

**BOARD OF COUNTY COMMISSIONERS
COUNTY OF KITTITAS
STATE OF WASHINGTON**

RESOLUTION NO. 2017 - 170

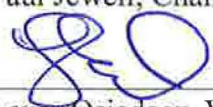
**TO AUTHORIZE THE CHAIRMAN'S SIGNATURE ON FORMAL TASK
ORDER DOCUMENT NUMBER 03 WITH JACOBS ENGINEERING GROUP
INC**

- WHEREAS:** Resolution number 2014 – 114 approved the application for funding from the Washington Federal Lands Access Program for the Teanaway Road Hydraulics Improvements; and
- WHEREAS:** Resolution number 2016 – 025 accepted Federal Highway Administration (FHWA) Federal Lands Access Program funding for the Teanaway Road Hydraulic Improvements in the amount of \$2,432,074; and
- WHEREAS:** Resolution number 2017-139 finalized the Interagency Agreement for the funding of the Teanaway Road Hydraulic Improvements project; and
- WHEREAS:** Jacobs Engineering Group Inc was selected as a civil on call consultant in February 2017 and is under contract with Public Works through agreement number KCPW 2017-19ENG1; and
- WHEREAS:** Kittitas County Public Works solicited three on call civil engineer firms to participate in the Request For Additional Information (RFAI) second tier competition process in accordance with Federal contracting requirements; and
- WHEREAS:** Kittitas County Public Works scored the additional information provided by two on call firms who participated and selected Jacobs Engineering Group Inc as the successful consultant to perform the work; and
- WHEREAS:** Kittitas County Public Works negotiated Task Order Number 03 with Jacobs Engineering Group Inc to supplement Public Works engineering design staff by performing Geotechnical, Environmental, Hydraulic, and Real Estate Services for the project; and
- NOW, THEREFORE BE IT RESOLVED** that the Board of County Commissioners, in the best interest of the public, does hereby authorize the Chairman's signature on Task Order Document Number 03 with Jacobs Engineering Group Inc, as attached.

DATED on this 17th day of October, 2017, at Ellensburg, Washington.

BOARD OF COUNTY
COMMISSIONERS
KITITAS COUNTY,
WASHINGTON


Paul Jewell, Chairman


Laura Osiadacz, Vice-Chairman


Obie O'Brien, Commissioner

Attest:

☒ Clerk of the Board- Julie Kjorsvik

☐ Deputy Clerk of the Board- Mandy Buchholz





KITTITAS COUNTY DEPARTMENT OF PUBLIC WORKS

Formal Task Order Document

Jacobs Engineering Group

Agreement KCPW2017-19ENG1

Task Order Number 03

Maximum Amount Payable \$327,653 Completion Date 3/30/19

The general provisions and clauses of Local Agency Agreement Number KCPW2017-19ENG1 shall be in full force and effect for this Task Order.

Location of Project: Teanaway Road, MP 6.9 & 8.64

Project Title: Teanaway Road Hydraulic Improvements

Description of Work:

Jacobs will provide management, and/or support for hydraulics, right-of-way, permitting, and environmental documentation for the Teanaway Road Hydraulic Improvement Project. See attached scope for more detail of each Task.

Task 01 - Project Management: This task includes project controls and administrative tasks related to project start-up, safety planning, invoicing, quality reviews, and project close-out for a period of 14 months.

Task 02 – Data Analysis: This task includes review and coordination of existing County-provided data, survey, studies, reports, maps, etc. associated with the project area.

Task 03 – Geotechnical Field Investigation: This task includes mobilization, drilling, and soil lab tests performed on two (2) bore holes at the Storey Creek site and up to six (6) bore holes at the Lick Creek site.

Task 04 – Geotechnical Engineering Analysis and Report: This task includes engineering analysis of the data provided from Task 03 and one (1) geotechnical report provided to the County.



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Task 05 – NEPA/SEPA Documentation: This task covers communication and coordination with regulatory and resource agencies, permit submittals, follow-up needs, completion of reporting requirements, and environmental support during construction.

Task 06 – Documentation, Permit Application, and Acquisition: This task includes preparation and submittal of all required permit applications and supporting documentation for the project. See list of permits in attached scope.

Task 07 – Hydraulics: This task includes support for County staff – no deliverables - for the Storey Creek site. This task also includes stream data collection and engineering analysis of stream characteristics and interaction with the existing and proposed channels. The deliverable is one (1) each of Preliminary Basis of Design Technical Memo and Final Basis of Design Report for the Lick Creek site.

Task 08 – Right Of Way: This task includes effort required to complete right-of-way process(es) required to acquire easement(s) in order to construct this project.

Task 09 – Project Kickoff Meeting: Select members of the delivery team will attend one (1) project kickoff meeting.

Task 10 – 30% Design Support: This task includes project support during the 30% final design phase.

Task 11 – 60% Over The Shoulder Meeting: This task includes attendance of select members of the delivery team at one (1) over-the-shoulder meeting to review and document comments on current progress to an approximate 60% level.

Task 12 – 90% Design: This task includes environmental support during the 90% final design phase.

Task 13 – 100% Design: This task includes environmental support during the 100% final design phase.

This task order covers time and expenses to support Kittitas County for 14 months, and is estimated at \$327,653. This task is anticipated to remain active until March 30, 2019.

