

AGREEMENT

1) PARTIES

This Agreement ("Agreement") is entered into between City of Reno, a municipal corporation ("Reno"), City of Sparks, a municipal corporation ("Sparks") and Board of Regents, Nevada System of Higher Education, on behalf of the University of Nevada, Reno ("University"), collectively (the "Parties"). In consideration of the mutual promises contained in this Agreement, the Parties agree as follows:

2) RECITALS

2.1 Reno and Sparks desire to have the University perform consultant services.

2.2 Reno and Sparks own the Truckee Meadows Water Reclamation Facility ("TMWRF").

2.3 Reno and Sparks desire to have the University perform an Enhanced Coagulation Pilot Scale DON Removal Project pursuant to Attachment A, consisting of 10 pages, for the sum of \$310,380.48.

3) RIGHTS & DUTIES

3.1 University will perform the study as set forth in Attachment A pursuant to the terms and conditions stated therein in an amount not-to-exceed \$310,380.48. Said Attachment A is incorporated in full by this reference.

3.2 To the extent limited in accordance with NRS 41.0305 to NRS 41.039, University shall indemnify, defend, and hold harmless Reno and Sparks, its directors, officers, agents and employees respectively from and against any and all liabilities, claims, losses, lawsuits, judgments, and/or expenses, including attorney fees, arising either directly or indirectly from any act or failure to act by University or any of its officers or employees, which may occur during or which may arise out of the performance of this Agreement.

3.3 To the extent limited in accordance with Chapter 41 of the NRS, Reno and Sparks shall indemnify, defend and hold harmless University, its directors, officers, agents and employees against any actions, suits, proceedings, liabilities and damages that may result from the negligent acts of Reno and Sparks respectively, their officers, agents or employees in connection with this Agreement.

3.4 Reno and Sparks will reimburse the University an amount not-to-exceed the sum of \$310,380.48 as provided for in Attachment A. Reno's share is the not-to-exceed sum of \$213,014.12 and Sparks' share is the not-to-exceed sum of \$97,366.36.

Payment is to be sent to "Board of Regents, NSHE obo the University of Nevada, Reno and shall reference the appropriate UNR account number and be delivered to:

University of Nevada Reno
Controller's Office
Mail Stop 124
Reno, NV 89557-0025

4) TERM OF AGREEMENT

4.1 The term of this Agreement commences upon execution by all Parties ("Effective Date") and is to be completed as set forth in Attachment A.

5) MISCELLANEOUS PROVISIONS

5.1 This Agreement is binding upon and inures to the benefit of the Parties and their respective heirs, estates, personal representatives, successors and assigns.

5.2 This Agreement is made in, and shall be governed, enforced and construed under the laws of the State of Nevada.

5.3 This Agreement constitutes the entire understanding and agreement of the Parties with respect to the subject matter hereof, and supersedes and replaces all prior understandings and agreements, whether verbal or in writing, with respect to the subject matter hereof.

5.4 This Agreement may be terminated by the Parties prior to the date set forth in paragraph 4, provided that a termination shall not be effective until thirty (30) days after a party has served written notice upon the other party. This Agreement may be terminated by mutual consent of the Parties or unilaterally by either Reno and Sparks and University without cause. The Parties expressly agree that this Agreement shall be terminated immediately if for any reason city and/or federal funding ability to satisfy this Agreement is withdrawn, limited, or impaired.

5.5 In the event either party brings any legal action or other proceeding with respect to the breach, interpretation, or enforcement of this Agreement, or with respect to any dispute

relating to any transaction covered by this Agreement, the losing party or parties in such action or proceeding shall reimburse the prevailing party or parties therein for all reasonable costs of litigation, including reasonable attorneys' fees.

5.6 No delay or omission by either party in exercising any right or power hereunder shall impair any such right or power or be construed to be a waiver thereof, unless this Agreement specifies a time limit for the exercise of such right or power or unless such waiver is set forth in a written instrument duly executed by the person granting such waiver. A waiver of any person of any of the covenants, conditions, or agreements hereof to be performed by any other party shall not be construed as a waiver of any succeeding breach of the same or any other covenants, agreement, restrictions or conditions hereof.

