Contract for Professional Architectural and Engineering Services

City of Billings W.O._____ – Integrated Water Plan II

In consideration of the mutual promises herein, City of Billings and HDR Engineering, Inc. agree as follows. This Contract consists of:

Part I, consisting of 15 Sections of Special Provisions;

Part II, consisting of 11 Sections of General Provisions;

Appendix A consisting of _14_ pages (Basic Services of Consultant);

Appendix B consisting of _2_ pages (Methods and Times of Payment);

Appendix C consisting of _1_ pages (Additional Services of Consultant);

Appendix D consisting of _1_ pages (Schedule of Professional Fees);

Appendix E consisting of _1_ pages (Project Schedule);

Appendix F consisting of _2_ pages (Certificate(s) of Insurance); and

PART I
SPECIAL PROVISIONS

Section 1. Definitions.

In this Contract:

A. "Administrator" means the Public Works Director or his/her designee.
B. “Billings” means the City of Billings.
C. "Engineer" and/or “Contractor” means HDR Engineering, Inc.

Section 2. Scope of Services.

A. The Contractor shall perform professional services in accordance with Appendix A, which is attached hereto and incorporated in this Section by reference.
B. Billings shall pay the Contractor in accordance with Section 4.
C. Billings shall not allow any claim for services other than those described in this Section. However, the Contractor may provide, at its own expense, any other services that are consistent with this Contract.
D. The Contractor shall provide a minimum of ten (10) copies of the Integrated Water Plan II report and two (2) CD’s containing the document in PDF format to the Administrator within 30 days after the project completion date. Final payment will be withheld until the documents are received by the City of Billings.

Section 3. Time for Performance.

A. This Contract becomes effective when signed on behalf of Billings.
B. The Contractor shall commence performance of the Work described in Section 2 on receipt of written Notice to Proceed and complete that performance in accordance with the schedule set forth in Appendix E.
C. This Contract shall terminate at midnight on December 31, 2017.

Section 4. Compensation; Method of Payment.

A. Subject to the Contractor's satisfactory performance, Billings shall pay the Contractor no more than Five Hundred and Seven Thousand and no/100 dollars ($507,000.00) in accordance with this Section and Appendix B.
B. Each month, or at the conclusion of each phase of the Work for which payment is due, as negotiated on a per-task basis, the Contractor shall present a bill to the Administrator describing the Work for which it seeks payment and documenting expenses and fees to the satisfaction of the Administrator. If any payment is withheld because the Contractor's performance is unsatisfactory, the Administrator must, within ten (10) days of the payment denial, notify the Contractor of the payment denial and set forth, with reasonable specificity, what was unsatisfactory and why. Billings will pay the Engineer for all services provided not under dispute in the invoice. Billings will pay Contractor within 30 days of receiving an acceptable invoice.
C. The Engineer is not entitled to any compensation under this Contract, other than is expressly provided for in this Section.
D. As a condition of payment, the Engineer shall have paid all City taxes currently due and owing by the Engineer.

Section 5. Termination of the Contractor's Services.

The Contractor's services under Section 2 of this Part may be terminated:

A. By mutual consent of the parties.
B. For the convenience of Billings, provided that Billings notifies the Contractor in writing of its intent to terminate under this paragraph at least 10 days prior to the effective date of the termination.
C. For cause, by either party where the other party fails in any material way to perform its obligations under this Contract. Termination under this Subsection is subject to the condition that the terminating party notifies the other party of its intent to terminate, stating with reasonable specificity the grounds therefor, and the other party fails to cure the default within 30 days after receiving the notice.

Section 6. Duties Upon Termination

A. If Billings terminates the Contractor's services for convenience, Billings shall pay the Contractor for its actual costs reasonably incurred in performing before termination and Billings shall pay for services rendered prior to termination. Payment under this Subsection shall never exceed the total compensation allowable under Section 4 of this Part. All finished and unfinished documents and materials prepared by the Contractor shall become the property of Billings.

B. If the Contractor's services are terminated for cause, Billings shall pay the Contractor the reasonable value of the services satisfactorily rendered prior to termination, less any damages suffered by Billings because of the Contractor's failure to perform satisfactorily. The reasonable value of the services rendered shall never exceed ninety percent (90%) of the total compensation allowable under Section 4 of this Part. Any finished or unfinished documents or materials prepared by the Contractor under this Contract shall become the property of Billings at its option.
C. If the Contractor receives payments exceeding the amount to which it is entitled under Subsections A or B of this Section, he shall remit the excess to the Administrator within 30 days of receiving notice to do so.
D. The Contractor shall not be entitled to any compensation under this Section until the Contractor has delivered to the Administrator all documents, records, Work product, materials and equipment owned by Billings and any deliverables prepared by the Engineer as defined in the Scope of Services and requested by the Administrator.
E. If the Contractor's services are terminated for whatever reason the Contractor shall not claim any compensation under this Contract, other than that allowed under this Section.
F. If a final audit has not been performed before the Contractor's services are terminated, Billings may recover any payments for costs disallowed as a result of the final audit.
G. Except as provided in this Section, termination of the Contractor's services under Section 5 of this Part does not affect any other right or obligation of a party under this Contract.

Section 7. Insurance.

A. The Contractor shall maintain in good standing the insurance described in Subsection B of this Section. Before rendering any services under this Contract, the Contractor shall furnish the Administrator with proof of insurance in accordance with Subsection B of this Section.
B. The Contractor shall provide the following insurance:
    1. Workers' compensation and employer's liability coverage as required by Montana law.
    2. Commercial general liability, including contractual and personal injury coverage's -- $1,500,000 per occurrence.
    3. Commercial automobile liability -- $1,500,000 per accident.
    4. Professional liability in the amount of $1,500,000 per claim.
C. Each policy of insurance required by this Section shall provide for no less than 30 days' advance notice to Billings prior to cancellation.
D. Billings SHALL be listed as an additional insured on all policies except Professional Liability and Worker's Compensation Policies. In addition, all policies except Professional Liability and Worker's Compensation shall contain a waiver of subrogation against Billings.

Section 8. Assignments.

Unless otherwise allowed by this Contract or in writing by the Administrator, any assignment by the Contractor of its interest in any part of this Contract or any delegation of duties under this Contract shall be void, and an attempt by the Contractor to assign any part of its interest or delegate duties under this Contract shall give Billings the right immediately to terminate this Contract without any liability for Work performed.

