

**AGREEMENT FOR PROFESSIONAL ENGINEERING SERVICES
FOR STORMWATER – SE HACKAMORE DRIVE & SE SECRETARIAT DRIVE (RFQ
NO. 543-32272B)**

THIS AGREEMENT made and entered into this ____ day of _____, 20____, by and between the City of Lee's Summit, Missouri (hereinafter "City"), and Intuition & Logic Inc. (hereinafter "Engineer").

WITNESSETH:

WHEREAS, City intends to have engineering services for STORMWATER – SE HACKAMORE DRIVE & SE SECRETARIAT DRIVE (hereinafter "Project"); and

WHEREAS, Engineer has submitted a proposal for the Project and an estimate of engineering costs to perform the Project; and

WHEREAS, the City Manager is authorized and empowered by City to execute contracts providing for professional engineering services; and

WHEREAS, City desires to enter into an agreement with Engineer to perform the Project; and

WHEREAS, Engineer represents that the firm is equipped, competent, and able to undertake such an assignment.

NOW THEREFORE, in consideration of the mutual covenants and considerations herein contained, **IT IS HEREBY AGREED** by the parties hereto as follows:

**ARTICLE I
SCOPE OF BASIC SERVICES TO BE PROVIDED BY ENGINEER**

Engineer shall provide the following professional engineering services to City ("Basic Services"):

See Attachment A

**ARTICLE II
OPTIONAL SERVICES TO BE PROVIDED BY ENGINEER**

The following is a list of additional services which will be furnished by Engineer, if needed by City, upon receipt of written authorization by the Director of Public Works ("Optional Services"):

THERE ARE NO OPTIONAL SERVICES TO BE PROVIDED BY ENGINEER FOR THIS CONTRACT.

**ARTICLE III
SCOPE OF SERVICES TO BE PROVIDED BY CITY**

City shall provide the following services to Engineer:

City Services

The City will cooperate fully with the Engineer in the development of the project, including the following:

- 1.5.1 Make available all information pertaining to the project which may be in the possession of the City.
- 1.5.2 Provide the Engineer with the City's requirements for the project.
- 1.5.3 Contact affected residents to inform them of the project and make provisions for the Engineer to enter upon property at the project site for the performance of his duties.
- 1.5.4 Provide Group Meeting location and changeable message signs (if needed) for public engagement meetings.
- 1.5.5 Examine all studies and layouts developed by the Engineer, obtain reviews by staff, and render decisions thereon in a prompt manner so as not to delay the Engineer.
- 1.5.6 Designate a City's employee to act as City's Person in Responsible Charge under this contract, such person shall have authority to transmit instructions, interpret the City's policies and render decisions with respect to matters covered by this agreement.
- 1.5.7 Perform appraisals and appraisal review, negotiate with property owners and otherwise provide all services in connection with acquiring all right-of-way needed to construct this project.
- 1.5.8 On-site construction observation and construction contract administration.
- 1.5.9 Advertise and obtain bids for the project including distribution of plans and specifications.
- 1.5.10 Waive any City fees/permits to Engineer, or its consultants relative to this project.

**ARTICLE IV
PAYMENTS TO THE ENGINEER**

For the services performed by Engineer pursuant to this Agreement, and as full compensation therefore, and for all expenditures made and all expenses incurred by Engineer in connection with this Agreement, except as otherwise expressly provided herein, subject to and in conformance with all provisions of this Agreement, City will pay Engineer a maximum fee for Basic Services and Optional Services in the sum of

Seventy Nine Thousand Seven Hundred Seventy Seven Dollars and Twenty Cents (\$79,777.20), according to the following provisions:

- A. The cost of all Basic Services covered under Article I shall be billed hourly at the rates set forth in Exhibit A attached hereto and incorporated herein by reference. Expenses incurred to provide the Basic Services shall be billed as set forth in Exhibit A. The total fees (hourly fees and expenses) for the Basic Services shall not exceed the total sum of Seventy Nine Thousand Seven Hundred Seventy Seven Dollars and Twenty Cents (\$79,777.20).
- B. The cost of all Optional Services covered under Article II shall be billed hourly at the rates set forth in Exhibit A attached hereto and incorporated herein by reference. Expenses incurred to provide the Optional Services shall be billed as set forth in Exhibit A. The total fees (hourly fees and expenses) for the Optional Services shall not exceed the total sum of Zero Dollars (\$0).
- C. If so requested by Engineer, City will make payment monthly for Basic Services and Optional Services that have been satisfactorily completed. The City shall make payment to Engineer within a period not to exceed thirty (30) days from the date an invoice is received by City. All invoices shall contain the following information:
 - 1. Project Name/Task Name/RFP Number/Description of Agreement.
 - 2. Invoice Number and Date.
 - 3. Purchase Order Number issued by City.
 - 4. Itemized statement for the previous month of Labor (including Personnel Description, Title or classification for each person on the Project, Hours Worked, Hourly Rate, and Amount), Itemized Reimbursable Expenses, and Invoice Total.
 - 5. Description of monthly progress detailing the amount of the services completed to date and projected completion time.
 - 6. Project Billing Summary containing the Contract or Agreed Maximum Fee Amount, Cumulative Amount Previously Billed, Billing Amount this Invoice, Contract or Agreed Amount Remaining, and Percent of Maximum Fee Billed to Date.