Assumptions & Exceptions:

See attached scope

Deliverables:

See attached scope.

Cost Breakdown:

Total - \$327,653 (appx. 2,331 hours), allocated as follows:



KITTITAS COUNTY DEPARTMENT OF PUBLIC WORKS

Task 01 - Project Management (147 hours) - \$24,345

Task 02 - Data Analysis (4 hours) - \$691

Task 03 - Geotechnical Field Investigation (60 hours) - \$6,515

Task 04 - Geotechnical Engineering Analysis and Report (196 hours) - \$25,687

Task 05 - NEPA/SEPA Documentation (398 hours) - \$46,246

Task 06 - Environmental Permitting (394 hours) - \$41,997

Task 07 - Hydraulics (556 hours) - \$71,379

Task 08 - Right of Way (423 hours) - \$52,807

Task 09 - Project Kickoff Meeting (12 hours) - \$1,960

Task 10 - 30% Design Support (56 hours) - \$6,976

Task 11 - 60% Over The Shoulder Support (4 hours) - \$691

Task 12 - 90% Design Support (57 hours) - \$7,216

Task 13 - 100% Design Support (55 hours) - \$6,866

Other direct costs: Third-party services; mileage; Project field supplies - \$34,278

Project Schedule:

- TBD by Client PM

Agency Signature:

Date: 10/17/17

Consultant Signature:

Date: 10.12.17

TEANAWAY ROAD HYDRAULIC IMPROVEMENTS

SCOPE OF SERVICES

INTRODUCTION

The Jacobs (CONSULTANT) team will deliver the final design of the Teanaway Road Hydraulic Improvements in conjunction with Kittitas County (COUNTY) staff. The CONSULTANT final design includes environmental, hydraulics, right-of-way, and geotechnical services. The COUNTY will be delivering survey, public outreach/communication, utilities coordination, as well as civil and maintenance of traffic (MOT) plan(s), specification(s), and estimate. COUNTY will be responsible for assembling the overall final plans, specifications, and estimate (PS&E) package for Advertisement.

The COUNTY has taken over delivery of this project from the Western Federal Lands (WFL) division of the federal government. The COUNTY desires to have the final design completed in order to put this project on Advertisement in December 2018.

This project will improve two (2) sites along Teanaway Road:

- Storey Creek: the existing twin culvert is currently undersized and frequently is filled with sediment. The CONSULTANT and COUNTY team will design an appropriate replacement culvert, or other structure, for this site. The WFL approach replaces the existing 9' x 3' twin box culvert with at 19'W x 10'H x 60'L twin culvert. This is the same approach scoped herein.
- Lick Creek: the existing twin culvert is currently failing and undersized. The CONSULTANT and COUNTY team will design a new bridge structure (approx. 80' span) just to the north of the existing twin culverts where Lick Creek meandered many years ago. Lick Creek will be realigned to cross beneath the new bridge in the vicinity of its previous channel then directed in the southerly direction to reconnect to the existing stream channel.

SCOPE OF WORK

TASK 1 PROJECT MANAGEMENT

1. Project planning, team direction and coordination and ongoing client communication; project instructions will be documented in a Project Procedures Manual.
 - 1.1. Develop Project Execution Plan/Project Procedures Manual;
 - 1.2. Provide team direction and oversight;
 - 1.3. Provide updates and reports to the Owner (e.g., weekly, monthly, etc.);
 - 1.4. Develop and implement Hazard Assessment Safety Action Plan (HASAP);
 - 1.5. Plan and facilitate internal team project meetings;
 - 1.6. Plan and facilitate external project meetings with COUNTY and stakeholders: include location and anticipated attendees from both the CONSULTANT team and Owner team; prepare meeting materials; conduct meeting(s); develop meeting minute(s); distribute minute(s); and incorporate edits from comments.

- 1.7. Review each submittal and/or deliverable check and verify deliverables compliance with scope, schedule, budget and quality.
- 2. Project Controls**
 - 2.1. Monitor expended and remaining budget, and forecast cost to complete;
 - 2.2. Prepare monthly invoices and back-up, and monthly progress reports.
 - 2.3. Subconsultant management to include subcontract execution, review and incorporation of subconsultant invoices and progress reports and monitoring of subconsultant financial status.
 - 2.4. Monitoring and updating project design schedule.
- 3. Quality**
 - 3.1. Develop and administer Quality Assurance Plan
- 4. Deliverables**
 - 4.1. Project Management Plan (including quality plan and safety plan)
 - 4.2. Meeting notes (up to 20 meetings);
 - 4.3. Monthly progress report and invoice;

TASK 2 DATA ANALYSIS

1. Review, evaluate, analyze, and incorporate data provided by Owner:
 - 1.1. Hydraulic parameters from stream channel survey and analysis performed by COUNTY. (Owner to provide by September 30th, 2017).
 - 1.2. Topographic survey and base map(s) (Owner to provide by September 30th, 2017)
 - 1.3. Existing right-of-way plans and legal descriptions of parcel(s) in project area. (Owner to provide by September 30th, 2017)
 - 1.4. Existing reports and/or studies of the vicinity, if any (Owner to provide by September 30th, 2017)

TASK 3 GEOTECHNICAL FIELD INVESTIGATION & LABORATORY ANALYSIS

Based on a cursory review of available geologic data, the culvert replacements are located in alluvium deposits from Story Creek, Lick Creek, and nearby Teanaway River. We anticipate the alluvium to be cobble and boulder-laden and overlying sandstone estimated to vary in depth from 20 to 35 feet below ground. The road embankments overlying the culverts appear to be about 10 to 15 feet tall and comprised of fill of unknown material. The projects will be mostly affected by the geotechnical characteristics of the alluvium and depth to sandstone. Key geotechnical considerations will include excavation and dewatering to construct the culvert, and foundations to support it.

