



BOARD OF SUPERVISORS AGENDA ITEM REPORT
CONTRACTS / AWARDS / GRANTS

☐ Award ☒ Contract ☐ Grant

Requested Board Meeting Date: 09/07/21

* = Mandatory, information must be provided

or Procurement Director Award ☐

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

HDR Engineering, Inc. (Headquarters: Omaha, NE)

*** Project Title/Description:**

Design Engineering Services for West Silverbell Road, Blanco Wash Bridge (4SRBWB)

*** Purpose:**

Award: Contract No. CT-TR-22-043. This award of contract is recommended to the highest qualified consultant in the amount of \$891,834.73 for a contract term from 09/07/21 to 09/07/24 for design engineering services for the design of West Silverbell Road, Blanco Wash Bridge. Administering Department: Transportation.

*** Procurement Method:**

Solicitation for Qualifications No. SFQ-PO-2100015 was conducted in accordance with A.R.S. 34-603 and Pima County Board of Supervisors Policy D 29.1. Five (5) responsive statements of qualifications were received and evaluated by a four (4) member committee using qualifications and experience-based selection criteria. Based upon the evaluation of the respondents' written representations of their qualifications and necessary due diligence, a short list of three (3) respondents were invited to interviews. As a result of the combined scoring of the written statements of qualifications and interviews, the highest qualified consultant is recommended for award.

Attachments: Notice of Recommendation for Award and Contract

*** Program Goals/Predicted Outcomes:**

The Program will replace an aging one-lane bridge with limited load capacity with a new two lane bridge to improve capacity and safety along Silverbell Rd at the Blanco Wash.

*** Public Benefit:**

The Project increases capacity and safety along Silverbell Rd by increasing the width of the bridge and structural capacity. Vehicles will no longer need to wait for opposing traffic to cross and the bridge will allow the passage of emergency vehicles which were over the rated capacity of the previous bridge.

*** 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.

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TO: COB 8-19-21 (1)

Vers: 1

Pgs: 170

Contract / Award Information

Document Type: CT Department Code: TR Contract Number (i.e., 15-123): 22-043
Commencement Date: 09/07/21 Termination Date: 09/07/24 Prior Contract Number (Synergen/CMS): _____
☒ Expense Amount: \$* 891,834.73 ☐ Revenue Amount: \$ _____

*Funding Source(s) required: Federal Off-System Bridge (OSB) 7.7% & Silverbell -Tortolita Impact Fees 92.3%

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? Vendor

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.: _____

Commencement 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): _____

Commencement 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: Dawn Dargan Digitally signed by Dawn Dargan
DN: cn=Dawn Dargan, o=Florida County, ou=Procurement,
email=dawn.dargan@fla.gov, c=US
Date: 2021.08.05 15:19:40 -0700

Scott Loomis Digitally signed by Scott Loomis
Date: 2021.08.05 15:22:44 -0700

Department: Procurement Director Terri Spencer Digitally signed by Terri Spencer
Date: 2021.08.09 15:25:03 -0700

Telephone: 724-9071

Department Director Signature/Date: Ana M. Olivares

Deputy County Administrator Signature/Date:  8/10/2021

County Administrator Signature/Date:  8/10/21
(Required for Board Agenda/Addendum Items)



NOTICE OF RECOMMENDATION FOR AWARD

Date of Issue: August 5, 2021

The Pima County Procurement Department hereby issues formal notice to respondents to Solicitation No. SFQ-PO-2100015 for West Silverbell Road, Blanco Wash Bridge (4SRBWB) that the following listed respondent will be recommended for award as indicated below. The award action is scheduled to be performed by the Board of Supervisors on or after September 7, 2021.

Award is recommended to the Most Qualified Respondent.

HDR ENGINEERING, Inc.

OTHER RESPONDENT FIRMS (Alphabetical Order)

AECOM Technical Services, Inc.

CONSOR Engineers, LLC

Dibble & Associates Consulting Engineers

WSP USA

Issued by: /s/ Dawn Dargan

Telephone Number: (520) 724-9071

This notice is in compliance with Pima County Procurement Code §11.20.010(C).

Copy to: Pima County SBE via e-mail at SBE@pima.gov

PIMA COUNTY DEPARTMENT OF TRANSPORTATION

PROJECT:	DESIGN ENGINEERING SERVICES FOR WEST SILVERBELL ROAD, BLANCO WASH BRIDGE (4SRBWB)
CONSULTANT:	HDR Engineering, Inc. 1 South Church Avenue, Suite 625 Tucson, Arizona
CONTRACT NO.:	CT-TR-22-043
AMOUNT:	\$891,834.73
FUNDING:	Federal Off-System Bridge (OSB) 7.7% & Silverbell-Tortolita Impact Fees 92.3%

CONSULTANT SERVICES CONTRACT

THIS CONTRACT is entered into between Pima County, a body politic and corporate of the State of Arizona, hereinafter called COUNTY, and HDR Engineering, 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 West Silverbell Road, Blanco Wash Bridge Project (Project); and

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

WHEREAS, based on CONSULTANT's representations in response to Pima County SFQ-PO-2100015, CONSULTANT was determined to be the most qualified for this Project; 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 September 7, 2021 and terminates on September 7, 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 design engineering services for the COUNTY as described in **EXHIBIT "A" – SCOPE OF SERVICES (15 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 Procurement Director, as required by the Pima County Procurement Code, before the work under the amendment commences.

This Contract is funded by federal funds and is subject to the additional Federal requirements in **EXHIBIT "C" –**

Uniform Terms and Conditions Federal Contract Requirements (Project Specific Contract with Goals) (53 pages), hereinafter referred to as "UTC", including APPENDIX "B" – Professional Services DBE Provisions (23 pages), which are attachments to and hereby made part of this Contract. For this Contract, the Federal Granting Agency is Federal Highway Administration (FHWA) and the State Agency is the Arizona Department of Transportation (ADOT).

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 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 4**.

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 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 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 Cost plus Fixed-Fee (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 Cost plus Fixed Fee (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**.

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 (70 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 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 a task, (including acceptance by COUNTY of all associated deliverables), COUNTY will pay the balance of the fee allocated to that task 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.

The total of all payments to CONSULTANT for services provided under this Contract will not exceed Eight Hundred Ninety One Thousand Eight Hundred Thirty Four Dollars and Seventy Three Cents (\$891,834.73).

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.

In accordance with A.R.S. § 28-411, COUNTY will issue payments to Prime Consultants within 21 calendar days after receipt of a correct invoice. In addition, CONSULTANT will pay subconsultants within seven (7) calendar days after receiving payment from COUNTY, unless exceptions exist within the agreed-upon consultant/subconsultant agreement. CONSULTANT shall not withhold subconsultants' payment if COUNTY has paid for the full value of services rendered. Failure by the CONSULTANT to invoice COUNTY in accordance with the terms of the Contract and/or pay subconsultants in accordance with A.R.S. § 28-411 shall be constituted as a material breach of contract. COUNTY reserves the right to request that CONSULTANT provides proof of payment to subconsultants if a complaint of non-payment is made to COUNTY by the subconsultant.

Incomplete or incorrect invoices will be returned to the submitter within seven (7) calendar days of receipt by COUNTY. The twenty-one (21) day calendar payment timeframe for COUNTY payment will begin anew upon receipt of the corrected invoice.

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.

Furthermore, the CONSULTANT and COUNTY recognize that in actual economic practice, overcharges resulting from anti-trust violations are borne by the ultimate user which in this case is the COUNTY. Therefore, the CONSULTANT, acting as a vendor, hereby assigns to the COUNTY any and all claims for such overcharges.

The Consultant warrants that it has not employed or retained any company or person, other than bona fide employee working solely for the Consultant to solicit or secure this Contract and that it has not paid or agreed to pay any company or person other than bona fide employee working sole for the consultant any fee commission percentage brokerage fee gift or any other consideration contingent upon or resulting from the award or making of this Contract. For breach or violation of this warranty, County shall have the right to annul this Contract without liability or in its discretion deduct from the Contract price or consideration or otherwise recover the full amount of such fee commission percentage brokerage fee gift or contingent fee.

ARTICLE 5 – PROJECT BASELINE AND ADJUSTMENTS

- A. COUNTY and CONSULTANT have agreed upon the Project scope and the total Cost Plus Fixed Fee, 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 are 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 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 or Procurement Director 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. CONSULTANT'S insurance will be placed with companies licensed in the State of Arizona and insureds will have an "A.M. Best" rating of not less than A- VII. 1. CONSULTANT shall have the capability and experience to perform and be responsible for negligent acts which may occur in the course and scope of the CONSULTANT's performance under the Contract.

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 three (3) 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: The General Liability and Business Automobile Liability Policies will each be endorsed to include COUNTY, the State of Arizona, ADOT and FHWA, its 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: The General Liability, Business Automobile Liability and Workers' Compensation Policies will each contain a waiver of subrogation endorsement in favor of COUNTY, the State of Arizona, ADOT and FHWA, 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: 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.

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:

Each required Insurance policy must provide, and certificates specify, that COUNTY will receive not less than thirty (30) days advance written notice of any policy cancellation, except 10-days prior notice is sufficient when the cancellation is for non-payments of a premium. Notice shall include the COUNTY project or contract number and project description.

7.4 Verification of Coverage:

CONSULTANT will furnish COUNTY with certificates of insurance 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, prior to, commencement of work under the 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 Manager may approve a modification of the Insurance Requirements without the necessity of a formal Contract amendment, but the approval must be in writing. Neither the COUNTY'S failure to obtain a required insurance certificate or endorsement, the COUNTY'S failure to object to a non-complying certificate or endorsement, or the COUNTY'S receipt of any other information from the CONSULTANT, its insurance broker(s) and /or insurer(s), constitutes a waiver of any of the Insurance Requirements.

ARTICLE 8 – INDEMNIFICATION

To the fullest extent permitted by law, CONSULTANT will indemnify, defend, and hold harmless COUNTY, 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 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 indemnitees.

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 state statute will be interpreted and applied as if it were consistent with state statute.

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, its agents, employees or indemnitee.

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 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.

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 Contract. 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 Contract, 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.

Pursuant to the Arizona Administrative Code (A.A.C.) R4-30-304 (Use of Seals), which is incorporated herein by reference and hereby made a part of this Contract, the Consultant shall affix a proper engineer's seal to all plans, reports and engineering data furnished under this Contract.

No substitution or transfer of personnel, specifically identified in the approved Key Personnel list shall be made without prior written approval by COUNTY. Key Personnel are those individuals whose qualifications were highly significant and appropriate in evaluating the overall qualifications of the project team. Key Personnel includes, at a minimum:

- 1) The Consultant's registered Project Principal/Owner responsible for the overall technical and administration aspects of this Contract;
 - 2) The person in direct charge of the overall project work (Project Manager);
 - 3) The person in charge of each major engineering disciplines/component of the work (e.g., bridge, pavement design, environmental, etc.);
 - 4) Where applicable, the person in charge of overall scheduling of the project work.
- Key Personnel may also include, but are not limited to, Project Engineer, Subconsultants' Team members and any other Key Personnel deemed vital to the completion of the project, and whose qualifications were evaluated by the Selection Panel.

The County will review the Consultant's proposed list of Key Personnel presented during contract negotiations and will approve the list of Key Personnel assigned to the Contract. The County's decision as to Key Personnel composition shall be final.

The Consultant shall not change any of the Key Personnel assigned to this Contract until it has obtained written approval from COUNTY. The Consultant shall notify COUNTY in advance of an anticipated change in the Key Personnel no later than 10 calendar days prior to the change, and shall inform the Department of the reasons the change for the change and shall certify that the overall intent of the Contract will not be impaired by the change. The advance notice requesting a Key Personnel change shall include the name(s) of the Key Personnel, date of departure, the proposed replacement and his/her credentials/resume. Qualifications of any Key Personnel proposed in a change shall be equal to or greater than the original qualifications of the person being replaced.

The County shall have the right to approve or reject the proposed successor. The County will consider any change in Key Personnel, and at its discretion may decide to terminate the Contract for convenience if, in COUNTY's sole discretion, COUNTY believes that the project team is materially different because of the change. The County shall make its decision within 30 days of the Consultant's request to change Key Personnel.

Failure to provide COUNTY with advanced notification may result in termination of the Contract, award of damages to COUNTY or loss of prequalification status.

When technical review establishes that all phases of the Contract have been completed to the satisfaction of COUNTY, COUNTY will notify the Consultant to follow the final closeout procedure specified in UTC Article 4.20.