5.7 All notices, demands or other communications required or permitted to be given in connection with this Agreement, shall be in writing, and shall be deemed delivered when personally delivered to a party (by personal delivery to an officer or authorized representative of a corporate party) or, if mailed, three (3) business days after deposit in the United States mail, postage prepaid, certified or registered mail, addressed to the Parties as follows:

To University:	Attn: Tracy D. Wheeler Office of Sponsored Projects University of Nevada, Reno 204 Ross Hall/MS 325 Reno, NV 89557
To Reno:	John Flansberg, Director of Public Works City of Reno 1 East First Street, 7 th Floor (if by personal service) Reno, NV 89501 P.O. Box 1900 (if by mail) Reno, Nevada 89505
To Sparks:	John Martini, Community Services Director 431 Prater Way, Sparks, NV 89431

5.8 Each party agrees to keep and maintain under general accepted accounting principles full, true and complete records, agreements, books, and documents as are necessary to fully disclose to the other party, the State or United States Government, or their authorized

representatives, upon audits or reviews, sufficient information to determine compliance with any applicable regulations and statutes.

5.9 Each party agrees that the relevant books, records (written, electronic, computer related or otherwise), including but not limited to relevant accounting procedures and practices of the party, financial statements and supporting documentation, and documentation related to the work product shall be subject, at any reasonable time, to inspection, examination, review, audit, and copying at any office or location where such records may be found, with or without notice by the other party, the State Auditor, Employment Security, the Department of Administration, Budget Division, the Nevada State Attorney General's Office or its Fraud Control Units, the State Legislative Auditor, and with regard to any federal funding, the relevant federal agency, the Comptroller General, the General Accounting Office, the Office of the Inspector General, or any of their authorized representatives.

5.10 All books, records, reports, and statements relevant to this Agreement must be retained by each party for a minimum of three years. The retention period runs from the date of termination of this Agreement. Retention time shall be extended when an audit is scheduled or in progress for a period reasonably necessary to complete an audit and/or to complete any administrative and judicial litigation which may ensue.

5.11 The Parties will not waive and intend to assert available NRS chapter 41 liability limitations in all cases. Indemnity obligations of the Parties in tort are limited by NRS 41.035. Contract liability of both Parties shall not be subject to punitive damages. To the extent applicable, actual contract damages for any breach shall be limited by NRS 353.260 and NRS 354.626.

5.12 Neither party shall be deemed to be in violation of this Agreement if it is prevented from performing any of its obligations hereunder due to strikes, failure of public transportation, civil or military authority, act of public enemy, accidents, fires, explosions, or acts of God, including, without limitation, earthquakes, floods, winds, or storms. In such an event the intervening cause must not be through the fault of the party asserting such an excuse,

and the excused party is obligated to promptly perform in accordance with the terms of the Agreement after the intervening cause ceases.

5.13 Neither party waives any right or defense to indemnification that may exist in law or equity.

5.14 The Parties are associated with each other only for the purposes and to the extent set forth in this Agreement, and in respect to performance of services pursuant to this Agreement, each party is and shall be a public agency separate and distinct from the other party and, subject only to the terms of this Agreement, shall have the sole right to supervise, manage, operate, control, and direct performance of the details incident to its duties under this Agreement. Nothing contained in this Agreement shall be deemed or construed to create a partnership or joint venture, to create relationships of an employer-employee or principal-agent, or to otherwise create any liability for one agency whatsoever with respect to the indebtedness, liabilities, and obligations of the other agency or any other party.

5.15 Pursuant to NRS 239.010, information or documents may be open to public inspection and copying. The Parties will have the duty to disclose unless a particular record is made confidential by law or a common law balancing of interests.

5.16 In furtherance of University's role as a public institution of higher education, it is necessary that significant results of research activities be reasonably available for publication and/or presentation by the University, and Reno and Sparks acknowledge that University may publish and/or present the results of research conducted in connection with this Agreement.


5.17 The Parties hereto represent and warrant that the person executing this Agreement on behalf of each party has full power and authority to enter into this Agreement.

5.18 This Agreement is effective upon the date the last signing party signs this Agreement ("Effective Date").

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement.