Task 3.1 – Storey Creek project site

1. Review publicly available geologic maps, nearby well logs, and other available geologic/geotechnical information at or near the project site.
2. Participate in one (1) site visit to observe surface conditions, and drill rig access, and mark exploration locations for public utility locate.

3. Coordinate public utility locating for two (2) soil borings locations; near the proposed culvert replacement abutments.
4. Develop a safety plan for exploration work and coordinate with drilling subcontractor.
5. Direct, observe, and document two (2) soil borings up to 35 feet deep each, or to bedrock (likely sandstone) each using air rotary methods. If rock is encountered, rock coring will not be completed as it is typically not necessary for shallow foundation design for short span structures that are except from seismic design. Standard penetration test (SPT) soil samples will be collected about every 5 feet of depth, or at discretion of the on-site engineer or geologist. Drilling and sampling will be observed by a geotechnical engineer or geologist. Borings will be backfilled in accordance with DOE requirements and patched at the surface with cement. Excess soil cuttings from the proposed borings will be spread on site.
6. Collect near surface representative soil samples and assess particle size distribution of the bank and channel material within 25 feet upstream and downstream of the proposed bridge (total of four samples).
7. Review soil and rock samples collected from drilling and bank and channel.
8. Complete geotechnical tests on selected soil samples, including moisture content determination, grain size analysis, and plasticity characteristics.
9. Participate in a teleconference discussion with the Owner regarding preliminary results of the field investigation.
10. The soil boring locations will be tied to the project layout with a station and offset from the existing bridge and shown on a Site Plan.
11. Adhere to appropriate maintenance of traffic plan and control (provided by the County) while drill rig is at the project site.

Task 3.2 – Lick Creek project site

1. Teanaway Rd. Structure location
 - 1.1. Review publicly available geologic maps, nearby well logs, and other available geologic/geotechnical information at or near the project site.
 - 1.2. Participate in one (1) site visit to observe surface conditions, and drill rig access, and mark exploration locations for public utility locate (concurrent with Task 3.1).
 - 1.3. Coordinate public utility locating for up to four (4) soil borings locations; near the bridge abutment and approach locations.
 - 1.4. Develop a safety plan for exploration work and coordinate with drilling subcontractor.
 - 1.5. Direct, observe, and document two (2) soil borings near the culvert replacement. The borings will be completed up to 35 feet deep with an additional 10 feet of rock coring using air rotary and rock coring methods (45 feet total). Standard penetration test (SPT) soil samples will be collected about every 2.5 to 5 feet of depth, or at discretion of the on-site engineer or geologist. Drilling and sampling will be observed by a geotechnical engineer or geologist. Borings will be backfilled in accordance with DOE requirements and patched at the surface with cement. Excess soil cuttings from the proposed borings will be spread on-site.

- 1.6. Collect near surface representative soil samples and assess particle size distribution of the bank and channel material within 25 feet upstream and downstream of the proposed bridge (total of four samples).
- 1.7. Review soil and rock samples collected from explorations.
- 1.8. Complete geotechnical tests on selected soil samples, including moisture content determination, grain size analysis, unconfined compression strength of rock core, and plasticity characteristics.
- 1.9. Participate in a teleconference discussion with the Owner regarding preliminary results of the field investigation.
- 1.10. The soil boring and test pit exploration locations will be tied to the project layout with a station and offset from the existing bridge and shown on a Site Plan.
- 1.11. Adhere to appropriate maintenance of traffic plan and control (provided by the County) while drill rig is at the project site.
2. Two Residential Culvert Crossings
 - 2.1. The effort described in this Task 3.2.2 shall be completed only after authorization from the COUNTY.
 - 2.2. Participate in one (1) site visit to observe surface conditions, and drill rig access, and mark exploration locations for public utility locate (concurrent with Task 3.1)
 - 2.3. Coordinate public utility locating for two soil borings – one at each crossing near the existing culvert abutments/approaches.
 - 2.4. Develop a safety plan for exploration work and coordinate with drilling subcontractor.
 - 2.5. Direct, observe, and document two (2) soil borings up to 25 feet deep, or to bedrock each using air rotary drilling methods. If rock is encountered, rock coring will not be completed as it is typically not necessary for shallow foundation design for short span structures that are except from seismic design. Standard penetration test (SPT) soil samples will be collected about every 5 feet of depth, or at discretion of the on-site engineer or geologist. Drilling and sampling will be observed by a geotechnical engineer or geologist. Borings will be backfilled in accordance with DOE requirements and patched at the surface with cement. Excess soil cuttings from the proposed borings will be spread on-site.
 - 2.6. Review soil collected from drilling and test pits explorations.
 - 2.7. Complete geotechnical tests on selected soil samples, including moisture content determination, grain size analysis, and plasticity characteristics.
 - 2.8. Participate in a teleconference discussion with the Owner regarding preliminary results of the field investigation.
 - 2.9. The soil boring locations will be tied to the project layout with a station and offset from the existing bridge and shown on a Site Plan.
 - 2.10. Adhere to appropriate maintenance of traffic plan and control (provided by the County) while drill rig is at the project site.

