMED and provide the following information: a) The name, address, and telephone number of the person or persons in charge of the facility, as well as of the owner and/or operator of the facility. b) The name and address of the facility. c) The date, time, location, and duration of the unauthorized discharge. d) The source and cause of unauthorized discharge. e) A description of the unauthorized discharge, including its estimated chemical composition. f) The estimated volume of the unauthorized discharge.

#	Terms and Conditions
	g) Any actions taken to mitigate immediate damage from the unauthorized discharge. Within one week following discovery of the unauthorized discharge, the permittee shall submit written notification to NMED with the information listed above and any pertinent updates. Within 15 days following discovery of the unauthorized discharge, the permittee shall submit a corrective action report/plan to NMED describing any corrective actions taken and/or to be taken relative to the unauthorized discharge that includes the following: a) A description of proposed actions to mitigate damage from the unauthorized discharge. b) A description of proposed actions to prevent future unauthorized discharges of this nature. c) A schedule for completion of proposed actions. In the event that the unauthorized discharge causes or may with reasonable probability cause water pollution in excess of the standards and requirements of Section 20.6.2.4103 NMAC, and the water pollution will not be abated within 180 days after notice is required to be given pursuant to Paragraph (1) of Subsection A of 20.6.2.1203 NMAC, the permittee may be required to abate water pollution pursuant to Sections 20.6.2.4000 through 20.6.2.4115 NMAC. Nothing in this condition shall be construed as relieving the permittee of the obligation to comply with all requirements of Section 20.6.2.1203 NMAC. [20.6.2.1203 NMAC]
35.	In the event that NMED or the permittee identifies any failures of the discharge plan or this Discharge Permit not specifically noted herein, NMED may require the permittee to submit a corrective action plan and a schedule for completion of corrective actions to address the failure(s). Additionally, NMED may require a Discharge Permit modification to achieve compliance with 20.6.2 NMAC. [Subsection A of 20.6.2.3107 NMAC, Subsection E of 20.6.2.3109 NMAC]

D. CLOSURE PLAN

Permanent Facility Closure Conditions

#	Terms and Conditions
36.	In the event a facility, or a component of a facility, is proposed to be permanently closed, upon ceasing discharging, the permittee shall perform the following closure measures.

#	**Terms and Conditions**
	Within 90 days of ceasing discharging to the advanced water treatment facility and to the direct injection well (AR-1), the permittee shall complete the following closure measures: a) The line leading to the system shall be plugged so that a discharge can no longer occur. b) Solids removed from the treatment system shall be contained, transported, and disposed of in accordance with all local, state, and federal regulations, including 40 CFR Part 503. The permittee shall maintain a record of all solids transported for off-site disposal. Within 180 days of ceasing discharging to the advanced water treatment facility and to the direct injection well (AR-1), the permittee shall complete the following closure measures: a) Remove all lines leading to and from the treatment system, or permanently plug them and abandon them in place. b) Remove or demolish all treatment system components and re-grade area with suitable fill to blend with surface topography (as necessary). The permittee shall continue ground water monitoring until the requirements of this condition have been met and ground water monitoring confirms for a minimum of two years of consecutive ground water sampling events that the MSES are not exceeded and toxic pollutants are not present in ground water. If monitoring results show that a ground water quality standards listed in the attachment titled: *Most Stringent Enforceable Standards (MSES)* is exceeded; the total nitrogen concentration in ground water is greater than 10 mg/L; or a toxic pollutant (defined in Subsection WW of 20.6.2.7 NMAC) is present in ground water, the permittee shall implement the contingency plan required by this Discharge Permit. Following notification from NMED that post-closure monitoring may cease, the permittee shall plug and abandon the monitoring well(s) in accordance with the attachment titled *Ground Water Discharge Permit Monitoring Well Construction and Abandonment Conditions*, Revision 1.1, March 2011. When all closure and post-closure requirements have been met, the permittee may submit a written request for termination of the Discharge Permit to NMED. [Subsection A of 20.6.2.3107 NMAC, 40 CFR Part 503]

E. GENERAL TERMS AND CONDITIONS

#	Terms and Conditions
37.	RECORD KEEPING - The permittee shall maintain a written record of the following information: a) Information and data used to complete the application for this Discharge Permit. b) Records of any releases (commonly known as "spills") not authorized under this Discharge Permit and reports submitted pursuant to 20.6.2.1203 NMAC. c) Records of the operation, maintenance, and repair of all facilities/equipment used to treat, store or dispose of wastewater/reuse water. d) Facility record drawings (plans and specifications) showing the actual construction of the facility and bear the seal and signature of a licensed New Mexico professional engineer. e) Copies of monitoring reports completed and/or submitted to NMED pursuant to this Discharge Permit. f) The volume of wastewater/reuse water or other wastes discharged pursuant to this Discharge Permit. g) Ground water quality and wastewater/reuse water quality data collected pursuant to this Discharge Permit. h) Copies of construction records (well log) for all ground water monitoring wells required to be sampled pursuant to this Discharge Permit. i) Records of the maintenance, repair, replacement or calibration of any monitoring equipment or flow measurement devices required by this Discharge Permit. j) Data and information related to field measurements, sampling, and analysis conducted pursuant to this Discharge Permit. The following information shall be recorded and shall be made available to NMED upon request: i) The dates, location and times of sampling or field measurements; ii) The name and job title of the individuals who performed each sample collection or field measurement; iii) The sample analysis date of each sample; iv) The name and address of the laboratory, and the name of the signatory authority for the laboratory analysis; v) The analytical technique or method used to analyze each sample or collect each field measurement; vi) The results of each analysis or field measurement, including raw data; vii) The results of any split, spiked, duplicate or repeat sample; and viii) A copy of the laboratory analysis chain-of-custody as well as a description of the quality assurance and quality control procedures used. The written record shall be maintained by the permittee at a location accessible during a facility inspection by NMED for a period of at least five years from the date of application, report, collection or measurement and shall be made available to the department upon request. [Subsections A and D of 20.6.2.3107 NMAC]

#	**Terms and Conditions**
38.	INSPECTION and ENTRY – The permittee shall allow inspection by NMED of the facility and its operations which are subject to this Discharge Permit and the WQCC regulations. NMED may upon presentation of proper credentials, enter at reasonable times upon or through any premises in which a water contaminant source is located or in which are located any records required to be maintained by regulations of the federal government or the WQCC. The permittee shall allow NMED to have access to and reproduce for their use any copy of the records, and to perform assessments, sampling or monitoring during an inspection for the purpose of evaluating compliance with this Discharge Permit and the WQCC regulations. Nothing in this Discharge Permit shall be construed as limiting in any way the inspection and entry authority of NMED under the WQA, the WQCC Regulations, or any other local, state or federal regulations. [Subsection D of 20.6.2.3107 NMAC, NMSA 1978, §§ 74-6-9.B and 74-6-9.E]
39.	DUTY to PROVIDE INFORMATION - The permittee shall, upon NMED's request, allow for NMED's inspection/duplication of records required by this Discharge Permit and/or furnish to NMED copies of such records. [Subsection D of 20.6.2.3107 NMAC]
40.	MODIFICATIONS and/or AMENDMENTS – In the event the permittee proposes a change to the facility or the facility's discharge that would result in a change in the volume discharged; the location of the discharge; or in the amount or character of water contaminants received, treated or discharged by the facility, the permittee shall notify NMED prior to implementing such changes. The permittee shall obtain approval (which may require modification of this Discharge Permit) by NMED prior to implementing such changes. [Subsection C of 20.6.2.3107 NMAC, Subsections E and G of 20.6.2.3109 NMAC]
41.	PLANS and SPECIFICATIONS – In the event the permittee is proposing to construct a reuse system or change a process unit of an existing system such that the quantity or quality of the discharge will change substantially from that authorized by this Discharge Permit, the permittee shall submit construction plans and specifications to NMED for the proposed system or process unit prior to the commencement of construction. In the event the permittee implements changes to the reuse system authorized by this Discharge Permit which result in only a minor effect on the character of the discharge, the permittee shall report such changes (including the submission of record drawings, where applicable) as of January 1 and June 30 of each year to NMED.

#	**Terms and Conditions**
	[Subsections A and C of 20.6.2.1202 NMAC, NMSA 1978, §§ 61-23-1 through 61-23-32]
42.	CIVIL PENALTIES - Any violation of the requirements and conditions of this Discharge Permit, including any failure to allow NMED staff to enter and inspect records or facilities, or any refusal or failure to provide NMED with records or information, may subject the permittee to a civil enforcement action. Pursuant to WQA 74-6-10(A) and (B), such action may include a compliance order requiring compliance immediately or in a specified time, assessing a civil penalty, modifying or terminating the Discharge Permit, or any combination of the foregoing; or an action in district court seeking injunctive relief, civil penalties, or both. Pursuant to WQA 74-6-10(C) and 74-6-10.1, civil penalties of up to $15,000 per day of noncompliance may be assessed for each violation of the WQA 74-6-5, the WQCC Regulations, or this Discharge Permit, and civil penalties of up to $10,000 per day of noncompliance may be assessed for each violation of any other provision of the WQA, or any regulation, standard, or order adopted pursuant to such other provision. In any action to enforce this Discharge Permit, the permittee waives any objection to the admissibility as evidence of any data generated pursuant to this Discharge Permit. [20.6.2.1220 NMAC, NMSA 1978, §§ 74-6-10 and 74-6-10.1]
43.	CRIMINAL PENALTIES – No person shall: 1) make any false material statement, representation, certification or omission of material fact in an application, record, report, plan or other document filed, submitted or required to be maintained under the WQA; 2) falsify, tamper with or render inaccurate any monitoring device, method or record required to be maintained under the WQA; or 3) fail to monitor, sample or report as required by a permit issued pursuant to a state or federal law or regulation. Any person who knowingly violates or knowingly causes or allows another person to violate the requirements of this condition is guilty of a fourth degree felony and shall be sentenced in accordance with the provisions of NMSA 1978, § 31-18-15. Any person who is convicted of a second or subsequent violation of the requirements of this condition is guilty of a third degree felony and shall be sentenced in accordance with the provisions of NMSA 1978, § 31-18-15. Any person who knowingly violates the requirements of this condition or knowingly causes another person to violate the requirements of this condition and thereby causes a substantial adverse environmental impact is guilty of a third degree felony and shall be sentenced in accordance with the provisions of NMSA 1978, § 31-18-15. Any person who knowingly violates the requirements of this condition and knows at the time of the violation that he is creating a substantial danger of death or serious bodily injury to any other person is guilty of a second degree felony and shall be sentenced in accordance with the provisions of NMSA 1978, § 31-18-15.

#	**Terms and Conditions**
	[20.6.2.1220 NMAC, NMSA 1978, §§ 74-6-10.2.A through 74-6-10.2.F]
44.	COMPLIANCE with OTHER LAWS - Nothing in this Discharge Permit shall be construed in any way as relieving the permittee of the obligation to comply with all applicable federal, state, and local laws, regulations, permits or orders. [NMSA 1978, § 74-6-5.L]
45.	RIGHT to APPEAL - The permittee may file a petition for review before the WQCC on this Discharge Permit. Such petition shall be in writing to the WQCC within thirty days of the receipt of postal notice of this Discharge Permit and shall include a statement of the issues to be raised and the relief sought. Unless a timely petition for review is made, the decision of NMED shall be final and not subject to judicial review. [20.6.2.3112 NMAC, NMSA 1978, § 74-6-5.O]
46.	TRANSFER of DISCHARGE PERMIT - Prior to the transfer of any ownership, control, or possession of this facility or any portion thereof, the permittee shall: 1) notify the proposed transferee in writing of the existence of this Discharge Permit; 2) include a copy of this Discharge Permit with the notice; and 3) deliver or send by certified mail to NMED a copy of the notification and proof that such notification has been received by the proposed transferee. Until both ownership and possession of the facility have been transferred to the transferee, the permittee shall continue to be responsible for any discharge from the facility. [20.6.2.3111 NMAC]
47.	PERMIT FEES - Payment of permit fees is due at the time of Discharge Permit approval. Permit fees shall be paid in a single payment or shall be paid in equal installments on a yearly basis over the term of the Discharge Permit. Single payments shall be remitted to NMED no later than 30 days after the Discharge Permit effective date. Initial installment payments shall be remitted to NMED no later than 30 days after the Discharge Permit effective date; subsequent installment payments shall be remitted to NMED no later than the anniversary of the Discharge Permit effective date. Permit fees are associated with <u>issuance</u> of this Discharge Permit. Nothing in this Discharge Permit shall be construed as relieving the permittee of the obligation to pay all permit fees assessed by NMED. A permittee that ceases discharging or does not commence discharging from the facility during the term of the Discharge Permit shall pay all permit fees assessed by NMED. An approved Discharge Permit shall be suspended or terminated if the facility fails to remit an installment payment by its due date.

#	**Terms and Conditions**
	[Subsection F of 20.6.2.3114 NMAC, NMSA 1978, § 74-6-5.K]

V. PERMIT TERM & SIGNATURE

EFFECTIVE DATE: November 14, 2014
TERM ENDS: November 14, 2019

[Subsection H of 20.6.2.3109 NMAC, NMSA 1978, § 74-6-5.I]

JERRY SCHOEPPNER
Chief, Ground Water Quality Bureau
New Mexico Environment Department

New Mexico Environment Department Ground Water Quality Bureau
Discharge Permit Summary

Facility Information

Facility Name	Rio Rancho Direct Injection Aquifer Recharge Demonstration
Discharge Permit Number	DP-1650
Legally Responsible Party	Larry Webb, Utilities Division Manager City of Rio Rancho 3200 Civic Center Circle NE Rio Rancho, NM 87144 (505) 869-8715

Treatment, Disposal and Site Information

Primary Waste Type	Recharge Water
Facility Type	Domestic – Aquifer Storage and Recovery

Treatment Methods

Type	Designation	Description & Comments
Advanced Wastewater Treatment System	AWT Facility	6,000 sq. ft. building containing a system that consists of ozone-based advanced oxidation process (AOP), granular and biologically activated carbon (GAC/BAC) units, in-line particle filtration system, in-line membrane degasser system, ultraviolet radiation and/or chlorine disinfection

Discharge Locations

Type	Designation	Description & Comments
Direct Injection Well	AR-1	Advanced Water Treatment System discharges recharge water to the direct injection well for aquifer recharge

Flow Metering Locations

Type	Designation	Description & Comments
Totalizing Flow Meter	Flow Meter 1	Located on the influent pipe to the AOP to measure the volume of reclaimed wastewater received from the Rio Rancho re-use distribution system to the AWT Facility
Totalizing Flow Meter	Flow Meter 2	Located on the above-ground effluent pipe that connects the AWT Facility to the direct injection well (AR-1) to measure volume of recharge water discharged.

Ground Water Monitoring Locations

Type	Designation	Description & Comments
Monitoring Well	MW-1A	Deep monitoring zone, 75 feet north of the direct injection well (AR-1)

New Mexico Environment Department Ground Water Quality Bureau
Discharge Permit Summary

Monitoring Well	MW-1B	Intermediate monitoring zone, 75 feet north of the direct injection well (AR-1)
Monitoring Well	MW-1C	Shallow monitoring zone, 75 feet north of the direct injection well (AR-1)
Monitoring Well	MW-2	Intermediate monitoring zone, 125 feet southeast of direct injection well (AR-1)
Monitoring Well	MW-3	Intermediate monitoring zone, 160 feet southwest of the direct injection well (AR-1)

Depth-to-Ground Water 560 feet
Total Dissolved Solids (TDS) 360-460 mg/L

Permit Information

Application Received June 13, 2012
Public Notice Published September 25, 2014
Discharge Permit Issued November 14, 2014
Discharge Permit Term Ends November 14, 2019
Permitted Discharge Volume 1,000,000 gallons per day

NMED Contact Information

Mailing Address Ground Water Quality Bureau
P.O. Box 5469
Santa Fe, New Mexico 87502-5469

GWQB Telephone Number (505) 827-2900

NMED Lead Staff Steve Huddleson
Lead Staff Telephone Number (505) 827-2936
Lead Staff Email Steven.Huddleson@state.nm.us

Appendix F
OSE Permit No. RG-6745 through S-34

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

DISTRICT I

TOM BLAINE, P.E.
STATE ENGINEER

5550 San Antonio Dr., NE
Albuquerque, NM 87109-4127
(505) 383-4000

May 22, 2015

FILE: USR-3

City of Rio Rancho, Utilities Division
Department of Public Works
c/o Larry Webb
3200 Civic Center Circle NE
Rio Rancho, NM 87174

Greetings:

Enclosed is your copy of Permit for Underground Storage and Recovery, numbered above, which has been approved subject to the Conditions of Approval, attached hereto.

Sincerely,

Jeffrey L. Peterson
Water Resource Specialist Senior

JLP:jlp
Enclosures as stated

Cc: Santa Fe

HC1-52629
$,5000.00

OFFICE OF THE STATE ENGINEER
APPLICATION FOR PERMIT
UNDERGROUND STORAGE AND RECOVERY

SECTION I - GENERAL

Application Number: USR-3

1) File Number(s) for water to be stored: OSE File Permit No. RG-6745 through S-34

2) The project will be located in the following underground water basin: Middle Rio Grande Basin

3) The name of the underground storage and recovery project is: Rio Rancho Direct Injection Aquifer Storage and Recovery Project

4) Name of applicant: City of Rio Rancho, Utilities Division, Department of Public Works
   Contact: Larry Webb
   Mailing address: 3200 Civic Center Circle NE
   City: Rio Rancho State: NM Zip code: 87174
   Phone number: (505) 896-8716 Email: lwebb@ci.rio-rancho.nm.us

5) Name of lead consulting firm: Daniel B. Stephens & Associates, Inc.
   Contact: Robert Marley
   Mailing address: 6020 Academy Rd. NE, Suite 100
   City: Albuquerque State: NM Zip code: 87109
   Phone number: (505) 822-9400 Email: bmarley@dbstephens.com

6) The proposed duration of this project is: Continuous full-scale operation

7) What are the main objectives of the underground storage and recovery project?
   To implement the City's full-scale underground storage and recovery project in the form in which the demonstration project was applied for, noticed, and completed. The demonstration project was permitted on January 30, 2009. Through direct injection of highly treated effluent, the full-scale project will recharge the local aquifer and store water for future recovery by the City to meet municipal demands. The project will improve water resource management and flexibility by reducing groundwater decline and surface water depletions and providing additional options to the City to meet future demand.

8) Describe the planned project and the phases under which it will be implemented:
   The aquifer recharge demonstration was completed using a potable water source obtained from the City's distribution system. Full-scale operation will use a highly treated reclaimed water from the City's reuse distribution system. The facility will operate initially at 0.5 million gallons per day (mgd). Once funding is in place, the treatment system will be expanded to allow for recharge operations at 1.0 mgd.

SECTION II - INFORMATION ON PILOT/DEMONSTRATION PROJECT

1) Briefly describe the pilot/demonstration project:

Injection facilities were constructed in the south-central part of the City southeast of the intersection of Broadmoor Drive and Northern Boulevard on vacant land owned by the City. As described in the attached Capability Report, the demonstration documented system performance over a limited period to estimate long-term operating conditions.

The injection well can deliver a maximum of 1.0 mgd directly to the established target zone (from 700 to 1,730 feet below ground surface [ft bgs]) within the regional aquifer. The hydraulic performance has been documented using a potable water source. Aquifer response, including water quality trends, was assessed at five monitor wells completed near the point of injection.

2) The pilot/demo project will commence on: Injection Period 1: March 23, 2012
Injection Period 2: January 23, 2013

3) The pilot/demo project will be completed on: Injection Period 1: April 1, 2012
Injection Period 2: February 13, 2013

4) The applicant requests to store and recover the following quantities of water during the pilot/demonstration project:

Applicable Dates	Amount to Recharge	Amount to Recover [a]	Percent Recoverable
March-April 2012	36 acre-feet	0 acre-feet	100%
January-February 2013	24 acre-feet	0 acre-feet	100%

[a] Recharge water was not recovered during the demonstration period. The introduced water has mixed with native groundwater and will eventually be recovered through pumping of existing City production wells.

5) Briefly describe the estimated area of hydrologic effect for the pilot/demonstration project (you may also attach a map)

The area of hydrologic effect was defined by a 1.5-mile-radius cylinder centered on injection point AR-1 and extending downward from the water table, present at approximately 560 ft bgs, to the bottom of the injection interval at 1,730 ft bgs. See Section 5.1 within the Capability Report for additional details on the area of hydrologic effect.

SECTION III - RECHARGE WATER

1) Has a Notice of Intent to Discharge been Filed with the New Mexico Environment Department?

A request for temporary permission to discharge during the demonstration was submitted on May 22, 2007. A discharge permit application was submitted on June 8, 2012, and temporary discharge permit DP-1650 was approved on January 11, 2013. Additional details are provided in Appendix D of the Capability Report.

2) Describe the method of recharge that will be used for the project:

Recharge will occur through use of injection well (AR-1), open from 700 to 1,730 ft bgs within the regional aquifer. Source water will be delivered to the injection well through the reclaimed water distribution systems.

3) Provide the following information for the recharge water:

The State Engineer file numbers for the recharge water are:	OSE File No. RG-6745 through S-34
The source of water for recharge is:	City reclaimed water system
The amount of water to be recharged per year is:	1,000 acre-feet per year (ac-ft/yr) at full capacity
Is there a valid right associated with the recharge water?	Yes
By what legal process was the water right established?	Permitted water rights described in the Capability Report (Section 1.7).

The current place of use of the recharge water is:	Return flows to Rio Grande and reuse applications.
The current purpose of use of the recharge water is:	Return flows to Rio Grande and reuse applications.

4) Describe the planned schedule for recharging the water:

In any given year, the amount of water available for recharge and long-term storage will depend on water reuse demand in the City. Aquifer recharge will likely be greatest during the months of October through March, when demand for surface irrigation is low. Subject to operational constraints, up to 1,000 acre-feet per year will be dedicated to and available for the project recharge operations.

5) Describe the proposed methods for water quality analysis and water treatment for the recharge water:

Reclaimed water from the Cabezon Water Reclamation Facility (WRF) will be used for full-scale operation. The Cabezon WRF uses a membrane bioreactor system to achieve the NMED-defined Class 1A treatment level. Regular effluent sampling and water quality analyses for the following parameters are conducted by WRF personnel at the following frequencies:

- Turbidity: continuous
- pH and total coliform: daily
- Fecal coliform: weekly
- Biological oxygen demand and total suspended solids: twice monthly
- Alkalinity: monthly
- Total nitrogen, total Kjeldahl nitrogen, ammonia, nitrate, total dissolved solids, chloride: quarterly

Advance water polishing and oxidative treatment steps are incorporated into the on-site treatment process to produce water of suitable quality for direct injection. Additional information is provided in Section 2 and Appendix E of the Capability Report.

SECTION IV - STORAGE AND RECOVERY OF WATER

1) Describe the aquifer selected for storage:

Recharge water will be stored in the regional aquifer, which is in the Santa Fe Group. Deposits range in thickness from less than 2,400 feet along the margins to 14,000 feet in the central part of the Middle Rio Grande (MRG) Basin. The thick sedimentary sequence has been classified into lower, middle, and upper units based on depositional environments.

The injection water will be stored in the middle units of the Santa Fe Group, which are comprised of fine-grained clay, silt, and sand. The depth to groundwater is approximately 560 ft bgs and groundwater flow is generally toward the west-southwest. Perched groundwater conditions have not been identified in the area.

Section 4 of the Capability Report provides additional information on local geology and groundwater conditions.

