PROFESSIONAL SERVICES AGREEMENT

(Professional Engineering Services)

1. PARTIES

1.1 Parties. The Parties to this Professional Services Agreement ("Agreement") are **Binkley & Barfield, Inc.** ("Engineer"), and **Harris County** ("County"), on behalf of its Harris County Engineering Department ("HCED"). County and Engineer each may also be referred to individually herein as a "Party," or collectively as the "Parties."

2. PURPOSE

2.1 Project Description. County intends to provide improvements to Saums Road approximately 1200' West of Greenhouse Road to approximately 451' East of Greenhouse Road located in Harris County Precinct 3 ("Project"). This Project is also identified as UPIN 211033962030004.

2.2 Summary of Scope of Work. In addition to any applicable attachments to this Agreement describing the Scope of Work, County desires that Engineer provide Professional Engineering Services in the study, design and bidding phase of the Project, as further described in Exhibit A attached.

2.3 Professional Engineering Services. The professional services to be performed under this Agreement are within the scope of professional engineering, as defined by state law, and will be provided in connection with the professional employment or practice of a person who is licensed or registered as a professional engineer. The professional engineering services shall be performed in accordance with Tex. Occ. Code Ann. §§ 1001.001, et. seq, as amended.

2.4 Professional Services Procurement Act. The work to be performed under this Agreement cannot be purchased on the basis of competitive bids since it is encompassed within Texas Government Code §2254.002(2).

3. ENGINEER'S REPRESENTATIONS

3.1 Applicable Expertise. Engineer and the person executing this Agreement on behalf of Engineer certify and represent that Engineer (including Engineer's agents, employees, volunteers, and subcontractors, as applicable) possesses the skills, qualifications, expertise, experience, education, knowledge, ability, and financial resources to perform all services and/or deliverables contemplated in this Agreement without significant disruption of those deliverables.

3.2 Permits and Licensing. Engineer represents that Engineer (including Engineer's agents, employees, volunteers, and subcontractors, as applicable) possesses all special certifications, licenses, inspections and permits required by law to carry out the Scope of Work contemplated in this Agreement. Engineer's agents, employees, volunteers, and subcontractors, as applicable, shall maintain appropriate accreditation and licensing, as required, through the State of Texas or other applicable licensing entities. Prior to the performance of any services under this Agreement, Engineer shall, upon written (including electronic) request, provide proof of valid licensure to HCED (including a listing of all licenses and expiration dates).

3.3 Authorized to Conduct Business. Engineer represents that Engineer is authorized to conduct the business and carry out the Scope of Work contemplated in this Agreement. Prior to starting performance under this Agreement, Engineer shall, upon written (including electronic) request, provide proof to HCED of the authority to do business in this state or at the location specified in this Agreement.

3.4 Ability to Perform. HCED will award contracts only to the most highly qualified available responsible provider/contractor possessing the ability to perform successfully under the terms, conditions, and budget of a proposed procurement. Consideration will be given to such matters as provider integrity, compliance with public policy, record of past performance, and financial and technical resources. Engineer represents

that Engineer has the administrative, managerial, and financial capability to ensure proper planning, management and completion of the Scope of Work described in this Agreement and further has the administrative capacity and capabilities to carry out all duties and responsibilities under this Agreement.

3.5 Conflict of Interest Certification. Pursuant to Chapter 176 of the Texas Local Government Code, Engineer certifies that Engineer has completed any required conflict of interest disclosures or questionnaires (see www.ethics.state.tx.us). If this certification is materially incomplete or inaccurate, Engineer acknowledges that County shall have the right to terminate this Agreement without prior notice.

3.6 Certificate of Interested Parties Form 1295. Engineer certifies that it has accurately completed and submitted a notarized Certificate of Interested Parties Form 1295 ("Form 1295") in accordance with Texas Government Code §2252.908 and the rules adopted thereunder. Engineer acknowledges that it is responsible for making any and all necessary updates and/or corrections to the applicable Form 1295 during the term of this Agreement. Engineer must either (1) mail the completed Form 1295 to the Harris County Engineering Department at 1001 Preston, 7th Floor, Houston, TX 77002, Attn: Administrative Services or (2) submit the form by email to HCEDAdminSvcs@hcpid.org.

3.7 Disbursements to Persons with Outstanding Debt Prohibited. Engineer certifies, by execution of this Agreement, that neither Engineer nor any of Engineer's principals owe any debts as defined in Local Government Code Section 154.045 (including delinquent property taxes). Engineer understands that certain disbursements are prohibited and that County may apply any funds due to Engineer under this Agreement to any outstanding balance of certain debts pursuant to Section 154.045. If this certification is inaccurate, County may also terminate this Agreement. In addition, Engineer hereby assigns any payments under this Agreement to the Harris County Tax Assessor-Collector for the payment of any current or future delinquent taxes.

3.8 Internet Access. Engineer shall maintain appropriate internet access, which will enable Engineer to access any secure online invoicing, reporting, or other web-based system designed for more efficient communication with HCED. As requested, Engineer shall submit required reports, invoices and related documents through an applicable secure internet site in a manner required to protect any confidential information submitted. Engineer shall review all instruction materials and/or attend all HCED provided training that is necessary for Engineer to properly utilize applicable web-based information systems.

4. SPECIFIC SCOPE OF WORK/SERVICES AND/OR DELIVERABLES

4.1 Specific work, products, services, licenses and/or deliverables. Engineer shall provide the work, products, services, licenses and/or deliverables required to be provided by Engineer and as set out in this Agreement and in Attachment A and all other referenced attachments incorporated in this Agreement (altogether referred to as the Scope of Work). The provisions in this Agreement labeled 'Scope of Services' or 'Scope of Work' shall take precedence over anything conflicting in any attached Engineer proposal or correspondence. Engineer shall submit any and all project-related documents and invoices through the cloud-based project management software utilized by HCED for planning and management of all projects using real-time project data.

4.2 Written Authorization. From time to time during the course of this Agreement, HCED may deliver to Engineer written (including electronic) authorization (sometimes referred to as a notice-to-proceed, task-order, work-order or job-order) for providing certain work, products, services, licenses and/or deliverables contemplated in this Agreement, which Engineer shall then perform in accordance with this Agreement. Engineer shall not begin or proceed to the next design phase of the Scope of Work until Engineer receives from HCED a written (including electronic) authorization to proceed. County shall have no obligation to pay for and Engineer shall have no obligation to provide any work, services, products, or deliverables not rendered in accordance with a prior written authorization as described by this Section. Engineer shall complete the services called for by the calendar days and by the deadlines specified in this Agreement, including exhibits and written authorizations.

5. ADDITIONAL AND SPECIAL REQUIREMENTS

5.1 Cooperation with Other Service Providers. County may engage the services of other service providers for work related to the work, products, services, licenses and/or deliverables in this Agreement. Engineer shall reasonably cooperate with such other service providers and will not commit or permit any act that may interfere with the performance of work by any other service provider.

5.2 Non-Assignability. Unless otherwise authorized in this Agreement, neither party shall assign, in whole or in part, any duty or obligation of performance under this Agreement without the express written permission of the other party, except that the express written permission of HCED shall be considered the permission of County. Such written permission will not be unreasonably withheld, unreasonably conditioned, or unreasonably delayed. However, with notice to HCED, Engineer may assign this Agreement to any affiliate of Engineer that controls, is controlled by, has resulted from a merger with, or is under common control with, Engineer if the assignee is at least as capable and qualified to provide the deliverables contemplated in this Agreement. This provision is not intended to restrict any assignment that is required by Section 9.406 of the Texas Business and Commerce Code.

5.3 Independent Contractor/Parties. County expects Engineer to meet the high standards set forth in this Agreement and looks to Engineer for results only. Unless otherwise required by law or regulation, County shall not direct the methods used to obtain those results, and Engineer shall perform the services as an independent contractor under the sole supervision, management, direction, and control of Engineer. As an independent contractor, Engineer will accept directions pertaining to the goals to be attained and the results to be achieved, as applicable, pursuant to this Agreement, but Engineer shall be solely responsible for the manner in which Engineer will perform the services under this Agreement. Any methods that might be discussed in any training sessions given by HCED are not mandatory unless specifically required in writing in this Agreement or by law. Engineer is not obligated to maintain any set, regular hours, nor to perform any set number of hours of service in fulfilling the obligations under this Agreement, unless otherwise specifically set out in this Agreement. This Agreement is not intended to create a joint enterprise, joint venture, business partnership, agency, franchise, or employment relationship, under Texas law. The personnel and staff of Engineer are independent contractors or employees of Engineer and shall not for any purposes be considered employees or agents of County. Engineer assumes full responsibility for the actions of any employees and agents while performing any services incident to this Agreement, and Engineer shall remain solely responsible for the supervision, daily direction, control and payment, if any, of salaries (including withholding of income and social security taxes), workers' compensation or disability benefits and like requirements and obligations.

5.4 Employee Retention. Engineer agrees to maintain the organizational and administrative capacity and capabilities to carry out all duties and responsibilities under this Agreement. The personnel Engineer assigns to perform the duties and responsibilities under this Agreement will be properly trained and qualified for the functions they are to perform. If specific qualifications are set forth in job descriptions required by the funding entity and/or in this Agreement, unless a written waiver is granted, Engineer shall only assign personnel with the required qualifications to fulfill those functions. Notwithstanding transfer or turnover of personnel, Engineer remains obligated to perform all duties and responsibilities under this Agreement without degradation and in accordance with the terms of this Agreement.

5.5 Significant Organizational Change Notification. Engineer shall notify County immediately and in advance of any significant organizational change that could affect Engineer's ability to carry out all duties and responsibilities under this Agreement, including any change of Engineer's name or identity, ownership or control, or payee identification number. Engineer shall also provide written notice to County within 10 working days of the change. Engineer shall provide ownership information to County immediately upon any such change.

5.6 Adverse Actions Reporting. Engineer shall inform HCED, in writing, of any concluded investigation of Engineer (including Engineer's agents, employees, volunteers, and subcontractors, as applicable, providing work, products, services, licenses and/or deliverables under this Agreement) that is conducted by or on behalf of a government entity or other licensing or accreditation entity (including any state board of

examiners) and whose outcome included public censure or other public sanction (or any pending investigations, administrative actions, or lawsuits, that relate to the work under this Agreement or that could adversely affect any performance or obligation in this Agreement). If at any time a license of Engineer's agents, employees, volunteers, and subcontractors, as applicable, providing work, products, services, licenses and/or deliverables under this Agreement required to be maintained to fulfill the Commitments in this Agreement is suspended, revoked or is determined to be out of compliance in Texas or any other state, this Agreement may be terminated immediately without prior notice, at the option of HCED, effective the date of the suspension, revocation or non-compliance. Engineer is not entitled to receive payment for services that were performed by Engineer while the required license was suspended or revoked. Engineer agrees to immediately inform HCED, in writing, of any adverse professional review action that is taken by a professional association or society and that is based on the professional competence or professional conduct of Engineer's agents, employees, volunteers, and subcontractors, as applicable, providing work, products, services, licenses and/or deliverables under this Agreement. County may, at its sole option, terminate this Agreement, upon notice of such adverse professional review action.

5.7 Subcontracts. Unless otherwise explicitly set out in this Agreement, Engineer shall not enter into any subcontract for the work, products, services, licenses and/or deliverables under this Agreement unless, prior to any written authorization to proceed with work done in part by the subcontractor, Engineer has provided to HCED the qualifications of the subcontractor to perform and meet the standards of this Agreement. Engineer shall comply with all Texas Administrative Code and Texas professional licensing agency requirements for choosing any professionally-licensed subcontractor.

5.8 Professional Standards. Where specifically-applicable standards are not explicitly set forth in this Agreement, as someone with expertise in the field, Engineer must provide the work, products, services, licenses and/or deliverables in accordance with generally-accepted standards applicable to Engineer's profession or industry. Engineer and County agree and acknowledge that County is entering into this Agreement in reliance on the Engineer's competence and qualifications, as those were presented to County by Engineer with respect to professional services. Engineer shall at all times utilize the skill and attention to fully, timely, and properly render professional services for the development of The Project to final completion as set out in, or reasonably inferred from, the Scope of Work/Services. This shall be done in a manner utilizing the degree of care ordinarily used by licensed professionals performing similar services on projects of a similar nature and scope within the State of Texas. A professional engineer assigned by Engineer to manage the Scope of Work who is licensed to practice in the State of Texas shall be present and represent Engineer at meetings of any official nature concerning The Project, including, but not limited to, scope meetings, status meetings, pre-bid meetings, any pre-construction meetings and any construction meetings (for construction-related projects) with County staff and/or contractors, unless otherwise set forth in the Scope of Work or approved in writing by HCED.

5.9 County Procedures. To effectively perform the services stated above, Engineer must become familiar with various procedures, policies, data collection systems, and other information of County. Engineer shall adhere to all applicable County engineering guidelines, standards, and design criteria (see http://www.eng.hctx.net). HCED will assist Engineer in obtaining the information. Unless otherwise required by law, Engineer agrees to keep any sensitive information confidential and not disclose it to outside parties without first obtaining County's written authorization.

5.10 Ownership of Work Product. For the purposes of assigning ownership of Engineer work product, the work performed will be deemed, to the extent authorized by law, to have been done on a works-made-for-hire basis, as that term is understood in copyright law. In the event and to the extent that such works are determined not to constitute works-made-for-hire, Engineer hereby irrevocably assigns and transfers to County all right, title, and interest in such works, including, but not limited to, copyrights. County shall be the absolute and unqualified owner of all completed or partially-completed Engineer work product prepared pursuant to this Professional Services Agreementand shall have the same force and effect as if prepared by County, including mylar reproducibles, drawings, preliminary layouts, electronic documents and drawings, record drawings, sketches, plans, cost estimates, inventions, designs, computer input/output information, computer applications, software, firmware, computations, and other documents (including the original electronic file format). Engineer may retain one set of reproducible copies for Engineer's sole use in

preparation of studies or reports for County only. Engineer is expressly prohibited from selling, licensing or donating such documents, or using such documents in the preparation of other work for any other client, without the prior express written permission of HCED. Engineer warrants that Engineer's work product will not in any way constitute an infringement or other violation of any copyright, trade secret, trademark, patent, invention, proprietary information, non-disclosure, or any other right of any third party, and Engineer will defend any claim, suit, or proceeding brought against County on the issue of infringement of any copyright by virtue of anything supplied by Engineer to HCED under this Agreement.

