Utah Transit Authority Betterment Agreement UDOT Finance No._____	Betterment Description: **Shepard Lane Interchange** **UTA Double Tracking Engineering and Design Betterment**	Estimated Cost for Betterment $221,668.34
PIN Number 15684 FINET/CID Number 72703	Project Number **S-I15-7(340)325** Project Name **I-15; Shepard Lane Interchange**	Agreement Number Date Executed

THIS AGREEMENT made and entered into the date shown below, by and between the **UTAH DEPARTMENT OF TRANSPORTATION**, (**"UDOT**"), and **UTAH TRANSIT AUTHORITY, ("UTA"),** a public transit district organized pursuant to the Utah Public Transit District Act.

Subject to the attached provisions, **UDOT** will include the **UTA** requested Double Tracking Engineering and Design Betterment, to accommodate a future second FrontRunner track, into the above referenced Project. Upon signing this Agreement, **UTA** agrees that the costs shown below are estimates only and that **UTA** will be responsible for paying the actual costs associated with the Double Tracking Engineering and Design Betterment items.

Description of Double Tracking Engineering and Design Betterment:
Double Tracking Engineering and Design including a retaining wall, barrier, and fill between south bound I-15 and the FrontRunner tracks to accommodate a future second FrontRunner track. The Double Tracking Engineering and Design Betterment will also include drainage, utilities, moving ATMS fiber, and accommodating an overhead sign foundation into the wall/barrier system. See attached Scope marked Exhibit "A," that is incorporated by reference.

Cost Estimate: See attached Cost Estimates marked Exhibit "B," that is incorporated by reference.

Bid Item No.	Description	Estimated Cost
1.	Horrocks Engineers Cost Proposal	$140,946.61
2.	RB&G – Geotechnical	$32,563.89
3.	WCG – Drainage	$47,995.84
	Total Estimated Betterment Cost for Double Tracking Engineering and Design	**$221,668.34**

UDOT will invoice **UTA** the total actual cost of the Double Tracking Engineering and Design Betterment monthly as the design progresses with a final invoice upon completion.

UTA shall make payment within 30 days of receiving an invoice from **UDOT**. **UTA** shall deposit the amount with **UDOT's** Comptroller's Office located at UDOT/Comptroller, 4501 South 2700 West, Box 141500, Salt Lake City 84119-1500.

Provisions
(Note: the language in these provisions shall not be changed without prior approval from the Utah AG's office)

This agreement provides for design and engineering work only; if the parties determine to proceed with any construction, they will enter into a separate agreement. Failure to construct does not affect any obligations under this Agreement.

UDOT has prepared plans, specifications, and estimates of costs for the I-15; Shepard Lane Interchange Project, hereinafter referred to as the "Project."

UTA desires to include the Double Tracking Engineering and Design Betterment described herein in the Project contract work.

UDOT is agreeable to include **UTA's** requested Double Tracking Engineering and Design Betterment work in the Project contract providing that **UTA** pays the actual additional costs incurred.

At no cost to the Project, **UTA** shall provide on-call support from **UTA**'s Design Engineer or appropriate representative to correct or clarify issues, including changes or additions to said Double Tracking Engineering and Design Betterment plans and specifications approved by the parties hereto. **Through their inspection of said work, UTA** will provide **UDOT**'s Project Manager or Resident Engineer with information covering any problems or concerns **UTA** may have with the acceptance of said Double Tracking Engineering and Design Betterment.

Any periodic plan and specification review of Double Tracking Engineering and Design Betterment performed by **UDOT** arising out of the performance of the Project does not relieve **UTA** of its duty in the performance of this Project or to ensure compliance with acceptable standards.

I. Indemnification:

UDOT and **UTA** are both governmental entities subject to the Governmental Immunity Act. Each party agrees to indemnify, defend, and save harmless the other from and against all claims, suits and costs, including attorneys' fees for injury or damage of any kind, arising out of its negligent acts, errors or omissions of its officers, agents, contractors or employees in the performance of this Agreement, and from and against all claims, suits, and costs, including attorneys' fees for injury or damage of any kind. Nothing in this paragraph is intended to create additional rights to third parties or to waive any of the provisions of the Governmental Immunity Act. The obligation to indemnify is limited to the dollar amounts set forth in the Governmental Immunity Act, provided said Act applies to the action or omission giving rise to the protections in this paragraph. The indemnification in this paragraph shall survive the expiration or termination of this Agreement.

II. **Termination:**

This Agreement may be terminated as follows:

a. By mutual Agreement of the parties, in writing
b. By either **UDOT** or **UTA** for the failure of the other party to fulfill their obligations as set forth in the provisions of this Agreement. Reasonable allowances will be made for circumstances beyond the control of the parties. Written notice of intent to terminate is required and shall specify the reasons for termination.
c. By **UDOT** for the convenience of the State upon written notice to **UTA**.
d. Upon satisfactory completion of the provisions of this Agreement.

IV. Payment and Reimbursement to UDOT:

UTA shall be responsible for all actual costs associated with the Double Tracking Engineering and Design Betterment.

UTA agrees that if it modifies or cancels this Double Tracking Engineering and Design Betterment at any time after it has been signed, **UTA** agrees to pay any cancellation penalties or costs incurred by **UDOT** as a result of the betterment work scope being modified or canceled.

V. Change in Scope and Schedule:

UTA recognizes that if their project scope or schedule changes from the original intent of this Agreement, the Agreement must be amended prior to proceeding with the work. Any costs

incurred by **UDOT** as a result of these scope or schedule changes will be the responsibility of **UTA**.

In the event there are changes in the scope of the work, extra work, or changes in the work for the Double Tracking Engineering and Design Betterment covered by this Agreement, a modification to this Agreement approved in writing by the parties hereto is required prior to the start of Double Tracking Engineering and Design Betterment work on said changes or additions.

VI. Content Review:

Language content was reviewed and approved by the Utah AG's office on April 12, 2016.

IN WITNESS WHEREOF, the Agencies hereto have caused this Agreement to be executed in duplicate as of the date first herein written.

