

EXHIBIT A
TO THE AGREEMENT BETWEEN OWNER AND ENGINEER
FOR PROFESSIONAL DESIGN AND BIDDING SERVICES

Mitchell WTP Filter Backwash Pump Replacement and System Improvements

DESCRIPTION OF ENGINEERING SERVICES AND RELATED MATTERS

This is an exhibit attached to and made part of the supplemental agreement to the On-Call Professional Services Agreement dated January 29, 2014 between the City of Greensboro (OWNER) and CDM Smith, Inc. (ENGINEER) for professional services.

- 1. The Basic Services of the ENGINEER as described in the Agreement are amended and supplemented as follows, to be referred to as the PROJECT:**

PROJECT OBJECTIVES AND DESCRIPTION

The OWNER has requested that the ENGINEER provide professional services associated with improvements to the Mitchell WTP Filter Backwash System, including preliminary and final design of a replacement filter backwashing system, assistance with obtaining permits, competitively bidding the work out to a General Contractor, and provide engineering and observation/inspection services during the construction phase of the project as the Owner's representative. The focal point of the project is the installation of (3) three new backwash pumps to be located on the exterior of the 1- million gallon (MG) clearwell roof with variable frequency drives (VFDs) and power supply equipment to be located in the filter building. The system will include new instrumentation and control equipment that will allow it to be integrated with the existing plant control system. The 1-MG clearwell (includes the pump pedestals and sump), the 24-inch discharge piping, and associated appurtenances, which were designed previously by the ENGINEER, are currently under construction and anticipated to be completed by January 2017. These improvements must be constructed prior to beginning Phase 2 of the proposed replacement filter backwash system described in this contract.

The ENGINEER shall carryout a typical phased approach to design of improvements, including: data gathering and preliminary engineering, preparation of design documents, permitting, and bidding support. The ENGINEER will work closely with the City's PM, the Water Resources Department, the Water Supply Division, and the Mitchell WTP operations staff; to ensure the new facilities meet the goals of the City's stakeholder departments.

This contract is being written to describe two general phases of project work, as noted below:

- Phase 1: Design Phase Services
- Phase 2: Construction Phase Services

Phase 1 shall include beginning with the preliminary engineering task, the final design phase, permitting, and bidding, finishing with the selection of a Contractor.

Phase 2 shall include construction contract administration services, construction observation, construction inspection, startup support services, and post-construction services.

This scope of services consists of the following major tasks:

- Task 010 – Project Management (Phase 1)
- Task 100 – Preliminary Design
- Task 200 – Final Design
- Task 300 – Permitting
- Task 400 – Bidding and Award
- Task 020 – Project Management (Phase 2)
- Task 500 – Construction Contract Administration
- Task 600 – Construction Observation and Inspection
- Task 700 – Post Construction Services
- Task 800 – Additional Services (Contingency)

The detailed scope of services for the Basic Services included under this Agreement follows:

TASK 010 PROJECT MANAGEMENT (PHASE 1)

This task covers managing the project team, coordinating the work, tracking budget/work progress, invoicing and accounting, providing regular updates to the OWNER, managing scope compliance, managing regulatory compliance, oversight of technical products, and quality assurance checks on work and deliverables. Accounting and administrative support to achieve the tasks listed.

Project Management has been split into two separate tasks by the project phase. Task 010 refers to Project Management work completed during Design Phase Services (Phase 1).

TASK 100 PRELIMINARY DESIGN

The Preliminary Design Phase will include project kickoff, data collection, site evaluation, initial interviews with operations staff, and hydraulic analysis, initial discussion with equipment vendors, and preparation of preliminary renderings of the improvements. Through this process the ENGINEER and OWNER collaborate to develop a working basis for the design of the proposed improvements.

The following is a summary of key steps within this phase of the project:

101 Project Kickoff

- The CDM Smith team and the City's staff will hold a joint Project Kick-off Meeting. The meeting will establish project goals and critical success factors, facilitate the transfer of

information needed to begin the work, and include a walkthrough of the affected facilities.

- The OWNER will provide recently completed CADD files of the interior and exterior of the Filter Building, prepared as Record Drawings for the 2015-2016 Filter Building Structural Rehabilitation Project.
- The OWNER will provide previous report, studies, records, and data needed for the ENGINEER to complete a preliminary design sufficiently.