TASK 4 GEOTECHNICAL ENGINEERING ANALYSIS & REPORT

The geotechnical scope and cost estimate assumes the replacement culvert/bridge for Story Creek and Residential Culvert Crossings #1 and #2 will be less than 20-foot-span structures and will not require seismic hazard evaluation for the structure/foundations, and will be supported on shallow foundations.

The replacement bridge for Lick Creek project is assumed to have a single-span up to about 80 feet long and will be subject to AASHTO and WSDOT bridge design specifications with seismic hazard evaluation, and could be supported on shallow foundations or pile foundations.

A geotechnical report will be produced for Story Creek Project. One geotechnical report will be produced to encompass the Lick Creek and Residential Culvert Crossing #1 and #2 Site projects because the Sites are in proximity with anticipated similar subsurface conditions and geotechnical considerations.

TASK 4.1 – Storey Creek

1. Analyze collected field investigation data to characterize the geotechnical properties of the subsurface.
2. Evaluate and provide design/construction recommendations for temporary excavations, and construction dewatering, if needed.
3. Provide lateral earth pressures for design any wing walls or abutment walls.
4. Evaluate and provide shallow foundation bearing and lateral resistance geotechnical design parameters and construction considerations.
5. Evaluate overall stability of approach embankment immediately adjacent the culvert.
6. Provide grain size analysis results of bank and channel material for use in scour analysis. Scour analysis to be completed by Hydraulics Engineer.
7. Participate in up to two, one hour design team meetings by phone to discuss geotechnical design and construction elements of the project.
8. Provide up to 4 hours of Plans and Specifications support throughout the project.
9. Deliverables:
 - 9.1. One (1) Draft Geotechnical Report
 - 9.2. One (1) Final Geotechnical Report. To be delivered after CONSULTANT receives one (1) set of Owner's comments. Owner shall combine all comments to one (1) document and submit to CONSULTANT.

TASK 4.2 – Lick Creek

1. Analyze collected field investigation data to characterize the geotechnical properties of the subsurface.
2. Determine seismicity, seismic ground motions, and identify seismic hazards for Lick Creek Site.
3. Evaluate and provide design/construction recommendations for temporary excavations, and construction dewatering, if needed.
4. Provide lateral earth pressures for design of any wing walls or abutment walls.

5. Determine suitable bridge foundation type and analyze axial, uplift, lateral resistances and construction considerations for one preferred foundation type (shallow foundation for Residential Culvert Crossing #1 and #2, and shallow foundation or piles for Lick Creek).
6. Evaluate overall stability of approach embankment immediately adjacent the Lick Creek structure.
7. Provide grain size analysis results of bank and channel material collected from test pits for Lick Creek for use in scour analysis at that Site. Scour analysis to be completed by Hydraulics Engineer.
8. Participate in up to two, one hour design team meetings by phone to discuss geotechnical design and construction elements of the project.
9. Provide up to 8 hours of Plans and Specifications support throughout the project.
10. Deliverables:
 1. One (1) Draft Geotechnical Report
 2. One (1) Final Geotechnical Report. To be delivered after CONSULTANT receives one (1) set of Owner's comments. Owner shall combine all comments to one (1) document and submit to CONSULTANT.

TASK 5 NEPA/SEPA DOCUMENTATION

1. NHPA Section 106 Evaluation
 - 1.1. Develop Area of Potential Effects (APE) and coordinate with WSDOT.
 - 1.2. Evaluate cultural and historic resources within the project area of effect as per Section 106 requirements, coordination with SHPO as needed. (Larger field and report effort due to the stream relocation)
2. Wetland and Aquatic Resources Assessment and Report
 - 2.1. Delineate wetlands within and adjacent to project area
 - 2.2. Rate and categorize impacts to aquatic resources for mitigation planning.
 - 2.3. Provide one (1) wetland and aquatic resources impact assessment and report covering both sites; GIS files of wetland locations; and maps for each site.
3. Biological Assessment
 - 3.1. Field Reviews
 - 3.2. Prepare one (1) Biological Assessment with subsequent formal consultation (Bull trout and Steelhead in Lick Creek; Informal will be difficult with channel change)
 - 3.3. Provide ongoing coordination with WSDOT and agencies throughout the review/approval process
4. NEPA/SEPA
 - 4.1. Coordinate with WSDOT Local Programs and HQ regarding the NEPA process
 - 4.2. Research and prepare one (1) NEPA Categorical Exclusion (CE) form
 - 4.3. Research and prepare one (1) SEPA Checklist and Draft DNS
5. DELIVERABLES:
 - 5.1. One (1) NEPA CE and ECS Form
 - 5.2. One (1) Section 106 Compliance Memo

