



BOARD OF SUPERVISORS AGENDA ITEM REPORT
CONTRACTS / AWARDS / GRANTS

☐ Award ☒ Contract ☐ Grant

Requested Board Meeting Date: 04/21/20

* = Mandatory, information must be provided

or Procurement Director Award ☐

***Contractor/Vendor Name/Grantor (DBA):**

Psomas Inc (Headquarters: Los Angeles, CA)

***Project Title/Description:**

Design Engineering Services for South Houghton Road Widening (4SHRWD)

***Purpose:**

Award: Contract No. CT-TR-20-292. This award of contract is to provide design engineering services in a not-to-exceed amount of \$2,901,174.81 for a contract term from 04/21/20 to 06/30/24. Administering Department: Transportation.

***Procurement Method:**

Pursuant to Pima County Procurement Code 11.12.060(A)(B) and A.R.S. §34-606, award for requisition No. 371078 is recommended to the above named Consultant which has accepted the terms of the County's standard contract and with which the County has negotiated a satisfactory agreement.

Attachments: County Administrator Memorandum and Consultant Services Contract.

***Program Goals/Predicted Outcomes:**

Replace the existing two (2) and three (3) lane South Houghton Road with an all-weather 4-lane divided roadway from I-10 south to the Andrada Polytechnic High School.

***Public Benefit:**

This program will improve safety, reduce congestion around the Fairgrounds, and provide all-weather access to the Fairgrounds and two High Schools along Houghton Rd.

***Metrics Available to Measure Performance:**

The performance will be measured using the consultant evaluation process as outlined in BOS Policy D29.1(E)(II).

***Retroactive:**

No.

To COB: 4-7-2020
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Procure Dept 04/07/20 09:26

Contract / Award InformationDocument Type: CT Department Code: TR Contract Number (i.e., 15-123): 20-292Effective Date: 04/21/20 Termination Date: 06/30/24 Prior Contract Number (Synergen/CMS): _____☒ Expense Amount: \$ 2,901,174.81 ☐ Revenue Amount: \$ _____***Funding Source(s) required:** Transportation Non-Bond Project
(Southeast Area Impact Fees - 100%)Funding from General Fund? ☐ Yes ☒ No If Yes \$ _____ % _____Contract is fully or partially funded with Federal Funds? ☐ Yes ☒ No

If Yes, is the Contract to a vendor or subrecipient? _____

Were insurance or indemnity clauses modified? ☐ Yes ☒ No

If Yes, attach Risk's approval.

Vendor is using a Social Security Number? ☐ Yes ☒ No

If Yes, attach the required form per Administrative Procedure 22-10.

Amendment / Revised Award Information

Document Type: _____ Department Code: _____ Contract Number (i.e., 15-123): _____

Amendment No.: _____ AMS Version No.: _____

Effective Date: _____ New Termination Date: _____

Prior Contract No. (Synergen/CMS): _____

☐ Expense or ☐ Revenue ☐ Increase ☐ Decrease Amount This Amendment: \$ _____Is there revenue included? ☐ Yes ☐ No If Yes \$ _____***Funding Source(s) required:** _____Funding from General Fund? ☐ Yes ☐ No If Yes \$ _____ % _____**Grant/Amendment Information** (for grants acceptance and awards)☐ Award ☐ Amendment

Document Type: _____ Department Code: _____ Grant Number (i.e., 15-123): _____

Effective Date: _____ Termination Date: _____ Amendment Number: _____

☐ Match Amount: \$ _____ ☐ Revenue Amount: \$ _____***All Funding Source(s) required:** _____***Match funding from General Fund?** ☐ Yes ☐ No If Yes \$ _____ % _____***Match funding from other sources?** ☐ Yes ☐ No If Yes \$ _____ % _____***Funding Source:** _____***If Federal funds are received, is funding coming directly from the Federal government or passed through other organization(s)?** _____Contact: Matthew Sage, CPPB 4/3/20 4/3/2020Department: Procurement 4/3/2020 Telephone: 724-8586Department Director Signature/Date: [Signature] 4/30/2020Deputy County Administrator Signature/Date: [Signature] 4/3/2020County Administrator Signature/Date: [Signature] 4/4/2020

(Required for Board Agenda/Addendum Items)

DATE: January 28, 2020

Ana M. Olivares

TO: C.H. Huckelberry
County Administrator

FROM: Ana M. Olivares, P.E.
Director

SUBJECT: South Houghton Road Widening Project (CTR.4SHRWD)
Approval of Implementation Approach

The Department of Transportation (DOT) requests approval for the following modified implementation approach for the South Houghton Road Widening Project in order to reduce the costs and timeframe for delivery of the project.

Project Design:

South Houghton from I-10 to the high schools (Andrada Polytechnic High School and Pantano High School) will be designed to an all-weather four lane divided roadway. Stakeholders for this project are Pima County Flood Control District, Pima County Economic Development, the Vail School District and the Pima County Fairgrounds. Incorporating appropriate access to the high schools, the Pima County Fairgrounds and the future Southeast Employment and Logistics Center (SELC) is critical to the success of this project and discussions with each of them are on-going.

An internal stakeholder meeting to evaluate incorporating potential SELC intersections into the project was held on January 14, 2020. A meeting with Jon Baker, Executive Director of Southwestern Fair Commission, is scheduled on January 29, 2020 to discuss traffic circulation and the main intersection to the Fairgrounds, as requested in your memorandum dated January 2, 2020.

Implementation Approach:

The modified implementation approach described below will eliminate unnecessary reporting and redundant documents, as well as reduce design cost.

1. We request approval to waive the requirements for a Design Concept Report (DCR). A Design Summary Report (DSR) shall be developed in place of the DCR, which will be approved by the DOT Director. This is warranted because the project is being completed along an existing alignment with limited design options.
2. We request approval to waive the requirements for establishing a Community Advisory Committee (CAC). We will instead rely on the Southeast Regional Council (SERC) and a project website for distribution of information and sharing of project updates. This is warranted because the land ownership around the project corridor is mostly State or County owned with no private ownership. The only organizations operating within one-half mile of the project corridor is the Pima County Fairgrounds and the Vail School District (Andrada Polytechnic High School and Pantano High School).
3. We request your approval to waive the Environmental Assessment and Mitigation Report (EAMR). All necessary environmental reviews will still be conducted, resulting in the creation of specific individual environmental reports. Waiving the EAMR will save approximately 30-45 days that are associated with compiling the individual reports into a single document, providing for a public posting, and formal approval by the Board of Supervisors. This is warranted because the project is being conducted along an existing alignment within existing right-of-way or County property and no areas of environmental concern of significant impact are anticipated.

C.H. Huckelberry, County Administrator

SUBJECT: South Houghton Road Widening Project (CTR.4SHRWD)

Approval of Implementation Approach

January 28, 2020

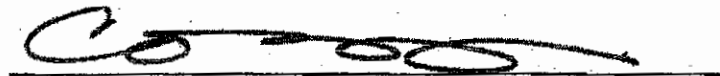
Page 2

In addition, DOT is investigating options to accelerate the construction schedule for the project, such as A+B bidding, fixed end date and others that may be available.

We trust this provides a complete summary of the strategy we intend to pursue with this project, as well as providing the assurance that the scope of the project has been redefined to reduce planning and engineering fees by streamlining required reports and reviews by the County, as requested in your memorandum dated January 6, 2020.

If you have any questions or need additional information, please let us know.

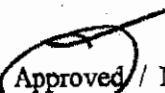
CONCUR:



Carmine DeBonis, Jr., Deputy County Administrator

1/28/2020

Date

 Approved / Not Approved



C.H. Huckelberry County Administrator

1/29/2020

Date

AMO:MR:dg

Attachments

- c: Yves Khawam, PhD, Assistant County Administrator for Public Works
Kathryn Skinner, Deputy Director
Jim Cunningham, Deputy Director

DATE: January 3, 2020

Ana M. Olivares

FROM: Ana M. Olivares, P.E.
Director

TO: C.H. Huckelberry
County Administrator

RE: Houghton Road Widening Project – 4SHRWD

Pursuant to Pima County Procurement Code Section 11.12.060(A)(B) and A.R.S. §34-606, the Department of Transportation (DOT) requests your approval for award of an emergency contract without competition for design and construction engineering services for the Houghton Road Widening Project because of a situation that makes compliance with normal purchasing procedures impracticable and contrary to the public interest.

On June 14, 2019, a solicitation for engineering services for the Houghton Road Widening Project was advertised. Six (6) consultants responded to the solicitation. A competent committee evaluated the proposals and conducted interviews. The top ranking consultant was identified, an Intent to Negotiate was issued, and negotiations for the design fee were in process to arrive at a contract award. Parallel to the project solicitation, discussions were occurring with the Arizona State Land Department (Land) regarding the parcel adjacent to the project. Discussions consisted of a potential agreement for construction of a basin on Land's parcel to alleviate drainage issues on that parcel, as well as to provide borrow material for the project.

Discussions for an agreement with Land stopped as Land wanted to conduct further evaluation of the drainage issues on their parcel. DOT, with County Administration input, also considered if this project would best be delivered under an alternative delivery process in lieu of design-bid-build. While these items were being considered, it was determined that the best course for this solicitation would be to cancel it, and hold the procurement process confidential pursuant to A.R.S. §34-603(H), until more definite information was available. On December 19, 2019, you sent a letter to Land terminating any further discussions on an agreement with the adjacent parcel.

The current scope of the project remains the same, hence, its delivery method is also the same as it was when the solicitation was made, with the exception that without any basins, the project will need additional borrow material for the roadway construction. Since the scope of work is consistent with the original solicitation, it is not practical to re-solicit for the same proposed work effort, as it has only been four (4) months since negotiations with the most qualified firm were canceled.

It is practical and in the best interest of the County to proceed with this project as soon as possible, and we request your approval to proceed with fee negotiations and award the top ranking consultant that was selected with the original solicitation. The acceleration of this project is key to the continued success of the Houghton corridor.

AMO:dg

c: Carmine DeBonis Jr., Deputy County Administrator
Yves Khawam, PhD, Assistant County Administrator
Mary Jo Furphy, Procurement Director
Terri Spencer, Division Manager, Procurement



MEMORANDUM

Date: January 2, 2020

To: Carmine DeBonis, Jr.
Deputy County Administrator
for Public Works

From: C.H. Huckelberry
County Administrator

Ana Olivares, Director
Transportation Department

Re: Houghton Road Improvements and Access to the Fairgrounds

Please contact Southwestern Fair Commission Executive Director Jon Baker at 520.762.9107 to review the Houghton Road widening improvements. I am interested in the design of the main intersection to the Fairgrounds, which I assume will include multiple right/left turn lanes to accommodate heavy traffic volumes during fairground events.

Our design must eliminate any traffic backup that occurs during the Pima County Fair on Houghton Road and other surrounding roadways.

CHH/anc

c: Yves Khawam, PhD, Assistant County Administrator for Public Works
Jon Baker, Executive Director, Southwestern Fair Commission



MEMORANDUM

Date: January 6, 2020

To: Ana Olivares, Director
Transportation Department

From: C.H. Huckelberry
County Administrator

A handwritten signature in dark ink, appearing to be "CHH", is written over the printed name "C.H. Huckelberry".

Re: Your January 3, 2020 Memorandum Regarding the Houghton Road Widening Project

I agree the design of the Houghton Road widening project should proceed as rapidly as possible and the previous solicitation and competitive process remains valid given the indecision and delays caused by the State Land Department.

I believe it is also appropriate when negotiating the scope to understand the typical design and development process for the project needs to be altered. The process that uses extensive advisory committees is to be eliminated since there are no or very few private properties adjacent to the improvements.

I would like to receive assurances that this scope has been redefined to eliminate unnecessary reporting and other redundant documents. This project should be used as a demonstration as to how the planning and engineering fees can be significantly reduced by streamlining required reports and reviews by the County.

CHH/anc

Attachment

c: Carmina DeBonis, Jr., Deputy County Administrator for Public Works
Yves Khawam, PhD, Assistant County Administrator for Public Works
Mary Jo Furphy, Director, Procurement Department

PIMA COUNTY DEPARTMENT OF TRANSPORTATION

PROJECT: DESIGN ENGINEERING SERVICES FOR SOUTH HOUGHTON ROAD WIDENING
(4SHRWD)

CONSULTANT: Psomas Inc.
333 East Wetmore Road, Suite 450
Tucson, Arizona 85705

CONTRACT NO.: CT-TR-20-292

AMOUNT: \$2,901,174.81

FUNDING: Transportation Non-Bond Project
(Southeast Area Impact Fees – 100%)

CONSULTANT SERVICES CONTRACT

This Contract is entered into between Pima County, a body politic and corporate of the State of Arizona, hereafter called COUNTY, and Psomas Inc., hereinafter called CONSULTANT, and collectively referred to as the Parties.

WITNESSETH

WHEREAS, COUNTY requires the services of a CONSULTANT registered in the State of Arizona and qualified to provide Design Engineering Services for the South Houghton Road Widening Project (4SHRWD); and

WHEREAS, CONSULTANT is willing, qualified, and properly registered within the State of Arizona to provide such services; and

WHEREAS, it was determined that under the provisions of A.R.S. § 34-606 competition is impracticable and contrary to the public interest for the design services, and the CONSULTANT is deemed to be the best source for said work; and

WHEREAS, CONSULTANT has proposed to perform the work at a price acceptable to COUNTY.

NOW, THEREFORE, in consideration of the foregoing recitals and other valuable and good consideration, the parties hereto agree as follows:

ARTICLE 1 – TERM AND EXTENSION/RENEWAL/CHANGES

This Contract, as approved by the Board of Supervisors, commences on April 21, 2020, and terminates on June 30, 2024, unless sooner terminated or further extended pursuant to the provisions of this Contract.

COUNTY has the option to extend the contract termination date for purposes of project completion. Any modification or extension of the contract termination date must be by formal written amendment executed by the Parties.

ARTICLE 2 – SCOPE OF SERVICES

CONSULTANT agrees to provide Architectural and Engineering Design Services for the COUNTY as described in **EXHIBIT "A" - SCOPE OF SERVICES** (17 pages), an attachment to this contract, and to complete such services within the term and value of this contract as it may be modified in accordance with **Article 5**. Amendments and changes to the Scope must be approved by the Board of Supervisors or the Procurement Director, as required by the Pima County Procurement Code, before the work under the amendment commences.

ARTICLE 3 - DEFINITIONS

Other Direct Costs. Other Direct Costs are those costs that can be specifically identified within this Contract, are required for performance of the Contract, and are actually incurred. This includes Subcontract or

Subconsultant costs; reproduction, copy and printing costs; courier services; and similar costs specifically necessary for this Contract and approved by COUNTY.

Cost Plus Fixed Fee. The modified Cost Plus Fixed Fee (CPFF) is a compensation method that provides compensation to the Consultant for actual costs of Direct Labor, Indirect, and Other Direct Costs incurred up to a "not-to-exceed" amount, plus a fixed Fee amount for the successful performance of the work. The Fee amount may initially be determined as a percentage of the estimated not-to-exceed costs. Once negotiated, the Fee amount becomes fixed and does not vary with actual costs. The Fee may only be in accordance with **Article 5**.

Critical Path Method. The Critical Path Method (CPM) is a way of depicting the sequence of activities in a project, including interdependencies, and containing all activities needed for successful completion of the Work. Delay in the completion of activities on the critical path will extend the completion date.

Direct Labor Costs. Direct Labor Costs are the total number of allowable hours worked on the Project by each individual multiplied by the Labor Rate, identified in EXHIBIT "B" -COMPENSATION SCHEDULE.

Fee. Fee is the amount, independent of actual costs, that the CONSULTANT is allowed for assuming risk and to stimulate efficient contract performance. Fee includes compensation to CONSULTANT for both profit and unallowable costs. Efficient cost control will allow CONSULTANT to earn a higher profit margin without adjustment of the fee amount. Conversely, inefficient cost control will result in a lower profit margin.

Float. Float is the number of days by which an activity not on the critical path in a CPM network may be delayed before it extends the completion date.

Labor Rates. Labor rates are the actual cost of salary paid to employees of CONSULTANT and identified in EXHIBIT "B" - COMPENSATION SCHEDULE.

Not to Exceed Cost. The Not to Exceed Cost for a task is the sum of the agreed Direct Labor costs, indirect costs, and other reimbursable costs of the task defined in the original Project Baseline. Actual Direct Labor costs may be invoiced based on hours worked, per discipline, per task, or a percent complete by task for the period. CONSULTANT assumes all risk for providing the requested task/deliverables at or below the original estimated cost, unless an equitable adjustment to the scope and/or fee are made by amendment to the Contract. Any costs incurred by CONSULTANT beyond the not-to-exceed amount identified which are not attributable to any change in the project baseline are unallowable. Unallowable costs are compensated through the CONSULTANT's fixed Fee.

Indirect Costs. Indirect costs are at the overhead rate identified in EXHIBIT "B" - COMPENSATION SCHEDULE.

Project Baseline. The agreed Contract scope of services, total Not-to-Exceed CPFF, the allocation thereof among Contract tasks, and the accompanying schedule and expectations/assumptions upon which the scope of services and schedule are based, collectively constitute the Project Baseline.

ARTICLE 4 - COMPENSATION AND PAYMENT

In consideration of the services specified in this Contract, COUNTY agrees to pay CONSULTANT on a modified Not-to-Exceed CPFF basis, not to exceed the total amount of this Contract. Cost is comprised of CONSULTANT's Direct Labor Costs, Indirect Costs and Other Direct Costs. CONSULTANT's fee will remain fixed and may be adjusted only as provided in **Article 5** and **Article 6**.

The total of all payments to CONSULTANT for services provided under this Contract will not exceed Two Million Nine Hundred One Thousand One Hundred Seventy-Four Dollars and Eighty-One Cents (\$2,901,174.81).

CONSULTANT's total CPFF will be allocated among the major tasks contemplated by this Contract in such manner that each major deliverable will have associated with it a not-to-exceed cost, plus a fixed fee amount, incorporated herein as **EXHIBIT "B" - COMPENSATION SCHEDULE (89 pages)**. CONSULTANT may invoice monthly for the actual costs incurred plus a pro-rata portion of the fee amount for each task. CONSULTANT will calculate actual costs based on actual hours spent, to which the agreed overhead rate may be applied, plus Other Direct Costs. Actual Costs may then be represented as percentage of the "not to exceed" cost amount associated with that task on the CONSULTANT's invoice for billing purposes. Calculations and supporting data will be made available to COUNTY at any time, upon request. The cumulative payment for the actual costs of any task may not be more than the "not to exceed" cost amount associated with that task. Upon completion of

the Scope of Work, (including acceptance by COUNTY of all associated deliverables), COUNTY will pay the balance of the fixed fee to CONSULTANT.

Hourly rates and all other rates included under this Contract will remain fixed throughout the term of the contract. COUNTY may consider adjustments to rates in connection with any extensions of the contract term or in accordance with EXHIBIT "B" – Compensation Schedule.

Unless otherwise agreed, CONSULTANT will submit invoices monthly. All invoices will be accompanied by a narrative description of the work performed during the period covered by the invoice, time accounting information, and an allocation of all direct costs, including reimbursable costs and subconsultant charges, to the tasks identified in the Scope of Services for which those costs were incurred. The time accounting information should be sufficient to show the workers and hours worked by day for the period covered by the invoice. Subconsultant charges must be supported by appropriate documentation with each separate invoice submitted.

For the period of record retention required under **Article 25**, COUNTY reserves the right to question any payment made under this Article and to require reimbursement therefor by setoff or otherwise for payments determined to be improper or contrary to the Contract or law.

CONSULTANT will not perform work in excess of the Contract Amount without prior authorization by an amendment executed by COUNTY. Work performed in excess of the Contract Amount without prior authorization by amendment is at CONSULTANT'S own risk. Additional Services identified in EXHIBIT "B" - COMPENSATION SCHEDULE, are services within the scope of this Contract but not included within the Tasks identified as of the effective date of this Contract. If ordered, CONSULTANT will invoice additional Services at the rates incorporated into this Contract as in EXHIBIT "B" - COMPENSATION SCHEDULE. COUNTY may add additional services throughout the term of the Contract by providing notice in writing to CONSULTANT. Hourly billable rates shown in EXHIBIT "B" - COMPENSATION SCHEDULE will only be adjusted by written amendment to the Contract. The Parties may add additional required professional classifications or disciplines to EXHIBIT "A" - SCOPE OF SERVICES by written amendment at any time.

COUNTY has ten (10) calendar days from the date of invoice to notify CONSULTANT of any invoicing discrepancies. COUNTY and CONSULTANT will meet to resolve any discrepancies before the invoice is approved or rejected for payment. Subconsultant charges must be supported by appropriate documentation upon request by COUNTY.

CONSULTANT will not perform work in excess of the Contract Amount without prior authorization by an amendment executed by COUNTY. Work performed in excess of the Contract Amount without prior authorization by amendment shall be at CONSULTANT'S own risk.

ARTICLE 5 – PROJECT BASELINE AND ADJUSTMENTS

- A. COUNTY and CONSULTANT have agreed upon the Project scope and the total CPFF, and will prepare a CPM-based schedule for the performance of the work. The schedule is based on assumptions and expectations agreed upon by the Parties. Schedule estimates for the timeframes associated with outside party activities, i.e. design and other reviews, and/or permits or other clearances do not represent commitments made by either outside agencies or the permit-granting entities of County. This Project Baseline represents a firm commitment by the Parties to complete the work within the schedule and total cost identified in the Baseline, subject to schedule variations by outside parties and other factors beyond the control of the Parties.
- B. Although the Baseline reflects the best estimates and expectations of the Parties at the time of agreement, there is an element of uncertainty associated with the design process that makes the actual schedule and effort required to complete the work difficult or impossible to establish in advance. Unusual citizen input, litigation, regulatory changes, significant delays by utilities or others, unforeseen decisions or commitments by policy makers, or other unanticipated events or factors beyond the control of the Parties that differ materially from the expectations of the Parties may delay or disrupt the schedule and/or require a change in the level of resources or effort. The Project Baseline may be adjusted as follows:

1. A delay in the work attributable to a failure by COUNTY to adhere to its estimates with respect to schedule is an excusable delay for which an adjustment may be made to the schedule. In any such case affecting a task on the critical path, the schedule of the affected task or activity may be extended one (1) day for each day of COUNTY-caused delay; provided, however, that if the COUNTY-caused delay overlaps a period of delay attributable to any other cause, the extension for COUNTY-caused delay is limited to the number of non-overlapped days of COUNTY-caused delay.
 2. There is no adjustment for any delay in the work attributable to a failure by CONSULTANT to adhere to its commitments with respect to schedule. In the event of a significant delay attributable to a failure by CONSULTANT to adhere to its schedule expectations, CONSULTANT will provide a recovery plan to COUNTY within five (5) days of COUNTY's request. For the purposes of this paragraph, a delay arising from or attributable to a necessity for CONSULTANT to make more than two (2) submissions of plans or documents for approval is a failure by CONSULTANT to adhere to its schedule commitments. CONSULTANT's work associated with additional reviews is non-compensable.
 3. A delay in the work attributable to any other cause that differs materially from the expectations of the Parties regarding that cause is an excusable delay for which the Parties will negotiate an appropriate schedule adjustment. If the period of delay attributable to any cause under this paragraph overlaps a period of delay attributable to any other cause, the adjustment under this paragraph will be made first and the delay attributed to such other cause will be limited to that occurring outside of the overlap.
 4. If any of the causes of delay in Paragraphs 1 or 3 above affects a task or activity on the critical path, then the schedule adjustment may include adjustment to the completion date. If the cause does not affect a task or activity on the critical path, then the adjustment will be made from Float and the completion date will not change.
 5. If any of the causes of delay in Paragraphs 1 or 3 above results in material provable additional costs to the affected task or tasks as a result of disruption of the schedule, then the Parties will negotiate an equitable adjustment to the cost for the affected task or tasks, but not to the fee.
 6. The Parties will negotiate an equitable adjustment of cost and fee for any task or tasks for which there is any significant change in the level of effort arising from additional or changed work requested or directed in writing by COUNTY that materially deviates from or adds to the baseline expectations or assumptions of the Parties with respect to the work.
 7. If any action, comment, cause, decision, or other event attributable to any third party results in a change in requirements that differs materially from expectations, then the Parties will negotiate in good faith an equitable adjustment in the cost and fee for the affected task or tasks.
- C. CONSULTANT agrees to complete the work by the completion date in the schedule, as it may be adjusted under the preceding provisions of this Article. Costs incurred by CONSULTANT to complete the work after the completion date in the schedule are not reimbursable under this Contract.

ARTICLE 6 – REALLOCATION OF FUNDS

Given the magnitude and complexity of the scope required by this Contract, the Parties understand that the actual cost to perform specific tasks may vary from the estimates reflected in EXHIBIT "A" - SCOPE OF SERVICES and EXHIBIT "B" – COMPENSATION SCHEDULE.

If the actual cost to complete a task is less than the estimated amount for that task, the cost savings realized accrues to COUNTY. With the agreement of the Parties, COUNTY may reallocate the cost savings to other tasks in EXHIBIT "A" - SCOPE OF SERVICES and EXHIBIT "B" – COMPENSATION SCHEDULE as follows:

- A. Reallocation between subtasks in EXHIBIT "A" - SCOPE OF SERVICES under any one of the major task categories in EXHIBIT "B" – COMPENSATION SCHEDULE may be made between the COUNTY's department representative and the CONSULTANT's project manager by written agreement.

- B. County's Procurement Director may make a reallocation among the major tasks in EXHIBIT "B" – COMPENSATION SCHEDULE by a Contract amendment, provided that the transfer does not increase the total amount of the Contract.
- C. The Board of Supervisors may make any reallocation or adjustment in EXHIBIT "A" - SCOPE OF SERVICES or EXHIBIT "B" – COMPENSATION SCHEDULE that increases the total contract amount through a Contract Amendment.

Costs and Fee may not be reallocated from any task on which work has not progressed significantly and which does not include actual or demonstrable savings or reductions in required effort such that the task may be completed for less than the balance of the task remaining after the transfer.

ARTICLE 7 – INSURANCE

The Insurance Requirements herein are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract. COUNTY in no way warrants that the minimum limits contained herein are sufficient to protect the CONSULTANT from liabilities that arise out of the performance of the work under this Contract. The CONSULTANT is free to purchase additional insurance.

CONSULTANT'S insurance will be placed with companies licensed in the State of Arizona or hold approved non-admitted status on the Arizona Department of Insurance List of Qualified Unauthorized Insurers. Insurers will have an "A.M. Best" rating of not less than A- VII. COUNTY in no way warrants that the above-required minimum insurer rating is sufficient to protect the CONSULTANT from potential insurer insolvency

7.1 Minimum Scope and Limits of Insurance:

CONSULTANT will procure and maintain, until all of their obligations have been discharged, coverage with limits of liability not less than those stated below.

- 7.1.1 General Liability (CGL) – Occurrence Form with limits of \$2,000,000 Each Occurrence and \$2,000,000 General Aggregate. Policy will include bodily injury, property damage, and broad form contractual liability coverage.
- 7.1.2 Automobile Liability – Bodily Injury and Property Damage for any owned, hired, and/or non-owned automobiles used in the performance of this Contract with a Combined Single Limit (CSL) of \$1,000,000.
- 7.1.3 Workers' Compensation and Employers' Liability - Statutory requirements and benefits. Coverage is compulsory for employers of one or more employees. Employer's Liability - \$1,000,000.
Note: The Workers' Compensation requirement will not apply to a CONSULTANT that is exempt under A.R.S. § 23-901, and when such CONSULTANT executes the appropriate COUNTY Sole Proprietor or Independent CONSULTANT waiver form.
- 7.1.4 Professional Liability (Errors and Omissions) Insurance – This insurance is required when soliciting work from licensed professionals. The policy limits will be not less than \$2,000,000 Each Claim and \$2,000,000 Annual Aggregate. The policy will cover professional misconduct or negligent acts for those positions defined in the Scope of Work of this contract.

In the event that the Professional Liability insurance required by this Contract is written on a claims-made basis, CONSULTANT warrants that any retroactive date under the policy will precede the effective date of this Contract and, either continuous coverage will be maintained, or an extended discovery period will be exercised, for a period of two (2) years beginning at the time work under this Contract is completed.

7.2 Additional Insurance Requirements:

The policies will include, or be endorsed to include, as required by this written agreement, the following provisions:

- 7.2.1 Additional Insured Endorsement: The General Liability and Business Automobile Liability Policies will each be endorsed to include COUNTY and the City of Tucson, their departments, districts, boards, commissions, officers, officials, agents, and employees as additional insured's with respect to liability arising out of the activities performed by or on behalf of the CONSULTANT.

- 7.2.2 Subrogation Endorsement: The General Liability, Business Automobile Liability and Workers' Compensation Policies will each contain a waiver of subrogation endorsement in favor of COUNTY and the City of Tucson, and its departments, districts, boards, commissions, officers, officials, agents, and employees for losses arising from work performed by or on behalf of the CONSULTANT.
- 7.2.3 Primary Insurance Endorsement: The CONSULTANT'S policies will stipulate that the insurance afforded the CONSULTANT will be primary and that any insurance carried by the Department, its agents, officials, employees or COUNTY will be excess and not contributory insurance, as provided by A.R.S. § 41-621 (E).
- 7.2.4 Insurance provided by the CONSULTANT will not limit the CONSULTANT'S liability assumed under the indemnification provisions of this Contract.

7.3 Notice of Cancellation:

For each insurance policy required by the insurance provisions of this Contract, the CONSULTANT must provide to COUNTY, within two (2) business days of receipt, a notice if a policy is suspended, voided, or cancelled for any reason. Such notice will be mailed, emailed, hand-delivered or sent by facsimile transmission to Pima County Procurement Department, 130 West Congress Street, Tucson AZ 85701, and Fax 520-724-4434.

7.4 Verification of Coverage:

CONSULTANT will furnish COUNTY with certificates of insurance (valid ACORD form or equivalent approved by COUNTY) as required by this Contract. An authorized representative of the insurer will sign the certificates.

7.4.1 All certificates and endorsements, as required by this written agreement, are to be received and approved by COUNTY before work commences. Each insurance policy required by this Contract must be in effect at, or prior to, commencement of work under this Contract. Failure to maintain the insurance coverages or policies as required by this Contract, or to provide evidence of renewal, is a material breach of contract.

7.4.2 All certificates required by this Contract will be sent directly to the Department. COUNTY project or contract number and project description will be noted on the certificate of insurance. COUNTY reserves the right to require complete copies of all insurance policies required by this Contract at any time.

7.5 Approval and Modifications:

COUNTY Risk Management reserves the right to review or make modifications to the insurance limits, required coverages, or endorsements throughout the life of this contract, as deemed necessary. Such action will not require a formal Contract amendment but may be made by administrative action.

ARTICLE 8 – INDEMNIFICATION

To the fullest extent permitted by law, CONSULTANT will indemnify, defend, and hold harmless COUNTY and the City of Tucson, their officers, employees and agents from and against any and all suits, actions, legal administrative proceedings, claims or demands and costs attendant thereto, including reasonable attorney's fees and court costs, to the extent caused by any negligent, reckless or intentionally wrongful act or omission of the CONSULTANT, its agents, employees or anyone acting under its direction or control or on its behalf in connection with performance of this Contract. The obligations under this Article shall not extend to the negligence of COUNTY, their agents, employees or indemnities.

All warranty and indemnification obligations under this contract shall survive expiration or termination of the contract, unless expressly provided otherwise. The Parties agree that any indemnification provision inconsistent with A.R.S. § 34-226 is, in all cases, not void, but will be interpreted and applied as if it were consistent with A.R.S. § 34-226.

Upon request, CONSULTANT may fully indemnify and hold harmless any private property owner granting a right of entry to CONSULTANT for the purpose of completing the project. The obligations under this Article do not extend to the negligence of COUNTY and the City of Tucson, their officers, agents, employees or indemnities.

ARTICLE 9 – COMPLIANCE WITH LAWS

CONSULTANT will comply with all applicable federal, state, and local laws, rules, regulations, standards and Executive Orders, without limitation to those designated within this Contract. The laws and regulations of the State of Arizona shall govern the rights of the parties, the performance of this Contract, and any disputes hereunder. Any action relating to this Contract must be brought and maintained in Superior Court in Pima County. Any changes in the governing laws, rules, and regulations during the term of this Contract apply, but do not require an amendment.

ARTICLE 10 – STATUS OF CONSULTANT

The status of the CONSULTANT is that of an independent contractor and CONSULTANT is not considered an employee of Pima County and is not entitled to receive any of the fringe benefits associated with regular employment, and will not be subject to the provisions of the merit system. CONSULTANT is responsible for payment of all Federal, State and Local taxes associated with the compensation received by CONSULTANT from COUNTY. CONSULTANT is responsible for program development and operation without supervision by COUNTY.

ARTICLE 11 – CONSULTANT'S PERFORMANCE

CONSULTANT will perform the work in accordance with the terms of the contract and with the degree of care and skill required of any similarly situated Arizona registrant. CONSULTANT will employ suitably trained and skilled professional personnel to perform all required services under this Contract. Prior to changing any key personnel, especially those key personnel COUNTY relied upon in making this contract, CONSULTANT will obtain the approval of COUNTY.

CONSULTANT is responsible for the professional quality, technical accuracy, timely completion, and the coordination of all its effort and other services furnished by CONSULTANT under this Agreement. Without additional compensation, CONSULTANT will correct or revise any errors, omission, or other deficiencies in all products of its efforts and other services provided. This includes resolving any deficiencies arising out of the acts or omissions of CONSULTANT found during or after the course of the services performed by or for CONSULTANT under this Agreement, regardless of COUNTY having knowledge of or condoning/accepting the products or the services. Correction of such deficiencies will be at no cost to COUNTY.

ARTICLE 12 – NON-WAIVER

The failure of COUNTY to insist in any one or more instances upon full and complete compliance with any of the terms and provisions of this Contract or to take any action permitted as a result thereof is not a waiver or relinquishment of the right to insist upon full and complete performance of the same or any other covenant or condition either in the past or in the future. The acceptance by either party of sums less than may be due and owing it at any time is not an accord and satisfaction.

ARTICLE 13 – SUBCONSULTANT

CONSULTANT will be fully responsible for all acts and omissions of its SUBCONSULTANT and of persons directly or indirectly employed by SUBCONSULTANT and of persons for whose acts any of them may be liable to the same extent that CONSULTANT is responsible for the acts and omissions of persons directly employed by it. Nothing in this Contract creates any obligation on the part of COUNTY to pay or see to the payment of any money due any SUBCONSULTANT, except as may be required by law.

ARTICLE 14 – NON-ASSIGNMENT

CONSULTANT will not assign its rights to this Contract in whole or in part, without prior written approval of COUNTY. COUNTY may withhold approval at its sole discretion.

ARTICLE 15 – NON-DISCRIMINATION

CONSULTANT agrees to comply with all provisions and requirements of Arizona Executive Order 2009-09 which is hereby incorporated into this Contract as if set forth in full herein **including flow down of all provisions and requirements to any subconsultants**. During the performance of this contract, CONSULTANT and its SUBCONSULTANTS will not discriminate against any employee, client or any other individual in any way because of that person's age, race, creed, color, religion, sex, disability or national origin.

ARTICLE 16 – AMERICANS WITH DISABILITIES ACT

CONSULTANT will comply with all applicable provisions of the Americans with Disabilities Act (Public Law 101-336, 42 U.S.C. 12101-12213) and all applicable federal regulations under the Act, including 28 CFR Parts 35 and 36. If CONSULTANT is carrying out government programs or services on behalf of COUNTY, then CONSULTANT will maintain accessibility to the program to the same extent and degree that would be required of the COUNTY under 28 CFR Sections 35.130, 35.133, 35.149 through 35.151, 35.160, 35.161 and 35.163. Failure to do so may result in the termination of this Agreement.

ARTICLE 17 – CANCELLATION FOR CONFLICT OF INTEREST

This Contract is subject to the provisions of A.R.S. §38-511 which provides in pertinent part:

"The state, its political subdivisions or any department of either may, within three years after its execution, cancel any contract, without penalty or further obligation, made by the state, its political subdivisions, or any of the departments or agencies of either if any person significantly involved in initiating, negotiating, securing, drafting or creating the contract on behalf of the state, its political subdivisions or any of the departments or agencies of either is, at any time, while the contract or any extension of the contract is in effect, an employee or agent of any other party to the contract in any capacity or a consultant to any other party to the contract with respect to the subject matter of the contract."