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

- A. 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.
- B. In cases where a firm changes its name, acquires, or merges with another company, the firm under Contract with COUNTY shall notify COUNTY of name or ownership changes within **10 business days** from the date when the name or ownership change is legally signed/approved **before** the new Consultant begins any work on acquired firm's contract(s). The Consultant changing its name due to merger, acquisition, consolidation and/or transfer of ownership shall be responsible for fulfilling all obligations, liabilities, and Contract terms/conditions for all COUNTY Contracts of the acquired firm. The new/acquiring firm shall provide COUNTY with the required information to approve the name change, including but not limited to the following:
 - 1. A letter, on company letterhead, indicating the new name and reason for the change. The letter shall also include:
 - a. Effective date of the change.
 - b. List of active and pending closeout COUNTY Contracts affected by the change with contract description. Indicate which contract(s) the firm served as a Consultant or Subconsultant.
 - c. A statement certifying that the new/acquiring Consultant shall assume all obligations and liabilities set forth in the respective contracts for all listed contracts between the new/acquiring Consultant and COUNTY.
 - d. A statement certifying that no changes have been made in the Key Personnel responsible for the affected contracts. If a Key Personnel change occurs resulting from the merger, acquisition, consolidation and/or transfers of ownership, the Consultant shall submit a separate request to obtain COUNTY'S approval for the Key Personnel change in accordance with Section 4.34 (KEY PERSONNEL) of this Contract.
 - 2. A copy of Arizona Corporation Commission (ACC) or home-state equivalent Corporation Commission approval documentation of the new/acquiring Consultant.
 - 3. Updated professional license(s) of the new/acquiring Consultant.
 - 4. Updated W-9 Form of the new/acquiring Consultant.
- C. If the acquiring firm is approved by COUNTY to take over the merged or acquired Contracts, the Contracts shall be modified to include the acquiring firm's name by a Contract Modification. The Consultant shall also re-qualify with COUNTY under the new entity/firm name by certification of financial systems.

- D. If a Subconsultant listed in the Contract changes its name due to merger, acquisition, consolidation and/or transfer of ownership, the **Subconsultant shall notify the Consultant** of the name or ownership changes within **10 business days** when the name or ownership change is legally signed/approved **before** the new/acquiring Subconsultant begins any work on the acquired Subconsultant contract(s). The Consultant shall request COUNTY'S written approval within 10 calendar days from the Subconsultant notification. The name-change request shall include, at a minimum, items required in B. 1 and 2 of this Article.

ARTICLE 15 – NON-DISCRIMINATION

CONSULTANT agrees to comply with all provisions and requirements of the authorities listed in Appendix "B" of Exhibit "C", 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 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

The Standard of Conduct and Conflict of Interest laws and guidelines contained in the Arizona Revised Statutes (A.R.S.) § 38-501 through 38-511 and applicable Pima County Conflict of Interest Policies and Procedures apply to this Contract.

See Exhibit "C", UTC Article 4.21.

ARTICLE 18 – TERMINATION OF CONTRACT FOR DEFAULT

See Exhibit "C", UTC Article 4.16.

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 or Procurement Director 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 M. Olivares, P.E., Director
Department of Transportation
201 North Stone, 4th Floor
Tucson, Arizona 85701
Tel: (520) 724-6410

CONSULTANT:

Ted Buell, SE, Project Manager
HDR Engineering, Inc
1 South Church Avenue, Suite 625
Tucson, Arizona 85701
Tel: (520) 584-3632

ARTICLE 22 – OTHER DOCUMENTS

The Parties in entering into this Contract have relied upon information provided in SFQ-PO-2100015, and on representations and information in CONSULTANT'S response to said SFQ. 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 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.

CONSULTANT agrees that if due to death or any other occurrence it becomes impossible for any principal or employee of the CONSULTANT to render the services required under this Contract, neither CONSULTANT nor the surviving principals shall be relieved of any obligation to render complete performance. However, in such event, COUNTY may terminate this Contract if it considers the death or incapacity of such principal or employee to be a loss of such magnitude as to (1) affect the CONSULTANT'S ability to satisfactorily complete the performance of this Contract, or (2) materially affect the evaluation of the CONSULTANT'S qualifications.

ARTICLE 28 – OWNERSHIP OF DOCUMENTS

See Exhibit "C", UTC Article 4.12.

ARTICLE 29 – PUBLIC INFORMATION

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 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

See Exhibit "C", UTC Article 4.14.

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.

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:

Chair, Board of Supervisors

Date

ATTEST:

Clerk of the Board

APPROVED AS TO FORM:



Deputy County Attorney

Stacey Roseberry

Name (Please Print)

8/10/2021

Date

CONSULTANT:



Signature

Aaron Meilleur, PE, Vice President, Area Manager

Name and Title (Please Print)

August 13, 2021

Date

EXHIBIT "A" - SCOPE OF SERVICES (15 Pages)

During the term of this Agreement, the engineering consultant (CONSULTANT) shall perform professional services for Pima County (County) in connection with Silverbell Rd Blanco Wash Bridge (4SRBWB) project. This scoping document shall be used to plan, conduct, and complete the CONSULTANT's work on the project.

I. BACKGROUND

The existing bridge on Silverbell Road at Blanco Wash is a one-lane "Bailey" bridge built in the 1950's. Vehicles must either slow or stop at the bridge in order for vehicles to cross the bridge one at a time. In 2019, the ADT on Silverbell Road was approximately 658 vehicles per day (vpd). The posted speed on Silverbell Road is 45 mph with 20 mph warning signs for the one-lane traffic operations over the bridge. The roadway is signed as "Bridge Ahead Subject to Closure During Floods" and the road is closed during major flood events. The existing one-lane "Bailey" bridge is posted as having a 3 TON Load Limit. The deck of the bridge is wooden members and the wheel paths are covered with steel plate (checked decking). The bridge has been hit many times by vehicles and repairs to the bridge have included straightening and replacing bent truss members. A review of the 2014–2019 crash data found 3 accidents have occurred within the project limits. A recent 2020 crash required the bridge to be closed for a number of days while repairs were made.

The project to replace the "Bailey" bridge at Blanco Wash and replace the existing CMP culverts for Los Robles Wash with concrete box culverts was developed by Pima County Department of Transportation in 1999-2001. Previous development efforts included all design work to produce a sealed set of plans, specifications and cost estimate for the project.

Flows from Los Robles Wash are divided between Blanco Wash and two series of large CMP culverts located just east of Blanco Wash. The two series of culverts consist of three 84" diameter CMP's at one location and two 66" diameter CMP's at the other location. The hydraulic capacity of the existing CMP culverts is inadequate.

II. PROJECT DESCRIPTION

The scope of work for this effort includes the CONSULTANT providing Engineering Design services according to the Pima County Roadway Design Manual and this contract to provide a new two lane bridge on Silverbell Rd at the Blanco wash crossing, replace the two series of CMP's with box culverts, and rebuild Silverbell Rd from Aguirre Rd west to the end of the transition to two lanes west of Blanco Wash.

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), AASHTO LRFD Bridge Design Specifications, 9th Edition, 2020, ADOT Bridge Practice Guidelines (BPG) and other applicable design criteria as listed herein. Use of the previous development efforts described in Section I requires review and approval by the County.

V. PROJECT SCHEDULE

The project is estimated to be 30 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 occurs subsequent to the approval of the initial design. Post design services are then estimated to occur over the final 12 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
ASLD	Arizona State Land Department
AZPDES	Arizona Pollutant Discharge Elimination System
BE	Biological Evaluation
CE	Categorical Exclusion
COT	City of Tucson
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
PCRFCDD	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
RHMP	Riparian Habitat Mitigation Plan
ROE	Right of Entry
R/W	Right-of-way
SOQ	Pima County Solicitation
TDM	Transportation Demand Management
USACE	U.S. Army Corps of Engineers
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, one original bound hardcopy of each final 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.
- e. Provide a monthly progress report submitted with the monthly invoice.

Deliverables:

- Project Team Contact List.
- Progress Reports attached to monthly invoices.
- 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. All meetings are virtual unless noted otherwise. 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 major review comment meetings to discuss review comments and responses with the County and the project team.
- d. Conduct minor review comment meetings to discuss review comments and responses with individual reviewers for comments identified as needing additional resolution.
- e. Conduct other meetings as needed or required.
- f. Conduct a site visit attended by HDR staff to verify project features.

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, US Army Corps of Engineers (USACE).

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 contingency information into the estimate in accordance with the Pima County Roadway Design Manual, identifying all assumptions.
- Estimates for Initial Design Phase through Final PS&E submittals. Incorporate contingency information into the estimate in accordance with the Pima County Roadway Design Manual. Identify all assumptions.

TASK A.2 NOT USED

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 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 shall follow the ESR guidelines listed in the Pima County RDM. Pima County will provide any existing environmental documentation for the project area.

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 the Arizona Game and Fish Department regarding potential wildlife corridors and species concerns.

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), aquatic resources delineation and request for jurisdictional determination 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. Initial research will be conducted to discuss at the meeting.

Task A.7.2. Horizontal Control. The CONSULTANT will run a Geodetic Control Survey based on NAD 83 Central Zone, international feet, and NAVD 88 datum by using PCDOT provided N.G.S. control points and tying to PC/COT approved GIS control points. 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. It is anticipated that two section corners will need to be set due to not being found on the

previous project survey. The results of survey will be recorded to meet State recording requirements for setting these section corners.

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, hard match/tie in points 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.

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, mailboxes, 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. This includes performing field surveys to establish initial staking for appraisals and final monumentation of new right-of-way.

Task A.7.11 Legal Descriptions & Reference Maps. The CONSULTANT will prepare up to two 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. The CONSULTANT shall provide preliminary colored aerial exhibits matching the associated reference maps utilizing project aerial mapping. Aerial mapping imagery shall be supplemented with the 2015 Pima Associations of Governments available section imagery.

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

Deliverables:

- Final digital black & white files (uncolored digital photo) to the County in .tif format and final digital ASCII point files in comma delimited format.
- Preliminary & sealed Results of survey drawings by the CONSULTANT.
- Results of survey will be provided in accordance with the Pima County RDM in plan sheet 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.
- Preliminary & sealed Legal descriptions and sketches for all acquisitions and/or easements.
- Final base reference files in AutoCAD 2016
- Responses to all review comments.

TASK A.8 DRAINAGE

Task A.8.1. Drainage Design Criteria Review Meeting. The CONSULTANT will conduct a drainage design criteria review meeting with PCDOT and PCRFCDD to develop drainage design criteria, including but not limited to design storm, peak discharge applicable to this project location, allowable flow depth over the roadway, allowable surcharge on adjacent properties and FEMA mapping requirements.

Task A.8.2. Review Existing Plans and Reports. The CONSULTANT will review available plans and reports for existing improvements and identify drainage features and flows.

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 PCRFCDD 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. If a FEMA map change process is required, the CONSULTANT will also prepare hydraulic modeling for the 50-year and 500-year peak discharges.

HEC-RAS Version 5.0.7 will be the hydraulic modeling method for existing and proposed conditions.

- existing and proposed conditions flow depths and velocities and exhibits showing the differences between existing and proposed conditions will be shown on cross-sections plots only.
- FLO-2D modeling will not be conducted to develop the flow depth and velocity maps.
- No more than three culvert/bridge and roadway stabilization alternatives for will be evaluated.
- Peak discharge rates for all storm frequencies will be based on the effective FEMA hydrology. No new hydrologic modeling will be conducted.

Task A.8.4. Scour Analysis. The CONSULTANT Conduct scour computations for bridge piers, abutments in accordance with PCRFCDD requirements including long-term degradation. The Consultant will identify structures such as culvert inlets and outlets, and roadway embankment locations requiring erosion protection.

Task A.8.5. 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 three (3) 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, FEMA requirements and right-of-way acquisition needs for cross-drainage.

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.8.6. 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

Pima County will provide a geotechnical engineering report for this project site completed by Terracon dated March 10, 2000. This report may be used by the CONSULTANT at CONSULTANT'S sole discretion in lieu of any field work items listed under this task.

Task A.9.1. Geotechnical Testing and Analysis and Report. The CONSULTANT will provide geotechnical 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 analyses to develop concepts and final designs. The CONSULTANT will utilize the field and laboratory data previously developed for the project and included in the Geotechnical Report dated March 10, 2000 by Terracon.

CONSULTANT will use the information from the log borings taken in January 2000 as part of the original geotechnical investigation for the project. No new borings will be drilled. Soil samples from some of the culvert locations may also be used for the pavement improvements.

The CONSULTANT will utilize the laboratory testing of representative soil samples from the original geotechnical investigation. Recommendations will be developed based on applicable PCDOT, Maricopa (MCDOT), and ADOT standards. The original March 10, 2000 Geotechnical Investigation Report will be updated and will include recommendations in accordance with the AASHTO LRFD Bridge Design Specifications, 9th Edition, 2020. The results of the analyses, as well as recommendations will be provided in one consolidated geotechnical report.

The Consultant will conduct an infiltration study at Blanco Wash to determine what effects, if any, buoyancy will have on the drilled shaft foundation design, in an effort to reduce foundation costs for the project. This study will follow the methodology and procedures outlined in N.C. Samtani "*Infiltration Study for Deep Foundations in Ephemeral Streams*", International Journal of Geoenvironment Case Histories, Vo. 5, Issue 2. The results of the study will be included in the Geotechnical Report.