- 5.3. One (1) Wetland and Aquatic Resources Delineation report and Impact assessment, with ratings forms.
- 5.4. One (1) Biological Assessment
- 5.5. One (1) SEPA Checklist

TASK 6 ENVIRONMENTAL PERMITTING

- 1. Populate and submit one (1) JARPA application package.
- 2. Coordination with federal and/or state agencies for the following permits:
 - 2.1. Corps 404 permit, United States Army Corps of Engineers (Assumes IP required due to stream relocation)
 - 2.1.1. Individual 404 Permit
 - 2.1.2. Stream and Aquatic Resources draft mitigation plan. Includes Landscape Architect for design and cross sections, incorporation of plans into contract, etc.
 - 2.2. Hydraulic Permit Approval (HPA), WA State Dept. of Fish & Wildlife
 - 2.3. Ecology 401 permit, WA State Dept. of Ecology (IP required due to Corps IP and stream relocation)
 - 2.3.1. 401 Individual Permit
 - 2.4. Ecology 402 Permit
 - 2.4.1. NPDES/SWPP development
 - 2.5. Department of Natural Resources
 - 2.5.1. Aquatic Use Permit
 - 2.5.2. Forest Practices Permit
- 3. DELIVERABLES
 - 3.1. One (1) JARPA package for delivery to USACE, WDFW, DNR, and WDOE
 - 3.1.1. Stream and Aquatic Resources Draft Mitigation Plan
 - 3.2. NPDES Stormwater Pollution Prevention Plan
 - 3.3. Local Agency correspondence for each permit/exemption.

TASK 7 HYDRAULICS

TASK 7.1 – Storey Creek

- 1. Data Collection
 - 1.1. Collect existing data and information needed for the hydrologic, geomorphic, hydraulic and scour analysis of the proposed Storey Creek culvert. Request and collect available information such as:
 - 1.1.1. Existing topography
 - 1.1.2. Aerial photos
 - 1.1.3. Bridge inspection records
 - 1.1.4. Existing/as-built culvert plans
 - 1.1.5. Previous hydraulic/hydrologic studies
 - 1.1.6. Anecdotal information on past flood events

2. Field Reconnaissance

- 2.1. Conduct a field inspection with COUNTY staff to examine the characteristics of the creek, culvert, and surrounding riparian corridor with respect to hydraulic, erosion, and scour processes. The purpose of this inspection is to understand site hydraulics and channel conditions, with an emphasis on determining appropriate culvert span and potential scour countermeasures for the proposed crossing. It will be beneficial to meet with the COUNTY surveyors on site during the site reconnaissance to discuss where additional survey may be needed to support the hydraulic and scour analysis.

Field measurements will include:

- 2.1.1. Characterizing sediment size
- 2.1.2. Estimating channel/floodplain roughness
- 2.1.3. Culvert measurements
- 2.1.4. Assessment of existing scour protection
- 2.1.5. Documenting lateral and longitudinal erosion.
- 2.1.6. Identification of high water marks
- 2.1.7. Other relevant information to aid in assessment and design of the proposed water crossing.

- 2.2. Determine appropriate culvert opening size and potential scour countermeasures for the proposed crossing.

3. Hydrology

- 3.1. Hydrology for Storey Creek will be determined by reviewing:

- 3.1.1. Prior studies
- 3.1.2. USGS regression analysis
- 3.1.3. Basin comparison with nearby watersheds and anecdotal information provided by COUNTY staff from previous high-flow events.

- 3.2. Conduct analyses to determine the discharges for the 2-, 10-, 25-, 50-, 100-, 200-, and 500-year flood events.

4. Geomorphic Reach Assessment

- 4.1. Conduct a rapid geomorphic analysis using newly obtained survey information, geotechnical reports, aerial photos, and findings from the field reconnaissance. The purpose of this assessment is to determine if there have been significant geomorphic changes over time which will need to be accounted for in the design of the proposed water crossing.

5. Hydraulics

- 5.1. Provide support to COUNTY staff. COUNTY will perform hydraulic modeling to ascertain the hydraulic characteristics necessary to support the design of the new culvert crossing and potential scour countermeasures for the protection of the roadway prism. The hydraulic model will be developed by the COUNTY using topographic data collected by the COUNTY surveyor. The hydraulic model results can be used to support permitting to show the proposed water crossing meets WAC 220-660-190.

6. Bank Stability Assessment and Design

- 6.1. Provide support to COUNTY staff. COUNTY will examine stability of the existing scour protection and river banks.
- 6.2. Coordinate with COUNTY staff to identify proposed measures that are acceptable from a channel stability and habitat perspective.
- 6.3. If scour/bank projection measures are needed, continued coordination with the COUNTY will occur to develop design concepts.
7. Scour Analysis
 - 7.1. Assist County staff by reviewing and providing guidance to compute depth of scour estimates for the proposed culvert crossing and for any necessary scour countermeasures. These estimates will be provided to CONSULTANT staff for consideration in design of the proposed culvert.
8. Team Meetings & Permitting Assistance
 - 8.1. Participate in bi-weekly (or as needed less frequently) team meetings via conference call.
 - 8.2. Assist with the team's preparation of permit applications and answer questions that arise during agency review.
9. Documentation
 - 9.1. Documentation to be completed by COUNTY staff. No documentation performed by the CONSULTANT.
10. DELIVERABLES
 - 10.1. No Deliverables identified.