ARTICLE 18 – TERMINATION OF CONTRACT FOR DEFAULT

- A. Upon a failure by CONSULTANT to cure a default under this Contract within ten (10) days of receipt of notice from COUNTY of the default, COUNTY may, in its sole discretion, terminate this Contract for default by written notice to CONSULTANT. In this event, COUNTY may take over the work and complete it by contract or otherwise. In such event, CONSULTANT will be liable for any damage to the COUNTY resulting from CONSULTANT's default, including any increased costs incurred by COUNTY in completing the work.
- B. The occurrence of any of the following, without limitation to the named events, constitutes an event of default:
 - 1. Abandonment of or failure by CONSULTANT to observe, perform or comply with any material term, covenant, agreement or condition of this Contract, or to prosecute the work or any separable part thereof with the diligence that will insure completion within the time specified in this contract, including any extension, or a failure to complete the work (or the separable part of the work) within the specified time;
 - 2. Persistent or repeated refusal or failure to supply adequate staff, resources or direction to perform the work on schedule or at an acceptable level of quality;
 - 3. Refusal or failure to remedy defective or deficient work within a reasonable time;
 - 4. Loss of professional registration or business or other required license or authority, or any curtailment or cessation for any reason of business or business operations that would substantially impair or preclude CONSULTANT's performance of this Contract;
 - 5. Disregard of laws, ordinances, or the instructions of COUNTY or its representatives, or any otherwise substantial violation of any provision of the contract;
 - 6. Performance of work hereunder by personnel that are not qualified or permitted under state law or local law to perform such services;

7. Commission of any act of fraud, misrepresentation, willful misconduct, or intentional breach of any provision of this Contract; or
8. If a voluntary or involuntary action for bankruptcy is commenced with respect to CONSULTANT, or CONSULTANT becomes insolvent, makes a general assignment for the benefit of creditors, or has a receiver or liquidator appointed in respect of its assets.

C. In the event of a termination for default:

1. All finished and unfinished drawings, specifications, documents, data, studies, surveys, drawings, photographs, reports and other information in whatever form, including electronic, acquired or prepared by CONSULTANT for this project become COUNTY's property and will be delivered to COUNTY not later than five (5) business days after the effective date of the termination;
2. COUNTY may withhold payments to CONSULTANT arising under this or any other Contract for the purpose of set-off until such time as the exact amount of damage due COUNTY from CONSULTANT is determined; and
3. Subject to the immediately preceding subparagraph 2., COUNTY's liability to CONSULTANT will not exceed the Contract value of work satisfactorily performed prior to the date of termination for which COUNTY has not previously made payment.

D. COUNTY will not terminate the Contract for default or charge CONSULTANT with damages under this Article, if—

1. Excepting item 8. in paragraph B above, the event of default or delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of CONSULTANT. Examples of such causes include—
 - (i) Acts of God or of the public enemy,
 - (ii) Acts of the COUNTY in either its sovereign or contractual capacity,
 - (iii) Acts of another Contractor in the performance of a contract with the COUNTY,
 - (iv) Fires,
 - (v) Floods,
 - (vi) Epidemics
 - (vii) Quarantine restrictions,
 - (viii) Strikes,
 - (ix) Freight embargoes,
 - (x) Unusually severe weather, or
 - (xi) Delays of subcontractors at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both CONSULTANT and the subcontractor(s); and
2. CONSULTANT, within seven (7) days from the beginning of any event of default or delay (unless extended by COUNTY), notifies COUNTY in writing of the cause(s) therefor. In this circumstance, COUNTY will ascertain the facts and the extent of the resulting delay. If, in the reasonable judgment of COUNTY, the findings warrant such action, COUNTY may extend the time for completing the work.

E. For the purposes of paragraph A above, "receipt of notice" includes receipt by hand by CONSULTANT's project manager, by facsimile transmission with notice of receipt, or under the Notices clause of this Contract.

F. If, after termination of the Contract for default, COUNTY determines that the CONSULTANT was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if COUNTY had terminated the Contract for convenience.

G. The rights and remedies of COUNTY in this Article are cumulative and in addition to any other rights and remedies provided by law or under this contract.

ARTICLE 19 – TERMINATION FOR CONVENIENCE OF COUNTY

COUNTY may terminate this Contract at any time by giving written notice to CONSULTANT of such termination and specifying the effective date thereof, at least fifteen (15) days before the effective date of such termination. In that event, all finished or unfinished documents and other materials will, at the option of the COUNTY, become its property. If COUNTY terminates the Contract as provided herein, COUNTY will pay CONSULTANT an amount based on the time and expenses incurred by CONSULTANT prior to the termination date, however, no payment will be allowed for anticipated profit on unperformed services.

ARTICLE 20 – NON-APPROPRIATION OF FUNDS

Notwithstanding any other provision in this Contract, this Contract may be terminated if for any reason the Pima County Board of Supervisors does not appropriate sufficient monies for the purpose of maintaining this Contract. In the event of such termination, COUNTY will have no further obligation to CONSULTANT, other than payment for services rendered prior to termination.

ARTICLE 21 – NOTICES

Any notice required or permitted to be given under this Contract must be in writing and be served by delivery or by certified mail upon the other party as follows:

COUNTY:

Ana Olivares, P.E. Director
Pima County Department of Transportation
201 North Stone Avenue
Tucson, Arizona 85701
Tel: (520) 724-6410

CONSULTANT:

Alejandro Angel, PhD, PE, PTOE, Arizona Regional Manager
Psomas Inc.
333 East Wetmore Road, Suite 450
Tucson, Arizona 85705
Tel: (520) 292-2300

ARTICLE 22 – OTHER DOCUMENTS

The Parties in entering into this Contract have relied upon information provided in CONSULTANT'S response to a request for fee proposal. These documents are hereby incorporated into and made a part of this Contract as if set forth in full herein, to the extent not inconsistent with the provisions of this Contract. CONSULTANT will perform services in accordance with the terms of the Contract and at a level of care consistent with prevailing industry standards. In the event any provision of this contract is inconsistent with those of any other document, the contract provisions will prevail.

ARTICLE 23 – REMEDIES

Either party may pursue any remedies provided by law for the breach of this Contract, provided, however, that the procedures in **Article 27** are first exhausted. No right or remedy is intended to be exclusive of any other right or remedy and each is cumulative and in addition to any other right or remedy existing at law or at equity or by virtue of this Contract.

ARTICLE 24 – SEVERABILITY

Each provision of this Contract stands alone, and any provision of this Contract found to be prohibited by law is ineffective to the extent of such prohibition without invalidating the remainder of this Contract.

ARTICLE 25 – BOOKS AND RECORDS

CONSULTANT will keep and maintain proper and complete books, records and accounts, which will be open at all reasonable times for inspection and audit by duly authorized representatives of COUNTY.

CONSULTANT will retain all records relating to this contract at least five (5) years after its termination or cancellation or until any related pending proceeding or litigation has been closed, if later. Alternatively, CONSULTANT may, at its option, deliver such records to COUNTY for retention.

ARTICLE 26 – DELAYS

Neither party hereto will be considered in default in the performance of its obligations hereunder to the extent that the performance of any such obligation is prevented or delayed by any cause, existing or future, which is beyond the reasonable control of such party.

ARTICLE 27 – DISPUTES

In the event of a dispute between the Parties regarding any part of this Contract or the Parties' obligations or performance hereunder, either Party may request a special meeting between their respective representatives to resolve the dispute. If the dispute remains unresolved, then either Party may request escalation of the issue to a meeting between the Director of the Pima County Department administering this Contract and CONSULTANT'S counterpart official, such meeting to be held within one (1) week of the request, unless otherwise agreed. If the dispute is still not resolved after that meeting, then either Party may pursue such remedy or remedies as may be available to them under the laws of the State of Arizona.

The Parties will continue performance of their respective obligations under this Contract notwithstanding the existence of any dispute.

ARTICLE 28 – OWNERSHIP OF DOCUMENTS

All original drawings, field data, estimates, field notes, plans, specifications, documents, reports, calculations, and other information developed by CONSULTANT under this contract vest in and become the property of COUNTY and shall be delivered to COUNTY upon completion or termination of the services, but CONSULTANT may retain and use copies thereof. COUNTY agrees that the material will not be used for any project other than the project for which it was designed without the expressed permission of the CONSULTANT.

ARTICLE 29 – PUBLIC INFORMATION

Pursuant to A.R.S. § 39-121 et seq., and A.R.S. §§ 34-603(H), 604(H), in the case of construction or Architectural and Engineering services procured under A.R.S. Title 34, Chapter 6, all information submitted by CONSULTANT in any way related to this contract, including, but not limited to, pricing, product specifications, work plans, and any supporting data becomes public information and upon request, is subject to release and/or review by the general public including competitors.

Any information submitted related to this Contract that CONSULTANT believes constitutes proprietary, trade secret or otherwise confidential information must be appropriately and prominently marked as CONFIDENTIAL prior to submittal to COUNTY and be accompanied by an index specifically identifying and describing the general contents of each page so marked. The index is a Public Record and must not include any information considered confidential.

Notwithstanding the above provisions, in the event records marked CONFIDENTIAL are requested for public release pursuant to A.R.S. § 39-121 et seq., County will release records marked CONFIDENTIAL ten (10) business days after the date of notice to the CONSULTANT of the request for release, unless CONSULTANT has, within the ten (10) day period, secured a protective order, injunctive relief or other appropriate order from a court of competent jurisdiction, enjoining the release of the records. For the purposes of this paragraph, the day of the request for release is not counted in the time calculation. COUNTY will notify CONSULTANT of any request for such release on the same day of the request for public release or as soon thereafter as practicable. County is not, under any circumstances, responsible for securing a protective order or other relief enjoining the release of records marked CONFIDENTIAL, nor is County in any way financially responsible for any costs associated with securing such an order.

ARTICLE 30 – LEGAL ARIZONA WORKERS ACT COMPLIANCE

CONSULTANT hereby warrants that it will at all times during the term of this Contract comply with all federal immigration laws applicable to CONSULTANT'S employment of its employees, and with the requirements of A.R.S. § 23-214 (A) (together the "State and Federal Immigration Laws"). CONSULTANT will further ensure that each subconsultant who performs any work for CONSULTANT under this contract likewise complies with the State and Federal Immigration Laws.

COUNTY has the right at any time to inspect the books and records of CONSULTANT and any subconsultant in order to verify such party's compliance with the State and Federal Immigration Laws.

Any breach of CONSULTANT'S or any subconsultant's warranty of compliance with the State and Federal Immigration Laws, or of any other provision of this section, is a material breach of this Contract subjecting CONSULTANT to penalties up to and including suspension or termination of this Contract. If the breach is by a subconsultant, and the subcontract is suspended or terminated as a result, CONSULTANT must take such steps as may be necessary to either self-perform the services that would have been provided under the subcontract or retain a replacement subconsultant, (subject to COUNTY approval if SBE or MWBE preferences apply) as soon as possible so as not to delay project completion.

CONSULTANT will advise each sub-consultant of COUNTY'S rights, and the sub-consultant's obligations, under this Article by including a provision in each subcontract substantially in the following form:

"SUBCONSULTANT hereby warrants that it will at all times during the term of this contract comply with all federal immigration laws applicable to SUBCONSULTANT's employees, and with the requirements of A.R.S. § 23-214 (A). SUBCONSULTANT further agrees that COUNTY may inspect the SUBCONSULTANT's books and records to insure that SUBCONSULTANT is in compliance with these requirements. Any breach of this paragraph by SUBCONSULTANT is a material breach of this contract subjecting SUBCONSULTANT to penalties up to and including suspension or termination of this contract."

Any additional costs attributable directly or indirectly to remedial action under this Article are the responsibility of CONSULTANT. In the event that remedial action under this Article results in delay to one or more tasks on the critical path of CONSULTANT's approved construction or critical milestones schedule, such period of delay is excusable delay for which CONSULTANT is entitled to an extension of time, but not costs.

ARTICLE 31 - ISRAEL BOYCOTT CERTIFICATION:

Pursuant to A.R.S. § 35-393.01, if Contractor engages in for-profit activity and has 10 or more employees, and if this Contract has a value of \$100,000.00 or more, Contractor certifies it is not currently engaged in, and agrees for the duration of this Contract to not engage in, a boycott of goods or services from Israel. This certification does not apply to a boycott prohibited by 50 U.S.C. § 4842 or a regulation issued pursuant to 50 U.S.C. § 4842.

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ARTICLE 32 - ENTIRE AGREEMENT

This document constitutes the entire agreement between the parties pertaining to the subject matter hereof, and all prior or contemporaneous agreements and understandings, oral or written, are hereby superseded and merged herein. This contract may be modified, amended, altered or extended only by a written Amendment signed by the Parties.

IN WITNESS WHEREOF, the Parties have affixed their signatures to this Contract on the dates written below.

PIMA COUNTY:

Chairman, Board of Supervisors

Date

ATTEST:

Clerk of the Board

APPROVED AS TO FORM:



Deputy County Attorney

KELL OLSON

Name (Please Print)

4/3/2020

Date

CONSULTANT:



Signature

Alejandro Angel, Vice President

Name and Title (Please Print)

04/06/2020

Date

EXHIBIT "A" - SCOPE OF SERVICES, 4/1/20 (17 Pages)

During the term of this Agreement, the engineering consultant (CONSULTANT) shall perform professional services for Pima County (County) in connection with South Houghton Road Widening (4SHRWD) project. This scoping document shall be used to plan, conduct, and complete the CONSULTANT's work on the project.

I. BACKGROUND

Growth in the Corona de Tucson area has resulted in increasing traffic on the Houghton Road Corridor. Projected travel demands for 2040 show that average daily traffic will exceed the capacity of a two-lane roadway. The need for improvements to Houghton Road were identified in the South Houghton Road Master Plan Report which contained recommendations for an all-weather roadway and capacity improvements south of I-10.

II. PROJECT DESCRIPTION

The overall project consists of widening approximately 2.9 miles of the Houghton Roadway from two lanes to four lanes from the I-10/ Houghton Interchange south to the southern limits of the Pantano High School. This effort is being pursued to improve safety, increase capacity, reduce congestion, improve operations (with turning lanes to be provided at intersections and cross streets where warranted), increase mobility, and address accessibility/operational issues.

In general, proposed improvements to Houghton Road consist of the following:

- Widen the existing 2-lane roadway to a 4-Lane divided roadway (approximately 2.9 miles)
- Raise the profile grade of Houghton Road to provide culverts for the conveyance of 100 year flows without flooding onto the roadway pavement.
- Design all improvements within the existing and future right of way such that no coordination with the State Land is impacted.
- Provide a 200' R/W (where adjacent to county owned lands)
- Provide appropriate intersection controls.
- Refine the roadway profile in order to minimize overall project costs by balancing those expenses against downstream channelization expenses necessary to ensure transport of sediment and dispersion of flow away from the roadway drainage structures.

III. DESIGN CRITERIA

The design of this project shall proceed in general conformance with the current edition of the Pima County Roadway Design Manual (RDM), and other applicable design criteria as listed herein.

V. PROJECT SCHEDULE

The project is estimated to be 40 months in duration. An estimated timeframe for completion of the Initial Design effort is 9 months. The Final Design effort is estimated to be 9 months and occur subsequent to the approval of the initial design. Post design services are then estimated to occur over the final 22 months of the contract.

VI. ITEMS AND SERVICES TO BE FURNISHED BY THE COUNTY

The County will provide the items and services to the CONSULTANT per the Solicitation for Qualifications and as listed in this scope of work. County will also provide CONSULTANT with documents and data files received from previous reviews/studies of this corridor, which may or may not have been fully completed.

VII. ABBREVIATIONS

The following abbreviations may be referred to throughout this scope of work:

AASHTO	American Association of State Highway and Transportation Officials
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
AGFD	Arizona Game and Fish Department
Corps	U.S. Army Corps of Engineers
County	Pima County
DCR	Design Concept Report
EAMR	Environmental Assessment and Mitigation Report
EA	Environmental Assessment
EPG	Environmental Planning Group
ESR	Environmentally Sensitive Roadway
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
GIS	Geographic Information System
LOS	Level of service
Manual	2013 Pima County Department of Transportation Roadway Design Manual
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
PAG	Pima Association of Governments
PCDOT	Pima County Department of Transportation
PCOCRHP	Pima County Office of Cultural Resources and Historic Preservation
PCRFC	Pima County Regional Flood Control District
PCRWRD	Pima County Regional Wastewater Reclamation Department
PLSS	Public Land Survey System
PS&E	Plans, specifications, and estimates
RDM	Roadway Design Manual
ROE	Right of Entry
SOQ	Pima County Solicitation
R/W	Right-of-way
TDM	Transportation Demand Management
USFWS	U.S. Fish and Wildlife Service

VIII. PROJECT DOCUMENTATION

The documents listed as "**Deliverables**" in the Work Tasks, Section IX of this scope of work, and other exhibits or presentations for the work covered by this AGREEMENT and associated supplements, if necessary, will be furnished by the CONSULTANT to the County upon completion of the various tasks of work. Whether the documents are submitted in electronic media or in tangible format, any use of the materials on another project or on extensions of this project beyond the use for which they were intended, or any modification of the materials or conversion of the materials to an alternate system or format will be without liability or legal exposure to the CONSULTANT. The County will assume all risks associated with such use, modifications, or conversions. If the County uses materials other than how they were intended, then the CONSULTANT may remove from the electronic materials delivered to the County, all references to the CONSULTANT's involvement and will retain a tangible copy of the materials delivered to the County, which will govern the interpretation of the materials and the information recorded. Electronic files are considered working files only; the CONSULTANT is not required to maintain electronic files beyond 90 days after the project final billing and makes no warranty as to the viability of electronic files beyond 90 days from date of transmittal.

IX. WORK TASKS

TASK A – DESIGN SERVICES

General Requirements:

1. County's environmentally sensitive roadway (ESR) design guidelines apply to this project.
2. Design plans shall be developed using PCDOT CAD drafting standards. Final plan submittals shall be in electronic and hardcopy format.
3. Survey file submittals (monumentation, horizontal and vertical control, right-of-way plans) shall be in AutoCad 2016 or 2018 format.
4. Unless specified within individual tasks, an original and 2 copies of each report will be submitted to the County.
5. All submittals will include an electronic pdf copy of the submittal.

TASK A.1 PROJECT MANAGEMENT AND QUALITY CONTROL

Task A.1.1. Project Management. Develop project design by coordinating design efforts. The anticipated management activities are as follows:

- a. Coordinate with all stakeholders through all means necessary, including but not limited to, phone, electronically, paper, face-to-face, etc.
- b. Ensure that project team members are communicating and cooperating on project tasks.
- c. Generate and regularly update a project contact list.
- d. Establish and keep updated correspondence files for all correspondence, including electronic, phone, paper, etc.

Deliverables:

- Project Team Contact List.
- Responses to all review comments.

Task A.1.2. Quality Control Plan. Develop a project-specific quality control plan that identifies responsible personnel, technical review, checking procedures, and monitoring process. Submit within 15 days of notice to proceed. Each major submittal shall include verification of the quality control completed on said submittal.

Deliverables:

- Project-Specific Quality Control Plan.
- Verification of quality control shall be provided with each major submittal.
- Responses to all review comments.

Task A.1.3. Meetings and Communication. CONSULTANT will be responsible for coordinating meeting times, inviting meeting participants, creating an agenda, preparing graphics and handouts, facilitating meetings, and providing meeting summaries. The anticipated design team meetings and activities are as follows:

- a. Conduct monthly meeting with the project team.
- b. Conduct sub-consultant and in-house team meetings.
- c. Conduct pre-review overview meetings with County reviewers prior to major submittals to deliver and explain submittal.
- d. Conduct major review comment meetings to discuss review comments and responses with the County and the project team.
- e. Conduct minor review comment meetings to discuss review comments and responses with individual reviewers for comments identified as needing additional resolution.
- f. Conduct other meetings as needed or required.

Deliverables:

- Meeting agendas and displays.
- Meeting summaries as required.
- Responses to all review comments.

Task A.1.4. Coordinate Between Participating Agencies. The CONSULTANT will coordinate with involved agencies to include but not be limited to; City of Tucson and US Army Corps of Engineers.

Task A.1.5. Schedule. Provide an initial schedule within 15 days of notice to proceed. Provide an updated schedule with each monthly invoice.

Deliverables:

- Initial Schedule
- Monthly schedule updates.
- Responses to all review comments.

Task A.1.6. Cost Estimating. CONSULTANT to develop a Base Estimate that identifies the major components of project scope and their cost, defines all components of scope, and describes all scope and cost assumptions within 45 days of notice to proceed. CONSULTANT will update the Cost by reviewing, updating and documenting assumptions and costs for each item, and including contingency information in the report during major plan submittals.

Deliverables:

- Base Estimate - Incorporate risk analysis and contingency information into the estimate, identifying all assumptions.
- Estimates for Initial Design Phase thru Final PS&E submittals. Incorporate risk analysis and contingency information into the estimate. Identify all assumptions.

TASK A.2 VALUE ANALYSIS

Task A.2.1 Value Analysis Workshop. The CONSULTANT shall coordinate a value analysis/engineering (VA) workshop to identify and evaluate cost and schedule reduction opportunities. CONSULTANT will provide the County the recommended number and types of attendees for the VA workshop. CONSULTANT will provide the VA facilitator and at least two subject matter experts. County will provide the remaining subject matter experts. A VA Report on the findings and recommendations of the workshop will be provided to the County. The CONSULTANT will be responsible for providing materials to hold the meeting (including hardcopies of handouts or plans, documents, and meals for attendees during the workshop), the County will be responsible for providing the meeting venue.

Task A.2.2 Value Analysis Evaluation. CONSULTANT will evaluate and respond to proposed VA recommendations after discussion with County. Responses will be documented in a spreadsheet format.

Task A.2.3 Incorporating Accepted Recommendations. Accepted VA technical recommendations shall be incorporated into the appropriate design tasks. Any accepted recommendations beyond the original scope of this work shall be included through Task B.2 Other Services or a contract modification.

Deliverables:

- Value Analysis Report.
- Consultant Responses to recommendation.

TASK A.3 PUBLIC PARTICIPATION

Task A.3.1. Public Participation Plan. County will be the primary contact for community inquiries and concerns. County will organize and lead all public participation activities. County will develop and implement the Public Participation Plan for the project. The CONSULTANT will provide graphics, displays and presentation assistance services in support of the Plan. Additional services may be requested through Task B.2 Other Services.

Task A.3.2. Community Advisory Committee (CAC) Meetings. County will organize, facilitate and distribute all required materials for CAC meetings. The CONSULTANT will attend approximately four (4) CAC meetings, provide graphics, displays and presentation assistance.

Task A.3.3. Public Meetings. County will lead the organizing, staffing and preparing for all public meetings. The CONSULTANT will attend approximately two (2) public open houses.

Task A.3.5. Quality Control Review. The CONSULTANT will provide quality control reviews of all the deliverables.

Deliverables:

- Displays/Graphics/Roll plots as needed.

TASK A.4 PUBLIC ART

Task 4.1. Coordination with Artist. The COUNTY will provide an artist for this project. The CONSULTANT will include the project artist on the design team and will coordinate the work of the artist with the overall design of the project. The CONSULTANT will incorporate the artist's concepts into the design documents as appropriate.

TASK A.5 UTILITY COORDINATION

Task A.5.1. Data Gathering, Utility Designation, Letter of Acceptance. The CONSULTANT will verify that utility base maps and prior rights documentation are complete for each utility. For consistency, a utility coordinator will be designated to be the main point of contact for all utility coordination work. The CONSULTANT will provide and maintain a website for project and utility information and make it accessible to utilities, County, and project team members.

The CONSULTANT and County will establish a Utility Relocation Date whereby utilities will be required to clear the project of utility impacts identified in *Task A.5.2 Design Coordination, Utility Impact Identification*. All formal utility correspondence is to be reviewed and approved by the County prior to distribution. The CONSULTANT will initiate and conduct meetings as needed with any utilities present in the corridor. Prior to the completion of *Task A.7.8 Existing Conditions Surveys*, the CONSULTANT will request each utility to mark its facilities, providing the approximate horizontal position on the ground surface, being accurate to within six inches, and provide electronic files of certified horizontal survey data associated with these ground surface markings and also their above grade facilities, including service connections, all of which being tied to an accepted County control and datum. CONSULTANT shall draft onto an Existing Utilities Mapping Package (40 scale) the certified horizontal survey data surveyed by CONSULTANT and as horizontally designated by CONSULTANT (if necessary) and provide the COUNTY with a Letter of Acceptance from each utility indicating that the representation of the utility's facilities on the Existing Utilities Mapping Package is accurate. All utilities will be designated, located, and mapped according to ASCE Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data (CI/ASCE 38-02). The CONSULTANT will conduct a field review of utility information shown on the Existing Utilities Mapping Package for consistency with utility base maps and utility field survey data.

Task A.5.2. Design Coordination, Utility Impact Identification. The CONSULTANT will monitor the project's design for utility impacts, distribute progress design drawings to utilities for review and identification of utility impacts; and maintain a List of Utility Impacts, said list being available to the County upon request. The CONSULTANT will update the County as necessary on the status of utility activities and notify the County immediately of any utility unable to meet the Utility Relocation Date. Initial and Final Design Phase Plans will be provided to all utilities for their review and comments.

Task A.5.3. Utility Impact Mitigation. The CONSULTANT will initiate, coordinate and facilitate utility impact meetings with County, utility and appropriate team members to develop mitigation measures acceptable to the County that will clear the project of utility impacts by the Utility Relocation Date. The CONSULTANT will update utilities as to the status of all utility impacts by the Utility Relocation Date. The CONSULTANT will compile a List of Utility Impacts and Approved Mitigation Measures.

Task A.5.4. Quality Control Review. The CONSULTANT will provide quality control reviews of the deliverables listed below.

Deliverables:

- Utility Relocation Date
- Plans for distribution to utilities
- Letters of Acceptance

- Meeting minutes prepared, distributed to project team, and revised as needed.
- Design plans showing updated mapping of utility information, including potholing information.
- List of utility impacts and mitigation measures.
- Responses to all review comments.

TASK A.6 ENVIRONMENTAL IMPACT SCREENING

Project design should follow the ESR guidelines listed in the Pima County RDM. The project is identified as an ESR because Houghton Rd is a Major Scenic Route and the project traverses several Important Riparian Areas. Project coordination and design must follow the ESR guidelines detailed in the Pima County RDM.

Task A.6.1. Environmental Coordination Meeting. The CONSULTANT will conduct field visits of the project area and arrange a meeting with the project design team to discuss issues that would assist in completing the Questionnaire for Areas of Impact and to review the Summary Impact Matrix. The CONSULTANT will coordinate with Game and Fish regarding potential wildlife corridors.

Task A.6.2. Questionnaire for Establishing Potential Areas of Impact. The CONSULTANT will complete the questionnaire using field visits, correspondence, other reports, specialists, and other information. All sources will be cited.

Task A.6.3. Summary Impact Matrix. The CONSULTANT will complete the matrix. The CONSULTANT will use the matrix to establish potential adverse environmental impacts. The Summary Impact Matrix will incorporate the results of the Cultural Resources review effort (by others), Jurisdictional Delineation conducted as part of Task A.14.4, and Hazardous Materials Investigation conducted as part of Task A.14.5. Additional data collection for zoning, planned developments, potential annexation and planned developments and relevant planning documents collected will be incorporated as necessary to consider potential design modifications.

Task A.6.4. Environmental Results Memorandum. The CONSULTANT will prepare a memo to summarize the screening process, discuss issues noted, recommend courses of action, and identify issues that exceed original scope of work. The CONSULTANT will review and discuss the results of the screening with the entire design team.

Task A.6.5. Team Review. The CONSULTANT will plan, prepare for, and attend a project team meeting to review and discuss environmental concerns.

Task A.6.6. Project Modifications/Alternatives. The CONSULTANT will document project changes and their anticipated environmental effects.

Task A.6.7. Quality Control Review. The CONSULTANT will provide quality control reviews of the deliverables listed below.

Deliverables:

- Meeting minutes, prepared, distributed to project team, and revised as needed.
- Completed Questionnaire for Establishing Potential Areas of Impact.
- Completed Summary Impact Matrix.
- Completed Environmental Results Memorandum.
- Memorandum detailing project changes and anticipated environmental effects.
- Responses to all review comments.

TASK A.7 SURVEY AND MAPPING

Task A.7.1. Initial Planning and Reconnaissance. The CONSULTANT will hold a formal coordination meeting with County Survey prior to the start of any survey efforts to identify/discuss survey mapping project requirements and procedures and how the survey efforts will be coordinated with the CONSULTANT design team.

Task A.7.2. Horizontal Control. The CONSULTANT will run a Geodetic Control Survey based on NAD 83 and NAVD 88 datums by using PCDOT provided N.G.S. control points and tying to PC/COT approved GIS control points. The CONSULTANT will run a closed field traverse through, or incorporate into, the primary project

controls provided by County Survey. The CONSULTANT will also field reference control points, and other found monuments, within the existing right-of-way, outside of the construction area. County Survey will review the closed field traverse run by the CONSULTANT and the field references.

Task A.7.3. Vertical Control Traverse. The CONSULTANT will establish a bench circuit originating from PCDOT provided GIS vertical control points to prescribed field accuracy. The work will include mathematically adjusting the remaining error. The work also includes setting construction benchmarks at 500' intervals outside of the proposed construction areas and on alternating sides of the roadway. County Survey will field verify all vertical control points set from the PCDOT approved GIS points.

Task A.7.4. Results of Survey Drawing. The CONSULTANT will prepare a Results of Survey Drawing showing existing section lines, right-of-way, ownership, and existing features for the length of the project. Approximate property lines will be included on the Results of Survey by the CONSULTANT. If necessary, for easement or R/W acquisitions, the CONSULTANT will perform parcel survey(s) limited to the budget included in the Fee Calculation.

Task A.7.5. Survey Report. A Survey Report is required for this project.

Task A.7.6. Aerial Mapping. The CONSULTANT will provide photogrammetric mapping in AutoCAD 2016 or newer version, including a digital terrain model, ortho-photos, and digital files in County .tif format. Aerial ground control will be provided by the CONSULTANT and will be field checked by the County Survey prior to the results being transmitted to the aerial company. The CONSULTANT will perform cross sections at 100-ft intervals along the existing roadway centerline and edges of pavement, and at critical drainage elements (v-ditches, culvert depressions, drainage break-lines, and all other drainage features) to enhance the aerial ground DTM so that it meets or exceeds 0.1 foot accuracy or as noted in Section 3-10 of the Roadway Design Manual. The County will request the aerial mapping from ADOT collected as part of the Houghton TI project, the CONSULTANT will provide cross-sectioning and field verification of this area.

Task A.7.7. Utility Surveys. The CONSULTANT will locate surface utilities and underground utilities as identified and marked by others for the length of the project. Blue Staking and other utility features will be located during the culture survey. Coordination for underground utilities markings will be by the CONSULTANT. Notify County of any utility non-responsive to a marking request. Any potholing needed for utility locating will be provided under Task B.1 Additional Utility Investigation.

Task A.7.8. Culture Surveys. The CONSULTANT will locate fences, mail boxes, culverts and manhole inverts, drainage features and flows, and match-in locations along the project length. The work will also include the CONSULTANT converting field results into AutoCAD 2016 or newer version format.

Task A.7.9. Right-of-way of Surveys. After analyzing the initial field survey, the CONSULTANT will field locate all relevant survey monuments including right-of-way centerline monuments, property corners and existing occupation, to determine the existing right-of-way lines. The CONSULTANT will coordinate with County Survey in defining the existing right-of-way for the project. The CONSULTANT will analyze the results and include notes within the field report identified in Task A.7.5.

Task A.7.10. Roadway Design Manual Survey Efforts. The CONSULTANT will complete other survey related tasks as generally identified and provided within the Design Manual.

Task A.7.11 Legal Descriptions & Reference Maps. The CONSULTANT will prepare up to thirty (30) legal descriptions and maps for new right-of-way, drainage easements, temporary construction easements, and other land acquisition needs as requested by the County. Legal description reference maps will be 8.5"x11". The CONSULTANT shall include effort for the preparation of legal descriptions and associated reference maps and the probable need for determining parcel property lines.

Task A.7.12. Quality Control Review. County Survey and the CONSULTANT will provide quality control reviews of the Survey and Mapping deliverables listed below.

Task A.7.13 Boring Locations. The CONSULTANT will stake up to fifty (50) boring hole locations within three (3) individual site trips as provided by geotechnical investigation and provide existing ground elevations at said locations.

Deliverables:

- Digital black & white files (uncolored digital photo) to the County in .tif format and digital ASCII point files in comma delimited format.
- Results of survey drawings by the CONSULTANT.
- Results of survey will be provided in accordance with the Pima County RDM in strip map format showing right-of-way data (including existing and proposed right-of-way lines, parcel lot lines, parcel numbers, locations of buildings close to or within right-of-way takes, etc.) with the preliminary Right-of-Way Plan submittal. Potential acquisition and easements will be identified on the drawing.
- Field survey of drainage ways by CONSULTANT.
- Responses to all review comments.

TASK A.8 DRAINAGE

Task A.8.1. Review Existing Plans and Reports. The CONSULTANT will review available plans and reports for existing improvements and identify drainage features and flows, including but not limited to the following:

- Lee Moore Wash: Houghton Road, PCRFCFCD (Existing Conditions Model);
- Lee Moore Wash-East: Upstream of Houghton Road, PCRFCFCD;
- Lee Moore Wash-West: Downstream of Houghton Road, PCRFCFCD;
- I-10 Houghton Rd TI Drainage Report, ADOT;
- Lee Moore Wash Basin Management Study Development Criteria, PCRFCFCD; and
- Pima County Fairgrounds and Andrada Polytechnic High School improvement plans.

The Consultant shall review the Existing Conditions Model for accuracy and report to the District the results of their review, including any significant issues, if any. Any required resolution of the Existing Condition Model shall be resolved at the PCRFCFCD coordination meeting in Task A.8.2.

Task A.8.2. Hydrologic and Hydraulic Modeling - Houghton. The CONSULTANT will obtain the latest approved PCRFCFCD modeling for flows which impact the project. The base model for the hydrologic analyses will be the Technical Support Data Notebook for Lee Moore Wash: Houghton Road (Existing Conditions Model).

The areal extent of the project models shall include the roadway prism and approximately .50 miles upstream of the roadway to negate any potential upstream boundary conditions and approximately 4.0 miles downstream of the roadway to provide a singular modeling construct for any potential future PCRFCFCD modeling efforts within the area.

The models will establish 10-year and 100-year peak discharges, maximum depths and maximum velocities for both the 3-Hour and 24-Hour events.

FLO-2D Pro shall be used for modeling unless justification for using a different modeling software is approved by PCRFCFCD. A 15-foot grid shall be used. All work shall follow PCRFCFCD Technical Policies.

PCRFCFCD will provide the Existing Conditions Model that will cover the Houghton Road project area and additional areas downstream as shown on the PCRFCFCD Study Limit Exhibit (Exhibit "A" Attachment 1). The Existing Conditions Model has integrated input hydrographs from the Lee Moore Wash-East and Lee Moore Wash-West models.

The CONSULTANT will use the 15-ft grid Existing Conditions model provided by PCRFCFCD as the foundation of the Proposed Conditions Model, which will cover the same modeling areas, and verify with the project team that the concentration points at the roadway are acceptable for location of roadway drainage structures. The Proposed Conditions Model shall include roadway drainage structures which convey the 100-year peak discharges from the Existing Conditions Model under the roadway, as well as upstream and downstream channels and other drainage structures. A Concept-Level model with assumptions included will be provided to the CONSULTANT by PCRFCFCD as a template for the Proposed Conditions Model.

The CONSULTANT shall coordinate with PCRFCFCD prior to initiating modeling to verify that modeling strategy is acceptable to PCRFCFCD. At the first coordination meeting, CONSULTANT and PCRFCFCD will determine if the CONSULTANT has sufficient information and electronic files, and PCRFCFCD will provide available data. A schedule for milestone meetings will be developed. CONSULTANT shall prepare a Modeling Memorandum documenting modeling protocols accepted by PCRFCFCD, including a table of FLO-2D modeling parameters and a milestone meeting schedule.

The CONSULTANT will conduct a performance-based evaluation to optimize drainage designs through a combination of downstream channelization, culvert sizing, drop inlets and roadway profile adjustment in order to minimize costs. Drainage will be conveyed through the roadway, then returned to historical downstream drainage patterns as soon as, and to the extent, practicable.

Upstream ponding depths will not be a design constraint for this project. The CONSULTANT will coordinate with PCRFCFCD throughout the drainage design process to determine the upstream ponding impacts of the selected design alternatives. Once the County accepts the drainage approach and design, County will obtain and provide CONSULTANT clearance letters waiving limits on upstream ponding and the need for drainage easements east of Houghton Road.