All moneys not paid when due as provided herein shall bear interest at a per annum rate equal to one percent (1%) plus the average *Consumer Price Index for All Urban Consumers (CPI-U)-U.S. City Average* for the time period in which payment is past due; provided, however, that in no event will the amount of interest to be paid by the City exceed 9% per annum.

**ARTICLE V
COMPLETION TIME**

The Basic Services shall be completed in accordance with the following schedule:

Project Phase	Begin Date (Mo/Yr)	Completion Date (Mo/Yr)
Consultant Selection	April 2019	May 2019
Mail Survey Letters	July 2019	July 2020
City to contact residents	July 2019	July 2019
Conduct Survey/Gather Information	July 2019	September 2019
H&H modeling	October 2019	December 2019
Evaluate Alternatives	January 2019	January 2019
Begin Phase 2	February 2020	

The Director of Public Works may, with the mutual consent of the parties, amend the deadlines contained in this Article by written authorization upon a showing of cause for amendment by Engineer.

The Optional Services shall be completed in accordance with the deadlines set by the Director of Public Works and accepted by Engineer at the time said Optional Services are authorized by the Director of Public Works.

**ARTICLE VI
INSURANCE**

- A. **CERTIFICATE OF INSURANCE:** The Engineer shall secure and maintain, throughout the duration of this contract, insurance of such types and in at least the amounts that are required herein. Engineer shall provide certificate(s) of insurance confirming the required protection on an ACORD 25 (or equivalent form). The City shall be notified by receipt of written notice from the insurer at least thirty (30) days prior to material modification or cancellation of any policy listed on the certificate(s). The City reserves the right to require formal copies of any Additional Insured endorsement, as well as the right to require completed copies of all insuring policies applicable to the project. The cost of such insurance shall be included in the Engineer's contract price.

- B. **NOTICE OF CLAIM:** The Engineer shall upon receipt of notice of any claim in connection with this contract promptly notify the City, providing full details thereof, including an estimate of the amount of loss or liability. The Engineer shall also promptly notify the City of any reduction in limits of protection afforded under any policy listed in the certificate(s) of insurance in excess of \$10,000.00, whether or not such impairment came about as a result of this contract. If the City shall subsequently determine that the Engineer's aggregate limits of protection shall have been impaired or reduced to such extent that they are inadequate for the balance of

the project, the Engineer shall, upon notice from the City, promptly reinstate the original limits of liability required hereunder and shall furnish evidence thereof to the City.

C. **INDUSTRY RATING:** The City will only accept coverage from an insurance carrier who offers proof that it is licensed to do business in the State of Missouri; carries a Best's policyholder rating of "A" or better; carries at least a Class VII financial rating or is a company mutually agreed upon by the City and the Engineer.

D. **SUB-CONSULTANT'S INSURANCE:** If any part of the contract is to be sublet, the Engineer shall either:

1. Cover all sub-consultants in the Engineer's liability insurance policy or,
2. Require each sub-consultant not so covered to secure insurance in the minimum amounts required of the Engineer and submit such certificates to the City as outlined herein.

E. **SELF-INSURED RETENTIONS / DEDUCTIBLES:** Any Engineer that maintains a Self-Insured Retention or Deductible (in excess of \$50,000) must be declared on the Certificates provided to the City. Such amounts shall be the sole responsibility of the Engineer. The City reserves the right to approve such self-insured retentions/deductibles and may require guarantees from the Engineer for such assumed limits.

F. **PROFESSIONAL LIABILITY:** Professional Liability, or Errors and Omissions Insurance protection must be carried by Engineer in the minimum amount of \$1,000,000.