TASK 7.2 – Lick Creek

1. Data Collection
 - 1.1. Collect existing data and information needed for the hydrologic, geomorphic, hydraulic and scour analysis of the proposed Lick Creek culvert. Request and collect available information such as:
 - 1.1.1. Existing topography
 - 1.1.2. Aerial photos
 - 1.1.3. Bridge inspection records
 - 1.1.4. Bridge plans
 - 1.1.5. Previous hydraulic/hydrologic studies
 - 1.1.6. Anecdotal information on past flood events
2. Field Reconnaissance
 - 2.1. Conduct a field inspection with COUNTY staff to examine the characteristics of the creek, culvert, and surrounding riparian corridor with respect to hydraulic, erosion, and scour processes. The purpose of this inspection is to understand site hydraulics and channel conditions, with an emphasis on determining appropriate culvert span and potential scour countermeasures for the proposed crossing. Meet with the COUNTY surveyors on site during the site reconnaissance to discuss where additional survey may

be needed to support the hydraulic and scour analysis. Field measurements will include:

- 2.1.1. Characterizing sediment size
- 2.1.2. Estimating channel/floodplain roughness
- 2.1.3. Culvert measurements
- 2.1.4. Assessment of existing scour protection
- 2.1.5. Documenting lateral and longitudinal erosion.
- 2.1.6. Identification of high water marks
- 2.1.7. Other relevant information to aid in assessment and design of the proposed water crossing.

- 2.2. Determine appropriate bridge span length and potential scour countermeasures for the proposed crossing.

3. Hydrology

- 3.1. Hydrology for Lick Creek will be determined by reviewing:

- 3.1.1. Prior studies
- 3.1.2. USGS regression analysis
- 3.1.3. Basin comparison with nearby watersheds and anecdotal information provided by COUNTY staff from previous high-flow events.

- 3.2. Conduct analyses to determine the discharges for the 2-, 10-, 25-, 50-, 100-, 200-, and 500-year flood events.

4. Geomorphic Reach Assessment

- 4.1. Conduct a rapid geomorphic analysis using newly obtained survey information, geotechnical reports, aerial photos, and findings from the field reconnaissance. The purpose of this assessment is to determine if there have been significant geomorphic changes over time which will need to be accounted for in the design of the proposed water crossing and potential creek realignment and to determine if there has been a historic creek alignment similar to the one being proposed.

5. Hydraulics

- 5.1. Perform hydraulic modeling to ascertain the hydraulic characteristics necessary to support the design of the new bridge crossing, creek realignment and potential scour countermeasures for the protection of the roadway prism. The hydraulic model will be developed using topographic data collected by the COUNTY-supplied topographic survey in conjunction with the CONSULTANT bridge design. The hydraulic model results can be used to support permitting to show the proposed water crossing meets WAC 220-660-190.

6. Bank Stability Assessment and Design

- 6.1. Examine stability of the existing scour protection and river banks utilizing various design manuals such as, Integrated Streambank Protection Guidelines (ISPG), HEC-18, HEC-23, etc.
- 6.2. Coordinate with COUNTY staff to identify proposed measures that are acceptable from a channel stability and habitat perspective.

- 6.3. If scour/bank projection measures are needed, continued coordination with the COUNTY will occur to develop design concepts.
7. Lick Creek Channel Design
 - 7.1. Design a channel that will restore natural stream processes to the extent practicable given project constraints (e.g. ROW, existing flooding of residents, project costs, etc). The design will focus on creating a sustainable creek cross section, profile and alignment which will aim to reduce existing flooding of private residences while providing suitable habitat for aquatic organisms.
8. Scour Analysis
 - 8.1. Depth of scour estimates will be computed for the proposed Teanaway Road water crossing and up to two (2) residential/private property water crossings. These estimates will be provided for consideration in design of the proposed water crossing structures.
9. Team Meetings & Permitting Assistance
 - 9.1. Attend up to 2 meetings at the project site or the County Public Works Office
 - 9.2. Participate in bi-weekly (or as needed less frequently) team meetings via conference call.
 - 9.3. Assist with the team's preparation of permit applications and answer questions that arise during agency review.
10. Documentation
 - 10.1. Develop a Preliminary Basis of Design Memo and Final Basis of Design Report to summarize the results of the hydraulic and scour assessment. The report will include a description of the physical characteristics of the site, including photographs taken during the site reconnaissance, text, tables, and figures that describe the results of the hydrologic, geomorphic, hydraulic, and scour analyses.
11. DELIVERABLES
 - 11.1. One (1) Preliminary Basis of Design Memo
 - 11.2. One (1) Final Basis of Design Report

TASK 8 RIGHT-OF-WAY EASEMENT/ACQUISITION

1. Storey Creek
 - 1.1. Review COUNTY-provided documents to assess easement/acquisition need(s).
 - 1.2. Prepare one (1) Site Inspection Report.
 - 1.3. Review report and title exceptions (1 parcel).
 - 1.4. Identify fee interest ownership (1 parcel).
 - 1.5. Prepare a Project Funding Estimate and prepare one (1) AOS worksheet.
 - 1.6. Prepare and set up acquisition file: TCE or Easement (1 parcel).
 - 1.7. Conduct negotiations for the purchase of a temporary construction easement in accordance with the COUNTY's approved Right-of-Way Procedures, federal & state

requirements, the guidelines included in WSDOT's Local Agency manual, and the policies and procedures in the Right Of Way manual. Maximum of 22 hours.