Section 9. Ownership; Publication, Reproduction and Use of Material.

A. Except as otherwise provided herein, all data, documents and materials produced by the Contractor under this Contract shall be the property of Billings, which shall retain the non-exclusive right to publish, disclose, distribute and otherwise use, in whole or in part, any such data, documents, or other materials. Exclusive rights shall not be attributed to portions of such materials presently in the public domain or which are not subject to copyright. Contractor shall retain rights to pre-existing proprietary property including but not limited to interactive models. The Contractor shall have the right to include photographic or artistic representations of the design and construction of the Project among the Contractor's promotional and professional materials. The Contractor's materials shall not include Billings' confidential or proprietary information regardless of whether Billings has previously advised the Contractor in writing of the specific information considered by Billings to be confidential and proprietary.
B. Equipment purchased by the Contractor with Contract funds: See Appendix A, Section 3. Scope of Work.
C. Should Billings elect to reuse Deliverables provided under this Contract for other than the original project and/or purpose, Billings will indemnify and hold harmless the Contractor from any and all claims, demands and causes of action of any kind or character arising as a result of reusing the deliverables developed under this contract. Additionally, any reuse of design drawings or specifications provided under this Contract must be limited to conceptual or preliminary use for adaptation, and the original Contractor's or subcontractor's signature, professional seals and dates removed. Such reuse of drawings and specifications, which require professional seals and dates removed, will be signed, sealed, and dated by the professional who is in direct supervisory control and responsible for adaptation.

Section 10. Notices.

Any notice required pertaining to the subject matter of this Contract shall be either sent via facsimile (FAX), e-mail, or mailed by prepaid first class registered or certified mail, return receipt requested to the following addresses:

Billings: David Mumford
City of Billings
Public Works Engineering
2224 Montana Avenue
Billings, Montana 59101
e-mail: MumfordD@ci.billings.mt.us
FAX: (406) 237-6291

Contractor: Craig Caprara
HDR Engineering, Inc

700 SW Higgins Ave., Suite 200 e-mail: craig.caprara@hdrinc.com
Missoula, MT 59803 FAX: (406) 532-2205

Notices are effective upon the earlier of receipt, proof of good transmission (facsimiles only), or 5 days after proof of proper posting.

Section 11. Contract Budget.

In connection with its performance under this Contract, the Contractor shall not make expenditures other than as provided in line items in the Contract budget.

Section 12. Force Majeure.

A. Any failure to perform by either party due to force majeure shall not be deemed a violation or breach hereof.
B. As used in this Contract, force majeure is an act or event of substantial magnitude, beyond the control of the delayed party, which delays the completion of this Contract, including without limitation:

1. Any interruption, suspension or interference resulting solely from the act of Billings or neglect of Billings not otherwise governed by the terms of this Contract.
2. Strikes or Work stoppages.
3. Any interruption, suspension or interference with the project caused by acts of God, or acts of a public enemy, wars, blockades, insurrections, riots, arrests or restraints of governments and people, civil disturbances or similar occurrences.
4. Order of court, administrative agencies or governmental officers other than Billings.

Section 13. Financial Management System.

The Contractor shall establish and maintain a financial management system that:

A. Provides accurate, current, and complete disclosure of all financial transactions relating to the Contract;
B. Maintains separate accounts by source of funds for all revenues and expenditures and identifies the source and application of funds for the Contractor's performance under this Contract, including information pertaining to subcontracts, obligations, unobligated balances, assets, liabilities, outlays and income;
C. Effectively controls and accounts for all municipal funds and Contract property;
D. Compares actual expenditures with budgeted amounts and relates financial information to performance or productivity data including unit cost information where applicable;
E. Allocates administrative costs to direct service delivery units;
F. Minimizes the time between receipt of funds from Billings and their disbursement by the Contractor;
G. Provides accounting records supported by source documentation; and
H. Provides a systematic method assuring the timely and appropriate resolution of audit findings and recommendations.

Section 14. Funding Requirements.

In the event that any funding source for this Contract should impose additional requirements upon Billings for the use of those funds, the Contractor agrees to abide by those additional requirements immediately upon receipt of written notice thereof from Billings.

Section 15. Subcontracts.

The Contractor may enter into subcontracts for professional services necessary for the performance of this Contract, provided:

A. Every subcontract shall be reduced to writing and contain a precise description of the services to be provided and the nature of the consideration paid therefor.
B. Every subcontract under which the Contractor delegates the provision of services shall be subject to review and approval by the Administrator before it is executed by the Contractor.
C. Every subcontract in an amount exceeding $1,000 shall require reasonable access to business records of the subcontractor relating to the purchase of goods or services pursuant to the subcontract.

PART II
GENERAL CONTRACT PROVISIONS

Section 1. Relationship of Parties.

The Contractor shall perform its obligations hereunder as an independent Contractor of Billings. Billings may administer the Contract and monitor the Contractor's compliance with its obligations hereunder. Billings shall not supervise or direct the Contractor other than as provided in this Section.

Section 2. Nondiscrimination.

A. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, ancestry, age, sex, or marital status or who is a "qualified individual with a disability" (as that phrase is defined in the Americans With Disabilities Act of 1990). The Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, or mental or physical impairment/disability. Such action shall include, without limitation, employment, upgrading, demotion or transfer, recruitment or recruiting advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship. The Contractor agrees to post, in conspicuous places available to employees and applicants for employment, notices setting forth the provisions of this non-discrimination clause.
B. The Contractor shall state, in all solicitations or advertisements for employees to Work on Contract jobs, that all qualified applicants will receive equal consideration for employment without regard to race, color, religion, national origin, ancestry, age, sex or marital status, or mental or physical impairment/disability.
C. The Contractor shall comply with any and all reporting requirements that may apply to it which the City of Billings may establish by regulation.
D. The Contractor shall include the provisions of Subsections A through C of this Section in every subcontract or purchase order under this Contract, so as to be binding upon every such subcontractor or vendor of the Contractor under this Contract.
E. The Contractor shall comply with all applicable federal, state, and city laws concerning the prohibition of discrimination.

Section 3. Permits, Laws, and Taxes.