102 Evaluate Study by Others and Perform Preliminary Design

- The ENGINEER shall perform a review of the previously prepared reports associated with design of the backwash system improvements; including the “Assessment of Current Filter Backwashing Procedures at N.L. Mitchell Water Treatment Plant” Technical Memorandum regarding the current and proposed backwash procedures. This study recommends new backwash pumping from the clearwell, but does not size the pumps. The study also recommends that the backwash flow meter be calibrated/upgraded or relocated. Replacement of the backwash flow meter is assumed in the Basic Services.
- Determine the design backwash flow rates and pump sizing given prior operational procedures, the current filter sizes and the findings of the prior study. Reach agreement with the City of Greensboro on the design backwash flow rates.
- Perform pump and hydraulic calculations to support design of the pumps. The current assumption, based on past studies and Owner preferences, is the design will include three new variable speed vertical turbine pumps controlled by variable frequency drives.
- Gather all piping information and prepare hydraulic calculations to determine the design head loss values for the target low and high backwash flow rates.
- Prepare design criteria for the backwash pumps addition.
- Evaluate equipment lead time and procurement options, including the potential for equipment (pumps, etc.) pre-purchase by the City.
- Evaluation of the filters themselves and their underdrains for possible upgrades is not included at this time.
- Evaluate electrical improvements required for the backwash pumps addition and provide electrical system preliminary design including brief text description and a single line electrical diagram. Electrical load calculations will be prepared for utility power and standby generator power. It is currently assumed for design that the utility and generator services are adequate for the new backwash pumps. An arc flash analysis will be included, which will be carried through to design with the appropriate labeling/placarding of the new facilities.

- The preliminary design will overview the findings relative to number of pumps, pump sizing, VFDs, and other features to provide a design that is complete, correct, cost-effective, operator-friendly, and consistent with the OWNER'S desires.
- Confirm compliance with applicable codes and OWNER standards.

102 Preliminary Design Workshop

The ENGINEER shall conduct and prepare handouts for a Preliminary Design Workshop; where the project team can review and comment on key design criteria, conceptual layouts, and P&IDs. Equipment sizing, procurement methods, and schedule will be discussed at this meeting. The workshop is a launching pad into the Final Design phase – with the purpose of identifying key issues early on in the project. The following topics will be covered in the workshop:

- Design criteria, equipment sizing and selection, functional features and preferred equipment manufacturers for backwash pumps and drives, electrical, and instrumentation.
- Prepare preliminary pump and piping layouts.
- Preliminary process and instrumentation diagrams.
- Preliminary electrical layouts.
- Discussion of construction staging, duration, and maintenance of plant operations.
- Preliminary Cost Opinion
- Pros/Cons of Pre-purchasing equipment
- Probable overall project schedule (to be updated during the design phase).
- Discussion of local, state, and federal permitting requirements.
- Discussion of bidding and construction contract options to facilitate achieving the OWNERS MBE/WBE participation goals.

The ENGINEER shall provide the OWNER with copies of the Workshop PowerPoint slides and handouts.

TASK 200 FINAL DESIGN

The ENGINEER shall develop the final design of the facilities at the Mitchell WTP, which are anticipated to include:

- Three new backwash pumps;
- Demolition and removal of existing backwash pumps and electrical service;
- Check valves, air release valves and a pressure relief valve at the backwash pumps;

- Air release valve on existing backwash waterline;
- Replacement of the backwash flow meter;
- VFDs either in the filter building or in an outdoor air conditioned weather proof enclosure provided with the VFDs. If the VFDs are placed in a filter building, it is assumed that the existing ventilation in the building is adequate to remove the additional heat of the VFDs. Design of a new building and/or a ventilation system is not included in the Basic Services and if deemed necessary would need to be added to the scope of work by addendum.
- Instrumentation, electrical, structural, process mechanical and site civil discipline work to support a complete design of all items listed above.

Items not listed in this Task 200, are not included in the ENGINEER'S assumptions for the final design of this project. It is assumed that the ENGINEER will prepare documents for one construction packaged, and all equipment will be specified under that package.

In the event that additional facilities are to be included based on the results of the Preliminary Engineering Phase and Workshop, this Agreement may be amended to increase the engineering scope of services and related costs, as described in Article 2.

Final design tasks to be provided by the ENGINEER are described as follows:

201 Design Drawings and Specifications

Prepare Contract Documents to include final drawings and specifications showing the scope, extent, and character of the work to be performed and furnished by contractor. Specifications shall be prepared, where appropriate, in general conformance with the 50-division format of the Construction Specifications Institute. The Contract Documents shall include the following:

- General drawings - cover, index, abbreviations, legend, notes
- Civil drawings – site plan
- Process mechanical drawings – backwash pumps, process piping, valves, and appurtenances including air relief and pressure relief
- Electrical drawings
- Instrumentation drawings
- Structural drawings, as needed
- Prepare construction bid documents to include general and special conditions, bid advertisement, measurement and payment descriptions, special requirements for construction, and technical specifications

OWNER will provide the standard layout for the procurement documents. The OWNER'S standard technical specifications will be utilized prior to utilizing the ENGINEERS technical specifications. The anticipated list of drawings is comprised of civil, mechanical, electrical, structural and instrumentation disciplines.