- 1.8. Prepare offer package and present offer to one property owner. A maximum of three (3) attempts.
- 1.9. Prepare one (1) administrative settlement justification report.
- 1.10. Prepare one (1) status report per month (maximum of 5 reports).
- 1.11. Maintain one (1) parcel diary.
- 1.12. Assist the COUNTY in recording the property and/or property rights.
- 1.13. Prepare draft and final easement and acquisition documents approved by the COUNTY attorney.
- 1.14. Deliver completed files to the COUNTY.
2. Lick Creek
 - 2.1. Prepare one (1) Site Inspection Report for each parcel (up to 4 parcels).
 - 2.2. Review report and title exceptions for each parcel (up to 4 parcels).
 - 2.3. Identify fee interest ownership for up to (4) parcels.
 - 2.4. Update Project Funding Estimate and prepare one (1) AOS worksheet for each parcel (up to 4 parcels).
 - 2.5. Prepare and set up acquisition files: TCE or Easement (up to 4 parcels).
 - 2.6. Conduct negotiations for up to four (4) parcels for the purchase of a temporary construction easement, easement and/or fee take in accordance with the COUNTY'S approved Right-of-way Procedures, federal, state, requirements, the guidelines outlined in WSDOT's local agency manual, as well as the policies and procedures in the Right of Way Manual. Maximum of 20 hours of negotiation for each parcel.
 - 2.7. Prepare offer package and present offer for up to four (4) parcels. A maximum of three (3) attempts for each property owner.
 - 2.8. Prepare a maximum of one (1) administrative settlement justification report per parcel (up to 4 reports total).
 - 2.9. Prepare status reports – one report per month and a maximum of five (5) reports.
 - 2.10. Maintain diaries for each parcel (up to 4 diaries).
 - 2.11. Assist the county in recording the property and/or property rights.
 - 2.12. Prepare draft and final easement and acquisition documents approved by the COUNTY attorney.
 - 2.13. Deliver completed files to the COUNTY (up to 4 files).
3. DELIVERABLES
 - 3.1. Up to five (5) Site Inspection Reports
 - 3.2. Up to five (5) Parcel Summary Memos
 - 3.3. Up to five (5) Draft Easement and Acquisition document
 - 3.4. Up to five (5) Final Easement and Acquisition document
 - 3.5. Up to five (5) complete set of files for COUNTY record

TASK 9 PROJECT KICK-OFF MEETING

1. The CONSULTANT shall schedule, plan, attend, and facilitate a project kick-off meeting. The meeting shall include applicable COUNTY, CONSULTANT, and WSDOT staff. The meeting shall be held at either the COUNTY office in Ellensburg or the WSDOT office in Union Gap. The meeting will be assumed as a 4-hour meeting. CONSULTANT staff assumed to attend are Project Manager, Environmental Lead, and Right-of-Way Lead.

TASK 10 30% DESIGN SUPPORT

TASK 10.1 – Storey Creek

1. ENVIRONMENTAL
 - 1.1. Review conceptual plans for adherence to permits and exemptions.
 - 1.2. Begin project commitment tracking.
2. HYDRAULICS
 - 2.1. Assist County staff to develop design details and special provisions.
3. **DELIVERABLES**
 - 3.1. HYDRAULICS
 - 3.1.1. No Deliverables identified.

TASK 10.2 – Lick Creek

1. ENVIRONMENTAL
 - 1.1. Review conceptual plans for adherence to permits and exemptions.
 - 1.2. Begin project commitment tracking.
2. HYDRAULICS
 - 2.1. Assist with the creek realignment and scour/bank protection design elements.
3. **DELIVERABLES**
 - 3.1. HYDRAULICS
 - 3.1.1. No deliverables identified

TASK 11 60% OVER-THE-SHOULDER REVIEW MEETING

1. ENVIRONMENTAL
 - 1.1. Review conceptual plans for adherence to permits and exemptions.
 - 1.2. Ensure mitigation measures are included in plans.
2. HYDRAULICS
 - 2.1. Attend one (1) review meeting with COUNTY, CONSULTANT, and STAKEHOLDER staff via conference call.
3. DELIVERABLES
 - 3.1. Comment Log of hydraulic comments provided at 60% Over-The-Shoulder review meeting.

TASK 12 90% DESIGN SUPPORT

TASK 12.1 – Storey Creek

1. ENVIRONMENTAL
 - 1.1. Review plans for adherence to permits and exemptions; continue project commitment tracking.
2. HYDRAULICS
 - 2.1. Assist County staff to develop design details and special provisions.
3. DELIVERABLES
 - 3.1. HYDRAULICS
 - 3.1.1. No Deliverables identified

TASK 12.2 – Lick Creek

1. ENVIRONMENTAL
 - 1.1. Review plans for adherence to permits and exemptions; continue project commitment tracking.
2. HYDRAULICS
 - 2.1. Assist with the creek realignment and scour/bank protection design elements.
3. DELIVERABLES
 - 3.1. HYDRAULICS
 - 3.1.1. No deliverables identified.