Note: If it is determined that field work is required, then 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. NEPA Categorical Exclusion (CE) approval is required prior to any ground disturbing activity.

Task A.9.2. Quality Control Review. The CONSULTANT will provide a quality control review of 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 may, at CONSULTANTS sole determination, utilize the field and laboratory data previously developed for the project and included in the Pavement Design Summary dated March 14, 2000 by Terracon. 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
- 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.12.

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

Deliverables:

- Pavement Design Report.
- ESAL Calculations (Electronic format only)
- Responses to all review comments.

TASK A.11 BRIDGE STRUCTURE SELECTION REPORT

Task A.11.1. Bridge Structure Selection Report. The CONSULTANT will prepare a Bridge Structure Selection Report in accordance with the RDM Section 3.14.

Three alternatives will be evaluated, a cast-in-place slab bridge with the same span arrangement as the original 2001 design, a cast-in-place superbox with a similar span arrangement as the slab bridge, and a precast voided slab bridge with three equal spans and a total bridge length similar to the 2001 bridge length. A steel superstructure alternative will not be provided. Two plan sheets will be provided for each alternative and one general note sheet will be provided for the selected alternative. ADOT Standard Details will be used for items such as approach slabs and concrete barriers.

Deliverables:

- Draft and Final Bridge Structure Selection Report

TASK A.12 TRAFFIC ENGINEERING

Task A.12.1. Initial Traffic Engineering Memorandum. The CONSULTANT will prepare an Initial Traffic Engineering Memorandum for the project according to the table of contents listed below. Consultant will document the required traffic related improvements for the section of Silverbell Road within the project limits.

- INTRODUCTION
- PURPOSE & OBJECTIVES
- EXISTING CONDITIONS
 - Project Location
 - Existing Roadway Description and traffic features (Speed Limit, signage, Multi-modal amenities, and sight distance).
 - Existing ADT and Vehicle Classification
 - Historical Traffic Growth Rates
 - Crash Summary
- FUTURE TRAFFIC
 - Existing ADT and Vehicle Classification
 - Future Traffic (PAG 2045) and Growth
 - Level of Service (segment LOS w/o improvements and w/ improvements)
- PROPOSED IMPROVEMENTS
 - Design / Posted Speed
 - SSD
 - Typica Section Fore-slope Considerations
- FINDINGS
 - Level of Service
 - Safety Mitigation Considerations

Task A.12.2. Final Traffic Engineering Memorandum. The CONSULTANT will prepare the Final Traffic Engineering Memorandum for the project according to the table of contents listed above.

Task A.12.3. Quality Control Review. The CONSULTANT will provide a quality control review of the Traffic Engineering Memorandum.

Deliverables:

- Initial Traffic Memorandum (Electronic format only)
- Final Traffic Memorandum (Electronic format only)
- Responses to all review comments

TASK A.13 PROJECT ASSESSMENT (PA)

Task A.13.1. Project Assessment Report. The CONSULTANT will prepare a Project Assessment (PA) Report in accordance with the requirements of ADOT. The County has developed a preliminary PA report to assist with this effort.

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 PA. The CONSULTANT will provide a quality control review of the Project Assessment.

Deliverables:

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

TASK A.14 ENVIRONMENTAL CLEARANCE MEMORANDUM

Task A.14.1. ADOT Categorical Exclusion HDR will provide technical reports in support of an ADOT CE.

Task A.14.2. Cultural Resources Inventory and Report. The County will complete the cultural resources inventory and report. The CONSULTANT will include the results of the Cultural Resources effort provided by the County in any environmental documents required.

Task A.14.3. Biological Evaluation/Wildlife Habitat. The CONSULTANT will prepare a Biological Evaluation (BE). The CONSULTANT shall also conduct a survey of the project limits for species of concern. The CONSULTANT shall provide the Draft BE for County's review and comments. The Final Report shall be forwarded to County for their records. The AGFD and U.S. Fish and Wildlife Service's species lists will be reviewed and BE updated as required prior to submission for construction authorization to ADOT/FHWA.

Task A.14.4. 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 mitigation report detailing the methodology and outcome of said investigation, along with the appropriate mitigation requirements. If more than one-third acre of regulated riparian habitat will be disturbed, the CONSULTANT will consult with the PCRFCFCD to determine if a Riparian Habitat Mitigation Plan (RHMP) or an in-lieu fee option for mitigating disturbance shall be selected. If the RHMP option is selected, the CONSULTANT will prepare the RHMP to be submitted to the County for review and approval but this is not included in this scope and will require a contract modification. If the in-lieu fee option is selected, the CONSULTANT will obtain PCRFCFCD's in-lieu fee calculation to be reviewed and accepted by the Project Manager. The CONSULTANT shall include a summary of this effort and results in the EAMR.

Task A.14.5. Clean Water Act (Section 402) Permitting. The CONSULTANT will prepare a SWPPP document to meet the Arizona Pollutant Discharge Elimination System (AZPDES) Construction General Permit (CGP) requirements. The document will be submitted to the County for review and approval.

Task A.14.6. Clean Water Act (Sections 401 and 404) Permitting. The County will prepare the Jurisdictional Determination to identify Section 404 Permit requirements. Although not anticipated under the regulations as of May 2020, if a Section 404 permit is required it will be requested under Task B.3 Other Services.

Task A.14.7. Hazardous Materials Survey. 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. The CONSULTANT will also complete 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)

The PISA will be updated prior to submission of final construction documents to the County.

Task A.14.8. Air Quality. The CONSULTANT will review potential effects on air quality and report findings.

Task A.14.9. Noise Analysis. The CONSULTANT will provide a Traffic Noise Analysis, evaluating potential traffic noise impacts to sensitive uses adjacent to Silverbell 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 (FHWA's Low Volume Road Noise Calculation Tool or TNM 2.5) will be used to assess noise levels within the project area and to identify, as appropriate noise mitigation components.

Task A.14.10. Agency and Public Scoping. The CONSULTANT will prepare an agency scoping list, scoping map, and scoping letter inviting agencies to comment on the project. The scoping letter and map will follow ADOT Local Public Agency guidelines. If needed, the CONSULTANT will prepare up to three written scoping response letters in coordination with the County. The CONSULTANT will also maintain an agency coordination log documenting coordination efforts.

The CONSULTANT will prepare a public scoping letter and a list of recipients. Both the agency and public scoping letters will be mailed by the County. If needed, the CONSULTANT will prepare up to three written scoping response letters in coordination with the County.

Task A.14.11. Quality Control Review of Reports. The CONSULTANT will provide a quality control review of technical documents in support of the ADOT CE.

Deliverables:

- Draft and Final BE.
- Draft and Final Approved Jurisdictional Determination request
- Draft and Final Preliminary Initial Site Assessment for hazardous materials.
- Phase I ESA, if necessary
- Draft and Final Traffic Noise Analysis Report
- Agency and Public Scoping List, Map, Draft and Final Scoping Letters
- Native plant inventory per ESR guidelines within the project limits. This includes NPPO plans and a mitigation report
- Native plant relevés within the project limits
- Riparian inventory and mitigation exhibit for Pima County Flood Control
- SWPPP document
- 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 for up to 2 parcels. 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. The CONSULTANT shall assist in providing final acquisition support.

Task A.15.3. Right-of-Way Plans. The CONSULTANT will prepare 1" = 100' 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:

- Acquisition parcel list.
- Preliminary & sealed Right-of-Way plans.
- Responses to all review comments.

TASK A.16 PREPARATION OF CONSTRUCTION DOCUMENTS

Task A.16.1. Initial Design Phase Plans. The CONSULTANT will prepare initial bridge, roadway, and striping plans. 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, striping 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, staking plans, draft special provisions, 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, 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, land ownership, easements, right-of-way, utilities. 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 Arizona State Land Department. The CONSULTANT will prepare legal descriptions with accompanying exhibits for permitting purposes.

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 an allowance for 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

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.

End Exhibit "A"

EXHIBIT "B" - COMPENSATION SCHEDULE (70 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)

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, County 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 the Consultant or Co- Consultant 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 SubConsultants 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. SubConsultants

Specific billing arrangements will be negotiated with specialty SubConsultants 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 the 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
- b. Mileage – local
 - Approve at the established County mileage rate only allowable for projects outside a radius of 50 miles from 130 W. Congress, Tucson, AZ 85701.
 - Included in firm's audited multiplier or as other direct cost
 - Mileage for commuting to and from work place not allowed
- c. Car Rental/Lease/Corporate Vehicles
 - Included in firm's audited multiplier or as other direct cost
- d. 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
- e. IT/Phone/Internal Delivery Charges/Normal Postage/Miscellaneous/Other Administrative Charges
 - Include in firm's audited multiplier
- f. Relocation, second domicile or subsistence expenses
 - Negotiable on a case by case basis
- g. Reproduction Costs
 - Bill as other direct costs if not in audited multiplier
- h. All other direct costs will be detailed in the contract billing

5. 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 subconsultants
- g. Travel time from Phoenix Metro Area to Pima County (both ways)
- h. Air travel for commuting purposes

C. INVOICING

Consultant will submit invoices monthly, to the Project Manager, with appropriate supporting data and documentation and in a format as prescribed by the Project Manager. 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.

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HDR Engineering, Inc.
HDR Project Number: TBD
July 28, 2021

PIMA COUNTY DEPARTMENT OF TRANSPORTATION

DESIGN ENGINEERING SERVICES FOR
WEST SILVERBELL ROAD BLANCO WASH BRIDGE (4SRBWB)

COMPENSATION SCHEDULE

Direct Labor & Overhead & FCCM	Totals
TASK A - DESIGN SERVICES	\$ 529,777.04
TASK B - ADDITIONAL SERVICES	\$ 13,594.73
TASK C - POST DESIGN SERVICES	\$ 86,299.81
Total Direct Labor & Overhead & FCCM:	\$ 629,671.58
Direct Expenses:	\$ 5,104.64

OUTSIDE SERVICES AND CONSULTANTS

(Listed by Item at Actual Cost - NO MARKUP)

	COST
AeroTech Mapping Technologies, Inc. (DBE) - Photogrammetry	\$ 16,145.00
CMG Drainage Engineering - Drainage	\$ 72,408.67
K2 Site Assessments (DBE) - Hazardous Materials	\$ 13,025.50
Newton Environmental Consulting, LLC (DBE) - Noise Analysis	\$ 7,998.57
Solis Engineering Co., LLC (DBE) - Traffic Engineering	\$ 17,509.93
Terracon Consultants, Inc. - Geotechnical	\$ 34,578.56
Wheat Design Group, Inc. (DBE) - SWPPP & Landscaping	\$ 32,489.69

Total Outside Services and Consultants \$ 194,155.92

Net Fee @ 10% of DL + OH: \$ 62,902.59

Total Estimated Cost: \$ 891,834.73

PIMA COUNTY DEPARTMENT OF TRANSPORTATION
DESIGN ENGINEERING SERVICES FOR
WEST SILVERBELL ROAD BLANCO WASH BRIDGE (4SRBWB)

COST PROPOSAL
FOR
TASK A - DESIGN SERVICES (TASKS A.1 THROUGH A.16)

ESTIMATED DIRECT LABOR:

Staff Classification	Estimated Hours	Hourly Rate	Labor Cost
Project Principal	6.00	\$ 109.32	\$ 655.92
Project Manager	402.00	\$ 77.25	\$ 31,054.50
Senior A/E	291.00	\$ 90.79	\$ 26,419.89
A/E	405.00	\$ 65.40	\$ 26,487.00
Junior A/E	298.00	\$ 48.22	\$ 14,369.56
Designer	588.00	\$ 39.20	\$ 23,049.60
CADD Technician	478.00	\$ 50.03	\$ 23,914.34
Survey Manager	155.00	\$ 59.07	\$ 9,155.85
Survey Party Chief	173.00	\$ 56.57	\$ 9,786.61
Survey Technician	338.00	\$ 34.48	\$ 11,654.24
Senior Environmental Planner	267.00	\$ 72.53	\$ 19,365.51
Senior Biologist	218.00	\$ 41.06	\$ 8,951.08
Senior Archaeologist	8.00	\$ 60.26	\$ 482.08
Technical Editor	31.00	\$ 43.64	\$ 1,352.84
GIS Analyst	14.00	\$ 47.89	\$ 670.46
GIS Technician	20.00	\$ 28.69	\$ 573.80
Administrative Support II	62.00	\$ 50.08	\$ 3,104.96
Administrative Support I	98.00	\$ 32.29	\$ 3,164.42
Sub-Total (Direct Labor)	3852	\$	214,212.66

OVERHEAD & FCCM:

Overhead Rate 147.06%	Overhead Cost	\$ 315,021.14
	Sub-Total (DL+OH)	\$ 529,233.80
FCCM 0.2536%	FCCM Cost	\$ 543.24

Sub-Total (DL+OH+FCCM) **\$529,777.04**

PROFIT:

Profit Rate (Net Fee) 10.00%	Profit (on DL+OH)	\$ 52,923.38
	Subtotal:	\$582,700.42

ESTIMATED DIRECT EXPENSES:

Reproductions, Printing, & Misc.	\$ 382.89
Miscellaneous Equipment & Field Supplies	\$ 208.00
Postage	\$ 13.75
Sub-Total Estimated Direct Expenses	\$ 604.64

OUTSIDE SERVICES AND CONSULTANTS

(Listed by Item at Actual Cost - NO MARKUP)

	COST
AeroTech Mapping Technologies, Inc. (DBE) - Photogrammetry	\$ 16,145.00
CMG Drainage Engineering - Drainage	\$ 72,408.67
K2 Site Assessments (DBE) - Hazardous Materials	\$ 13,025.50
Newton Environmental Consulting, LLC (DBE) - Noise Analysis	\$ 7,998.57
Solis Engineering Co., LLC (DBE) - Traffic Engineering	\$ 17,509.93
Terracon Consultants, Inc. - Geotechnical	\$ 29,678.74
Wheat Design Group, Inc. (DBE) - SWPPP & Landscaping	\$ 29,814.89
Sub-Total Outside Services and Consultants	\$ 186,581.30

Total Estimated Cost For Task A (Cost Plus Fixed Fee) \$769,886.36

Hourly rates listed are average rates per category and are based on the rate schedule established for this contract. Actual hourly rates will be used for billing purposes in accordance with the cost plus fixed fee contract between HDR Engineering and Pima County.