Based on the ENGINEERS understanding of the project, it is assumed that no architectural and building mechanical (HVAC, plumbing) drawings are required.

202 Regulatory Agency and Local/City Permitting Coordination

Maintain contact during the final design phase with the North Carolina Department of Environmental Quality, City of Greensboro Development Services Division, and other regulatory agencies having review and approval authority over the design and construction of the project.

203 Engineer's Opinion of Probable Construction Costs

The ENGINEER shall prepare an opinion of probable construction costs (OPCC) for the 30% design deliverable. The OPCC will be updated at the completion of the 90% design phase, and the final Bid Set submittal.

204 Deliverables

ENGINEER will provide submittals of drawings at the 60 and 90 percent design stages for the OWNER to review. Engineer shall submit a list of proposed specifications at the 60 percent submittal and a full set of specifications at the 90 percent submittal. Specifications shall be prepared, where appropriate, in general conformance with the 50-division format of the Construction Specifications Institute. ENGINEER will meet with the OWNER to discuss review comments for each design submittal. Meeting minutes and follow-up action items will be developed and distributed to meeting attendees. After review comments have been addressed on the 90 percent submittal, a Bid Set submittal will be provided to OWNER.

- The 60 percent submittal will include design drawings and a majority of design details and technical specifications. A table of contents of the front end documents will be provided.
- The 90 percent submittal will include all design drawings, details, and front end and technical specifications.

TASK 300 PERMITTING

The ENGINEER shall assist the OWNER in securing permits associated with the project including the following subtasks:

301 Regulatory Review

The ENGINEER shall finalize the list of permits and permit updates based on the information collected during the Preliminary and Final Design phases. Where necessary, the ENGINEER shall discuss the proposed project with the applicable regulatory agencies to fully define the permit update requirements and to identify the major permitting issues that must be resolved. A permitting tracking table shall be developed to address the major issues identified and to facilitate the permit acquisition process. This table will be provided to the City's PM when desired to explain the progress of work during this phase.

302 Prepare and Submit Permit Applications

Applications for the required permit updates and approvals shall be prepared for submittal to the respective agencies, where necessary. The ENGINEER will prepare and submit permit application packages on behalf of OWNER. This scope of services assumes that the following permits and approvals will be required:

- NCDEQ Public Water Supply Authorization to Construct Permit revision
- OWNER TRC Review (Planning Dept., Landscape Approval, stormwater review)
- OWNER Utility Plan Review

It is assumed the TRC Review will be an abbreviated review process since the project is effectively maintenance of existing facilities. The OWNER will pay all permitting fees, including “fast-track” fees to expedite NCDEQ reviews.

For the purposes of this scope, it is assumed that:

- Stormwater detention/treatment will not be required; however, this will be confirmed with City Stormwater staff during the project.
- NCDENR Erosion and Sedimentation Control Permitting will not be required due to the limited footprint of the project; however, this will be confirmed with NCDENR during the project.

303 Agency Meetings and Coordination

The ENGINEER will coordinate with the regulatory agencies as necessary throughout the permit application and review process. This shall include up to two regulatory agency meetings. As part of this subtask, once the permit applications are submitted, the ENGINEER shall maintain contact with the regulatory agencies to monitor and, where possible, facilitate the review process.

TASK 400 BIDDING AND AWARD

ENGINEER shall perform the following services related to Bidding and Award. This Scope of Services assumes that the design will be distributed into one bid package. The ENGINEER assumes that a Pre-qualification process for bidders is not included.

401 Review of Contract Documents by Engineering and Inspections Department and MWBE Office

The City has a special group within the Engineering and Inspections Department that assists with reviewing and managing the bidding process. The ENGINEER will submit the plans and specifications to this group for review. The ENGINEER will assist OWNER (Water Resources Department) by working with the Engineering and Inspections Department to resolve any issues with the Contract Documents related to bidding policies and front-end documents. This review shall also include a special review of the contract documents by the MWBE Office for compliance with the City’s MWBE program and policies and recommendation as to potential work packages for the purpose of identifying MWBE subcontracting opportunities.

402 Bid Advertisement

Assist OWNER in advertising for construction, attend and conduct a pre-bid conference.

403 Addenda and Substitutions

Assist OWNER by preparing addenda as appropriate to interpret, clarify, or further define the Contract Documents. Addenda will be issued by ENGINEER. Consult with and advise OWNER to determine the acceptability of substitute materials and equipment proposed by Contractor(s) when substitution prior to the award of contracts is allowed by the Contract Documents.

404 Bid Opening and Recommendation to Award

Attend bid opening and assist with the review of the bids and qualification statements. Evaluate bids or proposals, and assist OWNER in contract award processes.

