

AGREEMENT  
FOR  
ENGINEERING SERVICES

This AGREEMENT, between the Norman Utilities Authority (OWNER) and Carollo Engineers, Inc. (ENGINEER);

WITNESSETH

WHEREAS, OWNER intends to construct a new groundwater blending and disinfection location that is appropriately sized and configured to allow for future treatment technologies as may be required with more stringent regulations;

WHEREAS, OWNER requires an engineer provide a preliminary layout for the currently envisioned pump station, tank, and disinfection equipment and to provide potential treatment train layouts to ensure that the land to be obtained will be sufficient to accommodate current and future needs (SERVICES);

WHEREAS, ENGINEER is prepared to provide said SERVICES; and

NOW THEREFORE, in consideration of the promises contained in this AGREEMENT, OWNER and ENGINEER agree as follows:

**ARTICLE 1 - EFFECTIVE DATE**

The effective date of this AGREEMENT shall be \_\_\_\_\_.

**ARTICLE 2 - COMPLETION DATE**

ENGINEER shall complete the SERVICES in accordance with Attachment A, Project Schedule.

**ARTICLE 3 - GOVERNING LAW**

The laws of the state of Oklahoma shall govern this AGREEMENT.

**ARTICLE 4 - SERVICES TO BE PERFORMED BY ENGINEER**

ENGINEER shall perform the SERVICES described in Attachment B, Scope of Services.

**ARTICLE 5 - COMPENSATION**

OWNER shall pay ENGINEER in accordance with Attachment C, Compensation.

**ARTICLE 6 - OWNER'S RESPONSIBILITIES**

- 6.1. OWNER-Furnished Data: Upon request, OWNER will provide to ENGINEER all data in OWNER's possession relating to ENGINEER's SERVICES on the PROJECT. Such data may include operations reports, record drawings, and equipment manuals for the advanced metering infrastructure. ENGINEER will reasonably rely upon the accuracy, timeliness, and completeness of the information provided by OWNER. OWNER's data is provided for temporary use or copying by ENGINEER.
- 6.2. Access to Facilities and Property: OWNER will make its facilities accessible to ENGINEER as required for ENGINEER's performance of its SERVICES
- 6.3. Timely Review: OWNER will examine ENGINEER's studies, reports, sketches, drawings, specifications, proposals, and other documents; and transmit OWNER comments or other decisions to ENGINEER in a timely manner.
- 6.4. Meetings and Workshops: OWNER will participate in progress meetings and workshops with ENGINEER or contractor(s) defined in Attachment B, Scope of Services.
- 6.5. Advertisements, Permits, and Access: Unless otherwise agreed to in the Scope of Services, OWNER will obtain, arrange, and pay for all advertisements for bids; permits and licenses required by local, state, or

federal authorities; and land, easements, rights-of-way, and access necessary for ENGINEER 's SERVICES or PROJECT construction.

- 6.6. Hazardous Substances: If hazardous substances in any form are encountered or suspected, ENGINEER will stop its own work in the affected portions of the PROJECT to permit testing and evaluation. ENGINEER will, if requested by OWNER, conduct tests to determine the extent of the problem and will perform the necessary studies and recommend necessary remedial measures at an additional fee with contract terms to be negotiated. ENGINEER shall not assume any role in the identification, evaluation, treatment, storage, disposal, or transportation of any hazardous substance or waste.

## ARTICLE 7 - STANDARD OF CARE

ENGINEER shall exercise the same degree of care skill and diligence in the performance of the SERVICES as is ordinarily possessed and exercised by a professional engineer under similar circumstances. ENGINEER shall correct the SERVICES that fail to satisfy this standard of care. No warranty, express or implied is included in this AGREEMENT or in any drawing, specifications, report or opinion produced pursuant to this AGREEMENT.