HDR Engineering, Inc.

HDR Project Number: TBD

28-Jul-21

Reproduction & Plotting

	Number	Unit	Unit Cost	Cost
Task A.3 Public Participation				
Roll Plots for CAC and Public Meetings (Color Bond) (2'x8')(12 total)	192	SF	\$ 0.900	\$ 172.80
8 1/2" x 11" prints color	-	each	\$ 0.400	\$ -
				\$ 172.80
Task A.6 Environmental Impact Screening				
8 1/2" x 11" prints B&W	30	each	\$ 0.045	\$ 1.35
8 1/2" x 11" prints Color	3	each	\$ 0.400	\$ 1.20
				\$ 2.55
Task A.7 Survey and Mapping				
8 1/2" x 11" prints B&W	50	each	\$ 0.045	\$ 2.25
8 1/2" x 11" prints color		each	\$ 0.135	\$ -
11" x17" prints B&W	20	each	\$ 0.076	\$ 1.52
				\$ 3.77
Task A.11 Bridge Structure Selection Study/Report				
8 1/2" x 11" prints B&W	140	each	\$ 0.045	\$ 6.30
8 1/2" x 11" prints color	10	each	\$ 0.135	\$ 1.35
11" x17" prints B&W	10	each	\$ 0.076	\$ 0.76
				\$ 8.41
Task A.13 Project Assessment Report				
8 1/2" x 11" prints B&W	50	each	\$ 0.045	\$ 2.25
8 1/2" x 11" prints color	10	each	\$ 0.135	\$ 1.35
11" x17" prints B&W	10	each	\$ 0.076	\$ 0.76
				\$ 4.36
Task A.14 EAMR and Supporting Technical Documentation				
8 1/2" x 11" prints B&W	1,100	each	\$ 0.045	\$ 49.50
8 1/2" x 11" prints color	100	each	\$ 0.400	\$ 40.00
				\$ 89.50
Task A.15 Right-of-Way Acquisition Support				
8 1/2" x 11" prints B&W	200	each	\$ 0.045	\$ 9.00
8 1/2" x 11" prints color	-	each	\$ 0.135	\$ -
11" x17" prints B&W	300	each	\$ 0.076	\$ 22.80
				\$ 31.80
Task A.16 Preparation of Construction Documents				
8 1/2" x 11" prints B&W	100	each	\$ 0.045	\$ 4.50
8 1/2" x 11" prints color	-	each	\$ 0.135	\$ -
11" x17" prints B&W	200	each	\$ 0.076	\$ 15.20
				\$ 19.70
Miscellaneous printing				\$ 50.00
Total Reproduction & Plotting				\$ 382.89

Task A.7 - Survey & Mapping

Miscellaneous Field Supplies				\$ 208.00
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Task A.14.10 Agency Scoping

Mailing	25	each	\$ 0.55	\$ 13.75
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Total Direct Expenses: \$ 604.64

101

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ROADWAY, DRAINAGE, PAVEMENT MARKING & SIGNING SHEET LIST

	From	To	No
Cover Sheet	1	1	1
Design Sheet	2	2	1
Typical Sections	3	3	1
New Barrier Summary	4	4	1
New Box Culvert Summary	5	5	1
Geometric Layout Sheet	6	6	1
Roadway Plan & Profile	7	9	3
Box Culvert Plan & Profile	10	12	3
Grading & Drainage Plan at Bridge	13	13	1
Drainage Sections and Details	14	14	1
Erosion Control Plans (By Wheat Design)	15	19	5
Pavement Marking and Signing	20	21	2
Bridge Plans (See Bridge List for Hours)	22	41	20
Native Plant Preservation Plans (By Wheat Design)	42	44	3
Landscape Plans (By Wheat Design)	45	47	3
Right-of-Way Plans (See Task A.15.2)	48	49	2
Cross Sections	1	3	3
			52

ROADWAY, DRAINAGE, PAVEMENT MARKING & SIGNING - SHEET COUNT BY SUBMITTAL

	PA Plans (15%)	Initial Design Phase Plans (30%)	Final Design Phase Plans (50%)	Initial PS&E (90%)	Final PS&E (100%)
Cover Sheet	1	1	1	1	1
Design Sheet	1	1	1	1	1
Typical Sections	1	1	1	1	1
New Barrier Summary	—	—	1	1	1
New Box Culvert Summary	—	—	1	1	1
Geometric Layout Sheet	—	—	1	1	1
Roadway Plan & Profile	—	—	1	3	3
Box Culvert Plan & Profile	—	—	1	3	3
Grading & Drainage Plan at Bridge	—	1	1	1	1
Drainage Sections and Details	—	1	1	1	1
Erosion Control Plans (By Wheat Design)	—	—	1	5	5
Pavement Marking and Signing	—	1	1	2	2
Bridge Plans (See Bridge List for Hours)	3	3	20	20	20
Native Plant Preservation Plans (By Wheat Design)	—	—	1	3	3
Landscape Plans (By Wheat Design)	—	—	1	3	3
Right-of-Way Plans (See Task A.15.2)	—	—	1	2	2
Cross Sections	—	—	3	3	3
Plan Sheets:	6	9	38	52	52

BRIDGE SHEET LIST

West Silverbell Road
Blanco Wash Bridge
134.5 ft

Bridge Length (feet):		5%		20%		25%		30%	
		From	To	No	Hrs/Sht	Senior A/E	Junior A/E	Designer	CADD Tech
Location Plan & Section		22	22	1	55	3	11	11	17
Typical Section, Quantities & Profile Grade		23	23	1	55	3	11	11	17
General Notes		24	24	1	55	3	11	11	17
Foundation Data		25	25	1	2	0	0	0	1
Foundation Data		26	26	1	2	0	0	0	1
Foundation Data		27	27	1	2	0	0	0	1
Foundation Data		28	28	1	2	0	0	0	1
Foundation Data		29	29	1	2	0	0	0	1
Foundation Plan		30	30	1	55	3	11	11	17
Foundation Details		31	31	1	55	3	11	11	17
Abutment Plans & Elevations		32	32	1	44	2	9	9	13
Abutment Details		33	33	1	44	2	9	9	13
Abutment Details		34	34	1	44	2	9	9	13
Abutment Details		35	35	1	44	2	9	9	13
Pier Plan, Elevation & Sections		36	36	1	55	3	11	11	17
Deck Plan & Details		37	37	1	55	3	11	11	17
Deck Section & Details		38	38	1	44	2	9	9	13
Miscellaneous Details		39	39	1	44	2	9	9	13
Miscellaneous Details		40	40	1	44	2	9	9	13
Screed Elevations		41	41	1	44	2	9	9	13
				20	747	37	149	149	224
								187	747

BRIDGE SHEET COUNT BY SUBMITTAL

	PA (15%)	Initial Design Phase Plans (30%)	Final Design Phase Plans (50%)	Initial PS&E (90%)	Final PS&E (100%)
Location Plan & Section	1	1	1	1	1
Typical Section, Quantities & Profile Grade	1	1	1	1	1
General Notes	1	1	1	1	1
Foundation Data	—	—	1	1	1
Foundation Data	—	—	1	1	1
Foundation Data	—	—	1	1	1
Foundation Data	—	—	1	1	1
Foundation Plan	—	—	1	1	1
Foundation Details	—	—	1	1	1
Abutment Plans & Elevations	—	—	1	1	1
Abutment Details	—	—	1	1	1
Abutment Details	—	—	1	1	1
Abutment Details	—	—	1	1	1
Pier Plan, Elevation & Sections	—	—	1	1	1
Deck Plan & Details	—	—	1	1	1
Deck Section & Details	—	—	1	1	1
Miscellaneous Details	—	—	1	1	1
Miscellaneous Details	—	—	1	1	1
Screed Elevations	—	—	1	1	1
Plan Sheets:	3	3	20	20	20

HDR Engineering, Inc.
HDR Project Number: TBD
July 28, 2021

PIMA COUNTY DEPARTMENT OF TRANSPORTATION
DESIGN ENGINEERING SERVICES FOR
WEST SILVERBELL ROAD BLANCO WASH BRIDGE (4SRBWB)

COST PROPOSAL
FOR
TASK B - ADDITIONAL SERVICES (TASKS B.1 THROUGH B.3)

ESTIMATED DIRECT LABOR:

Staff Classification	Estimated Hours	Hourly Rate	Labor Cost
Project Manager	12 \$	77.25 \$	927.00
A/E	13 \$	65.40 \$	850.20
Designer	34 \$	39.20 \$	1,332.80
CADD Technician	20 \$	50.03 \$	1,000.60
Survey Manager	13 \$	59.07 \$	767.91
Survey Technician	17 \$	34.48 \$	586.16
Administrative Support I	1 \$	32.29 \$	32.29
Sub-Total (Direct Labor)	110		\$ 5,496.96

OVERHEAD & FCCM:

Overhead Rate 147.06%	Overhead Cost \$	8,083.83
	Sub-Total (DL+OH) \$	13,580.79
FCCM 0.2536%	FCCM Cost \$	13.94

Sub-Total (DL+OH+FCCM) **\$13,594.73**

PROFIT:

Profit Rate 10.00%	Profit (on DL+OH) \$	1,358.08
	Subtotal:	\$14,952.81

ESTIMATED DIRECT EXPENSES:

Allowance for Utility Line Location Subcontractor if needed with the assumption of approximately 1 potholes and 1 utility marking with survey. Assumed to include ROW, permit and traffic control

	\$	2,500.00
Sub-Total Estimated Direct Expenses	\$	2,500.00

Total Estimated Cost For Task B (Cost Plus Fixed Fee)
(Estimated cost to be re-evaluated at time services are requested) **\$17,452.81**

Hourly rates listed are average rates per category and are based on the rate schedule established for this contract. Actual hourly rates will be used for billing purposes in accordance with the cost plus fixed fee contract between HDR Engineering and Pima County.