The Contractor shall acquire and maintain in good standing all permits, licenses and other entitlements necessary to its performance under this Contract. All actions taken by the Contractor under this Contract shall comply with all current and applicable statutes, ordinances, rules and regulations at the time of the execution of the Contract. The Contractor shall pay all taxes pertaining to its performance under this Contract.

Section 4. Nonwaiver.

The failure of either party at any time to enforce a provision of this Contract shall in no way constitute a waiver of the provision, nor in any way affect the validity of this Contract or any part hereof, or the right of such party thereafter to enforce each and every provision hereof.

Section 5. Amendment.

A. This Contract shall only be amended, modified or changed in writing, executed by authorized representatives of the parties, with the same formality as this Contract was executed.
B. For the purposes of any amendment modification or change to the terms and conditions of this Contract, the only authorized representatives of the parties are:

Contractor: Area Manager
(title of position)

Billings: City Council or Authorized Designee

C. Any attempt to amend, modify, or change this Contract by either an unauthorized representative or unauthorized means shall be void.

Section 6. Jurisdiction; Choice of Law.

Any civil action rising from this Contract shall be brought in the District Court for the Thirteenth Judicial District of the State of Montana, Billings. The law of the State of Montana shall govern the rights and obligations of the parties under this Contract.

Section 7. Severability.

Any provision of this Contract decreed invalid by a court of competent jurisdiction shall not invalidate the remaining provisions of the Contract.

Section 8. Integration.

This instrument and all appendices and amendments hereto embody the entire agreement of the parties. There are no promises, terms, conditions or obligations other than those contained herein; and this Contract shall supersede all previous communications, representations or agreements, either oral or written, between the parties hereto.

Section 9. Liability.

The Contractor shall indemnify, defend, save, and hold Billings harmless from any and all claims, causes of action, lawsuits, damages, judgments, liabilities, and litigation costs and expenses including reasonable attorneys' fees and costs, arising from any wrongful or negligent act, error or omission of the Contractor or any agent, employee or subcontractor as a result of the Contractor's or any subcontractor's performance pursuant to this Contract.

A. The Contractor shall not indemnify, defend, save and hold Billings harmless from claims, causes of action, lawsuits, damages, judgments, liabilities, and litigation costs and expenses or attorneys' fees and costs to the extent arising from wrongful or negligent acts, error or omission solely of Billings occurring during the course of or as a result of the performance of the Contract.
B. Where claims, lawsuits or liability, including attorneys' fees and costs to the extent arise from wrongful or negligent act of both Billings and the Contractor, the Contractor shall indemnify, defend, save, and hold Billings harmless from only that portion of claims, causes of action, lawsuits, damages, judgments, liabilities, and litigation costs and expenses including attorneys' fees and costs, which to the extent result from the Contractor's or any subcontractor's wrongful or negligent acts occurring as a result from the Contractor's performance pursuant to this Contract.

Billings shall indemnify, defend, save, and hold the Engineer harmless from any and all claims, causes of action, lawsuits, damages, judgments, liabilities, and litigation costs and expenses including reasonable attorneys' fees and costs, arising from any wrongful or negligent act, error or omission of Billings or any agent, employee or subcontractor as a result of Billings' or any subcontractor's performance pursuant to this Contract.

A. Billings shall not indemnify, defend, save and hold the Engineer harmless from claims, causes of action, lawsuits, damages, judgments, liabilities, and litigation costs and expenses or attorneys' fees and costs arising from wrongful or negligent acts, error or omission solely of the Engineer occurring during the course of or as a result of the performance of the Contract.
B. Where claims, lawsuits or liability, including attorneys' fees and costs arise from wrongful or negligent act of both Billings and the Engineer, Billings shall indemnify, defend, save, and hold the Engineer harmless from only that portion of claims, causes of action, lawsuits, damages, judgments, liabilities, and litigation costs and expenses including attorneys' fees and costs, which result from Billings' or any subcontractor's wrongful or negligent acts occurring as a result from Billings' performance pursuant to this Contract.

Section 10. Inspection and Retention of Records.

The Contractor shall, at any time during normal business hours and as often as Billings may deem necessary, make available to Billings, for examination, all of its records with respect to all matters covered by this Contract for a period ending three years after the date the Contractor is to complete performance in accordance with Section 2 of the Special Provisions. Upon request, and within a reasonable time, the Contractor shall submit such other information and reports relating to its activities under this Contract, to Billings, in such form and at such times as Billings may reasonably require. The Contractor shall permit Billings to audit, examine and make copies of such records, and to make audits of all invoices, materials, payrolls, records of personnel, and other data relating to all matters covered by this Contract. Billings may, at its option, permit the Contractor to submit its records to Billings in lieu of the retention requirements of this Section.

Section 11. Availability of Funds.

Payments under this Contract may require funds from future appropriations. If sufficient funds are not appropriated for payments required under this Contract, this Contract shall terminate without penalty to Billings; and Billings shall not be obligated to make payments under this Contract beyond those which have previously been appropriated.

IN WITNESS WHEREOF, the parties have executed this Contract on the date and at the place shown below.

City of Billings

_____
THOMAS W. HANEL, Mayor

Date:_____

ATTEST:

_____
City Clerk

Date:_____

APPROVED AS TO FORM:

By _____
BRENT BROOKS, City Attorney

Date: _____

Contractor

HDR Engineering, Inc.

_____

Name:_____
Title: _____
Date:_____

IRS Tax ID # 47-0680568

STATE OF MONTANA)
:ss.
COUNTY OF_____)

On this_____day of_____, 2016, before me, the undersigned, a Notary Public for the State of Montana, personally appeared_____, known to me to be the_____of_____, and acknowledged to me that they executed the foregoing instrument on behalf of said corporation having first been authorized to do so.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal the day and year first above written.

_____
Notary Public for the State of Montana
Residing at_____, Montana
My Commission Expires:_____

Note: Final contract documents will require the Contractor's signature to be notarized.

Appendix A

Basic Services of Engineer
City of Billings – Integrated Water Plan II

Section 1. Engineer's Rights and Duties.

A. To furnish all labor, materials, equipment, supplies, and incidentals necessary to conduct and complete the Engineer's portion of the project as defined in the scope of work and to prepare and deliver to Billings all plans, specifications, bid documents, and other material as designated herein.

