

**AGREEMENT BETWEEN OWNER AND HDR ENGINEERING, INC. FOR
PROFESSIONAL SERVICES**

THIS AGREEMENT is made as of this 11th day of April, 2018, between the City of Ankeny ("OWNER") a municipal corporation, with principal offices at 410 West 1st Street, Ankeny, Iowa 50021, and HDR ENGINEERING, INC., ("ENGINEER") a Nebraska corporation, with principal offices at 8404 Indian Hills Drive, Omaha, Nebraska, 68114 for services in connection with the project known as the Ankeny Sanitary Sewer Master Plan ("Project");

WHEREAS, OWNER desires to engage ENGINEER to provide professional engineering, consulting and related services ("Services") in connection with the Project; and

WHEREAS, ENGINEER desires to render these Services as described in SECTION I, Scope of Services.

NOW, THEREFORE, OWNER and ENGINEER in consideration of the mutual covenants contained herein, agree as follows:

SECTION I. SCOPE OF SERVICES

ENGINEER will provide Services for the Project, which consist of the Scope of Services as outlined on the attached Exhibit A.

SECTION II. TERMS AND CONDITIONS OF ENGINEERING SERVICES

The HDR Engineering, Inc. Terms and Conditions, which are attached hereto in Exhibit B, are incorporated into this Agreement by this reference as if fully set forth herein.

SECTION III. RESPONSIBILITIES OF OWNER

The OWNER shall provide the information set forth in paragraph 6 of the attached "HDR Engineering, Inc. Terms and Conditions for Professional Services."

SECTION IV. COMPENSATION

Compensation for ENGINEER'S services under this Agreement shall be on the basis of

- Hourly Rate Schedule, with a fixed not-to-exceed amount of Two Hundred Thirty Nine Thousand and Seventy Four and no/100 dollars (\$239,074). The Hourly Rate Schedule is attached hereto in Exhibit C. Reimbursable Expenses incurred in connection of such services shall be in addition to ENGINEER'S compensation based on the Hourly Rate Schedule

Compensation terms are defined as follows:

Hourly Rates Schedule shall mean the hourly billing rates for all personnel engaged directly on the project. Hourly Rates Schedule will be adjusted annually as of the first of every year to reflect equitable changes to the compensation payable to ENGINEER.

Reimbursable Expense shall mean the actual expenses incurred directly or indirectly in connection with the Project for transportation travel, subconsultants, subcontractors, technology charges, telephone, telex, shipping and express, and other incurred expense. ENGINEER will add ten percent (10%) to invoices received by ENGINEER from subconsultants and subcontractors to cover administrative expenses and vicarious liability.

SECTION V. PERIOD OF SERVICE

Upon receipt of written authorization to proceed, ENGINEER shall perform the service within the time period(s) described in Exhibit A.

Unless otherwise stated in this Agreement, the rates of compensation for ENGINEER'S services have been agreed to in anticipation of the orderly and continuous progress of the project through completion. If any specified dates for the completion of ENGINEER'S services are exceeded through no fault of the ENGINEER, the time for performance of those services shall be automatically extended for a period which may be reasonably required for their completion and all rates, measures and amounts of ENGINEER'S compensation shall be equitably adjusted.

SECTION VI. SPECIAL PROVISIONS

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first written above.

"OWNER"

BY: _____

NAME: _____

TITLE: _____

ADDRESS: _____

HDR ENGINEERING, INC.

"ENGINEER"

BY:  _____

NAME: _____

Ronald J. Sova, P.E.

TITLE: _____

Senior Vice President

ADDRESS: _____

8404 Indian Hills Drive
Omaha, NE 68114

**City of Ankeny
Sanitary Sewer Master Plan**

SCOPE OF SERVICES

- I. The Scope of Services to be performed by the Consultant shall include the services and supplies to complete the following tasks:

II. SCOPE OUTLINE

- A. TASK SERIES 100 – PROJECT MANAGEMENT**
- B. TASK SERIES 200 – EXISTING SANITARY SEWER SYSTEM**
- C. TASK SERIES 300 – FUTURE POPULATION AND LAND USE**
- D. TASK SERIES 400 – FIELD DATA COLLECTION**
- E. TASK SERIES 500 – HYDRAULIC INVESTIGATION**
- F. TASK SERIES 600 – CIP IMPROVEMENTS NEEDS**
- G. TASK SERIES 700 – O&M PRIORITIZATION**
- H. TASK SERIES 800 – POLICY AND FUTURE NEEDS**
- I. TASK SERIES 900 – SANITARY SEWER MASTER PLAN**

III. OBJECTIVE

- 1. This Scope of Services is for the Consultant to provide an engineering evaluation of the City's sanitary sewer system in order to create a plan that addresses system deficiencies by developing a hydraulic model, performing field data collection, proposing capital improvements, and recommending policy changes.

IV. PROJECT DESCRIPTION

- 1. The Plan will include information on the existing system, an inventory and condition of the City's sanitary sewer assets, the completion of hydraulic modeling to determine system deficiencies, capital needs, project prioritization, and financial needs. The Plan will also identify future growth considerations and policy recommendations. In addition, a protocol will be established to review and update the information within the Plan on a routine basis.

V. KEY ASSUMPTIONS

- 1. The following are understood or assumed.
- 2. Meetings will be conducted as part of the workshops tasks including the kickoff meeting and the review workshop.
- 3. City GIS plat mapping will be utilized in lieu of plat surveys. Geotechnical exploration will not be required.
- 4. Wetlands, archeological, historical, or cultural resources investigations and reports will not be required.
- 5. Available mapping, photography, and topography will be used to develop a site plan.
- 6. Five hard copies of all deliverables will be submitted to the City for review.
- 7. City will provide timely review and comments on draft deliverable documents.