## ARTICLE 8 - LIABILITY AND INDEMNIFICATION

- 8.1 General. Having considered the potential liabilities that may exist during the performance of the SERVICES, the benefits of the PROJECT, ENGINEER's fee for the SERVICES and in consideration of the promises contained in this AGREEMENT, OWNER and ENGINEER agree to allocate and limit such liabilities in accordance with this Article.
- 8.2 Indemnification and Liability. ENGINEER agrees to indemnify, and hold harmless the OWNER, its officers, servants, and employees, from and against legal liability for all third party tort claims, losses, damage, cost, and expense (including reasonable attorneys' fees and accountants' fees recoverable under applicable law) from bodily injury (including death) or tangible property damage caused by a negligent act, error, or omission of ENGINEER in the performance of services under this Agreement. OWNER agrees to indemnify, and hold harmless ENGINEER, its officers, servants, and employees, from and against legal liability for all claims, losses, damage, cost, and expense (including reasonable attorneys' fees and accountants' fees recoverable under applicable law) caused by a negligent act, error, or omission of the OWNER in the performance of services under this Agreement, provided such indemnification shall be applicable only to the extent sovereign immunity has been waived pursuant to Oklahoma law. ENGINEER and the OWNER each agree to promptly service notice on the other party of any claims arising hereunder, and shall cooperate in the defense of such claims. The acceptance by OWNER or its representatives of any certification of insurance providing for coverage other than as required in this Agreement to be furnished by ENGINEER shall in no event be deemed a waiver of any of the provisions of this indemnity provision. None of the foregoing provisions shall deprive the OWNER of any action, right, or remedy otherwise available to OWNER at common law.
- 8.3 Employee Claims. ENGINEER shall indemnify OWNER against legal liability for damages arising out of claims by ENGINEER's employees. OWNER shall indemnify ENGINEER against legal liability for damages arising out of claims by OWNER's employees.
- 8.4 Consequential Damages. To the fullest extent permitted by law, ENGINEER shall not be liable to OWNER for any special, indirect or consequential damages resulting in any way from the performance of the SERVICES.
- 8.5 Survival. Upon completion of all SERVICES obligations and duties provided for in this AGREEMENT or if this AGREEMENT is terminated for any reason the terms and conditions of this Article shall survive.

## ARTICLE 9 - INSURANCE

During the performance of the SERVICES under this AGREEMENT ENGINEER shall maintain the following insurance:

- 9.1 Worker's compensation insurance for ENGINEER's employees as required by Oklahoma Workers Compensation Statutes.
- 9.2 Comprehensive general liability insurance with a minimum of \$125,000 per accident for bodily injury or death and \$25,000 per occurrence for property damage.
- 9.3 Comprehensive automobile liability insurance with a minimum of \$125,000 per accident for bodily injury or death and \$25,000 for property damage.
- 9.4 Professional Liability (errors and omissions) insurance with a minimum policy value of \$1,000,000.

ENGINEER shall furnish OWNER certificates of insurance that shall include a provision that such insurance shall not be canceled without at least thirty days written notice to OWNER. All PROJECT contractors shall be required to include OWNER and ENGINEER as additional insured on their General Liability Insurance policies.

ENGINEER and OWNER each shall require its insurance carriers to waive all rights of subrogation against the other and its directors, officers, partners, commissioners, officials, agents and employees for damages covered by property insurance during and after the SERVICES. A similar provision shall be incorporated into all contractual arrangements entered into by OWNER and shall protect OWNER and ENGINEER to the same extent.

#### **ARTICLE 10 - LIMITATIONS OF RESPONSIBILITY**

ENGINEER shall not be responsible for: (1) construction means, methods, techniques, sequences, procedures or safety and security precautions and programs in connection with the PROJECT; (2) the failure of any contractor, subcontractor, vendor or other PROJECT participant, not under contract to ENGINEER, to fulfill contractual responsibilities to the OWNER or to comply with federal, state or local laws, regulations, and codes; or (3) procuring permits, certificates and licenses required for any construction unless such responsibilities are specifically assigned to ENGINEER in Attachment B, Scope of Services.

#### **ARTICLE 11 - OPINIONS OF COST AND SCHEDULE**

Since ENGINEER has no control over the cost of labor, materials or equipment furnished by others or over the resources provided by others to meet PROJECT schedules, ENGINEER's opinion of probable costs and of PROJECT schedules shall be made on the basis of experience and qualifications as a professional engineer. ENGINEER does not guarantee that proposals, bids, or actual PROJECT costs will not vary from ENGINEER's cost estimates.