B. Ascertain such information as may have a bearing on the work from local units of government, utility companies, and private organizations and shall be authorized to procure information from other authorities besides Billings, but shall keep Billings advised as to the extent of these contacts and the results thereof.

C. Prepare and present such information as may be pertinent and necessary in order for Billings to pass critical judgment on the features of the work. The Engineer shall make changes, amendments or revisions in the detail of the work as may be required by Billings. When alternates are being considered, Billings shall have the right of selection.

D. Engineer's work shall be in accordance with the standards of sound engineering and present City, State, and National standards and policies currently in use.

E. Conform to the requirements of the Montana Code Annotated Title 18 "Public Contracts" and more particularly Sections 18-2-121 and 18-2-122, and all other codes of the State of Montana applicable to providing professional services including codes and standards nationally recognized.

F. The Engineer shall certify with the submission of final plans that the plans are in conformance with applicable sections of Title 69, Chapter 4, Part 5, of the Montana Code Annotated as pertaining to existing utilities.

G. To perform professional services in connection with the project and will serve as Billings' representative in those phases of the project to which this agreement applies.

H. Where Federal funds are involved, the necessary provisions to meet all requirements will be complied with and documents secured and placed in the bidding documents.

I. Submit an estimated progress schedule as to time and costs at the beginning of the work, and monthly progress reports thereafter until complete. The reports will include any problems, potential problems, and delays as foreseen by the Engineer. Reports will be submitted in a timely manner to permit prompt resolution of problems.

J. Contract administration duties will include review of contractor certified payrolls for wage rate compliance. Discrepancies in certified payrolls will be resolved with the Contractor. A signed Engineer's Payroll Check Sheet (included in the Standard Modifications to MPWSS) will be submitted as proof of this review with one copy of each payroll.

K. Name a Task Director who shall be the liaison between Billings and the Engineer. For this project the Task Director designated for the Engineer is Craig Caprara working under the Principal-in-Charge, Amanda McInnis.

Section 2. Billings Rights and Duties.

A. To furnish all labor, materials, equipment, supplies, and incidentals necessary to conduct and complete Billings' portion of the project as designated in the scope of work.

B. Name a Task Director who shall be the liaison between the Engineer and Billings. For this project, the Task Director designated is Craig Caprara, working under the Public Works Director David Mumford.

Section 3. Scope of Work.

PHASE 1

TASK 100 – BASIS OF PLAN

Objective:

This Integrated Water Plan Supplement (IWPS) is intended to update the Integrated Water Plan completed by the City of Billings (City) in 2011 (IWP2011) and incorporate pertinent findings from the IWP follow-up studies and the Drinking Source Water Study to form an all encompassing document relevant to long-term planning of the City's water resources. It is intended to ultimately provide a series of actions, programs, and projects that the City can implement that will support the overall goals and objectives toward an integrated approach to the City's water-related operations. An overarching objective of the IWPS and the IWP2011 is assessing future drinking water, wastewater, and storm water challenges and opportunities while balancing consideration of economic, environmental, risk, and societal factors.
The scope of work under this Agreement is divided into Phase 1 and Phase 2 as follows:

Phase 1: Includes Tasks 100 through 700.
Phase 2: Includes Task 800 with initiation of this task at the direction of the City.
Task 900, Additional Services, is not part of this Agreement. Work under this task is to be authorized by subsequent amendment or modification to this Agreement.

The scope of work is summarized below:

Subtask 101 – Develop Goals/Drivers/Approach

The work effort to-date includes:

- Developed a history and background of past efforts, status of the IWP, and development of the City's mission and values associated with the IWP.
- HDR senior planning staff met with City staff to assist in developing IWPS approach.

This information is complied in the Introduction to the IWPS, which will be included in the final IWPS report. The City has reviewed and generally concurred with the draft Introduction. Additional work effort anticipated includes:

- Further refinement of these factors once various options are better developed with the areas to be addressed to include, but not be limited to:
    - Water rights
    - Impact of Numeric Nutrient Standards/TMDL on wastewater and storm water
    - Limitations of new wastewater discharge for additional treatment facilities
    - Future wastewater demands and treatment/infrastructure requirements for an estimated service population potentially reaching 200,000 to 260,000 (20 year projection)
    - Increased potable water infrastructure needs to accommodate projected growth, such as transmission capacity to Heights, additional reservoir needs and other areas that may be identified
    - Wastewater collection system capacity limitations, primarily interceptors entering the existing Wastewater Reclamation Facility (WRF)
    - Develop draft goals/drivers for IWPS based on discussions with city staff, including past correspondence.
- Goals will include consideration of:
    - Potable water system and reduction of demands through other means, such as conservation and alternative water sources
    - Consideration of need for West-End WTP
    - Alternative source of raw water for potable water supply, such as groundwater
    - Off-channel storage of raw water or treated wastewater for use in potable water system or alternative non-potable water source
    - Wastewater system and redirection of effluent through reuse
    - Satellite wastewater treatment/reuse/disposal
    - Sources of alternative water, such as ditches, groundwater, storm water, and wastewater effluent
    - More direct reuse options, such as internal plumbing and direct potable reuse (DPR)
    - Service area, based primarily on the City's adopted annexation map

This task also includes the following:

- One on-site meeting with HDR project staff and senior HDR planning staff to discuss the IWPS program elements and approach, and
- One on-site meeting with stakeholders

Subtask 102 – Develop Evaluation Criteria

Evaluation criteria were identified in the development of the IWP2011 and will be reviewed for applicability to the various options identified in the IWPS.
Additional work effort anticipated includes:

- Review, modify, and incorporate IWP2011 criteria as deemed appropriate into the IWPS and develop additional draft criteria for evaluating various options to be identified in IWPS. It is anticipated that criteria will include, but not be limited to:
    - City priorities, such as customer benefits, alternative water sources, supply resiliency/risk, conservation, voluntary vs. mandatory practices, alternative use volumes, user rates, and water rights impact.

Subtask 103 – Confirm Goals/Drivers/Criteria

Meet with city staff/stakeholders to discuss and confirm goals and drivers and evaluation criteria. This task also includes one on-site meeting with HDR project staff.

Task 200 – EVALUATE WATER/WASTEWATER DEMANDS

Objective:

Determine present and projected demands and rate of growth (1.5%, 2%, and 3% annually) as the basis for establishing the time available for the implementation of identified alternatives.