Exhibit A

VI. SCOPE OF SERVICES DETAILS

Consultant will assist City with Project implementation by conducting the following tasks:

A. TASK SERIES 100 – Project Management

1. **Objective:** Provide Project management activities over the Project duration including planning, organizing and monitoring Project team activities, preparing and monitoring report production standards, attending meetings, budget management, and liaison with City.
2. **Consultant Activities:**
 - a. **110 – Team Management and Project Control**
 - i. Budget and invoice management.
 - ii. Resource scheduling, management, and allocation based on Project schedules and activities.
 - iii. Production coordination.
 - iv. Monthly progress report submitted to City with each payment request.
 - v. Project closeout.
 - b. **120 – Project Initiation**
 - i. Collect data including existing drawings and other documents.
 - c. **130 – Project Management Plan**
 - i. Develop guidance document (Project Management) for Consultant project team documenting Project activities, constraints, guidelines, budgets, and procedures.
 - d. **140 – Quality Control**
 - i. Facilitate team meetings on a regular basis to facilitate communication flow and plan development.
 - ii. Conduct a Project Approach & Resource Review with senior technical leaders.
 - iii. Facilitate independent quality control reviews for project deliverables.
 - e. **150 – Kick-off Meeting** - Conduct a Kickoff meeting to discuss and confirm the following:
 - i. Project goals and objectives
 - ii. Project scope, schedule and budget
 - iii. Flow metering plan, locations and timing
 - iv. Review remaining information needed from the city
3. **Task Deliverables:**
 - a. Monthly Project status reports and invoices
 - b. Kick-off Meeting Agenda, Materials, and Minutes
4. **Meeting and Travel:** Travel for Kick-off Meeting
5. **Key Understandings:**

B. TASK SERIES 200 – Existing Sanitary Sewer System

1. **Objective:** Collect, review and compile available information to provide a consolidated description of the service area, sanitary sewer system and its condition, current flows, level of service standards and maintenance levels.
2. **Consultant Activities:**
 - a. **Task 210 –Collect and Review Available Information**
 - i. Request and obtain relevant background information including studies and reports prepared by others.
 - A. Previous Master Plan
 - B. Ankeny 2040 Plan and Future Land Use GIS
 - C. Current Specific Plans
 - D. GIS data (Infrastructure, Land Use, Topography, Planimetry)
 - E. Current and historic sanitary sewer capital expenditures

Exhibit A

- F. Current and historic sanitary sewer operations and maintenance costs
 - G. Current and historic sanitary sewer revenue sources
 - H. CCTV, CMOM and Maintenance Program Information including asset condition assessment
 - I. Existing flow metering and 15-minute interval precipitation data available from WRA Telog System.
 - J. Current and historic portable pump, sanitary sewer overflow, and sanitary sewer backup information
 - K. Current Policies and Design Standards
 - b. **Task 220 – Historic Improvements**
 - i. Collaborate with the City to compile a list and summarize significant sanitary sewer system planning that has occurred since the previous Master Plan.
 - ii. Collaborate with the City to compile a list of significant sanitary sewer system improvements implemented since the previous Master Plan.
 - c. **Task 230 – Planned Improvements**
 - i. Collaborate with the City to compile and document a list of previously identified problem areas and associated capital needs.
 - ii. Collaborate with the City to compile and document a list of identified capital improvements to serve identified growth areas.
 - d. **Task 240 – Sanitary Sewer System Summary**
 - i. Summarize and describe the existing sanitary sewer service area including the eleven (11) major sewersheds. Summary will include GIS maps, land use, population, economic data, and growth areas.
 - ii. Summarize and describe sanitary system components (i.e. xx miles of sanitary conveyance pipes ranging from X diameter to Y diameter, xx manhole structures), dry and wet weather flows, wet weather pump deployment, and sanitary sewer overflows.
 - iii. Summarize and describe the City's current sanitary sewer system preventive maintenance, flow monitoring, and CMOM programs.
 - e. **Task 250 – Technical Memorandum** - Develop a draft Technical Memorandum (TM) that summarizes the existing system, performance, and planned improvements.
3. **Task Deliverables:**
- i. TM No. 1 – Existing Sanitary Sewer System
4. **Meetings & Travel:** Results of Task 200 will be discussed at Workshop 1.
5. **Key Understandings:**
- a. City will provide pertinent available information.
- C. **TASK SERIES 300 – FUTURE POPULATION AND LAND USE**
1. **Objective:** This task will summarize the future population and projected land use for the service area throughout the planning period.
2. **Consultant Activities:**
- a. **Task 310 – Review Existing Information** Collect and review available planning data including existing and historic Census data, projected populations by local planning agencies for the City of Ankeny, Polk County, and Polk City, current land use data, and current water sale data.
 - b. **Task 320 - Prepare population projections for future conditions.** These planning level projections will be prepared for the following conditions: Current Year (2020), Year 2025, Year 2030, Year 2035, Year 2040, Year 2045, Year 2050, and Year 2055. Population projections will be based on data obtained by local planning agencies, Cities, and the Water System Master Plan.
 - c. **Task 330 –Technical Memorandum** Develop a draft Technical Memorandum (TM) that defines the future service area and populations.