2) Describe the proposed methods for water quality monitoring of the ambient water in the storage aquifer:

To establish background conditions, water quality samples were collected from each monitor well and from the injection well. Samples were also collected during and after the demonstration period to detect potential water quality changes associated with recharge operations. Wells were purged and field parameters (pH, temperature, oxidation reduction potential, turbidity, electrical conductivity, and dissolved oxygen) were measured prior to sample collection. Section 6 of the Capability Report provides details on water quality monitoring planned during full-scale operation.

3) Describe the hydrologic characteristics of the storage area:

See Section IV, Item 1 above and Section 4.4 of the Capability Report.

4) Describe the compatibility of the recharge water with the native water in the storage aquifer:

During the demonstration period, the City's potable water distribution system provided water for injection operations. Because this source was withdrawn from nearby supply wells completed within the same aquifer, the chemical composition was similar to native groundwater present at the injection site. The potential for oxidation-reduction reactions and disinfection byproduct formation were closely monitored during the demonstration. More information is provided in Section 4.12 of the Capability Report.

During full-scale recharge operations, a high-quality reclaimed water source will be produced using advanced water treatment techniques (e.g., membrane filtration, advanced oxidation, carbon adsorption, and final disinfection). Source water quality will be of similar composition to native groundwater prior to injection to prevent mobilization and/or precipitation of various constituents once they are introduced into the native groundwater system.

5) Describe the calculation method that will be used to determine the amount of recoverable water:

Water will be injected directly within the cone of depression established by the City's existing groundwater pumping and will remain within the City well field control. Instantaneous and totalized flow measurements at the point of injection will document the volume of water introduced to the regional aquifer during full-scale operation. Annual reporting will document total volume of recharge, storage, recovery, and discharge to the surface water system as calculated using the MRG Administrative Area Model. Additional details are provided in Section 5.3 of the Capability Report.

6) Describe the method of recovery that will be used for the project:

Recharge water, mixed with native groundwater, will be recovered through existing City production wells permitted by the OSE within Well Group 7.

7) Provide the following information for the recovered water:

Place of use of the recovered water: Within City of Rio Rancho municipal boundaries

Purpose of use of the recovered water: City of Rio Rancho municipal water supply

Note: A permit must be obtained from the State Engineer if the applicant wishes to change the place or purpose of use of the recharge water.

8) Describe any proposed methods for water quality analysis and water treatment for the recovered water:

Recharge water mixed and recovered with native groundwater will be treated and analyzed according to EPA and NMED requirements for public water supplies. Pumped groundwater will undergo disinfection prior to distribution.

SECTION V - CONSTRUCTED WORKS AND LAND USE

1) Are project facilities located on land owned by the applicant? Yes.

If the answer is yes to question 1, skip to question 5. Otherwise, provide answers to question 2, 3, and 4.

2) Provide the following information for the owner of the land on which the project will be operated:
(if there is more than one owner of the land, please attach the information for additional owners to this form)

Name of owner: _____

Contact: _____

Mailing address: _____

City: _____ State: __ Zip Code: _____

Phone number: _____ email: _____

3) Has a sworn statement been executed by the owner(s) of the land stating the applicant is granted an easement and authorization to construct and operate the project on the land?

4) Is a copy of the sworn statement attached to this application?

5) Describe the existing and historical land use for the area where the project facilities will be located:

The project site is located southeast of the intersection of Broadmoor Drive and Northern Boulevard (Section 2.1 of the Capability Report). Surrounding land uses include public schools, utility corridors, and vacant City and privately owned land. Rangeland was the primary type of land use prior to the 1980s.

6) Describe the existing works that will be employed for the recharge and/or recovery of water:

The Cabezon WRF, located approximately 3.5 miles south of the project location, will provide reclaimed water for direct injection. Existing City production wells will maintain hydraulic capture and ultimately recover recharged water mixed with native groundwater.

7) Describe the proposed works that will be constructed for the recharge and/or recovery of water:

Extensive site development has been completed, including construction of the injection well, monitoring network, advanced water treatment (AWT) building, general site improvement, and completion of the reclaimed water pipeline to the site as detailed in the project record drawings provided in Appendix E of the Capability Report. The City is in the process of securing funding for final equipping of the facility.

8) Complete Table A and attach it to this application.

Table A is attached to this application form (page 10). For further reference, Figure 2-1 of the Capability Report shows the surrounding land use and project facilities.

SECTION VI - FINANCIAL AND TECHNICAL CAPABILITY

1) Describe the level of technological capability obtained in regard to the project:

The City has in-house engineering and water quality expertise and contracts routine wastewater operational support with the firm CH2M HILL OMI. The City retained Daniel B. Stephens & Associates, Inc. (DBS&A) for technical support during the demonstration project. DBS&A is a local consulting firm providing comprehensive services in groundwater and surface water hydrology, soil science, and engineering. Technical capability is detailed in Section 1.4 of the Capability Report.

2) Describe the level of financial capability obtained in regard to the project:

Financial capability is detailed in Section 1.3 of the Capability Report.

SECTION VII - IMPACTS OF THE PROJECT

1) Describe the estimated area of hydrologic effect for the project (also attach a map of the area)

See Section 5.1 of the Capability Report.

2) Provide a brief hydrogeologic characterization of the area of hydrologic effect

See Section 4 of the Capability Report.

3) Provide a brief hydrogeographic characterization of the land surface within the area of hydrologic effect

The project site is owned and maintained by the City. Nearby features include an electrical utilities corridor, Rio Rancho High School, Ernest Stapleton Elementary School, and the Loma Colorado de Abajo. See Section 2, Figure 2-2, of the Capability Report for a topographic map of the area.

4) What methods will be employed to monitor the water levels in the area of hydrologic effect?

Five on-site monitor wells (MW-1A, MW-1B, MW-1C, MW-2, and MW-3) have been installed as part of the demonstration project. The monitor and injection wells will provide the primary source of water level data within the area of hydrologic effect. The City also plans to use routine data collected by the U.S. Geological Survey (USGS) from the Lincoln Middle School nested piezometers, located approximately 7,750 feet to the southwest, and will evaluate whether other wells in the area can be

incorporated into the water level monitoring program. Water levels will be measured using a combination of manual (water level meter) and automated (pressure transducer) methods to ensure adequate data collection. See Section 6.2 in the Capability Report for additional information on water level monitoring.

5) The proposed water level monitoring program will consist of the following:

Number of monitoring wells:	Five on-site monitor wells
Frequency of measurement at each well (average):	Hourly by pressure transducer; monthly manual measurements as appropriate to ensure adequate data collection.

6) Describe the location for each proposed monitoring well including a brief justification for site selection:

See Section 6.1 of the Capability Report.

7) Describe any potential impacts created by the project to owners of valid, existing water rights in the area of hydrologic effect:

The project will not negatively impact existing water rights.

8) Describe the plan that will be followed to mitigate any harm or impairment resulting from the project:

No impacts to existing uses or surrounding areas are anticipated from full-scale operation of the project. The City will monitor effects of recharge facility operations during full-scale operations. The project contingency plan will be updated as appropriate to address potential impairment issues as they are identified during full-scale operation.

9) List the permitted and existing wells in the area of hydrologic effect:

Wells within the area of hydrologic effect, as determined through OSE WATERS database searches, are compiled within Section 4.8 and Appendix G of the Capability Report.

State Engineer File No.	Maximum Diversion Allowed	Purpose of Use	Location Central zone, State plane coordinates: x	y
RG-06745	24,020.16 ac-ft/yr (all wells under the permit)	Municipal	See Appendix G of the Capability Report	
Multiple file numbers	-	Domestic	See Appendix G of the Capability Report	

10) Describe the surface water features within the area of hydrologic effect:

Montoyas Arroyo, a northwest- to southeast-trending ephemeral drainage located approximately 3,000 feet southwest of the proposed injection site. The arroyo drains to the Rio Grande.

11) List the surface water points of diversion and places of use with existing surface water rights located within the area of hydrologic effect:

State Engineer File No.	Maximum Diversion Allowed	Purpose of Use	Location
Not applicable	—	—	—

12) Describe any potential environmental concerns or impacts within the area of hydrologic effect:

Environmental Data Resources Inc. conducted a database search of records for environmental problems within a 2-mile radius of the proposed point of injection. An executive summary of the search is included as Attachment 6 of the demonstration permit application dated November 5, 2008. No hazardous waste sites were identified within a 2-mile radius of the proposed project site. The NMED lists two hazardous material spill incidents related to airborne odor release/complaints, but no impacts to soils or groundwater were reported.

13) Describe all environmental/underground water remediation projects that are located within the area of hydrologic effect:

NMED lists one leaking underground storage tank site within approximately 2 miles of the project area. NMED has determined that this site requires no further action. The City does not expect this spill to impact the full-scale project.

SECTION VIII - GROUNDWATER MODEL

1) Describe the model that was used to determine the area of hydrologic effect and any impacts created by the project.

The area of hydrologic effect established during annual operations was estimated using analytical methods. Long-term recharge effects related to full scale facility operation were also evaluated using the MRG Administrative Area Model (Section 5.2 of the Capability Report). Modeling results were used to delineate a large circular area (10-mile diameter) within which predicted water level declines are reduced by 1 foot or more through long-term recharge at injection well AR-1 at a rate of 1,000 ac-ft/yr (Section 5.1, Figure 5-1 of the Capability Report). Operation of the project will have the net benefit of reducing projected groundwater depletions over the long term.

2) Provide the following information for the model:

Size:	2,350 square miles
Layers:	9
Grid spacing:	3,281 feet by 3,281 feet
Recharge boundaries:	Mountain-front, tributary, and subsurface recharge and canal, crop-irrigation, and injection well recharge are simulated as specified flow boundaries. The Rio Grande, riverside drains, Jemez River, Jemez Canyon Reservoir, and Cochiti Lake are simulated as head-dependent flow boundaries.
Discharge boundaries:	Groundwater withdrawals from public supply wells are simulated as specified flow boundaries. Head-dependent discharge boundaries are used to simulate riparian evapotranspiration and interior drains.

3) Describe the range of values for the hydrologic parameters used in the model:

Hydraulic conductivity (K) ranges from 0.05 to 60 feet per day (ft/d)
Horizontal flow barriers representing faults have a consistent K of 0.00001 ft/d
Horizontal to vertical anisotropy = 150:1
Specific storage = 2×10^{-6} per foot
Specific yield = 0.2

SECTION IX - OPERATION AND MAINTENANCE

1) How will the recharge facilities be operated and maintained?

Project facilities will be operated and maintained in accordance with the procedures outlined in the Section 3 of the Capability Report, subject to conditions within approved NMED and OSE permits.

2) What are the anticipated operating parameters for the recharge of water?

Anticipated operating parameters include flow rate, total volume injected, hours of operation, system pressures, water levels, water quality, treatment requirements, and the modifications/repairs necessary to maintain the recharge system.

3) How will the recovery facilities be operated and maintained?

Recharged water will be recovered by existing production wells operated and maintained by the City. No changes to operation and/or maintenance of these wells are anticipated as a result of the proposed demonstration project.

4) What are the anticipated operating parameters for the recovery of water?

No changes to the City's standard municipal production well operating procedures are anticipated as a result of the proposed project. Annual reporting will document recovery of stored water credits established under the USR permit.

5) Describe the water level monitoring program for the project:

Pressure transducers have been installed in the injection and monitor wells to record water level measurements hourly. Periodic manual measurements will also be made to verify pressure transducer readings. See Section 6.2 of the Capability Report for more details.

6) Describe any water quality monitoring program for the project:

See Section 6.3 of the Capability Report.

7) Describe the contingency plan for the project.

See Section 7 of the Capability Report.

SECTION X - OTHER REQUIRED PERMITS

1) List all state and federal permits that are required to operate the proposed underground storage and recovery project:

Type of Permit	Exp. Date	Issuing Agency	Copy Attached?
Discharge Permit	NA	New Mexico Environment Department	In process, application provided as Appendix D of the Capability Report.

SECTION XI - ADDITIONAL INFORMATION

1) Describe any other uses associated with the facility aside from underground storage and recovery:

There are no additional uses associated with the project facilities.

2) Please list below any additional information, including maps, that have been attached to this application:

Attachment Name	Reason for Including Attachment
Capability Report	To fully address the permit application requests for information on the various aspects of the full-scale project.

3) Additional comments:

None

2014 MAY 30 PM 3:21

ACKNOWLEDGEMENT FOR NATURAL PERSON

I, Larry Webb, affirm that the foregoing statements are true to the best of my knowledge and belief and that I am the agent for, owner and holder of said water right.

(sole, partial, agent for)

Larry Webb
Applicant Signature

5/30/14
Date

ACTION OF STATE ENGINEER

After review of this application the State Engineer has taken the following action:

✓ The application is hereby approved subject to the attached conditions of approval.

_____ The application is hereby denied for the following reason:

Witness my hand and seal this 22nd day of May, 2015.

State Engineer: Tom Blaine, P.E.
State Engineer

By: Jess L. Ward, District 1

TABLE A - DESCRIPTION OF WORKS USED FOR UNDERGROUND STORAGE AND RECOVERY

TYPE OF WORK	WHEN ONLINE	DESCRIPTION	PURPOSE OF USE	LOCATION	OSE FILE NO.	ESTIMATED CAPACITY
Aquifer Recharge	To be determined	Injection well completed to 1,730 feet below ground surface.	Recharge of highly treated reclaimed water for aquifer storage and future recovery.	Southeast of the intersection of Broadmoor Drive and Northern Boulevard in Sandoval County; Township 12N Range 3E Section 18.	RG-6745 through S-34	1 million gallons per day

APPLICATION NUMBER: USR-3

2014 MAY 30 PM 3:21

CONDITIONS OF APPROVAL
CITY OF RIO RANCHO DIRECT INJECTION
UNDERGROUND STORAGE AND RECOVERY PERMIT USR-3

1) This permit is approved as follows:

Permittee: City of Rio Rancho, Utilities Division
Department of Public Works
3200 Civic Center Circle NE
Rio Rancho NM 87174

Permit Number: USR-3 – "City of Rio Rancho Direct Injection Aquifer Storage and Recovery Project" ("the Project")

Basin: Middle Rio Grande

Duration: This permit is for continuous full-scale operation of the Project, and does not have a scheduled expiration.

Source of Injected Water: The diversion of water is described under Permit No. RG-6745 through RG-6745-S-34. The injected water source is reclaimed water from various City of Rio Rancho wastewater treatment facilities.

Purpose of Use: Municipal, industrial, and related purposes as defined in Permit No. RG-6745 through RG-6745-S-34.

Place of Use: Within the City of Rio Rancho Municipal Boundaries as defined in Permit No. RG-6745 through RG-6745-S-34.

Location of Recharge: Reclaimed water will be injected at existing well RG-6745 POD46 (AR-1), completed to a depth of 1,750 feet, located at a point where X=348,118 meters and Y=3,904,210 meters, UTM 13N, NAD 83, within Section 18, Township 12 North, Range 1 East, NMPM. The target zone for recharge at this location is between 700 and 1,730 feet below ground surface.

Points of Recovery: Three production wells in City of Rio Rancho Well Group 7, located as follows (NAD83, UTM, Zone 13, meters):

Well	POD	City Well #	X	Y
RG-6745-S-16	POD17	10R	348,655.5	3,904,604.1
RG-6745-S-17	POD18	21	348,580.3	3,903,477.3
RG-6745-S-18	POD19	not yet drilled		

Injection Rate: Up to 1.0 million gallons per day (mgd), to a maximum of 1,000 acre-feet of water per annum.

Timing of Injection: Injection of reclaimed water will occur year round.

Storage Account and Amount of Recoverable Water: The amount of reclaimed water injected into the aquifer under this permit will be recorded monthly. The amount of water injected into underground storage in any given calendar year is limited to 1,000 acre-feet. The amount of recoverable water in the account shall be determined on an annual basis based on the net amount remaining in storage after accounting for all injection and recovery amounts for the year.

2) Operation of the Project shall not be exercised to the detriment of valid existing water rights or in a manner that is contrary to the conservation of water within the state or detrimental to the public welfare of the State of New Mexico.

3) No stored water recovered under this permit from the specified points of recovery wells shall be used for proving beneficial use of water under any other permit.

4) Water stored and recovered under this permit is not available for appropriation by others, is not subject to forfeiture, and shall be recovered only by the permittee from wells RG-6745 POD17, RG-6745 POD18 and RG-6745 POD19.

5) Recovery of stored water under this permit shall not result in net depletions to flows of the Rio Grande Stream System or drawdown exceeding the limits set in the Middle Rio Grande Guidelines.

6) Water stored under this permit shall not be credited for offset purposes, however, the Permittee may file an application for permit for offset or return flow credit for approval by the State Engineer.

7) Records of the total amount of water injected through well RG-6745 POD46 (AR-1) shall be submitted to the NMOSE District 1 Office via mail, e-mail, or facsimile on or before the 10th day of the months of January, April, July and October for the preceding three calendar months, i.e. quarterly.

8) Records of the total amount of water recovered from wells RG-6745 POD17, RG-6745 POD18 and RG-6745 POD19 shall be submitted to the NMOSE District 1 Office via mail, e-mail, or facsimile on or before the 10th day of the months of January, April, July and October for the preceding three calendar months, i.e. quarterly.

9) The Project shall be operated and maintained in accordance with the Capability Report for the City of Rio Rancho Direct Injection Aquifer Storage and Recovery Project (May 30, 2014).

10) Monitoring shall be conducted in accordance with Section 6. Monitoring Plan, of the Capability Report for the City of Rio Rancho Direct Injection Aquifer Storage and Recovery Project (May 30, 2014), and Discharge Permit DP-1650 issued by the New Mexico Environment Department (NMED) Ground Water Quality Bureau on November 15, 2014.

11) In addition to the monitoring plan proposed in Section 6 of the Capability Report, emphasis should be given to monitoring of groundwater levels in wells in Well Group 7. This allows the observation of water level declines in the area absent accurate information about the travel time and final destination of the injected water. The NMOSE may require additional monitoring points or other changes to the monitoring program if deemed necessary.

12) Permittee shall file an annual report with the state engineer no later than March 31 for the preceding calendar year, in accordance with 19.25.8.34 NMAC. The annual report shall include items specified in 19.25.8.32 NMAC and will be the basis for determination of the annual fee for water placed in storage during the reporting period. An annual fee (subject to amendment) in the amount of fifty cents ($0.50) per acre-foot of water placed in storage during the period of time covered by the annual report must accompany the annual report.

13) Annually, and prior to March 31, the City of Rio Rancho will meet with the NMOSE to review the plan, operations, modeling, and water accounting credits of the Project for the previous calendar year, in accordance with 19.25.8.32 NMAC and 19.25.8.33 NMAC.

14) On or before March 31 of each year, the City of Rio Rancho shall provide information and data to the NMOSE Water Use and Conservation Bureau (WUCB) on per capita use estimates from the previous calendar year utilizing the NMOSE GPCD Calculator (Calculator).

    For this permit, the amount of water injected through the USR-3 injection well RG-6745 POD46 (AR-1), and the amount of stored water recovered from the Points of Recovery Wells RG-6745 POD17 (10R), RG-6745 POD18 (21), and RG-6745 POD19 (presently undrilled) shall be clearly identified within the Calculator. There are provisions built into the Calculator which appropriately adjust the City of Rio Rancho's GPCD to account for these types of operations. After the first year of operation of the Project, the City of Rio Rancho staff shall meet with WUCB staff to review the updated calculations.

15) This permit shall be administered in conjunction with the permitting requirements of the NMED. No water shall be injected or recovered without a valid Discharge Permit approved by the NMED Groundwater Quality Bureau. The permittee shall file all documentation pertaining to the status of the Discharge Permit with the State Engineer.

The issuance of this permit for the City of Rio Rancho Direct Injection Aquifer Storage and Recovery Project does not obligate favorable consideration by the NMOSE on any subsequent applications.

16) The NMOSE retains jurisdiction of this permit.

Witness my hand and seal this 22nd day of May 2015.

Tom Blaine, P. E., State Engineer

By: _____

Jess L. Ward, District 1 Supervisor
New Mexico Office of the State Engineer

Appendix J
Pump and Pipeline Systems Computations

Rio Rancho WWTP No. 1 Rebuild PER
Conveyance of IC Domestic Flows to the WWTP No.1
Summary of Preliminary Conceptual Analysis

Item	Description	Units
Proposed Manhole on Existing IC Pipeline		
Diameter	6	feet
Depth	5	feet
Proposed Pipeline from Proposed Manhole to Existing LS16		
Incoming Invert (Calculated based on MH invert and slope given on IC utility drawings. Slope was carried to the connection point near Westside Blvd. Min 5' ground cover was assumed)	5209	feet
LS 16 Invert	5201	feet
Diameter	6	inches
Length	640	feet
Slope	0.0125	
Average Depth Below Ground Surface	10	feet
Length of Tunnel Under Highway 528	250	feet
Estimated IC Flows		
Current IC Domestic	35	gpm
Future IC Domestic	69	gpm
IC Pipeline Peaking Factor	3	
Peak Flow from IC	**104**	**gpm**
Future Peak Flow from IC	**208**	**gpm**
Estimated Current LS16 Flows		
Average Flow	29	gpm
Peaking Factor	3	
Current Peak Flow	**87.98**	**gpm**
Estimated LS16 Pumping		
Pump Capacity	400	gpm
Peak Flow with IC Domestic	**192**	**gpm**
Future Peak Flow with IC Domestic	**296**	**gpm**

Conclusion:

Current LS16 pumps have capacity to pump IC domestic wastewater flows for current and future capacity.

Pump Cycles		
Wet Well Volume	658	gal
Current Average Pump Cycle Time	24.21	min
Average Pump Cycle Time with IC Domestic	12.23	min
Shortest Pump Cycle Time with IC Domestic (Q=q/2)	6.58	min
Average Pump Cycle Time Future IC Domestic	8.85	min
Shortest Pump Cycle Time with Future IC Domestic (Q=q/2)	6.58	min
Permissible Pump Cycle Time	5 to 30	min

Acceptable? **Yes**

Summary:

The existing LS16 has the capacity available to handle the additional flows from IC domestic.

Rio Rancho WWTP No.1 Rebuild PER
Conveyance of Unit 16E Flows to the WWTP No.1
Summary of Preliminary Conceptual Analysis

Item	Description	Units
Unit 16 E Conveyance to LS 16		
Elevation of lowest, farthest point in Unit 16 E, flowing to Lift Station 16. (Excluding low lying area by intersection of Westside Blvd. and Golf Course Rd.)	5230	feet
Distance to LS 16 (of above point)	4059	feet
Design Slope (RR Min Design Slope for 8" is 0.5%)	0.80%	
Min. Cover	5	feet
Required LS 16 Invert Depth	5192	feet
Estimated Industrial Client (IC) Flows		
Current IC Domestic	50,000	gpd
Future IC Domestic	100,000	gpd
IC Pipeline Peaking Factor	3	
Peak Flow from IC	**150000**	**gpd**
Future Peak Flow from IC	**300000**	**gpd**
Estimated Current Flows to 15" Gravity Line Along Sara Rd.		
Average Flow	38,168	gpd
Peaking Factor	3	
Current Peak Flow	**114,504**	**gpd**
Estimated Current LS16 Flows		
Average Flow	42,230	gpd
Peaking Factor	3	
Current Peak Flow	**126,690**	**gpd**
Unit 16 E Flows (South of Sara Rd)		
Houses	1,146	houses
Wastewater Production	112	gal/capita *day
Persons per house	3	persons
Avg. Wastewater Production	385,056	gpd
Peaking Factor	3	
Peak Flow	**1,155,168**	gpd

Rio Rancho WWTP No.1 Rebuild PER
Conveyance of Unit 16E Flows to the WWTP No.1
Summary of Preliminary Conceptual Analysis

Unit 16 E Flows North of Sara Rd (Would flow to Existing 15" Sewer at Grande Blvd. and Hilltop Dr.)