UTAH TRANSIT AUTHORITY

APPROVED AS TO FORM:

UTA Legal

Michael L. Bell
Assistant Attorney General
Counsel for UTA

By: _____

Date: _____

Recommended for Approval:

By: Tucker Doak
Region Utility and Railroad Leader

Date: 12/09/2021

UTAH DEPARTMENT OF TRANSPORTATION

By: _____
Region Director

Date: 12/09/2021

UDOT COMPTROLLER'S OFFICE

By: _____
Contracts Administrator

Date: _____

HORROCKS
ENGINEERS

I-15; SHEPARD LANE INTERCHANGE
PROJECT NO. S-I15-7(340)325/ PIN NO. 15684
Engineering and Design Services – Contract Modification No. 2

Scope of Work - DRAFT

EXECUTIVE SUMMARY

Brief Description:

The Utah Department of Transportation is constructing a new interchange on I-15 with Shepard Lane near the existing crossing. In coordination with the Utah Transit Authority (UTA), the Department wishes to also include work to install a retaining wall, barrier, and fill between SB I-15 and the FrontRunner tracks to accommodate a future second FrontRunner track. The design will also include drainage, utilities, moving ATMS fiber, and accommodating an overhead sign foundation into the wall/barrier system.

The Horrocks Engineers team will provide design and support services, as well as support during construction, for the retaining wall, roadway, drainage, ATMS, and utility elements within the limits identified for the future second FrontRunner track. The work will include Project Management, structural & geotechnical design, roadway design, drainage design, signing design, utility design, plans & specifications, and railroad design and coordination. The Horrocks team will also provide subsurface utility engineering (SUE). In addition, Horrocks will ensure Quality Assurance and Quality Control on all phases of the project items as needed for the final advertising package, and design support through construction.

Project Team:

Horrocks Engineers will be the prime consultant for this project with Cory Pope as the Project Manager. The Horrocks team includes the following subconsultants:

- **CRS Engineers**/Matt Hirst: Support Services Manager and RR coordination/agreement support providing coordination with utility design, survey and ROW along with providing support to UDOT R1 for railroad agreements. Coordination effort is part of the original contract.
- **WCG**/Dan Young: Drainage design
- **RB&G Engineering**/Rob Johnson: Geotechnical design and testing at retaining walls and embankment fills

Assumptions/Unknowns:

- The UTA betterment design will not have a separate geometry review but will be incorporated into the overall Shepard Lane project schedule at the plan-in-hand (PIH) review.
- No ROW documents will be needed but access for the work will be through agreement between UDOT and UTA which will be developed by UDOT.
- Design/Advertising: October 2021 – January 2023 = 16 months ~ 69 weeks
- Construction Support is included in the original contract.
- Project Update Meetings will cover the betterment work
- UPRR agreement process and review timeframes could change and may influence the overall schedule and cost.
- Additional betterment design other than the work described below is not included.
- Additional assumptions are included in the Activity sections.

Phasing:

The work will be included in phasing for the original Shepard Lane contract.

Fee Type:

The fee type for this project will be cost plus fixed fee.

SPECIFIC WORK ACTIVITIES

Project Management (Z)

Activity 5Z1 – Project Management

Overview: Covers Project Management for the design phase but assumes no additional project team meetings. This activity includes 3Z4 - Constructability Reviews.

Assumptions:

- Project Dashboard set up and support included in original contract.
- Ongoing GIS Support included in original contract.
- UDOT Team Update, Internal Consultant, UPRR/UTA and Monthly City coordination meetings included in original contract.
- No Scoping and Geometry Review Meetings will be held for the UTA betterment work. Plan-in-Hand and PS&E Review Meetings included in the original contract.
- Risk items will be managed concurrently with Shepard Lane risks.
- Monthly schedule updates included in the original contract.
- Invoice review covered by original contract
- Constructability reviews included as part of original contract.

Tasks:

1. **Project management**
2. **Coordination between disciplines**

Deliverables: a) Invoice tracking of betterment design & review

Roadway (R)

Activity 1R1 – Develop Roadway Scope

Overview: Update PDC for the preliminary project footprint in preparation for Scoping Meeting.

Assumptions:

- Task combined with 2R1

Tasks: None

Deliverables: None

Activity 2R1 – Model Initial Roadway Design

Overview: Develop the Shepard Lane southbound entrance ramp and auxiliary lane to accommodate a planned UTA FrontRunner second track. Evaluate impacts to project features from horizontal/vertical

alignment and design layout. Develop the initial roadway model and create concept Plans and Typical Sections.

Assumptions:

- Includes Task 1R1
- No separate Geometry Review Meeting. Will include design in Shepard PIH submittal.
- Design will accommodate future planned I-15 improvements (forward compatibility).
- Design will accommodate a planned UTA FrontRunner second track.
- Design will utilize Microstation OpenRoads Designer (ORD).
- No maintenance/preconstruction site visit. Will include in PIH walk through.

Tasks:

1. **Obtain as-built information.**
2. **Develop design to minimize impacts to utilities, drainage, and ROW for full I-15 planned improvements and that accommodates planned UTA FrontRunner 2nd Track.**
3. **Develop typical sections for identified design improvements.**
4. **Develop initial roadway models.**
5. **Coordinate with Region Design Personnel and Design Oversight staff.**
6. **Update draft PDC Form and Design Exceptions and Deviations.**
7. **Develop detailed cost estimate for proposed improvements.**

Deliverables: a) Updated draft PDC Form, b) Cost Estimate, c) QC Documentation

Activity 3R1 – Complete Roadway Design

Overview: Finalize the roadway design and models. Modify the design based on continued coordination with project team members and stakeholders. Modify the design as necessary to include other discipline needs including drainage facilities, utilities, signs, and ATMS. Create preliminary design plan sheets.

Assumptions:

- Submittal package will be part of the Shepard Lane package.