ESTIMATED LABOR HOURS: TASK B - ADDITIONAL SERVICES
WEST SILVERBELL ROAD BLANCO WASH BRIDGE (4SRWB)

July 28, 2021	Project Principal	Project Manager	Senior AE	AE	Junior AE	Designer	CADD Technician	Survey Manager	Survey Tech/Chief	Survey Technician	Senior Planner	Senior Budget Analyst	Senior Architect	Technical Editor	GIS Analyst	GIS Technician	Admin Support II	Admin Support I	Total Hours by Task	HPP Cost of Task	HPP Direct Expenses	Total HPP Cost of Task	Total Cost of Task
TASKS																							
TASK B.1 ADDITIONAL UTILITY INVESTIGATION																							
B.1.1 Utility Coordination and Survey (Coordination with Subcontractor)	2	2	4	4	0	24	0	0	0	0	0	0	0	0	0	0	0	0	30	\$ 3,691.03	\$ 2,500.00	\$ 6,191.03	\$ 6,191.03
Subtotal Task B.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	\$ 0	\$ 0	\$ 0	\$ 0
TASK B.2 STATE LAND COORDINATION																							
B.2.1a State Land Coordination & Research (by Pima)	5	5	5	5	0	0	20	5	5	5	0	0	0	0	0	0	0	0	40	\$ 5,934.38	\$ 0	\$ 5,934.38	\$ 5,934.38
B.2.1b Prepare exhibit of project design features	3	3	0	0	0	0	8	8	12	12	0	0	0	0	0	0	0	1	24	\$ 3,129.20	\$ 0	\$ 3,129.20	\$ 3,129.20
B.2.1c State Land legal description & Exhibit	3	3	0	0	0	0	13	13	17	17	0	0	0	0	0	0	0	1	64	\$ 9,053.56	\$ 0	\$ 9,053.56	\$ 9,053.56
Subtotal Task B.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	\$ 0	\$ 0	\$ 0	\$ 0
TASK B.3 Other Services																							
B.3.1 Other Services (16 hour allowance)	2	2	4	4	0	10	0	0	0	0	0	0	0	0	0	0	0	0	16	\$ 2,198.19	\$ 0	\$ 2,198.19	\$ 2,198.19
Subtotal Task B.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	\$ 0	\$ 0	\$ 0	\$ 0
TOTAL TASKS B.1 THROUGH B.3	0	12	9	13	0	34	20	13	0	0	0	0	0	0	0	0	0	1	170	\$ 14,952.81	\$ 2,500.00	\$ 17,452.81	\$ 17,452.81

PIMA COUNTY DEPARTMENT OF TRANSPORTATION

DESIGN ENGINEERING SERVICES FOR
WEST SILVERBELL ROAD BLANCO WASH BRIDGE (4SRBWB)

COST PROPOSAL
FOR
TASK C - CONSTRUCTION SERVICES (TASKS C.1 THROUGH C.3)

ESTIMATED DIRECT LABOR:

Staff Classification	Estimated Hours	Hourly Rate	Labor Cost
Project Manager	209 \$	77.25 \$	16,145.25
Senior A/E	64 \$	90.79 \$	5,810.56
A/E	36 \$	65.40 \$	2,354.40
Designer	158 \$	39.20 \$	6,193.60
CADD Technician	56 \$	50.03 \$	2,801.68
Administrative Support II	24 \$	50.08 \$	1,201.92
Administrative Support I	12 \$	32.29 \$	387.48
Sub-Total (Direct Labor)	559	\$	34,894.89

OVERHEAD & FCCM:

Overhead Rate 147.06%	Overhead Cost \$	51,316.43
	Sub-Total (DL+OH) \$	86,211.32
FCCM 0.2536%	FCCM Cost \$	88.49
	Sub-Total (DL+OH+FCCM)	\$86,299.81

PROFIT:

Profit Rate 10.00%	Profit (on DL+OH) \$	8,621.13
	Subtotal:	\$94,920.94

ESTIMATED DIRECT EXPENSES:

Drone flights during construction (Assume \$500 per flight & 4 flights)
(Cost and drone vendor to be confirmed at the time of construction)

	\$	2,000.00
Sub-Total Estimated Direct Expenses	\$	2,000.00

OUTSIDE SERVICES AND CONSULTANTS

(Listed by Item at Actual Cost - NO MARKUP)

Terracon Consultants (Drilled shaft Integrity Test Result Review, etc.)
Wheat Design Group, Inc. (DBE) - SWPPP & Landscaping

	COST
\$	4,899.82
\$	2,674.80
\$	7,574.62

Total Estimated Cost For Task C (Cost Plus Fixed Fee) \$ 104,495.56
(Estimated cost to be re-evaluated at time services are requested)

Hourly rates listed are average rates per category and are based on the rate schedule established for this contract. Actual hourly rates will be used for billing purposes in accordance with the cost plus fixed fee contract between HDR Engineering and Pima County.

[illegible]

HDR Engineering, Inc.
HDR Project Number: TBD
July 28, 2021

Overhead: 147.060%
FCCM: 0.2536%
Profit: 10.000%

HOURLY RATES - WEST SILVERBELL ROAD BLANCO WASH BRIDGE (4SRBWB)

Discipline	(A) Direct Labor Rate	(B) Overhead 147.060%	(C) FCCM 0.2536%	(D) Profit 10%	(E) Fully Loaded Rate
Project Principal	\$109.32	\$160.77	\$0.28	\$27.01	\$297.37
Project Manager	\$77.25	\$113.60	\$0.20	\$19.09	\$210.14
Senior A/E	\$90.79	\$133.52	\$0.23	\$22.43	\$246.97
A/E	\$65.40	\$96.18	\$0.17	\$16.16	\$177.90
Junior A/E	\$48.22	\$70.91	\$0.12	\$11.91	\$131.17
Designer	\$39.20	\$57.65	\$0.10	\$9.68	\$106.63
CADD Technician	\$50.03	\$73.57	\$0.13	\$12.36	\$136.09
Survey Manager	\$59.07	\$86.87	\$0.15	\$14.59	\$160.68
Survey Party Chief	\$56.57	\$83.19	\$0.14	\$13.98	\$153.88
Survey Technician	\$34.48	\$50.71	\$0.09	\$8.52	\$93.79
Sr. Environmental Planner	\$72.53	\$106.66	\$0.18	\$17.92	\$197.30
Senior Biologist	\$41.06	\$60.38	\$0.10	\$10.14	\$111.69
Senior Archaeologist	\$60.26	\$88.62	\$0.15	\$14.89	\$163.92
Technical Editor	\$43.64	\$64.18	\$0.11	\$10.78	\$118.71
GIS Analyst	\$47.89	\$70.43	\$0.12	\$11.83	\$130.27
GIS Technician	\$28.69	\$42.19	\$0.07	\$7.09	\$78.04
Administrative Support II	\$50.08	\$73.65	\$0.13	\$12.37	\$136.23
Administrative Support I	\$32.29	\$47.49	\$0.08	\$7.98	\$87.84

Formulas
(A) Direct Labor Rate
(B) Overhead 147.06 % X (A)
(C) FCCM 0.2536% X (A)
(D) Profit 10.0% X (A + B)
(E) Fully Loaded Rate (A+B+C+D)

Cost Proposal
for
AeroTech Mapping Technologies, Inc. (DBE) – Photogrammetry



333 North Wilmot Road
Suite 340
Tucson, Arizona 85711
(520) 561-6537

July 6, 2021

Ted Buell, PE

HDR

One South Church Avenue, Suite

Tucson, Arizona

Proposal: Blanco Wash

AeroTech Mapping, Inc., (ATM) is pleased to present the following cost proposal for aerial photography and photogrammetric services for the above mentioned project.

Photogrammetric Scope of Work

Our services will begin with the production of 1"=40', 1 foot topographical information, planimetric detail and digital orthophoto covering the approximate 414 acres located in Marana, Arizona. The aerial mapping limits are indicated in green on the attached layout.

The photography will consist of 3 flight lines and 30 exposures utilizing 4cm digital imagery. Additionally, aerial LiDAR flown at 15 points per square meter (ppsm) will be captured. Accuracies of plus or minus 0.262' can be expected as it relates to the topographical information generated from the Digital Terrain Modeling (DTM) information. Accuracies of plus or minus 0.176' can be expected as it relates to the DTM information itself.

Project accuracy to conform to generally accepted photogrammetric standards established by the American Society of Photogrammetry and Remote Sensing (ASPRS).

Aerial Ground Control

We understand that **HDR** will be responsible for the establishment of aerial ground control for the aerial survey. A total of 13 aerial targets are needed for this project, and a layout showing their locations is attached. The aerial target sizes should be in the order of 6" wide and measure 6' in total length.

Deliverables

Deliverables will consist of a FTP sharefile link containing the DTM information used for the generation of topographical information, the contour information, planimetric detail, the .tfw image limit file, orthophoto TIFF image and .dwg image limits file which will allow for bringing the image into its proper coordinate position. The classified bare-earth and raw .LAS files will be provided and no other classifications are being proposed in this fee.

Final delivery of the digital information will be supplied in AutoCAD and Microstation formatted to ADOT specifications.

ARIZONA

CALIFORNIA

NEVADA

NEW MEXICO

TEXAS



Estimated Project Schedule

ATM anticipates completing this project 18 consecutive working days after date of photography, or receipt of control, whichever is later. Please note certain delays may exist, i.e., weather and/or air flight restrictions, that are beyond our control.

Summary & Terms

Summary for Photogrammetric and LiDAR Services		
Service	Description	Schedule
Aerial Photography / LiDAR	4cm GSD / 15ppsm LiDAR	18 Working Days
Overlap	60%	
Aerial Ground Control	13 Aerial Targets (6"x6')	
Contour Interval	1 Foot (DTM & Breaklines)	
Mapping Scale	1" = 40'	
Stereo Model Count	27	
Planimetric	Full Detail	
Plot	N/A	
Format	AutoCAD & Microstation V8	
Layers	ADOT	
Digital Orthophoto	Color, TIFF, 0.15' Pixel Resolution	
Total Fee		\$16,145.00

Payment Schedule Net 30 Days

This proposal will remain effective for 60 days after the date of this letter. If you have any questions, please do not hesitate to contact us at any time. ATM appreciates the opportunity of submitting this proposal and we look forward to working with HDR.

Your signature in the space provided below indicates your acceptance of the scope of work and terms of the proposal and serves as our Notice to Proceed.

Sincerely,

Accepted By: HDR

Tim Burrows
Account Manager

Ted Buell, PE

Client Project Number

Date

Project: West Silverbell Road Blanco Wash Bridge
Client: HDR Engineering, Inc.



DESCRIPTION OF WORK TASK		Project Manager	Photogrammetrist (Analytical Triangulation)	Photogrammetrist (DTM Collection)	Photogrammetrist (Orthophoto)	CAD Technician	Administration	Total Labor Hours	Total Direct Labor Cost per Task
Direct Labor Rates		\$40.80	\$34.00	\$27.46	\$27.62	\$27.46	\$27.46		
Aerial Mapping									
	A. Topographic, DTM and Orthophoto	9	34	35	30	23	3	134	\$4,026.86
	Total	9	34	35	30	23	3	134	\$4,026.86
	Total Direct Labor Cost	\$367.20	\$1156.00	\$961.10	\$828.60	\$631.58	\$82.38		\$4,026.86

Overhead Rate: 120%

Profit Rate: 10%

Overhead Cost \$ 4,832.23
Sub-Total (DL+OH) \$ 8,859.09
Profit (on DL+OH) \$ 885.91
Subtotal \$ 9,745.00

DIRECT EXPENSES	QUANTITY	UNIT	COST	TOTAL
Mobilization for Aerial Photography/LIDAR Fixed Wing Aircraft (includes aircraft, Pilot, Camera/LIDAR Operator, fuel and	1.00	Per Project	\$6,400.00	\$6,400.00
Total Estimated Direct Expenses				\$6,400.00

Total Estimated Cost (Cost plus Fixed Fee) \$ 16,145.00

Blanco Wash

4cm Digital Imagery, 3 Flight Lines, 30 Exposures, 15ppsm LiDAR

1"=40' 1FT Topography / Planimetry / Orthophoto, .LAS

AZSPC NAD 83 Central Zone (GRID) 13 Control Points



Cost Proposal
for
CMG Drainage Engineering – Drainage

Scope of Work – CMG Drainage

TASK A.8 DRAINAGE

Task A.8.1. Drainage Design Criteria Review Meeting. The CONSULTANT will conduct a drainage design criteria review meeting with PCDOT and PCRFC D to develop drainage design criteria, including but not limited to design storm, peak discharge applicable to this project location, allowable flow depth over the roadway, allowable surcharge on adjacent properties and FEMA mapping requirements. The CONSULTANT will attend monthly progress meetings and a review comment meeting.

Task A.8.2. Review Existing Plans and Reports. The CONSULTANT will review available plans and reports for existing improvements and identify drainage features and flows.

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 PCRFC D 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. If a FEMA map change process is required, the CONSULTANT will also prepare hydraulic modeling for the 50-year and 500-year peak discharges.

Task A.8.4 Conduct scour computations for bridge piers, abutments in accordance with PCRFC D requirements including long-term degradation. Evaluate up to three scour protection methods. Identify structures such as culvert inlets and outlets, and roadway embankment locations requiring bank protection stabilization.

Task A.8.5. 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, FEMA requirements and right-of-way acquisition needs for cross-drainage.

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.8.6. 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.

Assumptions

- Task A.8.1 – CMG will attend up to 8 monthly progress meetings or other meetings and a review comment meeting.
- Task A.8.2 – none
- Task A.8.3 – HEC-RAS Version 5.0.7 will be the hydraulic modeling method for existing and proposed conditions.
 - existing and proposed conditions flow depths and velocities and exhibits showing the differences between existing and proposed conditions will be shown on cross-sections plots only
 - FLO-2D modeling will not be conducted to develop the flow depth and velocity maps
 - No more than three culvert/bridge and roadway stabilization alternatives will be evaluated.
 - Peak discharge rates for all storm frequencies will be based on the effective FEMA hydrology. No new hydrologic modeling will be conducted.
- Task A.8.4 – none
- Task A.8.5 – CMG will not be engaged in any services related to CWA Section 404 permitting
- CLOMR related services and fees are not included in the scope of work.



CMG DRAINAGE ENGINEERING, INC.