Houses	290	houses
Wastewater Production	112	gal/capita *day
Persons per house	3	
Avg. Wastewater Production	97,440	gpd
Peaking Factor	3	
Peak Flow	**292,320**	gpd

Total Flows to LS 16

Average Flow with 16E and Present IC	329	gpm
Peak Flow with 16E and Present IC	986	gpm
Average Flow with 16E and Future IC	363	gpm
Peak Flow with 16E and Future IC	1099	gpm
LS 16 Pump Capacity	400	gpm

Conclusion

Current LS16 pumps are undersized for 16 E and IC flows

Existing 8" FM Capacity

Existing FM	FM is 8" PVC SDR 18	
ID	8	in
Velocity at Peak Flow with Present IC	6.32	ft/s
Velocity at Peak Flow with Future IC	7.05	ft/s
TDH at Peak Flow with Present IC	71.69	psi
TDH at Peak Flow with Future IC	80.66	psi
Transient Pressure with Present IC	**100.37**	**psi**
Transient Pressure with Future IC	**112.92**	**psi**

Conclusion

Existing FM fittings are assumed to be rated to 125 psi. Transient pressures are approaching rating, therefore a new 10" FM is recommended

Rio Rancho WWTP No.1 Rebuild PER
Conveyance of Unit 16E Flows to the WWTP No.1
Summary of Preliminary Conceptual Analysis

Existing 15" Sewer Capacity

Evaluated to see if existing sewer would be sufficient to convey flows from Unit 16E North of Sara Rd.		
Required Flow	283	gpm
Lowest Slope Pipe Section	0.07826%	
Flow Capacity	741.66	gpm
% of Required Flow	**263%**	

Conclusion

Flows from Unit 16E North of Sara Rd. can be conveyed through the existing 15" sewer main from connection at Grande Blvd. and Hilltop Dr. to WWTP#1. Additional Analysis confirmed that the existing sewer would not be able to convey additional flows from the Proposed LS 16 Forcemain. The Proposed LS 16 Forcemain will run from LS 16 to WWTP#1.

Proposed 10" FM

Designed For Future Peak IC Flow, Unit 16 E South of Sara Road and Existing LS 16 Flows

Proposed FM	FM is 10" PVC	
ID	10.16	in
FM Length	7,680	feet
Velocity at Peak Flow with Future IC	4.35	ft/s
Length of tunnel under NM 528	250	feet
Average Depth	5	feet

Conclusion

Construction of a new 10" Forcemain from LS 16 to WWTP#1 was evaluated to be the best option to convey the flows from LS 16.

Pump Selected

Flygt NP 3301 HT 3 ~ SmartRun (370 mm Impeller) (1+Standby)	2	qty
Operating Point Head	139	ft
Operating Flow	1,099	gpm

Rio Rancho WWTP No.1 Rebuild PER
Conveyance of Unit 16E Flows to the WWTP No.1
Summary of Preliminary Conceptual Analysis

Wet Well Sizing

Min Pump Cycle Time	10	minutes
Wet Well Required Effective Volume	367	$feet^3$
Wet Well Diameter	12	feet
Wet Well Bottom Elevation	5183	feet
Wet Well Ground Elevation	5210	feet
Wet Well Depth Below Grade	26.70	feet

Pump Cycles

Wet Well Volume	2,748	gal
Average Pump Cycle Time with Unit 16 E and Current IC Domestic	11.93	min
Shortest Pump Cycle Time with Current IC Domestic (Q=q/2)	10.00	min
Average Pump Cycle Time Future IC Domestic	11.30	min
Shortest Pump Cycle Time with Future IC Domestic (Q=q/2)	10.00	min

Conclusion:
Pump cycle times are within acceptable range of 5-30 minutes. Pump starts will be no more than 6 starts per hour.

Proposed Pipeline from 18" IC Pipeline to Existing LS16

Incoming Invert (Calculated based on MH invert and slope given on IC 18" Sewer line (IC utility drawings). Slope was carried to the connection point near Westside Blvd. Min 5' ground cover was assumed)	5209	feet
LS 16 Invert	5201	feet
Diameter	6	inches
Length	640	feet
Slope	0.0125	
Average Depth Below Ground Surface	10	feet
Length of Tunnel Under Highway 528	250	feet
Flow at d/D=0.75	292.92	gpm
% of Future Peak IC Flow	141%	

Conclusion

Sufficient slope exists between proposed connection to IC 18" Sewer line and LS 16 to convey current and future IC peak flows.

Rio Rancho Existing Reuse Pipeline from WWTP#1 to IC Water Tanks
Pipeline Capacity Calculations

						Headloss (ft)	
					Flow (mgd) =	1	1.5
Pipe Segment	Stations	Length (ft)	Diameter (in)	Pipe Material	HW Coef		
1	WWTP#1 (Sta. 0+00 to 20+94)	2094	8	PVC	150	14.94	31.67

Rio Rancho Existing Reuse Pipeline from WWTP No. 1 to WWTP No. 2
Pipeline Capacity Calculations
Current Capacity

		MGD					Headloss (ft)				Velocity (fps)			
					Flow (mgd) =	1	1.2	1.5	1.64 (max)	1	1.2	1.5	1.65 (max)
Pipe Segment	Stations	Length (ft)	Diameter (in)	Pipe Material	HW Coef								
1	WWTP#1 (Sta. 0+00 to 38+10)	3810	10	Asbestos Cement	140	10.12	14.34	21.44	26.05	2.84	3.37	4.26	4.26
2	WWTP#1 (Sta. 38+10 to 87+00)	5800	8	Asbestos Cement	140	51.58	70.96	109.29	128.92	4.6	5.47	6.91	6.91
Total						61.7	85.3	130.73	154.97				

Static Head		
Pump Level	5248.5	ft
Discharge Level (or	5335	ft
Static Head	91.5	

Pipe Pressure					
	1 mgd	1.2 mgd (Existing pump)	1.5 mgd	1.64 (max)	
TDH	153.2	176.8	222.2	246.5	ft
TDH	66.4	76.6	96.3	106.8	psi
Transient Pressure	92.9	107.3	134.8	149.5	psi

Existing Design		
As specified on pump selection curve for existing 75 hp Effluent Pump 900 gpm @ 235'		
Total head	235	ft
Working Pressure	101.8	psi
Transient Pressure	142.6	psi

Appendix K
Rio Rancho Reuse Alignment Update, September 18, 2015, Huitt Zollars

HUITT-ZOLLARS

HUITT-ZOLLARS, INC. ı 333 Rio Rancho Dr. NE ı Suite 101 ı Rio Rancho, NM 87124-1450 ı 505.892.5141 phone ı 505.892.3259 fax ı huitt-zollars.com

September 18, 2015

Jamie Marrufo, Section Manager
Capital Improvements Section
City of Rio Rancho
Dept. of Public Works
Engineering Division
3200 Civic Center Cir. NE Ste. 200
Rio Rancho, NM 87144

Re: Reuse Master Plan Update

This letter report serves as an update to the "Letter Report Addressing Reuse Master Plan Update" dated September 25, 2014. The City has requested that Huitt-Zollars, Inc. provide additional analysis of three route alternatives for moving Class 1A recycled water from a new 1.50 MGD wastewater treatment facility at Wastewater Treatment Plant 1 (WWTP 1) to:

1. The proposed 3 MG recycled water tank at Well 10A (RWT) by one of the following two methods:
    a. Pump from WWTP 1 to an intermediate in-line pump station in the vicinity of the Club at Rio Rancho East Lake that will then pump to the RWT;
    b. Pump from WWTP 1 to WWTP 2 and then pump from WWTP 2 to the RWT; and,
2. Pump from WWTP 1 to WWTP 6.

Exhibit 1 shows the existing recycled water system. The existing Class 1A recycle system currently pumps from WWTP 6 (the only existing plant capable of producing Class 1A recycled water), north through a dedicated transmission main (16-inch through 24-inch) that generally follows the Cabezon East Branch Channel north, crosses Chianti Rd., then turns west to Nicklaus Dr. where it continues north in an unnamed drainage channel adjacent to and east of Nicklaus Dr., crosses through the Club at Rio Rancho (Club), continues north through the SportsPlex, crosses the Montoyas Arroyo, and extends north and west through Loma Colorado to the proposed RWT and Advanced Water Treatment Facility (AWTF) sites. The Class 1A system can also discharge to the Rio Grande through the WWTP 2 24-inch outfall line via a 16-inch transmission line in the Montoyas Arroyo. Once the RWT is constructed, Class 1A recycled water will be capable of moving in both directions between the RWT and WWTP 6 and one-way through WWTP 2, when required. WWTP 6 currently discharges through WWTP 2. Where the existing 16-inch recycled water transmission main passes the tennis courts on the north side of the Club, a 12-inch lateral branches off to the east and continues along the north side of the Club's East Course. This existing 12-inch line currently provides a means to deliver Class 1A recycled water to the Club's East Lake. **Exhibit 1** also shows the route for moving Class 1B recycled water from the existing WWTP 1 to the East Lake using an existing 10-inch and 8-inch recycled water line in Sara Rd., NM 528, and East Lake Dr.

For the purposes of this report, the required off-site pumping capacity will be based on information taken from the CH2M WWTP 1 Preliminary Engineering Report (PER) shown below:

> *The flow from LS10 will be used to buffer the flow from the WWTP No. 1 collection system, so that flow through the plant never exceeds the peak month flow of 1.6 mgd.*

The CH2M PER further stated that the preliminary design did not include off-site pumping capability necessary to dispose of the treated wastewater or any on-site buffer storage capacity related to off-site pumping requirements; therefore, Huitt-Zollars will identify both the pumping requirements necessary to deliver the treated wastewater to a suitable site and supplemental buffer storage capacity necessary to transfer 1,111 gpm of recycle water from WWTP 1 to the two locations identified above.

Initial Concept

The initial concept for transferring water from WWTP 1 to the RWT was to construct a booster station and storage tank at WWTP 1, pump through the existing 8-inch and 10-inch asbestos cement (AC) effluent transfer line to the East Lake, connect to the existing 12-inch PVC line in the East Course, and continue to the RWT and AWTF via the existing 16-inch and 24-inch WWTP 6 recycle line. The elevation difference between WWTP 1 (estimated 5245 ft) and the RWT site (5560 ft high water level) is approximately 315 ft which results in a static pressure of 136 psi at WWTP 1. A water model was developed to evaluate the concept. The results of the modeling showed that moving 1,111 gpm through the existing 8-inch and 10-inch AC pipeline created high velocities (7.37 fps and 4.54 fps, respectively). The high velocities in turn generated high friction losses. There is approximately 4,000 ft of 10-inch AC pipe installed which, using a Hazen-Williams "C" factor of 140, results in a friction loss of approximately 28 ft at 1,111 gpm. There is approximately 5,600 ft of 8-inch AC which, when using a "C" factor of 140, results in a friction loss of approximately 123 ft at 1,111 gpm. The total friction loss through the existing AC pipeline is approximately 151 ft or 65 psi at 1,111 gpm.

The existing 10-inch and 8-inch lines AC lines were installed around 1975. Although no definitive information is available for the pressure rating of the AC lines, it is assumed that they are pressure class 150, with a maximum rated working pressure of 150 psi. Based on static pressure alone (136 psi), the existing 10-inch AC line would be near its pressure class limits in the vicinity of WWTP 1 if an attempt were made to pump directly to the RWT from WWTP 1. In addition to static pressure, operational pressure for the entire length of line must be evaluated. When pumping 1,111 gpm directly from WWTP 1 to the RWT location through the existing infrastructure described above, the operational pressures generated range from 229 psi at the WWTP 1 entrance in Sara Rd. to 137 psi at the East Lake; thus, for the entire length of existing 10-inch AC pipe and a portion of the 8-inch AC pipe, its rated pressure is exceeded.

Surge pressure must also be considered. Surge pressure is the added pressure in a water line that results from a sudden change in velocity of the liquid being transferred. Sudden changes in velocity are created when a valve is closed too quickly or when there is a power outage at a booster station and the pumps shut off unexpectedly. This abrupt change in velocity can cause a pressure surge in the pipe that is related to both the change in velocity of the water being pumped and the elastic modulus of the associated pipe material. Pipes with a smaller elastic modulus (PVC: 362,594 psi) generate less surge pressure for a given change in velocity than pipe materials with a larger elastic modulus (asbestos cement: 3,480,906 psi).

Figure 1 and **Figure 2** show the estimated maximum surge pressure associated with AC pipe for both the 8-inch and 10-inch lines for a flow rate of 1,111 gpm. The surge pressure is estimated through the use of the Joukowski impulse equation based on a calculator developed by LMNO Engineering and Research, Ltd. The maximum possible velocity change in the 8-inch pipe is approximately 7.37 fps resulting in an estimated maximum surge pressure of 346 psi added to the system operating pressure. The maximum possible velocity change in the 10-inch pipe is approximately 4.54 fps resulting in an estimated maximum surge pressure of 212 psi added to the system operating pressure.

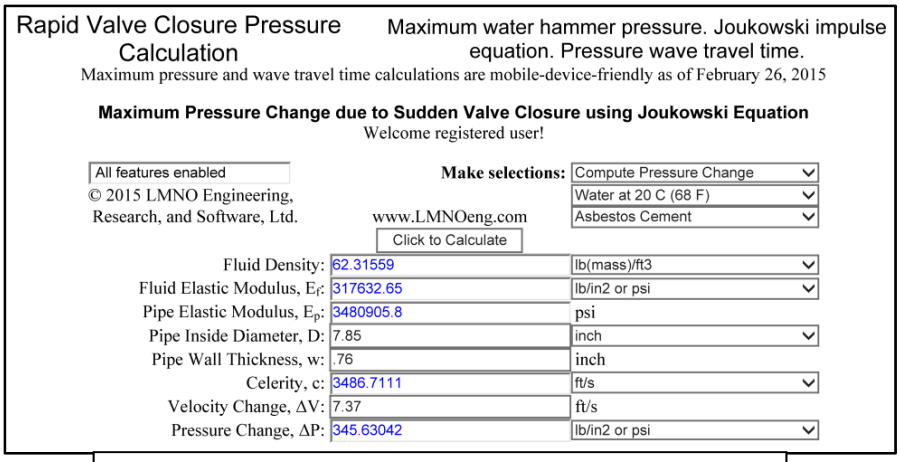


Figure 1
Estimated Surge Pressure in 8-inch Class 150 AC Pipe

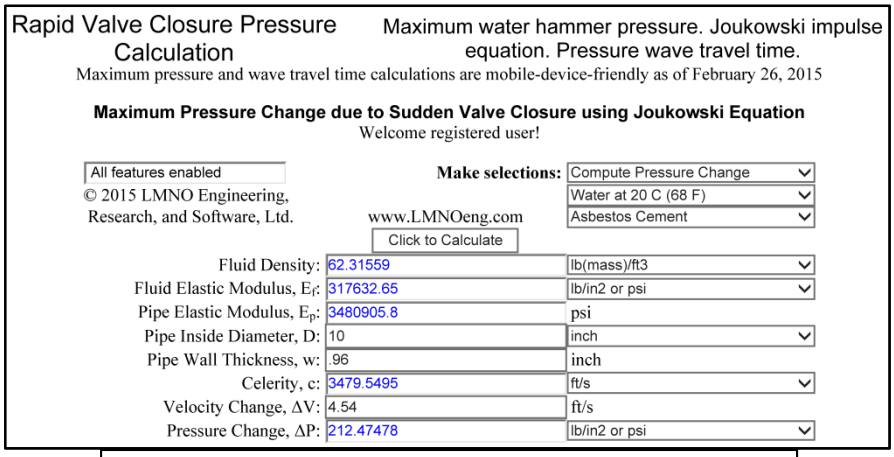


Figure 2
Estimated Surge Pressure in 10-inch Class 150 AC Pipe

Based on estimated static, operational, and surge pressures in the existing system, it is not recommended that a pumping system be designed for the full length of line between WWTP 1 and the RWT; thus, for the purposes of this analysis, it is recommended that an intermediate in-line booster station be placed in the vicinity of the East Lake that would allow the total system pressure to be split between two booster stations. It is also recommended that surge protection be provided at WWTP 1 to provide additional protection for the system. This approach will reduce the pressure on the existing AC pipe. Use of an in-line booster station design will also eliminate the need for an on-site storage tank and its associated land requirements at the intermediate site. Use of an in-line approach will result in both the WWTP 1 booster station and the intermediate in-line booster station being sized the same.

The following is a discussion of the three route alternatives evaluated for this report.

1. Route Alternative 1 – WWTP 1 to Well 10A 3 MG Recycle Storage Tank Via East Lake:

Exhibit 2 shows the proposed alignment for Route Alternative 1-A that connects WWTP 1 to an in-line booster station at the golf course. **Exhibit 3** shows the proposed alignment for Route Alternative 1-B that connects WWTP 1 to an in-line booster station at the Presbyterian site on High Resort Blvd. **Figure 3** shows a closer view of the two potential in-line booster station locations. Site Alternative1 is adjacent to

the existing East Lake golf course irrigation pump house. Site Alternative 2 is located on the north side of High Resort Blvd. on property owned by Presbyterian Heath Care. Ground elevations at the two in-line booster station site alternatives vary slightly with the Presbyterian site being slightly lower. The elevation difference between the WWTP 1 booster station (estimated 5245 ft) and the golf course in-line booster station (estimated 5320 ft) is approximately 75 ft. In order to provide buffer capacity between the new treatment facility and off-site booster station at WWTP 1, a 50,000 gallon ground storage tank is proposed to be located adjacent to the new off-site booster station. Assuming a 20-ft maximum water level, the diameter of the tank would be approximately 21 ft. For water modelling purposes it will be assumed that an operational water level of 15 ft will be used in the buffer tank (estimated 5360 ft). The pump design point to deliver water to the golf course area booster station is **1,111 gpm @ 264 ft TDH**. As stated previously, the use of an in-line pumping concept eliminates the need for a storage tank at the golf course and the Presbyterian site. It also results in each pump system being sized the same; thus, identical booster stations would be installed at WWTP 1 and in the East Lake area. The WWTP 1 booster station will provide approximately 23 psi suction pressure for the in-line booster station at the golf course and the Presbyterian site.

The booster station pump design points were determined with the assumption that the new booster stations would be pumping against three operational pumps at WWTP 6. By themselves, three pumps operating at WWTP 6 can deliver an estimated 2,910 gpm (4.2 MGD). With the new in-line booster station delivering a total of 1,111 gpm, the three pumps at WWTP 6 can deliver an estimated 2,686 gpm (3.87 MGD).

Referring to **Exhibit 2** and **Figure 3**, Site Alternative 1 places the proposed in-line booster adjacent to the existing East Lake golf course irrigation pump station. Nominal additional piping is required for this site. It is anticipated that a 100-ft x 100-ft site (10,000 SF) will be sufficient to construct the proposed in-line booster station; thus, approximately 0.2296-ac of real property acquisition will be required. Easements exist for the existing 12-inch recycle line from WWTP 6 and the existing effluent transfer line that converge at the East Lake from WWTP 1 and WWTP 2. Additional easements totaling 10,000 SF should be sufficient for making necessary piping connections to and from the proposed booster station; thus approximately 0.2296-ac of easement acquisition will be required.

Referring to **Exhibit 3** and **Figure 3**, Site Alternative 2 places the proposed in-line booster station on the Presbyterian site on the north side of High Resort Blvd. This location will require the installation of approximately 2,500 feet of 12-inch PVC to connect from the existing 8-inch AC line to the proposed booster station and back to the existing 12-inch PVC line. Both locations will require real property and easement acquisition associated with pipe line alignments and electrical power supply. It is anticipated that a 100-ft x 100-ft site (10,000 SF) will be sufficient to construct the proposed in-line booster station; thus, approximately 0.2296-ac of real property acquisition will be required. Easements exist for the existing 12-inch recycle line from WWTP 6 and the existing effluent transfer line that converge at the East Lake from WWTP 1 and WWTP 2. Additional easements totaling 10,000 SF should be sufficient for making necessary piping connects to and from the proposed booster station; thus approximately 0.2296-ac of easement acquisition will be required.

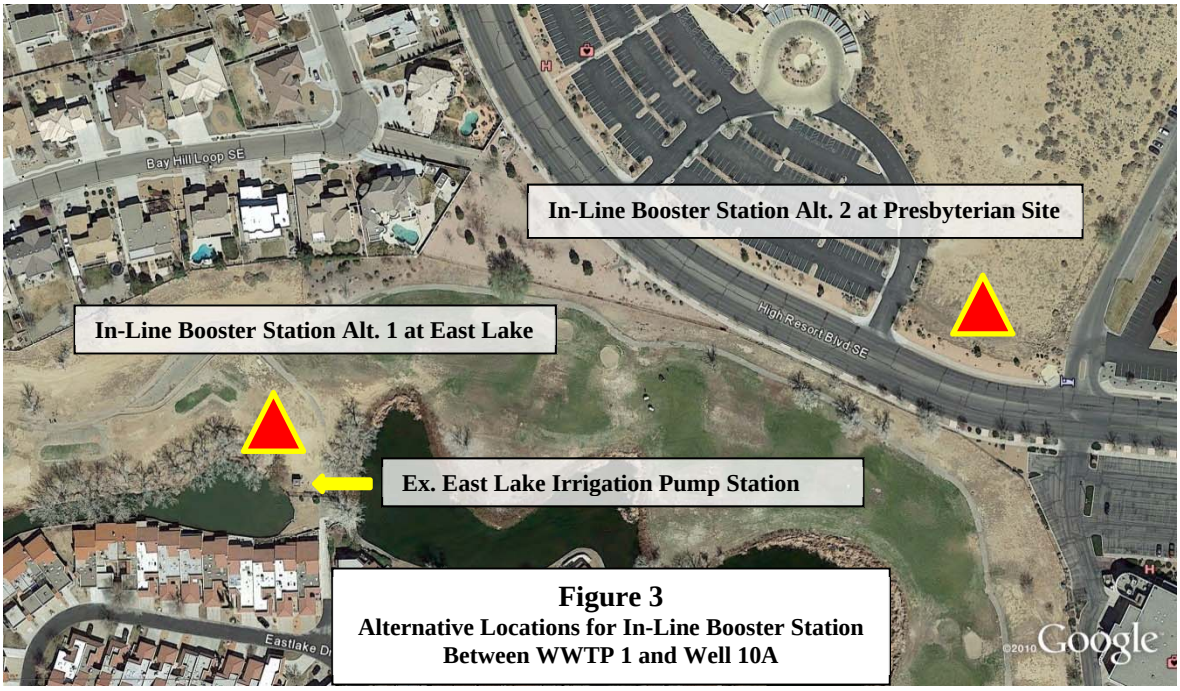


Figure 3
Alternative Locations for In-Line Booster Station Between WWTP 1 and Well 10A

Estimated costs associated with Route Alternative 1-A are shown in **Table 1**. The estimated cost for Route Alternative 1-A is **$2,389,024.82**. **Table 2** shows estimated costs associated with Route Alternative 1-B. The estimated cost for Route Alternative 1-B is **$2,673,522.80**.

2. Route Alignment 2 – WWTP 1 to WWTP 2

Route Alignment 2, shown in **Exhibit 4**, begins with a new booster station and 50,000 gallon ground storage tank at WWTP 1 that connects to the existing 10-inch and 8-inch AC effluent pipeline. A new 10-inch transmission main would be connected to the existing 8-inch AC line at the East Lake and extend to WWTP 2 along the west right-of-way of NM528 and then east in the Montoyas Arroyo. The new 10-inch transmission main would discharge to a new 50,000 gallon ground storage tank at WWTP 2. A new booster station would pump from the 50,0000 WWTP 2 tank back into the existing 16-inch recycled water line that is located in the Montoyas Arroyo and push water back to the west to connect with the existing 24-inch transmission main that extends to the RWT and AWTF.