5.11 Trade Secrets. In connection with the work, products, services, licenses, Scope of Work, and/or deliverables provided under this Agreement, HCED may disclose to Engineer certain documents, data, and/or other information that is proprietary, confidential, or a trade secret (Trade Secrets). Engineer must not divulge or otherwise make unauthorized use of Trade Secrets or other protected information, procedures, or policies of HCED, any former employee, contractor, client, customer, or consultant, in the exercise of duties under this Agreement. Except to the extent authorized by a third party, neither Party shall copy, recreate, or use any proprietary information of a third party in the performance of services under this Agreement.

5.12 Nondisclosure and Confidentiality of Information. To the extent permitted by law, Engineer must keep confidential the contents of all discussions with local, state, and federal officials, as well as the contents of all local, state, and federal records and all other information obtained during performance under this Agreement. To fulfill Engineer's obligations under this Agreement, Engineer may be provided access to information, systems, operations, or procedures that are security sensitive or have been identified as confidential. This confidential information may include information from one of the government entity funding sources, such as a Texas or federal agency. Engineer and the person executing this Agreement on behalf of Engineer acknowledge that (a) access to this information (whether electronic, written or oral, formal or informal) is provided solely to Engineer for the purpose of discharging the duties in this Agreement, (b) premature or unauthorized disclosure of this information can irreparably harm the interests of County and may constitute a violation of state and/or federal law, and (c) the information may represent confidential or proprietary information, the release of which may be restricted or prohibited by law. Therefore, Engineer must (1) not access any information without express written authorization of HCED; (2) not copy, recreate, or use any information or document obtained in connection with this Agreement other than for the performance of this Agreement; (3) to the extent permitted by law, keep confidential the contents of all discussions with county, state, and federal officials, as well as the contents of all county, state, and federal records and all other information obtained during performance under this Agreement, unless authorized in writing by appropriate HCED officials; (4) not, except to the extent required by law, or necessary for the performance of this Agreement, release, disclose, reveal, communicate, impart or divulge any information or any summary or synopsis of the information in any manner or any form whatsoever to outside parties without the express written consent of HCED; (5) take all steps necessary to protect confidential information from disclosure to third parties and have a system in effect that must include a method to ensure the confidentiality of records and other information relating to any person according to applicable federal and state law, rules and regulations; (6) not reproduce, copy, or disseminate such confidential information, except to those who need to know such information and are obligated to maintain its confidentiality, including Engineer's partners, principals, representatives or employees as necessary to fulfill obligations under this Agreement; (7) notify HCED immediately of all requests for confidential information; and (8) immediately report to HCED all unauthorized disclosures or uses of confidential information.

5.13 Public Comment and Public Information Act. To the extent permitted by law, all contact with the news media, citizens of County, the State of Texas or other governmental agencies concerning The Project will be the responsibility of HCED. In the event Engineer is subject to the Texas Public Information Act, upon receipt of a written request for any information by Engineer developed in the performance of services under this Agreement, Engineer shall provide written notice to HCED of the request along with a copy of the request, and give HCED the opportunity to respond to the request prior to any release by Engineer. Unless required by law, under no circumstances shall Engineer release any material or information developed in the performance of services under this Agreement without the express prior written permission of HCED.

5.14 Applicable Laws. Engineer shall comply (and assure compliance by Engineer's agents, employees, volunteers, and subcontractors, as applicable, providing work, products, services, licenses and/or deliverables under this Agreement) with all applicable state, federal, and local laws, ordinances, regulations, executive orders, rules, directives, standards, guidelines, and instructions relating to the work to be performed. Engineer shall immediately bring to County's attention any conflicts between any applicable state, federal, and local laws, ordinances, regulations, executive orders, rules, directives, standards, guidelines, and instructions relating to the work to be performed. If laws or regulations change and affect any provision of this Agreement, this Agreement shall be deemed amended to conform to those changes in the laws or regulations on the date such laws or regulations become effective. If any such changes (that occur after the effective date of this Agreement and that Engineer should not reasonably have anticipated) require significant changes or additions to the Scope of Work that were not contemplated by the Parties, the Parties shall negotiate in good faith for the purpose of creating reasonable and equitable written modifications to this Agreement.

5.15 Records Retention and Management. Engineer shall maintain complete, accurate, and readily accessible records that are necessary to document and support the fulfillment of the obligations in this Agreement, including performance, design, underlying calculations, and financial records, as well as a copy of this Agreement. Engineer shall maintain and make available for inspection the Records for a minimum of four (4) years following either the end of the federal fiscal year in which any obligations were performed under this Agreement or the termination date of this Agreement, whichever is longer (or longer if necessary to resolve any litigation, claims, financial management review, or audit findings).

5.16 Authority of Harris County Engineer. The Harris County Engineer ("County Engineer") shall decide any and all questions that may arise as to the interpretation of this Agreement and all questions as to the acceptable fulfillment of this Agreement by Engineer. It is mutually agreed by both Parties that the County Engineer shall act as referee between the Parties in all questions arising under the terms of this Agreement and that the decisions of the County Engineer shall be final and binding alike on all Parties. If agreed to in writing by Engineer and the County Engineer (or designee), Engineer and the County Engineer may make adjustments to the Scope of Work that do not destroy the purposes of this Agreement. In making the aforementioned adjustments to the Scope of Work, Engineer and the County Engineer may adjust any corresponding firm fixed or maximum prices that neither increase the maximum amount of funds that Commissioners Court has authorized to be encumbered nor destroy the purposes of this Agreement. Any of the aforementioned adjustments to the Scope of Work and/or corresponding adjustments to any firm fixed or maximum prices (collectively, "Adjustments") may be reflected by a written Special Amendment to the Scope of Work in this Agreement ("Special Amendment"). Nothing contained in this section shall be construed to authorize the County Engineer to alter, vary, or amend any of the terms or provisions of this Agreement, other than the aforementioned Adjustments. The County Engineer is authorized on behalf of the County to make Adjustments (as defined herein) and execute a corresponding Special Amendment without further action by Commissioners Court. The Harris County Auditor ("County Auditor") is authorized, without further action by Commissioners Court, to certify additional funding for any Adjustments upon execution of a Special Amendment by the County Engineer.

5.17. Foreign Terrorists Organizations. In accordance with Tex. Gov't Code Ann. Chapter 2252 Subchapter F, Engineer warrants and represents that, at the time of execution of this Agreement and for the duration of the Term of this Agreement and any Renewal Terms, Engineer does not appear on the Texas State Comptroller's list of companies known to have contracts with or provide supplies or services to a foreign terrorist organization.

5.18 Anti-Boycott. In accordance with Tex. Gov't Code Ann. § 2270.002, Engineer warrants and represents that it does not boycott Israel and agrees that it will not boycott Israel during the term of this contract.

6. INSURANCE

6.1 Coverage and Limits. During the Term of this Agreement and any extensions thereto, Engineer at its sole cost and expense shall provide insurance of such type and with such terms and limits as may be reasonably associated with this Agreement. As a minimum, Engineer shall provide and maintain the following coverage and limits:

(a) Workers Compensation, as required by the laws of Texas, and Employers' Liability, as well as All States, United States Longshore & Harbor Workers Compensation Act and other endorsements, if applicable to the Project, and in accordance with state law.

Employers' Liability		
(i)	Each Accident	$1,000,000
(ii)	Disease – Each Employee	$1,000,000
(iii)	Policy Limit	$1,000,000

(b) Commercial General Liability, including but not limited to, the coverage indicated below. This policy will provide coverage for personal and bodily injury, including death, and for property damage, and include an endorsement for contractual liability. Coverage shall not exclude or limit the Products/Completed Operations, Contractual Liability, or Cross Liability. Where exposure exists, County may require coverage for watercraft, blasting, collapse, explosions, blowout, cratering, underground damage, pollution, and other coverage. *County shall be named Additional Insured on primary/non-contributory basis*.

(i)	Each Occurrence	$1,000,000
(ii)	Personal and Advertising Injury	$1,000,000
(iii)	Products/Completed Operations	$1,000,000
(iv)	General Aggregate (per project)	$1,000,000

(c) Professional Liability/Errors and Omissions, in an amount not less than One Million Dollars ($1,000,000) per claim and in the aggregate.

(d) Umbrella/Excess Liability in an amount not less than One Million Dollars ($1,000,000) per occurrence and in the aggregate. *County shall be named Additional Insured on primary/non-contributory basis*.

(e) Automobile Liability insurance to include Engineer's liability for death, bodily injury, and property damage resulting from Engineer's activities covering use of owned, hired, and non-owned vehicles, with combined single limit of not less than One Million Dollars ($1,000,000) for each accident. *County shall be named Additional Insured on primary/non-contributory basis.*

(f) Any other coverage required of Engineer pursuant to statute.

6.2 Delivery of Policies. Immediately upon execution of this Agreement and before any Services are commenced by Engineer, Engineer shall provide County evidence of all of the above coverage on forms and with insurers acceptable to County. Engineer must maintain a valid Certificate of Insurance as described herein on file with County at all times during the term of this Agreement. Engineer must either (1) mail the Certificate of Insurance to the Harris County Engineering Department at 1001 Preston, 7th Floor, Houston, TX 77002, Attn: Administrative Services or (2) submit it by email to HCEDAdminSvcs@hcpid.org.

6.2.1 Issuers of Policies. Coverage shall be issued by company(s) licensed by the Texas Department of Insurance to do business in Texas, unless said coverage is not available or economically feasible except through an excess or surplus lines company, in which case the company(s) should be registered to do business in Texas. Companies shall have an A.M. Best rating of at least A-VII.

6.2.2 Certificates of Insurance. Engineer shall provide unaltered Certificates of Insurance which evidence the required coverage and endorsements and satisfy the following requirements:

(a) Be less than 12 months old;
(b) Include all pertinent identification information for the Insurer, including the company name and address, policy number, NAIC number or AMB number, and an authorized signature;
(c) Include the Project name and reference numbers and indicates the name and address of the Project Manager in the Certificate Holder Box; and

(d) Be appropriately marked to accurately identify:
(i) All coverage and limits of the policy;
(ii) Effective and expiration dates;
(iii) Waivers of subrogation, endorsement of primary insurance and additional insured language, as described herein.

6.2.3 Certified Copies of Policies and Endorsements. Upon request, Engineer shall furnish certified copies of insurance policies and endorsements to County.

6.2.4 Renewal Certificates. Renewal certificates are due to County at least thirty (30) days prior to the expiration of the current policies.

6.2.5 Subcontractors. If any part of the Agreement is sublet, insurance shall be provided by or on behalf of any subcontractor, and shall be sufficient to cover their portion of the Agreement. Engineer shall furnish evidence of such insurance to County as well.

6.3 Additional Insured. Engineer shall include County and its respective officers, directors, agents, and employees as an Additional Insured on the Commercial General Liability, Automobile Liability, and Umbrella/Excess Liability insurance certificates. Engineer's coverage shall be primary insurance to any similar insurance maintained by County and must contain an endorsement stating such. Coverage to County as an Additional Insured on any of Engineer's insurance coverage shall not be subject to any deductible.

6.4 Deductibles. Engineer shall be responsible for and pay any claims or losses to the extent of any deductible amounts applicable under all such policies and waives any claim it may have for the same against County, its officers, directors, agents, or employees.

6.5 Claims-made Policies. All insurance policies written on a claims-made basis, including Professional Liability/Errors and Omissions, shall be maintained for a minimum of two (2) years following completion of all services under this Agreement ("Extended Reporting Period"). Engineer shall obtain or maintain full prior acts coverage at least to the effective date of this Agreement in the event of a carrier or policy change.

6.6 Waiver of Subrogation. Engineer waives any claim or right of subrogation to recover against County, its officers, directors, agents, and employees ("Waiver of Subrogation"). Each policy required under this Agreement must contain a Waiver of Subrogation endorsement.

6.7 Notice of Cancellation, Non-Renewal, or Material Change. Engineer shall provide County with thirty (30) days' minimum written notification in the event of cancellation, non-renewal, or material change to any or all of the required coverage.

6.8 Remedies for Noncompliance. Failure to comply with any part of this Section is a material breach of this Agreement. Engineer could immediately, and without notice, have all compensation withheld or suspended, be suspended from providing further Services, or be terminated from this Agreement for any lapse in coverage or material change in coverage which causes Engineer to be in noncompliance with the requirements of this Section.

7. FUNDING, COMPENSATION AND/OR BASIS FOR PAYMENT, METHOD, AND LIMITATIONS

7.1. Payments/Compensation. For and in consideration of the work, products, services, licenses or deliverables provided under this Agreement and during the term of this Agreement, subject to the limitations in this Agreement, County shall pay Engineer in accordance with the fee schedule and rates specified in this Agreement, including in the Attachments up to the total maximum amount specifically appropriated, encumbered, and then certified as available by the County Auditor.

7.2. Funding and Appropriations Limit. County shall have no obligation to pay for and Engineer shall have no obligation to provide any work, products, services, licenses and/or deliverables until sufficient funds are certified by the County Auditor. County intends to initially appropriate, encumber, and certify as available by the County Auditor the total maximum sum of **THREE HUNDRED NINETY-EIGHT THOUSAND**

NINE HUNDRED FORTY AND 52/100 DOLLARS ($398,940.52) to pay and discharge any and all liabilities that County may incur arising out of this Agreement. Any other provision notwithstanding, County shall never be liable to pay Engineer any greater amount under this Agreement than is specifically appropriated, encumbered, and then certified as available by the County Auditor.

7.3. Auditor's Certification of Funds. The issuance of a purchase order pursuant to this Agreement represents certification by the Harris County Auditor that funds, in the amount of the purchase order total, are available to satisfy all financial obligations of Harris County hereunder.