Task A.8.3. Drainage Maps and Exhibits. The CONSULTANT will prepare existing and proposed conditions drainage maps showing floodplain limits for 10-year and 100-year peak discharges covering the Proposed Conditions modeling extents. Additional exhibits required are existing and proposed conditions flow depths and velocities and exhibits showing the differences between existing and proposed conditions in accordance with PCRFCFCD mapping standards. Roadway drainage structures may need to be revised to improve flow conditions, to avoid utility conflicts or to optimize upstream and downstream flow diversions, channels or erosion protection.

Task A.8.4. Drainage Reports. The CONSULTANT will prepare a report in the phases described in Section 3.11 of the Design Manual as modified below. The work includes preparing and processing the four (4) submittals described below:

Initial Design Phase Submittal. The CONSULTANT will prepare the Initial Design Phase Submittal per Section 3.11 of the Design Manual. A full hydraulic analysis, including evaluation of overtopping of roadway and upstream and downstream impacts, will be included. The CONSULTANT will identify potential Clean Water Act 404 permitting and right-of-way acquisition needs for cross-drainage.

Modeling Report. The CONSULTANT shall prepare a report of modeling procedures and results for acceptance by PCRFCFCD prior to preparing the Final Design Phase Submittal. PCRFCFCD shall verify that the modeling conforms to the Modeling Memorandum

Final Design Phase Submittal. The CONSULTANT will prepare the Final Design Phase Submittal per Section 3.11 of the Design Manual.

Final PS&E Phase Submittal. The CONSULTANT will prepare the Final PS&E Phase Submittal for the project in response to County's Final Design Phase Submittal comments as well as revisions to the final project design per Section 3.11 of the Design Manual.

Task A.8.5. Quality Control Review. The CONSULTANT will provide quality control reviews of the drainage report for each submittal.

Deliverables:

- Existing Conditions Model Review.
- Initial Design Phase Drainage Report.
- Modeling Design Report
- Final Design Phase Drainage Report.
- Final PS&E Phase Drainage Report.
- Responses to all review comments.

TASK A.9 GEOTECHNICAL

Task A.9.1. Geotechnical Testing and Analysis and Report. The CONSULTANT will provide geotechnical testing, analysis, and report per Section 3.12 of the Design Manual and the Preliminary Engineering & Design (PE&D) manual of the ADOT Material Group. The geotechnical effort will correspond to 100% of the final design effort and will include investigations to develop concepts and final designs.

The scope of fieldwork is estimated to include approximately 50 soil borings. CONSULTANT will obtain the concurrence of the County for the locations of borings prior to commencing the field work. Approximately 10 of these borings will be in culvert areas and will be drilled up to 15 feet deep. Approximately 20 borings will be located in pavement widening areas and will typically be to depths of 5 feet; however, some may be as deep as 10 to 15 feet as required. The remaining 20 borings will be utilized as needed to provide data for project design needs, such as at retaining walls, areas requiring slope treatments, and drainage grading areas. Soil samples from some of the culvert locations may also be used for the pavement improvements. Consultant will obtain up to 20 shallow depth grab samples for use in resistivity and PH testing in the case metal pipes are used on the project due to Value Engineering.

The CONSULTANT will provide appropriate laboratory testing for representative soil samples. Recommendations will be developed based on applicable PCDOT, Maricopa (MCDOT), and ADOT standards. The results of all investigations, as well as recommendations will be provided in one consolidated geotechnical report.

Note: Prior to performing any fieldwork, Consultant will obtain applicable permits for the area being tested, contact Arizona Bluestake for underground utility location(s), and provide traffic control according to the permit while working. Cultural clearance is required prior to any ground disturbing activity

Task A.9.2. Quality Control Review. The CONSULTANT will provide a quality control review on the Geotechnical Report.

Deliverables:

- Geotechnical report.
- Responses to all review comments.

TASK A.10 PAVEMENT DESIGN

Task A.10.1. Pavement Design Report. The CONSULTANT will perform pavement design following the current ADOT methodology. The CONSULTANT will prepare the Pavement Design Report per Section 3.13 of the Design Manual and include the following:

- A summary of the general geotechnical characteristics of the soil;
- Traffic data considerations being used for the development of the pavement structure;
- Discussion concerning the procedures and results of the pavement structure design; and
- Recommended structural sections, including alternatives, with criteria such as cost, construction and other factors considered;

ESAL calculations will be developed by the CONSULTANT to assist with pavement design and will be based on the counts and classifications collected as part of Task A.11.

Task A.10.2. Quality Control Review. The CONSULTANT will provide a quality control review on the Pavement Design Report.

Deliverables:

- Pavement Design Report.
- Responses to all review comments.

TASK A.11 TRAFFIC ENGINEERING

Task A.11.1. Initial Traffic Engineering Study. The CONSULTANT will complete an Initial Traffic Engineering Study that will verify or update the *Traffic Engineering Study for Houghton Road, Camino Aurelia to I-10 (4SHRAI)*, dated March 2016.

The Initial traffic study will include the following:

- Evaluate access and circulation for Andrada/Pantano High Schools.
- Evaluate signal warrants at Brekke Road, Dawn Road, and the main Andrada HS entrance and recommend timing for signalization, if applicable.
- Evaluate access and circulation for the Fair Grounds during the County Fair.
- Provide recommendations for improvements including speed limit, turn lane location and storage, and intersection traffic control.

The CONSULTANT will collect new traffic counts to update traffic volume projections for the opening year (2024) and the design year (2045). Three turning movement counts (AM/PM) at Brekke Road, Dawn Road, the main Andrada HS entrance during a typical weekday (outside of County Fair dates). Six additional turning movement counts (time periods to be determined in conjunction with the County to correlate with event traffic at the County Fair) will be collected at the major Fair Ground access points during the County Fair. Two 24-hr tube counts (with classifications and speeds) will be recorded on Houghton Road on a typical weekday to verify/update traffic in the area and turn lane storage recommendations in the 2016 study. Six 72-hour tube counts (with classifications and speeds) will be recorded on the major roadways serving the fairgrounds (i.e. Houghton Road, Harrison Road, Brekke Road, Dawn Road) during the Pima County Fair. Drone data will also be collected during the County Fair to evaluate circulation and queuing at the main Fair access points. Days/times for data collection during the County Fair will be determined based around peak event times with input from the County and Fairgrounds. Due to the lag in timing of data collection and analysis of the Fairground traffic, these results will be appended to the Traffic Study as an Addendum when completed.

Task A.11.2. Final Traffic Engineering Study. The CONSULTANT will complete a Final Traffic Engineering Memorandum.

Task A.11.3. Meetings. CONSULTANT's Traffic Engineering Memorandum Task Leader will attend project meetings, PCDOT Traffic meetings, CAC meetings, and public meetings as needed.

Task A.11.4. Quality Control Review. The CONSULTANT will provide quality control review of the Traffic Engineering *Memorandum*.

Deliverables:

- Initial Traffic Study
- Final Traffic Study
- Country Fairground Traffic Addendum
- Display materials as needed.
- Meeting minutes, distributed to project team, and revised as needed.
- Responses to all review comments.

TASK A.12 ARTERIAL STREET LIGHTING

Task A.12.1 Draft Lighting Design Report. The CONSULTANT will prepare a Draft and Final Street Lighting Report in accordance with the County Roadway Design Guideline for the following intersections:

- Houghton Road/Brekke Road
- Houghton Road/Fairgrounds Entrance
- Houghton Road/Dawn Road
- Houghton Road/ Andrada Polytechnic High School Main Entrance

Task A.12.2. Quality Control Review. The CONSULTANT will provide quality control review of the Street Lighting Report.

Deliverables:

- Lighting Design Report
- Meeting minutes, distributed to project team, and revised as needed.
- Display materials as needed.
- Responses to all review comments.

TASK A.13 DESIGN MEMORANDUM (DM)

Task A.13.1. Executive Summary/Project Overview and Description. The CONSULTANT will prepare the executive summary and project overview and description for the Design Memorandum.

Task A.13.2. Project Area Characteristics (Existing Conditions). The CONSULTANT will prepare the description of existing conditions, including traffic and crash data for the DM. The COUNSULTANT will include descriptions of conditions that could result in design modifications within the project study area for the following topics:

- Topography and terrain
- Roadway
- Rights-of-Way
- Drainage
- Utilities, Signals and Lighting
- Biology
- Archaeological and Historical Resources
- Visual and Aesthetic Resources
- Existing and Future Land Use
- Intergovernmental Agreements
- Traffic and Crash Data (provided by PCDOT)

Task A.13.3. Design Standards, Criteria and Features/Alternatives. The CONSULTANT will prepare the description of design standards and criteria and description of major design features and alternatives considered for the DM.

Task A.13.4. Design Memorandum with Conclusions and Recommendations. The CONSULTANT will compile information developed from this effort and from other studies and reports into a Design Memorandum. Additionally, the CONSULTANT will prepare the conclusions and recommendations. The CONSULTANT will identify, develop, evaluate, and describe roadway design and as and if applicable: project constraint avoidance alternatives; construction phasing concepts; and implementation strategy.

Task A.13.5. Cost Estimate. The CONSULTANT will prepare preliminary project cost estimate, with quantity take-off calculations based on approximate quantities of major cost items. Right-of-way costs will be provided by PCDOT.

Task A.13.6. Quality Control Review of DM. The CONSULTANT will provide a quality control review of the Design Memorandum.

Deliverables:

- Draft and Final Design Memorandum
- Cost estimates and quantity take-off calculations.
- Responses to all review comments.

TASK A.14 ENVIRONMENTAL REPORTS

Task A.14.1. Cultural Resources Inventory and Report. The CONSULTANT will include the results of the Cultural Resources effort provided by the County in the report.

Task A.14.2. Biological Evaluation/Wildlife Habitat. The CONSULTANT shall review the Biological Evaluation of the South Houghton Road: Camino Aurelia to Interstate 10 Master Plan prepared by SWCA Environmental Consultants dated May, 2016 for the area within the existing Houghton Road right-of-way. The CONSULTANT will prepare a biological memo. The CONSULTANT shall conduct a Pima Pineapple Cactus (PPC) survey. The CONSULTANT shall include a summary of the Biological Memo in the EAMR and include the report in the Appendix. The CONSULTANT shall provide the Draft Biological memo for County's review and comments. The Final Report shall be forwarded to County for their records.

Task A.14.3. Vegetation Sampling/Measurement. After wash disturbances are identified, the CONSULTANT will conduct an inventory of vegetation and protected plant species using methods described in Chapter 4 of the RDM for an ESR. The CONSULTANT will develop a technical report detailing the methodology and outcome of said investigation; along with the appropriate mitigation requirements. The CONSULTANT will include any floodplain-riparian mitigation inventory and plan. The CONSULTANT shall include a summary of this effort and results in the EAMR.

Task A.14.4. Clean Water Act Permitting. The CONSULTANT will prepare a preliminary Jurisdictional Delineation Report and identify Section 404 Permit requirements. The CONSULTANT shall prepare appropriate documents for a nationwide permit. The report and documents will be developed to meet COE standards, County requirements and other agencies with jurisdiction.

CONSULTANT will attend Clean Water Act Section 404 pre-application meetings with County and the U.S. Army Corps of Engineers. Meetings are anticipated prior to submittal of the Preliminary Jurisdictional Delineation and submittal of Nationwide Permit application.

Task A.14.5. Hazardous Materials Survey. The CONSULTANT shall review the Hazardous Materials Memo-South Houghton Road: Camino Aurelia to Interstate 10 Master Plan prepared by PCDEQ dated May, 2016. The CONSULTANT will complete a Preliminary Initial Site Assessment (PISA) for hazardous materials within the current right-of-way, potential right-of-way, and easements associated with the project and provide a Draft and Final PISA Report. Include a Phase I ESA for any real property acquisitions. The PISA shall comply with ASTM E-1528-06 (Standard Practice for Limited Environmental Due Diligence). This will include:

- a. Conduct Site Reconnaissance (Section 9 of Standard)
- b. Regulatory Database Review (Section 10.1 of Standard)
- c. Historical Source Review (Section 10.2 of Standard)

Task A.14.6. Air Quality. The CONSULTANT will review potential effects on air quality and report findings.

Task A.14.7. Noise Analysis. The CONSULTANT will provide a Traffic Noise Analysis, evaluating potential traffic noise impacts to sensitive uses (Andrada Polytechnic High School and Pantano High School) adjacent to Houghton Road improvements (in accordance with PCDOT Procedure 03-5, dated April 8, 2008 and further discussed in Chapter 4 of the RDM for an ESR. The Traffic Noise Model will be used to predict future (2040) noise levels within the project area and to identify, as appropriate noise mitigation components. A Draft and Final Traffic Noise Analysis Report will be prepared.

Task A.14.8. Visual Assessment. The CONSULTANT will provide a visual resource and aesthetics evaluation.

Task A.14.9. Environmental Documentation. An EAMR in accordance with Section 3.18 of the Roadway Design Manual is not required for this project. Consultant will provide each required environmental subarea documentation to County for approval.

Task A.14.10. Quality Control Review of Reports. The CONSULTANT will provide a quality control review of the Environmental Assessment and Mitigation Report.

Deliverables:

- Biological Memo.
- Vegetation Inventory, including listing of protected plants.
- Approved Preliminary Jurisdictional Delineation Report and appropriate nationwide permits.
- Draft and Final Preliminary Initial Site Assessment for hazardous materials.
- Phase I ESA
- Draft and Final Traffic Noise Analysis Report.
- Visual Assessment
- Responses to all review comments.

TASK A.15 RIGHT-OF-WAY ACQUISITION SUPPORT

Task A.15.1. Existing Right-of-Way and Easements. The CONSULTANT will provide County with a list of parcels from which right-of-way or easements will be required. County will furnish any title reports required for this project based on the CONSULTANT's list. The CONSULTANT will review title reports and other recorded information to determine current right-of-way and easements. The CONSULTANT will perform any research, calculations, and additional survey needed to establish existing property and right-of-way lines to be affected by this project and integrate into mapping. Following the research, a Centerline and Right-of-Way survey will be conducted to identify and locate the controlling right-of-way monumentation, property lines, or fence lines that intersect the right-of-way.

Task A.15.2. State Land

CONSULTANT will assist the County with record research at the State Land Office.

Task A.15.3. Right-of-Way Plans. The CONSULTANT will prepare 1"=40' right-of-way plans for the project, as per Pima County RDM 3.19 and Appendix 3-O-1. In addition to existing information, all proposed right-of-way and/or easements required shall be shown with complete dimensions. Ownership data and areas required shall be shown. The CONSULTANT will coordinate with and incorporate feedback from PCDOT in identifying properties for potential acquisitions and easements. The CONSULTANT will coordinate with and incorporate feedback from County Survey in preparing drawings and descriptions for potential acquisitions and easements.

Task A.15.4. Right-of-Entry. County will obtain any Rights-of-Entry required for this project.

Task A.15.5. Quality Control Review of Right-of-Way Documents. The CONSULTANT will provide a quality control review of the Right-of-way documents. County Survey will provide a quality assurance review of the right-of-way documents.

Deliverables:

- Right-of-Way and easement parcel list.
- Right-of-Way Plans.
- Responses to all review comments.

TASK A.16 PREPARATION OF CONSTRUCTION DOCUMENTS

- Development of sewer modification plans and/or water modification plans are not included in this scope of work.

Task A.16.1. Initial Design Phase Plans. The CONSULTANT will prepare initial roadway, median opening, and striping plans for Houghton Road. The Design Concept Plans will be at 1"=40' and will address horizontal and vertical alignment, cross sections, channelization, drainage, right-of-way, major and minor structures.

Task A.16.2. Final Design Phase Plans. The CONSULTANT will develop Final Design Plans per the checklist found in Chapter 3 of the RDM, including retaining walls, preliminary median openings, striping plans, irrigation plans, and cross sections. Establish initial InRoads or Civil 3D templates, earthwork modeling, and project cost estimate for the Final Design Phase.

Task A.16.3. Initial PS&E. The CONSULTANT will develop Initial PS&E Plans for the project per the checklist found in Chapter 3 of the RDM, including revisions from Final Design Phase Plan submittals, adding storm drain plans, landscape plans, traffic signal plans, lighting plans, staking plans, noise wall plans and updating project cost estimate for the Initial PS&E.

Task A.16.4. Final PS&E. The CONSULTANT will develop Final PS&E Plans per the checklist found in Chapter 3 of the RDM, including revisions from Initial PS&E, including SWPPP, construction sequencing (if applicable), traffic control, special provisions, traffic signal plans, lighting plans, signing plans and updating project cost estimate for Final PS&E.

Task A.16.5. Quality Control Review of Plans. The CONSULTANT will provide a quality control review of the Stage I Design Concept Plans and Stage II Initial Construction Plans.

Deliverables:

- Initial Design Plans per the Design Manual Checklist, including cost estimate and quantity takeoff calculations.
- Final Design Plans per the Design Manual Checklist, including cost estimate and quantity takeoff calculations.
- Initial PS&E Plans per the Design Manual Checklist, including cost estimate and quantity take-off calculations.
- Final PS&E Plans per the Design Manual Checklist, including cost estimates, special provisions, and quantity take-off calculations.
- Responses to all review comments.

TASK B – ADDITIONAL SERVICES

Task B is as-needed services for which the cost and fee shall be determined at the time work is defined. No work shall commence under Task B without prior written authorization from the County.

TASK B.1 ADDITIONAL UTILITY INVESTIGATION

Task B.1.1. Utility Coordination and Survey. In the event a utility is unable to provide the ground marking and certified survey data requested in Task A.7.7, the CONSULTANT shall provide Utility Quality Level B information for the utility in accordance with ASCE Standard Guidelines for the collection and Depiction of Existing Subsurface Data (CI/ASCE 38-02), page 3.

Any ground disturbing activity shall not begin until cultural clearance has been provided.

TASK B.2 STATE LAND COORDINATION

Task B.2.1 State Land Coordination. CONSULTANT will provide exhibits for the purposes of coordinating design efforts with the State Land Department showing the proposed grading and drainage improvements including channels, culverts, retention basins, access roads, land ownership, easements, right-of-way, utilities and adjacent Houghton Road improvements. The exhibit shall be updated as required throughout the design phase to promote timely decisions and to help expedite overall right-of-way processes with the State Land Department.

TASK B.3 OTHER SERVICES

Task B.3.1 Other Services. The CONSULTANT may be called upon to perform services unknown of or identified subsequent to the original scoping of the project. These efforts may be caused by unforeseen issues that arise after the development of this scope of work. Potential services could include the need to attend additional meetings, provide displays or summaries, perform additional analysis, provide additional design (e.g. Section 404 individual permit, noise wall design, joint trench design), or other efforts associated with the project beyond those identified within this scope of work.

TASK C – POST DESIGN SERVICES

Task C is as-needed services for which the cost and fee shall be determined at the time work is defined. No work shall commence under Task C without prior written authorization from the County.

TASK C.1 PRE-BID SERVICES

Task C.1.1 Pre-Bid Services. PCDOT will coordinate all Pre-Bid Services and will act as the principal initial contact for pre-bid questions. However, the following additional efforts may be required by the CONSULTANT.

- Attending pre-bid meetings
- Assisting in the preparation of amendments
- Addressing questions on the plans and specifications
- Bid evaluations

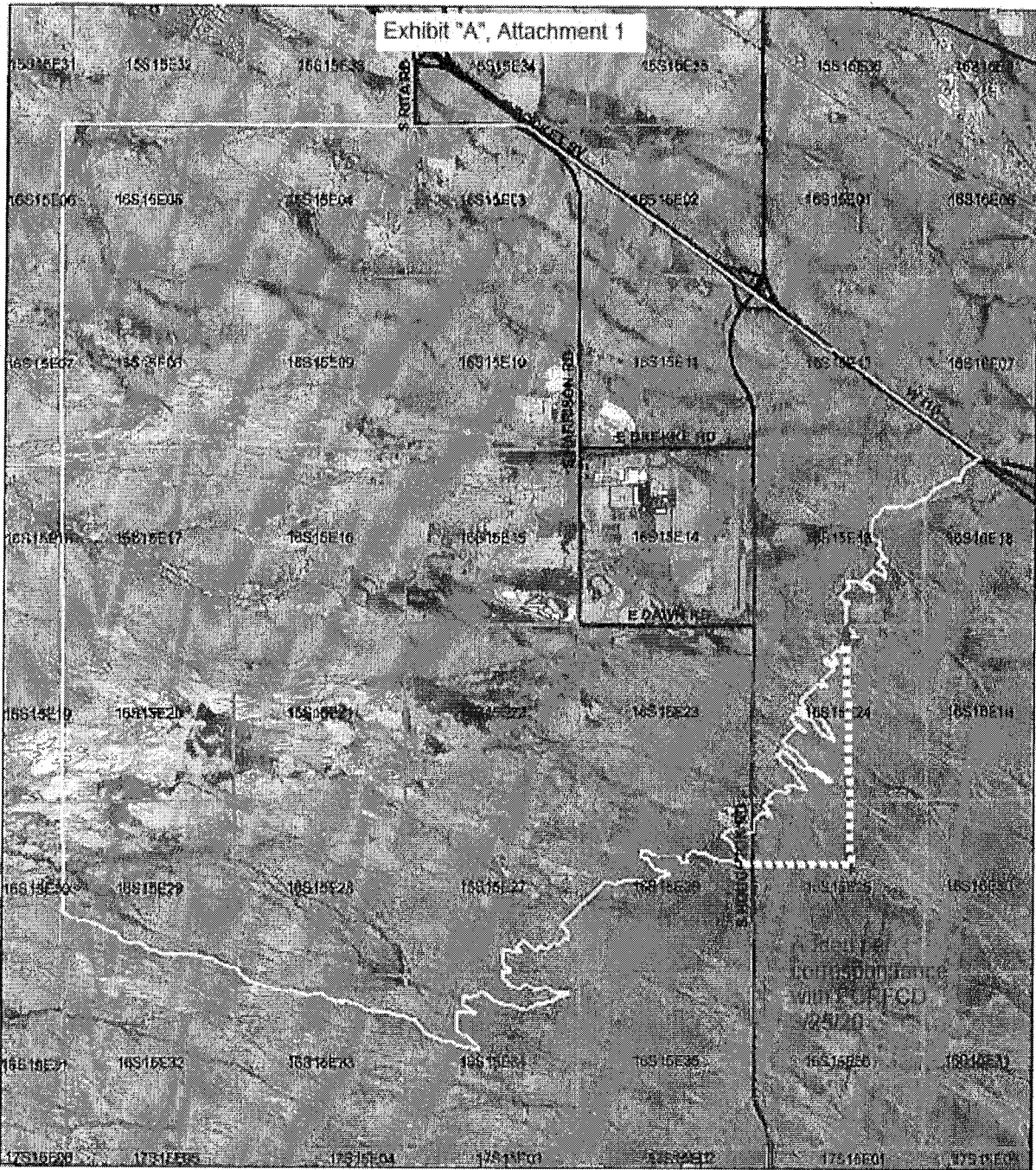
TASK C.2 CONSTRUCTION SERVICES

Task C.2.1. Construction Services. PCDOT will coordinate all Construction Services and will act as the principal initial contact for construction questions. However, the following additional efforts may be required by the CONSULTANT.

- Attending the pre-construction meeting and partnering meetings if any
- Attending weekly construction meetings at the project site
- Making site observations of the work under construction
- Evaluating and/or recommending changes in the construction documents
- Providing design details and revised drawings as needed to support construction
- Reviewing shop drawings, erection procedure plans, form work details, and proposals for substitutions or "approved alternates"
- Evaluating value engineering proposals
- Preparing the "as-built" documents
- Performing drone flights during construction to video document construction progress (pre-construction, approximately quarterly during construction, and at completion).

TASK C.3 POST CONSTRUCTION SERVICES

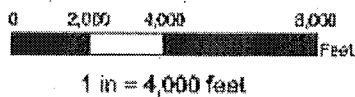
Task C.3.1 Post Construction Electronic AS-Builts. The CONSULTANT will provide the County drafting services to incorporate the Contractors redlined record documents in to an electronic as-built in accordance with the requirements of PCDOT Network Management Systems Division.



Legend

- Study Area
- Major Street
- LMW_West_Floodplain_100yr
- LMW_East_Floodplain_100yr
- fp_ss

Houghton Road/Lee Moore Wash-North/SELC Study Limit



DRAFT

PIMA COUNTY
 FLOOD CONTROL
 Date: 3/23/2020

END EXHIBIT "A"

EXHIBIT "B" - COMPENSATION SCHEDULE (89 pages)

1. COST PLUS FIXED FEE SCHEDULE OF PAYMENTS

(Detailed by Major Milestone, Not to Exceed Cost by Task (Direct Labor, Indirect, and Other Direct Costs), and Fixed Fee)

(DO NOT SUBMIT THIS SCHEDULE WITH THE SOQ)

2. COMPENSATION DETAILS

A. Cost Allocation and Ceilings

The compensation schedule will contain the negotiated cost allocations for each individual task. The compensation schedule will be used to monitor cost expenditures and sets the fixed price that can be charged for work pursuant to the specified task.

B. Cost Adjustments

If, for valid reason(s), CONSULTANT notifies the Project Manager that the requisite work cannot be performed within the task's compensation allocation, and the Project Manager (PM) concurs, PCRWRD will consider modifying cost allocations. The total compensation may be increased only by formal amendment to this agreement.

C. Progress Payments

It is anticipated certain elements of the Project may take longer than one (1) month to complete. These elements may be at considerable cost to CONSULTANT prior to their full completion and acceptance by COUNTY. In such cases, at the sole discretion of COUNTY, COUNTY may authorize interim progress payments to CONSULTANT. The invoice from CONSULTANT will be proportionate to the actual percentage of work completed through the period covered by the invoice, as accepted by the PM.

D. The Fixed Fee for each assignment will be negotiated on a case-by-case basis. The fee will be a percent of CONSULTANT or co-consultants level of effort cost estimate agreed to by the County excluding sub-consultants and other direct cost estimates. The fee will be fixed for the scope of work detailed in the contract. The fixed fee percentage will be based upon historical departmental percentages for similar assignments, published industry guidelines and magnitude and duration of the assignment. Fixed Fee for engineering sub-consultants will generally follow the same guidelines established for the prime consultants but can also be negotiated on a case-by-case basis as appropriate.

E. COST ITEMS

1. Hourly Billing

a. Hourly Billing Rates

- Actual Payroll Rates within published industry standards
- Actual payroll rates for each person anticipated to be performing services on the assignment will be provided in advance of execution of the contract. Said listing will be updated on an annual basis during the term of the contract
- Hourly fee schedules for various position titles are not allowed

b. Annual Salaried Professionals

- Annual Salary individuals working a normal forty (40) hour week will be divided by two thousand eighty (2,080) hours to arrive at hourly billing rates
- Annual Salary individuals working a normal thirty-seven and one-half (37.5) hour week will be divided by one thousand nine hundred fifty (1,950) to arrive at hourly billing rates

c. Allowable Annual Increases

- Reasonable annual salary increases within published industry standards will be allowed and approved in advance
 - Unusually high proposed increases and increases above published industry standards will be agreed to on a case by case basis.
- d. Sub consultants
- Specific billing arrangements will be negotiated with specialty sub-consultants such as the following:
- Attorneys
 - Financial Advisors
 - Surveyors
 - Subsurface Consultants
 - Specialty Consultants
- e. Vacation/Holidays
- Included in firm's audited multiplier
- f. Sick Time
- Included in firm's audited multiplier
- g. Billing for non-productive idle time
- No billing for vehicle driving time (commuting time)
 - Allow billing during air travel to Pima County for actual time worked on Pima County projects
 - Short-term assignments are negotiable
2. Multipliers
- a. Only audited multipliers following Generally Accepted Accounting Principles (GAAP) or Federal Single Audit principles are allowed
- b. Corporate, Regional or Local Audited Multipliers of firms will be negotiated for each contract
- c. Job Site multipliers will be negotiated in the event the County provides office space or job site trailers for CONSULTANT
- d. County will consider annual audited multipliers or fixed multipliers for the contract period
3. Travel Time
- a. Air Travel
- Allow only for time spent on aircraft working on Pima County projects
- b. Land Travel
- Not allowed from Phoenix Metro Area to Pima County (both ways)
 - Not allowed to and from airports
- c. Local Travel between meetings and job sites
- Allowed
4. Expenses
- a. Mileage (Between Phoenix Metro Area and Pima County)
- Approve at the established County mileage rate
 - Included in firm's audited multiplier or as other direct cost
 - Mileage for commuting not allowed
5. Mileage – local
- Approve at the established County mileage rate
 - Included in firm's audited multiplier or as other direct cost

- Mileage for commuting to and from work place not allowed
- b. Car Rental/Lease/Corporate Vehicles
 - Included in firm's audited multiplier or as other direct cost
- c. Hotel/Meals
 - Allow only for infrequent call-in of an out of state consultant for a limited period of time
 - Establish daily limits in accordance with Federal Guidelines and negotiable for unusual circumstances
 - Allowed charges to be identified as other direct costs
- d. IT/ Phone/Internal Delivery Charges/Normal Postage/ Miscellaneous/Other Administrative Charges
 - Include in firm's audited multiplier
- e. Relocation, second domicile or subsistence expenses
 - Negotiable on a case by case basis
- f. Reproduction Costs
 - Bill as other direct costs if not in audited multiplier
- g. All other direct costs will be detailed in the contract billing
- 6. Unallowable Costs
 - a. Bonus
 - Not allowed as a direct charge or in the multiplier
 - b. Entertainment Costs
 - c. Marketing Costs
 - Only as allowed in audited multipliers
 - d. Non-identifiable Costs
 - e. Donations
 - Only as allowed in audited multipliers
 - f. Mark-up on sub-consultants
 - g. Travel time from Phoenix Metro Area to Pima County (both ways)
 - h. Air travel for commuting purposes
 - i. Interest Expense
 - j. Political and Charitable Contributions
 - k. Lobbying Costs
 - l. Fines & Penalties
 - m. Alcohol
 - n. Contingencies
 - o. Bad Debt Expense

- p. Profit Distribution
- q. Public Relations and Related Advertising
- r. Accelerated Depreciation
- s. Losses on Other Contracts
- t. Organization / Reorganization
- u. Patents
- v. Goodwill
- w. Labor Relations
- x. Legal Expenses Caused by Negligence or Mistakes
- y. Personal Use of Company Assets (Vehicles, e.g.)
- z. Related Party Expenses that Exceed the Costs of Ownership
 - aa. Unreasonably High Executive Compensation
 - bb. Unreasonably High Indirect Labor
 - cc. Unreasonably High Rent

5. *INVOICING*

CONSULTANT will submit invoices monthly, at the Monthly Progress Meeting, to the Project Manager, with appropriate supporting data and documentation and in a format as prescribed by the Project Manager. (Acceptance of the invoice at this meeting is not mandatory. The Project Manager may delay approval for up to five (5) work days to review the Progress Report and invoice.). The invoice will tabulate the costs associated with each individual task. All Task (deliverables) and Subcontracted Service costs will be appropriately documented. The Project Manager will review and check the invoice to determine if it is complete and acceptable. If the Project Manager determines the invoice to be complete and acceptable, the Project Manager will approve the invoice and forward it for processing the payment.

PSOMAS

Exhibit "B" – COMPENSATION SCHEDULE

The attached compensation schedule to complete the Scope of Services was developed with the following assumptions.

General Project Assumptions:

1. The reconstruction limits for the South Houghton project are from the tie-in with ADOT Houghton TI improvements on the north end, through the southern limits of Pantano High School (a distance of approximately 3 miles) plus the additional length needed to tie-in to existing conditions at the ends of the project and intersecting sidestreets or access points.
2. The Houghton Road project will include design of a Multi-use Path (MUP) Loop connection from the Houghton TI to the County Fairgrounds.
3. It is assumed that roadway reconstruction at sidestreets will be limited to the vicinity of Houghton as needed to tie-in the intersections to the new roadway improvements (500' or less for Brekke and Dawn Road; as short as practical for other access points/turnouts).
4. The project will be designed with the constraint that no physical impacts, right-of-way, or easements will be required at the State Land parcels east of the roadway.
5. It is understood that the right-of-way corridor along Houghton Road will generally consist of a 200' width where adjacent to County owned land. Additional easements and/or right-of-way may be necessary to accommodate drainage needs, particularly along the frontage of the Fairgrounds east of the racetrack to disperse flows back to existing conditions.
6. Where estimated hours are based on an assumed number (meetings, duration, etc.), that information is noted in the hourly breakdown spreadsheet.

Task Assumptions:

Task A.1 – Project Management and QC

1. Attendance at regular project meetings is assumed to include the Project Manager, Project Engineer, average of one task leader, and representatives from subconsultants as needed based on project needs.

Task A.2 – Value Analysis

1. The VA facilitator has planned on providing meeting supplies for approximately 15 participants.

Task A.3 – Public Participation

1. It is understood that the South East Regional Council (SERC) will function in an advisory capacity to provide project feedback and there will not be a formal CAC. The design team will coordinate and meet with the SERC as specified in the Scope of Services but it is assumed that no approvals of project deliverables or recommendations to the Board by the SERC will be required.

Task A.4 – Public Art

1. The proposed artwork type and location is unknown; therefore, the coordination effort assumes that the design plans will provide the appropriate layout/grading for the art location and one foundation for standalone artwork. Additional design work or details for plan incorporation are not included in this level of effort.
2. It is understood that the artist selection and procurement will be handled by the County and will not require participation from the consultant team.

Task A.5 – Utility Coordination

1. Data collected will be limited to the level of information needed to designate, locate, and map all utilities.

2. Budget resources are provided for up to 25 potholes under Additional Services. Potholing shall not begin until the area has received cultural clearance.
3. Resources for surveying Blue Stake information are provided in Task A.7.7.
4. Data gathering during scoping indicates no public sewer is likely to be present within the project limits along the Houghton Road right-of-way, and no sewer modification plans will need to be prepared.
5. Data gathered during scoping from Tucson Water and current Blue Stake ticket indicates that no water lines are likely to be present within the planned project limits, and no water modification plans will need to be prepared.
6. Tucson Water records show a well in the vicinity of the southwest corner of the Houghton Road/Dawn Road intersection (outside existing ROW, on the County owned parcel). The exact location of the well is not able to be determined from the information on that basemap. It is assumed the roadway widening project and associated drainage improvements will not impact the well, no modifications to the well are included in the estimated fee.
7. Previous coordination with Tucson Water indicates it is unlikely they will move forward with constructing the previously designed 24" water main down South Houghton Road with this project. If it becomes required, plan modifications, water facility design, and coordination to incorporate this facility are not included in the estimated fee.

Task A.6 – Environmental Impact Screening

1. Environmental Impact Screening area will be limited to the roadway corridor, planned immediately adjacent right-of-way and easements, and the areas impacted by downstream drainage grading.
2. It is assumed that agencies invited to participate in the Environmental Coordination Meeting will include appropriate Pima County departments, AZ Game and Fish Department, US Fish and Wildlife Service, the State Historic Preservation Office, and the US Army Corps of Engineers.

Task A.7 – Survey and Mapping

1. The aerial limits of survey and mapping for Houghton roadway include a 900-foot corridor, 300 feet east of centerline and 600 feet west of centerline, from the ADOT right-of-way on the north end to approximately ¼-mile past the southern limits of Pantano High School to accommodate roadway transition to existing. The estimated fee also includes effort to field survey major drainage locations up to 800 feet for downstream drainage grading/tie-in as needed.
2. Up to 30 legal descriptions and reference maps, including temporary construction easements have been estimated and included in Task A.7.11.

Task A.8 – Drainage

1. For the purposes of roadway pavement drainage analysis and plan design, it is assumed the roadway cross-section will be a divided four-lane, without outside curb. Localized catch basins may be required to direct drainage to crossing locations but a full storm drain system with trunk line is not anticipated for this project.

Task A.11 – Traffic Engineering

1. Safety analysis beyond what has been performed in the 2016 traffic study is not included in this level of effort.
2. Collection and analysis of traffic data for County Fair event traffic is anticipated for the next available Fair date (April 2021). Any resulting recommendations that the County elects to incorporate which result in substantial design changes are not included in this level of effort.

Task A.12 – Arterial Lighting Design

1. It is assumed that PCDOT will provide the preferred type of luminaire to be evaluated in the photometric analysis.

Task A.13 – Design Memorandum

1. It is understood that the Design Memorandum (DM) is a condensed version of the full Design Concept Report (DCR) where the primary goal is to establish design criteria, evaluate design parameters, and use an iterative design development process to establish and document the basis

for the final design plans. A formal evaluation of multiple alternatives is not included in this level of effort.