Tasks:

1. **Coordinate with Project Team Members.**
2. **Complete Design.**
3. **Develop Preliminary Plan and Profile Sheets.**
4. **Develop Preliminary Typical Section Sheets.**
5. **Update PDC Form.**
6. **Update Cost Estimate.**
7. **Prepare and compile Plan-In-Hand review package.**
8. **Perform QC Review.**

Deliverables: a) Preliminary Plan and Profile Sheets b) Preliminary Typical Section Sheets c) PDC Form updates d) Cost Estimate e) QC Documentation

Activity 3R2 – Complete Signing and Striping Design

Overview: Using the design model as a guide, develop the signing design for the project. Develop preliminary signing sheets.

Assumptions:

- Preliminary MOT design will not be included.
- Striping part of original contract.
- Signing coordinate with foundation requirements adjacent to wall.
- Cost estimate and QC part of original contract

Tasks:

1. **Create preliminary signing plan sheets.**

Deliverables: a) Preliminary Signing Design Package

Activity 4R1 – Complete Roadway Plans and Documents

Overview: Complete the plan and profile sheets and create plan summaries, details, and additional plan sheets. Prepare and assemble project documents including Measurement and Payment, Special Provisions, A&D, and final cost estimate.

Assumptions:

- MasterWorks entry part of original contract

Tasks:

1. **Address Plan-in-Hand Review Comments.**
2. **Finalize Design.**
3. **Export MicroStation and ORD files to XML format for Contractor use (include in advertising submittal).**
4. **Complete Plan and Profile Sheets.**
5. **Complete Typical Section Sheets.**
6. **Complete Detail, Grading, and Summary Sheets.**
7. **Finalize Cost Estimate.**
8. **Develop Project Documents (Special Provisions, M&P, A&D).**
9. **Update PDC Form and Design Exceptions and Deviations.**
10. **Prepare and compile PS&E review package.**
11. **Perform QC Review.**

Deliverables: a) Plan, Profile, Typical Section, Detail, and Summary Sheets b) Roadway Cost Estimate c) Roadway Project Documents d) QC Documentation

Activity 4R2 – Complete Signing and Striping Plans and Documents

Overview: Finalize the signing plan set and create summary sheets. Prepare and assemble the signing project documents, including Measurement and Payment, Special Provisions, A&D, and final cost estimate.

Assumptions:

- Striping included in original contract.
- Signing to the extent that signage is changed by addition of a retaining wall and fill.
- Cost estimate and QC included in original contract

Tasks:

1. **Complete signing plan sheets.**
2. **Complete sign detail plan sheets.**
3. **Complete signing summary sheets.**

Deliverables: a) Finalize Signing Design Package b) Sign Detail Plan Sheets c) Signing Summary Sheets

Activity 6R1 – Design Support During Construction

Overview: Be available to answer questions with respect to the design plans and/or specifications throughout the construction phase of the project. Perform review of construction submittals. Prepare construction revisions on contract plan sheets based on plan revisions.

Assumptions:

- Construction meeting attendance part of original contract.
- Roadway elements are constructed per plan.

Tasks:

1. **Post Design Support Services.**
2. **Respond to RFI's and submittals as requested by RE.**
3. **Issue resolution during construction.**

Deliverables: a) Addendums during Advertisement b) Response to RFI's c) Update Plans and/or Specifications for FDC's and NDC's

Structure (S)

Activity 1S1 – Identify Preliminary Structure Type

Overview: Review the existing conditions and determine the physical requirements for structures work (retaining walls and overhead sign structures). Develop a range of alternative structure types to fulfill the requirements.

Assumptions:

- No site visit required as it was completed as part of the original contract.
- Wall will be an MSE wall.
- Sign structures will be evaluated for integration into retaining wall as needed within limited space.

Tasks:

1. **Evaluate Wall Types.**
    a. CIP vs MSE
2. **Meet with UDOT structures Engineer.**
3. **Develop retaining wall selection memo.**
4. **Develop Structures Design Criteria Deviation for sign structure integrated with wall**

Deliverables: a) Draft retaining wall memo, b) Draft structures design criteria deviation

Activity 3S1 – Develop Retaining Wall Selection Memo

Overview: Develop a type selection memo to document the decision making process on wall type.

Assumptions:

- Will evaluate cast in place and MSE
- MSE will be used at this location
    - MSE reinforcement is acceptable under UTA tracks

Tasks:

1. **Develop alternative analysis**
2. **Develop estimates**
3. **Develop figures**
4. **Perform QC.**

Deliverables: a) Wall Selection Memo, b) QC Documentation

Activity 3S4 – Develop Situation and Layout (S&L) for Retaining Walls

Overview: Develop the S&L plan sheets for each wall, fully coordinating with the roadway, grading, and geotechnical requirements. (Refer to the SDDM for plan content and organization.)

Assumptions:

- Includes location plan, typical section and plan and profile
- Includes a structures design deviation for wall modifications for sign structure foundation.
- Walls include: 1 Fill (MSE) Wall
- A single S&L will be provided
- The UTA MSE wall will have a separate structure number from the rest of the project MSE walls.

Tasks:

1. **Request structure number.**
2. **Develop S&L plan sheet.**
   a. Combined plan set (Single Structure number)
   b. Develop independent wall geometry
3. **Provide Constructability Review.**
4. **Complete S&L Checklist.**
5. **Perform QC.**

Deliverables: a) S&L Sheets, b) QC Documentation

Activity 3S6 – Situation and Layout (S&L) Acceptance

Overview: Obtain acceptance from the Structures Division for S&L plan sheets.

Assumptions: None

Tasks:

1. **Address PIH Review comments.**
2. **Submit Package for Acceptance.**
3. **Coordinate Signatures.**

Deliverables: a) Signed 3S6 Certification

Activity 4S2 – Design and Detail Custom Overhead Sign Structure

Overview: Design custom sign structure to integrate into wall system.

Assumptions:

- Plan sheet development based on standards was already included in the original contract. Scope here is limited to design and minor adjustments to standard plans.