7.4. Funding Out/Non-Appropriation. It is further understood that pursuant to Local Government Code Chapter 111, when and if the work, products, services, licenses and/or deliverables and charges provided for herein are equal to or exceed the amounts certified available, Engineer is authorized to terminate some or all of Engineer's work, products, services, licenses and/or deliverables under this Agreement unless the County Auditor certifies that additional funds are available, in which event Engineer agrees to continue to provide the products, services and/or deliverables to the extent funds are available. When all the funds certified by the County Auditor, together with any additional funds thereafter certified, are expended, County will have no further liability, and the sole and exclusive remedy of Engineer will be to immediately terminate this Agreement unless the County Auditor certifies additional funds.

7.5. Billing Statements/Invoices. Unless otherwise indicated in this Agreement, no later than the 10th day after the end of each calendar month within the term of this Agreement, Engineer shall submit to HCED a billing statement or invoice for all unpaid products, services and/or deliverables, along with any applicable rates, including the applicable firm fixed price and any applicable percentage completed for specific tasks/deliverables as specified in this Agreement. The data in the billing statement or invoice must be in a format designated by HCED and the County Auditor, and must include any purchase order number. An authorized agent of Engineer must certify and swear under penalty of perjury that the work was performed, the work was properly authorized in writing by HCED, and all information contained in the statement or invoice is true and correct. All products, services and/or deliverables billed must be rendered during this Agreement term. Engineer shall submit to HCED billing statements or invoices limited to work done and products, services and/or deliverables provided pursuant to this Agreement, and Engineer shall not include in such billing statements or invoices any work, products, services, licenses and/or deliverables provided, required to be performed, or billed under or pursuant to any other agreements with County. HCED will review each statement or invoice and approve it with any modifications HCED deems appropriate after mutual consultation and agreement with Engineer. HCED will then forward the approved statement or invoice to the County Auditor for payment. County will pay Engineer the proper amounts due and owing under this Agreement within thirty (30) calendar days of receipt of the approved statement or invoice to extent allowed by law. Each statement or invoice must include a monthly inventory of work, products, services, licenses and/or deliverables provided during the billing period and any other details HCED reasonably requests for verification purposes, which might include:

(a) The date(s) work, products, services, licenses and/or deliverables were provided;
(b) Meetings and lists of attendees, if applicable;
(c) Detailed description of the work, products, services, licenses and/or deliverables provided;
(d) The total amount billed, and any other details of the work, hours, or services as may be requested by the County Auditor;
(e) If applicable, the case number for which services were performed;

7.6. Overpayments. Within 10 calendar days after request by HCED, Engineer must reimburse to County all funds paid by County to Engineer that any funding entity or auditor determines have been improperly paid to, or expended by, Engineer. County may withhold, suspend, or reduce any and all payments due to Engineer until any overpayments are reimbursed.

7.7. Costs of Substitute Services. If Engineer fails to perform any of its obligations under the Agreement and County procures substitute services upon such terms as are appropriate, County shall deduct the reasonable costs for such services from any payments owed to Engineer under this or other agreements. Engineer must

reimburse to County, within thirty (30) calendar days after request by County, any additional costs of such substitute services beyond what has already been deducted by County. County may also withhold, suspend, or reduce payments due to Engineer until the costs of such substitute services are reimbursed to County by Engineer. This provision is not intended to waive or preclude any other remedies the parties may otherwise have in law, equity, or elsewhere in this Agreement and is in addition to and not in lieu of any other remedies.

7.8. Billing Audits. County and its designee shall have the right to examine and audit all of Engineer's billings/invoices and all of Engineer's backup and support data for billings/invoices for this Agreement. Upon HCED's request, Engineer agrees to make such data and supporting documentation available to the County Auditor or designee in Harris County, Texas. Engineer shall maintain complete and accurate records necessary to fulfill any obligations in this Agreement, including a copy of this Agreement, including detailed time records identifying each person performing services that were billed on an hourly basis, the corresponding dates of the services, the applicable firm fixed price and the percentage completed for specific tasks as specified in this Agreement, any applicable hourly or cost-plus rates, the total amount billed for each person as applicable, and the total amount billed for all persons as applicable. Engineer shall maintain and make available for inspection (electronically or in Harris County during regular business hours) the Records for a minimum of four (4) years following either the end of the federal fiscal year in which any obligations were performed under this Agreement or the termination date of this Agreement (or longer if necessary to resolve any litigation, claims, financial management review, or audit findings). All payments made by County are subject to re-evaluation and refund or withholding of future payments conditioned on the results of the audit.

7.9. County Auditor to Make Final Decision. The decision of the County Auditor as to the amount owed shall be final if there is any dispute between County and Engineer as to the amount owed to Engineer for any monthly statement or invoice submitted by Engineer. County agrees to notify Engineer of any questionable item and is authorized to withhold payment until all questions are resolved either by final audit or by agreement of the Parties.

8. TERM OF THE AGREEMENT

8.1 Time Period. The time period for performance ("Term") of this Agreement shall begin November 9, 2021 and end on the later date of (a) Project completion or (b) November 8, 2022.

9. TERMINATION PROVISIONS

9.1 Determination of Material and Non-Material Breaches. The County Engineer shall determine whether a breach of this Agreement by either Party is material or non-material. The County Engineer's determination shall be final and binding alike on all Parties.

9.2 Non-Material Breaches. If either Party refuses or fails to perform any of its non-material obligations in this Agreement, the other Party may give written notice of the failure. If the breaching Party fails or refuses to cure the failure of any non-material obligation in the notice within ten (10) calendar days after notice is given, the other Party may terminate this Agreement immediately. HCED is authorized to give notice for County.

9.3 Material Breaches.

9.3.1 Suspension. HCED may suspend this Agreement immediately for any material breach by giving a notice of suspension. As soon as the notice of suspension is received, Engineer shall discontinue all services in connection with the performance of this Agreement. HCED is authorized to suspend on behalf of County.

9.3.2 Termination. The County may terminate this Agreement for a material breach at any time by notice in writing to the Engineer.

9.4 No Waiver of Remedies. The provisions in this Section are not intended to waive or preclude any other remedies the parties may otherwise have in law, equity, or elsewhere in this Agreement. The right to terminate for a material and non-material breach is in addition to and not in lieu of any other remedies.

9.5 Termination Statement. As soon as practicable after receiving notice of termination, Engineer must submit a statement or invoice to HCED that complies with the requirements in this Agreement. This statement or invoice must show in detail the unbilled/uninvoiced services performed for County under this Agreement to the date of termination. If the payments were to be made in lump sums and services were rendered after the last lump sum payment, the statement or invoice shall reflect the prorated amount due.

9.6 Return of Documents after Termination. If permitted by law and any established ethical requirements applicable to specific professionals, Engineer shall promptly deliver to HCED all completed or partially completed work product, designs, data, information, and documents prepared under this Agreement on behalf of County. Within 2 business days after the effective date of termination, Engineer shall return to HCED all records, files, documents, notes and other items in Engineer's possession, if any, relating to any assignments or work that Engineer has undertaken or been given under this Agreement, if permitted by law and any established ethical requirements applicable to specific professionals. Engineer shall deliver to HCED all completed or partially-completed designs, drawings and specifications prepared under this Agreement, including the original electronic file format. Nothing in this section is intended to require Engineer to surrender Engineer's own records to HCED after termination.

9.7 Agreement Transition. In the event the Agreement ends by either expiration or termination, Engineer shall, at the request of the County, assist in the transition until such time that a replacement engineer can be named. Engineer acknowledges its responsibility to cooperate fully with the replacement engineer and the County to ensure a smooth and timely transition to the replacement engineer. Such transitional period shall not extend more than ninety (90) days beyond the expiration/termination date of the Agreement, or any extension thereof. During any transition period, all other terms and conditions of the Agreement shall remain in full force and effect as originally written.

10. INDEMNIFICATION

10.1 No Waiver of Governmental Immunity. County does not waive any immunity or defense on behalf of itself, its employees or agents as a result of the execution of this Agreement.

10.2 General Indemnity. To the extent allowed by law, Engineer agrees to indemnify and hold harmless County, HCED, their officers, employees, and agents from liability, losses, expenses, demands, reasonable attorneys' fees, and claims for bodily injury (including death) and property damage to the extent caused by the negligence, intentional tort, intellectual property infringement of Engineer (including Engineer's agents, employees, volunteers, and subcontractors/consultants under contract, or any other entity over which Engineer exercises control, in the performance of the services defined in this Agreement). Engineer shall also save County harmless from and against any and all expenses, including reasonable attorneys' fees that might be incurred by the County, in litigation or otherwise resisting such claims or liabilities.

11. MISCELLANEOUS

11.1 Notices. Any notice required to be given under this Agreement ("Notice") may be given by hand delivery or certified United States Mail, postage prepaid, return receipt requested, addressed to the Parties at the following:

ENGINEER: David A. Hamilton, P.E.
Executive Vice President
Binkley & Barfield, Inc.
1710 Seamist Dr.
Houston, TX 77008-3119
Email: tvc@binkleybarfield.com

COUNTY: Loyd Smith, P.E.
Interim County Engineer
Harris County Engineering Department
1001 Preston Street, Floor 7
Houston, TX 77002-1816
Email: AgreementInfo@hcpid.org

All other communications may be sent by electronic means or in the same manner as Notices described herein.

11.2 Receipt of Notice. Notice shall be considered given and complete upon successful electronic transmission or upon deposit in the United States Mail.

11.3 Change of Address. Each Party shall have the right to change its respective address by giving at least ten (10) days' written notice of such change to the other Party.

11.4 Force Majeure. Neither Party will be liable for any failure or delay in performing its obligations under this Agreement if such failure or delay is due to any cause beyond the reasonable control of such Party if such cause is generally recognized under Texas law as constituting impossible conditions. The existence of such causes of delay or failure will extend the period of performance in the exercise of reasonable diligence until after the causes of delay or failure have been removed. Each Party must inform the other in writing with proof of receipt within 10 business days of the existence of such Force Majeure event or otherwise waive this right as a defense.

11.5 E-Mail Addresses. Engineer affirmatively consents to the disclosure of e-mail addresses that are provided to County or HCED. This consent is intended to comply with the requirements of the Texas Public Information Act, Texas Government Code § 552.137, and shall survive termination of this Agreement. This consent shall apply to e-mail addresses provided by Engineer and any agents acting on Engineer's behalf and shall apply to any e-mail address provided in any form for any reason, whether related to this Agreement or otherwise.

11.6 Entire Agreement (Merger). This Agreement contains the entire agreement and understanding between the parties relating to the rights granted to and the obligations of the parties. All prior negotiations, discussions, correspondence and previous understandings are superseded by this Agreement. Any oral representation or modification concerning this Agreement shall be of no force or effect.

11.7 No Oral Modifications. Unless otherwise explicitly stated in this Agreement, this Agreement cannot be changed except by a written subsequent modification authorized by all parties.

11.8 Inducements. In making the award of this contract, County relied on Engineer's assurances and representations made in this Agreement. Any false assurances and representations by Engineer shall be immediate grounds for termination of this Agreement without prior notice at the option of County.

11.9 Contract Construction. The titles assigned to the various Articles of this Agreement are for convenience. Titles shall not be considered restrictive of the subject matter of any Article or other part of this Agreement. Likewise, the provisions of purpose in this Agreement are intended to be a general introduction and are not intended to expand the scope of the Parties' obligations or alter the plain meaning of the terms and conditions in this Agreement.

11.10 Ambiguities. Ambiguities, if any, shall not be interpreted against the drafter of this Agreement.

11.11 No Waiver of Default. Any waiver by either Party of one or more defaults on the part of the other Party in the performance of obligations under this Agreement is not a waiver of any subsequent defaults.

11.12 Remedies Cumulative. Unless otherwise specified elsewhere in this Agreement, the rights and remedies of County are not exclusive, but are cumulative of all rights and remedies that exist now or in the future.

11.13 No Third Party Beneficiaries. Unless explicitly provided in this Agreement, there is no intent by either Party to create or establish third party beneficiary status or rights in any third party, and no such third party shall have any right to enforce any right or enjoy any benefit created or established under this Agreement.

11.14 Non-Exclusivity. Unless explicitly provided in this Agreement, nothing shall prevent either Party from contracting with other parties for the provision of the same or similar services or deliverables that are contemplated by this Agreement.

11.15 Limited Personal Liability. Nothing in this Agreement shall be construed as creating any personal liability on the part of any officer, director, employee, or agent of County.

11.16 Dispute Resolution Process. The Parties will meet and confer in good faith to work together to resolve problems or disputes that may arise. In the event a dispute arises between the parties involving the provisions or interpretation of any term or condition of the Agreement, and if both parties desire to attempt to resolve the dispute prior to termination or expiration of the Agreement, or withholding payments, then the parties may refer the issue to a mutually-agreeable dispute resolution process.

11.17 Survivability Clause. Any provision, section, subsection, paragraph, sentence, clause or phrase of this Agreement that, by its plain meaning, is intended to survive the expiration or earlier termination of this Agreement, including indemnification provisions, shall survive such expiration or earlier termination. If an ambiguity exists as to survival, the provision shall be deemed to survive.

11.18 Savings/Severability Clause. If any provision, section, subsection, paragraph, sentence, clause or phrase of this Agreement, or the application of same to any person or set of circumstances, is held to be invalid, void, or unenforceable by a court of competent jurisdiction, that part of this Agreement shall be reformed, if reasonably possible, to comply with the applicable provisions of law. In any event, the remaining provisions the same shall continue in full force and effect, provided that the unenforceable or invalid provision is not material to the overall purpose and operation of this Agreement. If necessary in order to make this Agreement valid and enforceable, the Parties shall meet to confer upon an amendment or modification.

11.19 Time is of the Essence. Time is of the essence with respect to Engineer's performance under this Agreement, and Engineer shall perform all services diligently until completed.

11.20 Choice of Law. This Agreement shall be construed according to the laws of the State of Texas without giving effect to its conflict of laws provisions. Venue lies only in Harris County as per Texas Civil Practice and Remedies Code Sec. 15.015, and any alternative dispute resolution, suit, action, claim, or proceeding with respect to or arising out of this Agreement must be brought solely in the courts or locations that are situated in the State of Texas, County of Harris. Both parties irrevocably waive any claim that any proceeding brought in Harris County has been brought in an inconvenient forum.