#### **ARTICLE 12 - REUSE OF DOCUMENTS**

Upon OWNER's request ENGINEER shall furnish OWNER with deliverables and/or other data on electronic media. All documents, including but not limited to, drawings, specifications and computer software prepared by ENGINEER pursuant to this AGREEMENT are instruments of Service in respect to the PROJECT. Said documents are not intended or represented to be suitable for reuse by OWNER or others on extensions of the PROJECT or on any other PROJECT.

#### **ARTICLE 13 - TERMINATION**

This AGREEMENT may be terminated by either party upon written notice in the event of substantial failure by the other party to perform in accordance with the terms of this AGREEMENT. The non-performing party shall have fifteen (15) calendar days from the date of the termination notice to cure or to submit a plan for cure acceptable to the other party.

OWNER may terminate or suspend performance of this AGREEMENT for OWNER's convenience upon written notice to ENGINEER. ENGINEER shall terminate or suspend performance of the SERVICES on a schedule acceptable to OWNER. If termination or suspension is for OWNER's convenience, OWNER shall pay ENGINEER for all the SERVICES performed to date, amount not to exceed the normal fee amount due for the SERVICES rendered and termination or suspension expenses. Upon restart, an equitable adjustment shall be made to ENGINEER's compensation.

#### **ARTICLE 14 - DELAY IN PERFORMANCE**

Neither OWNER nor ENGINEER shall be considered in default of this AGREEMENT for delays in performance caused by circumstances beyond the reasonable control of the non-performing party. For purposes of this AGREEMENT, such circumstances include, but are not limited to abnormal weather conditions; floods; earthquakes; fire; epidemics; war; riot and other civil disturbances; strikes, work slowdowns and other labor disturbances; sabotage; judicial restraint; and inability to procure permits, licenses, or authorizations from any local, state, or federal agency for any of the supplies, materials, accesses, or SERVICES required to be provided by either OWNER or ENGINEER under this AGREEMENT.

Should such circumstances occur the non-performing party shall, within a reasonable period after being prevented from performing, give written notice to the other party describing the circumstances preventing continued performance and the efforts being made to resume performance of this AGREEMENT.

#### **ARTICLE 15 - COMMUNICATIONS**

Any communication required by this AGREEMENT shall be made in writing to the address specified below:

ENGINEER: Thomas Crowley, Vice President  
Carollo Engineers, Inc.  
211 N Robinson, Ste. 1300 North Tower  
Oklahoma City, OK 73102  
816-326-6714  
[TCrowley@carollo.com](mailto:TCrowley@carollo.com)

OWNER: Nathan Madenwald  
Norman Utilities Authority  
201-C West Gray  
P.O. Box 370  
Norman OK 73070  
(405) 245-6921  
[Nathan.Madenwald@NormanOK.gov](mailto:Nathan.Madenwald@NormanOK.gov)

Nothing contained in this Article shall be construed to restrict the transmission of routine communications between representatives of ENGINEER and OWNER.

#### **ARTICLE 16 - WAIVER**

A waiver by either OWNER or ENGINEER of any breach of this AGREEMENT shall be in writing. Such a waiver shall not affect the waiving party's rights with respect to any other or further breach.

#### **ARTICLE 17 - SEVERABILITY**

The invalidity, illegality, or unenforceability of any provision of this AGREEMENT or the occurrence of any event rendering any portion or provision of this AGREEMENT void shall in no way affect the validity or enforceability of any other portion or provision of this AGREEMENT. Any void provision shall be deemed severed from this AGREEMENT, and the balance of this AGREEMENT shall be construed and enforced as if this AGREEMENT did not contain the particular portion or provision held to be void. The parties further agree to amend this AGREEMENT to replace any stricken provision with a valid Provision that comes as close as possible to the intent of the stricken provision. The provisions of this Article shall not prevent this entire AGREEMENT from being void should a provision, which is of the essence of this AGREEMENT, be determined void.