Tasks:

1. **Develop custom sign structure design**
2. **Modify standard details**
3. **Perform QC.**

Deliverables: a) Sign Structure Design, b) Sign Structure Plans, c) QC Documentation

Activity 4S3 – Design and Detail Retaining Walls

Overview: Design, detail, and check the retaining wall based on the approved S&Ls and the structural design criteria. Incorporate design requirements and the preliminary information from the draft geotechnical report and/or the hydraulic report.

Assumptions:

- See Activity 3S4

Tasks:

1. **Complete wall geometry.**
2. **Develop wall calculations.**
3. **Develop Wall plans and details.**
4. **Perform QC.**

Deliverables: a) Wall Calcs, b) Wall Plans, c) QC Documentation

Activity 4S4 – Complete Structure Project Documents

Overview: Finalize the special provisions, measurement and payment, and estimate.

Assumptions: None

Tasks:

1. **Develop and finalize Engineer's estimate.**
2. **Develop Special provisions.**
3. **Develop M&P.**
4. **Develop A&D.**
5. **Submit structures packages to UTA for review.**
6. **Perform QC.**

Deliverables: a) Engineer's Estimate, b) Special Provisions, c) M&P and A&D, d) QC Documentation

Activity 5S1 – Deliver Final Structure Acceptance

Overview: Assemble and submit final structural documentation for each structure in order to obtain the final acceptance to release the structural plans and documentation for advertising. Finalized structural documentation includes incorporation of all structures related comments made throughout the project.

Assumptions: None

Tasks:

1. **Submit final documentation package.**
2. **Coordinate with structure division.**
3. **Respond to comments.**

Deliverables: a) Signed 5S1 Certification

Activity 6S1 – Structure Construction Services

Overview: Review construction submittals. Perform design services during construction. Prepare construction revisions on contract plan sheets based on structural design changes and plan revisions. Perform construction submittal reviews.

Assumptions:

- Attendance at weekly construction meetings will not be required
- Site visits included in original contract

Tasks:

1. **Review Shop Drawings and construction submittals.**
2. **Review and respond to RFIs during construction.**
3. **Attend in field control point meetings.**
4. **Develop final punch list.**

Deliverables: a) Reviewed construction submittals, b) RFI Responses, c) Final Punch list

Utilities (U)

Activity 2U1 – Utility and Railroad Identification

Overview: Identify all utility and railroad companies and complete an accurate depiction of existing utility facilities within the UTA betterment limits.

Assumptions:

- This task was completed in the original contract scope of work.

Tasks: None

Deliverables: None

Activity 3U1 – Identify Potential Utility Conflicts

Overview: Identify potential utility conflicts through coordination with utility owners and designers. Obtain preliminary relocation costs from utility owners.

Assumptions:

- Utility Kick-Off/Informational Meeting was held as part of the original Shepard Lane scope of work for most of the affected utilities.
- Dry utility company (UTA) will prepare their own design plans/cost estimates/schedules (for fiber optic lines) for the project.
- Utility conflicts associated with this betterment work will be added to the overall Shepard Lane Utility Conflict Matrix prepared/maintained on the UDOT interchange system.

Tasks:

1. **Coordinate with project team members.**
2. **Update preliminary Utility Conflict Matrix to include UTA fiber impacts, if any.**
3. **Update existing utility DTM surface (based on SUE Level B, C and D mapping and assumed dry utility depths) per additional information received from UTA.**
4. **Obtain Initial Utility Cost Estimate from UTA.**
5. **Perform QC.**

Deliverables: a) Update Preliminary Utility Conflict Matrix, b) Initial Utility Company (UTA) Cost Estimate, c) Existing utility DTM surface, d) QC Documentation

Activity 3U2 – Initial Design Utility Coordination

Overview: Conduct a utility design meeting to facilitate relocation solutions. Facilitate the development of utility owner (UTA) relocation plans.

Assumptions:

- Coordination meetings will be held with the utility companies referenced in 3U1 (UTA).
    - These coordination meetings will take place with the Shepard Lane utility coordination meetings.
- Utility coordination meetings will take place via Teams.

Tasks:

1. **Coordinate with project team members.**
2. **Revise/update Utility Conflict Matrix.**
3. **Request dry utility company (UTA) relocation plans, schedules, and cost estimates.**
4. **Add dry utility (UTA fiber) linework (based on plans) to the project base files.**
5. **Perform QC.**

Deliverables: a) Revised/updated Utility Conflict Matrix, b) Initial dry utility company relocation plans/estimates/schedules (as provided by UTA), c) QC Documentation

Activity 3U3 – Identify Utility Depth (SUE Level A)

Overview: Use the Utility Conflict Matrix Summary to determine specific locations where vertical information could be used to avoid existing utility facility conflicts or assist utility companies design relocation plans.

Assumptions:

- No additional test holes will be required or provided for work that is part of this betterment.

Tasks: None

Deliverables: None

Activity 3U4 – Complete Utility and Railroad Designs

Overview: Complete utility relocation designs for all elements of utility relocations for which UDOT is responsible. Develop preliminary utility relocation plan sheets and cost estimate. Verify Diagnostic Report and railroad company guidelines compliance.

Assumptions:

- Italicized callouts for dry utility work (UTA fiber) will not be added to the UR sheets until after Plan in Hand Review meeting.

  - Separate UR sheets for dry utility work (UTA fiber) will be prepared
- No separate early utility relocation package(s) have been assumed at this time.

Tasks:

1. **Coordinate with project team members.**
2. **Prepare dry utility UR sheets (no callouts will be added until Task 4U3).**
3. **Prepare project UT sheets to identify existing utilities, SUE Level designation, material, size, etc.**
4. **Request updated dry utility company relocation plans, schedules, and cost estimates.**
5. **Revise dry utility linework (based on updated plans) in the project base files.**
6. **Perform QC.**

Deliverables: a) Updated Utility Conflict Matrix, b) Updated dry utility company relocation plans/estimates/schedules (as provided by UTA), c) QC Documentation

Activity 4U1 – Final Design Utility Coordination

Overview: Final coordination with utility owners and provide guidance and information to complete utility relocation plans. Hold a meeting to resolve any remaining conflicts and prepare for the construction stage.