11.21 Exhibit List. The following attachments are a part of this Agreement:

Exhibit A. Scope of Services
Exhibit B. Schedule
Exhibit C. Compensation for Professional Services
Exhibit D. Engineer Team Acknowledgments

11.22 Tax Exemption. Pursuant to Texas Tax Code §151.309, as a political subdivision, County claims exemption from sales and use taxes and will provide exemption certificates upon written request. County shall not be liable to reimburse or pay any personal property taxes, charges, or fees assessed against Engineer.

11.23 Electronic or Facsimile Signatures and Duplicate Originals. Pursuant to the requirements of the Uniform Electronic Transactions Act in Chapter 322 of the Texas Business and Commerce Code and the Federal Electronic Signatures in Global and National Commerce Act (beginning at 15 U.S.C. Section 7001), the Parties have agreed that the transactions under this Agreement may be conducted by electronic means. Pursuant to these statutes, this Agreement may not be denied legal effect or enforceability solely because it is in electronic form or because it contains an electronic signature. This Agreement may be executed in duplicate counterparts and with electronic or facsimile signatures with the same effect as if the signatures were on the same document. Each multiple original of this document shall be deemed an original, but all multiple copies together shall constitute one and the same instrument.

11.24 Signatory Authorized to Execute Agreement. The person executing this Agreement on behalf of each Party represents that he or she is duly authorized by the policy of the Party's governing body to legally obligate and execute this Agreement on behalf of the Party.

HARRIS COUNTY

By: _____
Lina Hidalgo
Harris County Judge

BINKLEY & BARFIELD, INC.

By: _____
David A. Hamilton, P.E.
Executive Vice President

APPROVED AS TO FORM:

CHRISTIAN D. MENEFEE
Harris County Attorney

By: Tiffany Bangs
Tiffany Bangs
Assistant County Attorney
CAO File Number 21GEN3140

ATTEST:

By: _____
Secretary

EXHIBIT A: SCOPE OF PROPOSAL

Saums Rd
(from 1200’ west of Greenhouse Rd to 450’ east of Greenhouse Rd)
UPIN: 211033962030004
October 13, 2021

General

1. Design of Saums Rd paving improvements from approximately 1200’ west of Greenhouse Rd to approximately 450’ east of Greenhouse Rd located in Harris County Precinct 3. The length of the project is approximately 1,650 linear feet (0.31 miles).

2. The site consists of an existing two-lane asphalt roadway with ditches within the existing Saums Rd 100’ right-of-way.

3. There are no major water crossings within the limits of the project. The project is in the South Mayde Creek Watershed.

4. The proposed conditions include reconstructing Saums Rd to a 4-lane concrete boulevard with a flush (painted) median. The west end of the project will connect to the existing Saums Rd 4-lane divided configuration. The east end of the project will begin to transition back to the existing 2-lane roadway 450’ east of Greenhouse Rd. The existing traffic signal will be modified for the new roadway configuration. Stormwater detention features will be provided as required to satisfy Atlas 14 mitigation needs of the project.

5. Additional ROW will be required at certain locations along the roadway as well as for the detention pond and outfall.

6. ASSUMPTIONS

    a. The entire length of the proposed project is located within FEMA Special Flood Hazard Area Zone AE, with portions of the roadway located within the floodway of South Mayde Creek. A detention pond will be constructed to mitigate impacts to the stream.

    b. It is assumed that stormwater detention will be required and the detention storage will be located in the northwest corner of the Saums Rd/Greenhouse Rd intersection, west of the existing gas station.

SCOPE OF SERVICES

2.P – PRE-DESIGN PHASE

STUDY PHASE WILL INCLUDE:

1. Existing conditions and limits of improvements
2. Project management to include project schedule review and updates
3. Topographic survey
4. Utility conflict table preparation
5. Geotechnical findings and recommendations
6. Environmental investigation
7. Drainage report
8. Attend and prepare meetings for:
    a. Study phase kick-off meeting
    b. Survey field walk
    c. Topographic Field Verification Meeting
    d. Drainage Meeting
    e. Alignment/ROW meeting
    f. Pre-Client meeting
    g. Client presentation meeting
9. Prepare Study Report

2D – Drainage

2D.400 – Drainage Report

1. **Project Management**
    a. **Project Kick-Off Meetings** – The BBI Team will attend a project kick-off meeting for the project at the client's request.
    b. **Site Visit** – The BBI Team will perform a site visit of the project.

c. Coordination – The BBI Team will manage and coordinate project efforts with the client and Binkley & Barfield (prime) throughout the project duration, as needed.

d. Agency Coordination – The BBI Team will meet with HCED to coordinate modeling approach at the project onset and will coordinate deliverables, reviews, and approvals with these agencies.

2. Roadway Drainage Analysis – Existing and Impacted Conditions

The proposed roadway widening will result in changes at the outfall into the Greenhouse Road storm sewer system. The increased runoff from the proposed project will result in impacts to the hydraulic and hydrologic conditions of this system. This task will provide a project baseline to help determine the impacts from the project. Available plans and survey data will be used to establish the baseline condition for the roadway analysis for Saums Road. The existing roadway drains via roadside ditches into the Greenhouse Road storm sewer system which in turn flows north and outfalls into South Mayde Creek (HCFCD Unit #U101-00-00). The basic services include modeling of the roadway system. ***Note: depending on the selected alternative, optional additional services will be required to incorporate the chosen detention alternative and verify that a no impact solution has been reached, as per County criteria***).

a. Existing Conditions

Existing conditions hydrologic and hydraulic (H&H) models will be developed to establish the baseline for the project. Inflow peak flows and hydrographs will be developed for the 2-, 10-, and 100-year storm events.

i. Roadway Hydrology

- Determine Offsite Flow Areas -- The hydrologic modeling will include determining offsite areas delineating drainage areas to the manhole level using available LiDAR data, drainage area maps from as-built plans, GIS information, and supplemented with survey information.
- Delineate Drainage Areas to Manhole Level – Drainage areas to the manhole level will be delineated using available LiDAR data, drainage area maps from as-built plans, GIS, and supplemented with survey information.
- Develop Rational Method Peak Flows – Rational Method peak flow calculations will be determined following Harris County methodology based on area and weighted c-values.
- Develop Modified Hydrographs – Hydrographs based on Harris County methodology will be developed. This task will provide inflows for the existing roadway drainage system.

ii. Roadway Hydraulics

- Develop SWMM Model – Available pipe network data from GIS and/or plans will be imported into SWMM. The network will be developed to the manhole level. Inflow hydrographs will be imported, and the existing outflows will be developed for the 2-, 10-, and 100-year storm events.
- Quantify Flows and WSEs - Existing conditions flows and WSEs will be quantified in order to set a baseline for the project.

b. Impacted Conditions

Using the existing conditions SWMM model as the base, the BBI Team will update the model for impacted conditions. Inflow peak flows and hydrographs will be updated to reflect the roadway widening for the 2-, 10-, and 100-year storm events.

i. Roadway Hydrology

- Update Land Use for Additional Lanes - Increased runoff from the additional impervious cover associated with this roadway widening will be determined.
- Modify Drainage Areas and/or Hydrographs – The roadway improvements may require modifications to the proposed drainage areas.
- Develop Rational Method Peak Flows – Rational Method peak flow calculations will be determined following HCED methodology based on area and increased weighted c-values.
- Develop Modified Tc + R Hydrographs – Impacted hydrographs based on Harris County methodology will be developed.

ii. Roadway Hydraulics

- Update SWMM Model – The SWMM model developed as part of the existing conditions modeling will be updated. The network will be developed to the manhole level. Inflow hydrographs will be imported, and the impacted outflows will be developed for the 2-, 10-, and 100-year storm events.
- Increased Storm Sewer Conveyance – Impacted conditions modeling will be done to reflect the proposed changes to land use from the additional lanes. The impacted conditions models will determine the impacts due to the changes in land use. The resulting hydrographs will be extracted.
- Quantify Flows and WSEs - A results comparison table showing the 2-year HGLs, 10- and 100-year WSEs, as well

critical elevations (gutter and Maximum Ponding Elevation) will be developed as part of this task. Associated peak flows will also be summarized as part of this task.

3. **High-Level Detention Alternative Screening**

   The initial project phases will consider, at a high level, three (3) different options for detention. These options will **NOT** be modeled in this phase.

   a. **Alternative A (Expand Existing MUD Detention Pond)** – A high-level analysis and cost estimate will be provided.

   b. **Alternative B (Construct New Offline Detention Pond)** – A high-level analysis and cost estimate will be provided.

   c. **Alternative C (Provide In-Line Detention within Proposed Storm Sewer)** – A high-level analysis and cost estimate will be provided.

4. **Report**

   a. **Prepare Drainage Analysis Report** – The deliverable for this task will include a drainage impact analysis (DIA) report that documents the model assumptions and will include the supporting documentation that a no impact solution has been reached, in accordance with Harris County requirements. ***Note: in order to reach a no impact solution, a detention alternative will need to be chosen by the County and incorporated into the modeling effort, which will be provided as an optional additional service (see "Optional Additional Services" section below)***.

   b. **QC and Response to County Comments** – An internal review will be performed by The BBI Team. In addition, this task includes hours for addressing comments from HCFCD on the drainage impact analysis report.

2E – Environmental

2E.500 – Phase 1 ESA

The Phase I Environmental Site Assessment (Phase I ESA) will be performed in accordance with ASTM standard practice E 1527-2013, Environmental Site Assessments: Phase I Environmental Site Assessments.

This practice is intended to permit you to satisfy one of the requirements to qualify for the innocent landowner defense to CERCLA (Comprehensive Environmental Response, Compensation and Liability Act) liability: that is, the practices that constitute "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in 42 USC '9601§(35)(B).

The objective of the Phase I is to identify, to the extent feasible under the processes prescribed in ASTM E 1527-2013, the potential for recognized environmental conditions; that is, the presence or likely presence of any hazardous substances or petroleum products on the property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into the ground, groundwater, or surface water of the property. The Phase I will have four components, described as follows:

1. **Records Review:** Obtain and review records that will help identify recognized environmental conditions in connection with the property. Some records will pertain to properties within an additional approximate search distance in order to help assess the likelihood of potential problems from migrating substances.

2. **Site Reconnaissance:** Visually and physically inspect the property and adjoining properties, to the extent not obstructed by bodies of water, adjacent buildings, or other obstacles, for evidence of hazardous substances or petroleum products.

3. **Interviews:** a) Interview owners and occupants, or their designated representatives, to obtain information regarding current and historical uses of the property that may be related to environmental conditions. b) Conduct inquiries of local agency (e.g. fire department, health department) officials or staff members that may have knowledge or records of environmental conditions or incidents related to the property or the surrounding area. Interviews may in the form of personal contact, telephone contact, or written correspondence.

4. **Evaluation and Report Preparation:** The information gathered from the previous tasks will be evaluated, and the findings will be presented in a report that describes, at minimum, site and vicinity descriptions, current and past uses of the property and adjoining properties, information from records reviews, information from site reconnaissance and interviews, conclusions and opinions of impacts, if any, of recognized environmental conditions. The report will also describe the methodologies used and will include appropriate documentation and exhibits of information used to conduct the assessment. Recommendations for further study, if any, will be provided in a separate document.

Phase I ESA investigative work includes, but may not be limited to, four basic tasks which are each comprised of several components. The details of these tasks are set forth below, listing the standard components of each. The ASTM E 1527-2013

standard prescribes a review of *reasonably ascertainable* information; that is, information that is publicly available, obtainable from its source within reasonable time and cost restraints, and practically reviewable. The availability of information will vary based on the location of a given site. Berg♦Oliver will attempt to review as much of the following information as is reasonably ascertainable for this project.

Task 1: Records Review

Standard Environmental Record Sources

Review documented environmental site listings from Federal and State regulatory agency database sources, including the following:

Sources	Minimum Search Distance
1. Federal NPL Facilities/Sites Lists	1.0 Mile Radius
2. Federal NPL-Delisted Sites List	0.5 Mile Radius
3. Federal CERCLIS List	0.5 Mile Radius
4. Federal NFRAP List	0.5 Mile Radius
5. Federal RCRA Corracts List	1.0 Mile Radius
6. Federal RCRA TSD List	0.5 Mile Radius
7. Federal RCRA Generator List	Adjoining
8. Federal Finds List	0.5 Mile Radius
9. Federal ERNS List	Site Specific
10. State Priority List	1 Mile Radius
11. State IOP List	0.5 Mile Radius
12. State SWLF/CLI List	0.5 Mile Radius
13. State CLI List	0.5 Mile Radius
14. State LPST List	0.5 Mile Radius
15. State Registered UST/AST List	Adjoining
16. State PST List	0.5 Mile Radius
17. State TCEQ VCP List	0.5 Mile Radius
18. State Brownfield List	0.5 Mile Radius
19. Dry Cleaner List	0.5 Mile Radius

20. IHW List	Adjoining
21. Local Hazmat Spills	Site Specific

Documented regulatory agency sites located within the ASTM prescribed minimum search distance will be identified and plotted on a composite site map.

Physical Setting Sources

USGS Topographic Map(s) will be reviewed to determine site topography and surface drainage patterns of the site and the surrounding area. Current and past structures, roads, well installations, and other improvements will be evaluated, as well as other pertinent physical features such as streams or water bodies. **Federal Emergency Management Agency** floodplain map(s) will be evaluated to determine if the subject property lies within a known floodplain. The appropriate **Soil Survey** from the **USDA Natural Resource Conservation Service** will be reviewed to determine the site's soil conditions and general surface geology of the area. General descriptions will be made of the subsurface hydrogeology based on information from **USGS Groundwater Maps** or other sources.

Historical Use Information

Historical Aerial Photographs will be obtained from aerial photography firms having inventory of the subject area. The photographs will be reviewed to evaluate previous land use characteristics for the property and adjacent parcels. The photographs will also be checked for possible oil and gas exploration activities, surficial anomalies associated with waste ponds or dumps, and previous commercial and/or industrial activities. A **Chain of Title** will be reviewed from the County Clerk's records to identify site ownership from 1940 forward. The records will be reviewed to evaluate the potential for industrial or environmentally significant land use activities onsite, based on the identities of previous owners. This task will be subcontracted to a title search company.