#### **ARTICLE 18 - INTEGRATION**

This AGREEMENT represents the entire and integrated AGREEMENT between OWNER and ENGINEER. It supersedes all prior and contemporaneous communications, representations, and agreements, whether oral or written, relating to the subject matter of this AGREEMENT. This AGREEMENT, including its attachments and

schedules, may only be changed by a written amendment executed by both parties. The following attachments and schedules are hereby made a part of this AGREEMENT:

Attachment A – Schedule

Attachment B – Scope of Services

Attachment C – Compensation

#### **ARTICLE 19 - SUCCESSORS AND ASSIGNS**

OWNER and ENGINEER each binds itself and its directors, officers, partners, successors, executors, administrators, assigns, and legal representatives to the other party to this AGREEMENT and to the directors, officers, partners, successors, executors, administrators, assigns, and legal representatives of such other party in respect to all provisions of this AGREEMENT.

IN WITNESS WHEREOF, OWNER and ENGINEER have executed this AGREEMENT.

DATED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

**Carollo Engineers, Inc. – ENGINEER**

ATTEST

By: Thomas O. Crowley

Printed Name: THOMAS O. CROWLEY

Title: VICE PRESIDENT

Rebecca Poole

REBECCA POOLE

ASSOCIATE VICE PRESIDENT

**Norman Utilities Authority - OWNER**

APPROVED as to form and legality this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
City Attorney

APPROVED by the Trustees of the Norman Utilities Authority this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ATTEST

By: \_\_\_\_\_

Printed Name: Breea Clark

Title: Chairman

\_\_\_\_\_

Brenda Hall

Secretary

**ATTACHMENT A  
CITY OF NORMAN  
GROUNDWATER BLENDING AND TREATMENT SITE EVALUATION  
SCHEDULE**

**SCHEDULE**

<b>NUA Groundwater Blending and Treatment Site Evaluation</b>		
<b>Milestone</b>	<b>Task Weeks</b>	<b>Total Weeks from NTP</b>
Notice to Proceed	0	0
Task 1.1 Kick-Off Meeting and Project Initiation	2	2
Task 1.2 Site Field Investigations	2	4
Task 1.3 Site Evaluations and Prepare Conceptual Level Planning Layouts	6	10
Task 1.4.1 Draft Technical Memorandum	4	14
NUA Review and Comments on Draft TM	2	16
Task 1.4.2 Final TM	2	18

**ATTACHMENT B  
CITY OF NORMAN  
GROUNDWATER BLENDING AND TREATMENT SITE EVALUATION  
SCOPE OF SERVICES**

**EXECUTIVE SUMMARY**

The City of Norman / Norman Utilities Authority (NUA) currently owns and operates a well field with thirty-two (32) active groundwater wells and is currently constructing nine additional groundwater wells. The water produced from the groundwater wellfield is in compliance with all primary drinking water standards as established by the Oklahoma Department of Environmental Quality and Environmental Protection Agency. Historically, groundwater systems which are in compliance with the standards set forth in the Safe Drinking Water Act and Oklahoma Administrative Code 252:631 Public Water Supply Operation are not required to provide treatment. However, the NUA also treats and distributes surface water from Lake Thunderbird. Since the water from both the surface water source and the groundwater wells is blended in the distribution system piping, ODEQ has indicated that a minimum disinfectant residual of 1.0 mg/L of chloramines (NHCL<sub>2</sub>) should be found throughout all parts of the system. NUA has initiated this project as a proactive step towards continued compliance with state and federal drinking water regulations. The NUA also recognizes that the maximum contaminant levels (MCLs) for different constituents such as arsenic and total chromium may be lowered by EPA, and a new MCL for hexavalent chromium may be established in the future, thus requiring additional treatment of the groundwater wells.

As outlined in the October 2017 pilot study report by Carollo Engineers, Inc. (Carollo), these future treatment facilities would most likely involve either a strong base anionic exchange system or a two-stage, fixed bed (FXB) biologically activated carbon process.