G. **COMMERCIAL GENERAL LIABILITY POLICY**

Limits:

Each occurrence:	\$2,000,000
Personal & Advertising Injury:	\$2,000,000
Products/Completed Operations Aggregate:	\$2,000,000
General Aggregate:	\$2,000,000

Policy must include the following conditions:

- Bodily Injury and Property Damage
- Insured Contract's Contractual Liability
- Explosion, Collapse & Underground (if risk is present)
- Additional Insured: City of Lee's Summit, Missouri

H. **AUTOMOBILE LIABILITY:** Policy shall protect the Engineer against claims for bodily injury and/or property damage arising out of the ownership or use of any owned, hired and/or non-owned vehicle and must include protection for either:

1. Any Auto
2. or all Owned Autos; Hired Autos; and Non-Owned Autos

Limits:

Each Accident, Combined Single Limits,
Bodily Injury and Property Damage: \$2,000,000
City of Lee's Summit, Missouri does NOT need to be named as additional insured
on Automobile Liability

- I. WORKERS' COMPENSATION: This insurance shall protect the Engineer against all claims under applicable state Workers' Compensation laws. The Engineer shall also be protected against claims for injury, disease or death of employees which, for any reason, may not fall within the provisions of a Workers' Compensation law and contain a waiver of subrogation against the City. The policy limits shall not be less than the following:

Workers' Compensation: Statutory
Employer's Liability:
Bodily Injury by Accident: \$100,000 Each Accident
Bodily Injury by Disease: \$500,000 Policy Limit
Bodily Injury by Disease: \$100,000 Each Employee

J. GENERAL INSURANCE PROVISIONS

- 1. The insurance limits outlined above represent the minimum coverage limit and do not infer or place a limit of liability on the Engineer nor has the City assessed the risk that may be applicable to the Engineer.
- 2. The Engineer's liability program will be primary and any insurance maintained by the City (including self-insurance) will not contribute with the coverage maintained by the Engineer.
- 3. Coverage limits outlined above may be met by a combination of primary and excess liability insurance programs.
- 4. Any coverage provided on a Claims Made policy form must contain a 3-year tail option (extended reporting period) or the program must be maintained for 3-years subsequent to completion of the Contract.
- 5. Any failure on the part of the Engineer with any policy reporting provision shall not affect the coverage provided to the City.
- 6. When "City" is utilized, this includes its officers, employees and volunteers in respect to their duties for the City.

**ARTICLE VII
MISCELLANEOUS PROVISIONS**

The following miscellaneous provisions are agreed to by both parties to this Agreement:

- A. COVENANT AGAINST CONTINGENT FEES: Engineer warrants that Engineer has not employed or retained any company or person, other than a bona fide employee working for the Engineer, to solicit or secure this Agreement, and that Engineer has not paid or agreed to pay any company or person, other than bona fide employee, any fee, commission, percentage, brokerage fee, gifts, or any other consideration contingent upon or resulting from the award or making of this Agreement. For breach or violation

of this warranty, the City shall have the right to annul this Agreement without liability or, at its discretion, to deduct from the contract price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift, or contingent fee.

- B. **OWNERSHIP OF ENGINEERING DOCUMENTS:** Payment by City to Engineer as aforesaid in Article IV shall vest in City title to all drawings, sketches, studies, analyses, reports, models, and other paper, documents, computer files, and material produced by Engineer exclusively for the services performed pursuant to this Agreement up to the time of such payments, and the right to use the same without other or further compensation, provided that any use for another purpose shall be without liability to the Engineer. Any reuse without written verification or adaptation by Engineer for the specific purpose intended will be at City's risk and without liability or exposure to Engineer, and City shall indemnify and hold harmless, to the extent allowed by the Constitution and Laws of the State of Missouri, Engineer from all claims, damages, losses, expenses, including attorneys' fees arising out of or resulting therefrom.
- C. **MODIFICATIONS TO AGREEMENT:** In the event of any changes in the scope of services contained in this Agreement, prior to commencing the services City and Engineer shall enter into a modification of this Agreement describing the changes in the services to be provided by Engineer and City, providing for compensation for any additional services to be performed by Engineer, and providing completion times for said services.
- D. **EMERGENCY CHANGES IN SERVICES:** The Director of Public Works, with the consent of the City Manager, is authorized to execute on behalf of the City modification agreements as provided for in subsection C. above where there is an emergency and the overall compensation authorized in Article IV above, and any supplements or modifications thereto, is not increased. For purposes of this subsection, an "emergency" shall mean those unforeseen circumstances that present an immediate threat to public health, welfare, or safety; or when immediate response is necessary to prevent further damage to public property, machinery, or equipment; or when delay would result in significant financial impacts to the City as determined by the Director of Public Works and the City Manager.