Exhibit A

- d. **Task 340 – Workshop 1** Conduct a Workshop with the City to review the following:
 - i. Review and discuss background information
 - ii. Identify Data Gaps
 - iii. Discuss Level of Service
 - iv. Confirm / review available funding and funding sources
 - v. Review Criteria for Prioritization
 - vi. Confirm Master Plan goals
 - vii. Review Master Plan Outline
 - viii. Task Series 200 Existing Sanitary Sewer System
 - ix. Task Series 300 Future Population and Land Use
- 3. **Task Deliverables:**
 - a. TM 2.0 – Future Population and Land Use
 - b. Workshop 1 materials, agendas and minutes.
- 4. **Meetings and Travel:** – Travel required for Workshop 1
- 5. **Key Understandings:**
- D. **TASK SERIES 400 – FIELD DATA COLLECTION**
 - 1. **Objective:** Provide information regarding the physical characteristics, condition, and existing hydraulic loadings within the sanitary sewer system.
 - 2. **Consultant Activities:**
 - a. **Task 410 – Flow Monitoring Study**
 - i. Conduct a flow monitoring study over the course of nine (9) weeks with seven (7) flow meters and two (2) rain gauges with remote monitoring. Data shall be acquired and processed in 15-minute increments.
 - ii. Provide, install, and maintain ISCO 2150 area-velocity flow meters to quantify the flow traveling through the sanitary sewer system at the designated locations for the specified timeframe.
 - iii. Provide, install, and maintain ISCO 677 tipping bucket style rain gauges to quantify and characterize the duration and magnitude of precipitation events for the specified timeframe.
 - iv. Perform installation and removal of flow meter equipment in accordance with applicable confined space entry regulations with one (1) included full-entry installation and removal per flow meter site.
 - v. Complete top-side maintenance on the installed flow meters at least once every other week. Four (4) top-side maintenance/ download trips per flow meter site are included. Online remote monitoring will be provided for data gathering.
 - vi. Perform installation and removal of rain gauge equipment with one (1) included installation and removal per rain gauge site.
 - vii. Complete maintenance and data download on the installed rain gauges at least once every other week. Four (4) maintenance/download trips per rain gauge site are included. Online remote monitoring is not included. Rates for additional unscheduled maintenance visits to a flow meter site related to sanitary sewer condition, such as siltation, debris accumulation, etc., are included in the fee schedule.
 - b. **Task 420 – Operator ED Meeting**
 - i. Conduct two (2) meetings with City staff to discuss the present state of sanitary sewer utility infrastructure.
 - ii. Based on the knowledge and past experience of City staff:
 - A. Identify problematic areas in the sanitary collection system including areas experiencing sanitary sewer overflows and/or basement back-ups.
 - B. Identify areas in the sanitary collection system where bypass pumping is utilized to minimize sanitary sewer overflows and back-ups.

Exhibit A

- C. Identify areas in the sanitary collection system where structural issues such as root intrusion, cracking, or pipe blockages exist.
 - iii. Prepare condition assessment forms for the existing sanitary utility's major infrastructure including the lift station(s), forcemain(s), and the wastewater treatment facility.
 - iv. Coordinate with City staff to inventory the condition of existing sanitary utility's major infrastructure through the use of the condition assessment forms. On-site inspection by Consultant not included.
 - v. Identify the presence of immediate needs projects in sanitary sewer utility.
 - c. **Task 430 – Prior Report Review**
 - i. Coordinate with City staff to identify and obtain copies of prior City reports related to the condition of the existing sanitary sewer system.
 - ii. Review up to seven (7) previously completed City reports and summarize data related to the following:
 - A. Flow monitoring studies
 - B. Manhole and sewer condition assessments
 - C. Field investigations (ie – manhole inspection, smoke testing)
 - d. **Task 440 – Sanitary Sewer Mapping**
 - i. Sanitary sewer system mapping is to be completed for up to 50 accessible sanitary manholes. The purpose of the mapping is to fill in gaps in the City's existing GIS framework in order to facilitate hydraulic model construction.
 - ii. Utilize survey grade GPS equipment to provide a northing, easting, and elevation on the center of the manhole rim.
 - iii. Utilize a level rod instrument to determine the diameter and invert elevation of all incoming and outgoing pipes greater than 6-inches in diameter (not including private services).
 - iv. Record mapping measurements on a standard manhole mapping form.
 - v. Visually observe the interior of the manhole for significant structural or hydraulic issues and record issues on standard manhole mapping form. Full manhole inspection not included.
 - vi. Take and catalogue one photograph showing the general manhole interior.
 - vii. Provide survey mapping information in a GIS-compatible format.
 - e. **Task 450 – Technical Memorandum 3**
 - i. Tabulate and summarize the findings of the flow monitoring study, including the average and peak flows experienced for each monitored tributary area. Report on the extent and duration of precipitation events which occurred during the flow monitoring study period.
 - ii. Detail the findings of the Operator ED meeting regarding the location and extent of issues in the sanitary collection system, such as basement backups, sanitary sewer overflows, and bypass pumping.
 - iii. Discuss the key findings of the reviewed prior reports and summarize the extent of prior field investigations and condition assessments.
 - iv. Identify the manholes included in the system mapping and summarize any notable structural or hydraulic issues identified.
3. **Task Deliverables:**
- a. The following deliverables are anticipated:
 - i. Flow meter and rain gauge data.
 - ii. Technical Memorandum #3
 - iii. Workshop 2 materials, agendas, minutes.
 - iv. Updated GIS data for the City's sanitary sewer system for mapping manholes.
4. **Meeting & Travel:**
- a. The Operator ED meetings will be attended by Consultants staff located in Des Moines. Other staff may participate by phone.
 - b. The results of the Task Series 400 will be discussed at Workshop 2
5. **Key Understandings:**
- a. The data contained within the City's existing GIS framework is fairly comprehensive in nature and generally contains accurate information regarding the physical characteristics of the existing

Exhibit A

sanitary sewer system, such as pipe diameters, pipe slopes, pipe connectivity, manhole rim elevations, and pipe invert elevations. GIS data may be relied upon for selection of flow meter locations and construction of the hydraulic model.