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

FEE ESTIMATE

Project Name: West Silverbell Rd, Blanco Wash Bridge (4SRWBW)

Date: June 23, 2021

I. LABOR

TASK A - DESIGN SERVICES

Task A.8.1 - Drainage Design Criteria Review Meeting and Monthly Progress and Comment Review Meetings

Personnel Classification	Direct Labor Rate	Overhead 128%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$77.27	\$13.76	\$151.41	2	\$ 302.82
Project Manager	\$54.25	\$69.44	\$12.37	\$136.06	10	\$ 1,360.59
Sr. Project Engineer/Hydrologist	\$48.13	\$61.61	\$10.97	\$120.71	0	\$ -
Project Engineer/Hydrologist	\$41.61	\$53.26	\$9.49	\$104.36	0	\$ -
Designer	\$36.30	\$46.46	\$8.28	\$91.04	0	\$ -
CADD Tech	\$31.41	\$40.20	\$7.16	\$78.78	0	\$ -
Clerical / Administration	\$22.84	\$29.24	\$5.21	\$57.29	0	\$ -
Task Sub-Total						\$ 1,663.41

Task A.8.2. Review Existing Plans and Reports

Personnel Classification	Direct Labor Rate	Overhead 128%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$77.27	\$13.76	\$151.41	1	\$ 151.41
Project Manager	\$54.25	\$69.44	\$12.37	\$136.06	8	\$ 1,088.47
Sr. Project Engineer/Hydrologist	\$48.13	\$61.61	\$10.97	\$120.71	8	\$ 965.68
Project Engineer/Hydrologist	\$41.61	\$53.26	\$9.49	\$104.36	0	\$ -
Designer	\$36.30	\$46.46	\$8.28	\$91.04	0	\$ -
CADD Tech	\$31.41	\$40.20	\$7.16	\$78.78	0	\$ -
Clerical / Administration	\$22.84	\$29.24	\$5.21	\$57.29	0	\$ -
Task Sub-Total						\$ 2,205.56

Task A.8.3. Drainage Maps and Exhibits

Personnel Classification	Direct Labor Rate	Overhead 128%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$77.27	\$13.76	\$151.41	8	\$ 1,211.26
Project Manager	\$54.25	\$69.44	\$12.37	\$136.06	72	\$ 9,796.25
Sr. Project Engineer/Hydrologist	\$48.13	\$61.61	\$10.97	\$120.71	90	\$ 10,863.90
Project Engineer/Hydrologist	\$41.61	\$53.26	\$9.49	\$104.36	68	\$ 7,096.34
Designer	\$36.30	\$46.46	\$8.28	\$91.04	0	\$ -
CADD Tech	\$31.41	\$40.20	\$7.16	\$78.78	48	\$ 3,781.26
Clerical / Administration	\$22.84	\$29.24	\$5.21	\$57.29	0	\$ -
Task Sub-Total						\$ 32,749.01

Task A.8.4. Scour Computations

Personnel Classification	Direct Labor Rate	Overhead 128%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$77.27	\$13.76	\$151.41	2	\$ 302.82
Project Manager	\$54.25	\$69.44	\$12.37	\$136.06	28	\$ 3,809.65
Sr. Project Engineer/Hydrologist	\$48.13	\$61.61	\$10.97	\$120.71	42	\$ 5,069.82
Project Engineer/Hydrologist	\$41.61	\$53.26	\$9.49	\$104.36	0	\$ -
Designer	\$36.30	\$46.46	\$8.28	\$91.04	0	\$ -
CADD Tech	\$31.41	\$40.20	\$7.16	\$78.78	6	\$ 472.66
Clerical / Administration	\$22.84	\$29.24	\$5.21	\$57.29	0	\$ -
Task Sub-Total						\$ 9,654.95

Task A.8.5. Drainage Reports

Personnel Classification	Direct Labor Rate	Overhead 128%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$77.27	\$13.76	\$151.41	8	\$ 1,211.26
Project Manager	\$54.25	\$69.44	\$12.37	\$136.06	60	\$ 8,163.54
Sr. Project Engineer/Hydrologist	\$48.13	\$61.61	\$10.97	\$120.71	60	\$ 7,242.60
Project Engineer/Hydrologist	\$41.61	\$53.26	\$9.49	\$104.36	0	\$ -
Designer	\$0.70	\$0.90	\$0.16	\$1.76	0	\$ -
CADD Tech	\$31.41	\$40.20	\$7.16	\$78.78	40	\$ 3,151.05
Clerical / Administration	\$22.84	\$29.24	\$5.21	\$57.29	16	\$ 916.60
Task Sub-Total						\$ 20,685.06

Task A.8.6: Quality Control Reviews

Personnel Classification	Direct Labor Rate	Overhead 128%	Profit 10%	Billing Rate	Hours	Fee
Project Principal	\$60.37	\$77.27	\$13.76	\$151.41	36	\$ 5,450.69
Project Manager	\$54.25	\$69.44	\$12.37	\$136.06	0	\$ -
Sr. Project Engineer/Hydrologist	\$48.13	\$61.61	\$10.97	\$120.71	0	\$ -
Project Engineer/Hydrologist	\$41.61	\$53.26	\$9.49	\$104.36	0	\$ -
Designer	\$36.30	\$46.46	\$8.28	\$91.04	0	\$ -
CADD Tech	\$31.41	\$40.20	\$7.16	\$78.78	0	\$ -
Clerical / Administration	\$22.84	\$29.24	\$5.21	\$57.29	0	\$ -
Task Sub-Total						\$ 5,450.69
TOTAL LABOR						\$ 72,408.67

TOTAL NOT-TO-EXCEED PROJECT COST	\$ 72,408.67
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Cost Proposal
for
K2 Site Assessments (DBE) – Hazardous Materials



Mr. Ted W. Buell P.E.
Structures Section Manager
HDR Engineering, Inc.
One South Church Ave., Ste 625
Tucson, AZ 85701-1612

June 18, 2021

RE: REVISED Proposal for PISA, ISA, Lead, and Asbestos Assessment Services
Silverbell Road Bridge Replacement Project
Pima County, Arizona

Dear Mr. Buell:

Pursuant to our conversations, I am providing an estimate of hours to provide a Preliminary Initial Site Assessment (PISA) report, an Initial Site Assessment (Phase I ESA equivalent) report for the planned acquisition parcel(s), and lead/asbestos analysis and letter reports for the project referenced above. The project involves replacement of a Bailey bridge, replacement of two box culverts at ancillary drainages, and limited road widening and improvements at the project site, where Silverbell Road crosses Blanco Wash and two other drainages. The environmental clearance for the project requires the completion of a Preliminary Initial Site Assessment (PISA), conforming to ASTM E 1528-06 protocols. Acquisition of property at the east end of the project requires completion of an Initial Site Assessment (ISA, equivalent to a commercial Phase I, following ASTM E 1527-13 protocols). The bridge and roadway striping will be assessed for lead and asbestos content, and that deliverable will be two separate letters, one for asbestos sample results and one for lead paint results. K2 Site Assessments (K2SA) is familiar with the procedures and expectations of ADOT's Hazardous Waste staff, and Pima County requirements as well.

The PISA report will include a PISA Information Form / Geotech Clearance Form as an attachment. Graphics (maps) for all deliverables will be provided by HDR. The asbestos and lead sampling effort will include paint on the bridge elements and the roadway striping, and asbestos assessment will include all paint samples collected, plus any separate elements of the bridge that may contain asbestos (expansion joints, railing pads, etc.) if present. We anticipate that the field reconnaissance for the PISA and ISA, and sampling effort for asbestos and lead, can be completed in one long field day, weather permitting.

We propose to use Fiberquant Labs in Phoenix for asbestos analysis (polarized light microscopy [PLM] only), and for lead analysis (samples analyzed by EPA Test Method SW 846 6010B, with required digestion). Regulatory data to support the PISA and ISA reporting (one report, shared by both deliverables) will be obtained from EDR of Southport, CT. Cost sheets from each of these three vendors are attached.

The schedule for the project is dependent upon the date of Notice-to-Proceed, the limitations of an encroachment permit from Pima County (if required), and weather. We anticipate 1-2 weeks of preliminary efforts prior to mobilizing to the site, one long day of field work, one week for receipt of laboratory results, and two weeks for analysis of results and preparation of reports. If those estimates hold, we anticipate delivery of reports at 5-6 weeks following NTP.

The anticipated level of effort for the project is 64 hours for scientist-level effort (12 for field, 8 for pre-and-post field research, 22 hours for ISA research and report preparation, 14 hours for PISA report preparation, 6 hours each for lead and asbestos letter preparation, and 2 hours for administration/billing/project documentation). Fixed costs will include laboratory costs (for analysis for asbestos and lead content of samples), costs for the EDR database report, and miscellaneous field costs for sampling consumables. A breakdown of costs is provided below:

Cost plus fixed fee (10%)

Total Direct Labor (DL):	\$70/hr (64 hrs) =	\$4,480.00
Overhead (OH):	(150%)(4,480) =	<u>\$6,720.00</u>
Total (DL+OH):		\$11,200.00

Profit (10%)	(10%)(11,200)	\$1,120.00
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Direct Expenses		\$705.50*
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Total Estimated Fee:		\$13,025.50
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***Direct Expenses**

-EDR cost \$350.00

- Lab costs – Fiberquant (lead) \$15.00 x 10 samples = \$150.00, Fiberquant (asbestos) \$13.25 x 14 samples = \$185.50, \$150.00 + 185.50 = \$335.50

-Field consumables (sample bags, masks, gloves) = \$20.00

Payment is expected to be in accordance with the terms of the subconsultant agreement.

The required insurance certifications will be provided along with our response to HDR's subconsultant agreement. We maintain coverages in agreement with HDR's and the State of Arizona's requirements. Please reply to this proposal with an executed subconsultant agreement, so that my signature thereupon will constitute an executed contract.

Thanks for the opportunity, and I look forward to assisting the HDR team to a successful execution of this project for this important client.

All the best –



Kelly W. Kading CPG
Vice President
K2 Site Assessments

Cc: Jana Kading, President, K2 Site Assessments

Attachments: Backup rate sheets for Fiberquant Lab, and EDR. NOTE – dates for these cost sheets are 2018-2020, but all costs are the same currently.

ATTACHMENTS

Backup cost sheets from Fiberquant and EDR



Kelly Kading
K2 Site Assessments

1/23/2020

Hi Kelly and thank you for the call. The following is a schedule of services and costs. I very much appreciate the chance to work with you. Also, please note that our PLM pricing includes all layers and any necessary point counting.

Microbial

Non-viable Spore traps (1-2 day turnaround)	\$25.00 ea.
Non-viable Spore traps (6-hour turnaround)	\$37.50 ea.
Non-viable bulk identification (1-2 day turnaround)	\$15.00 ea.
Non-viable bulk identification (4-hour turnaround)	\$22.50 ea.
Spore trap cassettes	\$5.00 ea.
High volume pump rental	\$0.00/day

Silica

NIOSH 7500 (3-5 day turnaround)	\$85.00 ea.
NIOSH 7500 (1-2 day turnaround)	\$127.50 ea.

Asbestos

PLM all layers (1-3 day turnaround)	\$13.25 ea.
PLM all layers (6-hour turnaround)	\$19.88 ea.
PLM built-up roofing (1-3 day turnaround)	\$53.00/hour
PLM built-up roofing (6-hour turnaround)	\$79.50/hour
TEM air cassettes (24-hour turnaround)	\$90.00 ea.
TEM air cassettes (6-hour turnaround)	\$135.00 ea.
TEM bulk sample (1-3 day turnaround)	\$90.00/layer
PCM air cassettes (24-hour turnaround)	\$10.00 ea.
PCM air cassettes (4-hour turnaround)	\$15.00 ea.

Lead

FAA lead wipes, chips, soils and filters (1-3 day turnaround)	\$15.00 ea.
FAA lead wipes, chips, soils and filters (6-hour turnaround)	\$22.50 ea.
XRF on-site	quoted

Soot/Carbon Black

ASTM 6602-03b optical only (1-2 day turnaround)	\$45.00 ea.
ASTM 6602-03b optical only (6-hour turnaround)	\$67.50 ea.
ASTM 6602-03b TEM only (3-5 day turnaround)	\$200.00 ea.
ASTM 6602-03b TEM only (1-2 day turnaround)	\$300.00 ea.

Please let me know if there is any further information (references, certificates of insurance, etc....) that I can provide.

Sincerely,

A handwritten signature in black ink that reads "Michael Breu". The signature is written in a cursive, flowing style.