In the event an emergency change in services is authorized by the Director of Public Works and the City Manager pursuant to this provision, the modification agreement shall be submitted to the City Council for ratification at its next available meeting.

- E. **TERMINATION:** In the event of termination by City, if there are any services hereunder in progress but not completed as of the date of termination, then said Agreement may be extended upon written approval of the City until said services are completed and accepted.
 - 1. Termination for Convenience: The services called for by this Agreement or any supplements thereto may be terminated upon request and for the convenience of

City upon thirty (30) days advance written notice. City shall pay Engineer for all services rendered up to the date of termination.

2. Termination for Cause: This Agreement may also be terminated for cause by City or Engineer. Termination for cause shall be preceded by a fourteen-(14) day correction period effective upon delivery of written notice. City shall pay Engineer for all services rendered up to the date of termination. In the event of termination for cause by City, compensation for services rendered by Engineer up to the date of termination shall be offset by City's reasonable cost to mitigate or correct the effects of such termination.
 3. Termination Due to Unavailability of Funds in Succeeding Fiscal Years: When funds are not appropriated or otherwise made available to support continuation of the Project in a subsequent fiscal year, this Agreement shall be terminated and Engineer shall be reimbursed for the services rendered up to the date of termination plus the reasonable value of any nonrecurring costs incurred by Engineer but not amortized in the price of the services delivered under this Agreement.
- F. **COMPLIANCE WITH LAWS**: Engineer shall comply with all Federal, State, and local laws, ordinances, and regulations applicable to the services. Engineer shall secure all licenses, permits, etc. from public and private sources necessary for the fulfillment of its obligations under this Agreement.
- G. **SUBLETTING ASSIGNMENT OR TRANSFER**: Engineer shall not sublet, assign, or transfer any interest in the services covered by this Agreement, except as provided for herein and except with the prior written consent of City. The use of subcontractors shall in no way relieve Engineer of his/her primary responsibility for the services. No approval will be necessary for non-professional services such as reproductions, printing, materials, and other services normally performed or provided by others.
- H. **CONFERENCES, VISITS TO SITE, INSPECTION OF SERVICES**: Upon reasonable advance notice and during normal business hours at Engineer's place of business, representatives of City shall have the privilege of inspecting and reviewing the services being performed by Engineer and consulting with him/her at such time. Conferences are to be held at the request of City or Engineer.
- I. **ENGINEER'S ENDORSEMENT**: Engineer shall endorse all plans, specifications, estimates, and engineering data furnished by him/her.
- J. **INSPECTION OF DOCUMENTS**: Engineer shall maintain all records pertaining to its services hereunder for inspection, upon reasonable advance notice and during normal business hours at Engineer's place of business, by a City representative during the contract period and for three (3) years from the date of final payment for each individual project performed pursuant to this Agreement.
- K. **INDEMNIFICATION AND HOLD HARMLESS**: Engineer shall indemnify and hold harmless City and its officers, employees, elected officials, and attorneys, each in

their official and individual capacities, from and against judgments, damages, losses, expenses, including reasonable attorneys' fees, to the extent caused by the negligent acts, errors, omissions, or willful misconduct of Engineer, or its employees, or subcontractors, in the performance of Engineer's duties under this Agreement, or any supplements or amendments thereto.

- L. **LIMITATION OF LIABILITY:** In no event will City be liable to Engineer for indirect or consequential damages, and in no event will City's liability under this Agreement exceed the amount to be paid to Engineer pursuant to Article IV of this Agreement.
- M. **PROFESSIONAL RESPONSIBILITY:** Engineer will exercise reasonable skill, care, and diligence in the performance of its services in accordance with customarily accepted professional engineering practices. If Engineer fails to meet the foregoing standard, Engineer will perform at its own cost, and without reimbursement from City, the professional engineering services necessary to correct errors and omissions that are caused by Engineer's failure to comply with above standard, and that are reported to Engineer within one year from the completion of Engineer's services for each individual project performed pursuant to this Agreement.
- N. **ENTIRE AGREEMENT:** This Agreement constitutes the entire agreement between the parties with respect to its subject matter, and any prior agreements, understandings, or other matters, whether oral or written, are of no further force or effect. This Agreement may be amended, changed, or supplemented only by written agreement executed by both of the parties hereto.
- O. **CONFLICT:** In the event of any conflict, ambiguity, or inconsistency between this Agreement and any other document that may be annexed hereto, the terms of this Agreement shall govern.
- P. **GOVERNING LAW:** This Agreement shall be governed by and construed in accordance with the laws of the State of Missouri.
- Q. **OPINION OF PROBABLE CONSTRUCTION COST AND SCHEDULE:** Since Engineer has no control over the cost of labor, materials, or equipment, or over contractor's(s') methods of determining prices, or over competitive bidding or market conditions, the estimate of construction cost and schedule provided for herein is to be made on the basis of Engineer's experience and qualifications and represents Engineer's best judgment as a professional engineer familiar with the construction industry, but Engineer cannot and does not guarantee that the bids or the Project construction cost or schedule will not vary from the opinion of probable construction cost and schedule prepared by Engineer.
- R. **TAX EXEMPT:** City and its agencies are exempt from State and local sales taxes. Sites of all transactions derived from this Agreement shall be deemed to have been accomplished within the State of Missouri.