TASK 020 PROJECT MANAGEMENT (PHASE 2)

This task covers managing the project team, coordinating the work, tracking budget/work progress, invoicing and accounting, providing regular updates to the OWNER, managing scope compliance, managing regulatory compliance, oversight of technical products, and quality assurance checks on work and deliverables. Accounting and administrative support to achieve the tasks listed.

Project Management has been split into two separate tasks by project phase. Task 020 refers to Project Management work completed during Construction Phase Services (Phase 2).

Task 500 CONSTRUCTION CONTRACT ADMINISTRATION

The ENGINEER will provide construction contract administration services as outlined below, which is assumed to take place over a period of 16 continuous months following the issuance of notice-to-proceed and ending with the Substantial Completion milestone.

501 General Administration of Construction Contract.

ENGINEER shall consult with and advise OWNER and act as OWNER's representative as provided herein. The extent and limitations of the duties, responsibilities and authority of ENGINEER as assigned in this Agreement shall not be modified, except to the extent provided herein. All of OWNER's instructions to Contractor(s) will be issued through ENGINEER who shall have authority to act on behalf of OWNER in dealings with Contractor(s) to the extent provided in this Agreement except as otherwise provided in writing.

502 Pre-Construction Meeting

ENGINEER shall coordinate, lead, and provide meeting minutes for the Pre-Construction Meeting, between the OWNER, ENGINEER, and Contractor, prior to construction commencing. The meeting is intended to gather parties together to discuss

the scope, schedule, Notice to Proceed (NTP), and any issues relevant to the Construction.

503 Clarifications and Interpretations; Field Orders

ENGINEER shall issue necessary clarifications and interpretations of the Contract Documents as appropriate to the orderly completion of the work. Such clarifications and interpretations will be consistent with the intent of and reasonably inferable from the Contract Documents. ENGINEER may issue Field Orders authorizing minor variations from the requirements of the Contract Documents.

504 Change Orders and Work Change Directives

ENGINEER shall recommend Change Orders and Work Change Directives to OWNER as appropriate, and shall prepare Change Orders and Work Change Directives as required. The OWNER and ENGINEER agree that level of effort required for processing Change Orders and Work Directives can widely vary and has the potential of exceeding the assumed labor and expense levels associated with the ENGINEER'S lump sum fee. Therefore, the OWNER and ENGINEER will endeavor to keep open communication regarding the ENGINEER'S costs associated with this task, and if needed, the parties will negotiate mutually agreeable compensation for efforts that exceed the ENGINEER'S assumed cost under the available project contingency funding, Task 800.

505 Submittals

ENGINEER shall review and approve (or take other appropriate action in respect of) submittals, samples and other data which Contractor is required to submit, but only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed PROJECT as a functioning whole as indicated in the Contract Documents. Submittals may include shop drawings, samples, test results, operation and maintenance manuals for equipment, construction schedule updates, and other data submitted for review. Such reviews and approvals or other action will not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto.

506 Applications for Payment

Based on ENGINEER's on-site observations as an experienced and qualified design professional and on review of Applications for Payment and the accompanying data, and schedules:

ENGINEER shall determine the amounts that ENGINEER recommends Contractor be paid. Such recommendations of payment will be in writing and will constitute ENGINEER's representation to OWNER, based on such observations and review, that, to the best of ENGINEER's knowledge, information and belief, the work has progressed to the point indicated, the quality of such work is generally in accordance with the Contract Documents and the conditions precedent to Contractors being entitled to such

payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the work.

In the case of unit price work, ENGINEER's recommendations of payment will include final determinations of quantities and classifications of such work. The responsibilities of ENGINEER contained in this task are expressly subject to the limitations set forth herein and other express or general limitations in this Agreement and the Contract Documents.

By recommending any payment, ENGINEER shall not thereby be deemed to have represented that on-site observations made by ENGINEER to check the quality or quantity of Contractor's work as it is performed and furnished have been exhaustive, extended to every aspect of the work in progress, or involved detailed inspections of the work beyond the responsibilities specifically assigned to ENGINEER in this Agreement and the Contract Documents. Neither ENGINEER's review of Contractor's work for the purposes of recommending payments nor ENGINEER's recommendation of any payment (including final payment) will impose on ENGINEER responsibility to supervise, direct or control such work or for the means, methods, techniques, sequences or procedures of construction or safety precautions or programs incident thereto, or Contractor's compliance with laws, rules, regulations, ordinances, codes or orders applicable to Contractor's furnishing and performing the work. It will also not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or to determine that title to any of the work, materials or equipment has passed to OWNER free and clear of any liens, claims, security interests or encumbrances, or that there may not be other matters at issue between OWNER and Contractor that might affect the amount that should be paid.