The proposed 50,000 gallon tank at WWTP 2 would be used as a buffer tank between the two pumped systems. Recycled water from WWTP 1 can only be pumped through the existing 16-inch arroyo line if there was no need for water from WWTP 6 to discharge through WWTP 2 to the Rio Grande. If WWTP 6 needed to discharge through WWTP 2 for any reason, water from WWTP 1 would also need to be discharged to the Rio Grande since flow can only go in one direction in the existing 16-inch arroyo line. The only reason WWTP 6 would need to discharge to the Rio Grande and by-pass the RWT and AWTF would be if the RWT and AWTF were unable to receive any recycled water, in which case, water from WWTP 1 could not be moved to those locations either. The new 50,000 gallon tank at WWTP 2 would be provided with an overflow connected to the existing 24-inch outfall line that discharges to the Rio Grande.

Pumping requirements for the Route Alternative 2 between WWTP 1 and WWTP 2 are similar to Route Alternative 1 since the existing 10-inch and 8-inch recycled water lines would be used to deliver water to the East Lake area. Approximately 11,000 feet of new 10-inch DR-18 PVC transmission main will connect the existing 8-inch AC line at the East Lake to WWTP 2. The elevation difference between the buffer tank water level at WWTP 1 (estimated 5260 ft) and the water level in the buffer tank at WWTP 2 (estimated 5170 ft) is approximately 90 feet with WWTP 2 being lower. This results in the condition

where the WWTP 1 booster station is pumping to a high point at the East Lake and then downhill to WWTP 2 with the hydraulic grade line of the system potentially passing below the East Lake high point resulting in a negative pressure. In order to ensure that a positive pressure is maintained at the system highpoint, it is recommended that a pressure/flow control valve be installed prior to the proposed WWTP 2 buffer tank. For the purposes of this evaluation, a positive system pressure of approximately 15 psi has been provided at the system highpoint at the East Lake. Based on the water hammer issues discussed for Route Alternative 1, it is also recommended that surge protection be provided at the WWTP 1 site to protect the existing AC lines. The estimated design point for the WWTP 1 booster station is **1,111 gpm at 242 feet TDH**. Pumping capacity at WWTP 6 is not affected by the proposed booster station at WWTP 1.

A new booster station at WWTP 2 will connect to the existing 16-inch Montoyas Arroyo recycle line. The elevation difference between the WWTP 2 buffer tank (estimated 5170 ft) and the RWT (5560 ft) is approximately 390 ft. The estimated design point for the booster station from WWTP 2 to the RWT is **1,111 gpm at 409 ft TDH**. The pump design point was determined with the assumption that the new WWTP 2 booster station would be pumping against three operational pumps at WWTP 6. By themselves, three pumps operating at WWTP 6 can deliver an estimated 2,910 gpm (4.2 MGD). With the new booster stations delivering a total 1,111 gpm, the three pumps at WWTP 6 can deliver an estimated 2,870 gpm (4.14 MGD).

A blanket easement exists in the Montoyas Arroyo west of NM528. The ownership of the Montoyas Arroyo east of NM528 is unclear. For planning purposes it has been assumed that a 20-ft wide easement approximately 3,000 ft in length will be required; thus approximately 1.3774-ac of easement acquisition will be required.

Estimated costs associated with Route Alternative 2 are shown in **Table 3**. The estimated cost for Route Alternative 2 is **$3,446,194.87**.

3. Route Alternative 3 – WWTP 1 to WWTP 6

Route Alternative 3, shown in **Exhibit 5**, connects WWTP 1 to WWTP 6. A new booster station and 50,000 gallon ground storage tank will be constructed at WWTP 1 that will discharge to a new 10-inch recycled water transmission main. The proposed transmission main would be constructed generally in the roadway pavement in Sara Rd., Grande Blvd., and Westside Blvd. The proposed transmission main will cross under the East Branch Channel and extend onto the WWTP 6 site. For the purposes of this evaluation it is assumed that the connection point at WWTP 6 is along the existing 18-inch inlet line upstream of the existing 3 MG recycled water storage tank. New recycle water service connections will be provided to businesses, parks, and other potential users along the business district portion of Grande Blvd. as part of this project.

The connection point at WWTP 6 is approximately 40 feet below the WWTP 1 recycled water pumps so, just as with Route Alternative 2, a method for maintaining a positive pressure at the system high point (Sara Rd. and Grande Blvd.) must be provided. For the purposes of this evaluation, a positive system pressure of approximately 15 psi has been provided at the system highpoint by installing a flow/pressure control valve upstream of the existing ground storage tank at WWTP 6. Approximately 15,000 feet of 10-inch DR-18 PVC pipe will be required to accomplish this connection. The estimated design point for the booster station from WWTP 1 to WWTP 6 is **1,111 gpm @ 59 feet TDH**.

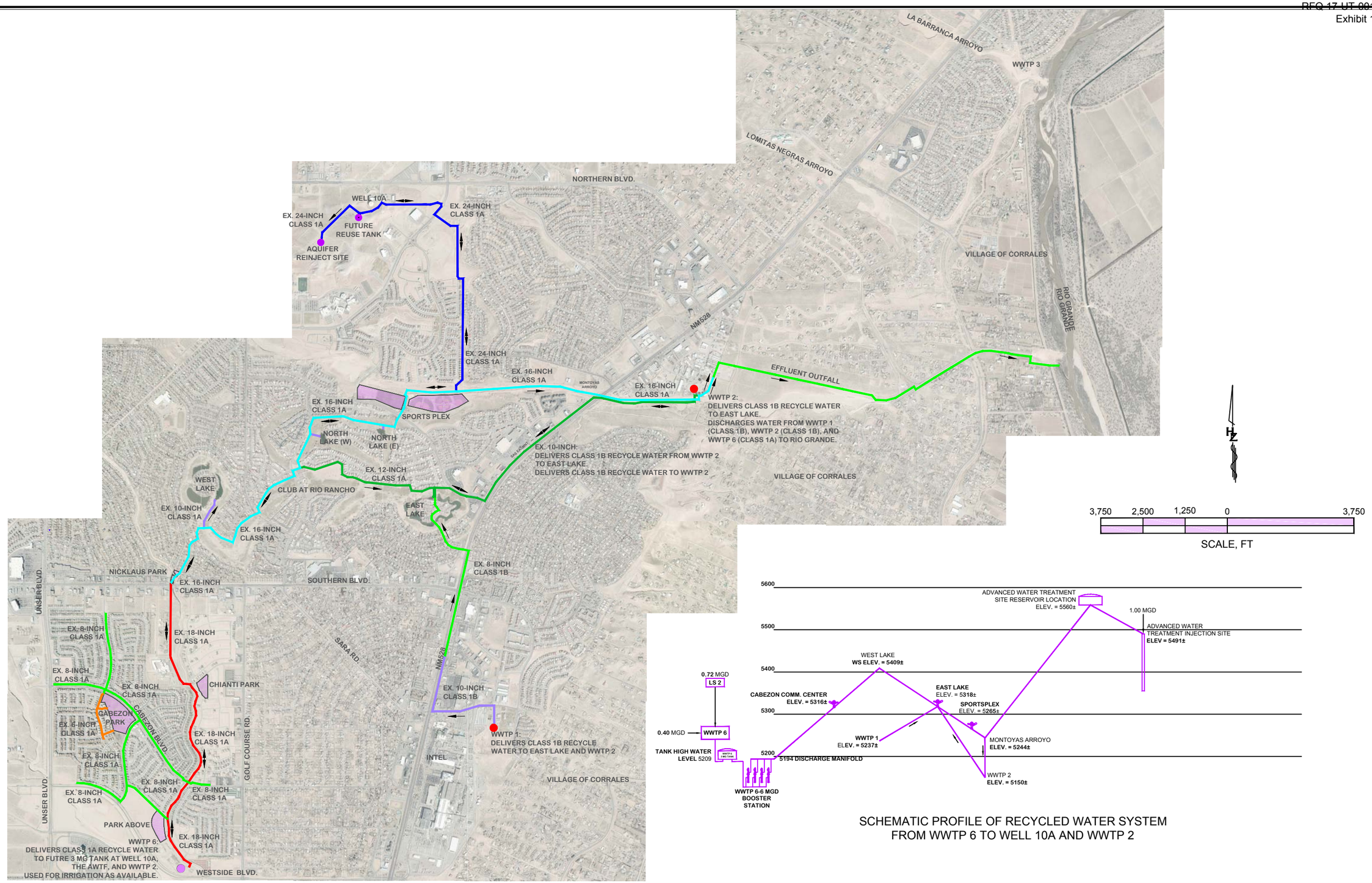
Estimated costs associated with Route Alternative 3 are shown in **Table 4**. The estimated cost for Route Alternative 3 is **$4,929,961.19**.

Thank you for allowing Huitt-Zollars to perform this evaluation. Please contact me at 505-999-8841 if you have any questions.

HUITT-ZOLLARS, INC.
James D. Brauer, PE

JAMES D. BRAUER
NEW MEXICO
15639
PROFESSIONAL ENGINEER

James D. Brauer
9-18-15



Designed For:

Rio Rancho City of Vision

RECYCLED WATER SYSTEM OVERVIEW - UPDATE

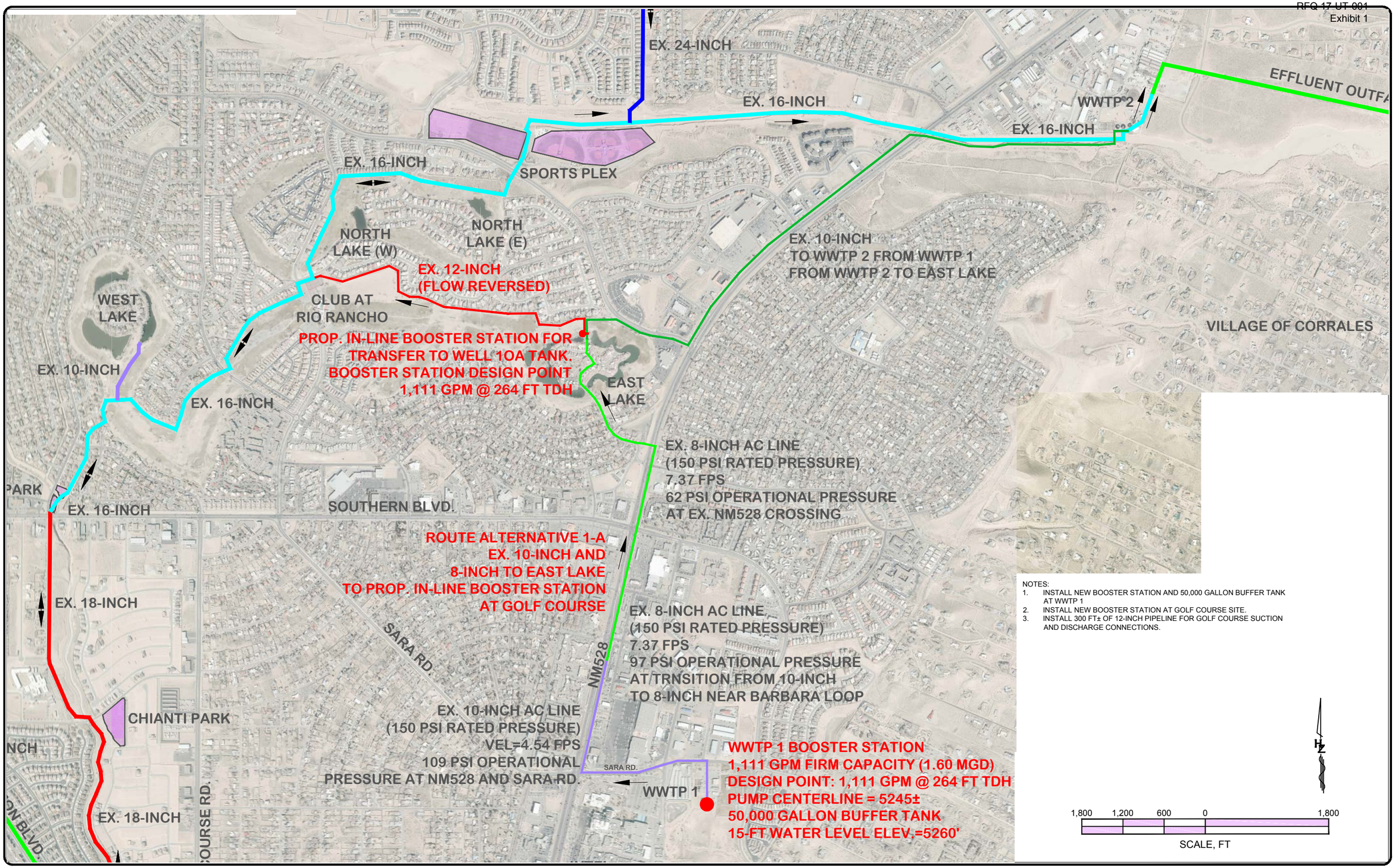
EXHIBIT 1
EXISTING RECYCLED WATER SYSTEM

SCALE: 1" = 1,250'

DATE:
SEPTEMBER 16, 2015

Designed By:

HUITT-ZOLLARS
Huitt-Zollars, Inc.
333 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259



NOTES:
1. INSTALL NEW BOOSTER STATION AND 50,000 GALLON BUFFER TANK AT WWTP 1
2. INSTALL NEW BOOSTER STATION AT GOLF COURSE SITE.
3. INSTALL 300 FT± OF 12-INCH PIPELINE FOR GOLF COURSE SUCTION AND DISCHARGE CONNECTIONS.

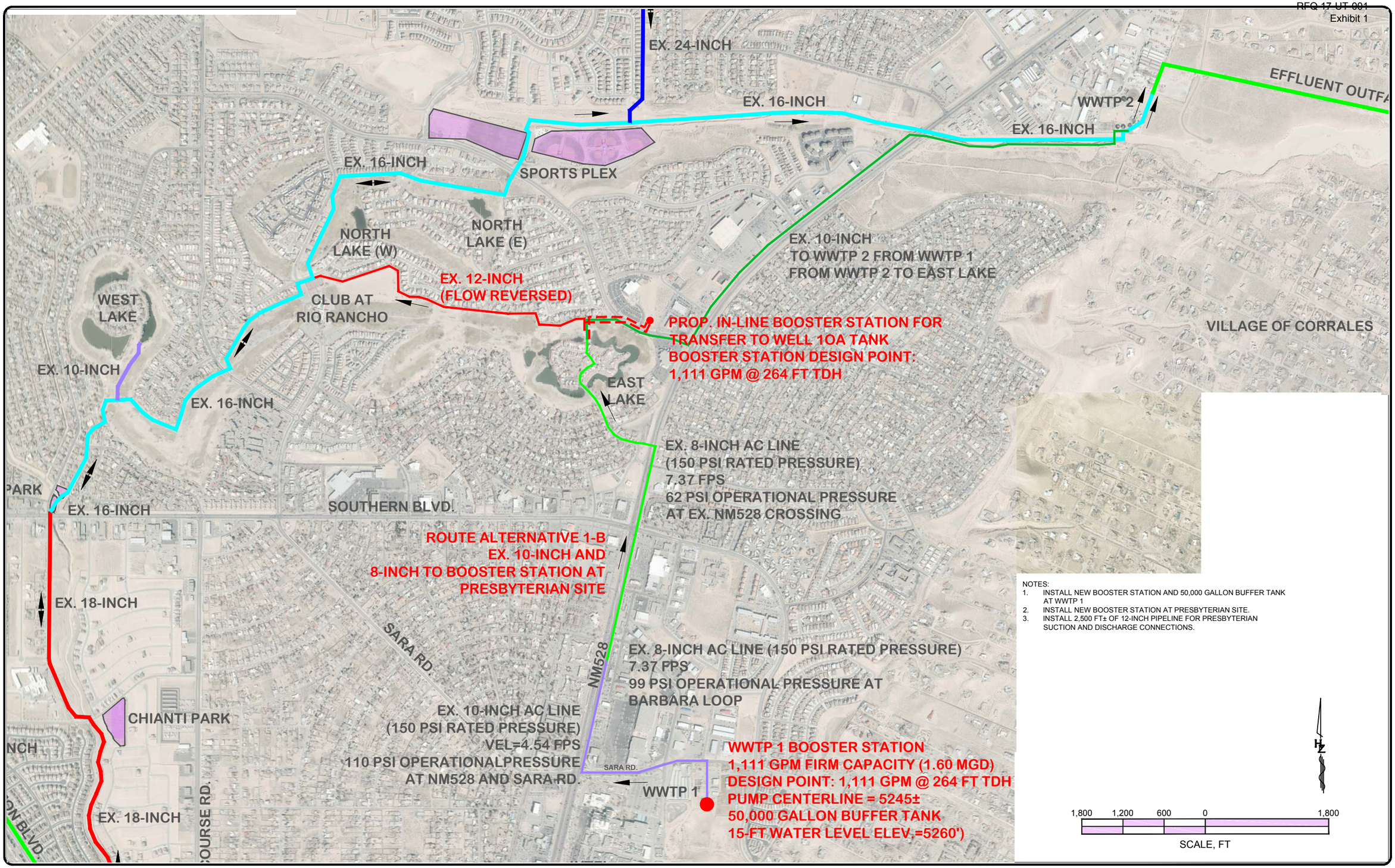
Designed For:
Rio Rancho City of Vision

RECYCLED WATER SYSTEM OVERVIEW - UPDATE

EXHIBIT 2
ROUTE ALTERNATIVE 1-A WITH IN-LINE BOOSTER STATION AT GOLF COURSE
PROPOSED DIVERSION OF 1.60 MGD FROM WWTP 1 TO WELL 10A

SCALE: 1" = 600'
DATE: SEPTEMBER 16, 2015

Designed By:
HUITT-ZOLLARS
Huitt-Zollars, Inc. Rio Rancho
333 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259



NOTES:
1. INSTALL NEW BOOSTER STATION AND 50,000 GALLON BUFFER TANK AT WWTP 1
2. INSTALL NEW BOOSTER STATION AT PRESBYTERIAN SITE.
3. INSTALL 2,500 FT± OF 12-INCH PIPELINE FOR PRESBYTERIAN SUCTION AND DISCHARGE CONNECTIONS.

Designed For:
Rio Rancho City of Vision

RECYCLED WATER SYSTEM OVERVIEW - UPDATE

EXHIBIT 3
ROUTE ALTERNATIVE 1-B WITH IN-LINE BOOSTER STATION AT PRESBYTERIAN SITE
PROPOSED DIVERSION OF 1.60 MGD FROM WWTP 1 TO WELL 10A RECYCLE WATER TANK

SCALE: 1" = 600'
DATE:
SEPTEMBER 16, 2015

Designed By:
HUITT-ZOLLARS
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333 Rio Rancho Drive NE, Suite 101
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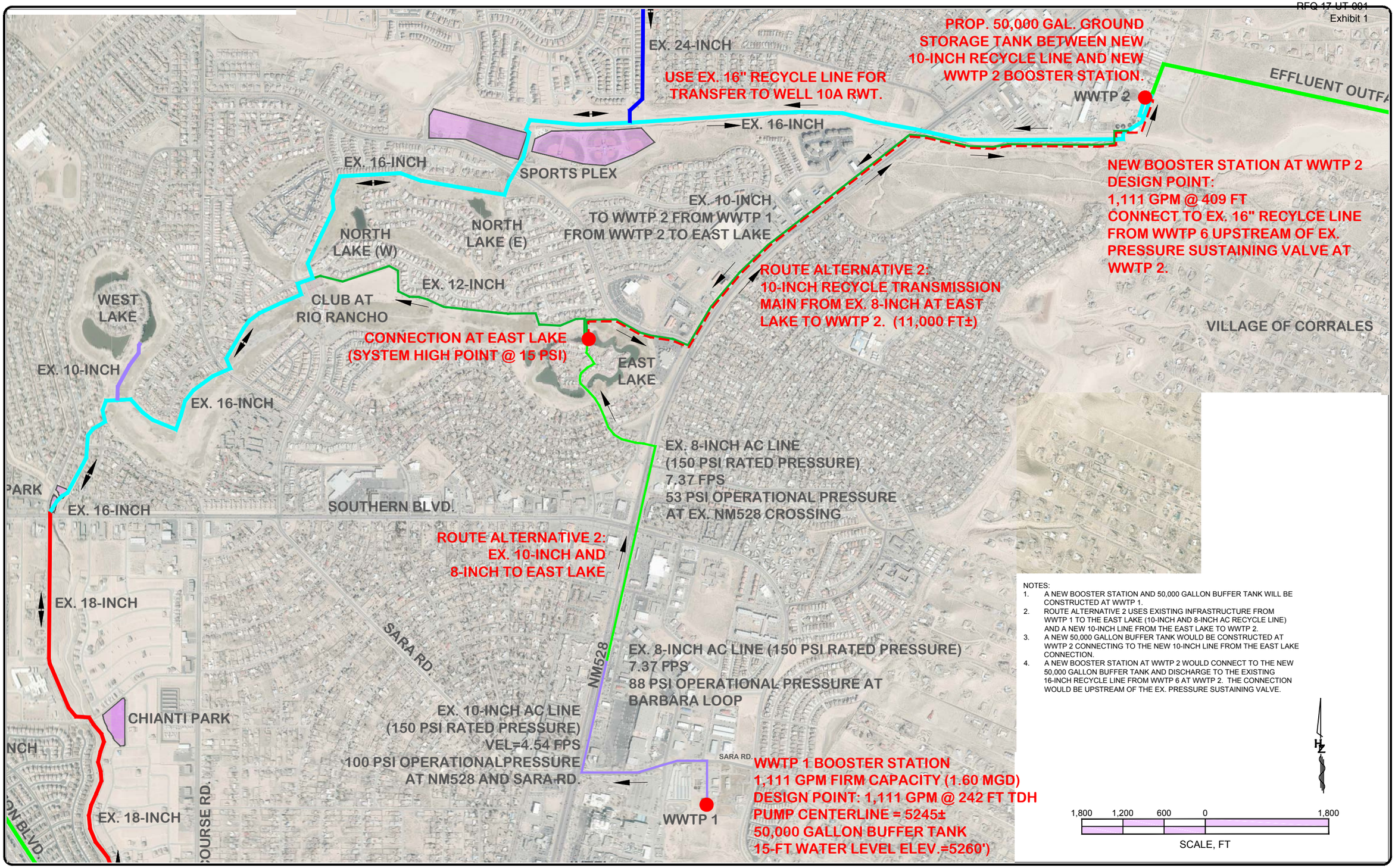
Phone (505) 892-5141 Fax (505) 892-3259



NOTES:

1. A NEW BOOSTER STATION AND 50,000 GALLON BUFFER TANK WILL BE CONSTRUCTED AT WWTP 1.
2. ROUTE ALTERNATIVE 2 USES EXISTING INFRASTRUCTURE FROM WWTP 1 TO THE EAST LAKE (10-INCH AND 8-INCH AC RECYCLE LINE) AND A NEW 10-INCH LINE FROM THE EAST LAKE TO WWTP 2.
3. A NEW 50,000 GALLON BUFFER TANK WOULD BE CONSTRUCTED AT WWTP 2 CONNECTING TO THE NEW 10-INCH LINE FROM THE EAST LAKE CONNECTION.
4. A NEW BOOSTER STATION AT WWTP 2 WOULD CONNECT TO THE NEW 50,000 GALLON BUFFER TANK AND DISCHARGE TO THE EXISTING 16-INCH RECYCLE LINE FROM WWTP 6 AT WWTP 2. THE CONNECTION WOULD BE UPSTREAM OF THE EX. PRESSURE SUSTAINING VALVE.