The intent and overall goal of this first phase is to evaluate potential sites for a combined groundwater blending and future treatment facility involving either the two stage FXB Biologically activated carbon process or a more conventional ion exchange treatment system. Each of the wells include the facilities to add disinfectant chemicals, but do not have sufficient room or facilities for advanced treatment. In addition, maintaining treatment and chemical feed points at all of the well sites would be cumbersome and difficult to operate and maintain. Therefore, NUA has requested Carollo to evaluate selected sites for the feasibility of locating blending facilities and either type of potential future treatment facilities at up to three (3) potential sites. The project shall include the following tasks:

1. Project Management and Communication.
2. Conduct an investigation of up to three (3) potential properties generally evaluated as part of the Groundwater Blending Hydraulic Model Report prepared by Plummer Associates Inc. (July 2, 2020), or as located by NUA staff.
3. Prepare one 3-D model of conceptual level planning layout of centralized well blending facilities and the additional facilities for the potential future treatment alternative that is likely to require the most real estate at the recommended site.
4. Prepare a Technical Memorandum providing evaluation and recommendations for up to three (3) properties for utilization as a blending and treatment facility site.
  - a) Include process flow diagrams that convey the potential layout of the site for the base well-blending facility with a future treatment facility comprising the ion exchange technology and the base well blending facility with a future treatment facility comprising the two-stage FBX biologically active carbon process.
  - b) Identify any potential challenges or obstacles to site development (abandoned wells, utility easements, egress, septic fields).
  - c) Discuss advantages and disadvantages of each site, include site conditions and location with respect to the wells. Consider the cost of piping well water to the site, and treated water into the distribution system as referenced in the Groundwater Blending Hydraulic Model Report prepared by Plummer Associates, Inc. (July 2, 2020).
  - d) Evaluate the potential treatment capacities for each site, utilizing the current anticipated treatment capacity of 14.2 million gallons per day as a baseline; and assess the potential future expanded treatment capacity based upon land area needed.

## DETAILED SCOPE OF SERVICES

### **Task 1.1      Project Delivery and Communication**

#### **General**

Engineer will provide project delivery services necessary for the administration of the combined Task 1 of the Project, including efforts required for proper resource allocation, schedule development and monitoring, budget review and control, client correspondence and coordination, internal quality assurance/quality control (QA/QC) activities and other project administrative and customary activities required for timely completion of the work. Engineer will prepare and submit invoices in a form that is acceptable to the NUA.

#### **Deliverables**

Major Deliverables associated with Task 1 are as follows:

1. Monthly Progress Reports
2. Monthly Updates to Action/Decision Logs
3. Meeting Minutes and Agendas

#### **Task 1.1.1 – Monthly Progress Status Reports**

Prepare and submit to NUA monthly project progress status reports for Task 1 services that identify.

1. The work that has been performed in the period.
2. Work activities anticipated in the next month.
3. Action items required of the NUA for an efficient and effective delivery of Engineer's services.
4. Potential project scope variances with corrective actions suggested by Engineer.
5. A general assessment of Engineer's ability to meet project schedule milestones, including identification of any delays beyond its control, and an estimate of the work percent completion for each task series in the Scope of Services based on earned value of the work completed.

A short narrative will be provided describing the work activities performed for each task within a given task series. NUA will provide direction to Engineer in a timely manner with respect to each variance discussed in each monthly progress status report. The monthly progress status report will be submitted to the NUA with each monthly invoice.

Throughout the duration of the project, Engineer will prepare and update the action and decision logs to keep a record of action and decision items needed, when these were completed, and the goals and results of these actions and decisions. These will be updated monthly and included with the monthly progress reports.

#### **Task 1.1.2 – Project Meetings and Workshops - General**

Engineer will conduct periodic progress status meetings with NUA during the performance of all tasks. The purpose of these meetings will be to:

1. Update the team on project status, progress achieved, budget and schedule status/concerns and potential deviations from the Scope of Services and corrective actions.
2. Discuss project issues, coordinate work activities and review work activities planned for the upcoming period. These progress meetings will be in addition to other work product review meetings or workshops with NUA as identified herein. Engineer will prepare an agenda for each meeting. Within fourteen (14) calendar days after meeting, Engineer will prepare and distribute meeting minutes.
3. Project status meetings will be limited to two (2) meetings.

**Task 1.1.3 – Project Meetings and Workshops - Specific**

*Engineer will conduct special project meetings and workshops at key milestones in the project including project initiation and site evaluation.*

**Subtask 1.1.3.1 – Project Initiation Meeting**

Engineer will conduct a Project Initiation workshop with NUA to review the scope of work and Engineer's work plan, the project schedule, budget requirements, and other special project needs to review pertinent available data; and to present the Engineer's project team organization and staffing, and define the lines of communication between the Engineer and NUA Staff.