- b. The City's existing GIS sanitary sewer network is generally up-to-date, including sanitary sewers and manholes that have been constructed in recent years.

E. TASK SERIES 500 – HYDRAULIC INVESTIGATION

1. Objective:

Develop and calibrate a SewerGEMs model of the existing collection system. Evaluate the existing collection system model results and evaluate and provide recommendations for improvements and future evaluations.

2. Consultant Activities:

a. Task 510 – Review Existing Information

- i. Evaluate available population data, soil types, housing age, land use, and connectivity.
- ii. Evaluate available collection system data within the model domain, including but not limited to GIS data, pipe length, pipe size, pipe invert elevations and manhole locations (from City GIS).

b. Task 520 – Model Development

i. Task 521 – Model Build

- A. Use readily available data on the sanitary sewer system from City GIS and/or CAD files to develop a 1-D SewerGEMs model of the sanitary sewer system that includes pipes and manholes for the components listed below.

1. Major Trunk Sewers (15-inch diameter and larger) and primary meters:

- a. Four Mile Interceptor
- b. Rock Creek Interceptor
- c. Northern Interceptor
- d. South Interceptor
- e. West Outfall

2. Upstream Service Areas – Entire Pipe Network as available in GIS divided into 27-30 subsewersheds. :

- a. North Four Mile Basin
- b. Northern Interceptor Basin
- c. Otter Creek Basin
- d. Deer Creek Basin
- e. Oralabor Basin
- f. Corporate Woods Basin
- g. Rock Creek Basin
- h. South East Four Mile Basin
- i. Central Basin
- j. South Interceptor Basin
- k. West Outfall Basin, Includes the Prairie Trail Development

ii. Task 522 - Data Gaps and Cleanup

- A. Use model and GIS to identify information gaps in existing data. Use assumptions to run model and get preliminary results and further define critical areas.
- B. Use as-built drawing information (from City) to fill in gaps.
- C. Identify additional data needs to prioritize MH investigations in Task 440.
- D. Fill in data obtained through Task 440 to develop base model.
- E. Document where assumptions are made within the model and where additional information is needed to confirm assumptions.

iii. Task 523 – Allocation of Flows

- A. Use historic meter data to separate baseflow, dry weather groundwater influences, fast storm response, and slow storm response.

Exhibit A

- B. Allocate average dry weather flows to service areas based on available population data and/or parcel land use.
 - C. Allocate dry weather groundwater influence, fast and slow storm responses, based on available sewerage area and/or extent of upstream sewer.
- c. **Task 524 - Model Calibration and RDII Analysis**
 - i. Assess the relative implications of precipitation and river level on wet weather flows.
 - ii. Consider and target wet weather flow conditions, soil moisture and groundwater levels during the period for which flow metering data is available.
 - iii. Execute existing condition model with associated dry weather flow metering data.
 - iv. Execute existing condition model with associated wet weather flow and river conditions for the following scenarios.
 - A. Higher precipitation events in combination with lower river levels (<12 feet),
 - B. Higher river levels (>15 feet) in combination with lower precipitation events, and
 - C. Higher precipitation events in combination with higher river levels (>15 feet).
 - D. Review model output relative to metered flows and perform limited calibration of model utilizing the flow metering data from the five trunk sewer primary meters. Calibration of subwatersheds with secondary meters is not included in this scope, however a comparison of the model and the secondary meters will be made to inform the recommendations.
 - E. Develop recommendations for further calibration including additional metering of subwatersheds and field verification of piping or manholes in subsequent phases.
- d. **Task 530 - Identify System Deficiencies**
 - i. Based on model results, identify trunk system capacity constrictions and potential overflows. Consider each of the critical areas identified in Task 520 will be specifically considered in comparison to observed field conditions. Identify additional problem locations and locations where multiple issues can be solved with a single improvement project.
- e. **Task 540 – Model Alternatives**
 - i. Simulate improvements to the sanitary sewer system to mitigate the identified deficiencies. These could include infiltration and inflow reduction, new pipe sections, and increased diameter of existing pipe sections. Opportunities for mitigating multiple problems with a single sanitary sewer upgrade will also be identified.
- f. **Task 550 – Modeling Technical Memorandum**
 - i. Develop a draft Technical Memorandum (TM) that summarizes the model building and calibration effort. The TM will also present the findings of the current system evaluation and alternatives for improving the system.
- g. **Task 560 – Workshop 2**
 - i. Conduct a Workshop with the City to present the findings of the Task Series 400 Field Data Collection and Task Series 500 – Hydraulic Investigation. Critical area will be discussed and modeled solutions presented.
 - ii. Discuss applicable sanitary sewer capital improvement prioritization criteria for Task 630 Project Prioritization.
- 3. **Task Deliverables:**
 - a. The following deliverables are anticipated.
 - i. TM 4.0 – Modeling Technical Memorandum
 - ii. Workshop 2 materials, agendas and minutes.
 - iii. Updated GIS Data for the City's sanitary sewer system
- 4. **Meetings & Travel:** Travel required for Workshop 2
- 5. **Key Understandings:**
 - a. It is assumed that the City will supply electronic GIS and/or CAD files of the city's sanitary sewer system with inverts and ground level data. The city will also supply a file showing property boundaries.