Designed For:

RioRancho City of Vision

RECYCLED WATER SYSTEM OVERVIEW - UPDATE

EXHIBIT 4
ROUTE ALTERNATIVE 2
PROPOSED DIVERSION OF 1.60 MGD FROM WWTP 1 TO WWTP 2

SCALE: 1" = 600'
DATE:
SEPTEMBER 16, 2015

Designed By:

HUITT-ZOLLARS
Huitt-Zollars, Inc. Rio Rancho
333 Rio Rancho Drive NE, Suite 101
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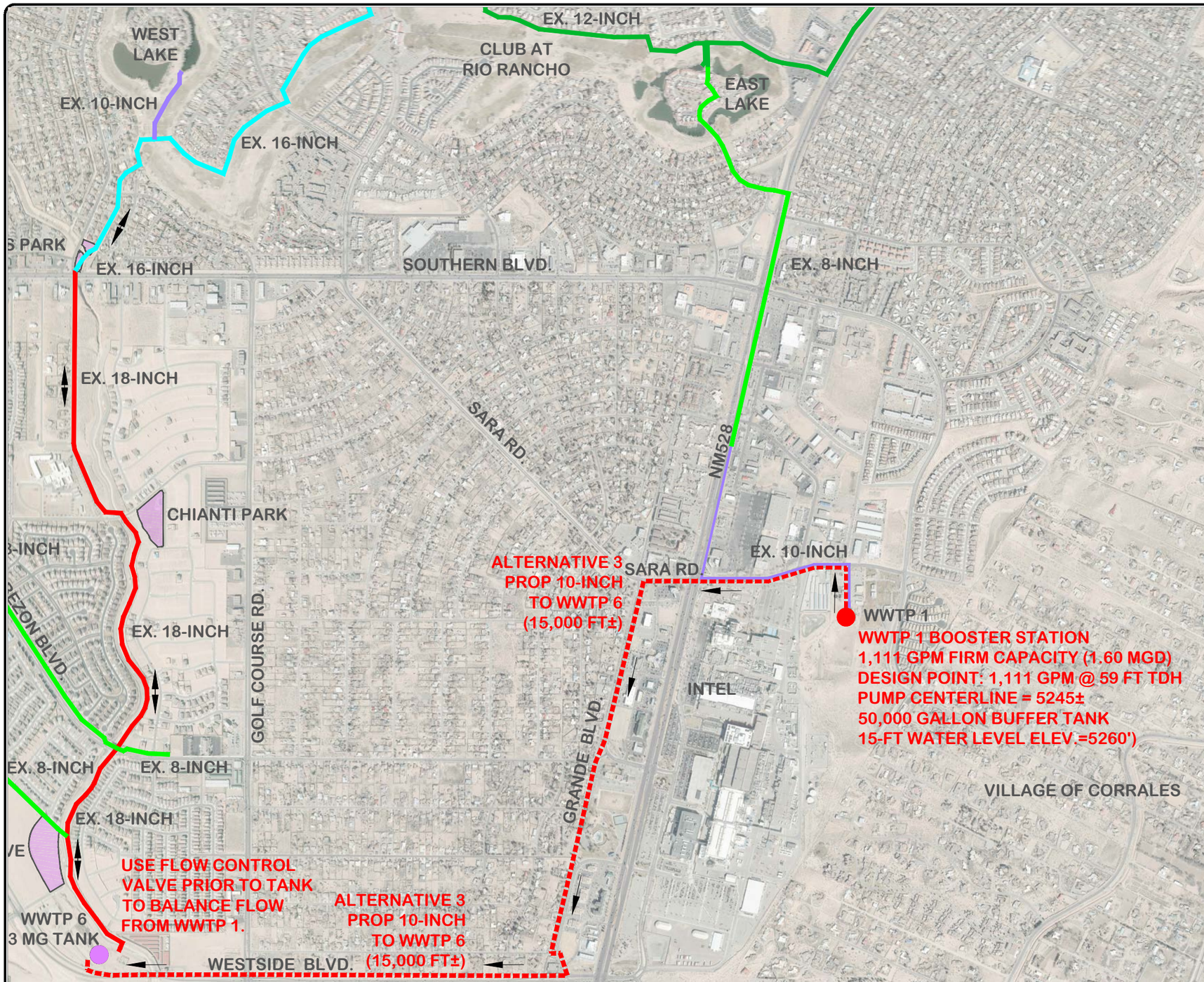
Phone (505) 892-5141 Fax (505) 892-3259



NOTES:

1. ROUTE ALTERNATIVE 3 EXITS WWTP 1 AND TURNS WEST ALONG SARA RD., CROSSING NM528, AND CONTINUING TO GRANDE BLVD. WHERE IT TURNS SOUTH ALONG GRANDE BLVD. TO WESTSIDE BLVD. WHERE IT TURNS WEST AND CONTINUES TO WWTP 6.
2. BORES WILL BE REQUIRED AT NM528 AND THE EAST BRANCH CHANNEL.
3. INSTALLATION OF THE NEW TRANSMISSION MAIN WILL BE GENERALLY IN ROADWAY PAVEMENT.
4. THE PROPOSED TRANSMISSION MAIN IS 10-INCH DR-18 PVC.
5. THE DISCHARGE POINT AT WWTP 6 IS APPROXIMATELY 90 FEET LOWER THAN THE BOOSTER PUMPS AT WWTP 1. AS A RESULT, A PRESSURE MAINTAINING DEVICE SUCH AS A FLOW CONTROL VALVE WILL BE REQUIRED AT WWTP 6 IN ORDER TO PROVIDE ADEQUATE SYSTEM PRESSURE THROUGH THE TRANSMISSION MAIN.
6. A NEW BOOSTER STATION AND 50,000 GALLON BUFFER TANK WILL BE CONSTRUCTED AT WWTP 1.
7. NEW RECYCLE WATER IRRIGATION SERVICE LINES WILL BE INSTALLED AT BUSINESSES, PARKS, AND OTHER POTENTIAL USERS IN THE BUSINESS DISTRICT ALONG GRANDE BLVD. AS PART OF THIS PROJECT. THE COST FOR INSTALLING THE SERVICE CONNECTIONS WILL INCLUDE ALL ASSOCIATED ASPHALT REMOVAL, DISPOSAL, AND REPLACEMENT, COMPLETE IN PLACE.

N

1,800 1,200 600 0 1,800

SCALE, FT

Designed For:

Rio Rancho City of Vision

RECYCLED WATER SYSTEM OVERVIEW - UPDATE

EXHIBIT 5
ROUTE ALTERNATIVE 3
PROPOSED DIVERSION OF 1.60 MGD FROM WWTP 1 TO WWTP 6

SCALE: 1" = 600'

DATE:
SEPTEMBER 18, 2015

Designed By:

HUITT-ZOLLARS
Huitt-Zollars, Inc.
333 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

Table 1
Engineer's Estimate of Probable Cost
Recycled Water System Overview-Update
Route Alternative 1-A - Site Alternative 1
City of Rio Rancho, NM

Date: 9/16/2015 HZI Project No. R305302.01

BID ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	EXTENDED AMOUNT
Bid Group 1					
1	Mobilization / Demobilization (5% of Construction Cost)	LS	1	$72,463.29	$72,463.29
2	Construction Staking and Surveying, Complete (1% of Construction Cost)	LS	1	$14,492.66	$14,492.66
3	Traffic Control, Incl. Set Up and Maintenance, Complete (0.25% of Construction Cost)	LS	1	$36,231.65	$36,231.65
4	NPDES Permitting, Complete (0.5% of Construction Cost)	LS	1	$7,246.33	$7,246.33
5	Erosion Controls,/SWPPP, Complete (1% of Construction Cost)	LS	1	$14,492.66	$14,492.66
6	Materials Testing	ALLOW	1	$25,000.00	$25,000.00
7	Permits	ALLOW	1	$10,000.00	$10,000.00
8	Utility Contingency Allowance	ALLOW	1	$50,000.00	$50,000.00
9	Project Sign	EA	2	$1,100.00	$2,200.00
10	**Subtotal Bid Group 1 (Sum of Lines 1 through 9)**				**$232,126.58**
Bid Group 2					
11	All fittings, valves, and pipe necessary to connect existing 8-inch AC recycled water line to new package booster station in vicinity of existing irrigation booster station at East Lake. C.I.P.	LS	1	$35,000.00	$35,000.00
12	12-inch DR-18 PVC pipe 0'-6' depth, including trenching, backfill, and compaction. C.I.P.	LF	300	$65.00	$19,500.00
13	Triplex skid-mounted booster station at WWTP 1 and golf course site. Booster stations shall be capable of delivering 1,111 gpm @ 264' TDH with two pumps operating. C.I.P.	LS	2	$500,000.00	$1,000,000.00
14	Prefabricated concrete enclosure with lighting, heat, and air conditioning. C.I.P.	LS	2	$25,000.00	$50,000.00
15	50,000 gallon steel buffer tank at WWTP 1, C.I.P.	LS	1	$50,000.00	$50,000.00
16	On-site diesel powered emergency genset at golf course site capable of running two pumps and all ancillary electrical requirements. Genset shall be mounted on concrete pad adjacent to pump station enclosure. C.I.P.	LS	1	$75,000.00	$75,000.00
17	All fittings, valves, and pipe necessary to connect booster station to existing 12-inch recycled water line. C.I.P.	LS	1	$25,000.00	$25,000.00
18	All electrical improvements, controls, SCADA programming at golf course site and WWTP 1, including coordination with PNM, necessary to ensure adequate service is available to golf course site. C.I.P.	LS	1	$100,000.00	$100,000.00
19	Repair and replacement of all damage to existing landscaping, irrigation, power, and other miscellaneous items on golf course caused by associated work. C.I.P.	LS	1	$50,000.00	$50,000.00
20	Real property acquisition based on 10,000 SF booster station site at golf course site.	AC	0.2296	$180,000.00	$41,322.31
21	Easement acquisition based on 10,000 SF easement requirement.	AC	0.2296	$15,000.00	$3,443.53
22	**SUBTOTAL Bid Group 2 (Sum of Lines 11 through 21)**				**$1,449,265.84**
23	**Construction Cost Subtotal Excluding Contingency and NMGRT For Bid Group 1 and Bid Group 2 (Line 10 + 22)**				**$1,681,392.42**
24	**Contingency As Percent of Line 23 @ 15.00%**				**$252,208.86**
25	**Construction Cost Subtotal Including Contingency But Excluding NMGRT (Line 23+24)**				**$1,933,601.29**
26	**Engineering, Surveying, and Construction Observation (As Percent of Line 25) 15.00%**				**$290,040.19**
27	**Subtotal Construction Cost, Engineering, and Contingency (25+26)**				**$2,223,641.48**
28	**NMGRT (As a Percent of Line 27) @ 7.4375%**				**$165,383.34**
29	***Project Total (Line 27+28)***				***$2,389,024.82***

Table 2
Engineer's Estimate of Probable Cost
Recycled Water System Overview-Update
Route Alternative 1-B - Site Alternative 2
City of Rio Rancho, NM

Date: 9/16/2015 HZI Project No. R305302.01

BID ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	EXTENDED AMOUNT
Bid Group 1					
1	Mobilization / Demobilization (5% of Construction Cost)	LS	1	$81,564.62	$81,564.62
2	Construction Staking and Surveying, Complete (1% of Construction Cost)	LS	1	$16,312.92	$16,312.92
3	Traffic Control, Incl. Set Up and Maintenance, Complete (0.25% of Construction Cost)	LS	1	$40,782.31	$40,782.31
4	NPDES Permitting, Complete (0.5% of Construction Cost)	LS	1	$8,156.46	$8,156.46
5	Erosion Controls,/SWPPP, Complete (1% of Construction Cost)	LS	1	$16,312.92	$16,312.92
6	Materials Testing	ALLOW	1	$25,000.00	$25,000.00
7	Permits	ALLOW	1	$10,000.00	$10,000.00
8	Utility Contingency Allowance	ALLOW	1	$50,000.00	$50,000.00
9	Project Sign	EA	2	$1,100.00	$2,200.00
10	**Subtotal Bid Group 1 (Sum of Lines 1 through 9)**				**$250,329.25**
Bid Group 2					
11	All fittings, valves, and pipe necessary to connect existing 8-inch AC recycled water line to new package booster station in vicinity of existing irrigation booster station at East Lake. C.I.P.	LS	1	$35,000.00	$35,000.00
12	12-inch DR-18 PVC pipe 0'-6' depth, including trenching, backfill, and compaction. C.I.P.	LF	2,500	$65.00	$162,500.00
13	Triplex skid-mounted booster station at WWTP 1 and Presbyterian site. Booster stations shall be capable of delivering 1,111 gpm @ 264' TDH with two pumps operating. C.I.P.	LS	2	$500,000.00	$1,000,000.00
14	Prefabricated concrete enclosure with lighting, heat, and air conditioning. C.I.P.	LS	2	$25,000.00	$50,000.00
15	On-site diesel powered emergency genset at Presbyterian site capable of running two pumps and all ancillary electrical requirements. Genset shall be mounted on concrete pad adjacent to pump station enclosure. C.I.P.	LS	1	$75,000.00	$75,000.00
16	50,000 gallon steel buffer tank at WWTP 1, C.I.P.	LS	1	$50,000.00	$50,000.00
17	All fittings, valves, and pipe necessary to connect booster station to existing 12-inch recycled water line. C.I.P.	LS	1	$25,000.00	$25,000.00
18	All electrical improvements, controls, SCADA programming at Presbyterian site and WWTP 1, including coordination with PNM, necessary to ensure adequate service is available to Presbyterian site. C.I.P.	LS	1	$100,000.00	$100,000.00
19	Repair and replacement of all damage to existing landscaping, irrigation, power, and other miscellaneous items on golf course and High Resort Blvd. caused by associated work. C.I.P.	LS	1	$50,000.00	$50,000.00
20	Real property acquisition based on 10,000 SF booster station site at Presbyterian site.	AC	0.2296	$350,000.00	$80,348.94
21	Easement acquisition based on 10,000 SF easement requirement.	AC	0.2296	$15,000.00	$3,443.53
22	**SUBTOTAL Bid Group 2 (Sum of Lines 11 through 21)**				**$1,631,292.47**
23	**Construction Cost Subtotal Excluding Contingency and NMGRT For Bid Group 1 and Bid Group 2 (Line 10 + 22)**				**$1,881,621.72**
24	**Contingency As Percent of Line 23 @ 15.00%**				**$282,243.26**
25	**Construction Cost Subtotal Including Contingency But Excluding NMGRT (Line 23+24)**				**$2,163,864.97**
26	**Engineering, Surveying, and Construction Observation (As Percent of Line 25) 15.00%**				**$324,579.75**
27	**Subtotal Construction Cost, Engineering, and Contingency (25+26)**				**$2,488,444.72**
28	**NMGRT (As a Percent of Line 27) @ 7.4375%**				**$185,078.08**
29	***Project Total (Line 27+28)***				***$2,673,522.80***

Table 3
Engineer's Estimate of Probable Cost
Recycled Water System Overview-Update
Route Alternative 2
City of Rio Rancho, NM

Date: 9/16/2015 HZI Project No. R305302.01

BID ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	EXTENDED AMOUNT
Bid Group 1					
1	Mobilization / Demobilization (5% of Construction Cost)	LS	1	$106,283.06	$106,283.06
2	Construction Staking and Surveying, Complete (1% of Construction Cost)	LS	1	$21,256.61	$21,256.61
3	Traffic Control, Incl. Set Up and Maintenance, Complete (0.25% of Construction Cost)	LS	1	$53,141.53	$53,141.53
4	NPDES Permitting, Complete (0.5% of Construction Cost)	LS	1	$10,628.31	$10,628.31
5	Erosion Controls,/SWPPP, Complete (1% of Construction Cost)	LS	1	$21,256.61	$21,256.61
6	Materials Testing	ALLOW	1	$25,000.00	$25,000.00
7	Permits	ALLOW	1	$10,000.00	$10,000.00
8	Utility Contingency Allowance	ALLOW	1	$50,000.00	$50,000.00
9	Project Sign	EA	2	$1,100.00	$2,200.00
10	**Subtotal Bid Group 1 (Sum of Lines 1 through 9)**				**$299,766.12**
Bid Group 2					
11	All fittings, valves, and pipe necessary to connect existing 8-inch AC recycled water line to new 10-inch line at East Lake. C.I.P.	LS	1	$20,000.00	$20,000.00
12	10-inch DR-18 PVC pipe 0'-6' depth, including trenching, backfill, and compaction. C.I.P.	LF	11,000	$65.00	$715,000.00
13	16-inch DR-18 PVC pipe 0'-6' depth, including trenching, backfill, and compaction at WWTP 2. C.I.P.	LF	250	$80.00	$20,000.00
14	All fittings, valves, and pipe necessary to connect booster station to onsite 16-inch recycled water line at WWTP 2. C.I.P.	LS	1	$25,000.00	$25,000.00
15	Triplex skid-mounted booster station at WWTP 1. Booster station shall be capable of delivering 1,111 gpm @ 264' TDH with two pumps operating. C.I.P.	LS	1	$500,000.00	$500,000.00
14	Triplex skid-mounted booster station at WWTP 2. Booster station shall be capable of delivering 1,111 gpm @ 409' TDH with two pumps operating. C.I.P.	LS	1	$575,000.00	$575,000.00
16	Prefabricated concrete enclosure with lighting, heat, and air conditioning. C.I.P.	LS	2	$25,000.00	$50,000.00
15	50,000 gallon steel buffer tank at WWTP 1 and WWTP 2. C.I.P.	LS	2	$50,000.00	$100,000.00
17	All electrical improvements, controls, SCADA programming at WWTP 1 and WWTP 2, C.I.P.	LS	1	$75,000.00	$75,000.00
18	Repair and replacement of all damage to existing landscaping, irrigation, power, and other miscellaneous items on golf course caused by associated work. C.I.P.	LS	1	$25,000.00	$25,000.00
19	Easement acquisition in Montoyas Arroyo at north side of Arrowhead East Subdivision for 20-ft wide 3,000-ft long easement.	AC	1.3774	$15,000.00	$20,661.16
20	**SUBTOTAL Bid Group 2 (Sum of Lines 11 through 19)**				**$2,125,661.16**
21	**Construction Cost Subtotal Excluding Contingency and NMGRT For Bid Group 1 and Bid Group 2 (Line 10 + 20)**				**$2,425,427.27**
22	**Contingency As Percent of Line 21 @ 15.00%**				**$363,814.09**
23	**Construction Cost Subtotal Including Contingency But Excluding NMGRT (Line 21+22)**				**$2,789,241.36**
24	**Engineering, Surveying, and Construction Observation (As Percent of Line 23) 15.00%**				**$418,386.20**
25	**Subtotal Construction Cost, Engineering, and Contingency (23+24)**				**$3,207,627.57**
26	**NMGRT (As a Percent of Line 25) @ 7.4375%**				**$238,567.30**
27	***Project Total (Line 25+26)***				***$3,446,194.87***

Table 4
Engineer's Estimate of Probable Cost
Recycled Water System Overview-Update
Route Alternative 3
City of Rio Rancho, NM

Date: 9/18/2015 HZI Project No. R305302.01

BID ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	EXTENDED AMOUNT
Bid Group 1					
1	Mobilization / Demobilization (5% of Construction Cost)	LS	1	$153,750.00	$153,750.00
2	Construction Staking and Surveying, Complete (1% of Construction Cost)	LS	1	$30,750.00	$30,750.00
3	Traffic Control, Incl. Set Up and Maintenance, Complete (0.25% of Construction Cost)	LS	1	$76,875.00	$76,875.00
4	NPDES Permitting, Complete (0.5% of Construction Cost)	LS	1	$15,375.00	$15,375.00
5	Erosion Controls,/SWPPP, Complete (1% of Construction Cost)	LS	1	$30,750.00	$30,750.00
6	Materials Testing	ALLOW	1	$25,000.00	$25,000.00
7	Permits	ALLOW	1	$10,000.00	$10,000.00
8	Utility Contingency Allowance	ALLOW	1	$50,000.00	$50,000.00
9	Project Sign	EA	2	$1,100.00	$2,200.00
10	**Subtotal Bid Group 1 (Sum of Lines 1 through 9)**				**$394,700.00**
Bid Group 2					
11	NOT USED				
12	10-inch DR-18 PVC pipe 0'-6' depth, including asphalt removal / replacement, trenching, backfill, and compaction. C.I.P.	LF	15,000	$150.00	$2,250,000.00
13	Triplex skid-mounted booster station at WWTP 1. Booster stations shall be capable of delivering 1,111 gpm @ 59' TDH with two pumps operating. C.I.P.	LS	1	$450,000.00	$450,000.00
14	Prefabricated concrete enclosure with lighting, heat, and air conditioning. C.I.P.	LS	1	$25,000.00	$25,000.00
15	50,000 gallon steel buffer tank at WWTP 1. C.I.P.	LS	1	$50,000.00	$50,000.00
16	All electrical improvements, controls, SCADA programming at WWTP 1 and WWTP 2. C.I.P.	LS	1	$75,000.00	$75,000.00
17	Directional Drill under NM 528 including bore / insertion pits	LF	150	$200.00	$30,000.00
18	Directional Drill under East Branch Channel including bore / insertion pits	LF	150	$200.00	$30,000.00
19	NOT USED				
20	Repair and replacement of all damage to existing landscaping, irrigation, power, and other miscellaneous items by associated work. C.I.P.	LS	1	$15,000.00	$15,000.00
21	Installation of recycle water service connections to businesses, parks, and other potential users in the business district along Grande Blvd. including asphalt removal, disposal, and replacement. C.I.P.	LS	1	$100,000.00	$100,000.00
22	Tank Connection including flow and level control valves at WWTP 6. C.I.P	LS	1	$50,000.00	$50,000.00
23	**SUBTOTAL Bid Group 2 (Sum of Lines 11 through 22)**				**$3,075,000.00**
24	**Construction Cost Subtotal Excluding Contingency and NMGRT For Bid Group 1 and Bid Group 2 (Line 10 + 23)**				**$3,469,700.00**
25	**Contingency As Percent of Line 24 @ 15.00%**				**$520,455.00**
26	**Construction Cost Subtotal Including Contingency But Excluding NMGRT (Line 24+25)**				**$3,990,155.00**
27	**Engineering, Surveying, and Construction Observation (As Percent of Line 26) 15.00%**				**$598,523.25**
28	**Subtotal Construction Cost, Engineering, and Contingency (26+27)**				**$4,588,678.25**
29	**NMGRT (As a Percent of Line 28) @ 7.4375%**				**$341,282.94**
30	***Project Total (Line 28+29)***				***$4,929,961.19***