2. Review and approval of the DM will be by County staff.

Task A.14 – Environmental Reports

1. As applicable to each type of environmental study/report, the area will generally be limited to the roadway corridor, planned immediately adjacent right-of-way and easements, and the areas of disturbance for downstream drainage grading.
2. It is assumed that project construction will utilize Nationwide Permit 14 with Pre-Construction Notification (PCN) for cross drainage related to Linear Transportation Projects, and an Individual Permit will not be required.
3. If downstream drainage needs result in disturbance falling under Nationwide Permit 43 occurs, it is assumed the project will be able to utilize a Pre-Construction Notification (PCN). This is limited to 300 feet of linear disturbance along a channel, which can be waived at the discretion of the ACOE. The level of effort includes coordination with the ACOE and application for a waiver, if it becomes required, but does not include the effort to complete the Individual Permit should the waiver be denied.
4. The project will be conditionally certified by the Arizona Department of Environmental Quality, an Individual Water Quality Certification will not be required.
5. Qualitative air quality modeling will be performed, no quantitative modeling will be required.
6. It is assumed that the project design and construction will not include any funding or involvement by the Federal Highway Administration or the Federal Transit Authority and that no Section 4(f) evaluation, documentation, or coordination will be required.

Task A.15 – Right-of-Way

1. Based on research of existing parcels, it is anticipated that up to 18 title reports will be requested and reviewed.
2. The Right-of-Way plans included in Task A.15.3 will cover both sides of the Houghton Road corridor and sidestreets (Brekke Rd, Dawn Rd) through the extents of new improvements.
3. The results of State Land Office records research in Task A.15.2 (right-of-way lease information, easements, etc) will be documented on the Right-of-Way plans. Preparation of separate reports or exhibits are not included in the anticipated level of effort.
4. Effort for the preparation of legal descriptions and reference maps by the CONSULTANT is covered under Task A.7.11.

Task A.16 – Construction Documents

1. Design and PS&E Construction documents will cover the limits described in the general project assumptions.
2. This fee estimate has not included any level of effort to complete the design of noise walls, should they be required based on the noise analysis.
3. Retaining walls, custom engineered culvert structures, and other major structural design elements may be utilized on the project but the related extent of effort is not able to be determined at this time and has not been included in the estimated fee.
4. It is assumed that traffic control, construction sequencing, and ITS plans will not be included.
5. This fee estimate includes design of up to one (1) full signalized intersection, and details for installation of conduit for future signalization at two (2) other intersections.
6. This fee estimate includes intersection lighting for up to four (4) intersections or access points. Roadway lighting outside these limits is not included in the estimated fee.

Tasks B and C – Additional Services and Post Design Services

1. Budget included for these tasks are estimates to establish an approximate placeholder for the types of efforts described in the Scope of Services. These funds will not be used unless authorized in writing by the County.

Psomas

PIMA COUNTY DEPARTMENT OF TRANSPORTATION

Design Engineering Services for South Houghton Road Widening

Pima County Contract No.

For Period Ending:

Psomas Fee Summary

Task #	Task	Total Contract Cost
PROFESSIONAL SERVICES		
Direct Labor		
A.1	Project Management and Quality Control	\$53,453.54
A.2	Value Analysis	\$5,751.34
A.3	Public Participation	\$8,341.40
A.4	Public Art	\$2,926.64
A.5	Utility Coordination	\$21,482.68
A.6	Environmental Impact Screening	\$1,906.37
A.7	Surveying and Mapping	\$80,597.08
A.8	Drainage	\$18,409.68
A.9	Geotechnical	\$1,256.94
A.10	Pavement Design	\$1,491.36
A.11	Traffic Engineering	\$11,380.67
A.12	Arterial Street Lighting	\$2,373.62
A.13	Design Memorandum (DM)	\$28,704.78
A.14	Environmental Reports	\$3,952.94
A.15	Right-of-Way Acquisition Support	\$20,051.96
A.16	Preparation of Construction Documents	\$292,147.73
	Direct Labor Sub Total =	\$554,228.73
Overhead Fee		
	173.78%	\$963,138.69
	Labor Sub Total =	\$1,517,367.42
Fixed Fee		
	10%	\$151,736.74
	Sub Total =	\$151,736.74
ODC		
	Direct Costs (Breakdown on next sheet)	\$25,503.20
	Sub Total =	\$25,503.20
Subconsultants		
Terracon	Geotechnical / Pvmt Design	\$66,479.56
EcoPlan	Environmental Planning	\$91,208.76
Wheat Design	Landscape Design / Native Plant Inv.	\$120,063.82
CMG Drainage	Hydrology / Hydraulics	\$423,955.75
Stanley	Value Analysis / ADOT Coord. / Rdwy	\$154,119.71
	Sub Total =	\$855,827.60
Design Services Total		\$2,550,434.96
Other		
Task B	Additional Services	\$210,646.80
Task C	Post Design Services	\$140,093.05
	Sub Total =	\$350,739.85
Total Contract Amount		\$2,901,174.81

South Houghton Road

PSOMAS

ESTIMATED DIRECT LABOR (Psomas)

<u>Classification</u>	<u>Estimated Man-hours</u>	<u>Loaded Hourly Rate</u>	<u>Direct Hourly Rate</u>	<u>Loaded Labor Costs</u>
Project Principal	79	\$ 256.86	\$ 85.29	\$ 20,291.75
Sr. Project Manager	1,545	\$ 187.53	\$ 62.27	\$ 289,735.53
Sr. Project Engineer	2,251	\$ 153.50	\$ 50.97	\$ 345,529.02
Project Engineer	2,905	\$ 118.11	\$ 39.22	\$ 343,121.66
Designer	3,854	\$ 94.41	\$ 31.35	\$ 363,867.83
Survey Manager	86	\$ 153.77	\$ 51.06	\$ 13,224.33
Project Surveyor	680	\$ 141.97	\$ 47.14	\$ 96,536.80
Party Chief	104	\$ 83.57	\$ 27.75	\$ 8,691.42
2-Person Crew	708	\$ 158.86	\$ 52.75	\$ 112,473.48
Survey Tech	840	\$ 84.60	\$ 28.09	\$ 71,060.04
Administration	48	\$ 95.26	\$ 31.63	\$ 4,572.30
Total	13,100			\$ 1,669,104.16

ESTIMATED DIRECT EXPENSES

(Listed by Item at Estimated Actual Cost)

<u>Item</u>	<u>Quantity</u>	<u>Amount</u>	<u>Total</u>
Displays	Plot/Mount	20	\$105.00 \$ 2,100.00
Inter. Turning Mmt Counts (4-Hour)		3	\$300.00 \$ 900.00
Inter. Turning Mmt Counts (6-Hour)		6	\$450.00 \$ 2,700.00
24-hr ADT Count w/Class., Speeds		2	\$250.00 \$ 500.00
72-hr ADT Count w/Class., Speeds		6	\$500.00 \$ 3,000.00
Reproduction	8.5"x11"	8000	\$0.045 \$ 360.00
	8.5"x11" Color	3000	\$0.049 \$ 147.00
	11"x17"	5000	\$0.10 \$ 500.00
	11"x17" Color	500	\$0.69 \$ 345.00
	24"x36" Bond	840	\$0.48 \$ 403.20
	Mylar	280	\$5.40 \$ 1,512.00
Aerial Data Collection (Photo Flight and Processing)		1	\$13,036.00 \$ 13,036.00
Direct Expenses TOTAL			\$ 25,503.20

Subconsultant

	<u>Total</u>
Terracon	\$66,479.56
EcoPlan	\$91,208.76
Wheat Design	\$120,063.82
CMG	\$423,955.75
Stanley	\$154,119.71
Sub-Consultant TOTAL	\$ 855,827.60

TOTAL ESTIMATED LABOR (Psomas)	\$ 1,669,104.16
TOTAL ESTIMATED DIRECT COSTS (Psomas)	\$ 25,503.20
TOTAL ESTIMATED OUTSIDE SERVICES	\$ 855,827.60
SUBTOTAL	\$ 2,550,434.96

ADDITIONAL SERVICES/POST DESIGN SERVICES

Additional Services	\$ 210,646.80
Post Design Services	\$ 140,093.05
TOTAL ADDITIONAL SERVICES/POST-DESIGN SERVICES	\$ 350,739.85

TOTAL ESTIMATED COST	\$ 2,901,174.81
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CONTRACT TOTAL	\$ 2,901,174.81
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PSOMAS

Hourly Rate Schedule Derivation

Labor Classification	Employee	Current Payroll Rate	Avg. Payroll Rate
Principal	Alejandro Angel	\$85.29	\$85.29
Sr. Project Manager/ QC Manager	Sean Samsel	\$57.73	\$62.27
	Kevin Thornton	\$66.80	
Sr. Project Engineer	Chenggang Zhang	\$47.38	\$50.97
	Kevin Letendre	\$54.37	
	Brent Bartz	\$51.17	
Project/Professional Engineer	Chelsi Remme	\$38.25	\$39.22
	Darlene Danehy	\$46.30	
	Robert Smith	\$37.00	
	Aaron Stone	\$35.31	
Designer	Joe Macaulay	\$34.61	\$31.35
	Emem Akpan	\$28.09	
Survey Manager	Ernie Gomez	\$51.06	\$51.06
Project Surveyors	Ernie Gomez	\$51.06	\$47.14
	Richard Iman	\$43.21	
Party Chief	Gabe Martinez	\$27.75	\$27.75
2-Person Crew	Gabe Martinez	\$52.75 (Combined)	\$52.75
	Jose Duran		
Survey Tech	Scott Morris	\$26.75	\$28.09
	Omar Zavala	\$29.42	
Administrative	Shannon Jensvold	\$35.13	\$31.63
	Lori Smith	\$28.12	

Subconsultant Rates Included in Respective Cost Proposals

BLI No	Design Description	No. Sheets	Project Principal		Sr. Project Manager		Sr. Project Engineer		Project Engineer		Designer		Survey Manager		Project Surveyor		Party Chief		2-Person Crew		Survey Tech		Administration		Intern		Psomas		Task Total	Subconsultants Amount	Task Total
			\$ 256.86 / Hr.	Amount	\$ 187.53 / Hr.	Amount	\$ 153.50 / Hr.	Amount	\$ 118.11 / Hr.	Amount	\$ 94.41 / Hr.	Amount	\$ 153.77 / Hr.	Amount	\$ 141.97 / Hr.	Amount	\$ 83.57 / Hr.	Amount	\$ 158.85 / Hr.	Amount	\$ 84.60 / Hr.	Amount	\$ 95.26 / Hr.	Amount	\$ 48.94 / Hr.	Amount	Task Total				
A.8.4	Drainage Reports		-	\$ -	56	\$ 10,502	96	\$ 14,736	120	\$ 14,174	112	\$ 10,574	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$49,985.72		\$49,985.72		
	Coordinate Culvert Design				24		40		40		40																				
	Coordinate Up/Downstream Dmg Grading, Channels, and Dtls				24		40		40		40																				
	Pavement Drainage Report Appendix (4 Submittals)				8		16		40		32																				
A.8.5	Quality Control Review		\$ -		16	\$ 3,000	16	\$ 2,456	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$5,456.50		\$5,456.50			
	Total Drainage Report		-	\$ -	72	\$ 13,502	112	\$ 17,192	120	\$ 14,174	112	\$ 10,574	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$55,442.22	\$343,926.18	\$399,368.40		
Task A.9	Geotechnical																														
A.9.1	Geotech Testing, Analysis, Report		\$ -		8	\$ 1,500	8	\$ 1,228	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$2,728.25		\$2,728.25			
A.9.2	Quality Control Review		\$ -		4	\$ 750	2	\$ 307	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$1,057.12		\$1,057.12			
	Total Geotechnical		-	\$ -	12	\$ 2,250	10	\$ 1,535	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$3,785.38	\$64,528.14	\$68,313.52		
Task A.10	Pavement Design																														
A.10.1	Pavement Design Report		-	\$ -	10	\$ 1,875	4	\$ 614	8	\$ 945	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$3,434.23		\$3,434.23		
	EASL Calculations				2				8																						
	Coordinate Pavement Design				8		4																								
A.10.2	Quality Control Review		\$ -		4	\$ 750	2	\$ 307	\$ -		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$1,057.12		\$1,057.12			
	Total Pavement Design		-	\$ -	14	\$ 2,625	6	\$ 921	8	\$ 945	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$4,491.35	\$3,667.55	\$8,158.90		
Task A.11	Traffic Engineering																														
A.11.1	Initial Traffic Engineering Memorandum		15	\$ 3,853	6	\$ 1,125	18	\$ 2,763	64	\$ 7,559	108	\$ 10,197	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$25,496.97		\$25,496.97		
	Traffic Counts Coordination						2		2																						
	Drone Data Collection (Fair Only)								8		20																				
	Updated Traffic Forecast		2				2		2		4																				
	Future LOS Evaluations		1				2		4		16																				
	County Fair Circulation/Assess Evaluate		2				4		8																						
	Identify Improvements		2		2		4		8		8																				
	Study Preparation		4		2		4		16		40																				
	Prepare Fairgrounds Traffic Addendum		4		2		16		20																						
A.11.2	Final Traffic Engineering Memorandum		2	\$ 514	2	\$ 375	2	\$ 307	6	\$ 709	10	\$ 944		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$2,848.59		\$2,848.59		
A.11.3	Meetings		4	\$ 1,027		\$ -	12	\$ 1,842	12	\$ 1,417		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$4,286.80		\$4,286.80		
A.11.4	Quality Control Review		4	\$ 1,027		\$ -	4	\$ 614		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$1,641.43		\$1,641.43		
	Total Traffic Engineering		25	\$ 6,421	8	\$ 1,500	36	\$ 5,525	82	\$ 9,685	118	\$ 11,141	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$34,273.80		\$34,273.80		
Task A.12	Arterial Street Lighting																														
A.12.1	Lighting Design Report		2	\$ 514	-	\$ -	4	\$ 614	38	\$ 4,488	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$5,616.05		\$5,616.05		
	Photometric Requirements and Analysis		1				4		20																						
	Draft Lighting Report								12																						
	Final Lighting Report								6																						
A.12.2	Quality Control Review			\$ -	2	\$ 375	6	\$ 921	2	\$ 238		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$1,532.29		\$1,532.29		
	Total Arterial Street Lighting		2	\$ 514	2	\$ 375	10	\$ 1,535	40	\$ 4,725	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$7,148.35		\$7,148.35		
Task A.13	Design Memorandum (DM)																														
A.13.1	Executive Summary/Project Overview		-	\$ -	52	\$ 9,752	64	\$ 9,824	24	\$ 2,835	24	\$ 2,266	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$24,676.28		\$24,676.28		
	Draft Report Writing/Preparation				32		40		16		16																				
	Final Report Writing/Revisions				20		24		8		8																				
A.13.2	Project Area Characteristics		\$ -		12	\$ 2,250	16	\$ 2,456	24	\$ 2,835	16	\$ 1,511	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$9,051.73		\$9,051.73			
A.13.3	Design Standards, Criteria, Alternatives		4	\$ 1,027	48	\$ 9,001	40	\$ 6,140	40	\$ 4,725	24	\$ 2,266	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$23,159.41		\$23,159.41			
A.13.5	DCR Conclusions/Recommendations		\$ -		40	\$ 7,501	20	\$ 3,070	12	\$ 1,417	16	\$ 1,511	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$13,499.23		\$13,499.23			
A.13.6	Cost Estimate		\$ -		16	\$ 3,000	20	\$ 3,070	20	\$ 2,362	32	\$ 3,021	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$11,454.00		\$11,454.00			
A.13.7	Quality Control Review		2	\$ 514	12	\$ 2,250	12	\$ 1,842		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$4,606.09		\$4,606.09		
	Total Design Memorandum (DM)		6	\$ 1,541	180	\$ 33,756	172	\$ 26,402	120	\$ 14,174	112	\$ 10,574	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$86,446.74	\$16,636.12	\$103,082.86		
Task A.14	Environmental Reports																														
A.14.1	Cultural Resources Inventory		\$ -		2	\$ 375	2	\$ 307		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$682.06		\$682.06		
A.14.2	Biological Evaluation/Wildlife Habitat		\$ -		2	\$ 375	4	\$ 614		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$989.06		\$989.06		
A.14.3	Vegetation Sampling/Measurement		\$ -		2	\$ 375	4	\$ 614		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$989.06		\$989.06		
A.14.4	Clean Water Act Permitting		\$ -		4	\$ 750	8	\$ 1,228		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$1,978.13		\$1,978.13		
A.14.5	HazMat Survey		\$ -		2	\$ 375	4	\$ 614		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$989.06		\$989.06		
A.14.6	Air Quality		\$ -		2	\$ 375	4	\$ 614		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$989.06		\$989.06		
A.14.7	Noise Analysis		\$ -		4	\$ 750	2	\$ 307		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$1,057.12		\$1,057.12		
A.14.8	Visual Assessment		\$ -		2	\$ 375	4	\$ 614		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$989.06		\$989.06		
A.14.10	Quality Control Review		2	\$ 514	8	\$ 1,500	8	\$ 1,228		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -	\$3,241.97		\$3,241.97		
	Total Environmental Reports		2	\$ 514	28	\$ 5,251	40	\$ 6,140	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$11,904.60	\$98,909.27	\$110,813.87		
Task A.15	Right-of-way Acquisition Support																														
A.15.1	Existing ROW and Easements (18 Title Rpt Review)		\$ -		\$ -		\$ -		\$ -		\$ -	4	\$ 615	40	\$ 5,679		\$ -		\$ -	80	\$ 6,768		\$ -		\$ -	\$13,061.34		\$13,061.34			
A.15.2	State Land Coordination		\$ -		4	\$ 750		\$ -		\$ -		\$ -	8	\$ 1,136		\$ -		\$ -	16	\$ 1,354		\$ -		\$ -		\$3,239.38		\$3,239.38			
A.15.3	Right-of-Way Plans	18	\$ -		\$ -		\$ -		\$ -		\$ -	8	\$ 1,230	80	\$ 11,357	16	\$ 1,337	96	\$ 15,251	128	\$ 10,828		\$ -		\$ -	\$40,003.42		\$40,003.42			
A.15.5	Quality Control Review		\$ -		4	\$ 750		\$ -		\$ -		\$ -	4	\$ 615	12	\$ 1,704		\$ -		12	\$ 1,015		\$ -		\$ -	\$4,083.94		\$4,083.94			
	Total Right-of-way Acquisition Support		-	\$ -	8	\$ 1,500	-	\$ -	-	\$ -	-	\$ -	16	\$ 2,460	140	\$ 19,875	16	\$ 1,337	96	\$ 15,251	236	\$ 19,954	-	\$ -	-	\$ -	\$60,388.08		\$60,388.08		
Task A.16	Preparation of Construction Documents																														
A.16.1	Initial Design Phase Plans		2	\$ 514	97	\$ 18,191	206	\$ 31,621	332	\$ 39,214	280	\$ 26,436	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$115,974.83		\$115,974.83		
	Cover Sheet	1			1		2		8																						
	Typical Sections	2			4		8		32																						

BLI No.	Design Description	No. Sheets	Project Principal \$ 256.85 / Hr. Hrs. Amount	Sr. Project Manager \$ 187.53 / Hr. Hrs. Amount	Sr. Project Engineer \$ 153.50 / Hr. Hrs. Amount	Project Engineer \$ 118.11 / Hr. Hrs. Amount	Designer \$ 94.41 / Hr. Hrs. Amount	Survey Manager \$ 153.77 / Hr. Hrs. Amount	Project Surveyor \$ 141.97 / Hr. Hrs. Amount	Party Chief \$ 83.57 / Hr. Hrs. Amount	2-Person Crew \$ 158.85 / Hr. Hrs. Amount	Survey Tech \$ 84.60 / Hr. Hrs. Amount	Administration \$ 95.26 / Hr. Hrs. Amount	Intern \$ 48.94 / Hr. Hrs. Amount	Psomas Task Total	Subconsultants Amount	Task Total
A.16.3	Major Cross Drainage/Minor Culvert Plans (20 Scale)	14		16	40	40	60										
	Initial Roadside Collector Channel Plans (40 Scale)	12		16	20	48	60										
	Drainage Area Grading/Details Plans (40 Scale)	6		4	16	32	32										
	Landscape Plan (Sample Plan/Details per RDM)	4		2		4	4										
	Pavement Marking Plans (40 Scale, Double VP)	10		4	8	20	40										
	Water and Sewer Conflicts (Anticipate not present)																
	Cross-sections - Houghton and Channels (@ 100 ft. 6/sheet)	40		4	16	40	30										
	Quantities / Cost Estimate			4	16	24	40										
	Initial PS&E		8 \$ 2,055	230 \$ 43,132	430 \$ 66,005	818 \$ 96,617	1,216 \$ 114,806	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	\$322,615.75		\$322,615.75
	Cover Sheet & General Notes	3		2	4	4	8										
	Typical Sections	6		2	4	16	20										
	Pavement Structural Sections			2	2	6	8										
	Civil Details	10		4	16	24	40										
	Drainage Details	15		4	20	40	60										
	Summary Sheets (RCB, Drainage, Barrier)	8		4	8	16	40										
	Demolition Plans (40 Scale, Double VP)	10		4	8	40	32										
	Geometric Control (40 Scale, Double VP)	10		4	8	12	20										
	Roadway Plans (40 Scale)	18	8	40	40	100	160										
	Multi-Use Path Plans (40 Scale)	8		4	20	20	20										
	Sidestreet Plans (40 Scale)	2		8	12	20	40										
	Driveway Plans (40 Scale)	4		12	24	40	40										
	Roadside Collector Channel Plans (40 Scale)	16		12	40	60	60										
	Drainage Area Grading/Detail Plans (40 Scale)	10		8	20	40	80										
	Cross Drainage Plans (20 Scale)	16		12	48	80	100										
A.16.4	Storm Drain Plans (40 Scale) (No Trunk Line Anticipated)	6		4	8	12	20										
	Traffic Signal Plans (1 Signal, 2 conduit pre-installs)	7		4	16	40	80										
	Lighting Plans (Assumes 4 lighting locations needed)	5		4	16	24	40										
	Landscape Plans (With NPI, No Irrigation per PCDOT)	26		4			8										
	Pavement Marking Plans (40 Scale, Double VP)	10		4	12	40	80										
	Signing Plans (with Summaries) (40 Scale, Double VP)	14		12	24	60	120										
	Staking Plans (2 Intersections, 4 other locations)	6		8	16	40	40										
	Special Provisions			60	40	20											
	Cross-sections - Houghton/Sidestreets (@ 100 ft. 6/sheet)	40		4	16	40	60										
	Quantities / Cost Estimate			4	8	24	40										
	Final PS&E		2 \$ 514	132 \$ 24,754	314 \$ 48,199	522 \$ 61,556	988 \$ 93,280	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	\$228,402.56		\$228,402.56
	Cover Sheet & General Notes	3				2	8										
	Typical Sections	6		2	8	8	16										
	Pavement Structural Sections				2	4	4										
	Civil Details	15		4	16	20	40										
	Drainage Details	15		4	16	24	32										
	Summary Sheets (RCB, Drainage, Barrier)	6		2	12	16	40										
	Demolition Plans (40 Scale, Double VP)	10		2	8	16	40										
	Geometric Control (40 Scale, Double VP)	10		2	4	4	24										
	Roadway Plans (40 Scale)	18	2	4	20	40	60										
	Multi-Use Path Plans (40 Scale)	8		2	8	8	16										
	Sidestreet Plans (40 Scale)	2		2	8	8	24										
	Driveway Plans (40 Scale)	4		2	8	8	40										
	Roadside Collector Channel Plans (40 Scale)	16		4	8	24	60										
	Drainage Area Grading/Detail Plans (40 Scale)	10		4	16	40	40										
A.16.5	Cross Drainage Plans (20 Scale)	16		4	16	20	40										
	Storm Drain Plans (40 Scale) (No Trunk Line Anticipated)	6		2	4	4	12										
	Traffic Signal Plans (1 Signal, 2 conduit pre-installs)	7		4	12	24	40										
	Lighting Plans (Assumes 4 lighting locations needed)	6		4	8	12	32										
	Landscape Plans (with NPI, No Irrigation per PCDOT)	26		4			8										
	Pavement Marking Plans (40 Scale, Double VP)	10		4	8	20	40										
	Signing Plans (with Summaries) (40 Scale, Double VP)	14		4	12	24	60										
	Staking Plans (2 Intersections, 4 other locations)	6		4	16	24	32										
	SWPPP (Covers Drainage Areas) (Sheets and Book)	24		4	16	48	80										
	Special Provisions			40	24												
	Cross-sections - Houghton/Sidestreets (@ 100 ft. 6/sheet)	40		4	16	40	40										
	Quantities / Cost Estimate			4	8	24	40										
	Final Revisions to Plans, Specs and Estimate (Sealed Plans)			16	40	60	120										
	Quality Control Review of Plans		4 \$ 1,027	92 \$ 17,253	164 \$ 25,174	100 \$ 11,811	120 \$ 11,330	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	\$66,595.31		\$66,595.31
	Initial Design QA/QC			8	24	16	20										
	Final Design QA/QC			12	40	24	40										
	Initial PS&E QA/QC			20	40	40	40										
	Final PS&E QA/QC			12	40	20	20										
	Responses to all review comments		4	40	20												
Total Preparation of Construction Documents			20 \$ 5,137	645 \$ 120,958	1,352 \$ 207,532	2,132 \$ 251,819	3,118 \$ 294,380	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	\$879,826.26	\$167,935.78	\$1,047,762.04

Subconsultant Services Totals (Tasks A.1-A.16)																	
Terracon - Geotechnical			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$68,479.56	
EcoPlan - Environmental Planning			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$91,208.76	
Wheat Design - Landscape Design/Native Plant Inventory			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$120,063.62	
CMG - Hydrology/Hydraulics			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$423,955.75	
Stanley - TI Tie-In/ADOT Coordination/Value Analysis			\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$154,119.71	
Total Subconsultant Services Totals (Tasks A.1-A.16)			- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	- \$ -	\$855,827.60	

Proposal Total			79 \$ 20,292	1,545 \$ 289,736	2,261 \$ 345,529	2,905 \$ 343,122	3,854 \$ 363,868	66 \$ 13,224	680 \$ 96,537	104 \$ 8,691	708 \$ 112,473	840 \$ 71,060	48 \$ 4,572	-	\$1,669,104.16	\$855,827.60	\$2,524,931.76
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Total Labor Costs Psomas	\$1,669,104.16
Total Subconsultants	\$855,827.60
Total Labor	\$2,524,931.76

BLI No.	Design Description	No. Sheets	Project Principal \$ 256.86 / Hr. Hrs. Amount		Sr. Project Manager \$ 187.53 / Hr. Hrs. Amount		Sr. Project Engineer \$ 153.50 / Hr. Hrs. Amount		Project Engineer \$ 118.11 / Hr. Hrs. Amount		Designer \$ 94.41 / Hr. Hrs. Amount		Survey Manager \$ 153.77 / Hr. Hrs. Amount		Project Surveyor \$ 141.97 / Hr. Hrs. Amount		Party Chief \$ 83.57 / Hr. Hrs. Amount		2-Person Crew \$ 158.86 / Hr. Hrs. Amount		Survey Tech \$ 84.60 / Hr. Hrs. Amount		Administration \$ 95.26 / Hr. Hrs. Amount		Intern \$ 48.94 / Hr. Hrs. Amount		Psomas Task Total	Subconsultants Amount	Task Total	
Task B	Additional Services																													
B.1	Additional Utility Investigation		-	\$ -	24	\$ 4,501	24	\$ 3,684	48	\$ 5,669	60	\$ 5,665	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$19,519.01	\$18,750.00	\$38,269.01	
	Additional Potholing Contingency (25 @ 750/ea) - With Coord Time			\$ -	8	\$ 1,500	8		8		20																\$18,750.00			
	Additional Utility Mapping			\$ -	16	\$ 3,000	16	\$ 2,456	40	\$ 4,725	40	\$ 3,777																		
B.2	State Land Coordination		-	\$ -	40	\$ 7,501	40	\$ 6,140	40	\$ 4,725	40	\$ 3,777	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$22,142.34		\$22,142.34			
	Coordinate with ASLD, Prepare Exhibits			\$ -	40	\$ 7,501	40	\$ 6,140	40	\$ 4,725	40	\$ 3,777		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -						
B.3	Other Services		-	\$ -	80	\$ 15,002	80	\$ 12,280	108	\$ 12,756	108	\$ 10,197	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$50,235.44	\$100,000.00	\$150,235.44			
	Additional Misc Project Needs As Required			\$ -	80	\$ 15,002	80	\$ 12,280	108	\$ 12,756	108	\$ 10,197													\$100,000.00					
	Total Additional Services		-	\$ -	144	\$ 27,004	144	\$ 22,104	196	\$ 23,150	208	\$ 19,638	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$91,896.80	\$118,750.00	\$210,646.80			
Task C	Post Design Services																													
C.1.1	Pre-Bid Services		-	\$ -	24	\$ 4,501	44	\$ 6,754	40	\$ 4,725	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$15,979.32		\$15,979.32			
	Attend Pre-bid Meetings (2)				4		4																							
	Assist in Preparation of Addendums				8		16																							
	Address Questions on Plans and Specifications				8		16		40																					
	Evaluate Bids				4		8																							
C.2.1	Construction Services		-	\$ -	140	\$ 26,254	280	\$ 42,980	100	\$ 11,811	80	\$ 7,553	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$88,598.88	\$21,557.26	\$110,156.14			
	Attend Pre-construction and Partnering Meetings (2)				8		8																							
	Attend Weekly Construction Meetings (90)				90		180																							
	Evaluate Changes to Construction Documents				4		16		40																					
	Provide Design Details and Revised Drawings				4		16		40		40																			
	Review Shop Drawings, etc.				16		40																							
	Evaluate Value Engineering Proposals				8		20																							
	Video Document Drone Flight (10 Flights)				10				20		40																			
	Wheat Post Design																									\$9,414.64				
	CMG Post Design																									\$3,500.62				
	Stanley Post Design																									\$8,642.00				
C.3.2	Construction Services		-	\$ -	16	\$ 3,000	16	\$ 2,456	40	\$ 4,725	40	\$ 3,777	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$13,957.59		\$13,957.59			
	Prepare As-Built Documents			\$ -	16	\$ 3,000	16	\$ 2,456	40	\$ 4,725	40	\$ 3,777		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -						
	Total Post Design Services		-	\$ -	180	\$ 33,756	340	\$ 52,190	180	\$ 21,261	120	\$ 11,330	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	\$118,535.79	\$21,557.26	\$140,093.05			

ARC

Document Solutions®

March 3, 2020

Lori Smith
Psomas
333 E. Wetmore Rd. #450
Tucson AZ 85705-1799

Dear Lori:

The pricing for Psomas Inc. with ARC Document Solutions is as follows:

Large Format Document Services

Digital Print on 20# Bond	\$0.08 per sq. ft.
Digital Print on Bond – Half Size	\$0.10 per sq. ft.
Digital Print Bond (Color Media)	\$0.02 additional per sq. ft.
Digital Print on Vellum	\$0.50 per sq. ft.
Digital Print on Mylar	\$0.90 per sq. ft.
Color Ink Jet (24# Bond)	\$3.00 per sq. ft.
Color Ink Jet Bond (35# Presentation Bond)	\$4.00 per sq. ft.
Direct Print to 3/16 Foam Core	\$3.50 per sq. ft.
Post Bind	\$2.50 Each

Small Format Document Services

BW 8.5x11	\$0.045 per impression
BW 11x17	\$0.10 per impression
Color 8.5x11	\$0.49 per impression
Color 11x17	\$0.69 per impression
8.5x11 Print on Color Media	\$0.03 Additional per sheet
11x17 Print on Color Media	\$0.04 Additional per sheet
8.5x11 on 110# Cover Stock	\$0.06 Additional per sheet
11x17 on 110# Cover Stock	\$0.12 Additional per sheet
Coil Bind (up to 12mm)	\$1.50 Each
Coil Bind (13mm & larger)	\$2.00 Each
Post Bind	\$2.50 Each

Please let me know if you would like pricing for any other services

Thank you,

Bob Ashcraft
Director

Aerial Photogrammetric Survey and Mapping

The flight layout, as delineated on the attached diagram, will be flown with color stereo models to produce a 1"=40' topographical map with 1' contour intervals of the site. This would require 21 horizontal and vertical control points to be established and pre-paneled prior to flight..

This project will be flown using a state-of-the-art aerial sensor. The color imagery will be collected with an UltraCam Lp digital camera. Aerotriangulation will be performed and analyzed prior to the start of the map collection utilizing the Hexagon ISAT bundle adjustment software. Mapping will conform to typical 40-scale mapping collecting all visible features for roadway, utilities and cultural items. Additional breaklines and flowlines will be collected, along with a random grid point surface to create a full DTM. The DTM will supplement select planimetric features for triangulation of the surface model and ultimately the creation of the 1' contours.

Completed topographic mapping will be delivered as Civil3D .dwg files with surface and exported XML file.

Orthophoto production at 0.25' GSD will be delivered in a .tif/.tfw format in a configured tile size to accommodate reasonable file size.

The project turnaround time will be dependent upon: airspace approval of the initial flight and the receipt of the digital image captures. The aerotriangulation results must also be analyzed prior to the start of any of the map compilation. QA/QC checks will be performed throughout the production workflow to maintain the accuracy requirements, as well as provide an overall QC check prior to the final delivery.

Following:

1. A formal notice to proceed,
2. An approved flight plan and clearance
3. The receipt of the digital files from the flight, and
4. The receipt of the final project control values,

The subsequent aerotriangulation, compilation, and mapping of this project is estimated to require 15 working days to complete.

3 Hutton Centre Drive
Suite 200
Santa Ana, CA 92707

Tel 714.751.7373
Fax 714.545.8883
www.Psomas.com

Deliverables:

- CAD Topo base mapping file in DWG & DXF format (AutoCAD Civil 3D 2018 Format)
 - mapping scale of 1"=40' including surface contours at 1-ft. interval
- DTM file in native CAD and/or XML format
- Orthophoto production at 0.25' GSD will be delivered in a TIF/TFW format, including an overall SID mosaic.

Cost Breakdown:

ODC – Flight Cost:	\$1,400.00
<u>Internal Mapping Cost:</u>	<u>\$11,636.00</u>
Total:	\$13,036.00

Houghton Road							PSOMAS
Panels Required	Models	Map Scale/Ci	Exposures	Imagery	Photo Scale	Pixel Res	
21	18	1"=40'	20	Color	~1"=300'	.25'	
1'							
IN-HOUSE							
	Rate	Hours Per Unit	Units	Hours per Task	Pricing	Hrs/Units Avail.	Schedule
Mapping							
Aerotriangulation	\$ 165	0.75	20	15	\$ 2,475.00	8	2
Compilation - Subcontracted	\$ 20	7	18	126	\$ 2,520.00	16	8
Map Finishing	25% \$ 116	1.75	18	32	\$ 3,654.00	12	3
Orthophotography	\$ 116	0.75	20	15	\$ 1,740.00	8	2
Miscellaneous							
Point Cloud Extraction	\$ 165			0	\$ -	8	0
Volume Calculations	\$ 116			0	\$ -	8	0
Oversight							
Project Management	10% \$ 235			4.4	\$ 1,039.00		
					\$ -		
Production Management	2% \$ 116			1.8	\$ 208.00		
In-House Sub-Totals				194	\$ 11,636.00		15
OUTSOURCED							
Survey		21 Aerial Control Panels Required			\$ -	Cumulative Hours/Direct Bill	
Aerial Collection	\$ 1,400.00	~1"=300' PS (20 Color Captures - Ultracam Lp)			\$ 1,400.00	Hourly Rate	Totals
Film Scanning			20		\$ -	\$ 235	4.4
Aerial LIDAR					\$ -	\$ 165	15.0
						\$ 116	48.3
Sub-Totals					\$ 1,400.00		
MARKUP							
Flight Markup					\$ -		
Outsourced Markup Totals					\$ -		
Totals					Total Cost \$ 13,036.00	Working Days	15

Terracon

PIMA COUNTY DEPARTMENT OF TRANSPORTATION

Design Engineering Services for South Houghton Road Widening

Pima County Contract No.