507 Substantial Completion

Following notice from Contractor that Contractor considers the entire work ready for its intended use, ENGINEER and OWNER, accompanied by Contractor, shall conduct an inspection to determine if the work is substantially complete. If after considering any objections of OWNER, ENGINEER considers the work substantially complete, ENGINEER shall deliver a certificate of Substantial Completion to OWNER and Contractor.

508 Coordination with Permitting Agencies

The ENGINEER will maintain communication as needed with NCDENR throughout the project. As requested, the ENGINEER will coordinate any requests for information or tours of the facility by permitting agencies.

509 Monthly Construction Progress Meetings

The ENGINEER'S Design Manager will attend three monthly Project Construction Meetings and facilitate the meeting in accordance with Contract Documents, during the (assumed) 3-month period of active construction.

Task 600 CONSTRUCTION OBSERVATION AND INSPECTION

ENGINEER shall perform the following services related to observing and inspecting the work of the Contractor for compliance with the Contract document. This Scope of Services assumes that the construction period will span 16 months from Notice-to-proceed to Final Completion, whereas the following schedule represents the maximum assumed period of performance by the Engineer:

- (Milestone) Notice to Proceed issued to Contractor, construction period of performance begins.
- (Months 1 through 2) Submittals and shop drawings prepared by Contractor; reviewed by Engineer. Following approval of submittals, Contractor shall order all materials and equipment.
- (Months 3 through 12) Contractor receives materials and equipment and stockpiles off site.
- (Months 13 through 15) Contractor mobilizes to the Site and completes construction, resulting in Substantial Completion milestone by the end of Month 15. Resident Project Representative will complete up to 300-hours of construction observation services within this continuous 3-month period.
- (Month 16) Contractor finishes remaining work to achieve Final Completion,
- (Month 17) Contractor and Engineer complete project closeout documentation and final payment, Engineer produces record drawings.
- (Month 27) Engineer completes Warranty review of constructed facilities.

These schedule assumptions are based on previous similar sized work. Should the duration for construction be modified during design phase, the scope and fee will be reviewed and modified as needed. Due to the uncertainty inherent with construction schedules, a Project Contingency has been allocated in Task 800, and may be allocated at the OWNERS direction to compensate the ENGINEER for costs incurred beyond the assumptions described above.

Limitation of Responsibilities.

ENGINEER shall not be responsible for the acts or omissions of any Contractor, or of any subcontractor, any supplier, or of any other person or organization performing or furnishing any of the work. If in the ENGINEER'S professional opinion, and based on observation while at the work Site, the Contractor is believed to not be performing the Work in general conformance with the Contract Documents, the ENGINEER will notify the OWNER. ENGINEER shall not be responsible for Contractor's failure to perform or furnish the work in accordance with the Contract Documents.

601 Resident Project Representative during Construction.

The ENGINEER shall provide the services of a part-time Resident Project Representative (RPR), to observe construction during the (assumed) active construction period, beginning with the thirteenth month after NTP, for approximately 3 continuous months, budgeted for a maximum of 300-hours. It is anticipated that the RPR will be onsite for approximately 20-40 hours per week on average, although the time of any particular week will vary based on the construction schedule.

The ENGINEER will manage the RPR schedule, taking into account the Contractor's construction schedule, in order optimize the value of the observation services provided.

As needed, the RPR may be required to work in excess of 8-hours per day, in which case each hour that exceeds 8-hours in a single work shift shall be counted as 1.5-hours (overtime), as it relates to the maximum of 300-hours of RPR services.

The ENGINEER will periodically notify the OWNER of the status of RPR's hours at the Site; and should the OWNER and ENGINEER agree that additional RPR or inspection services are required for the Project then the OWNER will allocate additional compensation for any additional or extended RPR or inspection services required via Task 800 or further amendment of this Agreement.

The duties and responsibilities of the RPR are set forth below:

Schedules: Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by Contractor and consult with ENGINEER concerning acceptability.

Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, monthly progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.

Liaison: Serve as ENGINEER's liaison with Contractor, working principally through Contractor's superintendent and assist in understanding the intent of Contract Documents; and assist ENGINEER in serving as OWNER's liaison with Contractor when Contractor's operations affect OWNER's on-site operations.

Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.

Shop Drawings and Samples: Receive Samples which are furnished at the site by Contractor, and notify ENGINEER of availability of Samples for examination. Advise ENGINEER and Contractor of the commencement of any Work requiring a Shop Drawing or Sample if the submittal has not been approved by ENGINEER. Advise ENGINEER and Contractor of the commencement of any Work requiring special inspection or testing services.

Review of Work, Rejection of Defective Work, Inspections and Tests: Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.