Subtask 201 – Evaluate Water/Wastewater Demands

The work effort to-date includes:

- Reviewing near-term historic maximum day and per capita potable water demand along with demand projections at the various rates of growth mentioned above.
- Evaluation of residential and selected commercial customer demands have been reviewed to determine the potential peak demand reduction by replacement with alternate sources of water.
- Various aspects of ditch water, groundwater, and reclaimed wastewater to reduce peak water demands have been reviewed as alternative sources of irrigation water.
- The October 2011 Water Conservation Plan developed for the City has been reviewed for current relevancy and incorporation into the IWPS.
- The Water Reclamation Facility (WRF) design flows have been compared to and reasonably reconciled with the flow projections developed in the Integrated Water Plan Implementation, Wastewater Collection System Study conducted by Dowl HKM.

Additional work effort anticipated includes:

- Determine service areas as they relate to satellite facilities and resulting water/wastewater demands. In addition, determine the capacity of the existing water treatment plant (WTP) to assess when it will reach capacity and the modifications and cost to upgrade its capacity.
    - Potable water demands - It is anticipated that the City will provide the potable water demands by pressure zone from the Integrated Water Plan Distribution Study water study conducted by Morrison-Maierle. It is anticipated that this will include the regional population projections as well as projections by pressure zone. Update demand projections to reflect a 1.5%, 2%, and 3% growth rate.
    - Wastewater demands – It is anticipated that the information from the Integrated Water Plan Wastewater Collection System Study conducted by Dowl HKM will be used for overall demands. In addition, these overall demands will be broken down

into the subareas within the service area as identified in the Dowl HKM study to provide a basis for evaluating various wastewater reuse alternatives, potential wastewater satellite plant siting and feasibility and interceptor capacity. Update demand projections to reflect a 1.5%, 2%, and 3% growth rate.

It is anticipated that a range of demands (high/low) will be developed as a basis for developing an adaptive management plan approach. In addition and as a comparison, a single growth rate within this range will be used to develop a non-adaptive plan.

Subtask 202 – Evaluate Impact of Demands on Water Rights

The work effort to-date includes:

- Reviewing and updating the water rights discussion included in the 2006 Water and Wastewater Facilities Master Plan (Master Plan) conducted by HDR Engineering.

Additional work effort anticipated includes:

- Determine the impact of the varying growth rates on the longevity of the City's apparent water rights of 172 cubic feet per second (cfs). It is anticipated that the evaluation will be conducted with and without demand reductions potentially achieved through alternative means. The evaluation will be based on the City's latest water rights settlement agreement and water rights information available through the DNRC website. The evaluation will also reflect the City's water reservation, which is to be reviewed by DNRC by July 1, 2016.

Subtask 203 – Evaluate Capacity of Water System to Deliver more Treated Water to the West-End and Heights from Existing WTP

The 2006 Master Plan evaluated the requirements for the existing WTP to treat 80 mgd. The evaluation was based on expanding the Filter Building. For the IWPS, the evaluation will be based on not expanding the Filter Building or High Service Pump Station (HSPS).
The work effort to-date includes:

- Evaluation of the distribution system to deliver more treated water without any additional major transmission mains.
- Evaluation of the capacity of the existing WTP without expanding the Filter Building or HSPS.
- Providing rough cost estimate for WTP expansion requirements.

Additional work effort anticipated includes:

- Use existing water distribution system model to determine maximum capacity of the water system to deliver water primarily to the West-End and Heights through Zone 2 and Zone 2E directly from HSPS and from Zone 1. It is anticipated that Morrison-Maierle will function as a subconsultant to HDR Engineering to provide the current water system modeling results and additional modeling needed to evaluate the transmission system aspects of this task.
- The plant evaluation will look at finding a cost effective treatment capacity for expanding the existing plant within the upgrade limitations noted above.

Subtask 204 – Develop Timeline of Demand vs. Capacity

Develop a timeline of demand vs. available WTP capacity. It is anticipated that this will be used to identify both the amount and timing of potable demand reduction necessary to eliminate the need for a West-End WTP.

Subtask 205 – Evaluate Capacities of Interceptor Sewers

The work effort to-date includes:

- Development of design flows for the WRF as identified in the Wastewater Treatment Facilities Plan and hydraulic flow profile for the WRF based on the proposed design for the Nutrient Project.
- Provided flow information and coordinated, reviewed, and reasonably reconciled flows with Dowl HKM regarding flows in individual plant influent sewers.

Additional work effort anticipated includes:

- Assess the capacities of the existing interceptor sewer lines that convey wastewater to the existing WRF as they relate to the various IWPS options. It is anticipated that Dowl HKM will function as a subconsultant to HDR Engineering to provide the current wastewater collection system modeling results and additional modeling needed to evaluate the collection system aspects of this task.
  The three lines to be evaluated include the Heights Interceptor, 48-inch Mid-Town Interceptor, and West-End Interceptor. This information will be used to:
  - Determine the timing of when these facilities will reach their respective capacity
  - To what extent flows will need to be reduced to increase their service life
  - How the various IWPS options to be evaluated impact these sewers

It is anticipated that the City will provide the flow information from the Integrated Water Plan Implementation Wastewater Collection System Study Master Plan conducted by Dowl HKM.

Subtask 206 – Evaluate Storm Water MS4 Implications

The work effort to-date includes:

- Summary of the existing storm water system and outfalls
- Review of water quality data and storm water TMDL implications

Additional work effort anticipated includes:

- Discussion of new MS4 permit implications for City and new TMDL implications
- Evaluation of site(s) for pilot project(s) of low-impact development techniques
- Evaluation of the Sindelar Pit site for storm water storage/treatment

Task 300 – DEVELOP INTEGRATED PLANNING OPTIONS

Objective:

Identify options potentially available to:

- Reduce potable water demands
- Enhance anticipated water rights and develop water reservations
- Increase reliability of water system supply with alternate or enhanced source
- Reduce wastewater flows to existing WRF

- Manage storm water in conformance with MS4 permit and in conjunction with water and wastewater options where feasible
- Identify the estimated potable water demand reduction that can be feasibly achieved by implementing the options.