Assumptions:

- Coordination meetings will be held with the utility companies referenced in 3U1 (UTA).
  - These coordination meetings will take place with the Shepard Lane utility coordination meetings.
- Utility coordination meetings will take place via Teams.

Tasks:

1. **Coordinate with project team members.**
2. **Revise/update Utility Conflict Matrix.**
3. **Request final dry utility company relocation plans, schedules, and cost estimates.**
4. **Revise dry utility linework (based on updated plans) in the project base files.**

Deliverables: a) Updated Utility Conflict Matrix, b) final dry utility company relocation plans/estimates/schedules (as provided by UTA)

Activity 4U2 – Prepare and Obtain Utility and Railroad Agreements and Permits

Overview: Prepare and obtain Individual Utility Agreements, Cooperative Agreements, Construction and Maintenance Agreement, and Permits required for project advertisement and construction.

Assumptions: UDOT will prepare all utility and railroad agreements.

Tasks:

1. **Coordinate with all project team members.**
2. **Provide utility plans/schedules/estimates to UDOT for agreement preparation.**

Deliverables: a) Documentation to support UDOT's preparation of agreements, b) Utility agreements (by UDOT)

Activity 4U3 – Complete Utility and Railroad Plans and Documents

Overview: Complete utility plans and documents. Obtain the UDOT Chief Railroad Engineer's and Railroad Company approval for the crossing modification or construction plans. Finalize railroad crossing plan sheets and develop all railroad project documents including Railroad Company required special provisions. Obtain executed construction and maintenance agreements from the Railroad Company.

Assumptions:

- Italicized callouts for dry utility work will be added to the UR sheets as part of Task 4U3.

Tasks:

1. **Coordinate with project team members.**
2. **Finalize Utility Conflict Matrix.**
3. **Address Plan in Hand review comments on UT and UR sheets.**
4. **Progress design of UT and UR sheets to PS&E review level (plan and profile).**
5. **Enter utility relocation estimates into PDBS.**
6. **Develop utility relocation project documents (including 555 specification).**
7. **Address PS&E review comments on UT and UR sheets.**
8. **Perform QC.**

Deliverables: a) Final Utility Conflict Matrix, b) QC Documentation

Activity 5U1 – Deliver Utility Certification

Overview: Complete and issue the Utility Certification for advertisement.

Assumptions:

- The betterment work will be included in the Utility Certification to be prepared by UDOT. No additional work is required for the addition of this betterment.

Tasks: None

Deliverables: None

Activity 6U1 – Utility Construction Services

Overview: Facilitate advance utility relocations prior to UDOT's contractor starting work where appropriate. Coordinate the transfer of information obtained during the utility design phase to construction. Continue coordination with contractors and utility companies through the construction phase.

Assumptions:

- No construction services will be required or provided for work that is part of this betterment.

Tasks: None

Deliverables: None

EXHIBIT A SCOPE OF WORK

WALL CONSULTANT GROUP

To: **Cory Pope**
Date: **November 15, 2021**
RE: **WCG Scope & Hours (UTA Drainage)**
Contract Modification #2
Project: **I-15; Shepard Lane**
Pin: **15684**

Dear Cory:

Please see below our scope and hours for the services of the aforementioned project. We appreciate the opportunity to work with Horrocks and UDOT on this key Interchange.

Respectfully,

Daniel S Young

Daniel S Young

WALL CONSULTANT GROUP

Executive Summary

Brief Description:

UTA has requested that we move forward in our design to accommodate for a future track. This will modify the anticipated drainage design. This contract modification will account for coordination with the project team, UTA, UDOT, ROW, and utilities.

Prime and Subs:

WCG is a sub-consultant to Horrocks and will provide the work as described in this contract description.

Assumptions:

- Meetings & Workshops
  - See meetings defined in Task 5Z1. No coordination outside of these meetings is anticipated. We anticipate an additional three meetings for this work and three site visits.
- All major reviews to be done in Bluebeam Revu
- UDOT will hire another firm to perform PI duties
- It is anticipated that WCG will not need to help in the development of the PDC and that there will not be design deviation, exceptions, or waivers related to drainage.
- It is assumed that there will be no location changes to drainage once Plan in Hand is completed
- Drainage design assumptions
  - Our team will perform a Rational Method Hydrologic analysis to determine the existing site runoff peak flows and proposed site runoff.
  - Structure Drainage will be completed by the Prime consultant
  - No impacts or evaluation of wetlands is anticipated
  - It is anticipated that the existing detention pond has capacity for the additional drainage, and that no additional ponds will be necessary.
  - UDOT design standards will be followed
  - No capacity analysis will be performed for irrigation crossings.
  - UTA and Farmington City will assist in identifying possible outfall locations
  - WCG does not anticipate assessing existing capacity of any existing outfalls
- Utility Assumptions
  - Utility conflicts will be reviewed / identified by others
  - Coordination of drainage with existing underground utilities (any betterments will work around these design tasks) including Farmington City utility betterments.
- Horrocks and UDOT's ProjectWise servers will be used for file storage and milestone reviews and submittals
- The Work Plan is based upon information known at the time contract documents were prepared.

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- Prime to coordinate survey features needed for design

Phasing:

Once scoping and geometry tasks are completed for this additional drainage work, all remaining meetings will be done in conjunction with the Shepard Lane work.

Fee Type:

Cost Plus Fixed Fee (CPFF)

Work Plan

1Q1 Assess Existing Drainage Conditions

Our team will review the existing drainage conditions in the project area. This will include completing a preliminary field review to review the existing drainage features and identify any evidence of deficient drainage. WCG will layout the existing features in the storm drain model, delineate the current drainage areas, and assess the performance of the existing system to identify any deficiencies.

Deliverables

- Existing drainage system memo/exhibits
- Preliminary Footprint Exhibits
- Preliminary Drainage Cost Estimate
- QC Cover Sheets

2Q1 Develop Initial Drainage

Our team will develop the preliminary drainage design for the areas and deficient areas identified during the scoping phase. We will work with UDOT, UTA, and Farmington City to identify drainage outfalls.