Local **City Directories** and **Sanborn Fire Insurance Maps**, if available, will be reviewed for listings of the types of past structures or business operations that may have existed on the property. In addition, **Texas Railroad Commission Records** will be reviewed to determine if oil and/or gas exploration or production has occurred on the site. This information will be

obtained from a **Regional Oil and Gas Survey Map** prepared by Tobin Research, Inc.

Task 2: Interviews and Agency Inquiries

Owner/Occupant Inquiry

Inquiries will be made of person(s) who may have knowledge of current or historical conditions associated with the subject property. One or more of the following individuals may be contacted for an interview: 1) **Current Owner** 2) **Owner's Representative** 3) **Occupants** or **Tenants** 4) **Adjacent Property Owners/Occupants**. Interviews may be conducted in person, by telephone, or by written correspondence in the form of an **Owner/Occupant Questionnaire**.

Local Agencies and/or Officials

Inquiries will be made of local agencies or officials that may have records of environmental conditions or incidents related to the subject property or adjacent properties. Such agencies may include the **Local Fire Department**, **Hazardous Materials Response**, **City/County Health Department**, **Local Pollution Control Agency**, or others deemed appropriate for the property, its location, or specific conditions.

Task 3: Additional Records Sources

In the event that site-specific conditions or standard information sources indicate a potential environmental condition(s) associated with the property, other selective files or records may be reviewed for additional information regarding such conditions. This information will be obtained at the discretion of Berg♦Oliver based on the findings of the investigation. Other typical sources include specific files from the **Texas Railroad Commission**, the **Texas Commission on Environmental Quality**, and the **Environmental Protection Agency**.

Task 4: Site Reconnaissance

General Site Setting

Site reconnaissance will be conducted to physically and visually inspect the property for indications of environmental conditions. Observations will be made of the **Current Site Usage**, **Adjacent Site Usage**, **Topography and Landscape**, **Structures**, **Roads**, **Improvements** and, to the extent practicable, **Potable Water Supply**, **Sewage Disposal System**, and other **Utility Installations**.

Interior and Exterior Observations

The property and any buildings or structures will be inspected for visual or physical evidence of hazardous substances or petroleum products. Exterior observations include, but are not limited to, pits, ponds, lagoons, stained soil or pavement, pools of liquid, strong odors, stressed vegetation, solid waste, waste water and associated discharge(s), above or below ground storage tanks, drums or containers, unidentified substances, wells, or septic systems. If interior inspection is required, observations will include those listed above, if applicable, as well as heating/cooling sources and fuels, stains or corrosion, drains and sumps, storage or treatment areas, and construction materials. Any listed, or non-listed, indicator of hazardous substances or petroleum products will be identified in the findings of the report.

2E.501 – Wetland Delineation and Approved Jurisdictional Determination

The objective of the delineation is to evaluate and document any portion of the site to be classified as a "Jurisdictional Water of the United States" as defined in 33 CFR 328 and subject to U.S. Army Corps of Engineers (USACE) jurisdiction. The delineation will be conducted according to the 2010 Regional Supplement to the Corps of Engineers (USACE) Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (v.2). The recent guidance and supplemental criteria have altered the primary determining factors for identifying waters of the United States. However, compliance with these criteria requires a significant increase in the documentation and scientific evaluation.

Delineation work will consist of the following subtasks:

Subtask 1: Review of NRCS Soil Surveys: Subtask 1 will include a review of previously published soil data published by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), to determine the types of surface soils expected to be confirmed by on-site soil analysis.

Subtask 2: Review of Aerial Photographs: Subtask 2 will include a review of historical aerial color and black/white photographic enlargements for selected years. Infrared color photographs will be analyzed for the presence of wetland signature color distortions. Information for all photographic interpretation will be compared to locate recurring sites where wetland signatures are present.

Subtask 3: Site Reconnaissance for Wetland Indicators: Subtask 3 will include inspecting the property under the field procedures outlined in the Corps of

Engineers Wetland Delineation Manual – Technical Report Y-87-1 by the USACE.

Transects are required for tracts greater than 5 acres in size, unless negotiated with the USACE to forego transects based on the homogeneous landscape and habitat type. If necessary, transects will be performed across the property, perpendicular to the nearest watercourse. Samples of vegetation, soils, and hydrology indicators will be taken at each change in topography or vegetation. Vegetation samples will be evaluated and recorded at each sample area. Upland vegetation will be verified, for it is as significant as wetland vegetation in the determination process. Inspection of the property for evidence or lack of wetland hydrology will be performed at each sample area. Soil samples will be evaluated at each test site for their hydric and non-hydric characteristics. Non-hydric soils verify upland status and are as significant as hydric soils in the determination process.

Subtask 4: Demarcation of Wetland Areas: Demarcation of Wetland Areas: Subtask 4 will include the flagging of the jurisdictional wetland areas and/or the ordinary high-water mark for location by a Registered Professional Land Survey (RPLS) or Global Positioning System (GPS). Location of the areas by RPLS or GPS survey using the USACE- Galveston District April 2016 Standard Operating Procedures for Jurisdictional Delineations using Global Positioning Systems (GPS) and Geographic Information Systems (GIS) Tool and Technologies.

Subtask 5: Preparation of a Map Representing Wetland Areas: Upon receipt of the RPLS or GPS wetland areas and the limits of the Jurisdictional Waters, information regarding the field location of the boundaries of all Section 10 and 404 waters/wetland limits within the property boundaries will be plotted on a scaled map. Each Jurisdictional area will be depicted with the following information: 1) size, shape and latitude/longitude; (2) surface area calculation (acres); and (3) combined total wetland and Jurisdictional Water area calculations for the entire subject tract. The final report submitted to the client from Berg♦Oliver will reflect the surveyed data from the RPLS or GPS survey showing the location of the wetlands.

Subtask 6: Report Preparation: Subtask 6 will include the preparation of a final report. Upon completion of the site reconnaissance, data translation, and map preparation, a report will be completed and submitted in PDF format. The PDF and shape files will be downloaded to the EBuilder documents folder for the project. The report will include a discussion of methodology used to delineate the tract, site findings, copies of all historical information reviewed, such as U.S. Geological Survey topographical maps, NRCS soil survey maps, aerial

photographs, site photographs, USACE routine data sheets, a wetland delineation map, and Approved Jurisdictional Determination Forms or Preliminary Jurisdictional Determination Forms.

BOA will assist the client with submission of Approved Jurisdictional Determination Forms or Preliminary Jurisdictional Determination Forms to the USACE, if instructed by the client. BOA will attend a site visit with the USACE to verify the findings of the wetland delineation and provide any map revisions as necessary according to the USACE requirements.

2E.502 – Threatened & Endangered Species Habitat Survey

The objective of the Threatened and Endangered Species Assessment is to evaluate the potential for the existence of critical or irreplaceable habitats, which are considered protected under the Endangered Species Act of 1973 and subsequent amendments and listings. State listed threatened and endangered species and species of greatest conservation need (SGCN) will also be considered. The following selected tasks will be considered for the tract.

1. Review of Agency Listing for Estimated Habitat Boundaries. The listings currently maintained by U.S. Fish and Wildlife Service (USFWS) and Texas Parks & Wildlife Department (TPWD) – IPaC report and RTEST, respectively – will be evaluated to determine if any of the listed species may be shown to potentially inhabit the area.

2. Consultation with Appropriate Agencies. Task 1 results may reveal the need for additional current information. If indicated, several private sources and agencies will be interviewed for information regarding specific species having potential for habitation of the subject site.

3. Site Reconnaissance and Biological Impact Assessment. The biological aspects of the potential habitat will be physically reviewed and documented to determine if the habitat is desirable or reproductively useful to the specific species. The site will be reviewed for biological indicators of presence. If marginal or suspicious habitats are encountered, a specialist on the specific study species will be consulted and included in the site impact assessment.

4. Preparation of Letter of Findings and Recommendations. Following the completion of all research and site reconnaissance, a letter of findings and recommendations will be completed and forwarded to the client.

2E.503 – Cultural Resources Desktop Survey

The proposed undertaking would be sponsored by Harris County, a political subdivision of the state of Texas; as such, the project would fall under the jurisdiction of the Antiquities Code of Texas. The project may also require the use of Nationwide Permits (NWP) issued by the US Army Corps of Engineers (USACE) to permit construction within any water features that meet the criteria for designation as "waters of the US" (WOTUS). Any portions of the overall project area that fall within a federal permit area would also fall under the jurisdiction of Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. As the proposed project represents a publicly sponsored undertaking, the project sponsor is required to provide the applicable federal agencies and the Texas Historical Commission (THC), which serves as the State Historic Preservation Office (SHPO) for the state of Texas, with an opportunity to review and comment on the project's potential to adversely affect historic properties listed on or considered eligible for listing on the National Register of Historic Places (NRHP) and/or for designation as State Antiquities Landmarks (SAL). At this time, no other federal or state jurisdiction has been identified for the project. In the event that any additional regulatory triggers are identified as the project moves forward, it will be evaluated whether or not any additional, out-of-scope cultural studies or agency coordination may be required.

The BBI Team will:

- Perform basic archival research at the THC, the Texas Archeological Research Laboratory (TARL), the General Land Office (GLO), the National Park Service's (NPS) online National Register Information System (NRIS), and/or other relevant archives for information on previous cultural resources investigations conducted in the vicinity of the project area and previously recorded archeological sites and historic properties within and in the vicinity of the project area. Desktop archival studies will examine a 1.0-mile radius surrounding the project area.
- Review the abovementioned archives; historic, geological, and soil maps; and aerial surveys and photographs prior to initiating fieldwork to evaluate the potential for encountering significant cultural resources within the project area.
- Prepare and submit to the client, if requested, a draft agency consultation letter summarizing the results of desktop research and presenting recommendations regarding the scope of further archeological recommendations required under the applicable laws to obtain project clearance.

2G – Geotechnical

2G.600: Roadway – Report

The geotechnical work scope for the Saums Road reconstruction project, as specified by Harris County Public Infrastructure Department (HCPID), includes a review of prior geotechnical reports for adjoining pavement design recommendations, if available; a desktop fault review, and pavement design guidelines in accordance with the

Guidelines for Consultants Performing Geotechnical Investigations for Projects Maintained by Harris County, Texas (Effective Date January 1, 2011) and *Regulations of Harris County, Texas for The Approval and Acceptance of Infrastructure*, Adopted: August 11, 2009 Effective: September 1, 2009 Amended: May 1, 2011.

Field Study

Four (4) 15-ft deep borings spaced at approximately 500-ft intervals along the roadway alignment are being proposed. Boring locations for roadway will alternate between the existing pavement and the existing roadway right-of-way. A total of 60 vertical feet will be drilled.

The BBI Team will perform the necessary One-Call notifications prior to beginning the field drilling activities. The borings will be located in the field using recreational grade GPS and/or by pacing distances from known landmarks or reference points.

Traffic control will be required to safely route traffic around the drilling crew during the field work activities of the roadway and traffic signal borings. The BBI Team will provide off-duty police officers and/or other certified traffic subcontractor to perform traffic control duties.

Cores (6-inch diameter) will be taken to define the existing pavement structures such as asphalt thickness, base and subbase thickness and characteristics. The underlying subgrade soils will then be sampled at continual 2-ft intervals to the 15-ft boring completion depths. Cohesive subsurface soils will be sampled with a 3-in diameter, thin-walled tube (ASTM D 1587). Granular soils will be sampled with a split-barrel sampler while performing Standard Penetration Test (ASTM D 1586). Representative portions of the recovered soil samples will be sealed, identified, packaged, and transported to our laboratory for subsequent testing and classification.

Water level readings will be recorded for the open boreholes during drilling and at drilling completion. If free water is encountered during drilling, we will temporarily suspend drilling operations and obtain water level measurements in the open borehole at 5-minute intervals over a 15-minute period. Water level measurements will also be recorded at completion of drilling prior to backfilling the boreholes with the auger cuttings and spoils generated during the drilling operations. The pavement section core holes will be sealed with ready-mix concrete or non-shrink grout mixture.

Laboratory Testing

Upon completion of the subsurface exploration, a general testing program will be designed to define the moisture condition, classification, strength, and shrink/swell characteristics of the subsurface soil samples. The laboratory testing program is anticipated to include moisture content determinations, Atterberg Limits, percent passing No. 200 sieve, grain size analyses, unit dry weights, and unconfined compressive strength tests. However, the actual type and number of laboratory tests will be based on the subsurface conditions encountered in the borings. The laboratory testing will be performed in general accordance with applicable ASTM standards and samples will be kept for 30 days upon submittal of the final report.

Engineering Analyses and Report

The results of the field and laboratory studies will be reviewed by our staff of engineers and geologists. The results of our review, together with the supporting field and laboratory data, will be presented in a draft geotechnical report which will be finalized after we receive client comments. The Geotechnical Engineering Report may also include the following information and recommendations:

- A summary of the field and laboratory sampling and testing program;
- Boring logs and laboratory testing results;
- A review of the general site conditions including a description of the site, the subsurface stratigraphy, groundwater conditions, and the presence and condition of fill materials, if encountered.
- Storm sewer line construction considerations, including
  - trench safety for open and braced excavations;
  - groundwater control; and
  - bedding and backfill requirements in accordance with HCED criteria.
- Pavement subgrade preparation and pavement design in accordance with AASHTO standards for roads and HCED Guidelines;
- Detention pond side slopes gradient and erosion control;
- Slope stability analyses ;
- Erosion control;
- Soil dispersion potential; and
- Desktop fault review.

Our scope of work does not include conducting test pits at the site. The Geotech will prepare recommendations based on the existing ground surface elevations. Also, specific information concerning anticipated traffic loadings and frequencies to be provided by the client for the pavement areas will be critical in the computation of the pavement sections.

Electronic copies of the draft geotechnical report and final geotechnical report will be provided.