Report to ENGINEER whenever RPR believes that any Work will not produce a completed Project that conforms generally to the Contract Documents or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise ENGINEER of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

Verify that tests, equipment and systems start-ups and operating and maintenance training are conducted in the presence of appropriate personnel, and that Contractor maintains adequate records thereof; and observe, record and report to ENGINEER appropriate details relative to the test procedures and start-ups.

Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.

Interpretation of Contract Documents: Report to ENGINEER when clarifications and interpretations of the Contract Documents.

Records: Maintain orderly files for correspondence, reports of job conferences, reproductions of original Contract Documents including all RFI's, Work Change, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, progress reports, and other Project related documents.

For days on site, prepare a daily report or keep a diary or log book, recording Contractor's hours on the job site, weather conditions and rain events, permit required erosion control inspections, data relative to questions of Work Change Directives, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to ENGINEER. It is understood that the RPR will be part-time, and may not be at the site each day that construction takes place.

Reports: Furnish to ENGINEER periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and Sample submittals.

Consult with ENGINEER in advance of scheduled interruptions to operations/service, power outages, major tests, inspections or start of important phases of the Work.

Report immediately to ENGINEER and OWNER the occurrence of any accident.

Payment Requests: Review Applications for Payment with Contractor and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

Substantial and Final Completion: Observe whether Contractor has had performed inspections required by law, rules, regulations, ordinances, codes, or orders applicable to the work, including but not limited to those to be performed by public agencies having jurisdiction over the work.

Participate in the substantial completion inspection in the company of ENGINEER, OWNER and Contractor and prepare a final list of items to be completed or corrected.

602 Engineer Visits to Site and Observation of Construction.

In connection with observations of the work of Contractor while in progress:

ENGINEER shall make visits to the site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress and quality of the various aspects of Contractor's work. The ENGINEER'S lead discipline design Engineer(s) will make site visits to observe the work and assist with field issues and attend site construction meetings as needed.

As stated, ENGINEER shall provide the services of a RPR at the site to assist ENGINEER and to provide more frequent observations of such work. The furnishing of such RPR services will not extend ENGINEER's responsibilities or authority beyond the specific limits set forth elsewhere in this agreement. Such visits and observations by ENGINEER and the RPR are not intended to be exhaustive or to extend to every aspect of the work in progress, or to involve detailed inspections of the work beyond the responsibilities specifically assigned to ENGINEER in this Agreement and the Contract Documents, but rather are to be limited to spot checking, selective sampling and similar methods of general observation of the work based on ENGINEER's exercise of professional judgment as assisted by the RPR. Based on information obtained during such visits and such observations, ENGINEER shall endeavor to determine in general if such work is proceeding in accordance with the Contract Documents and ENGINEER shall keep OWNER informed of the progress of the work. The responsibilities of ENGINEER contained in this paragraph are expressly subject to the limitations set forth in this task and other express or general limitations in this Agreement and the Contract Documents for the Project.

The purpose of ENGINEER's visits to and representation by the RPR at the site will be to enable ENGINEER to better carry out the duties and responsibilities assigned to and undertaken by ENGINEER during the Construction Phase, and, in addition, by the exercise of ENGINEER's efforts as an experienced and qualified design professional, to provide for OWNER a greater degree of confidence that the completed work of Contractor will conform in general to the Contract Documents and that the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents has been implemented and persevered by Contractor.

On the other hand, ENGINEER shall not, during such visits or as a result of such observations of Contractor's work in progress, supervise, direct or have control over Contractor's work nor shall ENGINEER have authority over or responsibility for the means, methods, techniques, sequences or procedures of construction selected by Contractor, for safety precautions and programs incident to the work of Contractor or for any failure of Contractor to comply with laws, rules, regulations, ordinances, codes or orders applicable to Contractor's furnishing and performing the work. Accordingly, ENGINEER neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform its work in accordance with the Contract Documents. If in the ENGINEER'S professional opinion, and based on observation while at the work Site, the Contractor is believed to not be performing

the Work in general conformance with the Contract Documents, the ENGINEER will notify the OWNER.

603 Defective Work

During such visits and on the basis of such observations, ENGINEER shall have authority to disapprove of or reject Contractor's work while it is in progress if ENGINEER believes that such work will not produce a completed PROJECT that conforms generally to the Contract Documents or that it will prejudice the integrity of the design concept of the completed PROJECT as a functioning whole as indicated in the Contract Documents.

604 Inspections and Tests

ENGINEER may require special inspections or tests of the work, to be performed by a third party in conformance with the Contract Documents. The ENGINEER shall receive and review all certificates of inspections, tests and approvals required by laws, rules, regulations, ordinances, codes, orders or the Contract Documents. ENGINEER's review of such certificates will be for the purpose of determining that the results certified indicate compliance with the Contract Documents and will not constitute an independent evaluation that the content or procedures of such inspections, tests or approvals comply with the requirements of the Contract Documents. ENGINEER shall be entitled to rely on the results of such tests.