Deliverables

- Initial Drainage Design Layout (coordinating the Initial Roadway Model 2R1)
- Drainage Summary
- Preliminary Drainage Cost Estimate
- QC Review and Cover Sheets

3Q1 Complete Drainage Plans

Our team will develop the drainage plans for the project.

Deliverables

WALL CONSULTANT GROUP

- Comment Resolutions
- Drainage Design with required water quality elements
- Associated Cost Estimates
- Preliminary Drainage and Water Quality Report

4A1 Complete Erosion & Sediment Control Plan Sheets and Documents

Develop the project erosion and sediment control design, plans, and summaries for the Park Lane. Prepare and assemble erosion and sediment control project documents including plans, special provisions, and engineer's estimate.

Deliverables

- Erosion and Sediment Plan Sheets
- Erosion and Sediment Project Documents
- Associated Cost Estimates
- QC Review and Documentation

4Q1 Complete Drainage Plan Sheets

Revise the drainage design based on the plan-in-hand review. Complete drainage plan set and documents. Finalize the hydraulics report.

Deliverables

- Comment Resolutions
- Drainage Plan Sheets
- Drainage Project Documents
- Associated Cost Estimates
- Final Drainage Report
- QC Review and Documentation

4Y1 Prepare/Compile PS&E Review Package

Compile comment resolutions, project cost estimate, and all discipline review materials to produce the PS&E Review Package. Complete milestone quality control / quality assurance reviews.

Deliverables

- QC Redlines & Checklists
- Comment Resolution Form
- Plan Set Sheets
- Project Cost Estimate
- Special Provisions
- PS&E Review Package

5Y1 Incorporate PS&E Review Comments

Make revisions based on comments made during PS&E Review (4V1).

EXHIBIT A SCOPE OF WORK

November 16, 2021

RB&G ENGINEERING, INC.

Jeff Sims, P.E.
Horrocks Engineers
2162 W Grove Parkway #400
Pleasant Grove, Utah 84062

Re: Geotechnical Design Cost Estimate for Potential UTA Betterment
UDOT I-15 Shepard Lane Interchange Project (S-I15-7(340)325 / PIN 15684)

Dear Jeff:

Attached please find our estimated hours and cost to conduct a geotechnical investigation for a 2800-ft long retaining wall between I-15 and UTA Frontrunner near the proposed new I-15 Shepard Lane interchange. We have assumed the investigation would include a total of 220 ft of drilling, consisting of approximately ten borings extending to average depths of about 22 feet. AASHTO guidance for boring spacing along retaining walls is 100 to 200 ft; however, we understand this wall will generally be in the range of 10 to 13 feet high and expect somewhat greater than 200-ft spacing will be acceptable between borings for a wall of this limited height. We do not have detailed information on the precise location of the proposed wall; however, we anticipate a few subsurface investigations already completed for the interchange project can be used to supplement the subsurface investigations completed specifically for this wall.

We have assumed in developing the attached estimate that our field work will be completed outside of railroad right-of-way and off I-15 pavement. We assume the work can be completed during normal daytime working hours without requiring roadway lane closures.

The exact type and number of laboratory tests cannot be completely defined until the field investigations have been completed. The attachment includes budgeting for estimated types and quantities of testing that may be appropriate for the site conditions and materials sampled.

We have also assumed our geotechnical findings and design recommendations can be presented in the geotechnical report for the I-15 Shepard Lane Interchange project and will not require development of a separate report.

We appreciate the continued opportunity to work with UDOT and Horrocks Engineers on this project. Please let me know if you have any questions.

Sincerely,

RB&G ENGINEERING, INC.

S. Robert Johnson

S. Robert Johnson, P.E., Principal

1435 WEST 820 NORTH, PROVO, UTAH 84601-1343
PROVO 801-374-5771 SALT LAKE CITY 801-521-5771 FAX 801-374-5773

WALL CONSULTANT GROUP

Deliverables

- Final Disposition Review Comment Resolution Form
- QC Cover Sheets
- Final Plan Set & Project Documents Package

5Z1 Project Management

The purpose of this activity is for project management over the course of the project modification work. This includes:

Deliverables

- Team project management
- Additional team meetings (three, two-hour meetings assumed)

5Z2 Prepare, Submit, and Process for Advertisement

Prepare project documents for advertisement and submit to UDOT Region for final review.

Deliverables

- Complete Advertising Package including Plans, Specifications, A&D, and Engineer's Estimate

EXHIBIT B COST ESTIMATES

Client	UDOT	Client PM:	Paul Egbert
Project Name	I-15; Shepard Lane Interchange - Mod. 2	Horrocks PM:	Cory Pope
Project Number / PIN	S-I15-7(340)325 / 15684		

HORROCKS ENGINEERS COST PROPOSAL

Contract Modification No. 2

DIRECT LABOR EXPENSES

Name	Position	Hours	Pay Rate ($/hr)	Total Amount
Cory Pope	Project Manager	30	$88.58	$2,657.40
Jeff Sims	Design Manager	50	$87.81	$4,390.50
Jacob Jensen	Utilities	13	$84.10	$1,093.30
Shawn Shuler	Utilities	40	$59.00	$2,360.00
Tanner Sweat	Utilities	34	$39.33	$1,337.22
Kim Hill	CAD Lead	54	$40.80	$2,203.20
Spencer Stephenson	Structures Lead	41	$75.34	$3,088.94
Ben Nelson	Structures Design	45	$45.29	$2,038.05
Matt Heninger	Structures Design	73	$37.82	$2,760.86
Jake Orton	Structures Design	133	$35.08	$4,665.64
Drew Daumueller	Structures Design	8	$58.72	$469.76
Lee Misdom	Structures CAD	96	$44.29	$4,251.84
Ryan Wride	Roadway Lead	86	$74.84	$6,436.24
Jeff Hansen	Roadway Engineer	122	$59.71	$7,284.62
Henrik Burns	Roadway EIT	148	$33.93	$5,021.64
	Total Hours	973		