2S – Survey

The survey preparation for this Study Report will include the following tasks, but not limited to: right of entry, control, topographic survey, cross sections, 2D and 3D plan view, and utility research and survey.

2S.700 – Existing Right-of-Way Maps (Cat. 1B Condition II)

Survey will verify existing ROW survey and map that was prepared by others, for the 13 parcels included in the project limits.

1. Perform abstracting to obtain copies of subdivision plat maps and any street dedication plats for the current existing right-of-way of Saums Road from approximately 1200’ west of Greenhouse Rd to approximately 800’ east of Greenhouse Rd. Research and obtain records for the current right-of-way for Saums Road, Porter Road, Shady Brook Drive, Harris County Flood Control Drainage Easement, West Park View Drive and Greenhouse Road from approximately 300-feet each way from Saums Road; Obtain copies of current ownership deeds for the acreage tracts and platted reserves of land adjacent to both sides of Saums Road and both sides of Greenhouse Road; and Obtain copies of existing easements crossing or within 50-feet of the existing right-of-way lines of Saums Road and Greenhouse Road.

2. Prepare and send right-of-entry letters to landowners adjacent to Saums Road for the project limits.

3. Perform technical office processing of abstract records to prepare a working sketch of the current roadways and property along both sides of Saums Road, Greenhouse Road and side streets sufficient for field recovery of boundary corners.

4. Perform field surveying to recover and tie boundary corners for the existing right-of-way lines and tracts of land along both sides of Saums Road and Greenhouse Road sufficient to establish the current right-of-ways and adjacent property lines for the project limits.

5. Perform technical office calculations and analysis of the property corners to establish the existing right-of-way lines for Saums Road, Greenhouse Road, side streets and the tracts of land adjacent to both sides for the project limits.

6. Perform technical office calculations for the proposed right-of-way lines for Saums Road and any widening required for the intersection of Greenhouse Road for the final approved alignment.

7. Prepare a continuous alignment map for the limits of Saums Road, Greenhouse Road and West Park View Drive in Microstation showing the existing and proposed right-of-way lines for Saums Road, Greenhouse Road and side streets. This map will be used for reference in the base topographic survey for Saums Road for preliminary engineering for paving and drainage design.

2S.701 – Topographic Survey (Cat. 6 Condition II)

Perform a Category 6, Condition II Topographic Survey for Saums Road and the land adjacent to the road required for the final roadway design. This will involve mapping Saums Road from 1200 feet west of Greenhouse Road to 450 feet east of Greenhouse (approximately 1,650-linear feet) and mapping Greenhouse Road Road from 250 feet south of Saums Road north to 500-feet north of Saums Road (approximately 750 linear feet) for an approximate total linear footage of 2,400-feet. The existing right-of-way along Saums Road will be mapped for the limits of current existing right-of-way and 25-feet beyond the proposed right-of-way and any temporary easements required for the final roadway design, providing access is permitted. Including 60-feet outside proposed right-of-way for objects (obstructions). Scope of services is more specifically described as follows:

1. Notify DIGTESS and request underground utility companies mark the locations of private utility lines within the project limits.

2. Provide Level D SUE research of public and private utilities to obtain record documents or plans for existing facilities.

3. Coordinate with private pipeline companies to meet and obtain information regarding the locations and depths for petroleum pipelines that might cross the project limits. This information will be incorporated into the existing topographic survey and a profile exhibit will be prepared showing the depth of major pipelines crossing under the existing Saums Road and Greenhouse Road.

4. Perform field surveying to set “permanent” iron rod control monuments throughout the project limits at the beginning, the end, and at approximate 500-foot intervals sufficient for conventional total station data collection surveying. The control shall be oriented to the Texas State Plane Coordinate System, NAD of 1983, South Central Zone 4204, and scaled to the surface using the appropriate scale factor. Elevations will be established on all control monuments based on the current Harris County Benchmark, NAVD 1988 datum, TSARP adjustment. Additional temporary benchmarks shall be set at the beginning, end, and at approximate 1,000-foot intervals throughout the project limits.

5. Perform field surveying along Saums Road, Greenhouse Road and side streets to locate existing features (natural and man-made). The field surveying shall include: locating existing roadway features, driveways, culverts, ditches, visible utilities and marked utilities, fences, structures, signs, trees and other major visible improvements; Outline heavily wooded areas; Obtain elevations across the project limits at 100-foot intervals; Obtain elevations of manhole covers, valve covers, valve operating nuts (where accessible); and Elevations of underground utility pipes where accessible (manholes, inlets and culvert pipes).

6. Coordinate with geotechnical consultants to determine the locations and ground surface elevations for soil boring locations throughout the limits of the project.

7. Process all field survey data and record utility data and prepare an existing condition 3D topographic survey base map for the project limits; Prepare a 3D DTM surface model of the topographic survey in MicroStation using Topodot; Research the Federal Emergency Management Agency for current elevations and locations of the flood plain lines affecting the project limits and incorporate these into the final drawing; and Attach a separate reference file of the existing right-of-way lines and boundary lines for the property adjacent to the limits of the project. The map shall be prepared in Microstation and will be sufficient for engineering review and design.

8. Prepare a Survey Control Map for the overall project control to be signed and sealed by a Registered Professional Land Surveyor licensed to practice in the State of Texas.

The scope of this work does not include any surveying services for environmental features that might be required. These surveying services will be performed under an Additional Services Proposal to be provided at a later date if determined necessary.

2S.759 – Level B SUE

Provide Level B Subsurface Utility Engineering surveying at specific locations of the underground utility lines identified during the topographic survey specified by the Project Engineer and Harris County as being necessary to determine the accurate location for final design of Saums Road. The cost will be based on 5,000 feet of utility location at this time to include traffic safety, mobilization, and demobilization.

3.P – DESIGN PHASE

DESIGN PHASE WILL INCLUDE:

1. Preparation of drawings, traffic control plan, project manual, cost estimates, and utility contact/conflict table updates.

2. Design phase submittal to include addressing review comments and resubmittals.

3. Project management to include project schedule review and updates.

4. Hold, attend, and prepare minutes for:

    a. Design kick-off meeting

    b. Traffic Control Plan meeting

5. Design Deliverables include:

    a. Plans (signed and sealed)

b. Response to comments

c. Cost Estimate

d. Attachment L

e. Attachment M

f. Report File

g. Utility Conflict Table (in E-Builder standard format)

h. Online Bidding Sheet (HCED to provide the current template)

3.P.201 – ROADWAY DESIGN

The design submittal will include the submittal of half-size and full (22x34) construction-ready plans, Roadway design sheets will include:

1. Clearing and Grubbing Layout (1 sheet)
2. Project Layout (1 sheet)
3. Typical Sections (2 sheets)
4. Roadway Plan & Profile sheets at 1” = 40’ (5 sheets)
5. Intersection Grading Layout (1 sheet)
6. Any additional design submittal sheets as required by HCED standards and as needed to define the work

3.P.206 – STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A Storm Water Pollution Prevention Plan (SWPPP), including a Notice of Intent (NOI) and a Notices of Termination (NOT), will be prepared as required in accordance with the current Texas Commission on Environmental Quality TPDES General Permit associated with construction activities. The SWPPP will be submitted through TCEQ STEERS on-line portal, or as required by the current TCEQ guidelines. The Plan will also include drawings and a written plan based on HCED criteria.

A Storm Water Quality Management Plan (SWQMP) will be prepared, including a written plan and drawings based on current County criteria.

3.P.208 – DESIGN CROSS SECTIONS

The roadway surface will be modeled and cross sections will be developed every 50 feet for the extent of the project.

Traffic Design

Provide professional engineering services to include a traffic control plan, signing and pavement marking plan, and signal plan, as part of improvements to Saums Rd. The improvements consist of reconstructing Saums Rd to a 4-lane concrete roadway with a flush (painted) median as well as reconfiguring the existing traffic signal at the intersection of Saums Rd and Greenhouse Rd.

The Scope is to include, but not limited to:

3T.803 – Signal Modification Design

The existing traffic signal at Saums Road and Greenhouse Road is a span wire design with the traffic signal poles placed to accommodate the widening of Saums Road without having impacts to the existing traffic signal poles. The existing pedestrian poles, pedestrian signals and pushbuttons, as well as the existing wheelchair ramps and concrete pads will be impacted by the widening. These impacts will require design modifications to the traffic signal. Traffic signal heads on the Saums Road approaches will also require signal location adjustments to meet the needs of the widening of Saums Road. Existing street name signs will also be replaced.

Traffic signal modification design will include the following:

- Basis of Estimate for Traffic Signal Design
- Existing Conditions Layout Sheet 1 of 2
- Existing Conditions Layout Sheet 2 of 2
- Traffic Signal Demolition Layout
- Proposed Signal Modifications Layout Sheet 1 of 4
- Proposed Signal Modifications Layout Sheet 2 of 4
- Proposed Signal Modifications Layout Sheet 3 of 4 (Signal Detail Sheet)
- Proposed Signal Modifications Layout Sheet 4 of 4 (Elevation Sheet)

- Traffic Signal and ADA Standards (5 Sheets)

3T.804 – Temporary Signal Design

Temporary traffic signal design will be done for the proposed three-phases of traffic control to maintain traffic signal operation during construction. Pedestrian facilities will be bagged or remove as needed for each phase of traffic control. Traffic signal heads will be shifted based upon each phase of construction.

The temporary traffic signal design will include the following:

- Phase 1 Proposed Traffic Signal Layout (1 Sheet)
- Phase 2 Proposed Traffic Signal Layout (1 Sheet)
- Phase 3 Proposed Traffic Signal Layout (1 Sheet)
- TCP Signal Detail Sheet (1 Sheet)

3TP.807 – Traffic Control Plan

Traffic control will consist of a three-phase TCP to facilitate movement through the construction area. Sheets will be double-banked (1” = 40’) with typical sections and phasing notes on the sheets. A TCP meeting will be held with HCED prior to the first plan submittal.

- Phase 1 (2 sheets): Construct temporary asphalt detour pavement along the south edge of Saums Rd existing pavement.
- Phase 2 (4 sheets): Move traffic to the temporary pavement and the pavement in the westbound direction will be constructed. Secondary steps will be included to accommodate the construction at the Saums Rd/Greenhouse Rd intersection.
- Phase 3 (4 sheets): Shift traffic to the newly constructed westbound pavement and construct the pavement in the eastbound direction. Secondary steps will be included to accommodate the construction at the Saums Rd/Greenhouse Rd intersection.

3TP.808 – Signing and Pavement Marking Design (1” = 40’)

1. Pavement markings are to be placed along Saums Rd for the full extent of the project limits. (2 sheets – double banked)
2. Pavement markings are to be refreshed or replaced along Greenhouse Rd 500 ft to the north and south of the intersection with Saums Rd (1 sheet)

3. Existing signs are to be replaced.

4. Remove any signs that are not currently warranted.

5. Deliverables will be prepared in accordance with the HCED Traffic Control, Pavement Marking, and Signal Design Guidelines as well as Harris County's latest specifications and standard drawings to ensure safe and efficient operation.

4P – BID PHASE

BID PHASE WILL INCLUDE:

Attend Pre-Bid conference, respond to bidder's inquiries, evaluate bids, and make recommendation of award.

OPTIONAL/ADDITIONAL SERVICES

2D.400 – Drainage Report – Detention Modeling, Alternatives

Optional Additional Services 1 – Detention Modeling

The basic services for Roadway Analysis include modeling of the roadway system for existing and impacted conditions due to the increased runoff from the proposed roadway expansion. The selected alternative from Task 3 above will be modeled in this phase. Based on the results of the high-level detention alternative screening and input from the County and Precinct, a detention alternative will be selected for incorporation into the no impact solution model. ***Note: three detention alternatives are detailed below; however, it is anticipated that only one alternative will need to be selected and modeled for the project.***

a. **Alternative A (Expand Existing MUD Detention Ponds)** – This task includes coordinating with the MUD to obtain and review the reports and plans for the existing MUD detention ponds. Additional modeling will be required to incorporate the proposed roadway plan into the existing MUD pond system and will include determining the modifications that can be made to this pond system that results in no adverse impacts. The model will be iterated to maximize flow from Saums Road and meet HCED criteria to provide a solution with the 2-year HGL below the gutter line and the 100-year HGL within the County's right-of-way.

b. **Alternative B (Construct New Offline Detention Pond)** – This alternative includes the construction of a new offline detention pond between South Mayde Creek and Saums Rd in the vicinity of Greenhouse Rd. The detention pond and control structure will be iterated until a no impact solution has been

reached. The model will be iterated to maximize flow from Saums Road and meet HCED criteria to provide a solution with the 2-year HGL below the gutter line and the 100-year HGL within the County's right-of-way.

c. Alternative C (Provide In-Line Detention Within Proposed Storm Sewer) – For this alternative, the proposed storm sewer system will be modified to provide additional in-line detention. Restrictors will be sized to avoid downstream impacts and still meet other project requirements. The model will be iterated to maximize flow from Saums Road and meet HCED criteria to provide a solution with the 2-year HGL below the gutter line and the 100-year HGL within the County's right-of-way.