Exhibit A

F. TASK SERIES 600 – Capital Improvements Needs

1. **Objective:** Identify sanitary sewer Capital Improvements Needs that address the City's sanitary sewer system management goals and objectives. Include a prioritized list of recommended project conceptual level solutions with order-of-magnitude cost estimates.
2. **Consultant Activities:**
 - a. **Task 610 – Recommended Projects**
 - i. Based on the previously planned projects identified in Task Series 400 and the results of the modeling effort in Task Series 500, compile a list of potential capital improvements for use in the next task, Project Prioritization.
 - ii. Identify an order of magnitude planning level opinion of cost for identified capital improvements.
 - b. **Task 620 – Growth Area Planning**
 - i. Up to four Growth Area Plans will be developed to determine the cost of public infrastructure needed. Each plan will include the following:
 - A. Review relevant background information prepared sanitary needs.
 - B. Using typical per capita sanitary flows and peaking factors for wet weather, estimate per capita flows. Assume post development conditions consistent with Ankeny 2040.
 - C. Based on existing topography conceptualize a regional system of sanitary sewer pumping and conveyance to serve the fully developed growth area.
 - D. Initially size of the regional sanitary pumping and conveyance system to serve the growth area. It is assumed that this will include pipe sizes of 15-inches or greater.
 - c. **Task 630- Project Prioritization Methodology** – Develop criteria for evaluating and prioritizing sanitary sewer capital improvements.
 - d. **Task 640 – Project Prioritization**
 - i. Evaluate and prioritize the potential capital improvements.
 - e. **Task 650 – Capital Improvements Plan TM**
 - i. Compile the results of Tasks 610 and 620 into Technical Memorandum 5.0 Capital Improvements Needs for distribution and review by the City.
3. **Task Deliverables:**
 - a. TM 5.0 – Capital Improvements Needs
4. **Meetings & Travel:**
 - a. Capital Improvements prioritization criteria will be discussed at Workshop 2.
 - b. TM 4.0 Capital Improvements Needs will be discussed at Workshop 3.
5. **Key Understandings:**
 - a. Known sanitary sewer problems as previously identified by City staff provide a starting point for Identifying Capital Improvements Needs.

G. TASK SERIES 700 – O&M Prioritization

1. **Objective:** The objective of this task is to support the City in further reducing SSOs and backups by prioritizing the sewer cleaning program and O&M activities.
2. **Consultant Activities:**
 - a. **Task 710 – Review Data** Collect, review and summarize, available data and benchmark to industry standards and metrics.
 - i. Current cleaning schedule
 - ii. Cleaning history
 - iii. Cleaning findings (if collected)
 - iv. CCTV data
 - v. GIS Data

Exhibit A

- vi. SSOs
 - vii. Backups
 - b. **Task 720 – Risk Analysis** - Review SSO and backup data and correlate between pipe attributes and SSO/backup occurrence. Attributes to be considered include: Age, diameter, material, slope, depth, CCTV data, and location
 - i. Summarize risk by each attribute and develop weighting factors and scoring criteria.
 - ii. Develop risk scores for pipes and basins based on risk analysis.
 - iii. Develop maps of risk scores to illustrate elevated risks and prioritize future activities.
 - c. **Task 730 – Develop O&M Prioritization**
 - i. Pipes will be assigned a cleaning frequency and prioritized based on risk
 - ii. Identify pipes needing to be on a hot-spot schedule (24 month or more frequent cleaning)
 - iii. Identify pipes that can be on system-wide cleaning schedule (cleaned once every 5-10 years)
 - d. **Task 740 – O&M Prioritization TM**
 - i. Compile the results of Tasks 710-730 into Technical Memorandum 6.0 for distribution and review by the City.
 - e. **Task 750 – Workshop 3** Conduct a Workshop with the City to present the findings of Task Series 600 Capital Improvements Needs, Task Series 700 O&M Prioritization
3. **Task Deliverables:**
- a. TM 6.0 – O&M Prioritization
 - b. Workshop 4 – Agenda, Presentation Materials, and Minutes
4. **Meetings & Travel:** Travel required for Workshop 3
5. **Key Understandings:**
- H. **TASK SERIES 800 – Policy and Future Needs**
- Objective:** This task will review and summarize ongoing policy, future policies that are needed and future investigation and financial planning activities to be addressed.
1. **Consultant Activities:**
- a. **Task 810 – Current Policies and Planning Goals** -Review and summarize current sanitary sewer policies and City planning goals.
 - i. Private lift stations
 - ii. New lift stations
 - iii. Private foundation drains, sump pumps, and laterals
 - iv. Design storm event for sanitary sewer sizing
 - b. **Task 820 – Future Policy Needs** – Based on review of current policies, capital needs and O&M prioritization recommend potential changes or additions to city policies.
 - c. **Task 830 – Summary of Expenses:**
 - i. Operations and Maintenance – Summarize current and historic sanitary sewer operations and maintenance costs and potential future costs from potential increased levels of service.
 - ii. Capital Improvements – Summarize short term and long term sanitary sewer capital improvement and associated operations and maintenance costs from CIP developed in Task Series 600.
 - d. **Task 840 – Estimated Cash Flow Projection**
 - i. Revenues – Summarize current and historic sanitary sewer utility revenue sources and revenues.
 - ii. From the summary of expenses and current revenue sources and revenues develop estimated cash flow projections to identify future funding shortfalls.
 - e. **Task 850 – Other Considerations**
 - i. Review and summarize other issues for future consideration in relation to sanitary sewer system master planning.