Labor Subtotal		$50,059.21
Overhead	152.52%	$ 76,350.31
Subtotal		$126,409.52
Fixed Fee	11.50%	$ 14,537.09
Total Labor		**$140,946.61**

DIRECT EXPENSES

DESCRIPTION		QUANTITY	RATE	$ AMOUNT
FCCM (% of Labor)	0.3254%	162	$1.00	$162.00
			Direct Expenses	**$162.00**

SUBCONSULTANT(S) EXPENSE

CRS - Railroad, Support Services	
ICE - Constructbility	
Pierline - Structures Constructability	
RB&G - Geotechnical	$32,563.89
WCG - Drainage	$47,995.84
Total Subconsultant	**$80,559.73**
TOTAL BETTERMENT DESIGN ESTIMATE	**$221,668.34**

EXHIBIT B COST ESTIMATES

Client	UDOT	Client PM:	Paul Egbert
Project Name	I-15; Shepard Lane Interchange - UTA Betterm	Horrocks PM:	Cory Pope
Project Number / PIN	S-I14-7(340)325 / 15684		

RB&G ENGINEERING COST PROPOSAL

DRAFT 10/11/2021

DIRECT LABOR EXPENSES

Name	Position	Hours	Pay Rate ($/hr)	Total Amount
Bradford E Price	Geotech. Engineer VI, PE	1	$61.80	$61.80
S Robert Johnson	Geotech. Engineer V, PE	6	$59.23	$355.38
Kenneth E Cox	Geotech. Engineer IV, PE	0	$47.38	$0.00
Jacob S Price	Geotech. Engineer III, PE	25	$47.00	$1,175.00
Brandon D Horrocks	Geotech. Engineer III, PE	0	$47.00	$0.00
Chris Sanborn	Civil/Geotech. Eng. II, PE	1	$40.43	$40.43
Michael N Hansen	Engineering Geologist, PG	22	$43.00	$946.00
McKay Harper	Staff Geotech. Engineer	6	$32.19	$193.14
Staff Geo Eng (TBD)	Staff Geotech. Engineer	5	$30.90	$154.50
Westan Robertson	Staff Geologist	32	$24.46	$782.72
Jacob E Boone	Geotech. Lab Manager	7	$39.14	$273.98
Lucas Price	Asst. Lab Mgr. / Sr. Tech.	1	$28.84	$28.84
Sandra Neil	Lab Technician III	2	$22.15	$44.30
Adam Kuntz	Soil/Material Technician II	1	$20.60	$20.60
Tyler Hendricks	Soil/Material Technician II	1	$23.69	$23.69
Cody Price	Soil/Material Technician IB	0	$19.06	$0.00
Nyle Sampson	Soil/Material Technician IB	0	$19.06	$0.00
Ryan Eberhard	Soil/Material Technician IB	0	$18.54	$0.00
Troy Day	Soil/Material Technician IA	23	$18.03	$414.69
Jordan Reitz	Soil/Material Technician IA	1	$17.77	$17.77
Haley Beckstrand	Soil/Material Technician IA	2	$16.48	$32.96
Taylor Henderson	Soil/Material Technician IA	0	$16.48	$0.00
Soil/Mat Tech (TBD)	Soil/Material Technician IA	24	$16.48	$395.52
Tom Kern	Geotechnical Driller	20	$29.36	$587.20
Damon Kinder	Geotechnical Driller	24	$19.57	$469.68
Oscar Castro	Driller's Assistant	0	$17.51	$0.00
Jared Rusby	CAD Manager/Designer	0	$39.14	$0.00
Paul Nielson	CAD Drafter	8	$24.72	$197.76
Brandi Lassen	CAD Drafter	0	$22.15	$0.00
Ryan Wilson	Office Manager/Accounting	0	$45.84	$0.00
June Lund	Clerical	2	$23.69	$47.38
	Total Hours	214		

Labor Subtotal			$6,263.34
Overhead	143.96%	$	9,016.70
Subtotal		$	15,280.04
Fixed Fee	11.50%	$	1,757.21
Total Labor		**$**	**17,037.25**

DIRECT EXPENSES

DESCRIPTION		QUANTITY	RATE	$ AMOUNT
Company Vehicle Mileage (mi)		744	$0.560	$416.64
CPT Testing w/ Seismic Est. (ft)		0	$22.00	$0.00
RB&G Drill Rig (hr)		38	$75.00	$2,850.00
RB&G Drill Support Truck (days)		4	$50.00	$200.00
Water Trailer or Similar (days)		4	$40.00	$160.00
Drilling Supplies Est.		1	$200.00	$200.00
Temp. Piezometer Materials Est.		1	$100.00	$100.00
Site Access Est.		0	$500.00	$0.00
Traffic Control Est.		1	$3,500.00	$3,500.00
Gradation Test - 1" minus (ea)		22	$75.00	$1,650.00
Gradation - #200 wash only (ea)		11	$50.00	$550.00
Atterberg Limits Test (ea)		18	$75.00	$1,350.00
Soil Moisture & Density (ea)		10	$20.00	$200.00
pH Test (ea)		2	$20.00	$40.00
Resistivity Test (ea)		2	$40.00	$80.00
Sulfate Test (ea)		2	$30.00	$60.00
Chloride Test (ea)		2	$30.00	$60.00
Soluble Salts Test (ea)		2	$55.00	$110.00
Hydrometer Test (ea)		10	$75.00	$750.00
Consolidation Test (ea)		15	$100.00	$1,500.00
UU Triaxial Compression (ea)		15	$100.00	$1,500.00
CU Triaxial Compression (ea)		0	$750.00	$0.00
Direct Shear Test (ea)		1	$250.00	$250.00
Proctor - 4-5 pts (ea)		0	$125.00	$0.00
CBR - 1-pt (ea)		0	$125.00	$0.00
			Direct Expenses	**$15,526.64**