2D.400 – Drainage Report – Hydraulic Modeling

Optional Additional Services 2 - Effective Hydraulic Model Check

This project is located along South Mayde Creek (HCFCD Unit # U101-00-00) in the Addicks Reservoir Watershed (U). The entire project is in the 100-year floodplain (FEMA Special Flood Hazard Area Zone AE) with a significant portion located within the 100-year Floodway. The FEMA Effective hydraulic model for South Mayde Creek will be evaluated to determine what impacts, if any, occur as a result of the proposed roadway improvements.

a. Hydraulic Analysis

- Obtain Effective HEC-RAS Model -- The current effective HEC-RAS model will be obtained for South Mayde Creek in the Addicks Reservoir Watershed. It should be noted the Addicks Reservoir Watershed is included in a Phase 1 Modeling, Assessment and Awareness Project (MAAPnext) and preliminary maps are scheduled to be updated in the later part of 2021. This proposal only considers the current FEMA Effective models, methodology, and approaches and DOES NOT consider the MAAPnext modeling.
- Extract Station-Elevation Data from Roadway Plans – Elevation data will be extracted from the proposed roadway plans and correlated to specific cross sections in the effective RAS model.
- Update HEC-RAS Cross-Section – The cross-sections in the existing HEC-RAS model will be compared to the proposed improvements. A proposed conditions HEC-RAS model will be developed based on any necessary updates.
- Quantify WSEs – A results comparison table showing the 100-year flows and 100-year and 500-year WSEs will be developed as part of this task.

b. Floodplain Fill – Given the project site's location within the 100-year floodplain, additional mitigation requirements apply if any fill is placed as part of the project.

c. Mitigation Requirements

- Evaluate Peak Flow Impacts - In order to determine any impacts, a results comparison table showing the 100-year flows for the existing and proposed conditions drainage areas will be developed.
- Evaluate Proposed Cross-Section Impacts – In order to determine any impacts, a results comparison table showing the 100-year flows and 100-year WSEs in South Mayde Creek for the existing and proposed conditions will be developed.
- Evaluate Floodplain Fill Requirements – The cut/fill quantities will be reviewed to determine if any net fill is being placed as part of the project.
- Determine Mitigation Requirements – Any mitigation required will be determined based on HCED and HCFCD regulations and will be incorporated into the design of the detention pond.

d. Report Section – The hydraulic model check narrative will be developed and incorporated into the drainage impact analysis report (see Section 4 above).

3D.451 – Detention Pond Design

Optional Additional Services 3 – Detention Pond Design

The detention pond design will be based on the selected alternative as well as the proposed modeling. There are three options: **a)** Alternative A - expanding the existing MUD detention ponds; **b)** Alternative B - constructing a new offline detention pond; **c)** Alternative C - providing in-line detention within the proposed storm sewer system. No additional fee is requested for Alternative C, as the design would be included within the storm sewer system. These optional additional services tasks include the detention pond design of the County's chosen alternative.

a. Alternative A (Expand Existing MUD Detention Ponds)

i. **Deliverable** - The deliverable for this task will include plan sheets of the proposed expansion for the two existing MUD detention ponds. It is estimated eight to ten (8-10) sheets will be required which will detail the modified pond layout, modified cross sections, outfall details and standard details for both ponds.

ii. **QC and Response to County Comments** – An internal review will be performed by the BBI team. In addition, this task includes hours for addressing comments from HCED on the plans.

b. Alternative B (Construct New Offline Detention Pond)

i. **Deliverable** - The deliverable for this task will include plan sheets of the proposed detention pond design. It is estimated four to five (4-5) sheets will be required which will detail the pond layout, cross sections, outfall details and standard details.

ii. **QC and Response to County Comments** – An internal review will be performed by the BBI team. In addition, this task includes hours for addressing comments from HCED on the plans.

c. **Alternative C (Provide In-Line Detention Within Proposed Storm Sewer)** For this alternative, the design of the in-line detention will be incorporated into the roadway design by Binkley & Barfield, Inc. (BBI). Therefore, no deliverable will be provided by the BBI team for this option.

2E.551 – Archeological Pedestrian Survey

Archeological Survey Fieldwork

The BBI Team will:

- Apply for and obtain a Texas Antiquities Permit from the THC (required for any project that falls under the jurisdiction of the Antiquities Code of Texas). The application for a Texas Antiquities Permit requires the signature of the project sponsor and/or landowner, as appropriate, as well as the archeological Principal Investigator. The Texas Antiquities Permit must be issued by the THC prior to the initiation of any cultural resources field activities.
- Perform an intensive archeological survey, consisting of pedestrian walkover with surface inspection and systematic shovel testing at a level of intensity sufficient to meet or exceed the Texas State Minimum Archeological Survey Standards (TSMASS) and guidelines established by the CTA unless field conditions warrant excavation of more or fewer shovel tests.
- Document any cultural resources encountered to a sufficient degree to make preliminary recommendations of the significance of the resources in terms of their eligibility for inclusion in the NRHP and/or for designation as SALs, as appropriate.
- Inspect the locales of any previously recorded archeological sites within the project area, assess their current condition, and document the sites to a sufficient degree to make preliminary recommendations of the significance of the resources in terms of their eligibility for inclusion in the NRHP and/or for designation as SALs, as appropriate.

Technical Report

The BBI Team will:

- Complete and submit *State of Texas Archeological Site Data Forms* (for new archeological sites) or *State of Texas Archeological Site Update Forms* (for previously recorded archeological sites) to TARL. Permanent site

trinomials will be obtained from TARL for any new archeological sites documented within the project area during the survey.

- Assess the significance of any cultural resources within the project area in terms of their potential eligibility for inclusion in the NRHP and/or for designation as SALs, as appropriate.
- Develop a draft technical report detailing the project background, environmental and cultural setting of the project area, research goals and survey methods, survey results, recommendations for any cultural resources documented during the survey, and a bibliography of references cited suitable for review by the THC and any other applicable regulatory agencies.
- Submit a preliminary review copy of the archeological draft report describing the results of the survey in electronic (PDF) format to the client or review. Following approval of the draft report by the client, the BBI Team will submit an electronic copy of the report to the THC and any other applicable regulatory agencies for review and comment. The BBI Team will coordinate review with the regulatory agencies unless the client would prefer to coordinate agency review directly.
- Respond to any comments on the draft report offered by the THC and any other applicable regulatory agencies and produce a final report.
- Submit the final report to the client and the THC (if request by the client).

Records Curation

The BBI Team will:

- Prepare project records for curation at TARL per the requirements of the Antiquities Code of Texas and TARL's *Stipulations and Procedures for the Preparation of Archeological Records and Photographs, Curation Supplies, and Sources* and/or *Stipulations and Procedures for the Preparation of Archeological Material Collections*, as appropriate.

A detailed, site-specific scope would be submitted at such time that is determined a survey is necessary.

Upon the client's request, the BBI Team will reduce or enlarge the scope of services and associated cost estimate to accommodate any existing or perceived changes to project needs and budgetary constraints.

2E.552 – Regional General Permit (RGP) or Nationwide Permit (NWP)

Scope of work for the preparation of a Regional General Permit (RGP) per agreement between HCED and the USACE for impacts to Section 404 Waters of the United States and submission to the HCED or submission to the U.S. Army Corps of Engineers (USACE). The BBI Team will utilize these plans to create the required permit submittal

drawings in the USACE's preferred format. The USACE may request an alternatives analysis and best management practice information. The BBI Team will work with the client to develop this information and submit to the USACE as part of the permit package.

Berg♦Oliver will provide consulting services that will include, but not be limited to the following: project coordination; communicating with the client to expedite completion of the project; determining and evaluating options with the client; attending meetings with the client, as necessary; and making recommendations for site development.

The BBI Team will draft and submit the Permit application and support documents to the applicant/client for review prior to submittal to the USACE. It is understood HCED will submit the permit to the USACE. Preparation and Submittal includes preparation of all plan and profile sheets of impacts and mitigation per USACE requirements.

2E.554 – Hydrogeomorphic Model

INTERIM RIVERINE FORESTED HYDRO-GEOMORPHIC MODEL (iHGM)

The Interim Forested Hydro-Geomorphic Model is a detailed habitat function and value assessment that evaluates qualitatively and quantitatively the relation of the baseline habitat value of the existing conditions and proposed habitat improvements in order to quantify functional credit units (FCU). The FCU score will be used to develop a mitigation plan to compensate for proposed impacts on-site, off-site, or within an approved wetland mitigation bank. The model requires specific data to be collected beyond that of a wetland delineation and evaluated over a time period of twenty (20) years. This specific data includes, but is not limited to, the following:

1. Plant bio-mass production;
2. Vegetation community composition;
3. Sediment deposition;
4. Nutrient and organic carbon exchange; and
5. Invertebrate prey pool.

This data represents the functional capacity index (FCI), which is used to calculate the FCU. The benefit of using the model is to scientifically base mitigation solutions versus lengthy negotiations with regulatory agencies regarding ratios.

Services include: site reconnaissance to collect model data, mapping of each wetland, USACE model data sheets, and model calculations and scoring. If a wetland is not forested, The BBI Team will conduct the Interim Forested Riverine HGM Model for that wetland area. A report will be generated including USACE data sheets and a map. The USACE may require that the HGM model be rerun once habitat improvements to the site have matured (2-5 years following improvements) in order to confirm and calculate additional credits.

If an HGM is required post habitat improvements or HGM studies are needed off-site, a change order will be given. In addition, this cost proposal does not include mitigation construction, planting, and monitoring. If these services are needed, The BBI Team can provide a change order.

2E.562 – NEPA Environmental Assessment (EA)

The BBI Team will, upon completion of the various investigations (including Phase I ESA, wetland delineation, and cultural resources assessment), prepare an EA document in accordance with current USACE requirements and format. The BBI Team will attend project coordination meetings including a project kickoff meeting, if requested. This task also includes incorporation of comments received by HCED and USACE (or any agent in review of the EA).

The environmental resources/issues to be addressed in the EA may include:

- Land Use
- Socio-economic Issues
- Environmental Justice
- Visual Aesthetics
- Biological Resources
- Floodplains
- Wetlands
- Cultural Resources
- Air Quality
- Noise
- Hazardous Materials
- Indirect & Cumulative Impacts

The EA will describe and document the environmental resources of the area to be affected by the proposed project. The environmental consequences of each proposal element and its effect on a specific environmental resource will be reviewed and compared to the effects reported in the EA. Lastly, any additional mitigation measure(s) necessary to avoid or minimize any adverse impacts or effects to a specific environmental resource will be discussed.

The BBI Team will prepare an electronic (PDF) version of the draft EA for review by HCED and submittal to USACE for review. Upon final review, the preliminary draft will be returned and all agreed changes and incorporations to the preliminary draft will be made. USACE may request a hard copy of the revised EA. Up to two (2) hard copies will be provided by the BBI Team upon request (one for USACE, one for HCED).

2G.650: Detention Pond – Report

In addition to the geotechnical report described in Section 2G.600, the proposed project also includes several options for a detention area. One alternative uses existing detention ponds south of Saums Rd, while another alternative proposes a pond with a maximum design depth of 9 feet and an area of approximately 12 acres situated on the northwest corner of the intersection of Saums Road and Greenhouse

Road. We propose to drill seven (7) 18-ft deep borings for the proposed detention area. A total of 126 vertical feet will be drilled.

The detention pond study will conform to Harris County Flood Control District (HCFCD) *Policy Criteria & Procedure Manual for Approval and Acceptance of Infrastructure*, adopted October 2004 and updated October 2018.

The approximate 12-acre detention tract is heavily wooded and clearing will be needed to access the boring locations. The detention basin borings quantities and depths conform to HCFCD criteria.

The laboratory testing program is anticipated to include moisture content determinations, Atterberg Limits, percent passing No. 200 sieve, grain size analyses, unit dry weights, and unconfined compressive and unconsolidated-undrained triaxial strength tests. Soil dispersivity tests (in areas where dispersive conditions were visually identified) including crumb and double hydrometer tests will also be conducted on selected samples from the detention basin borings.

In addition, we will conduct single-sample multi-stage consolidated-undrained (CU) triaxial compression tests with pore pressure measurements on selected undisturbed cohesive samples. These tests will provide soil strength parameters (cohesion and internal angle of friction) in both total (short-term) and effective (long-term) stress conditions. These soil strength parameters are necessary for conducting slope stability analyses. Slope stability will be evaluated for short-term (during construction), rapid drawdown, and long term (steady state) conditions.

Engineering analysis will be performed on the detention pond borings as described in Section 2G.600. The results of our review, together with the supporting field and laboratory data, and associated gINT file, will be submitted to HCFCD as a draft geotechnical report which will be finalized after we receive comments.

2S.750 – Proposed ROW Maps (Cat. 1A, Cond. II)

Upon the completion of the Standard Land Survey and the calculations for the final Proposed ROW lines for Saums Road and the side street intersections, surveyor will prepare a separate parcel map and metes and bounds description for three (3) Proposed ROW parcel of land to be acquired. This survey will be made in conformance with a Category IA, Condition II Survey and include Texas State Plane Surface coordinates with a combined scale factor.

2S.751 – Level A SUE

Perform a Level A Subsurface Utility Engineering surveying at specific locations of the underground utility lines identified during the topographic survey specified by the Project Engineer and Harris County as being necessary to determine the accurate location and depth required for final design of Saums Road. The cost will be based on one (1) pothole at this time to include testing to a maximum depth of 10-feet, traffic safety, mobilization, and demobilization.