- S. SAFETY: In the performance of its services, Engineer shall comply with the applicable provisions of the Federal Occupational Safety and Health Act, as well as any pertinent Federal, State and/or local safety or environmental codes.
- T. ANTI-DISCRIMINATION CLAUSE: Engineer and its agents, employees, or subcontractors shall not in any way, directly or indirectly, discriminate against any person because of age, race, color, handicap, sex, national origin, or religious creed.
- U. DELAY IN PERFORMANCE: Neither City nor Engineer shall be considered in default of this Agreement for delays in performance caused by circumstances beyond the reasonable control of the nonperforming party. For purposes of this Agreement, such circumstances include, but are not limited to, abnormal weather conditions, floods, earthquakes, fire, epidemics, war, riots, and other civil disturbances, strikes, lockouts, work slowdowns, and other labor disturbances, sabotage, judicial restraint, and delay in or inability to procure permits, licenses, or authorizations from any local, State, or Federal agency for any of the supplies, materials, accesses, or services required to be provided by either City or Engineer under this Agreement. Engineer and City shall be granted a reasonable extension of time for any delay in its performance caused by any such circumstances. Should such circumstances occur, the nonperforming party shall within a reasonable time of being prevented from performing, give written notice to the other party describing the circumstances preventing continued performance and the efforts being made to resume performance of the Agreement.
- V. NO THIRD-PARTY RIGHTS: The services provided for in this Agreement are for the sole use and benefit of City and Engineer. Nothing in this Agreement shall be construed to give any rights or benefits to anyone other than City and Engineer.
- W. NOTICE: Whenever any notice is required by this Agreement to be made, given or transmitted to any party, it shall be enclosed in an envelope with sufficient postage attached to ensure delivery and deposited in the United States Mail, first class, with notices to City addressed to:

City Engineer
 City of Lee's Summit
 220 SE Green Street
 Lee's Summit, MO 64063

Director of Public Works
 City of Lee's Summit
 200 SE Green Street
 Lee's Summit, MO 64063

and notices to Engineer shall be addressed to:

MARK MEYER INTUITION & LOGIC ENGINEERING
16253 SWINGLEY RIDGE RD STE 100
CHESTERFIELD, MO 63017

or such place as either party shall designate by written notice to the other. Said notices may also be personally hand delivered by each party to the other, at the respective addresses listed above. If hand delivered, the date of actual completion of delivery

shall be considered the date of receipt. If mailed, the notice shall be considered received the third day after the date of postage.

**ARTICLE VIII
ALL OTHER TERMS REMAIN IN EFFECT**

Reserved.

THIS AGREEMENT shall be binding on the parties thereto only after it has been duly executed and approved by City and Engineer.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed on the ___ day of _____, 20__.

CITY OF LEE'S SUMMIT

Stephen A. Arbo, City Manager

ATTEST:

City Clerk Trisha Fowler Arcuri

APPROVED AS TO FORM:

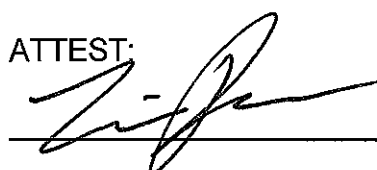
Nancy K. Yendes,
Chief Counsel of Infrastructure and Planning
Office of City Attorney

ENGINEER:



BY: Mark Meyer
TITLE: President

ATTEST:



Attachment A

SE Hackamore Drive and SW Secretariat Drive

Stormwater Improvement Project

Scope of Service

The purpose of the Phase 1 scope of services is to gather background information, develop practical alternatives, develop cost estimates and determine the recommended approach(es) to addressing the storm water flooding issues along SE Hackamore Drive and SW Secretariat Drive.