Task 700 POST CONSTRUCTION SERVICES

ENGINEER shall perform the following services related to Post Construction Services. The ENGINEER assumes a post construction period length of 12-months from substantial completion to the warranty review. A 1-month period is assumed between substantial and final completion.

701 Contractor's Completion and Contract Closeout Documents.

ENGINEER shall receive, review and transmit to OWNER with written comments maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance required by the Contract Documents, certificates of inspection, tests and approvals, and marked-up record documents (including Shop Drawings, Samples and marked-up Record Drawings) which are to be assembled by Contractor in accordance with the Contract Documents to obtain final payment. ENGINEER's review of such documents will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

702 Final Inspection and Notice of Acceptability of the Work

ENGINEER shall conduct a final inspection to determine if the completed work of Contractor(s) is acceptable so that ENGINEER may recommend, in writing, final payment to Contractor(s). Accompanying the recommendation for final payment, ENGINEER shall indicate that the work is acceptable (to the best of ENGINEER's knowledge, information and belief and based on the extent of the services performed and furnished by ENGINEER under this Agreement.)

703 Final Change Order and Review of Final Payment Application

ENGINEER shall assist the OWNER in documenting, reviewing, and recommending a final payment amount to the Contractor, based on the quantity and quality of work completed, in the ENGINEER'S opinion and based on observations. This shall include a final adjusting change order along with all documentation, affidavits, and certifications required by the contract documents to issue final payment.

704 Record Drawings

ENGINEER shall prepare a set of reproducible record prints of Record Drawings showing those changes made during the construction process based on the marked-up prints, shop drawings, drawings, and other data furnished by the Contractor to ENGINEER. The record prints shall also incorporate the Resident Project Representative's observation of changes made during construction. These record drawings shall be provided on a CD (in the latest version of AutoCAD or such version as the parties agree) and in hardcopy prints for delivery to the OWNER.

705 Coordination with Permitting Agencies

The ENGINEER will maintain communication as needed with NCDENR throughout the project. Following the issuance of a certificate of Substantial Completion by the ENGINEER, the ENGINEER will deliver the notice to the appropriate permitting agencies, including Public Water Supply Section of NCDENR.

706 Warranty Review and Site Visit

ENGINEER shall conduct one follow-up warranty review, which shall include a field inspection and meeting, with OWNER to determine status and condition of warranted items for the PROJECT. Follow-up warranty review will be conducted 11 months after substantial completion of the PROJECT.

TASK 800 ADDITIONAL SERVICES

This task is a general allowance for the addition of work to the ENGINEERS scope that is not explicitly stated in TASKS 000 - 700. Work and the associated fees under this task will only be used with express written authorization by the OWNER's Project Manager and agreement by the ENGINEER. The upper limit of the Contingency allowance is provided in Article 5 of this Exhibit.

2. ADDITIONAL SERVICES BY AMENDMENT

The OWNER reserves the right to amend this Agreement so that the ENGINEER may furnish services related to the project that are not currently part of the Basic Services and are beyond the funding limitations of the Task 800 contingency. These additional services will be paid for by the OWNER in an amount and by a method to be determined at the time the services are requested.

The following items are currently not included in the Basic Services of this contract:

- Services extending beyond the time-frame described in the above sections, for Phase 1 and Phase 2.
- New air venting or surge relief inside the existing filter building.
- Upgrades of the filters, piping at the filters, rewash, or unspecified facilities.
- Upgrades to the air wash system.
- SCADA and Instrumentation and Control programming.
- Piping modifications inside of the existing filter building beyond replacement of the backwash meter and tying in the new backwash piping and other instrumentation piping necessary for pump indication/control.
- A new building to house electrical equipment such as motor starters or VFDs.
- It is assumed existing building ventilation is adequate for the new VFDs and no additional HVAC equipment for existing buildings will be designed.
- Improvements or repairs to the filter building, backwash troughs, or wash-water flume.
- Evaluations of operational procedures or customized operational manuals for backwashing procedures (however, O&M manuals for equipment and pumps, provided by manufacturers will be provided by the Contractor).
- Evaluation of the filters themselves and their underdrains for improvements.
- Evaluations of the filter media beyond using the shop drawings of the new media for confirming backwash pumping rates.
- Pre-qualification process for bidders or vendors.
- More than one bid package.
- Support associated with pre-purchasing of equipment or preparing documents which are separate from the Bid Documents to be used for a pre-purchase equipment selection process.
- Full-time RPR or observation services during construction

- Witness in-person factory test of pumps or other equipment
- Integration or SCADA programming services, or troubleshooting of systems during construction and/or startup.