Exhibit A

- ii. Review growth areas within each watershed, anticipated land use and timing. Prioritize these areas for future modeling and further study.
 - iii. Develop and map a list of significant sanitary sewer system problems. Prioritize these areas for further study and more detailed modeling or SSES activities.
 - iv. Identify and summarize the ongoing sanitary sewer master planning process; including additional model development and refinement, annual capital improvements review and refinement, periodic master plan updates, and other ongoing activities
 - f. **Task 860 – Policy and Future Needs TM**
 - i. Document and summarize results of Tasks 810 through 860 into TM 7.0 Policy and Future Needs
 - g. **Task 870 – Workshop 4**
 - i. Conduct a Workshop with the City to present the findings of Task Series 800 Policy and Future Needs
- 2. **Task Deliverables:**
 - a. Workshop 4 Agenda, Materials and Minutes
 - b. TM 7.0 Policy and Future Needs
 - 3. **Meetings & Travel:** Travel for Workshop 4
 - 4. **Key Understandings:**
 - a. Financial Plan narrative drafted by City staff will provide a starting point for Task Series 700.
- I. **TASK SERIES 900 –SANITARY SEWER MASTER PLAN**
- 1. **Objective:** Develop an Executive Summary and compile recommendations, appendices and previously developed TMs into draft and final plans following the table of contents developed.
 - 2. **Consultant Activities:**
 - a. **Task 910 – Executive Summary** – Draft an Executive Summary that captures the major discussion, results and recommendations from each of the TMs.
 - b. **Task 920 – Draft Plan** – Compile discussion from each of the TMs into chapters and sections of the Plan following the Table of Contents developed in Task Series 100.
 - c. **Task 930 – Final Review Meeting** – Review Draft Plan and Executive Summary with the City and receive comments.
 - d. **Task 940 – Final Plan** – Finalize and distribute Final Plan. Assist City with preparation and presentation on Final Plan to City Council.
 - 3. **Task Deliverables:**
 - a. Draft Plan
 - b. Executive Summary
 - c. Appendices
 - d. Final Review Meeting Agenda and Minutes
 - e. Final Plan
 - 4. **Meetings & Travel:** Travel for Final Review Meeting
 - 5. **Key Understandings:**
 - a. The resulting Master Plan is intended to define the CIP for FY 2020-2024 and planning level CIP requirements through 2040 and serve as a template for a living document that will be refined and enhanced through periodic updates initially anticipated to be annual.

City of Ankeny
Sanitary Master Plan
Fee Summary

Task #	Task Description	HDR Hours	Labor	Expenses	HDR Total	JEO Total	GPM Total	Project Total
100	Project Management and Kickoff	111	\$18,321	\$100	\$18,421	\$4,815	\$0	\$23,236
200	Existing Sanitary Sewer System	42	\$8,831	\$0	\$8,831	\$0	\$0	\$8,831
300	Population Projections and Future Land Use	42	\$6,298	\$100	\$6,398	\$700	\$0	\$7,098
400	Field Data Collection (JEO)	13	\$1,530	\$0	\$1,530	\$34,040	\$52,489	\$88,059
500	Hydraulic Investigation	275	\$49,033	\$100	\$49,133	\$700	\$0	\$49,833
600	CIP Improvement Needs	100	\$26,129	\$0	\$26,129	\$0	\$0	\$26,129
700	O&M Priorization	71	\$10,577	\$100	\$10,677	\$700	\$0	\$11,377
800	Policy and Future Needs	59	\$9,710	\$100	\$9,810	\$0	\$0	\$9,810
900	Sanitary Sewer Master Plan	107	\$13,766	\$936	\$14,702	\$0	\$0	\$14,702
Total Contract Amount		820	\$144,194	\$1,436	\$145,630	\$40,955	\$52,489	\$239,074

Exhibit B

HDR Engineering, Inc. Terms and Conditions for Professional Services

1. STANDARD OF PERFORMANCE

The standard of care for all professional engineering, consulting and related services performed or furnished by ENGINEER and its employees under this Agreement will be the care and skill ordinarily used by members of ENGINEER's profession practicing under the same or similar circumstances at the same time and in the same locality. ENGINEER makes no warranties, express or implied, under this Agreement or otherwise, in connection with ENGINEER's services.

2. INSURANCE/INDEMNITY

ENGINEER agrees to procure and maintain, at its expense, Workers' Compensation insurance as required by statute; Employer's Liability of \$250,000; Automobile Liability insurance of \$1,000,000 combined single limit for bodily injury and property damage covering all vehicles, including hired vehicles, owned and non-owned vehicles; Commercial General Liability insurance of \$1,000,000 combined single limit for personal injury and property damage; and Professional Liability insurance of \$2,000,000 per claim for protection against claims arising out of the performance of services under this Agreement caused by negligent acts, errors, or omissions for which ENGINEER is legally liable. OWNER shall be made an additional insured on Commercial General and Automobile Liability insurance policies and certificates of insurance will be furnished to the OWNER. ENGINEER agrees to indemnify OWNER for third party personal injury and property damage claims to the extent caused by ENGINEER's negligent acts, errors or omissions. However, neither Party to this Agreement shall be liable to the other Party for any special, incidental, indirect, or consequential damages (including but not limited to loss of profits or revenue; loss of use or opportunity; loss of good will; cost of substitute facilities, goods, or services; and/or cost of capital) arising out of, resulting from, or in any way related to the Project or the Agreement from any cause or causes, including but not limited to any such damages caused by the negligence, errors or omissions, strict liability or breach of contract.

3. OPINIONS OF PROBABLE COST (COST ESTIMATES)

Any opinions of probable project cost or probable construction cost provided by ENGINEER are made on the basis of information available to ENGINEER and on the basis of ENGINEER's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since ENGINEER has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s)' methods of determining prices, or over competitive bidding or market conditions, ENGINEER does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost ENGINEER prepares.