Develop a planning document that will provide:

- A project-specific management plan to the maximum extent practicable (most likely based on a single rate-of-growth) while incorporating adaptive management aspects where beneficial to allow flexibility to address changing circumstances within the range of estimated demands.

Subtask 301 – Water Options

The work effort to-date includes:

- Reviewing the 2011 water conservation program developed for the City by HDR Engineering to determine its applicability to the IWPS
- Estimating the amount of peak water demand that can be reasonably reduced by expanding the use of non-potable water for irrigation
- Evaluation of off-channel storage
- Evaluation of groundwater as a source of raw water
- Evaluating non-potable water system sources and arrangements using ditch water, groundwater, or reclaimed wastewater

Additional work effort anticipated includes:

- Identify additional demand-side and supply-side measures beyond those included in the Billings 2011 Conservation Plan that can be considered by the City for inclusion in a water conservation program.
- Refine options available for reducing potable water demands. Identify the pros and cons of each option, which include:
    - Low hanging fruit; i.e., education, conservation program, water-efficient landscaping, incentives
    - Ditch water
    - Groundwater
    - Wastewater effluent reuse
    - Storm water

Subtask 302 – Non-potable Water Distribution System

Identify options available for a non-potable water distribution system that utilizes ditch water, groundwater, and/or reclaimed wastewater. Identify the pros and cons of each option. Options to be considered include:

- Non-potable water system for all or a portion of the existing water customers
- Non-potable water system for new development

Subtask 303– Source Water Options

Identify options available for enhancing the City's existing water rights, developing the existing water reservation, and developing an alternate raw water source, to include:

- Summarize the off-channel storage and groundwater source aspects of the Drinking Source Water Study and evaluate any new options of source water since the study. Include the pros and cons of each option in the summary
- Identify additional potential options for enhancing water rights beyond those already identified in this scope, such as purchases or statute changes
- Discussion of Direct Potable Reuse (DPR) as a potential future option as a potable raw water source and identification of the issues and steps needed to establish a system for allowing the implementation of DPR.

Subtask 304 – Wastewater Options

The work effort to-date includes:

- Evaluation of the options available for an aquifer recharge alternative in a West Billings location
- Preliminary draft Integrated Water Plan Implementation Reuse and Reclamation Study (Reuse Study) conducted by HDR Engineering

Additional work effort anticipated includes:
Identify options available for reducing wastewater flows to the existing WRF and identify the pros and cons of each option. It is anticipated that these options will include:

- Evaluation of a satellite facility in Billings Heights to divert flow from the existing WRF. It is anticipated that the evaluation will consist of a water feature development in the Sindelar Pit located adjacent to the Yellowstone River south of Dover Road at the intersection with Pioneer Road.
  The evaluation will include consideration of:
  - MPDES permit requirements, nondegradation, and other disposal alternatives
  - Site development requirements/considerations
  - Estimated flow diversion capability as it relates to the flow capacity of the existing Heights Interceptor Sewer
- Evaluation of alternatives for flow diversion, other than the Sindelar Pit. It is anticipated this will include consideration of:
  - Wastewater reuse, such as for lawn or agricultural irrigation
  - Flow management, such as flow equalization facilities or in-line storage
- Evaluation of a satellite facility located in the west-end of the service area that will consider both wastewater and storm water along with potential groundwater disposal
- Further evaluation and a site-specific investigation to determine the feasibility of developing an aquifer recharge facility and the rate of recharge possible at a specific West Billings site. The scope related to this effort is detailed in Task 400

It is anticipated that information from the preliminary draft Reuse Study will be used to develop:

- Estimated irrigation and associated storage demands
- Recommended West-End and Heights satellite treatment facility locations
- Recommendations for utilizing groundwater disposal/recharge

Subtask 305 – Initial Screening of Options

Develop a list of potential options with preliminary priorities based on non-economic criteria. Meet with City to review and discuss the preliminary option evaluation. Based on this input, further refine those options to be considered further.

Subtask 306 – Develop Cost Estimates for Options

Develop estimates of capital and operational costs for each of the options identified in Subtask 305 for further consideration. The City has expressed a desire to utilize a simplified cost approach for the initial evaluation phase that does not include a Triple Bottom Line (TBL) approach. Further detailed cost analysis, potentially using the TBL model, may be conducted if it is later deemed necessary and desirable and as directed by the City. These detailed analyses are identified herein under Task 900, ADDITIONAL SERVICES.

Subtask 307 – Evaluate the Impact of Options on Improvements in Existing CIP

Estimate the potential reduction in size or need for planned improvements in CIP. It is anticipated that this estimate will include those facilities that are more reasonably determined at this level of planning and detail, such as reservoirs and pumping stations.

TASK 400 – GROUNDWATER DISPOSAL EVALUATION – WEST BILLINGS

Objective

To identify and select sites at a West Billings location for further evaluation and a site-specific investigation to determine the feasibility of developing an aquifer recharge facility and the rate of recharge that may be possible at the site.

Subtask 401 – Identify Properties for Site Investigation

The work effort to-date includes:

- Evaluation of the options available for a wastewater aquifer recharge alternative at a West Billings location.

Additional work effort anticipated includes:

- Identify up to five potential properties within the West Billings area for a potential site investigation. Locate the areas on a map and using tax parcel information provide a table listing owner name, acreage and contact information. This information will be submitted to the City in the form of a technical memorandum. It is assumed that the City will then contact property owners and obtain permission for entry to one of the properties to conduct a site-specific feasibility assessment.

Subtask 402 – Site-Specific Feasibility Investigation

Conduct a site investigation to identify the feasibility of the selected site for an aquifer recharge facility to include:

- Excavate Test Pits – Up to ten pits will be excavated in potential recharge areas to a depth of about 20 feet to characterize the near-surface lithology across the site. The test pits will be excavated using a track-mounted excavator with an extended shovel arm. The locations of the test pits will be determined using a hand-held GPS unit. The soil at the test pits will be classified according to the Unified Soil Classification procedure and logged by a field geologist. Up to two soil samples will be collected from the parent geologic material (under the C soil horizon) and submitted to Terracon

for grain-size analysis from each test pit. The test pits will be backfilled after soil samples are collected.