3. OWNER'S RESPONSIBILITIES

Furnish to ENGINEER, as requested by ENGINEER for performance of Services as required by the Contract Documents, the following:

- Available data, models, calculations, permits, CADD drawings prepared by OTHERS relating to the design of the proposed facilities (including filter building pipe gallery piping CADD drawings with recent modifications by OTHERS);
- Access to the Mitchell Water Treatment Plant facilities as needed;
- Timely review and input on deliverables;
- Other required information not covered herein.
- Technical information sufficient to verify the ventilation is adequate for the existing building that is to contain the new VFDs.
- Furnish the shop drawing information for the new filter media including sieve analysis, particle density, and hence backwash rate requirements.

OWNER shall be responsible for, and ENGINEER may rely upon, the accuracy and completeness of all reports, data and other information furnished pursuant to this paragraph. ENGINEER may use such reports, data and information in performing or furnishing services under this Scope of Work.

Examine all alternate solutions, studies, reports, sketches, Drawings, Specifications, proposals and other documents presented by ENGINEER (including obtaining advice of an attorney, insurance counselor and other consultants as OWNER deems appropriate with respect to such examination) and render decisions pertaining thereto.

Bear all costs incident to compliance with the requirements of the OWNER's Responsibilities.

Bear all costs incident to permitting applications and bidding phase services, including reproduction of plans and specifications for bidders and plan rooms.

Bear all costs incident to construction phase testing services, including material testing, special third party inspectors and laboratory services, or other testing services required by the project specifications or regulatory agencies.

4. TIME PERIOD FOR PERFORMANCE

The time periods for the performance of Engineering Team services as set forth in this Agreement are amended and supplemented as follows:

- All work described herein this Project Authorization will begin upon execution of this Task Authorization and notice provided by the City's staff that the Engineer may begin work.
- Tasks 100-200 will be completed in 7-months of notice-to-proceed (NTP). Schedule extensions related to the addition of authorized scope shall be determined at the time of authorization.
- Tasks 300-400 are estimated to require approximately 4-6 months from the date that the Construction Documents are completed and ready for permit submittal. Both OWNER and ENGINEER acknowledge that the permitting and bidding processes involve significant involvement from permitting agencies and other parties, which can cause delays in the completion of these tasks which are outside the control of the ENGINEER. The ENGINEER will make a sincere effort to maintain the schedule and minimize delays.
- Tasks 500-600 are estimated to require a maximum of 15-months, from the Contractor's NTP to Substantial Completion
- Task 700 is estimated to take 12-months after the Contractor receives Substantial Completion, although the majority of the work will be completed in the first 2-months following substantial completion.
- Schedule assumes receipt of all previously requested data from OWNER by NTP. Delays in providing any additional information requested by the ENGINEER may result in impacts to the Project Schedule.

5. METHOD OF PAYMENT

The method of payment for services rendered by the ENGINEER shall be as set forth below:

For the Basic Services performed under Article 1, the OWNER agrees to pay the ENGINEER a lump sum amount of \$138,800.00 and \$185,700 for Phase 1 and 2, respectively. The amounts listed in Table 5-1 are estimated values for reference only and the fee shall not be held to upper limits by task. The method of payment will be on a lump sum basis for all authorized tasks within a project Phase.

A contingency allowance for Additional Services (Task 800) of \$40,000 is included in the upper limit of this contract to allow the City's Project Manager the means to authorize scope changes that are deemed to add value or benefit to the City, including but not limited to extending the construction inspection and observation services. This contingency will only be allocated to specific use by written authorization by the OWNER'S Project Manager.

Lump Sum Method of Payment

Partial payments shall be made by the OWNER on a monthly basis in proportion to the percentage of work completed and the balance of payment made when Basic Services are completed. Any remainder in the Contingency Allowance, Task 800, at the completion of

the contract performance will not be obligated to the ENGINEER, but rather retained by the OWNER.

Table 5-1: Payment Amounts by Task

	Task	Payment Amount (USD)	Totals (USD)
Phase 1	010 Project Management – Phase 1	\$11,800	
	100 Preliminary Design	\$28,900	
	200 Final Design	\$73,900	
	300 Permitting	\$8,900	
	400 Bidding and Award	\$15,300	
	<i>Subtotal – Phase 1 (Design Services)</i>	-	\$138,800
Phase 2	020 Project Management – Phase 2	\$16,800	
	500 Construction Contract Administration	\$59,700	
	600 Construction Observation and Inspection	\$89,700	
	700 Post Construction Services	\$19,500	
	<i>Subtotal – Phase 2 (Construction Services)</i>	-	\$185,700
	800 Additional Services (Contingency)	\$40,000	
	CONTRACT TOTAL	-	\$364,500.00