SUBCONSULTANT(S) EXPENSE

	$0.00
	$0.00
Total Subconsultant	**$0.00**
TOTAL PROJECT COST	**$ 32,563.89**

EXHIBIT B COST ESTIMATES

Project Name: I-15; Shepard Lane Interchange
PIN: 15684 Project #: S-I15-7(340)325
Contract Modification #2

WALL CONSULTANT GROUP

			WCG Project Manager & Liaison	QA Engineer	WCG Project Engineer	Drainage Lead Engineer	Drainage Engineer	Drainage QC Engineer	Project Administration	HOURS PER TASK	UNIT PRICE COST PER TASK
			Dan Young	Brent Schvaneveldt	Dave Lehman	Ben Williams	Andrew Beene	Cathy Romero	Lori Brainard		
		RATE	$ 84.84	$ 76.73	$ 65.76	$ 58.06	$ 49.11	$ 59.59	$ 41.48		
		TASK DESCRIPTION:				*LABOR HOURS:*					
1Q1		Assess Existing Roadway Drainage Conditions									
	1	Field Review (Two anticipated)			5	10		10		25	$ 1,505.30
	2	Gather As-Built Information				4	4			8	$ 428.68
	3	Meet with UTA and Maintenance Personnel (Coordination after field reviews)			2	4	4			10	$ 560.70
	4	Develop Drainage Design Criteria				5				5	$ 290.30
	5	Preliminary Drainage Concept				4	5			9	$ 477.79
	6	Preliminary Drainage Estimate				2	2			4	$ 214.34
	7	Preliminary Drainage Summary				2	2			4	$ 214.34
	8	QC and Checklists			2			3		5	$ 310.29
1Y2		Prepare/Compile Scoping Review Package								0	$ -
1V2		Scoping Meeting								0	$ -
2Q1		Develop Initial Roadway Drainage									
	1	Hydrologic analysis for SD				2	7			9	$ 459.89
	2	Hydraulic analysis of SD				2	5			7	$ 361.67
	3	Hydroplaning analysis (NA)								0	$ -
	4	Preliminary pond grading and outlet design (0 ponds)								0	$ -
	7	Preliminary drainage layout				2	8			10	$ 509.00
	8	Survey requests and coordination with survey team								0	$ -
	9	Conflict analysis and coordiantion with utility team				5	2			7	$ 388.52
	10	Geometry drainage cost estimate				3				3	$ 174.18
	11	QC and checklist			2			4		6	$ 360.88
2Y1		Prepare/Compile Geometry Review Package								0	$ -
2V1		Geometry Review Meeting								0	$ -
3Q1		Complete Roadway Drainage Plans									
	1	Address Geometry Review comments				2	4			6	$ 312.56
	2	Finalize hydraulic analysis SD pipes				2	10			12	$ 607.22
	3	Finalize ditch hydraulics				2	8			10	$ 509.00
	4	Finalize inlet analysis				2	6			8	$ 410.78
	5	Finalize pond design (0 ponds)								0	$ -
	6	Complete culvert design								0	$ -
	7	Utility conflict resolution				5	3			8	$ 437.63
	8	PIH drainage plan and profile sheets				1	5			6	$ 303.61
	9	PIH drainage cost estimate				2	4			6	$ 312.56
	10	QC and checklist			4			5		9	$ 560.99
4A1		Complete Erosion & Sediment Control Plans and Documents									
	1	Design erosion and sediment control				3	1			4	$ 223.79
	2	EC plan sheets				1	1			2	$ 107.17
	3	EC detail sheets								0	$ -
	4	EC summary sheets				1	1			2	$ 107.17
	5	EC cost estimate				1	1			2	$ 107.17
	6	EC specs and SWPPP				3	1			4	$ 223.79
	7	QC and checklist			2			2		4	$ 250.70
4Q1		Complete Roadway Drainage Plan Sheets & Documents									
	1	Address PIH Review comments				3	7			10	$ 517.95
	2	Update drainage design				2	10			12	$ 607.22
	3	PS&E drainage plan and profile sheets				2	8			10	$ 509.00
	4	Drainage detail sheets				3	20			23	$ 1,156.38
	5	Drainage summary sheets				2	6			8	$ 410.78
	6	PS&E drainage cost estimate				2	4			6	$ 312.56
	7	Drainage specs				2	5			7	$ 361.67
	8	Drainage report				2	6			8	$ 410.78
	9	Water quality documentation					4			4	$ 196.44
	10	QC and checklist			8			5		13	$ 824.03
4Y1		Prepare/Compile PS&E Review Package	2		2	2	5	3		14	$ 841.64
4V1		PS&E Review Meeting (Combined with Shepard Lane)								0	$ -
5Y1		Incorporate PS&E Review Comments				3	7			10	$ 517.95
5V1		Comment Resolution Review Meeting (Combined with Shepard Lane)								0	$ -
5Z2		Prepare, Submit, and Process for Advertisement				1	3	1		5	$ 264.98
5Z1		Project Management (Most meetings to be combined with Shepard Lane)									
	1	Additional Team Meetings (three two-hour meetings anticipated)	6			6		4		16	$ 1,095.76
	2	Additional Project Management	5							5	$ 424.20
										346	
		TOTAL LABOR HOURS	13	0	27	100	169	37	0	346	

Direct Expenses Summary

	Quantity	Rate	Direct Expenses	Sub-Consultants
Mileage *	285	$ 0.560	$159.60	
11 x 17(B&W)	0	$ 0.200	$0.00	
11 x 17(Color)	0	$ 0.750	$0.00	
8.5 x 11 (B&W)	0	$ 0.100	$0.00	
8.5 x 11 (Color)	0	$ 0.500	$0.00	
Total Direct Expenses			$159.60	$ -

Direct WCG Labor	$19,188.86
Overhead 123.58%	$23,713.59
Fixed Fee 11.5%	$4,933.78
Total WCG Labor	$47,836.24
Direct Expenses	$159.60
Sub-Consultants	$0.00
GRAND TOTAL	**$47,995.84**

11/15/2021