2S.752 – Topographic Survey – Detention Pond (Cat. 6, Cond. II)

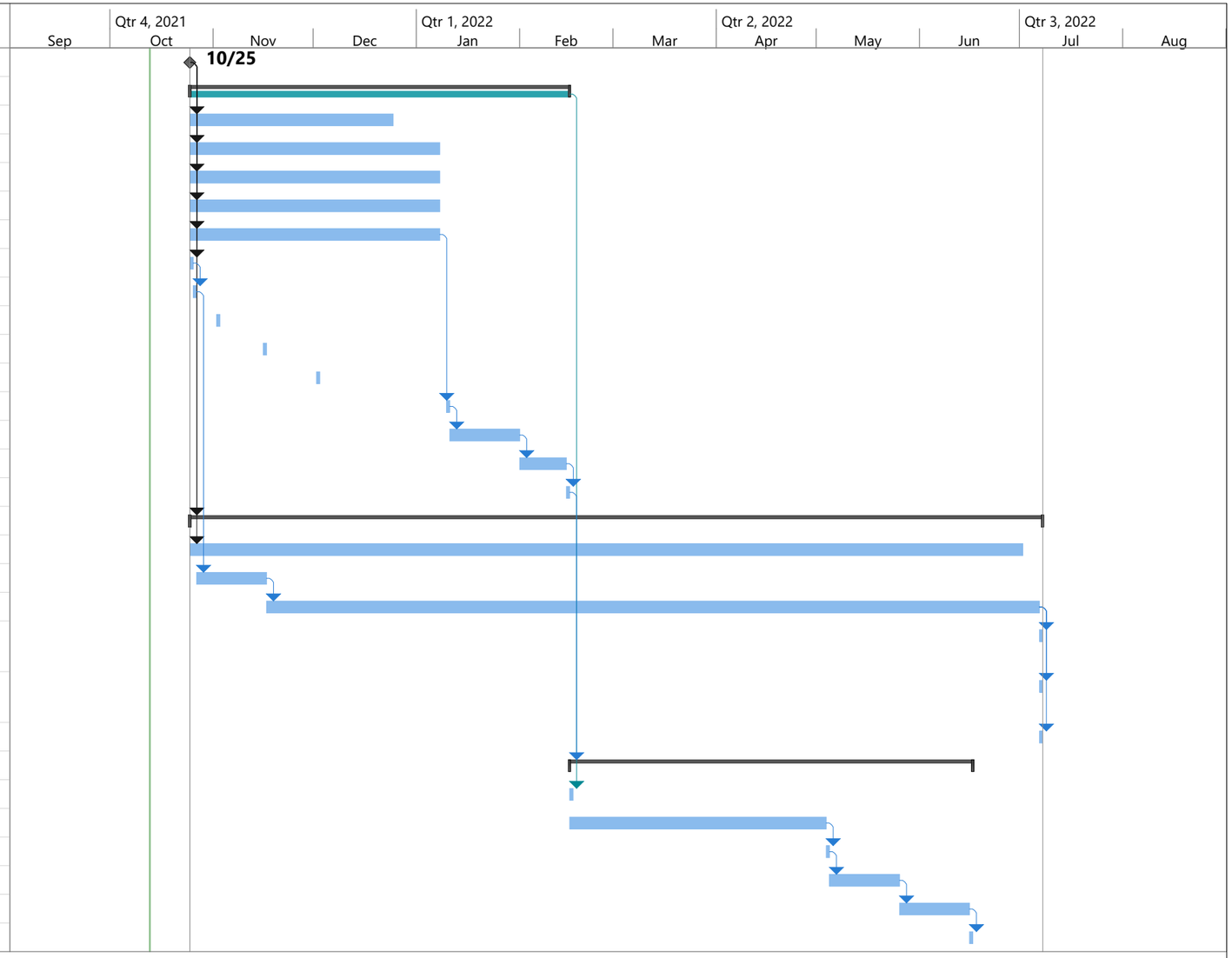
Perform a Standard Land and Topographic Survey for an approximate 12-acre tract of land south of Mayde Creek and adjacent to the north side of Saums Road, including surveying approximately 500-linear feet of Mayde Creek and surveying approximately 1,200-linear feet of Saums Road. The results of this survey will be incorporated into the Standard Land Survey showing the existing right-of-way lines for Saums Road and the parent tract for the proposed pond site and include the new survey information into the Topographic Survey for Saums Road. The elevations across the site and Mayde Creek will be obtained using two hundred (200) foot interval cross-sections, due to the density of trees and underbrush on the property. This information will be included in the base topographic survey for preliminary engineering for the project detention pond design and any bank shaving for mitigation.

2S.756 – Boundary ROW Survey of Proposed Detention Pond (Land Title Survey)

Upon review of the boundary and topographic survey for the proposed detention pond site by Harris County prepare a Land Title Survey for that portion of the approximate 12-acre tract or expansion of existing MUD detention tract as specified by Harris County to be acquired. This survey will be made in conformance with a Category IA, Condition II Survey.

Exhibit B

ID	Task Name	Duration	Start	Finish
1	Consultant Contract Signed	0 days	Mon 10/25/21	Mon 10/25/21
2	**Pre-Design Phase**	**82 days**	**Mon 10/25/21**	**Tue 2/15/22**
3	Survey	45 days	Mon 10/25/21	Fri 12/24/21
4	Geotech	55 days	Mon 10/25/21	Fri 1/7/22
5	Drainage Report	55 days	Mon 10/25/21	Fri 1/7/22
6	Environmental	55 days	Mon 10/25/21	Fri 1/7/22
7	Preparation of Draft Study Report	55 days	Mon 10/25/21	Fri 1/7/22
8	Topographic Verification Meeting	1 day	Mon 10/25/21	Mon 10/25/21
9	Alignment Meeting	1 day	Tue 10/26/21	Tue 10/26/21
10	Utility Coordination Meeting	1 day	Tue 11/2/21	Tue 11/2/21
11	Pre-Client Presentation Meeting	1 day	Tue 11/16/21	Tue 11/16/21
12	Client Presentation Meeting	1 day	Thu 12/2/21	Thu 12/2/21
13	Draft Study Report	1 day	Mon 1/10/22	Mon 1/10/22
14	HCED Review	15 days	Tue 1/11/22	Mon 1/31/22
15	Address HCED Comments	10 days	Tue 2/1/22	Mon 2/14/22
16	Final Study Report Submittal	1 day	Tue 2/15/22	Tue 2/15/22
17	**ROW/Utilities**	**184 days**	**Mon 10/25/21**	**Thu 7/7/22**
18	Utilities	180 days	Mon 10/25/21	Fri 7/1/22
19	ROW Maps Complete/Submittal	15 days	Wed 10/27/21	Tue 11/16/21
20	ROW Acquisition	166 days	Wed 11/17/21	Wed 7/6/22
21	Agreements with Agencies (AFA, LOSA, LONOs, etc)	1 day	Thu 7/7/22	Thu 7/7/22
22	Agreements with Landowners (TCEs, Commercial ROEs, etc.)	1 day	Thu 7/7/22	Thu 7/7/22
23	Permitting, Inter-Agency Approvals	1 day	Thu 7/7/22	Thu 7/7/22
24	**Design Phase**	**87 days**	**Wed 2/16/22**	**Thu 6/16/22**
25	Design Phase Kickoff Meeting	1 day	Wed 2/16/22	Wed 2/16/22
26	95% Design	55 days	Wed 2/16/22	Tue 5/3/22
27	Submittal-95%	1 day	Wed 5/4/22	Wed 5/4/22
28	HCED Review	15 days	Thu 5/5/22	Wed 5/25/22
29	Final Design	15 days	Thu 5/26/22	Wed 6/15/22
30	Submittal-Signed and Sealed	1 day	Thu 6/16/22	Thu 6/16/22



Project: Exhibit B - Schedule.mp
Date: Wed 10/13/21

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone

Exhibit C - Compensation for Professional Services

Harris County Engineering Department

Saums Rd from 1200' west of Greenhouse Rd to 450' east of Greenhouse Rd

Precinct 3, UPIN 211033962030004

Construction Cost Estmate: $2,012,040.23

October 13, 2021

2.P	**Pre-Design Phase**			$ 37,982.00
3.P	**Design Phase**			$ 95,984.00
4.P	**Bid Phase**			$ 3,490.00
	Drainage			
2D.400		Drainage Report	$ 52,070.00	
2D.400C		Drainage Coordination		
				$ 52,070.00
	Environmental			
2E.500		Phase 1 ESA	$ 3,200.00	
2E.500C		Environmental Coordination		
2E.501		Wetland Delineation and Approved Jurisdiction Determination	$ 5,200.00	
2E.501C		Environmental Coordination		
2E.502		Threatened & Endangered Species Habitat Survey	$ 1,185.00	
2E.502C		Environmental Coordination		
2E.503		Cultural Resources Desktop Survey	$ 1,010.00	
2E.503C		Environmental Coordination		
				$ 10,595.00
	Geotechnical			
2G.600		Roadway - Report	$ 10,587.00	
2G.600C		Geotechnical Coordination		
				$ 10,587.00
	Survey			
2S.700		Existing Right-of-Way Maps (Cat. 1B Condition II)	$10,589.10	
2S.700C		Survey Coordination		
2S.701		Topographic Survey (Cat. 6 Condition II)	$16,215.40	
2S.701C		Survey Coordination		
2S.702		Control	$5,007.00	
2S.702C		Survey Coordination		
2S.759		Level B SUE	$12,084.00	
2S.759C		Survey Coordination		
				$ 43,895.50
	Traffic			
3T.803		Signal Modification Design	$ 20,774.00	
3T.803C		Traffic Coordination		
3T.804		Temporary Signal Design	$ 7,072.00	
3T.804C		Traffic Coordination		
				$ 27,846.00
		Subtotal Basic Services		$ 282,449.50

	Optional Additional Services including, but not limited to:			
2D.400	Drainage Report(Hydraulic Modeling)	$ 9,660.00		
2D.400C	Drainage Coordination			
2E.562	Environmental Assessment (EA)	$ 20,010.00		
2E.562C	Environmental Coordination			
2S.750	Proposed ROW Maps (Cat. 1A, Cond. II)	$ 3,761.90	*($1253.97/parcel)*	
2S.750C	Survey Coordination			
	Subtotal Optional Additional Services		$	33,431.90
	Drainage Alternative A Optional Additional Services*		$	83,059.12
	Drainage Alternative B Optional Additional Services*		$	80,684.12
	Drainage Alternative C Optional Additional Services*		$	8,270.00
	TOTAL SERVICES with Drainage Alternative A (BASIC & OPTIONAL ADDITIONAL)		**$**	**398,940.52**
	TOTAL SERVICES with Drainage Alternative B (BASIC & OPTIONAL ADDITIONAL)		**$**	**396,565.52**
	TOTAL SERVICES with Drainage Alternative C (BASIC & OPTIONAL ADDITIONAL)		**$**	**324,151.40**

**See Addendum A for a summary of all detention pond options.*

Exhibit C - Compensation for Professional Services
Harris County Engineering Department
Saums Rd from 1200' west of Greenhouse Rd to 450' east of Greenhouse Rd
Precinct 3, UPIN 211033962030004
Construction Cost Estmate: $2,012,040.23
October 13, 2021

Addendum A: Optional Additional Services for Detention Ponds

Alternative A: Expand Existing MUD Ponds
Alternative B: Construct New Offline Pond
Alternative C: Provide In-Line Detention

		Alternative A	Alternative B	Alternative C
2D.400	Drainage Report(Detention Modeling)	$ 12,730.00	$ 8,560.00	$ 8,270.00
2D.400C	Drainage Coordination			
3D.451	Detention Pond Design	$ 30,470.00	$ 11,195.00	
3D.451C	Drainage Coordination			
2E.551	Archeological Pedestrian Survey		$ 6,500.00	
2E.551C	Environmental Coordination			
2E.552	Regional General Permit or Nationwide Permit		$ 10,040.00	
2E.552C	Environmental Coordination			
2E.554	Wetland Functional Assessment		$ 4,530.00	
2E.554C	Environmental Coordination			
2G.650	Detention Pond - Geotechnical Report	$ 23,703.00	$ 23,703.00	
2G.650C	Geotechnical Coordination			
2S.752	Topographic Survey – Detention Pond (Cat. 6, Cond. II)	$9,194.40	$ 9,194.40	
2S.752C	Survey Coordination			
2S.756	Boundary ROW Survey of Proposed Detention Pond	$6,961.72	$ 6,961.72	
2S.756C	Survey Coordination			
	Subtotal Optional Additional Services for Detention Ponds:	**$ 83,059.12**	**$ 80,684.12**	**$ 8,270.00**

EXHIBIT D: ENGINEER TEAM ACKNOWLEDGMENTS

1. The following is the group of providers selected to perform the obligations described in the Agreement.

2. If any firm listed below actively holds certification in any of the following categories, that information shall be identified in the table under "Special Designation" Box:
   - **MWBE** (Minority and Women Owned Business Enterprise)
   - **SBE** (Small Business Enterprise)
   - **HUB** (Historically Underutilized Business)
   - **DBE** (Disadvantaged Business Enterprise)
3. Also, all contract values must be identified in the table under "Contract Value".

Responsibility	Firm	Special Designation	Contract Value
Prime	**Binkley & Barfield, Inc.**		**$137,456.00**
Surveying	**KCI Technologies Inc.**		**$63,813.52**
Geotechnical	**Raba Kistner, Inc.**		**$34,290.00**
Environmental	**Berg-Oliver Associates, Inc.**	**DBE, MWBE**	**$30,605.00**
Traffic Engineering	**Gradient Group**	**DBE, MWBE, SBE**	**$27,846.00**
Drainage	**5 Engineering**	**MWBE**	**$104,930.00**
Other			

Percent of contract in dollars allocated to (MWBE, SBE, HUB or DBE) Consultants____41_____%.

- The Engineer understands that it is solely responsible and liable to the County for the completion of all obligations under the Agreement.

- If the contract value of the subconsultant fee(s) are modified from the original amount, it must be approved by the Engineering Department's MWBE, SBE,HUB or DBE Compliance Officer.

ORDER OF COMMISSIONERS COURT

The Commissioners Court of Harris County, Texas, met in regular session at its regular term at the Harris County Administration Building in the City of Houston, Texas, on _____, with all members present except _____.

A quorum was present. Among other business, the following was transacted:

ORDER AUTHORIZING AGREEMENT BETWEEN HARRIS COUNTY AND BINKLEY & BARFIELD, INC. FOR PROFESSIONAL ENGINEERING SERVICES

Commissioner _____ introduced an order and moved that Commissioners Court adopt the order. Commissioner _____ seconded the motion for adoption of the order. The motion, carrying with it the adoption of the order, prevailed by the following vote:

	Yes	No	Abstain
Judge Lina Hidalgo	[ ]	[ ]	[ ]
Comm. Rodney Ellis	[ ]	[ ]	[ ]
Comm. Adrian Garcia	[ ]	[ ]	[ ]
Comm. Tom S. Ramsey, P.E.	[ ]	[ ]	[ ]
Comm. R. Jack Cagle	[ ]	[ ]	[ ]

The meeting chair announced that the motion had duly and lawfully carried, and this order was duly and lawfully adopted. The order adopted follows:

IT IS ORDERED that:

1. The Harris County Judge is authorized to execute the attached Agreement between **Harris County** and **Binkley & Barfield, Inc.** for Professional Engineering Services. The attached Agreement, including any addendums, may be executed with an electronic or facsimile signature. The Harris County Engineering Department is authorized to request the Harris County Purchasing Agent to expend up to **$398,940.52** in consideration of the work, products, services, licenses and/or deliverables provided under this Agreement.

2. The Harris County Engineering Department and all other Harris County officials and employees are authorized to do any and all things necessary or convenient to accomplish the purpose of this Order.