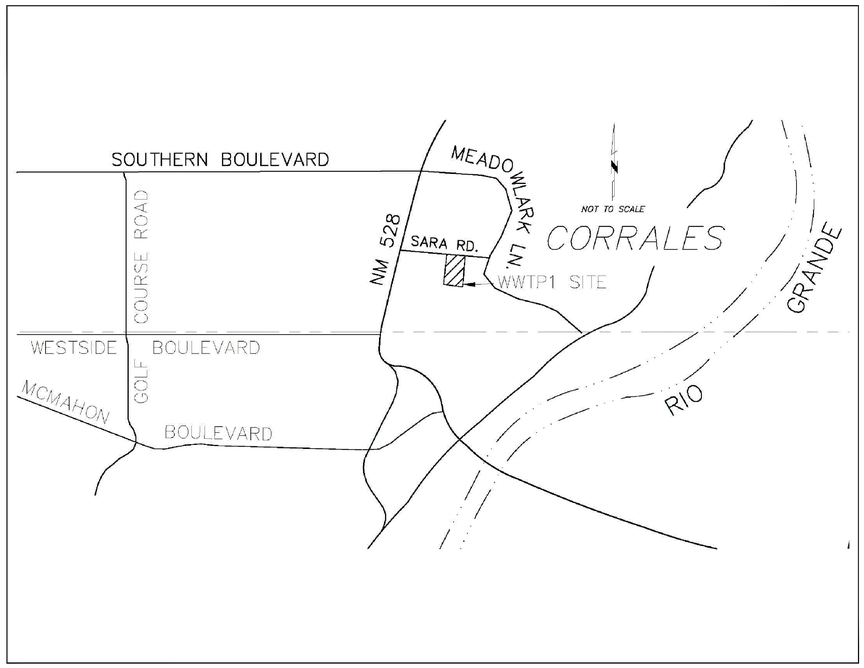
WASTEWATER TREATMENT PLANT #1

CITY OF RIO RANCHO
SANDOVAL COUNTY, NEW MEXICO

STORM DRAIN IMPROVEMENTS
PROJECT #WW1565

SHEET INDEX

P1 PROJECT TITLE SHEET
P2 GENERAL NOTES
SD1 STORM DRAIN PLAN AND PROFILE
SD2 GRADING DETAILS



LOCATION MAP

CITY OF RIO RANCHO: _____ DATE: _____
DEPARTMENT OF PUBLIC WORKS

SSCAFCA: _____ DATE: _____
EXECUTIVE ENGINEER

Nov 25, 2014, 8:44:10am — User nvillis
H:\PROJ\R303577.01 WWTP #1 OPTS\DWG\PLOT_FILES\P1-P2.DWG
Xrefs: [H:\PROJ\R303577.01 WWTP #1 OPTS\DWG\PLOT_FILES\SHEET-BASE.DWG]

City of Rio Rancho City of Vision

No.	DESCRIPTION	DATE	BY
1	—	—	—
2	—	—	—
3	—	—	—
4			
5			
6			
7			

REVISIONS (OR CHANGE NOTICES)

Designed By:
HUITT-ZOLLARS
Huitt-Zollars, Inc.
5571 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

Designed For:
CITY OF RIO RANCHO

TITLE SHEET

WW TREATMENT PLANT #1
STORM DRAIN IMPROVEMENTS
RIO RANCHO, NEW MEXICO

JARROD D. LYKAS
NEW MEXICO
16910
LICENSED PROFESSIONAL ENGINEER

PROJECT NO.	R303577.01
DESIGNED BY:	NV
DRAWN BY:	NV
CHECKED BY:	JDL
DATE:	NOVEMBER 24, 2014
DPW CHK:	
SHEET:	P1

GENERAL NOTES

1. All construction shall be performed in accordance with 1) the project construction plans, 2) the project specifications, 3) the current edition of the City of Rio Rancho standard details, 4) the current edition of the NMDOT Standard Specifications for Highway and Bridge Construction, and 5) the New Mexico Standard Specifications for Public Works Construction and details, as prepared by the New Mexico Chapter, American Public Works Association and addendum. In the case of conflicting specifications, the City of Rio Rancho will determine which specification governs.
2. The Contractor agrees to assume the sole and complete responsibility for the job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall apply continuously and not be limited to normal working hours, and the Contractor shall defend, indemnify and hold the City and Engineer harmless from any and all liability, real or alleged, in connection with the performance of the work on this project, except for liability arising from the sole negligence of the City or Engineer.
3. No modifications to these plans shall be made without the written consent of the City, Engineer, and all approval signatories. The Engineer shall not be responsible for construction methods or techniques or for the prosecution of the work as shown on these plans. The Engineer shall not be held responsible for the acts or omissions of the Contractor, Subcontractors, or other persons performing any work, as shown in the project Contract Documents.
4. A Right-of-Way Use Permit and Traffic Control Plan (TCP) are required for all work performed within the public Right-of-Way. Provisions contained within Chapter 96 of the City of Rio Rancho Municipal Code shall govern. All construction signing, barricading, and channelization devices shall conform to the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). The Contractor is responsible for the setup and maintenance of all traffic control devices. Any modifications to the approved traffic control plan must by approved by the City prior to any changes being implemented. A Traffic Control Supervisor must be available for the duration of the project 24 hours a day and seven days a week. Access to residents and businesses must be maintained at all times.
5. The Contractor shall designate at least one emergency contact person, and shall provide telephone numbers where this person can be contacted at any time. This information shall be provided to the City's Project Manager.
6. The Contractor is responsible for obtaining all necessary permits from all jurisdictional authorities before the start of construction.
7. All work on this project shall be performed in accordance with applicable federal, state, and local laws, rules and regulations concerning construction safety, health, and environmental protection.
8. Existing site improvements which are damaged or displaced by the Contractor shall be removed and replaced by the Contractor at the Contractor's own expense. The work shall be approved by the City before construction of the repairs. Repairs must be accepted by the City before final payment.
9. The Contractor shall only utilize the designated staging areas for storage of all equipment and materials. The City assumes no responsibility or liability for the Contractor's equipment and material in the staging area. Security shall be the sole responsibility of the Contractor. If no staging area is designated on these plans, an offsite staging area shall be provided by the Contractor at the Contractor's expense, or the Contractor may negotiate with the City to use an onsite area.
10. Unless otherwise noted, all roadway stationing is along the centerline of the roadway right-of-way.
11. Unless otherwise noted, stationing of channels and/or pipes in drainage easements is along the centerline of the channel/pipe.
12. The Contractor shall be responsible for determining, in advance of their construction operations, if overhead utility lines, support structures, poles, guys, etc., are an obstruction to construction operations. If any obstruction is evident, the Contractor shall be responsible for coordinating with the appropriate utility owner to remove or support the utility obstruction. All costs for these requirements are incidental to the Contract.
13. Facilities which are not specifically located with actual vertical and horizontal controls on the construction documents, are shown approximate and in accordance with the best available information provided by various owners of the facilities, and supplemented by visual surface information where appropriate. Accuracy, location, and completeness of this information is the sole responsibility of the Contractor and should be verified, by any means necessary, before the initiation of construction. Should a conflict exist, the Contractor shall notify the City, Engineer, and the City's Project Manager immediately.
14. It is mandatory that a preconstruction meeting be held before commencing construction. The Contractor is responsible for contacting the City's Project Manager to determine the time and location of the preconstruction meeting.
15. At the preconstruction meeting, the Contractor shall submit a detailed construction schedule to the City's Project Manager. The schedule will be updated on a monthly basis and submitted with the monthly invoice.
16. Any work performed without the approval of the City of Rio Rancho and/or all work and materials not in conformance with the specifications is subject to removal and replacement at the Contractor's expense.
17. The Contractor shall contact NM 811 at 1-800-321-2537 for utility spots in accordance with applicable state law.
18. The Contractor shall confine their work to within the construction limits and/or public right-of-way to preserve existing vegetation, landscaping, and private property. Approval of these plans does not give or imply any permission to trespass or work on private property. Permission must be granted in writing by the Owner of that property.
19. It is the sole responsibility of the Contractor to keep the job site free from trash on a daily basis, and all materials will be neatly organized. Trash and/or non-used materials shall not be buried onsite.
20. The Contractor shall park equipment and vehicles so as not to interfere with normal activities of residents or Contractor.
21. The Contractor will provide construction staking utilizing approved construction plans, the appropriate Right-of-Way maps, recorded plats, and City of Rio Rancho standard details. Each revision to the plans shall be recorded in the plan revision block. Plans shall include a location map with legal description(s) and location grid.
22. The Contractor shall maintain an up-to-date and accurate set of Working Record Drawings, redlined drawings, in accordance with the City or Rio Rancho's Development Process Manual (DPM) Chapter II.7. These Working Record Drawings shall reflect all approved changes to the original plans throughout the construction process. At the completion of construction, the Contractor shall submit the Working Record Drawings as outlined in the City or Rio Rancho's DPM Chapter II.7. Also, the Contractor shall ensure that all submittals, permitting, and construction activities are in accordance with the City or Rio Rancho's DPM and applicable ordinances. All costs for these requirements are incidental to the Contract.
23. No work shall be performed in a floodplain without written authorization from the City's Floodplain Manager.
24. Any work performed in a drainage way, channel, arroyo, or floodplain must be protected by the means identified in the Temporary Erosion Control and Sediment plans accepted by the City.
25. Vibration monitoring will be at the Contractor's discretion and incidental to the Contract.

SOILS

1. Unless otherwise specified subgrade soils and structural fill materials shall be compacted to the following percentages of the ASTM D-1557 maximum density.

MATERIALS	PERCENT (%) COMPACTION
STRUCTURAL FILL IN THE BUILDING AREA	95
SUB BASE FOR SLAB SUPPORT	95
MISCELLANEOUS BACKFILL BELOW STRUCTURAL FILL OR ROAD	95
MISCELLANEOUS BACKFILL BELOW UNPAVED, NON-BUILDING AREAS	90
ROAD SUB GRADE	95
SIDEWALK SUB GRADE	95
CURB AND GUTTER SUBGRADE	95
ARROYOS	90

ROADWAY GENERAL NOTES

1. No paving construction activities shall be started until all underground utilities within the roadway are completed, tested, and approved. All water valve boxes and electrical, telephone, television, and sewer manholes in the construction area shall be adjusted to finished grade.
2. All signs, barricades, channelization devices, pavement markings, sign frames and erection of such devices shall conform to the requirements of the "Manual on Uniform Traffic Control Devices for streets and highways" (MUTCD), current edition.
3. All street striping altered or destroyed during construction shall be replaced by the Contractor to match the original conditions (i.e. type, spacing) at the location prior to construction, or as shown in this plan set.
4. Street grades shall be restored by the Contractor to the existing grades unless otherwise directed by the City of Rio Rancho. Smooth transitions shall be made between existing pavement which remains in place and pavement which is replaced. When abutting new pavement to existing, saw cut back existing pavement to a neat, straight line as required to remove any broken or cracked pavement. Refer to standard drawing PS-02.
5. The location of all valves and manholes must be referenced at all times by the Contractor during construction and made visible daily upon completion of all paving activities.

ADA GENERAL NOTES

1. These drawings provide guidance for compliance with the current public right of way accessibility guidelines (PROWAG). These standards shall apply to all new and altered sidewalks.
2. Surfaces shall be stable, firm, and slip resistant. Sidewalk and curb ramp surfaces shall provide consistent slopes within each section.
3. All street striping altered or destroyed during construction shall be replaced by the Contractor to All broom finishes shall be perpendicular to the direction of pedestrian travel.
4. A vertical change of $\frac{1}{4}$ inch (6mm) or less is allowed. if between $\frac{1}{4}$ inch and $\frac{1}{2}$ inch (6mm and 13mm), then it needs to be beveled 2:1. Changes greater than $\frac{1}{2}$ inch shall be ramped.
5. Openings or cracks in sidewalk surfaces shall not exceed $\frac{1}{2}$ inch (13mm). Elongated openings should be placed so that the long dimension is perpendicular or diagonal to the dominant direction of travel.
6. The least possible curb ramp slope shall be used. Curb ramps running slope shall not exceed 12:1. Where existing terrain is steep, curb ramps shall not exceed 15 feet in length.
7. Provide a flush transition between curb ramps, sidewalks, gutter, and edge of pavement, free of drainage lip, abrupt grade changes, drop-offs, or any surface irregularities. A 5% (20:1) or flatter transition taper shall be provided from the street to the gutter for curb ramps locations (this may require special treatment of the edge of OGFC) when diagonal (not in line with crosswalks) curb ramps are necessary. A 2% (50:1) transition or "lower landing" shall be provided. The gutter running slope (flow line) shall not exceed 2% measured along the bottom of the curb ramp.
8. Curb ramps shall be located to provide the most direct route of travel across the traffic lanes.
9. Two directional (in line with the crosswalks) curb ramps per corner are used in order to provide short and direct crossings for the user.
10. Sign posts, utility poles, fire hydrants, traffic signals standards, light poles, pull boxes, meters, valves, etc., shall not be located in the curb ramp including side flares and landings.
11. In order to better accommodate conditions in the field, the contractor shall obtain final approval of curb ramp locations from the project manager and the city manager and the city traffic engineer. When necessitated by existing physical conditions. Alternate curb ramps must be submitted to the project manager for approval by the city traffic engineer.
12. Landings shall be a minimum of 48" x 48". Slopes shall not exceed 2% (50:1) in all directions.
13. Detectable warnings are required at all street intersections, signalized driveways, commercial driveways 30' wide or greater, and marked mid-block crosswalks.
14. Concrete Procedural note: Before scheduling delivery of concrete, contractor shall meet with City Inspector/PM to ensure the concrete formwork is constructed to dimensions and grades shown on plans and meets PROWAG, 2011 Technical Design Criteria. Calibrate 24" electronic digital level with Contractor's electronic digital level prior to verifying measurements. Verify measurements meet requirements or require correction of all discrepancies before scheduling of concrete to ensure the finished concrete will meet PROWAG. When all measurements meet requirements then the inspector shall permit concrete pour. Repeat the procedure after concrete pour to ensure the curb ramp meets PROWAG compliance. Final acceptance of a curb ramp does not occur until the final inspection of the project. This procedure shall be considered incidental to the installation of the ADA curb ramps.
15. The contractor shall submit a proposed work plan for pedestrian improvements to the project engineer for review and approval prior to initiating this work. This plan shall include the method proposed to maintain pedestrian access to businesses, schools, hospitals, buildings, etc. throughout the pedestrian improvements construction in particular. The contractor, at minimum, shall maintain a 48" clear path for pedestrians so as to meet ADA accessibility requirements. All temporary pedestrian facilities implemented during construction shall comply with ADA standards.
16. Sidewalk and curb ramp cross slope is recommended to be constructed for a cross slope of 1.5% typical, but shall not exceed 2.0% cross slope on the pedestrian access route.

EROSION CONTROL/ENVIRONMENTAL PROTECTION/STORM WATER POLLUTION PREVENTION PLAN

1. The Contractor shall be responsible for fulfilling all necessary National Pollutant Discharge Elimination System (NPDES) requirements including, but not limited to, obtaining an NPDES permit before construction, filling out the Notice of Intent (NOI) application, and filling out the Notice of Termination (NOT) application. The Contractor shall also be responsible for the implementation of and inspection reports for the Storm Water Pollution Prevention Plan (SWPPP). The Contractor shall submit the SWPPP with the proposed construction staging area and temporary sanitary facilities clearly shown. Any check dams, silt fences, or other Best Management Practices (BMP) that are required in the approved SWPPP shall be included in and are incidental to the SWPPP bid amount.
2. The Contractor is required to keep a current copy of the SWPPP at the construction site or at an easily accessible location so that it can be made available at the time of an onsite inspection or upon request by the EPA; a state, tribal, or local agency approving storm water management plans; the operator of a storm sewer system receiving discharges from the site; or representatives of the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS).
3. The Contractor shall conform to all City, County, State and Federal dust and erosion control regulations. The Contractor shall prepare and obtain any necessary dust or erosion control permits from the regulatory agencies.
4. The Contractor shall either promptly remove any material excavated within the public Right-of-Way or install BMPs according to NPDES requirements to prevent discharge of excavated material within the public Right-of-Way during a rain or wind event. All costs for these requirements are incidental to the Contract.
5. The Contractor shall implement the approved SWPPP and ensure that no soil erodes from the site into public Right-of-Way or onto private property.
6. The Contractor shall mitigate erosion of temporary or permanent dirt swales by installing BMPs identified in the approved SWPPP in the swales perpendicular to the direction of flow, and at intervals as specified in the SWPPP.
7. Construction areas shall be watered for dust control in compliance with government ordinances. The Contractor shall be responsible for locating and supplying water as required. Watering, as required for construction and dust control, shall be considered incidental to construction and no measurement or payment shall be made therefore.
8. Any areas disturbed by construction and not covered by landscaping or an impervious surface shall be re-vegetated with native grass seeding. When construction activities cease and earth disturbing activities will not resume within 14 days, stabilization measures must be initiated. Unless indicated otherwise on these plans or on the landscaping plan, native grass seeding shall be in accordance with Section 1012 of the New Mexico Standard Specifications for Public Works Construction, APWA NM Chapter, current edition.
9. All waste products from the construction site, including items designated for removal, construction waste, construction equipment waste products (oil, gas, tires, etc.) garbage, grubbing, excess cut material, vegetative debris, etc. shall be appropriately disposed of offsite at no additional cost to the City. It shall be the Contractor's responsibility to obtain permits required to haul or dispose of waste products. It shall be the Contractor's responsibility to ensure that the waste disposal site complies with government regulations regarding the environment, endangered species, and archaeological resources.
10. The Contractor shall be responsible for the cleanup and reporting of spills of hazardous materials associated with the construction site. Hazardous materials include gasoline, diesel fuel, motor oil, solvents, chemicals, paints, etc. which may be a threat to the environment. The Contractor shall report the discovery of past or present spills to the New Mexico Environment Department Emergency Response Team at (505) 827-9329.
11. The Contractor shall comply with all applicable regulations concerning surface and underground water. Contact with surface water by construction equipment and personnel shall be minimized. Equipment maintenance and refueling operations shall be performed in an environmentally safe manner in compliance with government regulations.
12. Where storm inlets are susceptible to inflow of silt or debris from construction activities, protection shall be provided on their upstream side utilizing BMPs according to NPDES requirements. All costs for these requirements are incidental to the Contract.
13. Storm Water Pollution Prevention Plans (SWPPP) and accompanying Federal EPA Administrative Procedures shall meet the City of Rio Rancho guidelines and procedures outlined in the current addition of the New Mexico State Highway and Transportation Department Storm Water Management Guidelines for Construction and Industrial Activities Manual.
14. The Contractor shall provide adequate means for cleaning trucks and/or other equipment of mud before entering public streets. It is the Contractor's responsibility to clean streets and take whatever measures are necessary to ensure that all roads are maintained in a clean, mud and dust-free condition at all times.

WATER GENERAL NOTES

1. For water connections to existing lines, the Contractor shall notify the City's Project Manager a minimum of 48 hours before the connection.
2. Compression joints may be used on copper service lines. Flared joints shall be used when connecting to plastic lines.
3. Valve boxes shall be brought to surface elevation upon completion of the surface course of pavement. Concrete collars shall be constructed to surface elevations.
4. Flushing of water lines shall be metered and reported to the City's Project Manager on a weekly basis. Preference for disposal is (1) on available land surface or (2) in storm sewers. Disposal methods shall be discussed with the City's Project Manager.
5. Flushing, disinfection and testing of water lines shall be coordinated with the City's Project Manager.
6. It will be the Contractor's sole responsibility to protect and maintain, in service, all existing utilities. The Contractor shall adequately support and protect existing utilities affected by the Contractor's trenching activity. In the event that existing utilities are damaged by the Contractor's operations, the Contractor shall arrange for and coordinate prompt repair by the respective utility and shall bear the cost of the repairs.
7. All water lines must have tracer wire and marker balls per City of Rio Rancho standard drawings.
8. The City of Rio Rancho shall approve material submittals before construction.
9. Before any water line installation, the following conditions will occur:

   a) The water line route will be cleared and grubbed and then graded to plan elevation

   b) The water line will be staked when outside an area with curb and gutter.
10. The City of Rio Rancho Utilities Operations Division shall be the only personnel authorized to operate existing valves, fire hydrants, etc. for construction purposes. All shutoffs must be coordinated with the City's Project Manager seven (7) days before proposed shutoff and shall comply with the accepted shutoff plan.
11. The Contractor is responsible for testing of all lines, including but not limited to, hydrostatic and bacteria testing, disinfecting, and flushing.The Contractor is responsible for the testing of the water line system before acceptance by the City. Testing shall be performed to demonstrate the functionality of the system. All costs for these requirements are incidental to the Contract.
12. For non-hot tap water connections to existing lines, the Contractor shall prepare and submit to the City's Project Manager, for acceptance, a water shutoff plan 48 hours before the connection is to take place.
13. The Contractor shall mark the top of the curb with a "W" for water lines following service installations and before final acceptance.

WASTEWATER GENERAL NOTES

1. Sewer/Water lines shall be placed in separate trenches at a distance of 15 feet typically or a minimum of 10 feet apart horizontally. The water line shall be placed a minimum of 1.5 feet higher in elevation than the sewer line. At all crossings of water and sewer lines, the water line shall be a minimum of 1.5 feet higher than the sewer line or the sewer line shall be C-900 pressurized pipe.
2. It will be the Contractor's sole responsibility to protect and maintain in service all existing utilities. The Contractor shall adequately support and protect existing utilities affected by the Contractor's trenching activity. In the event that existing utilities are damaged by the Contractor's operations, the Contractor shall arrange for and coordinate prompt repair by the respective utility and shall bear the cost of the repairs.
3. The City of Rio Rancho shall approve material submittals before construction
4. Prior to the sewer line installation, the following conditions will occur:
   a) The sewer line route will be cleared and grubbed and then graded to plan elevation
   b) The sewer line will be staked when outside an area with curb and gutter
5. The Contractor shall mark the top of the curb with "S" for sanitary sewer following service installation and before final acceptance.
6. The City of Rio Rancho Utilities Operations Division shall be the only personnel authorized to operate existing valves, etc. for construction purposes. All shutoffs must be coordinated with the City's Project Manager seven (7) days before to proposed shutoff and shall comply with the accepted shutoff plan.
7. 30 days following installation and backfill of sewer lines, a deflection test using a hand pulled mandrel shall be performed in the presence of the City's Inspector. All costs for these requirements are incidental to the Contract.
8. Air testing of sewer lines and hydrostatic testing of force mains shall be conducted in the presence of the City's Inspector. All costs for these requirements are incidental to the Contract.
9. All sewer service lines shall be inspected by TV camera and videoed then provided to the City's Inspector for review before acceptance by the City. In the event that the first inspection or subsequent inspections after that do not pass, the Contractor will be required to perform additional inspections of the sewer service lines using a TV camera at the Contractor's expense.
10. Manholes shall meet the City of Rio Rancho standards except that there shall be no ladder rungs installed.
11. The Contractor is responsible for testing of all force main lines, including but not limited to hydrostatic and bacteria testing, disinfecting, and flushing. All costs for these requirements are incidental to the Contract.
12. If bypass pumping is required, then a bypass pumping plan must be submitted to the City's Project Manager, for acceptance, seven (7) days before bypass pumping begins.
13. All sewer lines must have tracer wire and marker balls per City of Rio Rancho standard drawings.
14. Manholes shall be raised to surface course of pavement. Octagonal concrete collars shall be constructed to surface elevation.
15. No bricks shall be used to adjust manholes to finished grade.