- Install Soil Borings and Monitoring Wells – Up to three soil borings will be drilled on the site to a depth of 50 feet or until bedrock is encountered, whichever is first. The purpose of the borings/monitoring wells is to determine the type, extent, thickness and depth of the subsurface deposits and to assess whether they are suitable for aquifer recharge. The boring will be drilled using a hollow-stem auger truck-mounted drilling rig with 6-inch diameter inner and outer steel casing and continuous soil sampling. Soil samples will be logged in the field according to the Unified Soil Classification procedure. Up to four soil samples will be collected per boring (12 samples total maximum) from representative layers (including fine-grained layers) and submitted for grain-size analysis and porosity. Hydraulic conductivity will be calculated from the grain-size and porosity data for each sample.

  Monitoring wells will be completed in each of the three soil borings. The monitoring wells will be constructed of 2-inch diameter Schedule 40 PVC. Well screens will be screened across the groundwater table so wells can later be used for groundwater quality compliance monitoring and to account for future mounding that may occur if the site moves forward. A surveyor will be retained to survey the location and elevations of the monitoring well casings.

  A recording pressure transducer will be placed in one of the monitoring wells to record groundwater levels on a daily basis. These instruments will be downloaded once during a subsequent site visit. One sample will be collected from each of the three wells and submitted for laboratory analysis of metals, chloride, total dissolved solids, nitrate, nitrite and Total Kjeldahal Nitrogen and total organic carbon. Field parameters (conductivity, temperature and pH) will also be measured.

- Develop Simple Groundwater Model to Evaluate Recharge Feasibility - A simple groundwater model will be developed to evaluate the potential groundwater mounding that may occur during aquifer recharge on the site. The model will be developed using MODFLOW and will be based on the site conditions encountered during field investigations. Aquifer parameters assigned to the model will be based on calculated hydraulic conductivity.

Subtask 403 – Meetings

This task includes one project meeting for two persons with City. Assumes one person (Project Manager) will be in person and one person will attend by phone.

Subtask 404 – Task Management

Manage, administer, and provide ongoing oversight and progress reports for the project.
Assumptions:

- City will obtain formal permission needed to access off-site properties and will handle real-estate services needed to obtain access.

- Drilling costs are approximate and based on the two bids obtained at the time of preparation of the proposal. The drilling cost assumes that permission to access drilling sites has been obtained by City and the sites are accessible by a truck-mounted drilling rig for monitoring wells. Other site preparation costs are not included. Water hauling is included assuming water is available within a 5-mile radius from site. Soil cuttings and drilling water is assumed to be disposed of at the drilling location. Drilling costs assumes "clean" site conditions without hazardous/regulated contaminants. Lost or damaged tooling as a result of difficult or unforeseen drilling conditions that is charged in the drilling firms invoices is not included in this proposal and will be charged based on actual costs.
- Cost estimates for HDR field staff during drilling includes time necessary to log the soil samples and to provide input to the driller on where to place the well screen during installation, but does not include continuous field observation of all drilling activities. It is assumed that the driller will be able to independently manage the drilling and well installation without HDR staff being present continuously.
- The cost estimate does not include services to abandon the monitoring wells at the conclusion of the study. It is assumed that wells will remain in-place to be used during project design and operation.
- The project cost for instrumentation rented or purchased for the project is based on cost estimates from vendors. Laboratory analytical costs are based on normal turn-around times from the date of receipt and upon a written quote. If the actual cost at the time of purchase varies from the cost estimate, we will inform City and receive permission to purchase or rent. Actual cost will be billed.
- It is assumed that City will compile comments on draft documents into one set. Comments will be provided in a timely manner as needed to meet the project schedule.
- Permit fees or other regulatory fees, if needed, are not included in this cost estimate.
- The budget provided for these services is based on our best understanding of the current conditions. Some of the information available to determine the actual cost is unknown. HDR will update City as the project details are updated and will request authorization if additional budget is required.

Deliverables:

- Technical memorandum identifying five properties in West Billings Area for potential site investigation (draft and final)
- Site-Specific Feasibility Evaluation Technical Memorandum for West Billings Area (draft and final)

References:

- HDR Engineering, 2013. Reclaimed Water Aquifer Recharge Feasibility Study. Prepared for City of Billings, MT.

Schedule:

Investigation of the locations in Tasks 400 and 800 is anticipated to require approximately 9 months to complete. This assumes that the City will review and provide comments on draft technical memorandum within 2 weeks of receiving the draft. This also assumes the City will

obtain permission to access a property for detailed site investigations within 1 month of obtaining a list of potential site investigation properties.

TASK 500 – EVALUATE IDENTIFIED OPTIONS

Objective:

Evaluate the options using the agreed upon criteria, prioritize the identified options, and develop recommended implementation strategies and schedules.

Subtask 501 – Prioritize Options

Develop a numerical rating approach to reflect the relative importance of each criterion, including cost. Assign ratings for each option and develop a matrix of identified options reflecting the ratings and showing the comparative ranking.
Develop a summary of rankings and recommended approach and implementation schedule. Meet with City to review draft findings and recommendations. It is anticipated the recommended approach will incorporate a phased approach to include public education, conservation, landscaping practices, alternative water sources for irrigation, and satellite wastewater/storm water facilities that incorporate wetlands.
This task includes two on-site meetings; one to present findings to Public Works Board and one City Council presentation.

TASK 600 – IWPS REPORT

Objective:

Produce report of findings and recommendations meeting client needs and expectations.

Subtask 601 – Develop Report

Develop a draft and final IWPS report documenting the findings and recommendations. It is anticipated that the report will be produced as a supplement to the IWP2011. Submit an electronic version of the draft report for city review. Meet with City to discuss and review their input. Revise draft report to incorporate agreed upon revisions and produce final report. Provide ten (10) hard copies and one (1) electronic version of final report.

TASK 700 PROJECT MANAGEMENT

Objective:

Plan and execute the IWPS in accordance with an established schedule and budget while meeting quality expectations for the project.

Subtask 701 – Project Coordination Meetings

Meet monthly with the City to review status of the planning effort. A total of six on-site meetings will be budgeted in addition to other scheduled meetings and workshops identified separately in specific tasks.