BOARD OF REGENTS,
Nevada System of Higher Education, on
behalf of University of Nevada, Reno

Dated this 31st day of August, 2018



Thomas Landis, Grants &
Contracts Manager

APPROVED AS TO FORM:

General Counsel

SPARKS

Dated this ____ day of _____, 2018

Geno Martini, Mayor

ATTEST:

Teresa Gardner, City Clerk

APPROVED AS TO FORM:

Chet Adams, City Attorney Sparks

RENO

Dated this ____ day of _____, 2018

Hillary L. Schieve, Mayor

ATTEST:

Ashley D. Turney, City Clerk

APPROVED AS TO FORM:

Susan Ball Rothe, Deputy City Attorney

ATTACHMENT A

PROJECT PROPOSAL

- 1. Project Title:** Evaluation of Enhanced Coagulation at the Pilot-Scale for Dissolved Organic Nitrogen Control at TMWRF
- 2. Principal Investigators:** Eric Marchand, Ph.D., P.E., Associate Professor
Krishna Pagilla, Ph.D., P.E., Professor
Frank Yang, Ph.D., Assistant Professor
University of Nevada, Reno
Department of Civil and Environmental Engineering
Phone: 775-784-6817; E-mail: marchand@unr.edu
- 3. Project Manager:** Dave Kershaw, P.E.
Associate Civil Engineer
City of Reno Public Works
One East First Street
Reno, NV 89501
Phone: 775-334-3393
E-mail: kershawd@reno.gov
- 4. Statement of Work:** See attached
- 5. Duration of the Project:** 24 months
- 6. Deliverables:** As described in the Statement of Work
- 7. Equipment:** As described in the Statement of Work
- 8. Budget and Description:** Attached

4. Statement of Work

A. Purpose of Project

The purpose of this project is to evaluate performance of enhanced coagulation and flocculation in a pilot-scale treatment system for removal of dissolved organic nitrogen (DON) in Truckee Meadows Water Reclamation Facility (TMWRF) process water. The effectiveness of DON treatment will be evaluated via coagulant addition, flocculation, sedimentation, and filtration. The proposed project will seek to identify the overall effectiveness of enhanced coagulation on DON removal and to provide insight regarding the need to include a sedimentation process prior to filtration (i.e., conventional coagulation-flocculation-sedimentation-filtration versus direct filtration). It is expected that the pilot-scale system will be located downstream of the reaeration basin following denitrification. Based on results from recently completed research at UNR and discussion with TMWRF personnel, this proposed location may be moved to downstream of the existing filtration basin. In conjunction with TMWRF personnel, UNR researchers will develop an experimental and operations plan for the research, assist with system installation and start-up, and then operate the pilot-scale system for an entire year to identify seasonal changes in process performance. This will also allow the research team to better understand the seasonal variation in DON and other nitrogenous species as well as identify long-term process performance. Researchers will also identify the impact of the treatment process on phosphorus and total dissolved solids (TDS) levels while monitoring the solids produced during treatment. Based on the pilot-scale results, UNR researchers will provide estimates for capital and O&M costs associated with implementing coagulation at the full-scale for different levels of DON removal.

B. Scope of Services

The scope of services for this project includes the following tasks:

1. Develop and implement an operations and sampling/analysis research plan to optimize the coagulant dose and polymer requirements (if needed). These will initially be selected based on results from previous DON coagulation research conducted with TMWRF effluent; however, process performance will be continually monitored and operations modified as needed.
2. Assist with pilot treatment system installation at TMWRF
3. UNR researchers will oversee the pilot-scale system startup and operation of the facility with support from TMWRF staff as necessary.
4. Investigate DON and TN treatment performance over the course of a year with and without a sedimentation step prior to filtration.

5. Identify and summarize chemical usage and associated effects on the total dissolved solids concentration in the treated water.
6. Conduct a solids production analysis and identify the fate of DON in the chemical sludge. Based on this analysis, recommendations will be made on associated sludge management and disposal issues.
7. Provide recommendations and guidance to TMWRF on optimized system configuration and process location, identify anticipated nitrogen reductions possible via coagulation, and system capital and O&M costs including chemical requirements and influence on other treatment objectives (e.g., TDS and disinfection requirements).

C. Project Tasks

In order to achieve the overall project objectives and specific goals identified above, researchers at UNR will perform the following tasks during this project. The tasks are further outlined below to describe the scope of the study.

Task 1 – Develop and implement an operations and sampling/analysis research plan to optimize the coagulant dose and polymer requirements (if needed). These will initially be selected based on results from previous DON coagulation research conducted with TMWRF effluent; however, process performance will be continually monitored and operations modified as needed.