Rio Rancho City of Vision

No.	DESCRIPTION	DATE	BY
7			
6			
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2			
1			

REVISIONS (OR CHANGE NOTICES)

Designed By:
HUITT-ZOLLARS, Inc.
Huitt-Zollars, Inc.
338 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

Designed For:
CITY OF RIO RANCHO

GENERAL NOTES

WW TREATMENT PLANT #1
STORM DRAIN IMPROVEMENTS
RIO RANCHO, NEW MEXICO

JABROD D. LIKAR
NEW MEXICO
16910
LICENSED PROFESSIONAL ENGINEER

PROJECT NO. R303577.01
DESIGNED BY: NV
DRAWN BY: NV
CHECKED BY: JDL
DATE: NOVEMBER 24, 2014
DPW CHK:
SHEET:
P2

Nov 25, 2014 8:44:55am – User: nvilla
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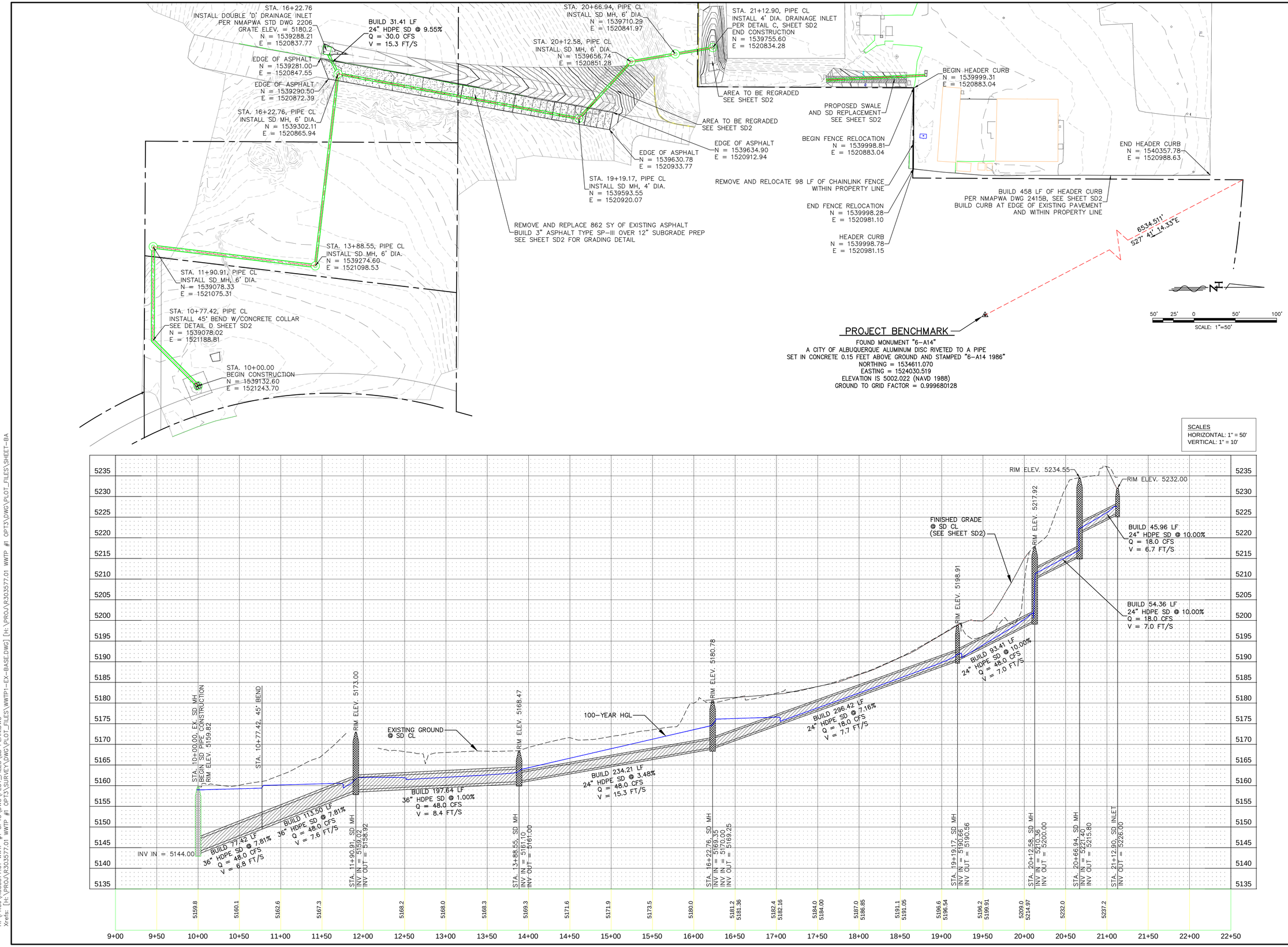

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Rio Rancho City of Vision

No.	DESCRIPTION	DATE	BY
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REVISIONS (OR CHANGE NOTICES)

Designed By:
HUITT-ZOLLARS, Inc.
Huitt-Zollars, Inc. 2500 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

Designed For:
CITY OF RIO RANCHO

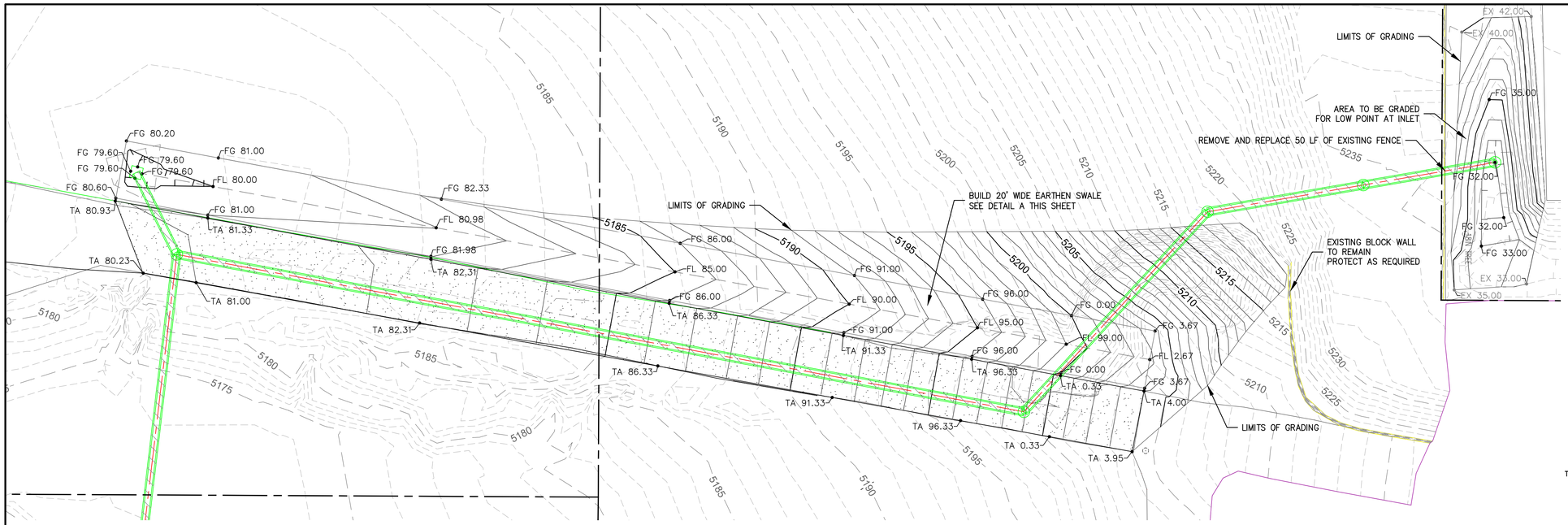
STORM DRAIN PLAN AND PROFILE

WW TREATMENT PLANT #1
STORM DRAIN IMPROVEMENTS
RIO RANCHO, NEW MEXICO

HARROD D. LYKAS
NEW MEXICO
16910
LICENSED PROFESSIONAL ENGINEER

PROJECT NO.	R303577.01
DESIGNED BY:	NV
DRAWN BY:	NV
CHECKED BY:	JDL
DATE:	NOVEMBER 24, 2014
DPW CHK:	

SHEET:
SD1



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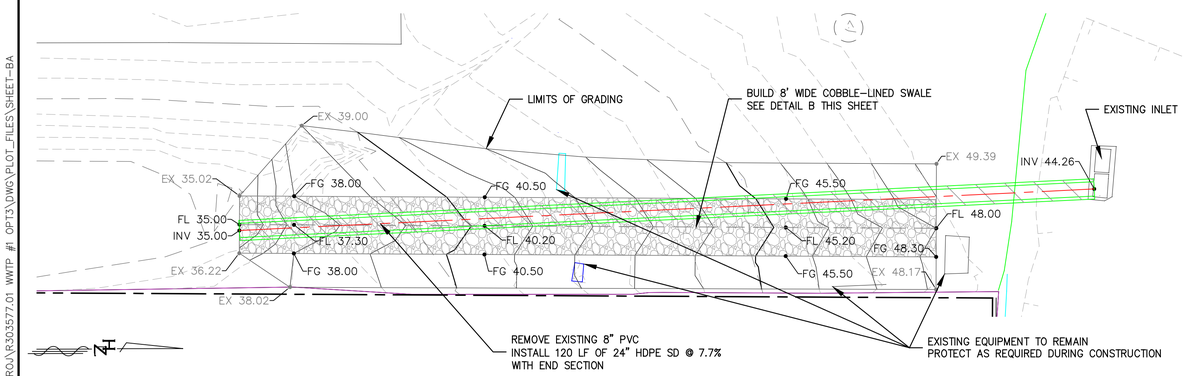

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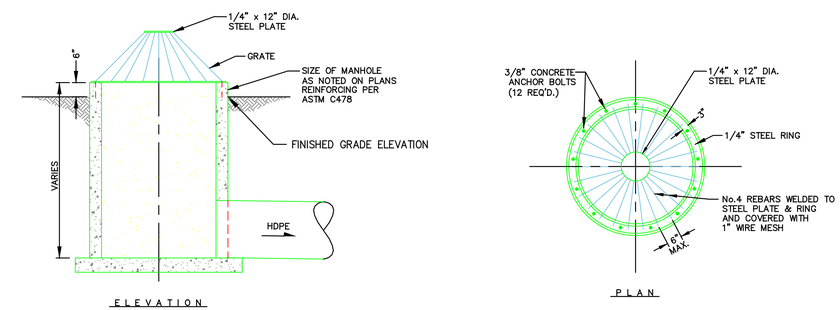
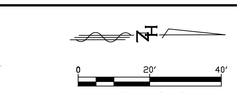
SWALE DETAIL



DRAINAGE INLET DETAILS



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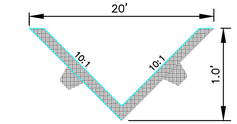
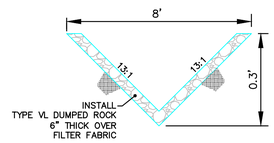
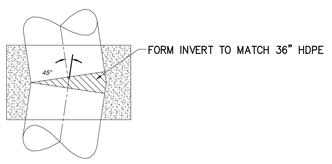


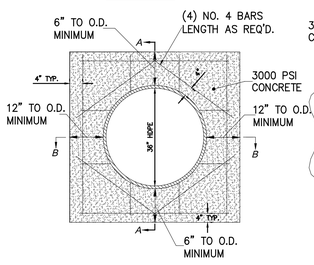
EARTHEN SWALE

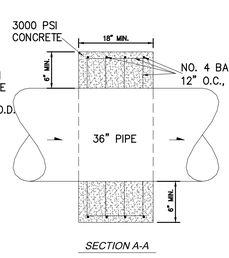


COBBLE-LINED SWALE



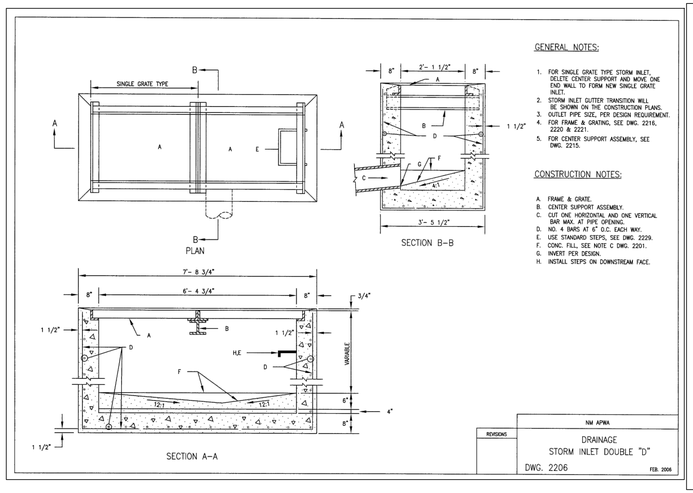
SECTION B-B





SECTION A-A

CONCRETE COLLAR CONNECTION

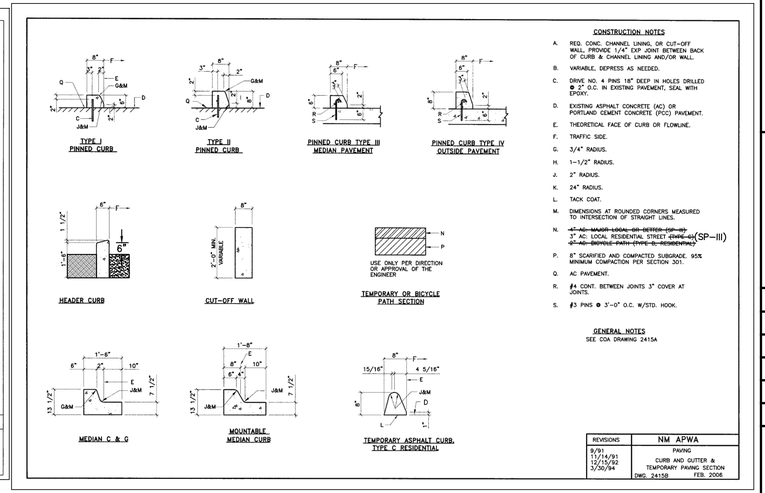


GENERAL NOTES:

1. FOR SINGLE GRATE TYPE STORM INLET, DELETE CENTER SUPPORT AND MOVE ONE END WALL TO FORM NEW SINGLE GRATE INLET.
2. STORM INLET GUTTER TRANSITION WILL BE SHOWN ON THE CONSTRUCTION PLANS.
3. OUTLET PIPE SIZE, PER DESIGN REQUIREMENT.
4. FOR FRAME & GRATING, SEE DWG. 2218, 2220 & 2221.
5. FOR CENTER SUPPORT ASSEMBLY, SEE DWG. 2215.

CONSTRUCTION NOTES:

A. FRAME & GRATE.
B. CENTER SUPPORT ASSEMBLY.
C. CUT ONE HORIZONTAL AND ONE VERTICAL BAR MAX. AT PIPE OPENING.
D. NO. 4 BARS AT 6" O.C. EACH WAY.
E. USE STANDARD STEPS, SEE DWG. 2229.
F. CONC. FILL, SEE NOTE C DWG. 2201.
G. INVERT PER DESIGN.
H. INSTALL STEPS ON DOWNSTREAM FACE.



CONSTRUCTION NOTES

A. REQ. CONC. CHANNEL LINING, OR CUT-OFF WALL. PROVIDE 1/4" EXP JOINT BETWEEN BACK OF CURB & CHANNEL LINING AND/OR WALL.
B. VARIABLE, DEPRESS AS NEEDED.
C. DRIVE NO. 4 PINS 18" DEEP IN HOLES DRILLED @ 2' O.C. IN EXISTING PAVEMENT, SEAL WITH EPOXY.
D. EXISTING ASPHALT CONCRETE (AC) OR PORTLAND CEMENT CONCRETE (PCC) PAVEMENT.
E. THEORETICAL FACE OF CURB OR FLOWLINE.
F. TRAFFIC SIDE.
G. 3/4" RADIUS.
H. 1-1/2" RADIUS.
J. 2" RADIUS.
K. 24" RADIUS.
L. TACK COAT.
M. DIMENSIONS AT ROUNDED CORNERS MEASURED TO INTERSECTION OF STRAIGHT LINES.
N. ~~4" AC, MAJOR LOCAL OR BETTER (SP-III)~~
3" AC LOCAL RESIDENTIAL STREET ~~(SP-III-A)~~ (SP-III)
~~3" AC BICYCLE PATH (TYPE D, RESIDENTIAL)~~
P. 8" SCARIFIED AND COMPACTED SUBGRADE. 95% MINIMUM COMPACTION PER SECTION 301.
Q. AC PAVEMENT.
R. #4 CONT. BETWEEN JOINTS 3" COVER AT JOINTS.
S. #3 PINS @ 3'-0" O.C. W/STD. HOOK.

GENERAL NOTES
SEE COA DRAWING 2415A

REVISIONS	NM APWA
9/91 11/14/91 12/15/92 12/20/94	PAVING CURB AND GUTTER & TEMPORARY PAVING SECTION DWG. 2415B FEB. 2006

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City of Rio Rancho

No.	DESCRIPTION	DATE	BY
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7			

REVISIONS (OR CHANGE NOTICES)

Designed By:
HUITT-ZOLLARS, INC.
Huitt-Zollars, Inc.
5520 Ridgecrest Ranch Drive NE, Suite 201
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

Designed For:
CITY OF RIO RANCHO

GRADING DETAILS

WW TREATMENT PLANT #1
STORM DRAIN IMPROVEMENTS
RIO RANCHO, NEW MEXICO

JARROD D. LYKAB
NEW MEXICO
16910
LICENSED PROFESSIONAL ENGINEER

PROJECT NO.	R303577.01
DESIGNED BY:	NV
DRAWN BY:	NV
CHECKED BY:	JDL
DATE:	NOVEMBER 24, 2014
DPW CHK:	
SHEET:	SD2

RioRancho
City of Vision

ENGINEER's OPINION OF PROBABLE COST
WASTEWATER TREATMENT PLANT #1 - STORM DRAIN IMPROVEMENTS

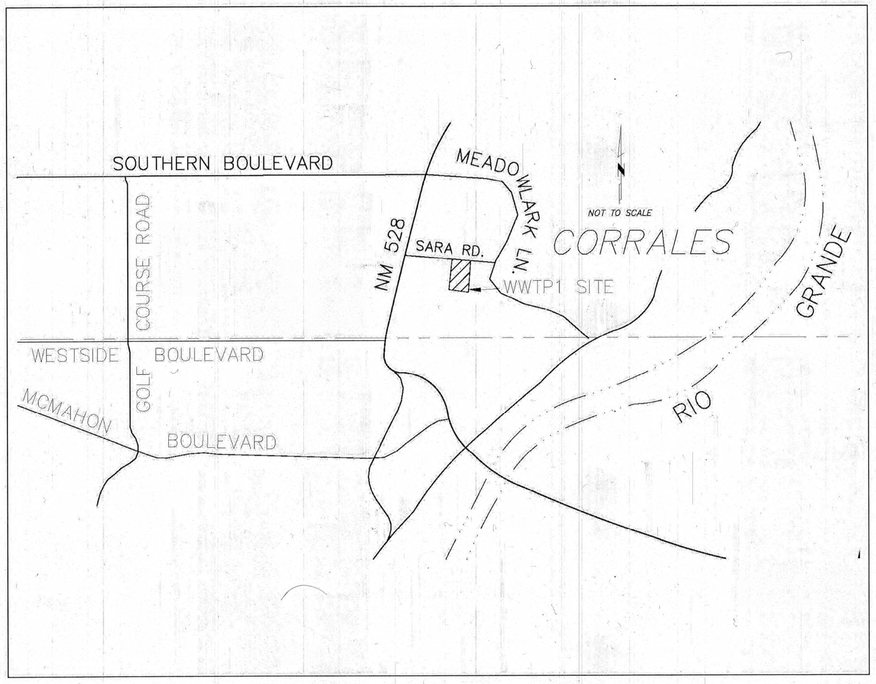
Prepared for: City of Rio Rancho
Prepared by: Huitt-Zollars, Inc.
Date: November 25, 2014

ITEM NO.	SPEC	SPEC	DESCRIPTION	UNIT	QUAN.	UNIT PRICE	AMOUNT
1	NMAPWA		Mobilization	LS	1	$ 20,000	$ 20,000
2	SUPP		Materials Testing	LS	1	$ 15,000	$ 15,000
3	SUPP		SWPPP	LS	1	$ 10,000	$ 10,000
4	SUPP		Construction Staking	LS	1	$ 10,000	$ 10,000
6	NMAPWA	201.01	Clear and Grub	AC	2.0	$ 1,540	$ 3,080
7	NMAPWA	205.01	Fill, Borrow, Haul and Compaction	CY	314	$ 8	$ 2,512
8	NMAPWA	301.01	Grading, <2'	SY	9,900	$ 3.50	$ 34,650
9	NMAPWA	301.02	Subgrade Prep, 12"	SY	862	$ 2.40	$ 2,069
10	NMAPWA	340.11	Header Curb, SD 2415	LF	458	$ 24	$ 10,992
11	NMAPWA	343.113	Remove and Replace Asphalt	SY	862	$ 30	$ 25,860
12	NMAPWA	410.03	Remove and Reinstall Chain Link Fence	SF	1,184	$ 5	$ 5,920
13	NMAPWA	603.03	Dumped Cobble, includes Filter Fabric	CY	2	$ 110	$ 220
14	NMAPWA	910.009	24" HDPE	LF	876	$ 59	$ 51,670
15	NMAPWA	910.017	36" HDPE	LF	389	$ 92	$ 35,748
16	NMAPWA	910.06X	36" HDPE BEND	EA	1	$ 4,000	$ 4,000
17	NMAPWA	910.XXX	24" HDPE END SECTION	EA	1	$ 800	$ 800
18	NMAPWA	701.1	Trenching, Backfilling and Compaction for 18-36" pipe, up to 8' depth	LF	571	$ 29	$ 16,571
19	NMAPWA	701.11	Trenching, Backfilling and Compaction for 18-36" pipe, 8-12'	LF	311	$ 34	$ 10,589
20	NMAPWA	701.12	Trenching, Backfilling and Compaction for 18-36" pipe, 12-16'	LF	296	$ 36	$ 10,655
21	NMAPWA	701.13	Trenching, Backfilling and Compaction for 18-36" pipe, 16-20'	LF	97	$ 47	$ 4,556
22	NMAPWA	801.056	Existing pipe, Remove and Dispose	LF	120	$ 13	$ 1,560
23	NMAPWA	915.06	Catch Basin, Type D, Double Grate	EA	1	$ 5,300	$ 5,300
24	NMAPWA	915.XX	4' Trash Rack Inlet	EA	1	$ 6,400	$ 6,400
25	NMAPWA	920.07	Manhole, 4' Dia, 6-10' Deep	EA	1	$ 4,000	$ 4,000
26	NMAPWA	920.14	Manhole, 6' Dia, 6-10' Deep	EA	1	$ 5,200	$ 5,200
27	NMAPWA	920.15	Manhole, 6' Dia, 10-14' Deep	EA	4	$ 6,000	$ 24,000
28	NMAPWA	920.16	Manhole, 6' Dia, extra depth cost over 14'	VF	9	$ 420	$ 3,780
29	NMAPWA	801.131	Concrete Collar Connection	CY	1	$ 500	$ 500
			SUBTOTAL				**$ 325,632**
			CONTINGENCY (10%)				**$ 32,563**
			RRGRT (7.4375%)				**$ 24,219**
			TOTAL				**$ 382,414**

WASTEWATER TREATMENT PLANT #1

CITY OF RIO RANCHO
SANDOVAL COUNTY, NEW MEXICO

STORM DRAIN IMPROVEMENTS
PROJECT #WW1565



LOCATION MAP

SHEET INDEX

P1 PROJECT TITLE SHEET
P2 GENERAL NOTES
SD1 STORM DRAIN PLAN AND PROFILE
SD2 GRADING DETAILS

CITY OF RIO RANCHO: _____ DATE: _____
DEPARTMENT OF PUBLIC WORKS

SSCAFCA: _____ DATE: 3-13-15
EXECUTIVE ENGINEER

Rio Rancho City of Vision

No.	DESCRIPTION	DATE	BY
1			
2			
3			
4			
5			
6			
7			

REVISIONS (OR CHANGE NOTICES)

Designed By:
HUITT-ZOLLARS
Huitt-Zollars, Inc.
338 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

Designed For:
CITY OF RIO RANCHO

TITLE SHEET

WW TREATMENT PLANT #1
STORM DRAIN IMPROVEMENTS
RIO RANCHO, NEW MEXICO

JARROD D. LIKAR NEW MEXICO 16910 LICENSED PROFESSIONAL ENGINEER 2-19-15

PROJECT NO.	R303577.01
DESIGNED BY:	NV
DRAWN BY:	NV
CHECKED BY:	JDL
DATE:	FEBRUARY 19, 2015
DPW CHK:	
SHEET:	P1

Mar 10, 2015 2:00:37pm – User jlkar
H:\PROJ\R303577.01 WWTP #1 OPT3\DWG\PLOT_FILES\P1_P2.DWG
Xrefs: [H:\PROJ\R303577.01 WWTP #1 OPT3\DWG\PLOT_FILES\SHEET-BASE.DWG]

SUMMARY PLAT
FOR
VISTA VERDE MEMORIAL PARK CEMETERY II TRACT A1

COMPRISED OF
Tract "A", as Filed in Sandoval County, in Volume 3, Folio 766–A
(Rio Rancho Estates Plat Book 5, Page 98)
Parcels 3–A, 3–B and 4–A, as Filed in Sandoval County, in Volume 3, Folio 1544A
(Rio Rancho Estates Plat Book 7, Page 79)
Unplatted Lands South of Sara Road and West of Meadowlark Lane S.E.
SITUATE WITHIN
The Town of Alameda Grant
Projected Section 32, T.12N., R.3E. NMPM
City of Rio Rancho, Sandoval County, New Mexico
DATE OF SURVEY: OCTOBER 2014
SHEET 1 OF 1

DEDICATION

The real estate shown and described in this plat is surveyed and replatted with the free consent of and in accordance with the wishes and desires of the undersigned Owner(s) thereof, and the Owner(s) of such real estate do hereby grant any and all easements shown or noted on the plat including the right of ingress and egress.