The Phase 2 and 3 scope of services will be developed after the Phase 1 services are completed. Phase 2 services will focus on Design Development, Permitting, Utility Coordination, Right Of Way and Public Involvement for the recommended alternative(s). Phase 3 services will focus on the preparation of design plans, specifications and CD's for use in bidding and construction.

1.0 Surveying

Topographic surveying to support the Alternatives Analysis and hydraulic model development. The survey data will be tied to FEMA benchmarks for potential use in Phase 2 & 3 for Floodplain mapping and FEMA review.

1.1 Resident Notification Letter

Send a notification letter to the affected residents in the project area.

1.2 Low Sill Structure Survey

Define low sill elevation for habitable structures.

- SE Secretariat Dr from SE Saddlebrook to SE Citation St. (12 houses)
- 4320 to 4328 SE Canter Dr (3 houses)
- 216 & 220 SE Hackamore Dr. (2 houses)
- 213 & 217 Hackamore Dr. (2 houses)

1.3 High Water Marks

Any high water marks observed at residential properties will be surveyed for use during model calibration and development. Historical high water elevations may also be surveyed after residential meetings if new data points are discovered from coordination with the residents. Due to the time since the most recent flood event, high water marks are anticipated to be staining or water lines along foundations.

1.4 Hackamore Drive

Topographic survey of the existing storm sewer alignment including general surface grades, structure tops and flowlines and any utilities within 20 ft of the existing alignment of the enclosed system at 216 & 220 SE Hackamore Drive and the system between 201 & 205 SE Hackamore Drive. Survey the roadway centerline, edge of pavement and location of utilities within the road corridor of SE Hackamore Drive from 300 SE Hackamore Drive to 201 SE Hackamore Drive.

1.5 Not Used

1.6 Not Used

1.7 Roadway Crossing Structure Survey

Define structure material, dimensions, low chord, piers, abutment walls, upstream and downstream flowlines and other geometric information to support hydraulic model development. Provide a road centerline profile approximately 500 ft long centered at the channel to identify overtopping elevations. Provide a cross section 10 ft upstream and 10 ft downstream of the abutment toe of slope at each crossing.

- SE Saddlebrook Dr

- Mandan Ln

1.8 Horizontal and vertical control – The horizontal datum reference shall be NAD83, GRS 80 spheroid. Horizontal projection shall be State Plane Mercator, Missouri West Zone 2403 feet. The vertical datum reference shall be NAVD88. The survey shall pick up any existing available FEMA reference control monuments in the project vicinity. Horizontal and vertical control datum references are per the Jackson County, Missouri FEMA Flood Insurance Study report dated January 20, 2017.

2.0 Alternatives Analysis

2.1 Background Data Collection and Analysis

Collect and analyze available GIS, profile, H&H and other data in advance of field data collection. Data may include, but is not limited to contour and topo data, as-builts, Rainfall Data, gage data, historical storm event elevations, GIS data and projection files with aerial photography as available, survey, boundary and utility information, Geotechnical information, CITY, County and other reports, complaint logs and other available background.

- Submit FEMA data request for available effective hydraulic model and supporting survey and hydrologic backup.
- Submit SEMA data request for available effective hydraulic model.
- Information on historical flood elevations at residential properties will be collected during the resident meetings, refer to the Public Engagement Section.

2.2 Resident Flood History

I&L will coordinate with each affected resident requesting any available information regarding flooding history on the resident's property. Refer to the Public Engagement section. I&L will collect, review and evaluate the available resident flood history information. The flood history information will be used during the hydraulic model calibration.

2.3 Hydrologic and Hydraulic Data

I&L will prepare an existing conditions model from the effective FEMA model, survey data and available GIS or other topo data for use in analysis and design. I&L will develop site hydrology using HEC-HMS and following TR-55 curve number method by delineating the watershed, developing flow paths, determining impervious and canopy, determining soil type, and initial abstractions. I&L will evaluate other runoff hydrograph methods to best represent the watershed.

2.3.1 Hydrologic Data Development

Tributary G1 - I&L will develop site hydrology using HEC-HMS and following TR-55 curve number method by delineating the watershed, developing flow paths, determining impervious and canopy, determining soil type, and initial abstractions. The drainage areas and contributing flows for Tributary West and Tributary East will be determined. I&L will evaluate other runoff hydrograph methods to best represent the watershed. These may include USGS regression equation; basin lag and synthetic unit hydrograph.