Michael Breu
Technical Manager
Fiberquant Analytical Services



EDR Fee Schedule

Prices effective February, 2018

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

Premium Package	\$ 520
Standard Package	\$ 350
Basic Package	\$ 250

Scope Specific Addendums (with Package)

NEPACheck Report	\$ 115
Industrial Addendum	\$ 115
Multi Tenant Retail Report (no cov/cov)	\$ 70 / \$ 150

a la Carte Resources

Radius Map w/ GeoCheck	\$ 170
Radius Map w/o GeoCheck	\$ 145
NEPACheck Report	\$ 155
VEC Application (with Package)	\$ 65
VEC Application	\$ 170
Certified Sanborns (no cov/coverage)	\$ 65 / \$ 145
Certified Sanborns (ordered w/Radius Map)	\$ 15 / \$ 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	\$70
Tax Parcel Map Report	\$25

Report Authoring & Project Management

PARCEL Phase I ESA	\$ 150
PARCEL PCA	\$ 150
PARCEL FastTrack	\$ 100
PARCEL Phase I Update	\$ 85
PARCEL ASTM Transaction Screen	\$ 50 - \$100
PARCEL FDIC Checklist	\$ 50
PARCEL Database Review	\$ 50

Land Title Reports

Chain of Title (one owner/deed)	\$ 360
COT Additional Owner/Deed	\$ 360
COT Search with Premium Pack	\$ 160
Env Lien & AUL Search Report (one parcel)	\$ 255
Additional Parcel	\$ 100



EDR Fee Schedule

Prices effective February, 2018

Industrial Reports

AuditCheck Facility Report	\$ 275
AuditCheck Facility Corporate Report	\$ 425
AuditCheck Destination Report	\$ 525
AuditCheck Risk Sharing Report	\$ 525
Site Report	\$ 115
NJ McRaes Industrial Directory Report	\$ 205
Offsite Receptor Report	\$ 425

Rush Charges

Super Rush - Per Product (1-2 days)	\$ 150
Rush - Per Product (2-3 days)	\$ 75

*Please call for rush fees on Liens and Chains

Custom Services, Call For a Quote

Area Study
Corridor Study
GIS Format
Water Wells
Aerial Custom Research
City Directory Custom Research
Historical Topographic Maps Custom Research
Certified Sanborns Custom Research
EDR OnDemand

State-Specific Reports

NJ Preliminary Assessment Package	\$ 800
GeoCheck Well Report	\$ 250
TX Oil/Gas Report 1/4 Mile	\$ 105
TX Oil/Gas Report 1/2 Mile	\$ 155
TX Oil/Gas Report 1 Mile	\$ 300
TX Oil/Gas Report > 1 Mile	custom
TX Water Well Report 1/4 Mile	\$ 105
TX Water Well Report 1/2 Mile	\$ 155
TX Water Well Report 1 Mile	\$ 300
TX Water Well Report > 1 Mile	custom



EDR Fee Schedule

Prices effective February, 2018

EDR Packages	Radius Map	Basic	Standard	Premium
DATA COLLECTION & ANALYSIS				
Lightbox	X	X	X	X
Mobile App	X	X	X	X
VEC App			X	X
Reports & Data				
Radius Map Report	X	X	X	X
Recovered Govt. Archives (Exclusive)	X	X	X	X
Single File for Historical Reports		X	X	X
Certified Sanborn Maps		X	X	X
Historical Aerials			X	X
Historical City Directories		X Select One	X	X
Historical Topos			X	X
Property Tax Map Report				X
Building Permit Report (PDF)				X
EDR Lien & AUL Report				X
Free Historical Report Reworks				X
1-3 Day TAT (except Lien Search)				X

Cost Proposal
for
Newton Environmental Consulting, LLC (DBE) – Noise Analysis

newton

Environmental Consulting, LLC

June 24, 2021

Mrs. Audrey Unger
HDR
20 E. Thomas Road, Suit 2500
Phoenix, AZ 85012

Project: Silverbell Road at Blanco Wash
Pima County Transportation Department

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

Dear Mrs. Audrey Unger:

Newton Environmental Consulting (NEC) is pleased to submit for your consideration our Scope-of-Services and Cost-Estimate for a Traffic Noise Analysis for the Silverbell Road at Blanco Wash project in Avra Valley within Pima County, Arizona.

NEC will provide the services for a traffic noise analysis as described in the Scope of Service for an amount of \$7,998.57.

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 Silverbell Road at Blanco Wash

PROJECT UNDERSTANDING

The scope of work for this effort includes the consultant providing Engineering Design services according to the Pima County Roadway Design Manual and this contract to provide a new two-lane bridge on Silverbell Rd at the Blanco wash crossing, replace the two series of CMP's with box culverts, and rebuild Silverbell Rd from Aguirre Rd west to the end of the transition to two lanes west of Blanco Wash. The project is located in Avra Valley within Pima County, Arizona.

TRAFFIC NOISE ANALYSIS ASSUMPTIONS

NEC assumes one (1) design configuration and one (1) proposed alignment for Silverbell Road. Noise level measurements will be conducted with a 2-person team at one location to establish existing noise levels for the Blanco Estates Subdivision. The FHWA approved Low Volume Road Noise Calculation Tool (LVCT) or FHWA TNM 2.5 noise model will be used to predict future Build noise levels and to determine if mitigation will be necessary. It is not anticipated that there will be noise impacts, however, if impacts occur then TNM 2.5 will be used to determine appropriate mitigation necessary per Pima County Traffic Noise Analysis and Mitigation Guidance for Major Roadway Projects. Public meetings to discuss noise impacts for the Silverbell Road Project are not included in this cost estimate.

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 six (6) weeks after receiving all of the requested items.

REQUIRED ITEMS Pima County Transportation Department Silverbell Road at Blanco Wash		
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 HDR.
2. Roadway Geometry Files	Horizontal and vertical roadway alignment files	Microstation compatible or GIS to be provided by HDR.
3. Terrain Data	Survey and topographical data, Digital Terrain Model (DTM)	Microstation compatible or GIS to be provided by HDR.
4. Traffic Volume Data	AM/PM peak hour traffic volumes, vehicle mix, ADT for autos and trucks.	To be provided by HDR.

TASKS DESCRIPTIONS**1. Project Management**

- Scoping, scheduling, budgeting, and billing services.

2. Coordination

- Coordination with HDR and Pima County Transportation Department.

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 one location.

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 Low Volume Road Noise Calculation Tool (LVRT) or TNM 2.5.

5. Noise Analysis

- Prepare noise model using the LVRT or TNM 2.5.
- Evaluate if noise mitigation will be necessary to comply with the *Pima County Traffic Noise Analysis and Mitigation Guidance for Major Roadway Projects*, which was revised April 2008.

6. Reports

- Prepare and submit a draft noise analysis technical report (electronic PDF format) for HDR and Pima County review.
- Address comments, revise the noise analysis technical report for final submittal (electronic PDF format).

Silverbell Road at Blanco Wash
June 24, 2021

NEC Project No.: 2021HDR_Silverbell
PCDT Project No.: TBD

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	4	\$55.00	\$220.00
Noise Specialist	48	\$41.96	\$2,014.08
Technician	12	\$30.23	\$362.76
Administrative	12	\$20.63	\$247.56
<hr/>			
Total Labor Hours	76		Total Labor Cost: \$2,844.40
Overhead % of Labor		155.64%	\$4,427.02
Sub-Total Direct Labor			\$7,271.42

Total Cost to Consultant

Fixed Fee = (Direct Labor + Overhead) x Multiplier 10% \$727.14

TOTAL LUMP SUM COST:

\$7,998.57



Angela Newton
Principal

6/24/2021

Date

TASK NO.	TASK DESCRIPTION	Project Manager	Noise Specialist	CADD Technician	Administrative	Task Hour
		\$55.00	\$41.25	\$30.23	\$20.63	
1	100- PROJECT MANAGEMENT					
	Scoping, scheduling, budgeting, and billing services.	2	6	-	8	16
2	200- COORDINATION					
	Coordination with HDR and Pima County Transportation Dept	-	6	-	-	6
3	300- FIELD ASSESSMENT					
	Site Assessment- prepare mapping, evaluate land use adjacent to the project limits and identify noise sensitive receptors (2-person team)	-	2		-	2
	Noise Level Measurements (2-person team, 1 location).	-	6	6	-	12
4	400- DATA ASSESSMENT					
	Review as-builts, design files and traffic data.	-	4		-	4
	Extract data from as-builts and design files for LVRT or TNM 2.5.	-	4		-	4
5	500- NOISE ANALYSIS					
	Build LVRNCT model and/or TNM 2.5.		6		-	6
	Identify noise impacts and evaluate if noise mitigation is necessary per Pima County Traffic Noise Analysis and Mitigation Guidance for Major Roadway Projects. Prepare figures for report.		4	2	-	6
6	600N - NOISE REPORT					
	Prepare and submit draft noise analysis technical report (electronic PDF format) for HDR and Pima County review.	2	8	2	2	14
	Address comments, revise the noise analysis technical report for final submittal (electronic PDF format).		2	2	2	6
Total Hours		4	48	12	12	76

Cost Proposal
for
Solis Engineering Co., LLC (DBE) – Traffic Engineering



June 28, 2021

Ted W. Buell, PE
Structures Section Manager
HDR
One South Church Ave., Suite 625
Tucson, AZ 85701-1612
D 520.584.3632 M 520.906.1384
Ted.Buell@hdrinc.com

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239 N. CHURCH AVE.
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TUCSON AZ, 85747
WORK: (520) 207-0742
CELL: (520) 247-7691
RICK.SOLIS@SOLISENGCO.COM

RE: 4SRBWB - Silverbell Rd Blanco Wash Bridge Project

Dear Mr. Buell,

Solis Engineering Co., LLC ("Solis Engineering Co.") has been asked to provide professional traffic engineering services for the Silverbell Rd Blanco Wash Bridge Project. Key services include:

- Traffic Engineering Memorandum; and
- ESAL calculations.

A detailed Traffic Scope of Services and Traffic Engineering Assumptions are attached to this letter.

A detailed fee schedule / man-hour estimate is attached to this letter.

Solis Engineering Co. will provide only the tasks within the project scope of services that are detailed in the fee schedule on a Cost Plus Fixed Fee Basis, according to the fee schedule rates not to exceed **\$17,509.93** without Client and Pima County approval. Any services performed outside of the tasks outlined in the detailed fee schedule will be billed as an additional service according to the above referenced rates.

Estimated Schedule for Traffic Engineering Services: Estimated 3 month duration.

We appreciate the opportunity to provide these services to you. Please contact me if you have any questions.

Very truly yours,

SOLIS ENGINEERING CO.

A handwritten signature in dark ink, appearing to read "Rick P. Solis", written over a horizontal line.

Rick P. Solis, P.E.
Manager

SOLIS ENGINEERING SCOPE OF SERVICES 03/04/21
(REVISED FOR TRAFFIC SERVICES AS REQUESTED BY HDR)

TASK A.1 PROJECT MANAGEMENT AND QUALITY CONTROL

Task A.1.1. Project Management.

- a. Coordinate with Prime CONSULTANT
- b. Provide a monthly invoice.

Deliverables:

- Monthly invoices.

Task A.1.2. Quality Control Plan. Fill out QC certificate as provided by prime CONSULTANT.

Deliverables:

- Fill out QC forms for each submittal.

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. Attend one (1) kick-off meeting
- b. Attend up to three (3) Monthly or Comment Review meetings with the project team.
- c. Attend up to four (4) 30 minute in-house teleconference meetings.

Deliverables:

- None

TASK A.10 PAVEMENT DESIGN

Task A.10.1. Pavement Design Report. The CONSULTANT will provide ESAL calculations for use in the Pavement Design Report.

Task A.10.2. Quality Control Review. The CONSULTANT will provide a quality control review of ESAL calculations.

Deliverables:

- ESAL Calculations (Electronic format only)
- Responses to all review comments.

TASK A.12 TRAFFIC ENGINEERING

Task A.12.1. Initial Traffic Engineering Memorandum. The CONSULTANT will prepare an Initial Traffic Engineering Memorandum for the project according to the table of contents listed below. Consultant will document the required traffic related improvements for the section of Silverbell Rd within the project limits.

- INTRODUCTION
- PURPOSE & OBJECTIVES
- EXISTING CONDITIONS
 - Project Location
 - Existing Roadway Description and traffic features (Speed Limit, signage, Multi-modal amenities, and sight distance).
 - Existing ADT and Vehicle Classification
 - Historical Traffic Growth Rates
 - Crash Summary

- FUTURE TRAFFIC
 - Existing ADT and Vehicle Classification
 - Future Traffic (PAG 2045) and Growth
 - Level of Service (segment LOS w/o improvements and w/ improvements)
- PROPOSED IMPROVEMENTS
 - Design / Posted Speed
 - SSD
 - Typica Section Fore-slope Considerations
- FINDINGS
 - Level of Service
 - Safety Mitigation Considerations

Task A.12.2. Final Traffic Engineering Memorandum. The CONSULTANT will prepare a Final Traffic Engineering Memorandum for the project according to the table of contents listed above.

Task A.12.3. Quality Control Review. The CONSULTANT will provide a quality control review of the Traffic Engineering Memorandum.

Deliverables:

- Initial Traffic Memorandum (Electronic format only)
- Final Traffic Memorandum (Electronic format only)
- Responses to all review comments.