**Subtask 1.1.3.2 – Site Evaluation Workshop**

Engineer will conduct a workshop to review the evaluation of the three (3) sites as a potential location for groundwater blending and treatment facilities, including presentation of related exhibits, sketches, and rendering of the recommended site.

**Subtask 1.1.3.3 – Presentations for NUA Council**

Engineer will prepare and provide presentations to the NUA Council for work study sessions and/or Council Meetings, as requested by NUA staff.

**Task 1.2 Site Field Investigation****General**

Engineer will conduct site investigations as necessary to complete the site evaluation and alternatives comparison required in the preparation of the Norman Groundwater Blending and Treatment Site Technical Memorandum. This task will include site visit with photos and documentation of site conditions for up to three (3) sites.

**Assumptions:**

1. Topographical and/or Boundary Surveys will be conducted by a third party contracted with NUA. Carollo will advise NUA if any specific survey information will be needed for the site evaluation.
2. Geotechnical investigations will not be conducted.

**Task 1.3 Evaluation of Potential Properties****General**

Engineer will evaluate three (3) sites as a potential future groundwater blending and treatment facility site with respect to:

- a) Potential water storage facility.
- b) Potential groundwater treatment facilities, including:
  - 1) Disinfection facilities necessary for distribution chloramination.
  - 2) Treatment for reduction of arsenic in groundwater.
  - 3) Treatment for reduction of hexavalent chromium in groundwater.
- c) Treatment and sanitary waste disposal facilities.
- d) Mandatory local and state setbacks.
- e) Ingress, Egress, Parking, and Traffic layouts for the site, including potential for chemical deliveries.
- f) Administrative/Laboratory facility.
- g) Grading and site development necessary for stormwater drainage.

**Assumptions:**

1. A maximum of three (3) sites will be evaluated. Additional sites will be considered Additional Services.
2. No land acquisition services will be provided.

**Task 1.4 Prepare Technical Memorandum****General:**

Engineer will prepare a Technical Memorandum (TM), utilizing the information gathered from Tasks 2 and 3 and will provide a detailed evaluation and recommendation regarding the potential use of each property as a groundwater blending and treatment facility site. The TM will:

1. Include exhibits, sketches, and renderings that convey the potential layout of the site.
2. Identify any potential challenges or obstacles at each site.
3. Include current anticipated treatment capacity of 14.2 million gallons per day; and consider the maximum potential future expanded treatment capacity based upon available land for storage, treatment, and waste disposal facilities.

#### **Key Considerations:**

The site evaluation and TM will include the following key considerations:

1. 2 MG tank for receiving and blending.
2. 14.2 MGD firm capacity for disinfection and future treatment facilities.
3. For the base well blending/disinfection facilities for the recommended site, 3-D visualization layout will be prepared for treatment process that is anticipated to take the most real estate. A process flow diagram will be developed for both the ion exchange and two-stage FBX biologically active carbon processes.
4. Environmental setbacks that satisfy City of Norman and ODEQ regulations.
5. Waste stream: Each site will be evaluated with respect to process waste collection, on-site treatment (as needed), recovery (if possible based upon the treatment option), and ultimate disposal via pumping to the nearest NUA sewer collection system or trucking. The trucking option is considered the least desirable and would require a loading station.
6. Electrical support: Underground electrical with pad mounted transformers, fuel tank, diesel-powered generator, and automatic transfer switch (ATS).
7. Administration/Control Building with on-site septic or evapo-transpiration system for sanitary sewer treatment.
8. Line of Sight for radio transmission will be generally evaluated.
9. Site Stormwater management: Evaluate each site for general stormwater management.
10. Space for Liquid Ammonia and Sodium hypochlorite Chemical Storage and Feed systems.
11. Potential means of ingress, egress, parking, and ADA compliant access to the administration/control building.
12. Site security fence with appropriate setbacks for compliance with Risk and Resiliency Assessment planning recommendations.

#### **Deliverables:**

1. Draft NUA Groundwater Blending and Treatment Site Evaluation TM.
  - a. One (1) Electronic Copy in searchable, bookmarked, PDF.
2. Final NUA Groundwater Blending and Treatment Site Evaluation TM.
  - a. One (1) electronic copy of comment spreadsheet summarizing all NUA comments, and the Engineer's responses to these comments.
  - b. One (1) Electronic Copy in searchable, bookmarked, PDF.