Based on the specific pilot-scale treatment system selected, UNR researchers will develop a detailed operations and sampling plan. The operations and sampling/analysis plan will be developed prior to delivery and installation of the pilot-scale treatment system and will include the following items:

- Development of a piping and instrumentation diagram (P&ID) for the pilot-scale system at TMWRF,
- Description of integrated pilot system sampling ports, online instrumentation (e.g., flow meters, chemical dosing pumps, turbidity, pH, conductivity), and analytical requirements.
- Detailed experimental plan for evaluating system performance over the course of the project, including tracking seasonal data for DON in process influent and DON removal performance, determining optimum coagulant dose, determining optimum pH, tracking performance with polymer addition, identifying performance of sedimentation and/or direct filtration, and monitoring solids production.
- Development of process operations manual including troubleshooting guide.

- Deliverables: Operations manual for system operation, experimental matrix and associated sampling plan, and troubleshooting guide. As the project proceeds, the manual will be updated as needed.
- Task Duration: 3 months

Task 2 – Assist with pilot treatment system installation at TMWRF

Once the pilot-scale unit has been delivered to TMWRF, UNR researchers will provide technical and logistical assistance as appropriate based on the operations and sampling plan developed in Task 1. Actual installation and connection of the pilot-scale unit will be conducted by others; however, UNR researchers will assist as needed regarding configuration, required access for sampling, and other related activities.

- Deliverables: None
- Task Duration: 1 month

Task 3 – UNR researchers will oversee the pilot-scale system startup and operation of the facility with limited support from TMWRF staff as necessary.

Once the pilot system has been set-up at TMWRF, UNR researchers will startup system, and implement the sampling and operations plan developed in Task 1. This will include evaluating integration of the pilot system with existing processes at TMWRF, ensuring that system operation is consistent with the operating plan developed in Task 1, and initiating the sampling protocol. During this portion of the research, flows and chemical doses will be varied to ensure that the system will be able to perform under the desired operating conditions and that the online sensors, pumps, and data collection system are operating correctly.

- Deliverables: Following start-up, the pilot-scale treatment system will be ready for performance testing. Initial data collection will provide insight into any changes needed to the operations and sampling plan developed in Task 1.
- Task Duration: 1 month

Task 4 – Investigate DON and TN treatment performance over the course of a year with and without a sedimentation step prior to filtration.

Following system start-up, the operations and sampling plan developed in Task 1 will be implemented. As described in Task 1, DON removal performance will be assessed over variable treatment conditions. Key experimental variables to test will include:

- *Seasonal Treatment Performance.* Previous research on the effectiveness of coagulation on DON removal revealed highly variable DON removal over the course of a 6-month period (November, 2017 through April, 2018) with DON removal values between 30-60%. Continuous pilot-scale treatment over different seasons will help to identify long-term treatment performance. The operations and sampling plan will outline steps to systematically test DON removal performances over the course of all four seasons. While DON removal is the primary goal of this research, coagulation will also likely reduce the phosphorus concentrations in TMWRF water (up to ~90% removal of ortho-P was reported in prior research involving coagulation of TMWRF denitrification effluent).
- *Coagulant and Dose.* Based on previous research, alum required markedly lower doses compared to ferric chloride (~24 mg/L compared to >100 mg/L, respectively) to achieve DON removal between 30-60%. TMWRF currently uses alum onsite and the operations staff have expressed a higher confidence in alum compared to iron-based coagulants. Therefore, pilot-scale treatment will focus on alum at an initial dose of 24 mg/L, which was the optimum dose identified in jar tests with TMWRF denitrification effluent. During pilot-scale testing, this dose will be systematically varied over the seasonal testing periods. Specific variations in dose will be determined based on actual results; however, it is anticipated that alum dosage values to be tested will range from 18-30 mg/L. The experimental plan will be designed so that the range of coagulant doses will be tested during each season.
- *Coagulation pH.* Batch coagulation experiment results suggested that the optimum pH for DON removal using alum was a pH of approximately 6.5 (~31 mg/L of alkalinity as CaCO_3 was required to obtain this pH). Due to variations in DON removal observed over the course of the batch experiments as well as temporal variations in TMWRF water quality, it is not clear if a similar result will be obtained with a continuous treatment system. Since pH control will add chemical costs and increase the total dissolved solids (TDS) of TMWRF water, as well as adding complexity to the process, it is not known if any additional DON removal associated with operating at the optimum pH will out-weigh disadvantages associated with chemical addition. Changes in TDS will be monitored as a result of coagulant addition and pH adjustment during the pilot-scale experiments.