For Period Ending:

Task #	Task	Total Contract Cost
PROFESSIONAL SERVICES		
Direct Labor		
A.1	Project Management and Quality Control	\$0.00
A.2	Value Analysis	\$0.00
A.3	Public Participation	\$0.00
A.4	Public Art	\$0.00
A.5	Utility Coordination	\$0.00
A.6	Environmental Impact Screening	\$0.00
A.7	Surveying and Mapping	\$0.00
A.8	Drainage	\$0.00
A.9	Geotechnical	\$7,858.45
A.10	Pavement Design	\$1,174.82
A.11	Traffic Engineering	\$0.00
A.12	Arterial Street Lighting	\$0.00
A.13	Design Concept Report (DCR)	\$0.00
A.14	Environmental Assessment and Mitigation Report (EAMR)	\$0.00
A.15	Right-of-Way Acquisition Support	\$0.00
A.16	Preparation of Construction Documents	\$0.00
	Direct Labor Sub Total =	\$9,033.27
Overhead Fee		
	183.80%	\$16,603.15
	Labor Sub Total =	\$25,636.42
Fixed Fee		
	10%	\$2,563.64
	Sub Total =	\$2,563.64
ODC		
	Direct Costs (Geotech Lab Testing)	\$19,465.00
	Sub Total =	\$19,465.00
Subconsultants		
Trafficade	Traffic Control	\$5,072.00
Southlands Engineering	Drilling and Backhoe Subcontractor	\$13,742.50
		\$0.00
	Sub Total =	\$18,814.50
Design Services Total		\$66,479.56
Other		
Task B	Additional Services	\$0
Task C	Post Design Services	\$0
	Sub Total =	\$0.00
Total Contract Amount		\$66,479.56

March 31, 2020



Psomas
333 East Wetmore Road
Tucson, Arizona 85705

Attn: Mr. Sean Samsel, PE, ENV SP
Phone: (520) 690.7871
Email: SSamsel@psomas.com

Re: **Proposal for Geotechnical Engineering Services**
South Houghton Road Widening
Approx. 2.9 Miles From I-10 to Andrada Polytechnic High School
Tucson, Arizona
Terracon Proposal No. P63195087, Revision No. 3


Dear Mr. Samsel:


We appreciate the opportunity to submit this proposal to Psomas to provide Geotechnical Engineering services for the above referenced project. This proposal outlines our understanding of the project, our planned scope of services, associated fees, and our terms and conditions associated with the performance of these services. We have organized our proposal as follows for ease of reference:

- Exhibit A Project Information
- Exhibit B Scope of Services
- Exhibit C Compensation and Project Schedule
- Exhibit D Vicinity Map and Site Location
- Exhibit E Detailed Cost Estimate and Fee Estimate Summary

Our base fee to perform the scope of services described in this proposal is outlined in Exhibit C. We understand this work will be executed through a mutually acceptable agreement between Terracon and Psomas. We appreciate the opportunity to provide this proposal and look forward to the opportunity of working with you.

Sincerely,
Terracon Consultants, Inc.


Louis D. Braun, P.E.
Geotechnical Project Engineer


Ramon Padilla, P.E.
Geotechnical Department Manager

Terracon Consultants, Inc. 355 S. Euclid, Ste. 107 Tucson, Arizona 85719
P [520] 770 1789 F [520] 792 2539 terracon.com

Environmental

Facilities

Geotechnical

Materials

EXHIBIT A - PROJECT INFORMATION

Our scope of work was developed based on the information provided and our understanding of the project. Aspects of the project that are undefined or assumed are highlighted as shown here in this exhibit.

Site Location

Item	Description
Location	The site of the proposed approximately 2.9 miles of roadway widening for South Houghton Road located in Tucson, Arizona, starting at south of Interstate 10 and extending south ending at the Andrada Polytechnic High School. See Exhibit D for additional site location information.
Existing Improvements	The exiting roadway alignment primarily consists of a 2-lane (1 lane each way) asphalt paved South Houghton Road and cleared and graded shoulders. The exception is a 3-lane (1 lane northbound and 2 lanes southbound) asphalt paved section from I-10 to the Pima County Fairgrounds. Based on information provided, we understand a previously identified borrow area was deleted from the project scope of work, and is excluded from this proposal.
Site Access	We assume all exploration locations are accessible to our truck-mounted drilling equipment.

Planned Construction

Item	Description
Project Description	Based on the information provided, we understand the project consists of approximately 2.9-mile roadway widening of South Houghton Road from south of Interstate 10 to the Andrada Polytechnic High School. The proposed roadway improvements are planned to include widening South Houghton Road from 2 lanes (1 lane each way) to 4 lanes (2 lanes each way). Multiple culverts are planned for drainage crossings throughout the alignment. As previously mentioned, an approximately 70-acre drainage basin (Fairgrounds Basin) was previously considered a borrow area, and we understand evaluating this borrow area was deleted from the project and is excluded from our scope of work. Terracon would be pleased to incorporate this into our scope of work and fees, upon request.
Grading	Based on the information provided, we understand the profile grade of the roadway alignment of Houghton Road will be raised to provide culverts for the conveyance of 100-year flows without flooding onto the roadway pavement.
Traffic Data	We assume South Houghton Road is classified as Arterial Roadway. We assume traffic data for Terracon to perform the pavement structure design for project will be provided by Psomas or others. We understand traffic data provided to Terracon (by others) will include current average daily traffic (ADT), traffic growth, and percent trucks.

EXHIBIT B - SCOPE OF SERVICES

Our proposed scope of services will consist of field exploration, laboratory testing, and engineering/project delivery. These services are described in the following sections.

Task 1 – Project Setup and Coordination - Terracon will setup the project, stake the roadway boring locations, contact the Arizona 811 Center to locate public underground utilities, and coordinate the field exploration. Terracon will coordinate to obtain a right-of-way permit from Pima County for the test borings. We will also coordinate traffic control with a subcontractor and will provide a traffic control plan to Pima County for the field exploration of the project where and when we will be on impacting traffic on Houghton Road. We have assumed any other permits, right-of-entry authorizations, or clearances required for Terracon and Terracon's subcontractors to access the site and perform the field work will be provided by Psomas and/or the Owner. Terracon anticipates assisting with permits and clearances that may be required by providing site plans of the proposed boring locations.

Task 2 – Field Exploration - Terracon will perform a geotechnical field exploration at the site to evaluate the subsurface conditions and obtain representative samples. The following table outlines the proposed field exploration for the site:

Number of Borings	Planned Boring Depth (feet) ¹	Planned Location
10	15 or auger refusal	Proposed Culverts
20 ²	5 to 15 or auger refusal	Proposed Roadway Widening
20	10 to 15 or auger refusal	As Needed (Potential Retaining Wall and General Drainage Areas)

1. Planned depth below the existing ground surface or auger refusal.

2. We anticipate 5 locations to be drilled within the existing roadway to determine existing pavement thicknesses.

The borings will be advanced to the planned depths below the existing ground surface (bgs) using hollow stem auger drilling, unless auger refusal is encountered prior to full boring advancement. The depth and locations of test borings may be adjusted depending upon actual subsurface conditions encountered.

Boring Layout and Elevations: Coordinates will be obtained with a handheld GPS unit (with an estimated horizontal accuracy of about ±20 feet). If available, approximate elevations will be obtained by interpolation from local topographic maps. Field measurements from existing site features may be utilized.

Site Access: Terracon must be granted access to the site by the property owner. By acceptance of this proposal, without information to the contrary, we consider this as authorization to access

Proposal for Geotechnical Engineering Services

South Houghton Road Widening ■ Tucson, Arizona

March 31, 2020 ■ Terracon Proposal No. P63195087, Revision No. 3

Terracon

the property for conducting field exploration in accordance with the scope of services. In addition, our fees assume boring locations will be accessible without delay to our field crew and drill rig equipment.

Subsurface Exploration Procedures: We plan to advance the borings with a truck-mounted drill rig using hollow-stem continuous flight augers. During the drilling operations, a field engineer or geologist will log the borings, record the results of penetration tests, and obtain representative samples for further laboratory evaluation. Drilling and sampling will be performed in general accordance with applicable ASTM or local standards. Samples within the planned borings are planned to be obtained with standard penetration test samplers or ring-lined barrel samplers at approximate intervals of 5 feet throughout the depths explored. Bulk samples of auger cuttings will be collected from the borings at selected depth intervals.

Property Disturbance: Terracon will take reasonable efforts to reduce damage to the property. However, it should also be understood that during the normal course of our services, disturbance could occur. Borings drilled on the shoulder will be backfilled with the auger cuttings mixed with cement. Borings drilled through the existing roadway pavement will be backfilled with the auger cuttings mixed with cement, and the exposed asphalt concrete at the boring location will be wire-brushed and patched with (QPR brand) asphalt cold patch. For safety purposes, all test borings will be backfilled after their completion with the excavated cuttings. Excess cuttings will be disposed of on the site. Because backfill material often settles below the surface after a period, we recommend boreholes are checked periodically and backfilled, if necessary. We can provide this service, or grout the remaining boreholes for additional fees, at your request. If additional restoration beyond what is outlined in this proposal is required, Terracon would be pleased to incorporate this into our scope of work and fees upon request.

Safety: Terracon is currently not aware of environmental concerns at this project site that would create health or safety hazards associated with our exploration program; thus, our scope considers standard OSHA Level D Personal Protection Equipment (PPE) appropriate. Our scope of services does not include environmental site assessment services, but identification of unusual or unnatural materials encountered while drilling will be noted on our logs and discussed in our report.

Exploration efforts require borings into the subsurface, therefore Terracon complies with local regulations to request a utility location service through the Arizona 811 Center. Terracon should be notified if the owner/client is aware of potential utilities or other unmarked underground hazards. Terracon will not be responsible for damage to private utilities that are not made aware to us.

Proposal for Geotechnical Engineering Services

South Houghton Road Widening ■ Tucson, Arizona

March 31, 2020 ■ Terracon Proposal No. P63195087, Revision No. 3

Terracon

Task 3 – Laboratory Testing - Under the direction of a geotechnical engineer, the samples obtained from the test borings will be tested in our laboratory to determine physical engineering characteristics. The following table outlines the laboratory testing anticipated for the project.

Laboratory Test	Number of Tests
Atterberg Limits (ASTM D4318)	50
Grain Size Analysis (ASTM C136 and C117)	50
Unit Weight (dry density) and Moisture Content of Soil (ring samples)	60
Compaction of Soil Using Standard Proctor (ASTM D698)	6
Remolded Swell (ASTM D2435)	6
Consolidation (ASTM D2435)	15
R-Value (ASTM D2844)	6
Corrosion Analysis (Soluble Sulfates, Soluble Chlorides, pH, Minimum Electrical Resistivity)	20

Laboratory testing will be conducted in general accordance with applicable ASTM or other locally recognized standards. The number and type of tests may vary depending on the sample quality and quantity. Samples obtained during the field exploration will be discarded 30 days after the date the geotechnical engineering report (unless sample storage beyond the 30 days is incorporated into our scope of work and fees).

Task 4 – Geotechnical Engineering Report - Terracon will prepare a geotechnical engineering report for the project. The results of our field and laboratory programs will be evaluated by a professional geotechnical engineer licensed in the State of Arizona. Based on the results of our evaluation, the engineering report will include geotechnical site characterization, engineering calculations necessary to evaluate foundation alternatives, and appropriate geotechnical engineering design criteria for the earth-related phases of the project. The report will include the following:

- Computer generated boring logs with soil stratification based on visual soil classification
- Summarized laboratory data
- Groundwater levels observed during and after completion of drilling (if encountered)
- Boring location plan
- Subsurface exploration procedures
- Site geology including a summary of geologic and seismic hazards
- Encountered soil conditions
- Lateral earth pressures
- Seismic site classification
- Culvert foundation recommendations

Proposal for Geotechnical Engineering Services

South Houghton Road Widening ■ Tucson, Arizona

March 31, 2020 ■ Terracon Proposal No. P63195087, Revision No. 3



- Excavation characteristics
- Subgrade preparation and earthwork recommendations
- Corrosion test results
- Retaining wall foundation recommendations, if needed

Task 5 – Pavement Design Report - The pavement design report will be prepared for the design pavement sections recommendations and subgrade preparation. The pavement design report will be developed based on current ADOT methodology. The report will include the following:

- A summary of the general geotechnical characteristics of the soil
- Traffic data considerations being used for the development of the pavement structure (provided by others)
- Discussion concerning the procedures and results of the pavement structure design
- Recommended structural sections, including alternatives, with criteria such as preliminary cost, construction and other factors considered

Task 6 – Project Meetings - We anticipate that attendance at design team meetings will be required at certain times during the project. For purposes of this proposal, we anticipate attendance at 5 meetings by the project geotechnical team and have assumed the meetings would be at Psomas' office in Tucson.

EXHIBIT C - COMPENSATION AND PROJECT SCHEDULE**Compensation**

Based upon our understanding of the site, the project as summarized in **Exhibit A**, and our planned scope of services outlined in **Exhibit B**, our base fees are shown in the following table:

Task	Estimated Fees
Task 1 - Project Setup and Coordination	\$2,402.79
Task 2 - Field Exploration	\$28,826.96
Task 3 - Laboratory Testing	\$20,636.17
Task 4 - Geotechnical Engineering Report	\$9,351.29
Task 5 - Pavement Design Report	\$3,667.55
Task 6 - Project Meetings	\$1,594.80
Total for Above Geotechnical Engineering Services	\$66,479.56

Should it be necessary to expand our services beyond those outlined in this proposal, we will notify you, then send a supplemental proposal stating the additional services and fee. We will not proceed without your authorization.

Project Schedule

We have developed a schedule to complete the scope of work based upon our existing availability at the date of this proposal. The schedule below is predicated upon our current availability and our understanding of your schedule needs. In the event the schedule provided is inconsistent with your needs, please contact us, and we will consider alternatives.

Task	Estimated Time to Complete Task
Task 1 - Project Setup and Coordination	2 weeks
Task 2 - Field Exploration	1 to 2 weeks
Task 3 - Laboratory Testing	3 to 4 weeks
Task 4 and 5 - Geotechnical Engineering Report & Pavement Design Report	2 to 4 weeks
Estimated Total Number of Weeks:	8 to 12 weeks

March 31, 2020 ■ Terracon Proposal No. P63195087, Revision No. 3

[illegible]

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

EXHIBIT E
Detailed Cost Estimate and Fee Estimate Summary

Psomas

Detailed Cost Estimate for Geotechnical Engineering Services
South Houghton Road Widening

Terracon Reference No. P63195087

Terracon

355 SOUTH EUCLID AVE, SUITE 107
TUCSON, Arizona 85719

PAY ITEM	Work Tasks (Proposed Hours/Units)						Total HRS/UNITS	*Unit RATE	Total COST
	1	2	3	4	5	6			
Principal	1	2	1	4	2	1	11	219.09	\$ 2,409.97
Project Manager	2	3		6	4	2	17	173.85	2,955.50
Project Engineer	6	10	2	30	16	10	74	102.80	7,607.26
Staff Engineer	10	86	8	42	8		154	93.31	14,369.83
CADD/Drafting	2			4	2		8	71.33	570.67
Clerical/Admin	2			2			4	71.71	286.83
Subtotal Labor Costs:									28,200.06
Other Direct Project Costs:									
Traffic Control (Trafficade)		1					1	5,072.00	5,072.00
Drilling & Backhoe Subcontractor (Southlands)		1					1	13,742.50	13,742.50
Subtotal Direct Costs:									18,814.50
Laboratory Testing:									
R-Value			6				6	360.00	2,160.00
Sieve Analysis, Coarse and Fine, Washed (ASTM C136, AASHTO T27, ARIZ 201)			50				50	85.00	4,250.00
Plasticity Index (ASTM D4318, AASHTO T89/90)			50				50	78.00	3,900.00
1D Expansion (remolded)			6				6	90.00	540.00
Soil Unit Weight (Undisturbed Sample) with Moisture Content (ASTM C29)			60				60	19.00	1,140.00
Soluble Sulfates			20				20	35.00	700.00
Soluble Chlorides			20				20	25.00	500.00
pH & Resistivity			20				20	130.00	2,600.00
Standard Proctor			6				6	150.00	900.00
Consolidation			15				15	185.00	2,775.00
Subtotal for Laboratory Testing:									19,465.00
Estimated Man Hours For Project	23	101	11	88	32	13	268		\$ 66,479.56

Terracon Task	Estimate
Task 1 - Project Setup, and Staking	\$ 2,402.79
Task 2 - Field Exploration	\$ 28,826.96
Task 3 - Sample Review, Lab Work Order and Laboratory Testing	\$ 20,636.17
Task 4 - Preparation of Geotechnical Engineering Report	\$ 9,351.29
Task 5 - Pavement Design Report	\$ 3,667.55
Task 6 - Project Meetings	\$ 1,594.80
Total for Above Services	\$ 66,479.56

***Note: Unit Rates shown are based on
overhead cost plus 10% profit.**

EcoPlan

PIMA COUNTY DEPARTMENT OF TRANSPORTATION
Design Engineering Services for South Houhgton Road Widening
Pima County Contract No.
EcoPlan Fee Proposal

Task #	Task	Total Contract Cost
PROFESSIONAL SERVICES		
Direct Labor		
A.1	Project Management and Quality Control	\$1,930.00
A.2	Value Analysis	\$0.00
A.3	Public Participation	\$2189.00
A.4	Public Art	\$0.00
A.5	Utility Coordination	\$0.00
A.6	Environmental Impact Screening	\$4,994.78
A.7	Surveying and Mapping	\$0.00
A.8	Drainage	\$0.00
A.9	Geotechnical	\$697.26
A.10	Pavement Design	\$0.00
A.11	Traffic Engineering	\$0.00
A.12	Arterial Street Lighting	\$0.00
A.13	Design Concept Report (DCR)	\$1,882.52
A.14	Environmental Assessment and Mitigation Report (EAMR)	\$8,976.28
A.15	Right-of-Way Acquisition Support	\$0.00
A.16	Preparation of Construction Documents	\$0.00
	Direct Labor Sub Total =	\$20,669.84
Overhead Fee		
	123.75%	\$25,579
	Labor Sub Total =	\$46,248.77
Fixed Fee		
	10%	\$4,624.88
	Sub Total =	\$4,624.88
ODC		
	Direct Costs	\$0.00
	Sub Total =	\$0.00
Subconsultants		
Ninyo and Moore		\$15,852.56
Newton Environmental		\$24,482.56
		\$0.00
	Sub Total =	\$40,335.12
Design Services Total		\$91,208.76
Other		
Task B	Additional Services	\$0.00
Task C	Post Design Services	\$0.00
	Sub Total =	\$0.00
Total Contract Amount		\$91,208.76



March 31, 2020

Sean Samsel, PE, ENV SP
PSOMAS
333 E. Wetmore Road, Suite 450
Tucson, AZ 85705

RE: Design Engineering Services for South Houghton Road Widening
EcoPlan Proposal No.: 19-01077

Dear Mr. Samsel:

EcoPlan Associates, Inc. (EcoPlan) is pleased to submit this proposal for environmental services for the above-referenced project.

We have included a detailed scope of work, assumptions and cost estimate in this proposal for your review and approval. We estimate the cost of our services will be \$91,209.00. The cost estimate reflects the Scope of Work provided by Pima County Department of Transportation (PCDOT) dated February 25, 2020 and clarification provided by PSOMAS on March 24, 2020 regarding possible drainage solutions. Invoices will be submitted monthly for work completed to date.

Please contact me at 480-733-6666, extension 117 if you have any questions. Thank you for your time and consideration.

Sincerely,

George A. Ruffner, Ph.D.
President

Enclosures: As noted

South Houghton Road Widening (4SHRWD)
Related Services

Task #	KEY SUBMITTAL(S)/ DELIVERABLES	TASK ELEMENTS	ASSUMPTIONS / DISCUSSION ITEMS (bold items for discussion or confirmation)
A.1 Project Management and Quality Control	<ul style="list-style-type: none"> No deliverable. Meeting attendance only. 	A.1.3.a – monthly meetings A.1.3.b – sub-consultant/in-house meetings A.1.3.c Pre-review overview meetings with County.	9 – Monthly meetings 1 – Pre-Environmental Screening Report meeting 1 – Pre-tech reports meeting 12 – In-house team conference calls
A.3 Public Participation	<ul style="list-style-type: none"> PowerPoint slides and /or display boards for CAC and public meetings. 	A.3.2 – Participate in 4 CAC meetings A.3.3 – Participate in 2 public meetings and one public hearing; participate in planning sessions prior to the meetings.	Environmental process and discipline boards or slides for CAC and public meetings, as needed. Assumes 2 display boards.
A.6 Environmental Impact Screening	<ul style="list-style-type: none"> Environmental coordination meeting minutes Completed Questionnaire for Establishing Potential Areas of Impact Completed Summary Impact Matrix Results Memorandum Responses to Review Comments 	A.6.1 – Organize Environmental Coordination Meeting with key regulatory and resource agencies; prepare agenda, handouts and meeting summary. A.6.2 – Complete the Questionnaire based on preliminary data and information. Report will follow RDM Appendix 3-Fa format. A.6.3 – Prepare the Summary Impact Matrix. A.6.4 – Prepare an Environmental Results Memorandum to summarize the early screening process and recommend actions that may be required. A.6.5 – Team Review prior to submittal. A.6.6 – Project Modifications/Alternatives will be compared in Matrix. A.6.7 – Quality Control Reviews of deliverables above.	Meeting will include appropriate Pima County departments, appropriate discipline sub-consultants, plus AZGFD, USFWS, SHPO, and USACE (all may not attend, but invited). Alternatives assumed to be limited to build options in the project corridor.
A.9 Geotechnical	<ul style="list-style-type: none"> Geotech environmental compliance memo (if needed) 	A.9.1 – Prepare a memo that documents avoidance of significant cultural and biological resources (e.g., eligible or potentially eligible archaeological sites and listed Pima pineapple cactus) by geotechnical testing activities.	Geotech boring plans will be provided to EcoPlan early in the project. All efforts will be made to coordinate geotech clearance timing with normal submittal of environmental technical reports. Data on any cultural resource sites or biological resources (e.g., Pima pineapple cactus) will be provided by others. EcoPlan will provide text/graphics to Psomas for incorporation in the DM document.
A.13 Design Memorandum (DM)	<ul style="list-style-type: none"> Environmental sections of the DM 	A.13.4 – Prepare summary section for social, economic, and environmental issues for incorporation in the DM.	

South Houghton Road Widening (4SHRWD)
Related Services

Task #	KEY SUBMITTAL(S)/ DELIVERABLES	TASK ELEMENTS	ASSUMPTIONS / DISCUSSION ITEMS (bold items for discussion or confirmation)
A.14 Environmental Reports	<ul style="list-style-type: none"> • Biological memo • Preliminary Jurisdictional Delineation and Preconstruction Notification • Preliminary Initial Site Assessment • Phase I Environmental Site Assessment • Traffic Noise Analysis Report • Responses to all review comments 	<p>A.14.1 – Incorporate cultural resources data/findings provided by others into Cultural Resources Inventory and Report</p> <p>A.14.2 – Review previously prepared Biological Evaluation (BE), coordinate with others to obtain Pima pineapple cactus (PPC) survey data, and incorporate into and prepare Biological Memo that summarizes and updates the previous BE, incorporate into DM.</p> <p>A.14.3 – Coordinate with others to obtain vegetation information and incorporate into DM.</p> <p>A.14.4 – Complete a field evaluation and a Preliminary Jurisdictional Delineation, attend pre-application meetings, and prepare a Preconstruction Notification (PCN) for submittal to the Corps.</p> <p>A.14.5 – Coordinate with a subconsultant to complete a Preliminary Initial Site Assessment (PISA) to determine potential for hazardous materials. Incorporate results into DM.</p> <p>A.14.6 – Coordinate air quality analysis and incorporate results into DM</p> <p>A.14.7 – Coordinate noise analysis and incorporate results into DM.</p> <p>A.14.8 – Incorporate visual assessment prepared by others into DM.</p> <p>A.14.9 – EAMR is waived for this project</p> <p>A.14.10 – Complete quality control review of all report.</p>	<p>Cultural resources inventory/report (Task A.14.1), vegetation sampling/measurement including PPC surveys (Task A.14.3), and visual assessment (Task A.14.9) will be completed by others, with results incorporated into DM.</p> <p>Endangered Species Act Section 7 consultation with the U.S. Fish and Wildlife Service will not be required.</p> <p>Species-specific protocol surveys will not be required.</p> <p>A site visit will be required for the biological clearance to address drainage solutions.</p> <p>A separate biological geotechnical clearance will not be required.</p> <p>A wetlands delineation will not be required.</p> <p>Section 404 Nationwide Permits 14 and 43 Preconstruction Notification will be utilized for project construction.</p> <p>The project will be conditionally certified by the Arizona Department of Environmental Quality; an Individual Water Quality Certification will not be required.</p> <p>Up to 2 pre-application meetings with the Corps will be attended. The project will qualify under the NWP Program and a PCN will be required.</p>

South Houghton Road Widening (4SHRWD)
Related Services

Task #	KEY SUBMITTAL(S)/ DELIVERABLES	TASK ELEMENTS	ASSUMPTIONS / DISCUSSION ITEMS (bold items for discussion or confirmation)
			<p>If the permanent fill or dredge to Waters of the U.S. exceeds NWP limitations, a waiver from the Corps will be requested. If the waiver is denied by the Corps and a Section 404 Individual Permit and Section 401 Individual Water Quality Certification is required, a cost modification for additional services will be required.</p> <p>Hazardous materials survey (Task A.14.5), air quality (Task A.14.6), and noise analysis (Task A.14.8) will be completed by subconsultants to EcoPlan (Ninyo & Moore and Newton Environmental Consulting, respectively), with results incorporated into DM by EcoPlan.</p> <p>No quantitative air quality modeling is required.</p> <p>All deliverables will be submitted electronically.</p> <p>Technical reports provided by others including Visual Assessment, Vegetation Inventory, PPC survey results and Section 106 Consultation (as needed) will be provided to EcoPlan at least 30 days prior to inclusion in the draft Design Memorandum.</p> <p>Others will be responsible for all Section 106 activities.</p>

Cost Estimate Worksheet

Prepared for: PSOMAS

Project Name: Design Engineering Services for South Houghton Road Widening

EcoPlan # 19-01077

Task Description	Project Manager	Senior Environmental Planner I	Environmental Planner	Senior Biologist	Biologist	Cultural Principal Investigator	Cultural Crew Chief	Senior Quality Control Specialist/Editor	Senior GIS Graphics Specialist	Total Hours	Total Costs
Contract Rate	\$59.50	\$41.00	\$24.00	\$46.00	\$25.50	\$43.00	\$29.13	\$40.00	\$33.50		
Overhead 123.75%	\$73.63	\$50.74	\$29.70	\$56.93	\$31.56	\$53.21	\$36.05	\$49.50	\$41.46		123.75%
Subtotal of Labor and Overhead	\$133.13	\$91.74	\$53.70	\$102.93	\$57.06	\$96.21	\$65.18	\$89.50	\$74.96		
Fee 10%	\$13.31	\$9.17	\$5.37	\$10.29	\$5.71	\$9.62	\$6.52	\$8.95	\$7.50		10.00%
Billing Rate	\$146.44	\$100.91	\$59.07	\$113.22	\$62.77	\$105.83	\$71.70	\$98.45	\$82.46		
Project Management and Quality Control											
Task A.1.3.a: Monthly Meetings	12	0	12	0	0	0	0	0	0	24	\$ 2,468.12
Task A.1.3.b: In-House Meetings	4	4	8	0	0	0	0	0	0	16	\$ 1,461.96
Task A.1.3.c: Pre-review Meetings	4	0	4	0	0	0	0	0	0	8	\$ 822.04
Subtotal:	20	4	24	0	0	0	0	0	0	48	\$ 4,750.12
Public Participation											
Task A.3.2: CAC Meetings	12	0	12	0	0	0	0	2	6	32	\$ 3,157.78
Task A.3.3: Public Meetings/Hearing	12	0	8	0	0	0	0	0	0	20	\$ 2,229.84
Subtotal:	24	0	20	0	0	0	0	2	6	52	\$ 5,387.62
Environmental Impact Screening											
Task A.6.1: Environmental Coordination Meeting	8	0	8	0	0	0	0	4	0	20	\$ 2,037.88
Task A.6.2: Questionnaire	0	8	16	2	2	0	4	0	0	32	\$ 2,391.18
Task A.6.3: Summary Impact Matrix	0	4	12	0	0	0	0	0	0	16	\$ 1,112.48
Task A.6.4: Environmental Results Memo	0	2	16	2	0	2	2	0	0	24	\$ 1,728.44
Task A.6.5: Team Review	0	2	4	0	0	0	0	0	0	6	\$ 438.10
Task A.6.6: Project Modifications/Alternatives	0	2	6	0	0	0	0	0	0	8	\$ 556.24
Task A.6.7: Quality Control Review	14	4	0	0	0	0	0	16	0	34	\$ 4,029.00
Subtotal:	22	22	62	4	2	2	6	20	0	140	\$ 12,293.32
Geotechnical											
Task A.9.1: Geotechnical Memo	2	2	6	0	0	0	2	4	4	20	\$ 1,716.16
Subtotal:	2	2	6	0	0	0	2	4	4	20	\$ 1,716.16
Design Concept Report											
Task A.13.4: Summary for Design Concept Report	4	8	30	0	0	0	4	12	0	58	\$ 4,633.34
Subtotal:	4	8	30	0	0	0	4	12	0	58	\$ 4,633.34
Environmental Report											
Task A.14.1: Incorporate Cultural into DM	0	2	2	0	0	2	6	0	0	12	\$ 961.82
Task A.14.2: Biological Memo, Coordinate Pima pineapple cactus Results, Incorporate into DM	2	0	30	8	0	0	0	12	6	58	\$ 4,646.90
Task A.14.3: Coordinate and Incorporate Vegetation Information into DM	2	0	10	0	0	0	0	0	0	12	\$ 883.58
Task A.14.4: Preliminary Jurisdictional Delineation, Pre-Application Meetings, and Preconstruction Notification	7	17	72	0	0	0	0	10	8	114	\$ 8,637.77
Task A.14.5: Coordinate Hazardous Materials and Incorporate into DM	2	2	4	0	0	0	0	0	0	8	\$ 730.98
Task A.14.6: Coordinate Air Analysis and Incorporate into DM	2	2	4	0	0	0	0	0	0	8	\$ 730.98
Task A.14.8: Coordinate Noise Analysis and Incorporate into DM	2	2	4	0	0	0	0	0	0	8	\$ 730.98
Task A.14.9: Coordinate Visual Assessment and Incorporate into DM	2	2	4	0	0	0	0	0	0	8	\$ 730.98
Task A.14.10: Quality Control Review of DM	10	6	0	0	0	0	0	20	0	36	\$ 4,038.86
Subtotal:	29	33	130	8	0	2	6	42	14	264	\$ 22,092.85
Total Hours:	101	69	272	12	2	4	18	80	24	582	
Labor Subtotal:	\$14,790.44	\$8,962.79	\$16,067.04	\$1,358.64	\$125.54	\$423.32	\$1,290.60	\$7,876.00	\$1,979.04		\$ 50,873.41
Direct Expenses											
Outside Services and Consultants											
Ninyo and Moore (Hazardous Materials Investigation - Task A.14.5)											\$ 15,852.56
Newton Environmental Consulting, LLC. (Air Quality and Noise Analysis - Task A.14.6 and Task A.14.8)											\$ 24,482.56
Total Direct Expenses:											\$ 40,335.12
Total Cost:											\$ 91,208.00

March 18, 2020
Proposal No. 13TUC03-00129

Mr. Michael Dawson
EcoPlan Associates, Inc.
3610 N. Prince Village Place, Suite 140
Tucson, Arizona 85719

Subject: Preliminary Initial Site Assessment, and Asbestos and Lead-Based Paint Surveys
2.9 Miles of South Houghton Road
Tucson, Pima County, Arizona

Dear Mr. Dawson:

In accordance with your March 16, 2020 electronic mail request, Ninyo & Moore is pleased to submit this proposal to perform a Preliminary Initial Site Assessment (PISA), and Asbestos Containing Material (ACM) and Lead-Based Paint (LBP) Surveys for the planned widening of 2.9 miles of South Houghton Road located south of Interstate-10 in Pima County, Arizona (the Project Area). Based on information provided in your email, we understand that the project will be developed through the Pima County's DOT and will include widening of the right-of-way (ROW) of 2.9 miles of South Houghton Road, from 2-lanes to 4-lanes divided. We understand that the project will include raising the profile grade of Houghton Road to provide culverts for the convenience of 100-year flows, and a 200-foot ROW where adjacent to county owned lands. In addition, it is assumed that up to 40-acres of new ROW or property acquisition will be required, and will involve the preparation of one separate Phase I ESA report. Our PISA and ACM and LBP surveys will encompass the total length of the Project Area, which is approximately 2.9 miles.

The scope of services for this PISA, and ACM and LBP Surveys will be consistent with industry practices for environmental assessment and hazardous material surveys of roadway improvements. The objective of the PISA is to evaluate whether properties within or adjacent to the proposed transportation improvement Project Area pose sufficient risk of hazardous materials' impact to represent a recognized environmental condition or warrant further investigation.

Ninyo & Moore has prepared the following scope of services and fee quotation based on the request and information provided by EcoPlan.

SCOPE OF SERVICES

PISA

Ninyo & Moore's proposed scope of services for this PISA will include the activities listed below:

- Perform a reconnaissance to visually evaluate the Project Area for possibly contaminated surficial soil or surface water, improperly stored hazardous materials, possible sources of polychlorinated biphenyls, and possible risks of contamination from activities at adjacent properties.
- Review readily available regulatory agency databases for the Project Area and facilities located adjacent to the Project Area. The purpose of this review is to evaluate the possible environmental impacts to the Project Area from properties listed on regulatory agency databases. Databases will evaluate locations of known hazardous waste generators, landfills, facilities with leaking underground storage tanks and/or underground storage tanks (USTs), and facilities that use, store, or dispose of hazardous materials.
- Prepare a PISA report documenting findings and providing recommendations regarding whether further assessment of the Project Area is recommended. Color photographs will be provided in the report.

The PISA is not intended to cover all aspects of a Phase I Environmental Site Assessment outlined in the ASTM International (ASTM) E1527-13. Furthermore, the following represents additional out-of-scope items with respect to this PISA, and therefore, will not be addressed: radon, lead in drinking water, wetlands, regulatory compliance, cultural and historic risk, industrial hygiene, health and safety, ecological resources, endangered species, indoor air quality, and high-voltage power lines. In addition, Ninyo & Moore will not address interpretations of zoning regulations, building code requirements, or property title issues.

ACM Survey

Ninyo & Moore's proposed scope of services for the ACM Survey will include the activities listed below:

- The ACM survey will consist of a visual assessment of the Project Area to identify homogeneous suspect ACMs (suspect ACM generally uniform in color, texture, construction or application date, and general appearance). Each homogeneous suspect ACM will be observed for material type, location, condition, and friability.
- Following identification of homogenous suspect ACM, Ninyo & Moore will collect bulk samples of suspect ACM from readily accessible areas representative of the features within the Project Area. The samples will be collected in general accordance with Occupational Safety and Health Administration (OSHA), National Emission Standard for Hazardous Air Pollutants

(NESHAP), and AHERA guidelines. The samples will be collected in re-sealable plastic bags and labeled with unique sample identification numbers.

- Samples of suspect ACMs will be delivered to a laboratory accredited in the National Voluntary Laboratory Accreditation Program for bulk asbestos fiber analysis.
- Ninyo & Moore will not dismantle roadway components due to accessibility and safety issues; therefore, unidentified asbestos may be present at the Project Area. Should renovation/demolition activities begin and suspect ACM be discovered in inaccessible features or other areas on the Project Area, the material should be evaluated for asbestos prior to disturbance.
- Bulk samples will be analyzed for the presence and quantification of asbestos fibers using PLM, in general accordance with USEPA Method 600/M4-82-020.
- Ninyo & Moore will prepare an ACM Survey report. This report will present Ninyo & Moore's data and summarize Ninyo & Moore's conclusions and recommendations regarding the analytical results for the ACM samples obtained from the Project Area. The report will describe field activities and procedures, sample location documentation, and the analytical results. The report will contain analytical data tables, figures, laboratory reports, and chain of custody forms. The ACM survey report will be included as an appendix to the PHASE I ESA report.