Hackamore Drive – I&L will develop inlet hydrology and flowrates for the enclosed systems on Hackamore Drive to support the hydraulic evaluation and alternatives.

2.3.2 Hydraulic Data Development

I&L will prepare an existing conditions hydraulic model using HEC-RAS hydraulic modeling software for channels, HY8 for culverts, and IntelliSOLVE Storm Sewer for enclosed system

components. The HEC-RAS model will be developed from the effective FEMA model, survey topo data and available CITY GIS or other topo data. Hydraulic roughness parameters will be determined during the initial field visit observations.

1. Obtain Effective Model from FEMA
2. Duplicate Effective Model
 - a. The duplicate effective model is a copy of the hydraulic analysis used in the effective FIS, referred to as the effective model. The effective model should be obtained and then reproduced on the requester's equipment to produce the duplicate effective model. This is required to ensure that the effective model's input data has been transferred correctly to the requester's equipment and to ensure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.
3. Corrected Effective Model
 - a. The Corrected Effective Model is the model that corrects any errors that occur in the Duplicate Effective Model, adds any additional cross sections to the Duplicate Effective Model, or incorporates more detailed topographic information than that used in the current effective model. The Corrected Effective Model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.
4. Existing or Pre-Project Conditions Model
 - a. The Duplicate Effective Model or Corrected Effective Model is modified to produce the Existing or Pre-Project Conditions Model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective Model or Duplicate Effective Model. The existing or pre-project model may be required to support conclusions about the actual impacts of the project associated with the revised or post-project model or to establish more up-to-date models on which to base the revised or post-project conditions model.
 - b. FEMA LiDAR data used in the effective study was 2ft DEM flown in Oct 2010. The effective model may not contain the new culvert configuration at SE Saddlebrook Dr. I&L will update the effective model using the 2018 LiDAR data and new survey data.
 - c. I&L will extend the effective model downstream of Mandan Ln and begin the model with the Lake Winnebago water surface elevations.

2.3.3 Model Calibration

I&L will use available rainfall data and high water marks for resident reported flood dates to recreate storm events in HEC-HMS. The resulting runoff will be routed through the existing conditions model to calibrate roughness coefficients.

- The date of the storm will be checked against the installation date of the new culvert at SE Saddlebrook Drive to verify the culvert configuration was current at the time of the event.
- The calibration event is anticipated to be the August 2017 event that had back to back 5" rainfall events. This event is likely to have the best high water mark records from the residents.

2.3.4 Enclosed System Modeling

I&L will develop an existing conditions model in IntelISOLVE Hydraflow Storm Sewers of the enclosed system running between 216 & 220 SE Hackamore Drive and the system between 201 & 205 SE Hackamore Drive. The modeling for each system will extend to the outfall into Tributary G1.

2.3.5 Hydrologic & Hydraulic Data Design Memorandum

I&L will summarize the hydraulic data sources, methodology, calculations and results in a brief design memorandum. The memo will be in PDF format and submitted to the CITY via email.

2.4 Field Data Collection

I&L will walk the project reach to evaluate site conditions, construction access locations, potential right of way/easement needs, and potential conflicts with utilities, driveways, other property amenities. I&L will collect data in GIS and photo document field visit and observations.

- This site visit will coincide with the Resident Group Meeting or individual follow up meetings. Refer to the Public Engagement section.

2.5 Design Alternatives Analysis

The goal of the alternatives evaluation is to determine which alternative is the most practical method to address the flooding issues.

2.5.1 Develop Practical Alternatives

I&L will develop alternative design approaches and determine most practical approach based on cost, disturbance, constructability, and others. Anticipated alternatives include the following, but others may be developed as well:

- Regional detention on Tributary East and/or Tributary West
- Flood proofing structures
- System Modifications – modifications to the open channel system to increase conveyance or storage.
- Upsizing the enclosed system at Hackamore
- A parallel enclosed system at Hackamore (multiple routes are possible)
- Other alternatives and combinations as identified in the analysis process

2.5.2 Alternatives Modeling

I&L will evaluate the practical approaches using the appropriate software (HEC-HMS, HEC-RAS, IntelISOLVE) to determine the alternative's effectiveness at eliminating flooding.

2.5.3 Develop Schematic Costs

I&L will develop schematic (order of magnitude) first costs and lifecycle costs for each practical alternative.

2.5.4 Analyze Alternatives

I&L will evaluate the advantages, opportunities and challenges of each practical alternative and coordinate with the CITY to determine the most practical and cost effective alternative for each site.