- *Polymer Addition.* Batch coagulation experiments involving polymer addition revealed mixed benefits regarding DON removal so it is not clear whether polymer would be beneficial or cost-effective. One observation from jar test experiments involving polymer addition was that floc structure was different compared to alum-only or ferric chloride-only tests. This difference in solid morphology may have an influence on DON removal during sedimentation and/or filtration.
- *Sedimentation versus Direct Filtration.* Removal of DON at TMWRF via coagulation may be suitable for direct filtration which would markedly reduce the footprint of the full-scale treatment system. To identify whether a direct filtration treatment train is suitable for TMWRF, pilot-scale experiments will be performed with the following two flow paths: (1) coagulation-flocculation-sedimentation-filtration and (2) coagulation-flocculation-filtration. For the first scenario, samples will be collected to analyze total nitrogen following both sedimentation and filtration to identify any additional DON removal that may occur during filtration. As with the other experimental variables, these two treatment scenarios will be tested during each season to identify whether any differences can be observed.
- Deliverables: Seasonal data will be collected for DON removal via conventional versus direct filtration flow paths at varying coagulant doses with and without pH control.
- Task Duration: 15 months (12 month + 3 month contingency)

Task 5 – Identify and summarize chemical usage and associated effects on the total dissolved solids concentration in the treated water.

As part of Task 4 research, chemical usage will be monitored and the change in treated water TDS will be assessed during all experimental trials. This will be particularly important for experimental trials where pH optimization is conducted as alkalinity addition will increase salinity levels above that of the coagulant alone. Cost estimates for chemical use will be developed based on the optimum treatment conditions and projections will be prepared for scaling up the treatment system to different side-stream process flow rates.

- Deliverables: Cost estimates for chemical usage at different process flow rates and summary of the influence of coagulation on total dissolved solids. Cost estimates will also be provided on a \$/lb N removed basis.
- Task Duration: 15 months (12 month + 3 month contingency)

Task 6 – Conduct a solids production analysis and identify the fate of DON in the chemical sludge. Based on this analysis, recommendations will be made on associated sludge management and disposal issues.

Research will be conducted to assess the quantity of waste solids produced and to identify the fate of nitrogen within the solids. This is particularly important since solids management strategies will be dependent on the potential re-mobilization of organic nitrogen incorporated in the chemical sludge. The fate of solid-associated nitrogen species will be assessed under both aerobic and anaerobic conditions. If the nitrogen within waste sludge is chemically inert, then the solids can be incorporated with other solids processing units at TMWRF; however, if the nitrogen within solids is labile, then independent solids management strategies will need to be considered. Standard solid leaching procedures (e.g., Toxicity Characteristic Leaching Procedure (TCLP) or similar test) will be used to identify the binding affinity of nitrogen within waste solids. In addition to leaching experiments, the elemental composition of the chemical sludge will be identified. This will be performed continuously during the research conducted as part of Task 4.

- Deliverables: Summary report on the quantity and characteristics of waste sludge produced during coagulation.
- Task Duration: 15 months (12 month + 3 month contingency)

Task 7 – Provide recommendations and guidance to TMWRF on optimized system configuration and process location, identify anticipated nitrogen reductions possible via coagulation, and system capital and O&M cost including chemical requirements and influence on other treatment objectives (e.g., TDS and disinfection requirements).

Following the pilot-scale testing procedure, UNR researchers will produce a technical memorandum to provide guidance on the efficacy of incorporating coagulation into the TMWRF process scheme. The report will include all the seasonal data collected on DON occurrence and removal during various treatment schemes, recommendations on the specific process scheme to achieve maximum nitrogen removal (e.g., need for sedimentation prior to filtration), estimates for treatment system capital and O&M costs, chemical requirements, anticipated solids production and associated handling, and integration of coagulation with existing processes at the facility.

- Deliverables: Final technical memorandum including operational results and planning-level cost estimates at different process flow rates.
- Task Duration: 4 months

D. Reporting and Meetings

- a. UNR will prepare and attend monthly update meetings of the project team.
 - b. A final draft report and a final report will be prepared at the end of the project by UNR.
 - c. UNR researchers will attend a draft report review meeting.
 - d. UNR will also prepare publications and presentations for conferences and journals, with the approval of regional team.
- Deliverables: Progress reports, meeting minutes, final draft report, final report, and presentations and publications.
 - Task Duration: Continuous throughout the duration of the project

E. Project Team

The team of UNR researchers will consist of the Principal Investigators Dr. Eric Marchand, P.E., Dr. Krishna Pagilla, P.E., Frank Yang, two Ph.D. students, and one undergraduate student assistant.