LBP Survey

Ninyo & Moore's proposed scope of work for the LBP Survey will include the following activities:

- The purpose of the LBP Survey is to identify whether the road-striping and paint on roadway components within the Project Area would be classified as LBP. Up to 10 bulk paint chip samples (one from each color/substrate combination) will be collected and submitted for laboratory analysis. Sample analysis will be conducted using United States Environmental Protection Agency (USEPA) Test Method 6010B.
- Upon receipt of the analytical results, the laboratory test data will be evaluated with respect to applicable regulatory thresholds.
- Ninyo & Moore will prepare a LBP Survey report. This report will present Ninyo & Moore's data and summarize Ninyo & Moore's conclusions and recommendations regarding the analytical results for the LBP samples obtained from the Project Area. The report will describe field activities and procedures, sample location documentation, and the analytical results. The report will contain analytical data tables, figures, laboratory reports, and chain of custody forms. The LBP survey report will be included as an appendix to the PHASE I ESA report.

SCHEDULE

Ninyo & Moore estimates the proposed services can be completed within 30 working days (approximately 6 weeks) of receipt of written notice to proceed and permission for access to the Project Area.

FEE ESTIMATE

The not-to-exceed fee for the scope of services outlined above is \$15,852.56 (Fifteen Thousand Eight Hundred Fifty-Two Dollars and Fifty-Six Cents). Should conditions be encountered that warrant additional research/evaluation, EcoPlan will be contacted for authorization prior to Ninyo & Moore proceeding. If this proposal meets your expectations, please provide a new subcontract agreement for our review and acceptance to initiate project activities.

ASSUMPTIONS

The proposed fee is based on the scope of services presented above and Ninyo & Moore's understanding of the existing environmental conditions at the Project Area, and the structures to be surveyed for ACM and LBP. The fee does not include additional laboratory analyses fees or costs that may arise due to unforeseen or unfavorable conditions or for post-report consultations. The following assumptions were made in the development of this proposal:

- Pima County will provide access to the Project Area for Ninyo & Moore personnel, including exhibits that show the existing ROW and proposed additions to the ROW, where roadway improvements and construction is planned.
- The laboratory analyses fees and other associated costs are included within this scope of work. Should additional laboratory analyses be requested, Ninyo & Moore will submit a change order for approval by EcoPlan prior to authorizing the additional analysis.
- One day of traffic control (shadow truck) is included in the cost of the work to safely access and sample the roadway paints for ACM and LBP.
- This PISA, and ACM and LBP Surveys will be conducted by Ninyo & Moore expressly and solely for the client and its assigns. The evaluations, findings, conclusions, and recommendations contained in the report will represent Ninyo & Moore's professional judgment and opinion. The report will be based solely on information gained from direct observation, personal interviews, analytical results for the paint samples, and examinations of regulatory records. In the event conditions differing from or in addition to those described in the report are encountered at a later time, Ninyo & Moore reserves the right to review such conditions and to modify, as appropriate, the report and conclusions given in the report.
- Any use of, or reliance upon, the information, assessments, or conclusions contained in this report for purposes other than liability assessment shall be at the sole liability of the party undertaking such use.
- A maximum of 3 hours of Arizona Department of Environmental Quality (ADEQ) file room records review is included in the proposed scope of work.
- Although our environmental database research may include properties within the standard ASTM search radius (up to 1 mile for some databases), our report discussion of these database-listed facilities will be limited to nearby sites that have the highest potential to impact the surface and subsurface soils within the Project Area.

- Our proposal includes the cost of Pima County Right-of-Way permitting, at cost and without markup. If permitting is provided by others, the cost of this permit will not be invoiced.
- A maximum of 36 bulk asbestos samples will be collected and analyzed for asbestos content.
- A maximum of 25 paint chip samples will be collected and analyzed for lead content.

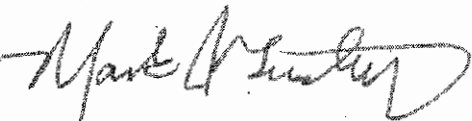
LIMITATIONS

The proposed fees for Ninyo & Moore's services are valid for a period of 90 days from the date of this proposal. Beyond the 90-day period, revisions to the fee estimates may be required to initiate the project. The proposed fees are based on the scope of services presented above and Ninyo & Moore's understanding of the existing conditions at the Project Area. The fees do not include costs that may arise due to unforeseen or unfavorable conditions or for post-report consultations.

If this proposal meets your expectations, please provide formal authorization in the form of a sub-consultant agreement, purchase order, or work authorization to initiate project activities.

Ninyo & Moore appreciates the opportunity to provide services on this project and we look forward to working with you.

Respectfully submitted,
NINYO & MOORE



Mark J. Guatney, PE, CHMM
Principal Engineer, Environmental Operations Manager

MJG/

Distribution: (1) Addressee (via e-mail)

Attachment A Table 1 - Breakdown of Estimated Fee

Attachment B Documentation of Outside Service Fees

ATTACHMENT A

Table 1 - Breakdown of Estimated Fee

TABLE 1 - BREAKDOWN OF ESTIMATED FEE

BACKGROUND REVIEW, MOBILIZATION AND DEMOBILIZATION

Principal Engineer/Geologist/Environmental Scientist	1 hour	@ \$	180.00 /hour	\$	180.00
Senior Engineer/Geologist/Environmental Scientist	hour	@ \$	150.00 /hour	\$	-
Senior Project Engineer/Geologist/Environmental Scientist	hour	@ \$	140.00 /hour	\$	-
Project Engineer/Geologist/Environmental Scientist	4 hour	@ \$	120.00 /hour	\$	480.00
Senior Staff Engineer/Geologist/Environmental Scientist	hour	@ \$	115.00 /hour	\$	-
Staff Engineer/Geologist/Environmental Scientist	4 hour	@ \$	110.00 /hour	\$	440.00
GIS Analyst	hour	@ \$	100.00 /hour	\$	-
Technical Illustrator/CAD Operator	4 hour	@ \$	75.00 /hour	\$	300.00
Geotechnical/Environmental/Assistant	hour	@ \$	55.00 /hour	\$	-
Information Specialist	hour	@ \$	55.00 /hour	\$	-
Data Processing, Technical Editing, or Reproduction	2 hour	@ \$	55.00 /hour	\$	110.00
Subtotal					\$ 1,510.00

FIELD SERVICES

Principal Engineer/Geologist/Environmental Scientist	hour	@ \$	180.00 /hour	\$	-
Senior Engineer/Geologist/Environmental Scientist	hour	@ \$	150.00 /hour	\$	-
Senior Project Engineer/Geologist/Environmental Scientist	hour	@ \$	140.00 /hour	\$	-
Project Engineer/Geologist/Environmental Scientist	16 hour	@ \$	120.00 /hour	\$	1,920.00
Senior Staff Engineer/Geologist/Environmental Scientist	hour	@ \$	115.00 /hour	\$	-
Staff Engineer/Geologist/Environmental Scientist	16 hour	@ \$	110.00 /hour	\$	1,760.00
GIS Analyst	hour	@ \$	100.00 /hour	\$	-
Technical Illustrator/CAD Operator	hour	@ \$	75.00 /hour	\$	-
Geotechnical/Environmental/Assistant	hour	@ \$	55.00 /hour	\$	-
Information Specialist	hour	@ \$	55.00 /hour	\$	-
Data Processing, Technical Editing, or Reproduction	hour	@ \$	55.00 /hour	\$	-
Truck Usage	16 hour	@ \$	12.00 /hour	\$	192.00
Lodging	night	@ \$	100.00 /night	\$	-
Per Diem (2 people, 2 days)	days	@ \$	30.00 /day	\$	-
Subtotal					\$ 3,872.00

TABLE 1 - BREAKDOWN OF ESTIMATED FEE

LABORATORY ANALYSES & EXPENSES

Asbestos Bulk Sample Analysis by PLM	36 each @ \$	7.90 /each \$	284.40
Asbestos Bulk Sample Analysis by PLM of Built Up Roofing	hour @ \$	60.00 /hour \$	-
Asbestos Bulk Sample Analysis by TEM	each @ \$	56.70 /each \$	-
Point Count Quantitation (2%-10%)	each @ \$	25.20 /each \$	-
TCLP Lead Analysis of Demo Composite	each @ \$	85.00 /each \$	-
XRF Hand Held Lead Analyzer	day @ \$	300.00 /day \$	-
Noise Type 2 Dosimeter Rental	day @ \$	100.00 /day \$	-
Flame AA Lead Paint Chip Analysis	25 each @	\$7.00 /each \$	175.00
Flame AA Lead Wipe Sample Analysis	each @	\$30.00 /each \$	-
Shadow Truck Traffic Control	1 day @	\$650.00 /day \$	650.00
EDR Environmental Database	2 each @	\$265.00 /each \$	530.00
EDR Parcel Platform for Phase I ESA	each @	\$100.00 /each \$	-
Environmental Lien Search (per parcel)	each @	\$100.00 /each \$	-
Local Records Review Fees (agency research, copies)	3 each @	\$70.00 /each \$	210.00
ADEQ Reproduction of File Pages	100 each @	\$0.25 /each \$	25.00
Markup of Laboratory & Expenses			\$ 281.16
Pima County ROW Permit	1 each @	\$285.00 /each \$	285.00
Subtotal			\$ 2,440.56

REPORT PREPARATION

Principal Engineer/Geologist/Environmental Scientist	8 hours @ \$	180.00 /hour \$	1,440.00
Senior Engineer/Geologist/Environmental Scientist	hour @ \$	150.00 /hour \$	-
Senior Project Engineer/Geologist/Environmental Scientist	hour @ \$	140.00 /hour \$	-
Project Engineer/Geologist/Environmental Scientist	20 hours @ \$	120.00 /hour \$	2,400.00
Senior Staff Engineer/Geologist/Environmental Scientist	hour @ \$	115.00 /hour \$	-
Staff Engineer/Geologist/Environmental Scientist	32 hours @ \$	110.00 /hour \$	3,520.00
GIS Analyst	hour @ \$	100.00 /hour \$	-
Technical Illustrator/CAD Operator	6 hours @ \$	75.00 /hour \$	450.00
Geotechnical/Environmental/Assistant	hour @ \$	55.00 /hour \$	-
Data Processing, Technical Editing, or Reproduction	4 hours @ \$	55.00 /hour \$	220.00
Subtotal			\$ 8,030.00

TOTAL ESTIMATED FEE

\$15,852.56

ATTACHMENT B

Documentation of Outside Service Fees



EDR Fee Schedule Ninyo & Moore

Prices effective November, 2016

EDR Packages with Lightbox™ (see table on page 3)

Premium Package

Standard Package

\$ 265

Basic Package

Scope Specific Addendums (with Package)

NEPACheck Report

Industrial Addendum

Multi Tenant Retail Report (no cov/cov)

Report Authoring & Project Management

PARCEL Phase I ESA \$ 100

PARCEL PCA

PARCEL FDIC Checklist

PARCEL Database Review

a la Carte Resources

Radius Map w/ GeoCheck \$ 145

Radius Map w/o GeoCheck \$ 135

VEC Screening Application \$ 65

Certified Sanborns (no cov/coverage) \$ 65 / \$ 145

Certified Sanborns with Radius Map \$ 0 / \$ 95

Additional Certified Sanborn Tiles \$ 65

Aerial Photo Decade Package \$155

Adjoining Sets of Aerial Photos \$155

City Directory Search (no cov/coverage) \$65 / \$115

CD Additional Address (Abstract only) \$25

CD Additional Street (Image only) \$45

Historical Topographic Maps \$115

Adjoining Sets of Historical Topos \$115

EDR Building Permit Report \$65

Land Title Reports

Chain of Title (one deed) \$ 300

COT Additional Deed \$ 300

Env Lien & AUL Search Report \$ 100

Env Lien & AUL Additional Deed \$ 100

Env Lien & AUL same Deed \$50

COT & Lien Combo \$325

EDR Packages

		Radius Map	Basic	Standard	Premium
Data Collection & Analysis					
Lightbox	NEW!	✓	✓	✓	✓
Mobile App	NEW!	✓	✓	✓	✓
DigitalGlobe w/Re-use in Lightbox	NEW!		✓	✓	✓
VEC App				✓ NEW!	✓
Reports & Data					
Radius Map Report		✓	✓	✓	✓
Recovered Govt. Archives (Exclusive)	NEW!	✓	✓	✓	✓
Single File for Historical Reports	NEW!		✓	✓	✓
Certified Sanborn Maps			✓	✓	✓
Historical Aerials			✓	✓	✓
Historical City Directories			Select One	✓	✓
Historical Topos				✓	✓
Property Tax Map Report					✓
Building Permit Report (PDF)					✓
EDR Lien & AUL Report					✓
Free Historical Report Reworks					✓
1-3 Day TAT (except Lien Search)	NEW!				✓



EMSL ANALYTICAL, INC.

<http://www.emsl.com>

800-220-3675

EMSL ANALYTICAL, INC. Laboratory Services Price Guide Ninyo & Moore Customer ID: NINY78



Locally Focused.....
.....Nationally Recognized.

Submitted to:
Ninyo & Moore
3202 East Harbour Drive
Phoenix, AZ 85034
602-243-1600

Submitted by:
Randy J. Cavadini, Regional Account Manager
3356 West Catalina Dr.
Phoenix, AZ 85017

Asbestos Laboratory Services ¹

PCM - Air	3 Hr	6 Hr	24 Hr	48 Hr	72 Hr	96 Hr	1 Wk	2 Wk
NIOSH 7400	\$13.15	\$9.20	\$6.85	\$6.55	\$6.30	\$6.05	\$5.80	\$5.50
NIOSH 7400 - B Rules	\$15.20	\$11.30	\$8.95	\$8.65	\$8.40	\$8.15	\$7.90	\$7.60
NIOSH 7400 with OSHA Time Weighted Average (TWA)	\$15.20	\$11.30	\$8.95	\$8.65	\$8.40	\$8.15	\$7.90	\$7.60
ASTM D7200	\$24.15	\$12.60	\$7.90	\$7.60	\$7.35	\$7.10	\$6.85	\$6.55
ASTM D7201	\$24.15	\$12.60	\$7.90	\$7.60	\$7.35	\$7.10	\$6.85	\$6.55
OSHA ID-160	\$75.50	\$48.00	\$35.25	\$27.65	\$26.45	\$25.30	\$24.10	\$21.70
Fiber Count by Phase Contrast Microscopy (PCM) consistent with IRSST Method 243-1	\$23.10	\$11.55	\$6.85	\$6.55	\$6.30	\$6.05	\$5.80	\$5.50

TEM - Air ²	2.5 - 3 Hr	4 - 4.5 Hr	6 Hr	24 Hr	48 Hr	72 Hr	96 Hr	1 Wk	2 Wk
AHERA (40 CFR Part 763 Appx. A subpart E)	\$331.00	\$158.00	\$63.00	\$50.50	\$47.25	\$46.25	\$42.00	\$40.00	\$37.75
NIOSH 7402	Call	Call	\$94.50	\$82.00	\$79.00	\$77.50	\$73.50	\$71.50	\$69.50
ASTM D 6281 (price for up to 10 grid openings)	Call	Call	Call	\$364.00	\$294.00	\$284.00	\$273.00	\$263.00	\$252.00
ISO 10312 (price for up to 10 grid openings)	Call	Call	Call	\$352.00	\$305.00	\$294.00	\$284.00	\$273.00	\$263.00
ISO 13794 Indirect Prep (price for up to 10 grid openings)	Call	Call	Call	\$415.00	\$383.00	\$378.00	\$357.00	\$347.00	\$336.00
EPA Level II (Yamate) (price for up to 10 grid openings)	\$331.00	\$158.00	\$63.00	\$50.50	\$47.25	\$46.25	\$42.00	\$40.00	\$37.75
Modified TEM CARB AHERA (price for up to 10 grid openings)	Call	Call	\$203.00	\$153.00	\$129.00	\$123.00	\$121.00	\$116.00	\$109.00

PLM - Bulk Building Materials ^{3,4}	3 Hr	6 Hr	24 Hr	48 Hr	72 Hr	96 Hr	1 Wk	2 Wk
EPA/600/R-93/116 (Calibrated Visual Estimate, reporting limit to <1%)	\$25.20	\$16.80	\$9.45	\$8.40	\$7.90	\$7.70	\$7.60	\$7.35
EPA/600/R-93/116 (400 Point Count) (reporting limit to <0.25%)	\$38.75	\$29.40	\$25.20	\$21.00	\$17.85	\$17.60	\$17.30	\$16.80
EPA/600/R-93/116 (1,000 Point Count) (reporting limit to <0.1%)	\$84.00	\$63.00	\$50.50	\$40.00	\$35.75	\$32.50	\$29.40	\$23.10
NIOSH 9002 (reporting limit to <1%)	\$26.25	\$15.75	\$7.90	\$7.35	\$6.55	\$6.30	\$6.05	\$5.80
EPA-600/ M4-82-020	\$56.50	\$35.75	\$28.35	\$26.25	\$24.15	\$22.05	\$19.95	\$16.80
OSHA ID-191	\$397.00	\$266.00	\$164.00	\$145.00	\$127.00	\$114.00	\$108.00	\$98.50
Standard Addition Method (add \$100 if TEM needed)	N/A	N/A	\$404.00	\$336.00	\$268.00	\$236.00	\$226.00	\$205.00
IRSST 244-3	\$258.00	\$172.00	\$103.00	\$82.00	\$72.50	\$65.00	\$63.00	\$59.00

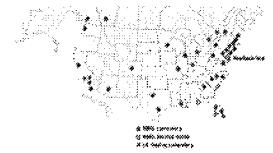
PLM - Bulk for Problem Matrices such as NOB's (Gravimetric Reduction Prep) ⁵	24 Hr	48 Hr	72 Hr	96 Hr	1 Wk	2 Wk
PLM EPA NOB-EPA/600/R-93/116 (target reporting limit 0.5%) with Gravimetric Reduction	\$19.95	\$18.90	\$18.40	\$18.20	\$18.10	\$17.85
PLM EPA NOB-EPA/600/R-93/116 (400 pt count) (reporting limit to <0.25%) with Gravimetric Reduction	\$35.75	\$31.50	\$28.35	\$28.10	\$27.80	\$27.30
PLM EPA NOB-EPA/600/R-93/116 (1,000 pt count) (reporting limit to <0.1%) with Gravimetric Reduction	\$61.00	\$50.50	\$46.25	\$43.00	\$40.00	\$33.50
EPA NOB Prep Fee for samples prepped but not analyzed (Positive Stop)	\$10.50	\$10.50	\$10.50	\$10.50	\$10.50	\$10.50

This unit price quote includes Customer Specific pricing which takes into account types of samples typically and/or routinely submitted, volume of workload expected, and client payment history and/or credit rating. Any/all work performed will be in accordance with EMSL Analytical, Inc. Terms and Conditions included herein. Quote is not valid if work is not submitted within 30 days. If samples are submitted to EMSL within thirty days of the quote date, then these prices are valid through December 31, 2019 or for the duration specified in a formal agreement by and between EMSL and customer. Those prices will be subject to our January 2021 price increase adjustment as well as bi-annual price increase adjustments thereafter. Additionally, EMSL reserves the right to adjust pricing at our sole discretion based on (but not limited to) the customer's non-compliance with net 30 day payment terms, change in scope of work including but not limited to an amount/volume of work less than described at the time of the quote, and/or non-compliance with the EMSL terms and conditions included herein as well as changes in market cost conditions, increases in costs of lab supplies and costs, and/or changes in regulatory rules or lab accreditation requirements.



EMSL ANALYTICAL, INC.

EMSL ANALYTICAL, INC. Laboratory Services Price Guide Ninyo & Moore Customer ID: NINY78



<http://www.emsl.com>

800-220-3675

Locally Focused.....
.....Nationally Recognized.

Lead Laboratory Services (Air, Chips & Wipes)¹⁰

FLAME AA	3 Hr	6 Hr	24 Hr	48 Hr	72 Hr	96 Hr	1 Wk	2 Wk
Paint Chips (SW-846-7000B)	\$19.00	\$15.00	\$9.00	\$7.50	\$7.00	\$6.75	\$6.50	\$6.25
Air (NIOSH 7082)	\$19.00	\$15.00	\$9.00	\$7.50	\$7.00	\$6.75	\$6.50	\$6.25
Wipes (SW-846-7000B)	\$124.00	\$68.00	\$41.00	\$33.00	\$30.80	\$27.35	\$25.10	\$21.65
Soil (SW-846-7000B) ¹¹	Call	\$74.00	\$46.75	\$39.00	\$35.50	\$32.00	\$30.80	\$27.35
Wastewater (SW-846-7000B)	Call	\$74.00	\$46.75	\$39.00	\$35.50	\$32.00	\$30.80	\$27.35
GRAPHITE FURNACE		Same Day	24 Hr	48 Hr	72 Hr	96 Hr	1 Wk	2 Wk
Drinking Water (EPA 200.9)	Call	\$100.00	\$63.00	\$52.50	\$47.25	\$42.00	\$36.75	
Air (NIOSH 7105)	Call	\$68.50	\$47.25	\$42.00	\$36.75	\$31.50	\$26.25	
Wastewater (SW-846-7010/7421)	Call	\$68.50	\$47.25	\$42.00	\$36.75	\$31.50	\$26.25	
TCLP (Flame AA)	3 Hr	6 Hr	30 Hr	48 Hr	72 Hr	96 Hr	1 Wk	2 Wk
Toxicity Characteristic Leaching Procedure	N/A	N/A	\$289.00	\$76.00	\$61.00	\$59.00	\$56.00	\$53.00
TTLC (Flame AA)	3 Hr	6 Hr	24 Hr	48 Hr	72 Hr	96 Hr	1 Wk	2 Wk
Total Threshold Limit Concentration	N/A	N/A	\$19.00	\$17.00	\$15.00	\$14.00	\$13.00	\$11.00
STLC (Flame AA)	3 Hr	6 Hr	24 Hr	48 Hr	72 Hr	96 Hr	1 Wk	2 Wk
Soluble Threshold Limit Concentration	N/A	N/A	N/A	N/A	\$73.50	\$71.50	\$68.50	\$65.00
ICP/ICP-MS	Same Day	1 Day	2 Day	3 Day	4 Day	1 Wk	2 Wk	
Lead in Drinking Water (EPA 200.5)	N/A	\$98.50	\$52.50	\$42.00	\$36.75	\$31.50	\$26.25	
Lead by ICP-MS via 200.8/6020A	N/A	\$110.00	\$63.00	\$52.50	\$47.25	\$42.00	\$36.75	
TSP Lead		1 Day	2 Day	3 Day	4 Day	1 Wk	2 Wk	
Lead in Suspended Particulate Matter (40 CFR Part 50: by ICP-MS) ¹²		\$126.00	\$94.50	\$79.00	\$73.50	\$68.50	\$66.00	

This unit price quote includes Customer Specific pricing which takes into account types of samples typically and/or routinely submitted, volume of workload expected, and client payment history and/or credit rating. Any/all work performed will be in accordance with EMSL Analytical, Inc. Terms and Conditions included herein. Quote is not valid if work is not submitted within 30 days. If samples are submitted to EMSL within thirty days of the quote date, then these prices are valid through December 31, 2019 or for the duration specified in a formal agreement by and between EMSL and customer. These prices will be subject to our January 2021 price increase adjustment as well as bi-annual price increase adjustments thereafter. Additionally, EMSL reserves the right to adjust pricing at our sole discretion based on (but not limited to) the customer's non-compliance with net 30 day payment terms, change in scope of work including but not limited to an amount/volume of work less than described at the time of the quote, and/or non-compliance with the EMSL terms and conditions included herein as well as changes in market cost conditions, increases in costs of lab supplies and costs, and/or changes in regulatory rules or lab accreditation requirements.



REMIT TO:
2533 W. Holly St. Phoenix, AZ 85009 Phone: 602-431-0911 Fax: 602-272-2827

INVOICE

Invoice Date	Invoice No.
5/15/2018	01414342

Terms: Net 30 Days

NINYO & MOORE
3202 EAST HARBOUR DR
PHOENIX, AZ 85034

Job Information:
22ND ST /KINO
TUCSON

FM

Customer	Job No.	Customer Job No.		P.O. Number			Period Covered			Start Date
NINYO	768982	605689001					5/3/2018 - 5/8/2018			05/03/18
Tran Date	Ticket#	Qty	Description	On Rent	Per Unit	Per Day	From - To	Days	Total	
05/08/18	D0662863	5.5	1 Man 1 Truck Shadow/Hr.	5.5	\$58.00	\$319.00		1	\$319.00	
05/03/18	D0661900	1	Traffic Control Plan Sheet	1	\$60.00	\$60.00		1	\$60.00	
05/03/18	D0661900	1	Tucson Permit Submittal Fee	1	\$90.00	\$90.00		1	\$90.00	
05/03/18	D0661900	1	Tucson Plan Submittal Fee	1	\$60.00	\$60.00		1	\$60.00	

Equipment \$0.00
Labor \$529.00
Tax \$32.27
NonTaxable Subtotal \$0.00

Invoice Total \$561.27

JOB IS COMPLETE

Trafficade Service, Inc., aka Work Zone Milling & Paving, Trafficade Work Zone Shoring

We accept Credit Cards. There will be a 3% Processing Fee.

NINYO & MOORE

Phoenix Office

Approval Date

Project No.

Bill Hours ☐

Bill Invoice ☒

Amount to Pay

Approved By

Approved By

newton

Environmental Consulting, LLC

March 31, 2020

Mr. Michael Dawson
EcoPlan Associates, Inc.
3610 N. Prince Village Place, Suite 140
Tucson, AZ 85719

Project: South Houghton Road Widening
Environmental Results Memorandum (ERM)

Re: Scope-of-Services and Cost-Estimate for Traffic Noise Analysis and Air Quality Assessment


Dear Mr. Michael Dawson:

Newton Environmental Consulting, LLC (NEC) is pleased to submit for your consideration our Scope-of-Services and Cost-Estimate for the Traffic Noise and Air Quality Evaluations for the Environmental Results Memorandum for the South Houghton Road Widening project for the City of Pima County Transportation Department within Tucson, Arizona.

NEC will provide the services for traffic noise and air quality assessments as described in the Scope of Service for an amount of \$24,482.56.

We hope that you will find this Scope-of-Services and Cost-Estimate complete. Please call me directly at 602.332.9642, should you have any questions or require additional information.

Sincerely,



Angela Newton Principal

Attachments: Cost Derivation Sheets

NEC SCOPE-OF-SERVICES

South Houghton Road Widening

PROJECT UNDERSTANDING

The South Houghton Road Widening project consists of widening approximately 2.9 miles of the Houghton Roadway from two lanes to four lanes from south of I-10 to the Andrada Polytechnic High School. This effort is being pursued to improve safety, increase capacity, reduce congestion, improve operations (with turning lanes to be provided at intersections and cross streets where warranted), increase mobility, and address accessibility/operational issues. The project is located within Pima County within Tucson, Arizona.

NOISE STUDY & AIR QUALITY ANALYSIS ASSUMPTIONS

NEC assumes one (1) design configuration and one (1) proposed alignment for South Houghton Road. Noise level measurements will be conducted with a 2-person team at no more than four (4) locations. Traffic will be counted during the noise measurements for input into the TNM 2.5 noise model for validation purposes and also to establish existing noise levels at several locations around the Andrada Polytechnic High School and the Pantano High School. Public and agency meetings to discuss noise impacts for the South Houghton Road Project are not included in this cost estimate.

The proposed project is located in a part of Pima County that is currently in attainment for all National Ambient Air Quality Standards (NAAQS). In addition, the project is being conducted by the Pima County Department of Transportation (Pima County DOT) without federal funding. Therefore, federal transportation conformity requirements will not apply.

NEC will coordinate with the Pima County DOT and the Pima County Department of Environmental Quality (Pima County DEQ), the air quality control district for Pima County, to discuss the proposed project. A qualitative air quality assessment will be prepared that discusses the air quality attainment status of the project area, monitoring results from the nearest monitoring stations, and conclusions as to the likelihood of the project being considered a project of air quality concern. In addition, mobile source air toxics (MSATs) and fugitive dust will be discussed based on the most recent guidance relating to these constituents. This project is will most likely to have no meaningful MSAT effects.

Additional tasks, analysis of additional design alternatives and/or analysis due to design modifications, per your authorization, are considered out of scope and are subject to a cost-modification.

LIST OF REQUIRED ITEMS

The items listed in the table on the following page are required to complete the Traffic Noise Study. NEC anticipates the first draft noise and will be available for internal project team review within eight (8) weeks after receiving all of the requested items.

REQUIRED ITEMS Pima County Transportation Department South Houghton Road Widening		
Items	Description	Notes
1. CAD Files	Roadway design files, land use data/Base Files, Aerial files	Microstation compatible, SID, HMR, TIFF formats or GIS to be provided by EcoPlan.
2. Roadway Geometry Files	Horizontal and vertical roadway alignment files	Microstation compatible or GIS to be provided by EcoPlan.
3. Terrain Data	Survey and topographical data, Digital Terrain Model (DTM)	Microstation compatible or GIS to be provided by EcoPlan.
4. Traffic Volume Data	AM/PM peak hour traffic volumes, vehicle mix, ADT for autos and trucks.	To be provided by EcoPlan.

TASKS DESCRIPTIONS

1. Project Management

- Scoping, scheduling, budgeting, and billing services.

2. Meetings

- Attend a total of two (2) project progress meetings in Tucson and six (6) meetings via teleconference.

3. Field Assessment

- Conduct site-assessment evaluate land use adjacent to the project limits and identify noise sensitive receptors.
- Conduct noise level measurements with concurrent traffic counts using 2-person team at no more than 4 locations.

4. Data Assessment

- Review as-built plans, traffic data, and electronic design files.
- Prepare/extract data from plans and design files for noise model use from traffic studies and design plans for use in the Federal Highway Administration (FHWA) approved Traffic Noise Model version 2.5 (TNM 2.5)

5. Noise Analysis

- Prepare noise model using TNM 2.5
- Prepare noise mitigation to comply with the *Pima County Traffic Noise Analysis and Mitigation Guidance for Major Roadway Projects*, which was revised April 2008.
- Prepare air quality assessment discussing potential impacts associated with the proposed project.

6. Reports

- Revise draft noise analysis technical report (electronic PDF format) for internal team review.
- Address comments per internal team review; revise the noise analysis technical report for final submittal (electronic PDF format).

South Houghton Road Widening

March 31, 2020

PCDT Project ID.: CTR.4SHRWD

DERIVATION OF COST PROPOSAL SUMMARY

ESTIMATED DIRECT LABOR

<u>Classification</u>	<u>Estimated Hours</u>	<u>Average Hourly Rate</u>	<u>Labor Cost</u>
Project Manager	6	\$141.51	\$849.06
Noise Specialist	112	\$116.00	\$12,992.00
Air Quality Specialist	30	\$118.00	\$3,540.00
Technician	70	\$84.91	\$5,943.70
Administrative	20	\$57.89	\$1,157.80
Total Hours:	238	Total Estimated Labor Cost:	\$24,482.56

TOTAL ESTIMATED COST: \$24,482.56



Angela Newton
Principal

3/31/2020

Date

South Houghton Road Widening

March 31, 2020

PCDT Project ID.:

CTR.4SHRWD

TASK NO.	TASK DESCRIPTION	Project Manager	Noise Specialist	Air Quality Specialist	Technician	Administrative	Task Hour
		\$141.51	\$116.00	\$118.00	\$84.91	\$57.89	
1	100- PROJECT MANAGEMENT						
	Scoping, scheduling, budgeting, and billing services.	2	6	-	-	8	16
2	200- MEETINGS						
	Project Progress Meeting- Attend two (2) meetings in Tucson and six (6) meetings via teleconference.	-	24	-	-	-	24
3	300- FIELD ASSESSMENT						
	Site Assessment- prepare mapping, evaluate land use adjacent to the project limits and identify noise sensitive receptors (2-person team)	-	4		-	-	4
	Noise Level Measurements (2-person team, 4 locations).	-	10		10	-	20
4	400- DATA ASSESSMENT						
	Review as-builts, design files and traffic data.	-	4		4	-	8
	Extract data from as-builts and design files for noise model.	-	8		24	-	32
5N	500N- NOISE ANALYSIS						
	Build and run TNM 2.5 noise model.		16		16	-	32
	Identify noise impacts and evaluate noise mitigation as needed per Pima County Traffic Noise Analysis and Mitigation Guidance for Major Roadway Projects. Prepare figures for report.		20		4	-	24
5A	500A- AIR QUALITY ANALYSIS						
	Prepare qualitative air quality assessment.			22	-	-	22
6N	600N - NOISE REPORT						
	Prepare and submit draft noise analysis technical report (electronic PDF format) for internal team review.	2	16		8	4	30
	Address comments per internal team review; revise the noise analysis technical report for final submittal (electronic PDF format).		2		2	2	6
6A	600A - AIR QUALITY MEMORANDUM						
	Prepare and submit draft air quality assessment memorandum (electronic PDF format) for internal team review.	2		8		4	14
	Address comments per internal team review; revise the air quality assessment memorandum for final submittal (electronic PDF format).		2		2	2	6
Total Hours		6	112	30	70	20	238

Wheat Design

PIMA COUNTY DEPARTMENT OF TRANSPORTATION

WDG submittal date: 3/31/2020

Design Engineering Services for 4SHRWD South Houghton Road Widening

Pima County Contract No.

For Period Ending:

Task #	Task	Total Contract Cost
PROFESSIONAL SERVICES		
Direct Labor		
A.1	Project Management and Quality Control	\$2,398.00
A.2	Value Analysis	\$0.00
A.3	Public Participation	\$2,920.00
A.4	Public Art	\$0.00
A.5	Utility Coordination	\$0.00
A.6	Environmental Impact Screening	\$1,056.00
A.7	Surveying and Mapping	\$0.00
A.8	Drainage	\$0.00
A.9	Geotechnical	\$0.00
A.10	Pavement Design	\$0.00
A.11	Traffic Engineering	\$0.00
A.12	Arterial Street Lighting	\$0.00
A.13	Design Memorandum (DM)	\$884.00
A.14	Environmental Reports	\$12,524.00
A.15	Right-of-Way Acquisition Support	\$0.00
A.16	Preparation of Construction Documents	\$21,304.00
Direct Labor Sub Total =		\$41,086.00
Overhead Fee		
	164.81%	\$67,713.84
Labor Sub Total =		\$108,799.84
Fixed Fee		
	10%	\$10,879.98
Sub Total =		\$10,879.98
ODC		
	Direct Costs (Exhibits for open houses)	\$384.00
Sub Total =		\$384.00
Subconsultants		
		\$0.00
		\$0.00
		\$0.00
Sub Total =		\$0.00
Design Services Total		\$120,063.82
Other		
Task B	Additional Services	\$0.00
Task C	Post Design Services	\$9,414.64
Sub Total =		\$9,414.64
Total Contract Amount		\$129,478.46

March 31, 2020

Sean Samsel, PE
PSOMAS
333 East Wetmore, Suite 450
Tucson, Arizona 85705

Re: 4SHRWD South Houghton Road Widening cost proposal

Dear Sean,

We are pleased to submit this proposal for providing landscape architectural services for the above stated project. We have based this scope and fee on the emails and exhibits PSOMAS has provided. Basic services will include submittal of Native Plant Inventory & Mitigation Report, Visual Assessment, Landscape & Irrigation Plans and Details, Special Provisions, and Cost Estimate. CAD drafting of the construction documents will be provided in AutoCAD to Pima County standards. Please refer to the attached Workhour Estimates for a detailed breakdown of services offered.

Assumptions:

1. Landscape architectural services are provided for 18-months.
2. Pima Association of Governments Standard Specifications and Details (2016) will be used.
3. PSOMAS will provide current aerials and base files in AutoCAD format.
4. Native plant inventory will follow the Environmentally Sensitive Roadway guidelines located in Chapter 4 of Pima County's Roadway Design Manual.
5. The technical review, checking procedures, and monitoring process shall follow Wheat Design Group's QA/QC plan for each submittal.
6. Landscape Architect's hours for performing quality control shall be billed toward the specific tasks.
7. All submittals will be in pdf format to PSOMAS; including no mylars for Signed & Sealed Final submittal.

SCOPE OF WORK

TASK A DESIGN SERVICES

TASK A.1: PROJECT MANAGEMENT AND QUALITY CONTROL

Task A.1.3 Meetings and Communication.

This task includes preparation and attendance to the following meetings:

- Attend (1) Kick-off Meeting.
- Attend (11) Monthly Meetings.
- Attend (3) Comment Review Meetings.

TASK A.3: PUBLIC PARTICIPATION

Task A.3.2 Community Advisory Committee Meetings.

This task includes preparation and participation for (4) Community Advisory Committee Meetings.

Task A.3.3 Public Meetings.

This task includes preparation and participation for (2) public open houses.

TASK A.6: ENVIRONMENTAL IMPACT SCREENING

Task A.6.1 Environmental Coordination Meeting.