TRAFFIC ENGINEERING ASSUMPTIONS (6/28/2021)

Traffic Assumptions:

1. *Consultant will document the required traffic related improvements for the section of Silverbell Rd within the project construction limits only.*
2. *Consultant will concentrate efforts on segment LOS between Cocio and Aguirre.*
3. *LOS will be measured using FDOT LOS Table 2 (Transitioning Areas and Areas Over 5,000 Not In Urbanized Areas).*
4. *Due to existing truck loading limitations along Silverbell, Consultant will collect two 24-hr vehicle classification counts:*
 - a. *The first along Silverbell, west of Aguirre, and*
 - b. *The second along El Tiro, just east of Cocio.*

Consultant will evaluate the differences between the two data sets and adjust truck percentages along Silverbell to better project future heavy traffic above ADOT minimums.
5. *Consultant will assume the posted speed is representative of the speed traveled on the roadway.*
6. *No intersection analysis will be performed.*
7. *No traffic signal warrant analysis will be performed.*
8. *No speed studies will be performed – the segment between Cocio and Aguirre may not be long enough to sample a consistent speed due to the close proximity to the single lane bridge and the curve at Aguirre.*
9. *No Alternative transportation mode counts or analysis will be studied.*
10. *No Turning movement Count's (TMC's) at Silverbell Rd / Aguirre Rd*
11. *No TMC's at Silverbell Rd / Cocio Rd*
12. *No TMC's at Cocio Rd / El Tiro Rd*
13. *No Construction Duration or Detour Traffic Evaluation.*
14. *ESAL calculations will be based on the methodology included in the ARIZONA DEPARTMENT OF TRANSPORTATION, PAVEMENT DESIGN MANUAL, Dated September 29, 2017, Appendix A*
15. *Traffic Consultant assumes a 3 month design schedule and management schedule.*
16. *Consultant will prepare a Traffic Memorandum.*

FEE SCHEDULE

4SRBWB - Silverbell Rd Blanco Wash Bridge Project - Traffic Engineering Services

Solis Engineering Co. (DBE / SBE)

June 28, 2021

Direct Labor

<u>Classification</u>	<u>Hours</u>	<u>Rate</u>	<u>Cost</u>	<u>Totals</u>
Principal	72	\$54.35	\$3,913	
Senior A/E	0	\$47.04	\$0	
Project Manager	0	\$42.09	\$0	
A/E	38	\$37.14	\$1,411	
Designer	0	\$29.71	\$0	
CADD	0	\$22.28	\$0	
Clerical / Admin	0	\$19.81	\$0	

Direct Labor (DL)	110			\$5,324.52
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Estimated Direct Expenses

<u>Type</u>	<u>Amount</u>	<u>Unit Costs</u>	<u>Cost</u>
None	0	\$0.00	\$0

Total of Direct Expenses				\$0.00
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Estimated Outside Expenses

Traffic Count (24-hr Veh. Count)	2	\$277.00	\$554
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Total of Outside Expenses				\$554.00
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Overhead (189.50%) (OH)				\$10,089.97
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Total Labor Cost (DL + OH)				\$15,414.49
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Fixed Fee (10% of Labor Cost)				\$1,541.45
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Total Estimated Costs				\$17,509.93
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FEE SCHEDULE
4SRWB - Silverbell Rd Blanco Wash Bridge Project - Traffic Engineering Services
Man-hour Estimate

Task No.	Description	Total Labor Cost	10% Profit	Principal	Senior A/E	Project Manager	A/E	Designer	CADD	Clerical / Admin	Total
A.1	TASK A.1 PROJECT MANAGEMENT AND QUALITY CONTROL										
A.1.1	Coordinate with Prime CONSULTANT / Management (3 month duration)	\$ 1,888.12	\$ 188.81	12	0	0	0	0	0	0	12
A.1.2	Fill out QC forms for each submittal	\$ 422.21	\$ 42.22	2	0	0	1	0	0	0	3
A.1.3a	Kickoff Meeting (1 Meeting @ 2 hours)	\$ 422.21	\$ 42.22	2	0	0	1	0	0	0	3
A.1.3b	Monthly or Comment Review Meeting (3 Meetings @ 2 hours per meeting)	\$ 1,159.10	\$ 115.91	6	0	0	2	0	0	0	8
A.1.3c	Attend up to four (4) 30 minute in-house teleconference meetings	\$ 529.73	\$ 52.97	2	0	0	2	0	0	0	4
A.10	TASK A.10 PAVEMENT DESIGN										
A.10.1	ESAL calculations	\$ 3,435.35	\$ 343.54	15	0	0	10	0	0	0	25
A.10.2	Quality Control Review	\$ 479.90	\$ 47.99	1	0	0	3	0	0	0	4
A.12	TASK A.12 TRAFFIC ENGINEERING										
A.12.1	Initial Traffic Engineering Memorandum	\$ 5,008.78	\$ 500.88	25	0	0	10	0	0	0	35
A.12.2	Final Traffic Engineering Memorandum	\$ 1,539.36	\$ 153.94	5	0	0	7	0	0	0	12
A.12.3	Quality Control Review	\$ 529.73	\$ 52.97	2	0	0	2	0	0	0	4
	Totals	\$ 15,414.49	\$ 1,541.45	72	0	0	38	0	0	0	110

Work Estimate

DATE: 5/25/2021

ESTIMATE #: 21-266

CITY: *Marana*

Prepared by: Sharon Morris

veracitytrafficgroup dba (Ca)

SERVICE PROVIDER - SUBCONTRACTOR

Field Data Services of Arizona, Inc.

Veracity Traffic Group (California)

31894 Whitetail Ln.

Temecula, CA 92592

Phone: 520.316.6745

Fax: 866.686.7612

www.fdsaz.com

CUSTOMER

Rick Solis, PE
Solis Engineering Co.

239 N Church Ave

Tucson, AZ 85701

p 520.207.0742

rick.solis@solisengco.com

PROJECT DESCRIPTION:

[illegible]



Prepared by: Sharon Morris

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Cost Proposal
for
Terracon Consultants, Inc. – Geotechnical

In 1999 and early 2000, Terracon Consultants, Inc. (Terracon) completed the geotechnical engineering services for the proposed Silverbell Road Improvements, extending from Coccio Road to Aguirre Road in Pima County, AZ. The data gathered from the field exploration, laboratory testing and the geotechnical/pavement engineering recommendations for that project were contained in the Terracon Geotechnical Engineering Report, Project No. 63995204 dated March 10, 2000 prepared for Cannon & Associates. The Terracon geotechnical engineering report contained design recommendations for planned improvements including:

- A new three-span bridge replacement at Blanco Wash (Station 31+45);
- A new three-pipe CMP culvert system (Station 24+48); and,
- Replacement of an existing culvert with a new box culvert (Station 41+15).

Foundation design recommendations outlined in the report were based on Allowable Stress Design (ASD) based on the provisions outlined in the AASHTO Standard Specifications for Bridge Construction (1996). Drilled shaft design for the proposed bridge was based on project scour conditions and the use of buoyant (totally submerged) unit soil weights in the geotechnical engineering analyses. The use of such conditions has the effect of reducing the allowable loads that can be supported on the foundations.

A Pavement Design Summary and a Materials Design Memorandum, both dated March 14, 2000, were prepared in accordance with Arizona Department of Transportation requirements in effect at that time were also prepared and issued by Terracon for the original project. The project was apparently put on hold by Pima County and was not constructed. The County now intends to complete the project.

Since completion of the original geotechnical engineering services for the project, several changes have been made regarding requirements and other factors to be used in the engineering design analyses. These changes and the current Scope of Work include the following:

- Engineering Design Services in accordance with the Pima County Roadway Design Manual;
- The use of Load-Resistance Factored Design (LRFD) in accordance with AASHTO LRFD Bridge Design Specifications, 9th Edition, 2020;
- ADOT Bridge Design Guidelines;
- The ADOT Geotechnical Design Policy dated December 1, 2010, prepared by ADOT Geotechnical Design Section and titled, "Load Resistance Factor Design (LRFD); Development of Drilled Shaft Axial Resistance Charts for Use by Bridge Engineers.";
- The ADOT Geotechnical Design Policy dated February 25, 2008, prepared by ADOT Geotechnical Design Section and titled, "Load Resistance Factor Design (LRFD); Development of Factored Bearing Resistance Chart for Use by Bridge Engineers to Size Spread Footings on Soils based on Service and Strength Limit States.";

- The use of pavement design procedures in accordance the 2017 ADOT Pavement Design Manual with Pima County modifications as outlined in the Pima County Roadway Design Manual;

Additionally, we understand that Pima County will also allow the geotechnical engineering consultant to now conduct infiltration studies for the design of deep foundations at the location of ephemeral streams to allow for less than previously assumed fully saturated soil conditions in an effort to increase capacity of drilled shaft foundations and to reduce project costs. Such studies follow the methodology and procedures outlined in N.C. Samtani "*Infiltration Study for Deep Foundations in Ephemeral Streams*", International Journal of Geoengineering Case Histories, Vo. 5, Issue 2.

Based on the foregoing, Terracon will provide updated geotechnical/pavement engineering services for the project based on the current design requirements outlined in the Pima County Scope of Work, Exhibit A of the RFQ for this project. The updated geotechnical engineering report for the project will utilize the field and laboratory data previously developed for the project and will be based on current LRFD requirements. Additionally, Terracon will prepare a new pavement design report and a materials design memorandum for the project in accordance with the current Pima County and ADOT requirements.

As a value-engineering option, Terracon will conduct an infiltration study at Blanco Wash to determine what effects, if any, buoyancy will have on the drilled shaft foundation design, in an effort to reduce foundation costs for the project.

Assumptions:

1. Terracon assumes that no new structure locations are planned for the project.
2. The existing geotechnical engineering field data will be sufficient for the updated design of the project and that no additional field exploration will be completed.
3. The previously completed laboratory test data will be sufficient to complete the updated geotechnical and pavement designs for the project and the County will accept the existing data for use in the analyses and in the updated reports.
4. The updated traffic data for the project will be provided to Terracon for use in the design analyses.
5. Terracon will prepare updated geotechnical and pavement design reports based on the AASHTO LRFD Bridge Design Specifications, 9th Edition, 2020 and current ADOT design requirements for the project.
6. Terracon will be required to attend 3 project meetings during the design phase via video conference calls (no in-person attendance will be required).
7. Terracon will issue initial geotechnical and pavement engineering reports for the project and will respond to one consolidated set of comments (from all reviewers) to produce final geotechnical and pavement engineering reports for the project.

8. The value-engineering optional infiltration study, if authorized and performed, will be based on the existing geotechnical and laboratory data developed from the site, and the County will accept the data (and correlations from the data) for use in the analyses.

HDR Engineering
 Estimated Costs for Geotechnical Engineering Services-Task A Design Services
 Silverbell Road at Blanco Wash, Pima County, AZ
 Terracon Reference No. P63215058

Terracon
 4685 South Ash Avenue, Suite H-4
 Tempe, Arizona 85282
 480-897-8200 Fax: 480-897-1133

PAY ITEM	Work Tasks (Proposed Hours/Units)						Total HRS/UNITS	Direct Labor Rate	Total Direct Costs
	1	2	3	4	5	6			
Senior Geotechnical Engineer	2	4	4	4	6	8	28	74.75	\$ 2,093.00
Project Engineer/Manager	2	40	16	16	6	20	100	42.55	\$ 4,255.00
Staff Engineer	11					60	71	35.10	2,492.10
CADD Technician	4		2	2		4	12	31.25	375.00
Clerical	2		2	2		2	8	30.77	246.16
Subtotal Labor Costs:									9,461.26
Estimated Man Hours For Project & Direct Project Costs	21	44	24	24	12	94	219		\$ 9,461.26
Overhead Rate @ 185.17%									\$ 17,519.42
Fee (Profit) @ 10%									\$ 2,698.07
Total Estimated Project Costs									\$ 29,678.74

Terracon Task				
	Direct	Overhead	Profit	Total
	Labor Costs	@185.17%	@10%	Costs
Task 1 - Review and Update Boring Logs and Lab Data (1 Boring Plan and 11 Boring Logs)	\$ 807.24	\$ 1,494.77	\$ 230.20	\$ 2,532.21
Task 2 - Perform Updated Engineering Analyses for Geotechnical & Pavement Reports	\$ 2,001.00	\$ 3,705.25	\$ 570.63	\$ 6,276.88
Task 3 - Update Project Geotechnical Engineering Report	\$ 1,103.84	\$ 2,043.98	\$ 314.78	\$ 3,462.60
Task 4 - Update Project Pavement Design Report	\$ 1,103.84	\$ 2,043.98	\$ 314.78	\$ 3,462.60
Task 5 - Project Meetings	\$ 703.80	\$ 1,303.23	\$ 200.70	\$ 2,207.73
Task 6 - Optional Infiltration Study	\$ 3,741.54	\$ 6,928.21	\$ 1,066.97	\$ 11,736.72
Total for Above Services (Task A Design Services)	\$ 9,461.26	\$ 17,519.42	\$ 2,698.07	\$ 29,678.74