4. CONSTRUCTION PROCEDURES

ENGINEER's observation or monitoring portions of the work performed under construction contracts shall not relieve the contractor from its responsibility for performing work in accordance with applicable contract documents. ENGINEER shall not control or have charge of, and shall not be responsible for, construction means, methods, techniques, sequences, procedures of construction, health or safety programs or precautions connected with the work and shall not manage, supervise, control or have charge of construction. ENGINEER shall not be responsible for the acts or omissions of the contractor or other parties on the project. ENGINEER shall be entitled to review all construction contract documents and to require that no provisions extend the duties or liabilities of ENGINEER beyond those set forth in this Agreement. OWNER agrees to include ENGINEER as an indemnified party in OWNER's construction contracts for the work, which shall protect ENGINEER to the same degree as OWNER. Further, OWNER agrees that ENGINEER shall be listed as an additional insured under the construction contractor's liability insurance policies.

5. CONTROLLING LAW

This Agreement is to be governed by the law of the state where ENGINEER's services are performed.

6. SERVICES AND INFORMATION

OWNER will provide all criteria and information pertaining to OWNER's requirements for the project, including design objectives and constraints, space, capacity and performance requirements, flexibility and expandability, and any budgetary limitations. OWNER will also provide copies of any OWNER-furnished Standard Details, Standard Specifications, or Standard Bidding Documents which are to be incorporated into the project.

OWNER will furnish the services of soils/geotechnical engineers or other consultants that include reports and appropriate professional recommendations when such services are deemed necessary by ENGINEER. The OWNER agrees to bear full responsibility for the technical accuracy and content of OWNER-furnished documents and services.

In performing professional engineering and related services hereunder, it is understood by OWNER that ENGINEER is not engaged in rendering any type of legal, insurance or accounting services, opinions or advice. Further, it is the OWNER's sole responsibility to obtain the advice of an attorney, insurance counselor or accountant to protect the OWNER's legal and financial interests. To that end, the OWNER agrees that OWNER or the OWNER's representative will examine all studies, reports, sketches, drawings, specifications, proposals and other documents, opinions or advice prepared or provided by ENGINEER, and will obtain the advice of an attorney, insurance counselor or other consultant as the OWNER deems necessary to protect the OWNER's interests before OWNER takes action or forebears to take action based upon or relying upon the services provided by ENGINEER.

7. SUCCESSORS, ASSIGNS AND BENEFICIARIES

OWNER and ENGINEER, respectively, bind themselves, their partners, successors, assigns, and legal representatives to the covenants of this Agreement. Neither OWNER nor ENGINEER will assign, sublet, or transfer any interest in this Agreement or claims arising therefrom without the written consent of the other. No third party beneficiaries are intended under this Agreement.

8. RE-USE OF DOCUMENTS

All documents, including all reports, drawings, specifications, computer software or other items prepared or furnished by ENGINEER pursuant to this Agreement, are instruments of service with respect to the project. ENGINEER retains ownership of all such documents. OWNER may retain copies of the documents for its information and reference in connection with the project; however, none of the documents are intended or represented to be suitable for reuse by OWNER or others on extensions of the project or on any other project. Any reuse without written verification or adaptation by ENGINEER for the specific purpose intended will be at OWNER's sole risk and without liability or legal exposure to ENGINEER, and OWNER will defend, indemnify and hold harmless ENGINEER from all claims, damages, losses and expenses, including attorney's fees, arising or resulting therefrom. Any such verification or adaptation will entitle ENGINEER to further compensation at rates to be agreed upon by OWNER and ENGINEER.

9. TERMINATION OF AGREEMENT

OWNER or ENGINEER may terminate the Agreement, in whole or in part, by giving seven (7) days written notice to the other party. Where the method of payment is "lump sum," or cost reimbursement, the final invoice will include all services and expenses associated with the project up to the effective date of termination. An equitable adjustment shall also be made to provide for termination settlement costs ENGINEER incurs as a result of commitments that had become firm before termination, and for a reasonable profit for services performed.

10. SEVERABILITY

If any provision of this agreement is held invalid or unenforceable, the remaining provisions shall be valid and binding upon the parties. One or more waivers by either party of any provision, term or condition shall not be construed by the other party as a waiver of any subsequent breach of the same provision, term or condition.

11. INVOICES

Exhibit B

ENGINEER will submit monthly invoices for services rendered and OWNER will make payments to ENGINEER within thirty (30) days of OWNER's receipt of ENGINEER's invoice.

ENGINEER will retain receipts for reimbursable expenses in general accordance with Internal Revenue Service rules pertaining to the support of expenditures for income tax purposes. Receipts will be available for inspection by OWNER's auditors upon request.

If OWNER disputes any items in ENGINEER's invoice for any reason, including the lack of supporting documentation, OWNER may temporarily delete the disputed item and pay the remaining amount of the invoice. OWNER will promptly notify ENGINEER of the dispute and request clarification and/or correction. After any dispute has been settled, ENGINEER will include the disputed item on a subsequent, regularly scheduled invoice, or on a special invoice for the disputed item only.

OWNER recognizes that late payment of invoices results in extra expenses for ENGINEER. ENGINEER retains the right to assess OWNER interest at the rate of one percent (1%) per month, but not to exceed the maximum rate allowed by law, on invoices which are not paid within thirty (30) days from the date OWNER receives ENGINEER's invoice. In the event undisputed portions of ENGINEER's invoices are not paid when due, ENGINEER also reserves the right, after seven (7) days prior written notice, to suspend the performance of its services under this Agreement until all past due amounts have been paid in full.

12. CHANGES

The parties agree that no change or modification to this Agreement, or any attachments hereto, shall have any force or effect unless the change is reduced to writing, dated, and made part of this Agreement. The execution of the change shall be authorized and signed in the same manner as this Agreement. Adjustments in the period of services and in compensation shall be in accordance with applicable paragraphs and sections of this Agreement. Any proposed fees by ENGINEER are estimates to perform the services required to complete the project as ENGINEER understands it to be defined. For those projects involving conceptual or process development services, activities often are not fully definable in the initial planning. In any event, as the project progresses, the facts developed may dictate a change in the services to be performed, which may alter the scope. ENGINEER will inform OWNER of such situations so that changes in scope and adjustments to the time of performance and compensation can be made as required. If such change, additional services, or suspension of services results in an increase or decrease in the cost of or time required for performance of the services, an equitable adjustment shall be made, and the Agreement modified accordingly.