- A “Do Nothing” and “Buy-Out” option will be included in the Alternatives Analysis.

2.5.5 Alternatives Analysis Result Summary

I&L will summarize the Alternatives Analysis process, results and recommendations in a summary memorandum. The memo will be in PDF format and submitted to the CITY via email for review and comment.

2.5.5.1 Draft Alternatives Analysis Summary

I&L will summarize the Alternatives Analysis process, results and recommendations in a summary memorandum. The memo will be in PDF format and submitted to the CITY via email for review and comment. The memo is for internal use only and is intended to be a decision making tool and to document the process used.

2.5.5.2 Incorporate Comments

I&L will incorporate CITY comments into the Alternatives Analysis Summary and submit the final version to the CITY in PDF format via email.

2.5.5.3 Final Alternatives Analysis Summary

Upon receipt of final comments and conditional approval, I&L will submit the final Alternatives Analysis Summary to the CITY in PDF format via email.

2.5.6 Approve Approach

The CITY will evaluate the alternatives analysis and discuss any questions or concerns until they have reach consensus on the approved approach. I&L will be available to the CITY as needed to provide input into these discussions. Anticipate 1 meeting with the City to review the Alternatives Analysis.

3.0 Public Engagement

I&L will hold one Group Meeting to inform residents about the project and coordinate directly with affected property owners as follows:

3.1 Group Meeting

3.1.1 Group Meeting Coordination

I&L will coordinate the Group Meeting date, time, location and advertising with the CITY. The CITY will provide the meeting location. I&L will mail the meeting notification letter to the affected residents. The letter will also include a brief survey questionnaire requesting any information regarding flooding history on the resident’s property. An online version of the questionnaire will also be prepared and a link provided in the letter.

- Develop Draft letter and submit to CITY for review and comment.
- Incorporate CITY comments
- Mail Approved Resident Survey Letter

3.1.2 Prepare Group Meeting Presentation

I&L will prepare a brief presentation in Microsoft Power Point for use in presenting the project and setting expectations at the group meeting. I&L will email a PDF of the presentation to the CITY for review and comment and incorporate the CITY comments into the final documents prior to the meeting.

3.1.3 Open House Exhibits and Forms

I&L will prepare meeting exhibits illustrating the project reach for the resident's to identify historical flooding extents and locations. I&L will also have a GIS workstation available to record resident flood history observations. I&L will prepare sign in sheets, comment sheets and other meeting material as necessary. I&L will email a PDF of the exhibits, Agenda and Forms to the CITY for review and comment and incorporate the CITY comments into the final documents prior to the meeting.

3.1.4 Attend Group Meeting

I&L will attend the meeting with sufficient personnel to adequately staff the meeting and present the meeting material. The objective of the meeting is to discuss the project goals, process, set expectations and obtain available flood history information. Follow up meetings with affected residents may be scheduled during the group meeting discussions.

3.1.5 Group Meeting Summary

I&L will prepare meeting summary notes in PDF format and submit them to the CITY via email. I&L will incorporate any comments received from the CITY into the meeting notes.

3.2 Individual Resident Meetings

3.2.1 Owner Contact

I&L will prepare a follow up letter to residents that were unable to make the group meeting introducing the project and requesting a meeting to discuss any flood history on their property.

3.2.2 Coordination with Owners

I&L will coordinate and attend a meeting with property owners to discuss the project. I&L will discuss the property's flood history at the meeting to determine dates, elevations and if any high water marks are still visible that could be surveyed. If the owner cannot meet in person, I&L will coordinate with the owner by phone and/or email.

3.2.3 Coordination Summary

I&L will prepare meeting/communication summary notes in PDF format and submit them to the CITY via email.

- After the coordination is completed, I&L will have any newly identified high water marks surveyed.

Intuition & Logic Profile

Exhibit A

Intuition & Logic Engineering, Inc. Schedule of Hourly Rates Through 12/31/2019

<u>Classification</u>	<u>Rate Per Hour</u>
Principal	\$165.00
Project Manager	\$135.00
Engineer	\$105.00
Senior CAD/GIS Technician	\$95.00
Technical Staff	\$85.00
Environmental Scientist	\$75.00

Other Direct Costs

Mileage	Federal Rate
8 1/2 X 11 Color Copies Per Side	\$ 0.25
8 1/2 X 11 B/W Copies Per Side	\$ 0.10
Plan Sheets	Actual Cost
Reprographics of all Sizes and Media	Actual Cost
Overnight Mail/Express	Actual Cost
Miscellaneous	Actual Cost