#### **Workshops:**

As defined in Task 1.1.3 – Project Meetings and Workshops.

#### **Assumptions:**

The following assumptions are utilized in the preparation of NUA Groundwater Blending and Treatment Site Evaluation TM.

1. Treatment options will be based either on a strong base ion exchange system or a two-stage FBX biologically active carbon process.

2. A 3-D layout depicting the arrangement of equipment will only be prepared for the process which is assumed to need the most real estate on the recommended site.
3. A detailed evaluation of treatment options will be considered under a separate study.
4. No plans or specifications will be developed.
5. No bidding documents, construction administration services, or as-built documents will be provided.
6. Construction cost estimates will be AACE Class V level estimates. These will be prepared for both the strong base ion exchange system and two-stage FBX biologically active carbon processes.

**ATTACHMENT C  
CITY OF NORMAN  
GROUNDWATER BLENDING AND TREATMENT SITE EVALUATION  
COMPENSATION**

**COMPENSATION**

The OWNER will compensate ENGINEER on a lump sum basis for the SERVICES rendered. The lump sum fee is broken down below by task as defined in the Scope of Services:

Task #	Subtasks	Description	Engineers/Scientists				Support Staff			Subtotals		TOTAL FEE
			Project Director/ Quality Control	Project Mgr/ Senior Prof	Engineer V/ VI	Engineer 1-11 (EIT)	Senior Technician	Technician	Document Processing	Carollo Subtotal	Carollo Subtotal	
			\$ 280.00	\$ 265.00	\$ 235.00	\$ 155.00	\$ 171.00	\$ 117.00	\$ 110.00	Hours	Fee	
1.1	<b>Project Coordination and Communication</b>											
	1	Monthly Project Status Reports (Est 4)		8					4	12	\$ 2,560	\$ 2,560
	2	Project Meetings and Workshops - General (Est 2)	0	8						8	\$ 2,120	\$ 2,120
	3	Project Meetings and Workshops (Est 4)	0	20					8	28	\$ 6,180	\$ 6,180
1.2	<b>Site Investigation</b>											
	1	General Field Site Visits (Qty 3)		8	0					8	\$ 2,120	\$ 2,120
1.3	<b>Evaluation of Potential Properties (Qty 3)</b>		0	32	90					122	\$ 29,630	\$ 29,630
	1	Prepare 3-D visualization and PDF of Base Layout					4	40		44	\$ 5,370	\$ 5,370
	2	Prepare 3-D Visualization of Future Treatment Facility					2	16		18	\$ 2,220	\$ 2,220
	3	Adjust 3-D Visualization					8	24		32	\$ 4,180	\$ 4,180
1.4	<b>Prepare Technical Memorandum</b>											
	1	Prepare Draft TM	0	24	50	60	4	16	16	170	\$ 31,730	\$ 31,730
	2	Prepare Final TM	0	8	20		2	8	8	46	\$ 8,980	\$ 8,980
<b>Total Estimated Hours and Fee for NUA Groundwater Blending and Treatment Site Evaluation</b>			0	108	160	60	20	104	36	488	\$ 95,090	\$ 95,090

The ENGINEER may submit interim statements, not to exceed one per month, for partial payment for SERVICES rendered. The statements to OWNER will be by task for the percentage of work actually completed. The OWNER shall make interim payments within 30 calendar days in response to ENGINEER's interim statements.

No budgetary allowance has established for Additional Services. Additional services must be authorized by amendment of the agreement. Time and materials billing for ENGINEER'S labor will be at the hourly rates provided below. ENGINEER's direct expenses, including subcontractor expenses, will include a multiplier of 1.10.

PROJECT DIRECTOR / QUALITY CONTROL	\$ 280.00
PROJECT MANAGER / SENIOR PROFESSIONAL ENGINEER	\$ 265.00
ENGINEER V-VI	\$ 235.00
ENGINEER 1-2 (EIT)	\$ 155.00
SENIOR CAD TECHNICIAN	\$ 171.00
CAD TECHNICIAN	\$ 117.00
DOCUMENT PROCESSING	\$ 110.00