13. CONTROLLING AGREEMENT

These Terms and Conditions shall take precedence over any inconsistent or contradictory provisions contained in any proposal, contract, purchase order, requisition, notice-to-proceed, or like document.

14. EQUAL EMPLOYMENT AND NONDISCRIMINATION

In connection with the services under this Agreement, ENGINEER agrees to comply with the applicable provisions of federal and state Equal Employment Opportunity for individuals based on color, religion, sex, or national origin, or disabled veteran, recently separated veteran, other protected veteran and armed forces service medal veteran status, disabilities under provisions of executive order 11246, and other employment, statutes and regulations, as stated in Title 41 Part 60 of the Code of Federal Regulations § 60-1.4 (a-f), § 60-300.5 (a-e), § 60-741 (a-e).

15. HAZARDOUS MATERIALS

OWNER represents to ENGINEER that, to the best of its knowledge, no hazardous materials are present at the project site. However, in the event hazardous materials are known to be present, OWNER represents that to the best of its knowledge it has disclosed to ENGINEER the existence of all such hazardous materials, including but not limited to asbestos, PCB's, petroleum, hazardous waste, or radioactive material located at or near the project site, including type, quantity and location of such hazardous materials. It is acknowledged by both parties that ENGINEER's scope of services do not include services related in any way to hazardous materials. In the event ENGINEER or any other party

encounters undisclosed hazardous materials, ENGINEER shall have the obligation to notify OWNER and, to the extent required by law or regulation, the appropriate governmental officials, and ENGINEER may, at its option and without liability for delay, consequential or any other damages to OWNER, suspend performance of services on that portion of the project affected by hazardous materials until OWNER: (i) retains appropriate specialist consultant(s) or contractor(s) to identify and, as appropriate, abate, remediate, or remove the hazardous materials; and (ii) warrants that the project site is in full compliance with all applicable laws and regulations. OWNER acknowledges that ENGINEER is performing professional services for OWNER and that ENGINEER is not and shall not be required to become an "arranger," "operator," "generator," or "transporter" of hazardous materials, as defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1990 (CERCLA), which are or may be encountered at or near the project site in connection with ENGINEER's services under this Agreement. If ENGINEER's services hereunder cannot be performed because of the existence of hazardous materials, ENGINEER shall be entitled to terminate this Agreement for cause on 30 days written notice. To the fullest extent permitted by law, OWNER shall indemnify and hold harmless ENGINEER, its officers, directors, partners, employees, and subconsultants from and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) caused by, arising out of or resulting from hazardous materials, provided that (i) any such cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or injury to or destruction of tangible property (other than completed Work), including the loss of use resulting therefrom, and (ii) nothing in this paragraph shall obligate OWNER to indemnify any individual or entity from and against the consequences of that individual's or entity's sole negligence or willful misconduct.

16. EXECUTION

This Agreement, including the exhibits and schedules made part hereof, constitute the entire Agreement between ENGINEER and OWNER, supersedes and controls over all prior written or oral understandings. This Agreement may be amended, supplemented or modified only by a written instrument duly executed by the parties.

17. LITIGATION SUPPORT

In the event ENGINEER is required to respond to a subpoena, government inquiry or other legal process related to the services in connection with a legal or dispute resolution proceeding to which ENGINEER is not a party, OWNER shall reimburse ENGINEER for reasonable costs in responding and compensate ENGINEER at its then standard rates for reasonable time incurred in gathering information and documents and attending depositions, hearings, and trial.

18. NO THIRD PARTY BENEFICIARIES

No third party beneficiaries are intended under this Agreement. In the event a reliance letter or certification is required under the scope of services, the parties agree to use a form that is mutually acceptable to both parties.

19. UTILITY LOCATION

If underground sampling/testing is to be performed, a local utility locating service shall be contacted to make arrangements for all utilities to determine the location of underground utilities. In addition, OWNER shall notify ENGINEER of the presence and location of any underground utilities located on the OWNER's property which are not the responsibility of private/public utilities. ENGINEER shall take reasonable precautions to avoid damaging underground utilities that are properly marked. The OWNER agrees to waive any claim against ENGINEER and will indemnify and hold ENGINEER harmless from any claim of liability, injury or loss caused by or allegedly caused by ENGINEER's damaging of underground utilities that are not properly marked or are not called to ENGINEER's attention prior to beginning the underground sampling/testing.

Exhibit C
HDR 2018 Rate Schedule

Schedule of Billing Rates by Classification

Classification	Hourly Rate
Project Principal	\$275
Project Manager	\$220
Utility Planner	\$210
Senior Engineer/QC	\$250-\$300
Hydraulic Modeler/GIS	\$110
Senior Civil Engineer	\$160
Civil Engineer	\$110
Senior CADD Technician	\$90-\$150
Junior CADD Technician	\$70-\$100
Administrative Assistant	\$70
Project Accountant	\$100

Reimbursable Expenses

- Auto mileage will be reimbursed on the basis of \$0.575 per mile, the current 2018 allowed IRS rate.
- Telephone, postage, and copy costs will be invoiced as actual costs incurred.

Subconsultants

- Subconsultants will be reimbursed at invoice plus 5 percent markup.

Annual Adjustments

The Billing Rates and Reimbursable Expenses are effective as of January 1, 2018 and will be adjusted annually to reflect equitable changes in the compensation payable to Engineer.