This task includes preparation and participation in the Environmental Coordination Meeting.

Task A.6.5 Team Review.

This task includes preparation and participation in the environmental Team Review Meeting.

TASK A.13 DESIGN MEMORANDUM (DM)

Task A.13.2 Project Area Characteristics (Existing Conditions).

This task includes coordination with PSOMAS regarding the visual and aesthetic resources information for inclusion in the DM.

Task A.13.6 Cost Estimate.

This task includes coordination with PSOMAS regarding landscape cost information for inclusion in the DM.

TASK A.14 ENVIRONMENTAL REPORTS

Task A.14.2 Biological Evaluation/Wildlife Habitat.

This task includes:

- Pima Pineapple Cactus (PPC) survey for the entire project limits including current Pima County right-of-way along South Houghton Road, future Pima County right-of-way along the roadway after property acquisition (additional 50' of ROW), all drainage easements, all TCE's, areas that will have slope disturbances, and future graded areas along Brekke and Dawn Roads .

Task A.14.3 Vegetation Sampling/Measurement.

This task includes:

- Native plant inventory per ESR guidelines along South Houghton Road within the project limits. This includes NPPO plans and a mitigation report.
- Native plant relevés for the existing drainage way in the Pima Fairgrounds property, area where there will be future drainage way between Houghton Road and the fairground property, and future graded areas along Brekke and Dawn Roads.
- Riparian mitigation plans.

Task A.14.9 Visual Assessment.

This task includes a visual resource and aesthetics evaluation in report format.

TASK A.16 PREPARATION OF CONSTRUCTION DOCUMENTS

Task A.16.2 Final Design Phase Plans.

Task A.16.3 Initial PS&E.

Task A.16.4 Final PS&E.

Deliverables:

1. *Initial Design Phase Submittal (Task A.16.1): No landscape sheets for this submittal.*
2. *Final Design Phase Submittal: Typical Landscape plan, Typical Landscape Surface plan, Standard details, and cost estimate.*
3. *Initial PS&E Submittal: Native Plant inventory and documentation, Landscape plans and details, Landscape Surface plans and details, cost estimate and Special Provisions.*
4. *Final PS&E Submittal: Signed & Sealed Native Plant inventory and documentation, Landscape plans and details, Landscape Surface plans and details, cost estimate and Special Provisions.*

TASK C POST DESIGN SERVICES

TASK C.1: PRE-BID SERVICES

Task C.1.1 Pre-Bid Services.

This task may include the following tasks:

- Attend pre-bid meeting.
- Assist with amendments.

- Addressing questions in the PSE submittal.

TASK C.2 CONSTRUCTION SERVICES

Task C.2.1 Construction Services.

This task may include the following tasks:

- Attend pre-construction and partnering meeting.
- Revise drawings to support construction efforts.
- Review shop drawings and/or product submittals.
- Prepare "as-built" documents.

Professional Fees:

The work will be based on the hourly rates provided and based on the hours and tasks listed in the attached Workhour Estimate worksheet. Work beyond this scope will be considered additional services and will not proceed without approval from the Client. Billings for services will be submitted at the end of each month based on a percentage of work completed.

We very much look forward to working with you on this project.

Sincerely,



Laura Mielcarek, Principal
Wheat Design Group, Inc.

Wheat Design Group DERIVATION OF COST PROPOSAL SUMMARY

PROJECT: 4SHRWD South Houghten Road Widening
 SFQ No.: SRQ-PO-1900019
 DBE: Yes #1025
 PREPARED BY: Laura Mielcarek, Principal
 CONTRACT TIME: 18 months

DATE: 03/31/20
 CONTRACT NO.:
 CONSULTANT: Wheat Design Group, Inc.

DESIGN DIRECT LABOR COST

Item No.	TASK DESCRIPTION	CLASSIFICATION	No. HOURS	HOURLY RATE	TOTAL COST
			<u>Hours</u>	<u>Rates</u>	<u>Cost</u>
	Landscape Architectural	Project Manager-Sr.	163	\$50.00	\$8,150.00
	Services	Registered Landscape Architect-Sr.	226	\$38.00	\$8,588.00
		Registered Landscape Architect	372	\$34.00	\$12,648.00
		Designer	390	\$30.00	\$11,700.00
(A) Direct Labor			1151	Hrs.	\$41,086.00
NEGOTIATED OVERHEAD					
(B) OH Rate x (A)			164.81%	x	\$41,086.00 = \$67,713.84
PROFIT					
(C) % Profit Rate x (A+B)			10.0%	x	\$108,799.84 = \$10,879.98
OTHER DIRECT EXPENSES					
TRAVEL					\$0.00
EXHIBITS FOR OPEN HOUSES					\$384.00
				TOTAL OTHER DIRECT EXPENSES:	\$384.00
ESTIMATED FEES					

(F) TOTAL DESIGN CONSULTANT FEE = \$120,063.82

POST DESIGN FULLY LOADED LABOR COST

Item No.	TASK DESCRIPTION	CLASSIFICATION	No. HOURS	FULLY LOADED HOURLY RATE	TOTAL COST
			<u>Hours</u>	<u>Rates</u>	<u>Cost</u>
	Landscape Architectural	Project Manager-Sr.	24	\$145.65	\$3,495.60
	Services: POST DESIGN	Registered Landscape Architect-Sr.	32	\$110.69	\$3,542.08
		Registered Landscape Architect	24	\$99.04	\$2,376.96
		Designer	0	\$87.38	\$0.00
(A) Direct Labor			80	Hrs.	
TOTAL POST DESIGN CONSULTANT FEE					\$9,414.64

TOTAL CONTRACT AMOUNT \$129,478.46

Wheat Design Group Workhour Estimate by Task

4SHRWD South Houghton Road Widening

3/31/2020

DIRECT HOURLY LABOR RATES		\$50.00	\$38.00	\$34.00	\$30.00	
Description	Project Manager-Sr.	Registered Landscape Architect-Sr.	Registered Landscape Architect	Designer	TOTAL	
A.1 PROJECT MANAGEMENT AND QUALITY CONTROL						
A.1.3 Kick-off Meeting	4	4	0	0	8	
Monthly Meetings (11 max.)	0	33	0	0	33	
Comment Review Meetings (3 max.)	9	9	0	0	18	
Subtotal	13	46	0	0	59	
TASK A.1	\$650.00	\$1,748.00	\$0.00	\$0.00	\$2,398.00	
A.3 PUBLIC PARTICIPATION						
A.3.2 Community Advisory Committee Meetings (4 max.)	12	0	0	12	24	
A.3.3 Public Meetings (2 max.)	6	10	20	20	56	
Subtotal	18	10	20	32	80	
TASK A.3	\$900.00	\$380.00	\$680.00	\$960.00	\$2,920.00	
A.6 ENVIRONMENTAL IMPACT SCREENING						
A.6.1 Environmental Coordination Meeting	6	6	0	0	12	
A.6.5 Team Review	6	6	0	0	12	
Subtotal	12	12	0	0	24	
TASK A.6	\$600.00	\$456.00	\$0.00	\$0.00	\$1,056.00	
A.13 DESIGN MEMORANDUM (DM)						
A.13.2 Project Area Characteristics support	4	8	0	0	12	
A.13.6 Cost Estimate support	4	0	0	6	10	
Subtotal	8	8	0	6	22	
TASK A.13	\$400.00	\$304.00	\$0.00	\$180.00	\$884.00	
A.14 ENVIRONMENTAL REPORTS						
A.14.2 Pima Pineapple Survey (2 people, 4 days)	4	6	32	32	74	
A.14.3 Native Plant Inventory (2 people, 6 days), plans, mitigation report; relevés	8	8	80	80	176	
Riparian Mitigation Plans	4	4	16	16	40	
A.14.9 Visual Assessment	8	24	24	24	80	
Subtotal	24	42	152	152	370	
TASK A.14	\$1,200.00	\$1,596.00	\$5,168.00	\$4,560.00	\$12,524.00	
A.16 PREPARATION OF CONSTRUCTION DOCUMENTS						
A.16.2 Final Design Phase Plans	16	16	40	40	112	
A.16.3 Initial PS&E	40	60	100	100	300	
A.16.4 Final PS&E	32	32	60	60	184	
Subtotal	88	108	200	200	596	
TASK A.16	\$4,400.00	\$4,104.00	\$6,800.00	\$6,000.00	\$21,304.00	
DESIGN TOTAL WORKHOURS	163	226	372	390	1,151	
DESIGN TOTAL DIRECT LABOR	\$8,150.00	\$8,588.00	\$12,648.00	\$11,700.00	\$41,086.00	
FULLY LOADED POST DESIGN HOURLY LABOR RATES		\$145.65	\$110.69	\$99.04	\$87.38	
Description	Project Manager-Sr.	Registered Landscape Architect-Sr.	Registered Landscape Architect	Designer	TOTAL	
C.1 PRE-BID SERVICES						
C.1.1 Pre-bid services	8	8	0	0	16	
Subtotal	8	8	0	0	16	
TASK C.1	\$1,165.20	\$885.52	\$0.00	\$0.00	\$2,050.72	
C.2 CONSTRUCTION SERVICES						
C.2.1 Construction services	16	24	24	0	64	
Subtotal	16	24	24	0	64	
TASK C.2	\$2,330.40	\$2,656.56	\$2,376.96	\$0.00	\$7,363.92	
POST DESIGN TOTAL WORKHOURS	24	32	24	0	80	
POST DESIGN DESIGN TOTAL DIRECT LABOR	\$3,495.60	\$3,542.08	\$2,376.96	\$0.00	\$9,414.64	

CMG Drainage

PIMA COUNTY DEPARTMENT OF TRANSPORTATION
Design Engineering Services for South Houhgton Road Widening
Pima County Contract No.
For Period Ending:
CMG Drainage Engineering Fee Estimate Summary

3/31/2020

Task #	Task	Total Contract Cost
PROFESSIONAL SERVICES		
Direct Labor		
A.1	Project Management and Quality Control	\$ 15,276.39
A.2	Value Analysis	\$4,323.76
A.3	Public Participation	\$1586.72
A.4	Public Art	\$0.00
A.5	Utility Coordination	\$0.00
A.6	Environmental Impact Screening	\$0.00
A.7	Surveying and Mapping	\$509.08
A.8	Drainage	\$135017.93
A.9	Geotechnical	\$0.00
A.10	Pavement Design	\$0.00
A.11	Traffic Engineering	\$0.00
A.12	Arterial Street Lighting	\$0.00
A.13	Design Memorandum (DM)	\$1,732.76
A.14	Environmental Assessment and Mitigation Report (EAMR)	\$0.00
A.15	Right-of-Way Acquisition Support	\$0.00
A.16	Preparation of Construction Documents	\$10,538.44
	Direct Labor Sub Total =	\$168,985.08
Overhead Fee		
	127.00%	\$214,611
	Labor Sub Total =	\$383,596.14
Fixed Fee		
	10%	\$38,360
	Sub Total =	\$38,359.61
ODC		
	Direct Costs	\$2,000
	Sub Total =	\$2,000.00
Subconsultants		
		\$0.00
		\$0.00
		\$0.00
	Sub Total =	\$0.00
Design Services Total		\$423,955.75
Other		
Task C	Post Design Services	\$3,501
	Sub Total =	\$3,500.62
Total Contract Amount		\$427,456.37



CMG DRAINAGE ENGINEERING, INC.

3555 N. MOUNTAIN AVE. • TUCSON, AZ 85719 • PHONE: (520) 882-4244 • FAX: (520) 888-1421

March 31, 2020

Sean Samsel, PE
Psomas
333 E Wetmore Rd, Suite 450
Tucson, Arizona 85705

RE: **South Houghton Road Widening - Drainage Engineering Proposal**
Pima County Project No. 4SHRWD

Dear Sean:

CMG Drainage Engineering (CMG) appreciates the opportunity to submit this South Houghton Rd Widening drainage engineering proposal. Our proposed scope of work and fee estimate are shown below.

PROJECT OVERVIEW

The overall project consists of widening approximately 2.9 miles of the Houghton Roadway from two lanes to four lanes from the I-10/ Houghton Interchange south to the southern limits of the Pantano High School. This effort is being pursued to improve safety, increase capacity, reduce congestion, improve operations (with turning lanes to be provided at intersections and cross streets where warranted), increase mobility, and address accessibility/operational issues.

In general, drainage related proposed improvements to Houghton Road consist of the following:

- Widen the existing 2-lane roadway to a 4-lane divided roadway (approximately 2.9 miles).
- Raise the profile grade of Houghton Road to provide culverts for the conveyance of 100 year flows without flooding onto the roadway pavement.
- Design and construct drainage crossings including any approach channels or downstream drainage improvements.
- Design all improvements within the existing and future right of way such that no coordination with the State Land is impacted.
- Provide a 200- R/W (where adjacent to county owned lands).

There are anticipated to be multiple cross culverts within the project design and numerous locations where upstream flows will need to be collected in collector channels and/or drop structures at the culvert inlets. Additionally, "grade-out" channels may need to be constructed downstream to allow construction of the drop-inlet cross culverts. Drainage will be conveyed through the roadway, then returned to historical downstream drainage patterns as soon as, and to the extent practicable.

The scope of work for this effort includes CMG providing Drainage Engineering Design services according to the Pima County Roadway Design Manual and this contract.

The design criteria for drainage is to provide roadway drainage structures which convey the 100-year peak discharges from the existing conditions 100-year rainfall event under the roadway.

The current edition of the Pima County Roadway Design Manual (RDM) shall be used to provide

roadway and drainage design criteria. The project scope modified the RDM drainage report submittals to include the following five submittals: 1) Existing Conditions Model Review Report, 2) Initial Design Phase submittal, 3) Modeling Report, 4) Final Design Phase submittal and 5) Final PS&E Phase submittal. During the Initial PS&E, CMG will update and provide drainage design information to Psomas to keep pace with refinements made to the Initial PS&E roadway design construction documents, however, no report will be submitted.

WORK TASKS

General Requirements Pertaining to the Drainage Design:

1. *County's environmentally sensitive roadway (ESR) design guidelines apply to this project.*
2. *Unless specified within individual tasks, an original and 2 copies of each report will be submitted to the County.*
3. *All submittals will include an electronic pdf copy of the submittal.*

Task A.1 PROJECT MANAGEMENT & QUALITY CONTROL

Task A.1.1 Project Management

- a. Communicate with Psomas and team members and coordinate on project tasks.
- b. Establish and keep updated files for all correspondence, including electronic, phone, paper, etc.
- c. Manage staff, monitor budget, prepare monthly invoices and progress reports.

Task A.1.2. Quality Control Plan – [This scope item has been included in Task A.8.6]

Task A.1.3. Meetings & Communication

- a. Attend monthly project design team meetings – 18 monthly meetings x 2 hrs each.
- b. Attend sub-consultant and in-house team meetings – 66 weekly in-house meetings/calls x 0.5 hrs each.
- c. Attend pre-review overview meetings – 4 meetings x 2 hrs each.
- d. Attend major review comment meetings – 4 meetings x 4 hrs each.
- e. Attend minor review comment meetings – 4 meetings x 2 hrs each.
- f. Attend as-needed design meetings – 5 meetings x 2 hrs each.

Task A.1.4. Coordinate Between Participating Agencies

- a. Coordinate with involved agencies to include but not be limited to; City of Tucson and US Army Corps of Engineers.

Task A.1.5. Schedule

- a. Provide initial and updated schedule for drainage tasks.

Task A.1.6 Cost Estimating

- a. Assist Psomas to develop Base Cost Estimates for cross drainage components at the beginning phase of the project.
- b. Assist Psomas as-needed to develop Cost Estimates for cross drainage components at each stage submittal.

Task A.2 VALUE ANALYSIS

Task A.2.1. Value Analysis Workshop

- a. Prepare for and attend Value Analysis Workshop.
- b. As part of the Value Analysis efforts, it's assumed that CMG will perform a high-level conceptual design comparison between a full 100-year capacity under-the-roadway cross drainage system versus a combination under- and over-the-roadway system.

Task A.2.2. Value Analysis Evaluation

- a. CMG will assist Psomas in evaluating and responding to proposed VA recommendations after discussion with County. Responses will be documented in a spreadsheet format.

Task A.3 PUBLIC PARTICIPATION

Task A.3.2. Community Advisory Committee Meetings

- a. Attend 2 CAC meetings x 2 hrs each.

Task A.3.3. Public Meetings

- a. Attend 2 public open houses x 4 hrs each.

Task A.7 SURVEY & MAPPING

Task A.7.8. Culture Surveys

- a. Coordinate with Psomas to acquire drainage system field survey data as needed.

Task A.8 DRAINAGE

Assumptions:

- Per direction received from Pima County, cross drainage designs will be undertaken with the expectation that once the County accepts the drainage approach and design, PCRFCFCD, as the regional floodplain management authority, will issue clearance letters waiving limits on upstream ponding and the need for drainage easements east of Houghton Road.
- It's anticipated that flows in excess of 6000 cfs will need to be passed through the roadway within the frontage of the Fairgrounds property. Currently, storm water runoff sheet flows over the roadway, but passing it under the road could concentrate flows and may require construction of structural measures to disperse the drainage and to return it to historical downstream drainage patterns.
- FLO-2D Pro will be used for hydrologic and hydraulic modeling to determine peak discharges, flow distribution and floodplain mapping.
- PCRFCFCD will provide Existing Conditions FLO-2D models (10- & 100-year; 3-hr & 24-hr storms) to the project team. The areal extent of the project models shall include the roadway prism and approximately 0.50 miles upstream of the roadway to negate any potential upstream boundary conditions and approximately 4.0 miles downstream of the roadway to provide a singular modeling construct for any potential future PCRFCFCD modeling efforts within the area.

Task A.8.1. Review Existing Plans & Reports

- a. Review available plans and reports for existing improvements along the project alignment and identify drainage features and flows, including but not limited to the following:
 - Lee Moore Wash: Houghton Road, PCRFCFCD (Existing Conditions Model)
 - Lee Moore Wash-East (LMWE): Upstream of Houghton Road, PCRFCFCD;
 - Lee Moore Wash-West: Downstream of Houghton Road, PCRFCFCD;
 - I-10 Houghton Rd TI Drainage Report, ADOT;
 - Lee Moore Wash Basin Management Study Development Criteria, PCRFCFCD;
 - Pima County Fairgrounds and Andrada Polytechnic High School improvement plans;
 - Southeast Employment and Logistics Center (SELC) Plans.
- b. CMG shall review the PCRFCFCD Existing Conditions Model for accuracy and report to

the District the results of their review, including any significant issues, if any. Any required resolution of the Existing Condition Model shall be resolved at the PCRFCFCD coordination meeting in Task A.8.2.

- c. Acquire latest PAG aerial photo/topo as needed to supplement new project aerial data for watershed evaluation and delineation.
- d. Acquire available GIS data to assist in hydrologic and hydraulic analyses.

Task A.8.2. Hydrologic & Hydraulic Modeling - Houghton.

Task A.8.2.1 Initial Coordination & Meetings with PCRFCFCD.

- a. Coordinate and attend initial coordination meeting with PCRFCFCD to establish/verify FLO-2D modeling strategy & parameters and other hydrologic & hydraulic project design parameters - 1 meeting x 4 hrs.
- b. Prepare a Modeling Memorandum summarizing proposed modeling/design parameters, including a table of FLO-2D modeling parameters, roadway drainage design parameters, and a milestone meeting schedule.
- c. Attend 3 additional PCRFCFCD milestone meetings – 3 meetings x 4 hrs each.

Task A.8.2.2 Existing Hydrology & Hydraulics.

- a. Review the Existing Conditions 15-ft grid project FLO-2D models (provided by PCRFCFCD), which include four models to cover the scenarios of (3-hr & 24-hr rainfall) and (10-year & 100-year floods).
- b. Prepare a draft report documenting the Existing Condition Modeling review findings such as reasonableness/issues of the modeling parameters & results.
- c. Coordinate with PCRFCFCD staff to resolve any existing conditions modeling issues and comments, if there are any. Prepare final report for existing conditions modeling review.
- d. Compute existing conditions 10- & 100-year discharge rates and summarize results for all concentration points along Houghton Road and other identified drainage locations.
- e. Confirm Phase 0 North existing conditions PC-Hydro discharge rates.
- f. Determine the 10-year & 100-year peak discharges and hydrographs at key points within the watershed using PCRFCFCD methodology as noted above.
- g. Evaluate existing hydraulic conditions for flows impacting the project and determine capacity and upstream ponding limits of any existing drainage structures. HEC-RAS, FLO-2D or other PCRFCFCD approved flow modeling software will be used for these evaluations, which will be used as the basis for determining impacts of proposed improvements on existing flood conditions.
- h. Document hydraulic conditions of existing watercourses upstream and downstream of project to aid in determination of sediment transport impacts of the project.

Task A.8.2.3 Proposed FLO-2D Models Hydrology & Hydraulics.

- a. Using a Concept-Level Proposed Conditions model provided by the PCRFCFCD as a template, develop Proposed Conditions 15-ft grid project FLO-2D models that will cover the same modeling areas as the PCRFCFCD Existing Conditions models. The models will establish 10-year and 100-year peak discharges, maximum depths and maximum velocities for both the 3-Hour and 24-Hour events. These models will incorporate the geometries of the proposed roadway, culverts that convey the 100-year peak discharges from the PCRFCFCD Existing Conditions models under the roadway, upstream approach channels, and downstream drainage improvements. In addition, hydraulic properties of the culverts will be included in the models.
- b. Conduct a performance-based evaluation to optimize drainage designs through a combination of downstream channelization, culvert sizing, drop inlets and roadway

profile adjustment in order to minimize costs. Drainage will be conveyed through the roadway, then returned to historical downstream drainage patterns as soon as, and to the extent, practicable.

- c. Downstream channel improvements maybe coded as 1-dimensional channel components in the FLO-2D models, as needed.
- d. Obtain proposed conditions 10- & 100-year discharge rates using FLO-2D models at key locations.
- e. Calibrate and verify FLO-2D models and summarize results at key locations.
- f. Document proposed hydrologic and hydraulic results.
- g. Post process FLO-2D results including existing and proposed conditions flow depths and velocities, and the differences between existing and proposed conditions.
- h. Perform Tasks (a) through (g) for three phases: Initial Design Phase, Final Design Phase, and Final PS&E Phase Submittals.

Task A.8.3. Drainage Maps & Exhibits [Fees for this scope item has been included in Task A.8.4]

- a. Prepare existing and proposed conditions drainage maps showing floodplain limits for 10-year and 100-year peak discharges covering the Proposed Conditions modeling extents.
- b. Additional exhibits required are existing and proposed conditions flow depths and velocities and exhibits showing the differences between existing and proposed conditions.
- c. Perform Tasks (a) through (b) for three phases: Initial Design Phase, Final Design Phase, and Final PS&E Phase Submittals.

Task A.8.4. Drainage Reports. Prepare a report in the phases described in Section 3.11 of the Roadway Design Manual as modified below. The work includes preparing and processing the four (4) submittals described below:

Task A.8.4.1 Initial Design Phase Submittal.

- a. Prepare the Initial Design Phase Submittal per Section 3.11 of the Design Manual. A full hydraulic analysis of cross drainage system and upstream and downstream impacts will be included. Identify potential Clean Water Act 404 permitting and right-of-way acquisition needs for cross-drainage.
- b. Provide proposed conditions hydrologic calculations needed to reflect flow concentration points altered or newly created by the proposed design. Hydrology (Q_{10} & Q_{100}) revisions may include changes due to re-distribution of flows by upstream collector channels or separation of flows to match existing downstream channel systems, etc.
- c. Coordinate with staff representing SELC and Pima County Fairgrounds to identify constraints and to optimize the roadway drainage designs.
- d. Conduct evaluation to optimize design issues and approaches for culvert crossings. The issues that will be addressed by this evaluation will include culvert material type, inlet/outlet structures, culvert/roadway profile constraints and requirements, sediment conveyance, collector channel cross-sections and design capacity, outlet protection/maintenance of downstream channel stability, right of way requirements and pedestrian/equestrian/wildlife uses.
- e. Determine culvert locations based on existing wash locations, peak discharges and upstream flow distribution, SELC & Fairgrounds plans, and requirements for maintaining downstream flows.

- f. Determine size and profile of culverts to provide design capacity and maintain sediment conveyance.
- g. Determine upstream/downstream channels & roadway embankment protection locations and dimensions.
- h. Design inlet and outlet structures for each culvert (drop inlets, cutoff walls, riprap basins etc.).
- i. Provide hydraulic design information to Psomas for preparation of culvert and channel plan and profile drawings.
- j. Provide proposed drainage system design information to Psomas to allow determination of additional right-of-way or drainage easement needs.
- k. Conduct sediment transport computations for culverts and inlet structures.
- l. Conduct hydraulic computations for sizing collector channels and determine type and limits of channel stabilization.
- m. Based on anticipated peak discharge increases in the north Fairgrounds channel, conduct scour computations and provide erosion protection design support for the recently installed Fairgrounds sanitary sewer extension (3FGS17) at Harrison Rd near Brekke Rd, as needed.
- n. Provide project environmental consultant proposed drainage system footprint information for computation of riparian and CWA Section 404 permitting impacts.

Task A.8.4.2 Modeling Report.

- a. Prior to preparing the Final Design Phase Submittal, prepare a draft H&H Modeling Report for PCRFCFCD review that documents the modeling procedures and results. The report will identify the issues involved, design criteria used, optional approaches considered, and modeling procedures & results. The report will document that the modeling conforms to the Modeling Memorandum from Task A.8.2.1.b above.
- b. Address PCRFCFCD comments and prepare final Modeling Report.

Task A.8.4.3 Final Design Phase Submittal.

- a. Prepare the Final Design Phase Submittal per Section 3.11 of the Design Manual. Provide written response letter for Initial Design Phase submittal.
- b. Review Initial Design Phase culvert plan & profile design sheets and provide Psomas refined grading, geometric design and bank protection information at all culvert inlets and outlets to construction level detail. The designs will promote smooth hydraulic transitions from existing upstream channel topography, through the new roadway crossing structure and back to existing downstream channel topography.
- c. Review all drop inlets in detail versus existing topography to determine if sufficient space exists to flatten drop slopes to further minimize sediment transport disruptions through the culvert inlets.
- d. Provide Psomas refined roadside and/or collector channel design details suitable for construction level plans, e.g. final channel geometry, tie-ins to adjacent topography, bank protection and key-in details, and additional freeboard limits. This effort will also include examination of the roadway corridor in detail to confirm that all offsite drainage, including small localized flows, are being captured and conveyed to cross drainage structures appropriately.
- e. Provide supporting information to update cross drainage systems structure, materials and quantities schedule tables as needed.
- f. Provide updated cross culvert design information to Psomas to address roadway, or other design changes – assume 75% of culverts will require design updates. This task includes, but may not be limited to:

- Revise culvert hydraulic analyses (HY-8 computer runs) and re-optimize culvert sizes and roadway overtopping areas.
 - Check and revise culvert sediment transport computations;
 - Check and revise culvert outlet erosion control aprons/basins designs;
 - Draft all revisions on proposed drainage system figures in drainage report and provide updated hydraulic information and/or CAD files to Psomas
- g. Provide updated channel/bank protection design information to Psomas as needed to address roadway or other design changes – assume 75% of channels/bank protection will require design updates. This task could include, but may not be limited to:
- Revise channel/bank protection hydraulic analyses (HEC-RAS or Manning's methods) and re-optimize channel sizes
 - Check and revise channel/roadway embankment scour computations;
 - Draft all revisions on proposed drainage system figures in drainage report and provide updated hydraulic information and/or design sketches to Psomas
- h. Provide updated drainage system design information to Psomas to allow modifications to right-of-way or drainage easement needs.
- i. Update scour computations and erosion protection designs for the recently installed Fairgrounds sanitary sewer extension (3FGS17) at Harrison Rd near Brekke Rd, as needed.
- j. Provide additional hydrologic, hydraulic, sediment transport and scour analyses to support the Final Design Phase design.

Task A.8.4.4 Final PS&E Phase Submittal.

- a. Prepare the Final PS&E Phase Submittal for the project in response to Pima County's Final Design Phase Submittal comments as well as revisions to the final project design per Section 3.11 of the Design Manual.
- b. Coordinate with Psomas to incorporate revisions to the Drainage Report and Exhibits to comply with drainage design changes made necessary by Initial PS&E roadway design modifications and/or agency review comments – assume 25% of culverts and channels will require design updates.
- c. Provide updated/additional hydrologic, hydraulic, sediment transport and scour analyses to support the Final PS&E design.
- d. Provide supporting information to update cross-drainage system structures, materials and quantities schedule tables as needed.

Task A.8.5. Quality Control Review.

- a. Provide quality control reviews and documentation for the design and for each report submittal per the Project Quality Control Plan.

Deliverables:

- Existing Conditions Modeling Review Report. Electronic pdf files only will be provided for the Draft Report submittal. Three (3) printed copies (an original & 2 copies), and pdf files will be provided for the Final Report submittal.
- Initial Design Phase Drainage Report per Section 3.11 of the Design Manual. Three (3) printed copies (an original & 2 copies), and pdf files will be provided.
- Modeling Report. Electronic pdf files only will be provided for the Draft Report submittal. Three (3) printed copies (an original & 2 copies), and pdf files will be provided for the Final Report submittal.
- Final Design Phase Drainage Report per Section 3.11 of the Design Manual. Three (3) printed copies (an original & 2 copies), and pdf files will be provided.

- Final PS&E Phase Drainage Report per Section 3.11 of the Design Manual. Three (3) printed copies (an original & 2 copies), and pdf files will be provided.
- Responses to all review comments.

Task A.13 DESIGN MEMORANDUM (DM)

Task A.13.2. Project Area Characteristics (Existing Conditions).

- a. Provide a description of existing drainage conditions for the DM (MS Word format)

Task A.13.3. Design Standards, Criteria and Features/Alternatives.

- a. Provide a description of drainage design standards and criteria and description of major drainage design features and alternatives considered for the DM.

Task A.13.5. Design Memorandum with Conclusions and Recommendations.

- a. Provide written cross drainage system design input for the draft DM.
- b. Respond to comments on the draft DM and provide revisions for final DM submittal.

Task A.16 PREPARATION OF CONSTRUCTION DOCUMENTS

Task A.16.1 through Task A.16.4

- a. Provide hydraulic design information to Psomas for preparation of cross drainage plan and profile construction plans.
- b. At the Initial PS&E Phase, update hydrologic, hydraulic, sediment transport and scour analyses to support any design modifications – assume 25% of roadway culverts and channels will require design updates.
- c. Assist Psomas in responding to Pima Co review comments on plans relating to drainage and provide revised drainage designs for incorporation into new plans as needed.
- d. Provide supporting information to update cross-drainage systems structures, materials and quantities as needed.

Task C – POST DESIGN SERVICES

Task C.2.1. Construction Services.

- a. Possible services relating to the drainage design include:
 - Addressing questions on the plans and specifications
 - Evaluating and/or recommending changes in the construction documents
 - Reviewing shop drawings, and proposals for substitutions or "approved alternates"
 - Evaluating value engineering proposals

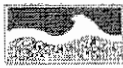
Thank you for the opportunity to submit this proposal. Please contact me if you have questions or need additional information.

Sincerely,
CMG Drainage Engineering, Inc.

Jerald L. Curless

Jerald L. Curless, PE
Principal

Attachments: Fee Estimate Summary
Fee Estimate Table – Breakdown by Task
CMG 2020 Billing Rate Schedule



CMG DRAINAGE ENGINEERING, INC.

3555 N Mountain Ave. • Tucson, AZ 85719 • phone: (520) 882-4244 • fax: (520) 888-1421

FEE ESTIMATE

Project Name: South Houghton Road Widening (Pima Co Project No. 4SHRWD)

Date: March 31, 2020

I. LABOR

TASK A - DESIGN SERVICES

Task A.1 - Project Management & Quality Control

Sub-Tasks A.1.1 - A.1.3, A.1.5: Project Management, Meetings, & Schedule

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	0	\$ -
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	176	\$ 23,841.36
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	51	\$ 6,129.21
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	0	\$ -
Designer	\$36.30	\$46.10	\$8.24	\$90.64	0	\$ -
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	0	\$ -
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	0	\$ -
Sub-Total						\$ 29,970.57

Sub-Task A.1.4: Coordinate Between Participating Agencies

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	0	\$ -
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	8	\$ 1,083.70
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	8	\$ 961.44
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	0	\$ -
Designer	\$36.30	\$46.10	\$8.24	\$90.64	0	\$ -
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	0	\$ -
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	0	\$ -
Sub-Total						\$ 2,045.14

Sub-Task A.1.6: Cost Estimating

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	0	\$ -
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	16	\$ 2,167.40
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	20	\$ 2,403.61
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	10	\$ 1,039.00
Designer	\$36.30	\$46.10	\$8.24	\$90.64	4	\$ 362.56
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	2	\$ 156.86
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	0	\$ -
Sub-Total						\$ 6,129.44

SUB-TOTAL TASK A.1

\$ 38,145.15

Task A.2: Value Analysis

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	0	\$ -
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	40	\$ 5,418.49
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	24	\$ 2,884.33
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	24	\$ 2,493.60
Designer	\$36.30	\$46.10	\$8.24	\$90.64	0	\$ -
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	0	\$ -
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	0	\$ -
Sub-Total						\$ 10,796.43

Task A.3: Public Participation

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	0	\$ -
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	12	\$ 1,625.55
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	8	\$ 961.44
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	8	\$ 831.20
Designer	\$36.30	\$46.10	\$8.24	\$90.64	6	\$ 543.85
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	0	\$ -
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	0	\$ -
Sub-Total						\$ 3,962.04

Task A.7: Survey & Mapping

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	0	\$ -
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	4	\$ 541.85
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	0	\$ -
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	4	\$ 415.60
Designer	\$36.30	\$46.10	\$8.24	\$90.64	0	\$ -
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	4	\$ 313.72
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	0	\$ -
Sub-Total						\$ 1,271.17

Task A.8: Drainage**Sub-Task A.8.1: Review Existing Plans & Reports****Sub-Task A.8.1.1: Document Review**

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	0	\$ -
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	4	\$ 541.85
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	16	\$ 1,922.89
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	4	\$ 415.60
Designer	\$36.30	\$46.10	\$8.24	\$90.64	8	\$ 725.13
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	24	\$ 1,882.34
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	0	\$ -
Sub-Total						\$ 5,487.81

Sub-Task A.8.1.2: Existing Conditions Model Review Report

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	0	\$ -
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	4	\$ 541.85
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	12	\$ 1,442.17
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	0	\$ -
Designer	\$36.30	\$46.10	\$8.24	\$90.64	0	\$ -
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	0	\$ -
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	0	\$ -
Sub-Total						\$ 1,984.02

SUB-TOTAL TASK A.8.1

\$ 7,471.82

Sub-Task A.8.2: Hydrologic and Hydraulic Modeling - Houghton**Sub-Task A.8.2.1: Initial Coordination & Meetings with PCRFC (with Modeling Memo)**

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	1	\$ 150.74
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	14	\$ 1,896.47
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	14	\$ 1,682.53
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	0	\$ -
Designer	\$36.30	\$46.10	\$8.24	\$90.64	0	\$ -
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	2	\$ 156.86
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	1	\$ 57.04
Sub-Total						\$ 3,943.64

Sub-Task A.8.2.2: Existing Hydrology & Hydraulics

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74		\$ -
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	4	\$ 541.85
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	60	\$ 7,210.84
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	16	\$ 1,662.40
Designer	\$36.30	\$46.10	\$8.24	\$90.64	6	\$ 543.85
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	16	\$ 1,254.89
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04		\$ -
Sub-Total						\$ 11,213.83

Sub-Task A.8.2.3: Proposed FLO-2D Models Hydrology & Hydraulics

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	6	\$ 904.46
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	43	\$ 5,824.88
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	520	\$ 62,493.92
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	453	\$ 47,066.78
Designer	\$36.30	\$46.10	\$8.24	\$90.64	145	\$ 13,142.96
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	127	\$ 9,960.71
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	0	\$ -
Sub-Total						\$ 139,393.70
SUB-TOTAL TASK A.8.2						\$ 154,551.17

Sub-Task A.8.3: Drainage Maps & Exhibits (this task costed in Sub-Task A.8.4)**Sub-Task A.8.4: Drainage Reports****Sub-Task A.8.4.1: Initial Design Phase Submittal**

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	5	\$ 753.72
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	190	\$ 25,737.83
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	190	\$ 22,834.32
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	57	\$ 5,922.31
Designer	\$36.30	\$46.10	\$8.24	\$90.64	95	\$ 8,610.90
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	190	\$ 14,901.85
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	20	\$ 1,140.73
Sub-Total						\$ 79,901.65

Sub-Task A.8.4.2: Modeling Report

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74		\$ -
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	8	\$ 1,083.70
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	24	\$ 2,884.33
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	10	\$ 1,039.00
Designer	\$36.30	\$46.10	\$8.24	\$90.64	4	\$ 362.56
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	8	\$ 627.45
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	1	\$ 57.04
Sub-Total						\$ 6,054.08

Sub-Task A.8.4.3: Final Design Phase Drainage Report

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	5	\$ 753.72
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	108	\$ 14,629.92
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	108	\$ 12,979.51
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	65	\$ 6,753.51
Designer	\$36.30	\$46.10	\$8.24	\$90.64	119	\$ 10,786.29
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	130	\$ 10,196.00
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	16	\$ 912.58
Sub-Total						\$ 57,011.53

Sub-Task A.8.4.4: Final PS&E Phase Drainage Report

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	2	\$ 301.49
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	57	\$ 7,721.35
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	57	\$ 6,850.29
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	29	\$ 3,013.10
Designer	\$36.30	\$46.10	\$8.24	\$90.64	57	\$ 5,166.54
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	71	\$ 5,568.58
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	8	\$ 456.29
Sub-Total						\$ 29,077.65

SUB-TOTAL TASK A.8.4**Sub-Task A.8.5: Quality Control Review**

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	6	\$ 904.46
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	16	\$ 2,167.40
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	0	\$ -
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	0	\$ -
Designer	\$36.30	\$46.10	\$8.24	\$90.64	0	\$ -
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	0	\$ -
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	0	\$ -
Sub-Total						\$ 3,071.86

SUB-TOTAL TASK A.8**Task A.10: Design Memorandum Support**

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	0	\$ -
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	20	\$ 2,709.25
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	0	\$ -
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	0	\$ -
Designer	\$36.30	\$46.10	\$8.24	\$90.64	4	\$ 362.56
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	16	\$ 1,254.89
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	0	\$ -
Sub-Total						\$ 4,326.70

Task A.16: Construction Documents Support (Sub-Tasks A.16.1-A.16.4)

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	0	\$ -
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	88	\$ 11,920.68
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	30	\$ 3,605.42
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	6	\$ 623.40
Designer	\$36.30	\$46.10	\$8.24	\$90.64	36	\$ 3,263.08
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	88	\$ 6,901.91
Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04	0	\$ -
Sub-Total						\$ 26,314.48
TOTAL BASE LABOR						\$ 421,955.75

II. ESTIMATE OF DIRECT EXPENSES

Existing Conditions Model Review Report	\$ 100.00
Initial Design Phase Drainage Report Reproduction (3 copies)	\$ 300.00
Modeling Report Reproduction (3 copies)	\$ 100.00
Final Design Phase Drainage Report Reproduction (3 copies)	\$ 300.00
Final PS&E Phase Drainage Report Reproduction (3 copies)	\$ 300.00
General large format scanning & plotting	\$ 500.00
General in-house photocopying	\$ 400.00
TOTAL DIRECT EXPENSES	\$ 2,000.00

TOTAL NOT-TO-EXCEED BASE PROJECT COST	\$ 423,955.75
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III. ADDITIONAL SERVICES (Potential Services Needed Following Project Design)**TASK C - POST DESIGN SERVICES****Sub-Task C.2.1: Construction Services**

Personnel Classification	Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$76.67	\$13.70	\$150.74	0	\$ -
Project Manager	\$54.25	\$68.90	\$12.31	\$135.46	13	\$ 1,761.01
Sr. Project Engineer/Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18	8	\$ 961.44
Project Engineer/Hydrologist	\$41.61	\$52.84	\$9.45	\$103.90	4	\$ 415.60
Designer	\$36.30	\$46.10	\$8.24	\$90.64	4	\$ 362.56
CADD Tech	\$31.41	\$39.89	\$7.13	\$78.43	0	\$ -
Clerical / Administration	\$22.84	\$29.01	\$5.18	\$57.03	0	\$ -
Sub-Total						\$ 3,500.62
TOTAL POST DESIGN SERVICES						\$ 3,500.62

TOTAL NOT-TO-EXCEED PROJECT COST (WITH ADDITIONAL SERVICES)	\$ 427,456.37
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CMG DRAINAGE ENGINEERING, INC.