Subtask 702 – Project Execution Plan

The Project Execution Plan will set forth project procedures and will clearly define individual responsibilities, task schedules, milestones, deliverables and task budgets The Project Execution Plan will contain project objectives; organization and roles of the project team, Agreement work plan, management tools and techniques; sub consultant management; coordination with the City and other participating agencies; Quality Assurance and Quality Control Plan; monitoring; reporting and administrative procedures. At the onset of the project, a project team meeting will be conducted to develop communication channels and form the basis for a comprehensive Project Execution Plan.

Subtask 703 – Monitoring

Monitor project progress, including work completed and remaining, budget expended, schedule and estimated cost of work remaining and estimated cost at completion. Manage activities within task budgets. Prepare and submit a brief monthly progress memorandum and invoice using the project management tools prepared in Subtask 702.

Subtask 704 – Quality Control

Review all work activities and project deliverables for conformance with quality control requirements and project standards. Monitor project activities for potential changes, anticipate changes whenever possible, and with the City's approval, modify project tasks and approach to keep the overall project within budget and on schedule.

PHASE 2

The Phase 2 scope of services includes Task 800 below and is included in this Agreement. Work that is part of this task will be undertaken only with the approval of the City.

TASK 800 GROUNDWATER DISPOSAL EVALUATION – EAST BILLINGS

Objective:

To identify and select sites at an East Billings location for further evaluation and a site-specific investigation to determine the feasibility of developing an aquifer recharge facility and the rate of recharge that may be possible at the site.

Subtask 801– Evaluate East Billings Area Hydrogeology

Review existing geologic, hydrogeologic and geotechnical reports on the geology/hydrogeology of the East Billings area to assess if the area is appropriate for a reclaimed water aquifer recharge facility. Download well logs for the area to determine feasibility. A site-specific examination is not included. Aquifer thickness, depth to ground water and subsurface permeability will be determined and evaluated. A technical memorandum will be developed to describe the feasibility of the East Billings area for aquifer recharge and to present findings and recommendations.

If the East Billings area is determined to be inappropriate for an aquifer recharge facility, no further investigation will be completed for this area.

Subtasks 802–805 – Additional Evaluation of East Billings Area

If the evaluation under Subtask 801 determines the hydrogeology is appropriate, additional investigation will be conducted following the scope of services described in Subtasks 401 through 404.

Deliverables:

- East Billings Hydrogeology Evaluation Technical Memorandum (draft and final)
- Technical memorandum identifying five properties in East Billings Area for potential site investigation (draft and final)
- Site-Specific Feasibility Evaluation Technical Memorandum for East Billings Area (draft and final)

Schedule:

Investigation of the locations in Task 800 is anticipated to require approximately 9 months to complete. This assumes that the City will review and provide comments on draft technical

memorandum within 2 weeks of receiving the draft. This also assumes the City will obtain permission to access a property for detailed site investigations within 1 month of obtaining a list of potential site investigation properties.

TASK 900 ADDITIONAL SERVICES

It is anticipated that additional or modified work tasks may be needed for the completion of this project. Such tasks will be added/modified by amendment to this Agreement. Potential tasks may include, but not be limited to:

- Cost analysis incorporating Triple Bottom Line methodology.
- Evaluate impact on existing water and wastewater rate structure; develop estimated rate structure for alternative water sources.
- Other tasks as may be identified and agreed upon.

Appendix B

Methods and Times of Payment
City of Billings – Integrated Water Plan II

Section 1. Payments for Basic Services.

Billings shall authorize payment to the Engineer for services performed under Appendix A of this Agreement. Partial payment shall be due the Engineer upon receipt of the Engineer's pay estimate, said estimate being proportioned to the work completed by the Engineer.

Billings shall deduct five percent (5%) from each monthly pay estimate to be held until the completion of the final scope of work. The final payment shall be made only after acceptance of final documents by Billings, and determination that the scope of work has been satisfactorily completed.

A. For services rendered under Appendix A of this Agreement, the Engineer shall be paid based upon actual time accrued, but not to exceed the following amounts:

1.	Basis of Plan	$43,000.00
2.	Evaluate Water/Wastewater Demands	$80,000.00
3.	Develop Integrated Planning Goals	$92,000.00
4.	Groundwater Disposal Evaluation – West Billings	$95,000.00
5.	Evaluate Identified Options	$20,000.00
6.	IWPS Report	$37,000.00
7.	Project Management	$34,000.00
8.	Groundwater Disposal Evaluation – East Billings	$106,000.00
	TOTAL:	$507,000.00

B. Final payment shall be the above stated basic fee less all previous payments.

Section 2. Payments for Extra Services when Authorized by Billings.

Requests made or conditions identified by interested groups at the agency or public meetings, which are beyond the scope and intent of the services to be performed under Appendix A shall be paid for based on a negotiated fee.

Section 3. Corrections.

Costs of Billings work that is required for corrections to the Engineer's work which requires redoing by Billings shall be deducted from any payments due the Engineer, if the Engineer fails to make the required corrections.

Section 4. Fee Increases

For contracts and services that are expected to require more than one (1) year to complete, the above stated basic services payments may be reviewed and adjusted annually by mutual agreement of the parties, based upon documented evidence that the Engineer's costs have increased for all comparable clients.

Appendix C

Additional Services of Engineer
City of Billings – Integrated Water Plan II

Extra Services of the Engineer will be paid only with written prior authorization by Billings.

A. Field and laboratory testing of materials and reports.

B. Requests made or conditions identified which are beyond the scope and intent of the services identified under Appendix A.

Appendix D

Schedule of Professional Fees
City of Billings – Integrated Water Plan II

Not Used

Appendix E

Project Schedule
City of Billings – Integrated Water Plan II

Based on a notice to proceed by Billings dated no later than April 15, 2016, the completion date for the Engineer's work shall be:

A. Integrated Water Plan Report

1. Draft Integrated Water Plan Report: January 2017

2. Final Integrated Water Plan Report: April 2017

Delays affecting the completion of the work within the time specified of more than ninety (90) days, not attributable to or caused by the Parties hereto, may be considered as cause for the renegotiation or termination of this Contract.

If the Engineer is behind on this Contract due to no fault of Billings, then the Engineer hereby acknowledges the right of Billings to withhold future Contracts to the Engineer in addition to any other remedy until this Contract is brought back on schedule or otherwise resolved.

Appendix F

Certificate(s) of Insurance
City of Billings – Integrated Water Plan II

Certificate(s) of Insurance attached.