SMI–ABQ RE, LLC

Paul Daniels, Manager

STATE OF NEW MEXICO)
SS.
COUNTY OF SANDOVAL)

On this 13 day of February, 2015 before me the undersigned being by me duly sworn, did say that he is Paul Daniels, Manager of SMI–ABQ RE, LLC and that he signed this plat as her free act and deed.

Notary Public

OFFICIAL SEAL
NOTARY PUBLIC–STATE OF NEW MEXICO
My Commission Expires February 10, 2018

OFFICIAL SEAL
Robin DeYoung
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 2-10-2018

SOUTHERN SANDOVAL COUNTY ARROYO FLOOD CONTROL AUTHORITY

Charles Thomas, Executive Engineer

STATE OF NEW MEXICO)
SS.
COUNTY OF SANDOVAL)

On this 13th day of March, 2015, before me the undersigned Notary Public in and for said County and State, personally appeared Charles Thomas, who, being by me duly sworn, did say that she is Executive Engineer of S.S.C.A.F.C.A. and that he signed this plat as his free act and deed.

Notary Public

OFFICIAL SEAL
Amanda Wolf
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 6-2-18

My Commission Expires 6·2·2018

RIO RANCHO DEVELOPMENT SERVICES DEPARTMENT

Approved this 16 day of February, 2015

~~Deborah Woody, Director of Development Services~~
DAVID SERRANO, ACTING DIRECTOR of DEVELOPMENT SERVICES

CITY CLERK'S CERTIFICATE

I, Stephen Ruger, City Clerk of the City of Rio Rancho, New Mexico do hereby certify that the plat shown hereon was approved administratively by the Rio Rancho City Development Services Department Director on the 16 day of February 2015

Stephen Ruger, City Clerk

TREASURER'S CERTIFICATE

I, Laura M. Montoya, Treasurer of Sandoval County, New Mexico do hereby certify that the previous ten (10) years property taxes have been paid in full.

Laura M. Montoya, Sandoval County Treasurer By

SURVEYOR'S CERTIFICATE

I, Kim C. Stelzer, New Mexico Registered Land Surveyor No. 7482, do hereby certify that the plat shown hereon was prepared under my supervision, and that the same is true and correct to the best of my knowledge and belief. This survey conforms to the Land Surveying Standards as adopted by the New Mexico State Board of Registration for Professional Engineers and Land Surveyors and the City of Rio Rancho Subdivision Ordinance.

January 21, 2015

Kim C. Stelzer, NMPS No. 7482

KIM C. STELZER NEW MEXICO 7482 REGISTERED PROFESSIONAL LAND SURVEYOR
1/21/2015

JURISDICTIONAL AFFIDAVIT

I, Kim C. Stelzer, New Mexico Professional Surveyor Number 7482, do hereby affirm that the property described does lie within the platting and extra–territorial subdivision jurisdiction of the City of Rio Rancho.

January 21, 2015

New Mexico Land Surveyor No. 7482

STATE OF NEW MEXICO)
SS.
COUNTY OF SANDOVAL)

This instrument was filed for record on _____, 20__

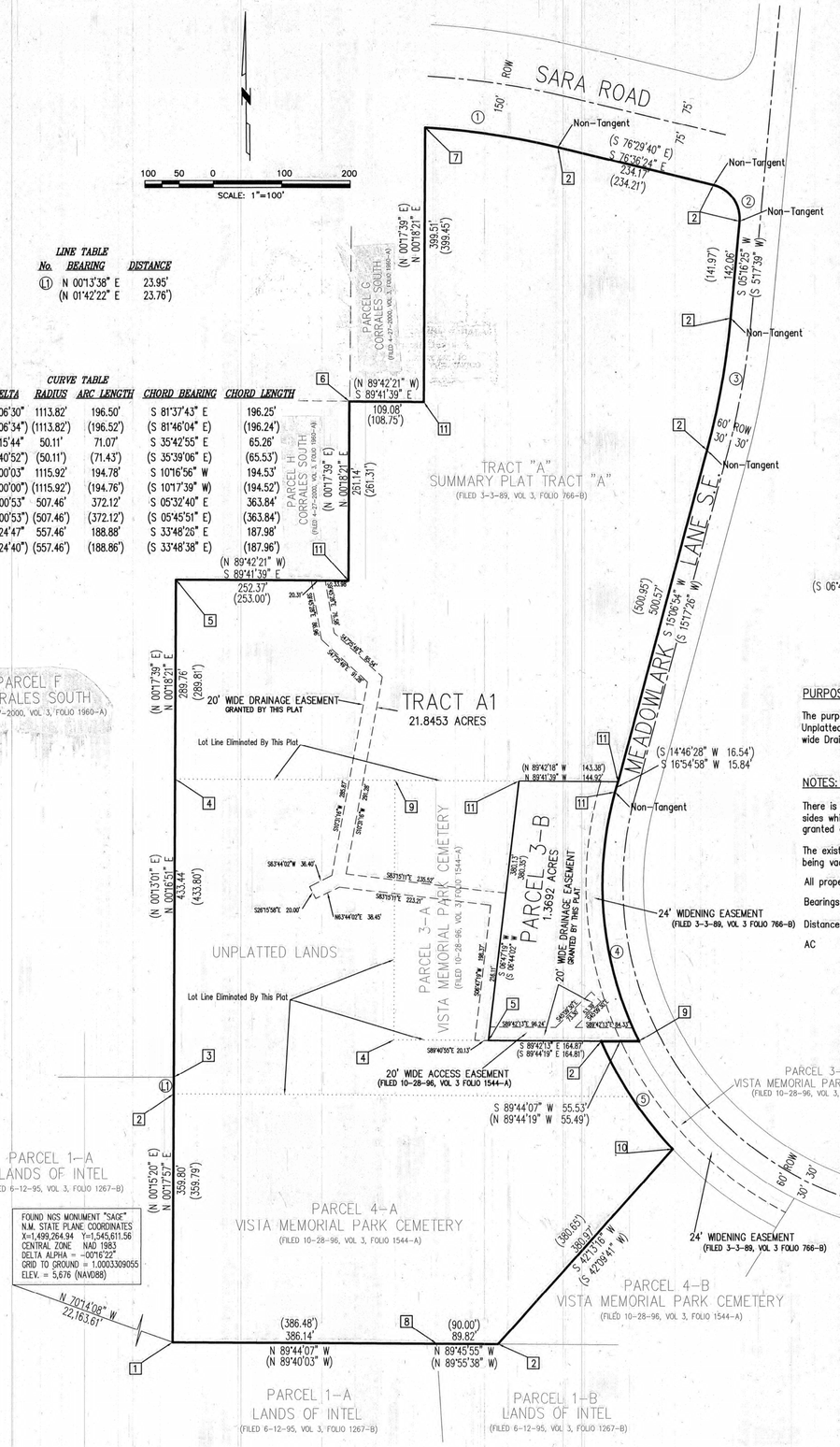
at _____, __M. recorded in Vol. ____ of record's of said County, Folio _____

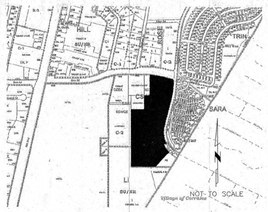
(Rio Rancho Estates Plat Book No. 25, Page 89).

Eileen Garbagni, County Clerk and Recorder.

BY: _____
Deputy

Plotted: 1/21/2015 3:16:40 PM, By:Stelzer, Kim
N:\Projects\2012\12-0001 Vista Verde Memorial Park Cemetery\VVTP1_Summary Plat.dwg
Last Saved: 1/19/2015 10:55:54, AM, kstelzer





VICINITY MAP

BOUNDARY EVIDENCE: UNLESS OTHERWISE INDICATED:

1. Found Nail w/washer; LS 9750
2. Found No. 4 rebar w/cap; Gritsko PLS 8686
3. Found No. 5 rebar w/cap; LS 5978
4. Found No. 5 rebar w/cap ; LS 9243
5. Found Aluminum Cap; CSC LS 4972
6. Found No. 5 rebar w/cap; HUGG # Illegible
7. Found No. 4 rebar w/cap; Illegible, w/tag; LS 9243
8. Found No. 5 rebar w/cap; ASTS 13983
9. Found No. 5 rebar
10. Found No. 4 rebar w/cap; Illegible
11. Set No. 5 rebar w/cap; HZI LS 7482

Found monuments are tagged with a washer stamped HZI LS 7482

(S 06°44'49" W 379.85') Record data from Special Warranty Deed (Doc. No. 2012016759)
(Recorded in Sandoval County, Book 415, Page 16759)
AND
Record data from Vist Verde Memorial Park Cemetery
(Recorded in Sandoval County, Vol. 34, Folio 1544–A)

PURPOSE OF PLAT

The purpose of this Summary Plat is to combine three (3) Platted Parcel and one (1) Unplatted Parcel into one (1) Tract. The Summary Plat also creates a new 20 foot wide Drainage Easement dedicated to the City of Rio Rancho by this Plat.

NOTES: UNLESS OTHERWISE INDICATED:

There is an existing five (5) foot wide public utility easement within all lots on all sides which remains. An additional five (5) foot wide public utility easement is being granted along all road rights–of–way which make those easements ten (10) feet wide.

The existing five (5) foot wide public utility easements along either side of the lot line being vacated by this plat are being vacated also.

All property corners are found or set as noted in Boundary Evidence shown hereon.

Bearings are New Mexico State Plane, Central Zone, NAD83, Grid Bearings.

Distances are horizontal ground distances in feet.

AC – Acres

UTILITY APPROVALS

City of Rio Rancho — Date 2-15-15

New Mexico Gas Company — Date 2-11-15

Qwest Corporation d/b/a CenturyLink QC — Date 2-11-15

Public Service Company of New Mexico — Date 2/11/15

Cable–One — Date

LEGAL DESCRIPTION

A CERTAIN PARCEL OF LAND SITUATE WITHIN THE TOWN OF ALAMEDA GRANT, PROJECT SECTION 32, TOWNSHIP 12 NORTH, RANGE 3 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF RIO RANCHO, SANDOVAL COUNTY, NEW MEXICO AND BEING COMPRISED OF TRACT "A", AS FILED IN SANDOVAL COUNTY, IN VOLUME 3, FOLIO 766–A (RIO RANCHO ESTATES PLAT BOOK 5, PAGE 98), PARCELS 3–A AND 4–A, AS FILED IN SANDOVAL COUNTY, IN VOLUME 3, FOLIO 1544A (RIO RANCHO ESTATES PLAT BOOK 7, PAGE 79) AND AN UNPLATTED PARCEL LOCATED SOUTH OF SARA ROAD AND WEST OF MEADOWLARK LANE S.E., AS THE SAME IS DESCRIBED IN SPECIAL WARRANTY DEED, FILED IN SANDOVAL COUNTY, ON JULY 6, 2012, IN BOOK 416, PAGE 16759 AS DOCUMENT NUMBER 2012016759 AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF THE PARCEL OF LAND HEREIN DESCRIBED, BEING A NAIL WITH A WASHER (LS #9750) SET IN CONCRETE, FROM WHENCE NGS MONUMENT "SAGE" (HAVING NEW MEXICO STATE PLANE GRID COORDINATES, CENTRAL ZONE, NAD83 OF X=1,499,264.94, Y=1,545,611.56) BEARS N70°14'08"W 22,163.61 FEET; THENCE, N00°17'57"E 359.80 FEET TO A #4 REBAR WITH CAP (GRITSKO PLS 8686); THENCE, N00°13'38"E 23.95 FEET TO A #5 REBAR WITH CAP (LS 5978); THENCE, N00°16'51"E 433.44 FEET TO A #5 REBAR WITH CAP (LS 9243); THENCE, N00°18'21"E 289.76' TO AN ALUMIMUM CAP (CSC LS 4972); THENCE, S89°41'39"E 252.37 FEET; THENCE, N00°18'21"E 261.14 FEET TO A #5 REBAR WITH CAP (HUGG # ILLEGIBLE); THENCE S89°41'39"E 109.08 FEET; THENCE, N00°18'21"E 399.51 FEET TO A #4 REBAR WITH CAP AND TAG (LS 9243) A POINT ON THE SOUTHERLY RIGHT OF WAY LINE OF SARA ROAD, BEING A POINT ON A CURVE; THENCE, EASTERLY ALONG THE SOUTHERLY RIGHT OF WAY LINE OF SARA ROAD, ON A CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 1113.82 FEET A DELTA ANGLE OF 10°06'30" A CHORD BEARING S81°37'43"E 196.25 FEET, 196.50 FEET TO A #4 REBAR WITH CAP (GRITSKO 8686); THENCE, S76°36'24"E CONTINUING ALONG THE SOUTHERLY RIGHT OF WAY LINE OF SARA ROAD 234.17 FEET TO A #4 REBAR WITH CAP (GRITSKO 8686) BEING A POINT ON A CURVE; THENCE, SOUTHEASTERLY ON A CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 50.11 FEET A DELTA ANGLE OF 81°15'44" A CHORD BEARING S35°42'55"E 65.26 FEET, 71.07 FEET TO A #4 REBAR WITH CAP (GRITSKO 8686) BEING A POINT ON THE WESTERLY RIGHT OF WAY LINE OF MEADOWLARK LANE S.E.; THENCE, S05°16'25"W CONTINUING ALONG THE WESTERLY RIGHT OF WAY LINE OF MEADOWLARK LANE S.E. 142.06 FEET TO A #4 REBAR WITH CAP (GRITSKO 8686) BEING A POINT ON A CURVE; THENCE, SOUTHWESTERLY ON A CURVE TO THE RIGHT, SAID CURVE HAVING A RADIUS OF 1115.92 FEET A DELTA ANGLE OF 10°00'03" A CHORD BEARING S10°16'56"W 194.53 FEET, 194.78 FEET TO A #4 REBAR WITH CAP (GRITSKO 8686); THENCE, S15°06'54"W CONTINUING ALONG THE WESTERLY RIGHT OF WAY LINE OF MEADOWLARK LANE S.E. 500.57 FEET; THENCE, S16°54'58"W CONTINUING ALONG THE WESTERLY RIGHT OF WAY LINE OF MEADOWLARK LANE S.E. 15.84 FEET TO A POINT ON A CURVE; THENCE, SOUTHEASTERLY CONTINUING ALONG THE WESTERLY RIGHT OF WAY LINE OF MEADOWLARK LANE S.E. ON A CURVE TO THE LEFT, SAID CURVE HAVING A RADIUS OF 507.46 FEET A DELTA ANGLE OF 42°00'53" A CHORD BEARING S05°32'40"E 363.84 FEET, 372.12 FEET TO A #5 REBAR, THENCE S89°44'07"W 55.53 FEET TO AN #4 REBAR WITH CAP (GRITSKO 8686) BEING A POINT ON A CURVE; THENCE, SOUTHEASTERLY ALONG A CURVE TO THE LEFT, SAID CURVE HAVING A RADIUS OF 557.46 FEET A DELTA ANGLE OF 19°24'47" A CHORD BEARING S33°48'26"E 187.98 FEET, 188.88 FEET TO A #4 REBAR WITH CAP (ILLEGIBLE); THENCE, S42°13'16"W 380.97 FEET TO A #4 REBAR WITH CAP (GRITSKO 8686); THENCE, N89°45'55"W 89.82 FEET TO A #5 REBAR WITH CAP (ASTS 13983); THENCE, N89°44'07"W 386.14 FEET TO THE POINT OF BEGINNING OF THE PARCEL HERE IN DESCRIBED

SAID PARCEL CONTAINING 23.2145 ACRES (1,011,223 SQUARE FEET) MORE OR LESS.

PUBLIC UTILITY EASEMENTS

Public Utility Easements shown on this plat are granted for the common and joint use of:

A. Public Service Company of New Mexico ("PNM"), a New Mexico corporation, (PNM Electric) for installation, maintenance, and service of overhead and underground electrical lines, transformers, and other equipment and related facilities reasonably necessary to provide electrical services.
B. New Mexico Gas Company for installation, maintenance, and service of natural gas lines, valves and other equipment and facilities reasonably necessary to provide natural gas services.
C. Qwest Corporation d/b/a Century Link for the installation, maintenance, and service of such lines, cable, and other related equipment and facilities reasonably necessary to provide communication services.
D. Cable One for the installation, maintenance, and service of such lines, cable, and other related equipment and facilities reasonably necessary to provide cable services.

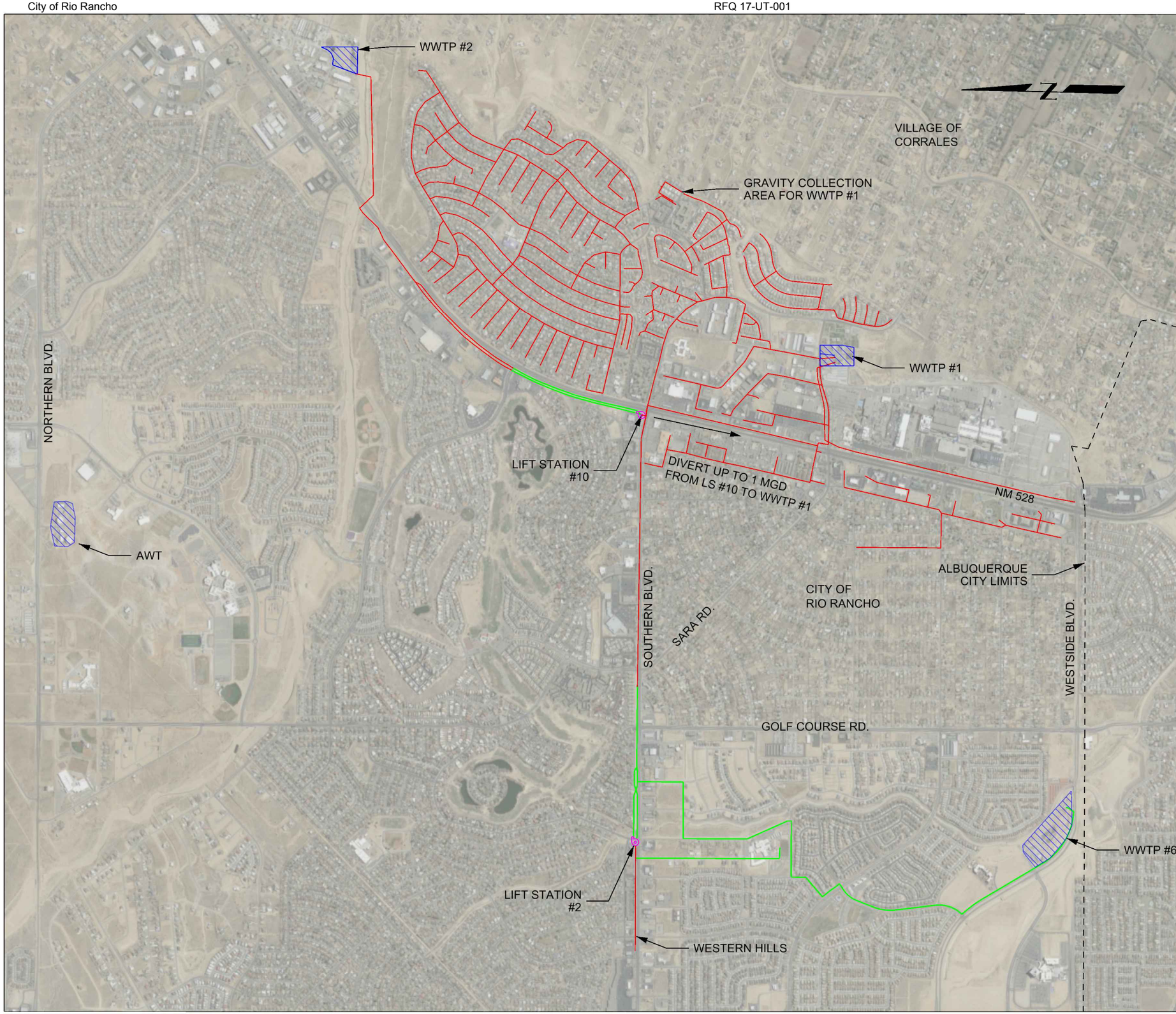
Included, is the right to build, rebuild, construct, reconstruct, locate, relocate, change, remove, replace, modify, renew, operate and maintain facilities for purposes described above, together with free access to, from, and over said easements, with the right and privilege of going upon, over and across adjoining lands of grantor for the purposes set forth herein and with the right to utilize the right of way and easement to extend services to customers of grantee, including sufficient working area space for electric transformers, with the right and privilege to trim and remove trees, shrubs or bushes which interfere with the purposes set forth herein. No building, sign, pool (aboveground or subsurface), hot tub, concrete or wood pool decking, or other structure shall be erected or constructed on said easements, nor shall any well be drilled or operated thereon. Property owners shall be solely responsible for correcting any violations of national electrical safety code by construction of pools, decking, or any structures adjacent to or near easements shown on this plat.

Easements for electric transformer/switchgears, as installed, shall extend ten (10) feet in front of transformer/switchgear doors and five (5) feet on each side.

Disclaimer

In approving this plat, Public Service Company of New Mexico (PNM) and New Mexico Gas Company (NMGC) did not conduct a title search of the properties shown hereon. Consequently, PNM and NMGC do not waive or release any easement or easement rights which may have been granted by prior plat, replat or other record document and which are not shown on this plat.

HUITT–ZOLLARS
333 RIO RANCHO DR. N.E., STE. 101
RIO RANCHO, N.M., 87124
(505) 892–5141



LEGEND:

WWTP NO. 1 COLLECTION LINES:

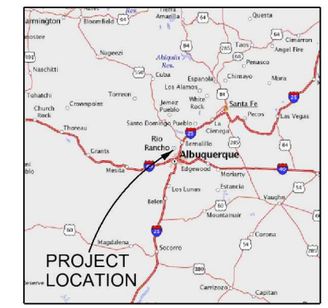
GRAVITY MAIN

FORCE MAIN

LIFT STATION

0.25 mi 0 0.25 mi 0.5 mi

SCALE 1"= 0.25 miles



PROGRESSIVE DESIGN BUILD SERVICES
CITY OF RIO RANCHO WWTP NO. 1
IMPROVEMENT PROJECT

COLLECTION SYSTEM MAP

CH2M

Sara Rd SE
R25'
65'
35'
© 2016 Google

Sa a Rd SE
70'
48'