3555 N. Mountain Ave. • Tucson, AZ 85719 • phone: (520) 882-4244 • fax: (520) 888-1421

Project: 4SHRWD - South Houhgtton Road Widening
Desription: Design Engineering Services - March 2020
Prime Consultant: Psomas

Item No.	Discipline	A	B	C	D
		Direct Labor Rate	Overhead 127%	Profit 10%	Billing Rate
1	Project Principal	\$60.37	\$76.67	\$13.70	\$150.74
2	Project Manager	\$54.25	\$68.90	\$12.31	\$135.46
3	Sr. Project Engineer / Hydrologist	\$48.13	\$61.13	\$10.93	\$120.18
4	Project Engineer / Hydrologist	\$41.61	\$52.84	\$9.44	\$103.89
5	Designer	\$36.30	\$46.11	\$8.24	\$90.65
6	CADD Technician	\$31.41	\$39.89	\$7.13	\$78.43
7	Clerical / Administration	\$22.84	\$29.01	\$5.19	\$57.04

Formulas:

- (A) Direct Labor Rate
- (B) Overhead @ 127% x (A)
- (C) Profit @ 10% x (A + B)
- (D) Billing Rate (A + B + C)

Direct Costs

Document/Plan Reproduction	Rate
Outside Vendor Printing & Reproduction Services	At Cost
Report Binding Materials	At Cost
In-House Printing & Photo Copies 8-1/2" x 11"	\$0.15/Sheet
In-House Printing & Photo Copies 11" x 17"	\$0.30/Sheet

Stanley

PIMA COUNTY DEPARTMENT OF TRANSPORTATION
Design Engineering Services for South Houghton Road Widening
STANLEY
Pima County Contract No.
For Period Ending:

Task #	Task	Total Contract Cost
PROFESSIONAL SERVICES		
Direct Labor		
A.1	Project Management and Quality Control	\$7,761.84
A.2	Value Analysis	\$12,604.24
A.3	Public Participation	\$0.00
A.4	Public Art	\$0.00
A.5	Utility Coordination	\$0.00
A.6	Environmental Impact Screening	\$0.00
A.7	Surveying and Mapping	\$0.00
A.8	Drainage	\$1,565.04
A.9	Geotechnical	\$0.00
A.10	Pavement Design	\$0.00
A.11	Traffic Engineering	\$0.00
A.12	Arterial Street Lighting	\$0.00
A.13	Design Memorandum (DM)	\$1,667.92
A.14	Environmental Assessment and Mitigation Report (EAMR)	\$0.00
A.15	Right-of-Way Acquisition Support	\$0.00
A.16	Preparation of Construction Documents	\$26,015.72
	Direct Labor Sub Total =	\$49,614.76
Overhead Fee		
	178.03%	\$88,329
	Labor Sub Total =	\$137,943.92
Fixed Fee		
	10%	\$13,794
	Sub Total =	\$13,794.39
ODC		
	Direct Costs	\$2,381.40
	Sub Total =	\$2,381.40
Subconsultants		
		\$0.00
		\$0.00
		\$0.00
	Sub Total =	\$0.00
Design Services Total		\$154,119.71
Other		
Task B	Additional Services	\$0
Task C	Post Design Services	\$8,642.35
	Sub Total =	\$8,642.35
Total Contract Amount		\$162,762.06



Stanley Consultants INC.

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March 31, 2020

Mr. Sean Samsel, PE
Psomas, Inc.

Re: **Pima County Department of Transportation**
Design Engineering Services for South Houghton Road Widening (4SHRWD)
Value Analysis Workshop, Roadway Design for North Tie-In

Dear Mr. Samsel:

Thank you for including us on the Psomas team for this project. As requested, enclosed is a scope description, cost derivation, and detailed fee proposal for completing a Value Analysis workshop, roadway design the north tie-in, and associated project management and coordination.

The total project cost is **\$162,762.06**. The total cost equals the professional services cost of **\$160,380.66** plus direct expenses of **\$2,381.40**.

The estimated schedule to complete the preliminary, final, and post design is 40 months.

Should you have questions or require further information, please contact Ted Smithwick at (602) 333-2296.

Sincerely,

STANLEY CONSULTANTS INC.

Steven A. Jimenez
Project Principal

cc: SCI Project Files

Scope of Services

I. Work and service tasks

This project proposes improvements to Houghton Road from I-10 to Andrada Polytechnic High School within Pima County to improve safety and increase traffic capacity. Stanley Consultants has been retained by Psomas, Inc. to provide a Value Analysis Workshop and corresponding report, as well as roadway, drainage, and traffic engineering services related to the northern 1,500 feet of the South Houghton Road project. The 1,500 feet is measured from the I-10 / Houghton Road TI project full reconstruction limits. All improvements will be designed within existing and county-owned right-of-way.

Stanley will develop design concepts that connect the ultimate I-10 / Houghton Road TI project to the South Houghton Road project. Also included and related to these services are project meetings, quality control plan, text descriptions and figures for the Design Memorandum, design/construction documents for the initial and final design, and construction cost estimates.

A detailed fee breakdown is found later in this document.

II. Project Deliverables:

Value Analysis Workshop and Report

Design/Construction Documents:

- Initial Design Plans
- Final Design Plans
- Initial PS&E Plans
- Final PS&E Plans

III. Project Team

Stanley

Project Principal - Steve Jimenez, P.E.

Project Manager – Ted Smithwick, P.E.

Value Analysis Facilitator – Scott Eshleman, P.E.

Subject Matter Expert (Overall Project) – Dan Shiosaka, P.E.

Lead Drainage Engineer and Subject Matter Expert - Chris D'Arcangelis, P.E.

IV. Assumptions/Exclusions:

- Coordination with Arizona State Land Department, utility companies, artist, environmental consultants are not expected – all coordination to be handled by Psomas.
- Adjustments to the Houghton Road TI traffic signals, lighting, and bridge, are not anticipated and are not part of this fee breakdown.
- Utility design is not expected or included as part of the fee.



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- Psomas to provide all as-built or record drawings, pavement and geotechnical assumptions, survey, right-of-way, utility, and border sheet files to be used for the project. Psomas will also provide offsite hydraulic and hydrology design to be used for sizing of roadway culverts.
- Construction sequencing and maintenance of traffic design to be completed by Psomas.
- Attendance at meetings is only as specified in the detailed fee breakdown. Attendances at stakeholder or public meetings is not anticipated or included.
- Psomas to provide cover sheet, general notes sheet, signing and marking general notes, and pavement structural sections.
- Stanley expects to provide all construction documents and value analysis reports electronically.

V. Project Design Schedule:

- Preliminary and Final Design – 18 months.
- Post Design – 22 months

VI. Detailed Fee Breakdown:

TASK A – PRELIMINARY AND FINAL DESIGN (18 MONTH DURATION)

A.1 PROJECT MANAGEMENT AND QUALITY CONTROL

A.1.1 Project Management

- Project Design Manager and administrative staff project set up.
- Project Design Manager invoicing/progress reports.
- Coordination with Psomas and Pima County.
- Monitoring project budgets.
- Managing documents and ensuring documents are filed properly and are retrievable.
- Coordinate internal submittal production.

A.1.2 Quality Control Plan

- Stanley Consultants quality control and quality assurance program will be followed for the preparation of calculations, reports and plans through established checking and back-checking procedures.

A.1.3 Meetings and Communication

Meetings will be attended by the Project Manager and other technical disciplines as needed. Psomas will complete meeting minutes and comment resolution forms. Anticipated meetings include:

- One kickoff meeting (in Tucson)
- Two review comment meetings (in Tucson)
- Four other miscellaneous meetings (remotely)

A.1.4 Coordinate Between Participating Agencies

Stanley expects to work with ADOT to finalize the tie-in design between the Houghton Road TI project and the South Houghton Road project. This coordination includes developing alternatives and concepts, exhibits, and possibly a meeting to finalize the tie-in design.

A.2 VALUE ANALYSIS

A.2.1 Value Analysis Workshop

Stanley is leading the effort behind planning, organizing, and facilitating one Value Analysis Workshop expected to be three days long. The detailed fee breakdown includes two days of preparation time for Stanley's facilitator, Scott Eshleman. Also included in pre-workshop preparation is four hours to review plans and other documents by two Subject Matter Experts to be provided by Stanley.

Stanley recommends providing 4-6 Subject Matter Experts with their backgrounds including roadway geometrics, drainage engineering, traffic engineering, cost estimating, hydrology/hydraulics, and overall project constructability. Stanley's scope presently includes only time for two Subject Matter Experts. Additional Subject Matter Experts to be provided and compensated by Psomas, Pima County, or other subconsultants.

Included in the detailed fee breakdown are hours to prepare draft and final reports regarding the Value Analysis workshop.

Direct expenses associated with the workshop are lodging for the facilitator for three nights, and the two subject matter experts at two nights each. The hotel rate used is the FY 2020 per diem rate for Tucson in May-September. Expenses are also included to provide a continental breakfast for 15 attendees at the workshop as well as bag lunches for three days. No venue expense has been provided as it is assumed that Pima County will provide the venue for the Value Analysis workshop.

A.2.2 Value Analysis Evaluation

Stanley will evaluate and respond to proposed VA recommendations relevant to Stanley's portion of South Houghton Road design. It is assumed and expected that Psomas and other subconsultants will provide input into VA recommendations relevant to their corresponding designs.



Stanley Consultants INC.

A Stanley Group Company
Engineering, Environmental, and Construction Services Worldwide

A.2.3 Incorporating Accepted Recommendations

Stanley will incorporate accepted VA recommendations into Stanley's portion of South Houghton Road design.

A.8 DRAINAGE

A.8.2 Hydrologic and Hydraulic Modeling

Stanley to review, provide input, and coordinate with CMG regarding the hydrologic analyses and how they affect the roadway and drainage design of South Houghton Road near the I-10 / Houghton Road TI. Stanley will review offsite drainage delineations to confirm pipe and ditch sizing.

Hydraulic analyses will be performed to determine spread width on pavement areas and inlet performance.

Retention basin design is not expected or included as part of Stanley's scope of work.

A.8.5 Drainage Reports

Stanley to review, provide input, and coordinate with CMG regarding specific drainage information to be included in the drainage reports relevant to the drainage design of South Houghton Road near the I-10 / Houghton Road TI. It is not expected or included for Stanley to submit any drainage reports separate from the primary drainage reports prepared by CMG or Psomas.

A.13 DESIGN MEMORANDUM (DM)

A.13.2 Project Area Characteristics (Existing Conditions)

Stanley to review, provide input, and coordinate with Psomas regarding the existing conditions of the I-10 / Houghton Road TI and South Houghton Road near the connection with I-10. Stanley will provide text to be included in the DM as well as exhibits/figures as appropriate.

A.13.4 DM with Conclusions and Recommendations

After working with ADOT and finalizing the tie-in design between the I-10 / Houghton Road TI project and the South Houghton Road project, Stanley will provide input into the DM regarding alternatives and advantages considered. Exhibits/figures will be created and included as appropriate.

A.13.5 Cost Estimate

Stanley will provide cost estimates for all construction elements part of Stanley's scope of work. Stanley will also provide cost estimates for alternatives considered.

A.16 PREPARATION OF CONSTRUCTION DOCUMENTS

A.16.1 Initial Design Phase Plans

Initial design phase plans will be developed in accordance with Pima County, AASHTO, and MUTCD guidelines. Sheets provided at this stage include drainage, signing and marking, typical sections, and plan/profile sheets. Detail sheets are not expected or anticipated to be included in design phase submittals.

A.16.2 Final Design Phase Plans

Final design phase plans will be developed in accordance with Pima County, AASHTO, and MUTCD guidelines. Sheets provided at this stage include drainage, signing and marking, typical sections, and plan/profile sheets. Detail sheets are not expected or anticipated to be included in design phase submittals.

A.16.3 Initial PS&E

Initial PS&E phase plans will be developed in accordance with Pima County, AASHTO, and MUTCD guidelines. Sheets provided at this stage include drainage, signing and marking, typical sections, and plan/profile sheets. Detail sheets are included in PS&E phase submittals.

A.16.4 Final PS&E

Final PS&E phase plans will be developed in accordance with Pima County, AASHTO, and MUTCD guidelines. Sheets provided at this stage include drainage, signing and marking, typical sections, and plan/profile sheets. Detail sheets are included in PS&E phase submittals.

TASK C – POST DESIGN SERVICES (22 MONTH DURATION)

C.2 CONSTRUCTION SERVICES

C.2.1 Construction Services

Stanley will assist Psomas in responding to shop drawings or RFIs related to the northern 1,500 feet of roadway, drainage, and signing/marketing design. These services include possible field visits, revising drawings, and developing responses to contractor questions.

STANLEY DETAILED FEE SCHEDULE (NEXT PAGES)

**SOUTH HOUGHTON ROAD
PROPOSED FEE
March 31, 2020**

**DERIVATION OF COST PROPOSAL
SUMMARY**

ESTIMATED LABOR

Classification	Estimated Workhours	Percent by Staff	Average Hourly DLR	DLR + OH 178.03%	Fixed Fee 10.0%	Average Hourly Rate	Labor Costs
Senior Project Engineer	132	12.9%	\$84.78	\$235.71	\$23.57	\$259.29	\$34,225.65
Project Manager	222	21.7%	\$53.48	\$148.69	\$14.87	\$163.56	\$36,310.21
Senior Engineer	179	17.5%	\$65.21	\$181.30	\$18.13	\$199.43	\$35,698.63
Engineer (PE)	133	13.0%	\$38.30	\$106.49	\$10.65	\$117.13	\$15,578.83
Engineer-In-Training (EIT)	141	13.8%	\$37.26	\$103.59	\$10.36	\$113.95	\$16,067.43
Designer	187	18.3%	\$35.19	\$97.84	\$9.78	\$107.62	\$20,125.43
Administrative Assistant	30	2.9%	\$25.88	\$71.95	\$7.20	\$79.15	\$2,374.49
TOTAL	1,024						
Total Estimated Labor							\$160,380.66

ESTIMATED DIRECT EXPENSES

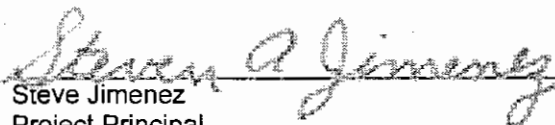
(Listed by Item at Estimated Actual Cost - NO MARKUP)

ESTIMATED DIRECT EXPENSES:

	Cost
Lodging (3 nights for facilitator, 2 nights for 2 SMEs)	\$672
Airfare (1 round trip from Chicago for facilitator)	\$500
Mileage (Round trip Phoenix office to Tucson, 3 meetings + 1 for VA workshop)	\$409.4
230 miles round trip	\$0.445 per mile
Value Analysis Workshop (assume 15 attendees)	\$800
Three continental breakfast	\$300
Three bag lunches	\$450
Reproduction	\$50

Total Estimated Direct Expenses \$2,381.40

TOTAL ESTIMATED COST \$162,762.06


Steve Jimenez
Project Principal

March 31, 2020
Date

SOUTH HOUGHTON ROAD
PROPOSED SHEET COUNT AND HOURS PER SHEET AND TASK
March 31, 2020

	SCALE	NO. SHTS.	HRS/SHT	TOTAL HOURS	Senior Project Engineer	Project Manager	Senior Engineer	Engineer (PE)	Engineer-In-Training (EIT)	Designer	Administrative Assistant
A.1 PROJECT MANAGEMENT AND QUALITY CONTROL											
A.1.1 Project Management				50		46					4
A.1.2 Quality Control Plan				16		8	8				
A.1.3 Kickoff Meeting (1)				4		4					
A.1.3 Review Comment Meetings (2)				8		8					
A.1.3 Other meetings (4)				16		16					
A.1.3 Meeting Preparation				16		14					4
A.1.4 Coordinate with ADOT (north tie-in, TI connection)				32		16	16				
Sub-Total Task A.1				144	0	112	24	0	0	0	8
A.2 VALUE ANALYSIS											
A.2.1 Pre-workshop Prep (2 days for facilitator, 4 hours for 2 SMEs)				32	24	4					4
A.2.1 Value Analysis Workshop (3 staff for 3 days)				76	72						4
A.2.1 Post-workshop Draft and Final Reports				40	32	4					4
A.2.2 Value Analysis Evaluation				6	4		4				
A.2.3 Incorporating Accepted Recommendations				8			4	4			
Sub-Total Task A.2				164	132	8	8	8	0	0	12
A.8 DRAINAGE											
A.8.2 Hydrologic Analysis				6			8				
A.8.2 Hydraulic Analysis				8			8				
A.8.6 Input into Preliminary and Final Drainage Reports				6			8				
Sub-Total Task A.8				24	0	0	24	0	0	0	0
A.13 DESIGN MEMORANDUM (DM)											
A.13.2 Input into DM regarding North section	NA			12		4		8			
A.13.4 Input into DM regarding North Tie-In	NA			16		8		8			
A.13.5 North Tie-In Estimate	NA			10		2		8			
Sub-Total Task A.13				38	0	14	0	24	0	8	0
A.16 PREPARATION OF CONSTRUCTION DOCUMENTS											
A.16.1 Drainage Plan Sheets	40	2	10.0	20			4	4	4	8	
A.16.1 Signing Plan Sheets	40	3	10.7	32			4	4	8	16	
A.16.1 Pavement Marking Plan Sheets	40	3	10.7	32			4	4	8	16	
A.16.1 Typical Sections	NA	1	10.0	12			2	2	4	4	
A.16.1 South Houghton Road Plan and Profile Sheets	40	3	7.3	22			2	4	8	8	
A.16.2 Drainage Plan Sheets	40	2	7.0	14			2	2	2	8	
A.16.2 Signing Plan Sheets	40	3	8.0	24			4	4	8	8	
A.16.2 Pavement Marking Plan Sheets	40	3	8.0	24			4	4	8	8	
A.16.2 Typical Sections	NA	1	8.0	8			2	2	2	2	
A.16.2 South Houghton Road Plan and Profile Sheets	40	3	7.3	22			2	4	8	8	
A.16.3 Drainage Plan Sheets	40	2	7.0	14			4	4	4	2	
A.16.3 Storm Drain Profile sheet	NA	2	13.0	26			4	4	6	12	
A.16.3 Drainage Detail Sheets	Varies	2	13.0	26			4	4	6	12	
A.16.3 Signing Plan Sheets	40	3	4.7	14			2	4	4	4	
A.16.3 Pavement Marking Plan Sheets	40	3	4.7	14			2	4	4	4	
A.16.3 Sign Summary Sheets	NA	2	5.0	10			2	2	4	4	
A.16.3 Sign Format Sheet	NA	1	10.0	10			2	4	2	2	
A.16.3 Typical Sections	NA	1	4.0	4				2	2		
A.16.3 South Houghton Road Plan and Profile Sheets	40	3	7.3	22			2	4	8	8	
A.16.3 Roadway detail sheets	40	2	14.0	28			4	6	6	12	
A.16.4 Drainage Plan Sheets	40	2	7.0	14			4	4	4	2	
A.16.4 Storm Drain Profile sheet	NA	2	13.0	26			4	4	6	12	
A.16.4 Drainage Detail Sheets	Varies	2	13.0	26			4	4	6	12	
A.16.4 Signing Plan Sheets	40	3	3.3	10			1	3	3	3	
A.16.4 Pavement Marking Plan Sheets	40	3	3.3	10			1	3	3	3	
A.16.4 Sign Summary Sheets	NA	2	5.0	10			2	4	4		
A.16.4 Sign Format Sheet	NA	1	4.0	4			2	2			
A.16.4 Typical Sections	NA	1	4.0	4			1	1	1	1	
A.16.4 South Houghton Road Plan and Profile Sheets	40	3	5.3	16			4	4	4	4	
A.16.4 Roadway detail sheets	40	2	8.0	16			4	4	4	4	
A.16.5 Quality Control Review of Plans	NA		NA	80		40	40				
Sub-Total Task A.16				896	0	40	123	105	141	187	0
C.2 CONSTRUCTION SERVICES											
C.2.1 Field visits, revising drawings, RFIs, misc				68		48					10
Sub-Total Task C.2				68	0	48	0	0	0	0	10
				TOTAL HOURS	Senior Project Engineer	Project Manager	Senior Engineer	Engineer (PE)	Engineer-In-Training (EIT)	Designer	Administrative Assistant
				1024	132	222	179	133	141	187	30

END EXHIBIT "B"



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

4/7/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Dealey, Renton & Associates License #0020739 600 Anton Blvd., #100 Costa Mesa CA 92626		CONTACT NAME: Karin Thorp PHONE (A/C, No, Ext): 714-427-6810 FAX (A/C, No): 714-427-6818 E-MAIL ADDRESS: certificates@dealeyrenton.com		
INSURED PSOMAS 555 South Flower Street, Suite 4300 Los Angeles CA 90071		INSURER(S) AFFORDING COVERAGE		NAIC #
		INSURER A : XL Specialty Insurance Co.		37885
		INSURER B :		
		INSURER C :		
		INSURER D :		
		INSURER E :		
INSURER F :				

COVERAGES**CERTIFICATE NUMBER:** 1505053511**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:						EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$ OTHER \$
	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS						COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ OTHER \$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input type="checkbox"/> RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$ OTHER \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below Y/N <input type="checkbox"/> N/A						PER STATUTE <input type="checkbox"/> OTH-ER <input type="checkbox"/> E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
A	Professional Liability Claims Made			DPR9948578	10/15/2019	10/15/2020	Per Claim \$2,000,000 Annual Aggregate \$2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
7PIM190201; Design Engineering Services for South Houghton Road Widening (4SHRWD) CT-TR-20-292

CERTIFICATE HOLDER**CANCELLATION 30 Day Notice of Cancellation**

Pima County
Attn: Judy Cooper
130 W. Congress Street, 3rd Floor
Tucson AZ 85701

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Karin Thorp

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This endorsement, effective 12:01 a.m., 10/15/2019 forms a part of

Policy No. DPR9948578

Issued to PSOMAS

by XL Specialty Insurance Company.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

POLICY CANCELLATION – NOTICE TO DESIGNATED ENTITIES

This endorsement modifies Insurance provided under the following:

PROFESSIONAL, ENVIRONMENTAL AND NETWORK SECURITY LIABILITY POLICY – ARCHITECTS, CONSULTANTS AND ENGINEERS

Section XI. OTHER CONDITIONS, Paragraph A. Cancellation is amended by the addition of the following:

In the event that the Company cancels this Policy for any statutorily permitted reason other than non-payment of premium, the Company agrees to provide thirty (30) days' notice of cancellation of this Policy to any entity with whom the NAMED INSURED agreed in a written contract or agreement would be provided with notice of cancellation of this Policy, provided that:

1. The Company receives, at least fifteen (15) days prior to the date of cancellation, a written request from the NAMED INSURED to provide notice of cancellation to entities designated by the NAMED INSURED to receive such notice and;
2. The written request includes the name and address of each person or entity designated by the NAMED INSURED to receive such notice.

This endorsement does not apply to non-renewal of the Policy, cancellation at the INSURED'S request, or to cancellation of the Policy for non-payment of premium to the Company or to a premium finance company authorized to cancel the Policy. Furthermore, nothing contained in this endorsement shall be construed to provide any rights under the Policy to the entities receiving notice of cancellation pursuant to this endorsement, nor shall this endorsement amend or alter the effective date of cancellation stated in the cancellation notice issued to the NAMED INSURED.

All other terms and conditions of the Policy remain unchanged.

ACORD™

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

4/06/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer any rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Greyling Ins. Brokerage/EPIC 3780 Mansell Road, Suite 370 Alpharetta, GA 30022		CONTACT NAME: Katie Kresner PHONE (A/C, No, Ext): 770.552.4225 FAX (A/C, No): 866.550.4082 E-MAIL ADDRESS: Katie.Kresner@greyling.com	
INSURED Psomas 555 S. Flower Street Suite 4300 Los Angeles, CA 90071		INSURER(S) AFFORDING COVERAGE INSURER A: National Union Fire Ins. Co. NAIC # 19445 INSURER B: Everest National Ins Co 10120 INSURER C: INSURER D: INSURER E: INSURER F:	

COVERAGES

CERTIFICATE NUMBER: 20-21

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:			GL5268212	04/01/2020	04/01/2021	EACH OCCURRENCE \$1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$500,000 MED EXP (Any one person) \$25,000 PERSONAL & ADV INJURY \$1,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000 \$
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS ONLY			CA4489706	04/01/2020	04/01/2021	COMBINED SINGLE LIMIT (Ea accident) \$2,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
B	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$10,000			XC8CU00043201	04/01/2020	04/01/2021	EACH OCCURRENCE \$2,000,000 AGGREGATE \$2,000,000 \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? <input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		N/A	WC015893764(AOS) WC015893765 (CA)	04/01/2020 04/01/2020	04/01/2021 04/01/2021	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

7PIM190201; Design Engineering Services for South Houghton Road Widening (4SHRWD)

CT-TR-20-292.

Pima County and the City of Tucson, their departments, districts, boards, commissions, officers, officials, agents, and employees are named as Additional Insureds with respects to General & Automobile Liability where required by written contract.

(See Attached Descriptions)

CERTIFICATE HOLDER

CANCELLATION

Pima County
 130 W. Congress, 3rd Floor
 Tucson, AZ 85701

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

D.H. Collins

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DESCRIPTIONS (Continued from Page 1)

Waiver of Subrogation is applicable where required by written contract & allowed by law.

The above referenced liability policies with the exception of workers compensation and professional liability are primary & non-contributory where required by written contract.

Should any of the above described policies be cancelled by the issuing insurer before the expiration date thereof, we will endeavor to provide 30 days' written notice (except 10 days for nonpayment of premium) to the Certificate Holder.

Umbrella Follows Form with respects to General, Automobile & Employers Liability Policies.

ENDORSEMENT

This endorsement, effective 12:01 A.M. 04/01/2020 forms a part of

policy No. CA4489706 issued to Psomas

by NATIONAL UNION FIRE INSURANCE COMPANY OF PITTSBURGH, PA

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED - WHERE REQUIRED UNDER CONTRACT OR AGREEMENT

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM

SCHEDULE

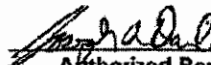
ADDITIONAL INSURED:

ANY PERSON OR ORGANIZATION FOR WHOM YOU ARE CONTRACTUALLY BOUND TO PROVIDE ADDITIONAL INSURED STATUS BUT ONLY TO THE EXTENT OF SUCH PERSON OR ORGANIZATIONS LIABILITY ARISING OUT OF THE USE OF A COVERED AUTO.

I. SECTION II - LIABILITY COVERAGE, A. Coverage, 1. - Who is Insured, is amended to add:

- d. Any person or organization, shown in the schedule above, to whom you become obligated to include as an additional insured under this policy, as a result of any contract or agreement you enter into which requires you to furnish insurance to that person or organization of the type provided by this policy, but only with respect to liability arising out of use of a covered "auto". However, the insurance provided will not exceed the lesser of:

- (1) The coverage and/or limits of this policy, or
- (2) The coverage and/or limits required by said contract or agreement.



Authorized Representative or
Countersignature (in States Where
Applicable)

ENDORSEMENT

This endorsement, effective 12:01 A.M., 04/01/2020

forms a part of

policy No. CA4489706

issued to PSOMAS

by NATIONAL UNION FIRE INSURANCE COMPANY OF PITTSBURGH, PA

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

INSURANCE PRIMARY AS TO CERTAIN ADDITIONAL INSURED

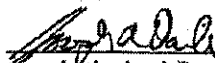
This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM

Section IV - Business Auto Conditions, B., General Conditions, 5., Other Insurance, c., is amended by the addition of the following sentence:

The insurance afforded under this policy to an additional insured will apply as primary insurance for such additional insured where so required under an agreement executed prior to the date of accident. We will not ask any insurer that has issued other insurance to such additional insured to contribute to the settlement of loss arising out of such accident.

All other terms and conditions remain unchanged.



Authorized Representative or
Countersignature (in States Where
Applicable)

ENDORSEMENT

This endorsement, effective 12:01 A.M. 04/01/2020

forms a part of

policy No. CA4489706

issued to Psomas

by NATIONAL UNION FIRE INSURANCE COMPANY OF PITTSBURGH, PA

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM

Section IV - Business Auto Conditions, A. - Loss Conditions, 5. - Transfer of Rights of Recovery Against Others to Us, is amended to add:

However, we will waive any right of recover we have against any person or organization with whom you have entered into a contract or agreement because of payments we make under this Coverage Form arising out of an "accident" or "loss" if:

- (1) The "accident" or "loss" is due to operations undertaken in accordance with the contract existing between you and such person or organization; and
- (2) The contract or agreement was entered into prior to any "accident" or "loss".

No waiver of the right of recovery will directly or indirectly apply to your employees or employees of the person or organization, and we reserve our rights or lien to be reimbursed from any recovery funds obtained by any injured employee.



AUTHORIZED REPRESENTATIVE

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED - OWNERS, LESSEES OR CONTRACTORS - COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s)	Location And Description Of Completed Operations
ANY PERSON OR ORGANIZATION WHO YOU BECOME OBLIGATED TO INCLUDE AS AN ADDITIONAL INSURED AS A RESULT OF ANY CONTRACT OR AGREEMENT YOU HAVE ENTERED INTO	PER THE CONTRACT OR AGREEMENT
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

A. Section II - Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the Schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that

which you are required by the contract or agreement to provide for such additional insured.

B. With respect to the insurance afforded to these additional insureds, the following is added to Section III - Limits Of Insurance:

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED - OWNERS, LESSEES OR CONTRACTORS - SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s)	Location(s) Of Covered Operations
ANY PERSON OR ORGANIZATION WHOM YOU BECOME OBLIGATED TO INCLUDE AS AN ADDITIONAL INSURED AS A RESULT OF ANY CONTRACT OR AGREEMENT YOU HAVE ENTERED INTO.	PER THE CONTRACT OR AGREEMENT.
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

A. Section II - Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.

However;

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than

that which you are required by the contract or agreement to provide for such additional insured.

B. With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

This insurance does not apply to "bodily injury" or "property damage" occurring after:

1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

C. With respect to the insurance afforded to these additional insureds, the following is added to **Section III - Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or

2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**PRIMARY AND NONCONTRIBUTORY - OTHER
INSURANCE CONDITION**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

The following is added to the **Other Insurance Condition** and supersedes any provision to the contrary:

Primary And Noncontributory Insurance

This insurance is primary to and will not seek contribution from any other insurance available to an additional insured under your

policy provided that:

- (1) The additional insured is a Named Insured under such other insurance; and
- (2) You have agreed in writing in a contract or agreement that this insurance would be primary and would not seek contribution from any other insurance available to the additional insured.

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

SCHEDULE

Name Of Person Or Organization:

PURSUANT TO APPLICABLE WRITTEN CONTRACT OR AGREEMENT YOU ENTER INTO.

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

The following is added to Paragraph 8. **Transfer Of Rights Of Recovery Against Others To Us** of Section IV - Conditions:

We waive any right of recovery we may have against the person or organization shown in the Schedule above because of payments we make for injury or damage arising out of your ongoing operations or "your work" done under a contract with that person or organization and included in the "products-completed operations hazard". This waiver applies only to the person or organization shown in the Schedule above.

WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

This endorsement changes the policy to which it is attached effective on inception date of the policy unless a different date is indicated below.

(The following "attaching clause" need be completed only when this endorsement is issued subsequent to preparation of the policy).

This endorsement, effective 12:01 AM 04/01/2020

forms a part of Policy No. WC015893764(AOS)

Issued to PSOMAS

By NATIONAL UNION FIRE INSURANCE COMPANY OF PITTSBURGH, PA.

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.

This agreement shall not operate directly or indirectly to benefit any one not named in the Schedule.

Schedule

ANY PERSON OR ORGANIZATION TO WHOM YOU BECOME
OBLIGATED TO WAIVE YOUR RIGHTS OF RECOVERY
AGAINST, UNDER ANY CONTRACT OR AGREEMENT YOU ENTER
INTO PRIOR TO THE OCCURRENCE OF LOSS.

This form is not applicable in California, Kentucky, New Hampshire, New Jersey, North Dakota, Ohio, Tennessee, Texas, Utah, or Washington. This form is not applicable in Missouri when there is a construction code on the policy and there is Missouri premium or exposure.

WC 00-03,13
(Ed. 04/84)

Countersigned by _____

Authorized Representative