F. Project Schedule

The proposed project schedule will extend over a period of 24 months. The specific project dates are subject to change depending on timing associated with project approval or procurement of the pilot-scale treatment system. A 3-month contingency has been included for additional pilot system rental in the event that additional data need to be completed or if there are unforeseen complications that affect the proposed schedule. Figure 1 shows the proposed schedule.

Task	Month																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2																								
3																								
4																								
5																								
6																								
7																								

Figure 1. TMWRF Pilot-Scale Coagulation Research Schedule

G. Other Provisions

The following items are related to the project described above but are not part of the scope of work for UNR researchers.

- a. The City of Reno will procure the pilot-scale treatment unit with input from UNR researchers.
- b. Installation of any equipment or sampling devices (although UNR will assist during installation) and provision of site utilities (water, power, etc.)
- c. Any additional tasks that need to be conducted will be undertaken only after approval from City of Reno and the UNR project team.

8. Budget and Description

Proposed Project Budget

The proposed project budget and specific categories are included below. Fringe and indirect costs (44% of modified total direct costs) have been included within each sub-category where appropriate. The following fringe benefit rates for the University of Nevada, Reno, are based on DHHS negotiated rates: 25.1% for faculty salaries; 12.7% for graduate research assistants; and 2.5% for undergraduate student assistants. In the event that the pilot-scale treatment system requires an additional rental period, a contingency budget has been included. These funds will only be requested in the event that the research team and City of Reno need to perform additional tasks not included in the project scope that will assist in meeting the intent of the project. The proposed total budget for the 2-year project is \$310,380.48 with the contingency. A description and justification of each item follows.

Description

The team of UNR researchers will consist of the following investigators: Dr. Eric Marchand, P.E. (PI) and Dr. Krishna Pagilla, P.E. (Co-PI), Dr. Frank Yang (Co-PI), two Ph.D. graduate students, and one undergraduate student assistant. Additional faculty and staff at UNR will participate in supplementary tasks as needed.

A. Senior Personnel - \$90,072

Funding is requested for summer salary each year for PI Eric Marchand and Co-PIs Krishna Pagilla and Frank Yang. The proposed level of commitment for this proposal is appropriate for the scope of work and is required in order to fulfill the objectives of this project within the proposed timeframe. *The CEE Department at the University of Nevada, Reno operates on an 8-month academic and 4-month summer calendar schedule.*

B. Graduate Research Assistants - \$155,796.48

This project will provide 12-months of support each year for two Ph.D. graduate research assistants throughout the 2 years of the project. The graduate assistant salary is budgeted at

\$2,000 per month during the project. The graduate assistant will support the PIs of the project in data collection, coordination with TMWRF laboratory personnel and engineers, development of the sampling and operations plan, operation of the pilot-scale system, evaluation of experimental data, and assistance in preparation of draft reports and presentations.

C. Undergraduate Student Assistant - \$5,904

One undergraduate student assistant has been budgeted at 400 hours over the course of the project at an hourly rate of \$10/hour. The undergraduate student assistant will assist the graduate assistant and senior personnel of the project with major tasks during the project.

E. Travel - \$4,320

Funds have been allocated for domestic and local travel for sample collection, project meetings, and conference travel for faculty and students over the duration of the project.

F. Operating - \$37,440 (Including contingency, see below)

Funds have been requested for operating costs associated with materials, chemicals, supplies, laboratory consumables, and sample analysis required for the project.

F.2. Contingency - \$25,920

A contingency has been included for additional rental charges in the event that the pilot-scale facility needs to be rented for up to three (3) additional months, and/or to address specific items not in the original scope that will assist in meeting the intent of the project. These funds will only be utilized with written approval from the City of Reno.

G. Tuition and Fees Costs - \$16,848

Funds are requested to provide tuition and fees benefits to the graduate research assistants throughout the duration of the project. These funds support nine credits per semester. Tuition and fees support are not subject to indirect costs.

TOTAL PROJECT COSTS REQUESTED (including contingency) – \$310,380.48