TASK 13 100% PS&E SUPPORT

TASK 13.1 – Storey Creek

1. ENVIRONMENTAL
 - 1.1. Review plans and specifications for adherence to complete permit commitments and exemptions.
 - 1.2. Development of Environmental Commitment Summary.
 - 1.3. Development of Permit Appendix.
 - 1.4. Perform Quality Control per the Project Specific Quality Plan on the deliverables prior to submission to the COUNTY.
2. HYDRAULICS
 - 2.1. Assist County staff to develop design details and special provisions.
3. DELIVERABLES
 - 3.1. ENVIRONMENTAL
 - 3.1.1. One (1) Environmental Commitment Tracking data sheet.
 - 3.2. STRUCTURAL
 - 3.2.1.
 - 3.3. HYDRAULICS
 - 3.3.1. No Deliverables identified.

TASK 13.2 – Lick Creek

1. ENVIRONMENTAL
 - 1.1. Review plans and specifications for adherence to complete permit commitments and exemptions.
 - 1.2. Development of Environmental Commitment Summary.
 - 1.3. Development of Permit Appendix.
 - 1.4. Perform Quality Control per the Project Specific Quality Plan on the deliverables prior to submission to the COUNTY.
2. HYDRAULICS
 - 2.1. Assist with the creek realignment and scour/bank protection design elements.
3. DELIVERABLES
 - 3.1. ENVIRONMENTAL
 - 3.1.1. One (1) Environmental Commitment Tracking data sheet.
 - 3.2. HYDRAULICS
 - 3.2.1. No deliverables identified.

ASSUMPTIONS

1. GENERAL
 - 1.1. AutoCAD and Civil 3D will be the drawing and modeling platform.
 - 1.2. The Jacobs Project Manager has the ability to move budget/hours between Tasks to meet deliverables.
 - 1.3. The COUNTY will plan, arrange, and facilitate all meetings.
 - 1.4. The COUNTY is performing the following work: plans, specifications, and estimate (excluding structural plans, specs, & estimate) for Lick Creek location; staging/detour plans and MOT plans; all roadway and civil design; stream plans, planting plans, revetment and associated stream alignments; stormwater analysis/design; structures for private property access; hydraulic design at Storey Creek location; survey; utilities coordination and arranging relocation; drainage design; walls at bridge approaches, roadside safety; purchase of title reports; right-of-way plan development and filing; bid documents.
2. NEPA/SEPA
 - 2.1. NEPA is Categorically Exempt (CE 23)
 - 2.2. SEPA will be exempted as the project will qualify as a Fish Habitat Enhancement Project through WDFW.
 - 2.3. Section 106 will be determined as “May Affect”, and will require SHPO concurrence
 - 2.4. Wetland and stream impacts will require a full impact assessment.
 - 2.5. Mitigation plan will be required.
 - 2.6. Formal Biological Assessment is anticipated.
 - 2.7. Two (2) site visits

3. ENVIRONMENTAL PERMITTING

- 3.1. Up to fifteen (15) 8.5x11 drawings (including vicinity maps, plan views, and cross sections).
- 3.2. Individual Permit required for Corps 404 and Ecology 401.
- 3.3. Ecology 402 (NPDES) permit is required.
- 3.4. Department of Natural Resources (DNR) Aquatic Lands permit and Forest Practices Permit is required.
- 3.5. Local agency permits (Critical Areas Report and Shoreline Development Permit) are waived because the project will qualify as a Fish Habitat Enhancement Project.

4. GEOTECHNICAL

- 4.1. Traffic control for drilling process will be provided by County crew.
- 4.2. The Optional bore holes are not included in the estimate. Authorization of this work will require an amendment to the task order.

5. RIGHT OF WAY

- 5.1. All right-of-way services for the COUNTY will be performed in accordance with applicable codes, regulations, standards, and procedures; state and federal laws, FHWA regulations, Local Agency Guidelines Manual, and Washington State Right of Way Manual (M26-01.17).

6. HYDRAULICS

6.1. Storey Creek

- 6.1.1. CONSULTANT will serve as a mentor and review role. All documentation such as hydraulic analysis, bank stability assessment and design, and scour analysis to be performed by COUNTY.
- 6.1.2. COUNTY will provide combined topographic and bathymetric surface (1 foot contours with point and breakline data).

6.2. Lick Creek

- 6.2.1. COUNTY will provide combined topographic and bathymetric surface (1 foot contours with point and breakline data) with extents discussed at the 7/20/17 site visit.
- 6.2.2. County will provide available LiDAR data.
- 6.2.3. The current culverts are not within any FEMA Flood Hazard Boundary. It is assumed the proposed bridge and channel realignment will meet County Floodplain Code and therefore a no-rise analysis is not required.
- 6.2.4. The creek will have geomorphic features (e.g. creek substrate, woody material, etc) which will replicate the natural stream morphology above the existing road crossing.
- 6.2.5. A draft version of the Final Basis of Design Report will be provided for review and one set of comments.
- 6.2.6. Post fire hydrology will not be investigated under this task. If there is available information from others, CONSULTANT will review and work with COUNTY to determine if it is appropriate to consider for the design.

- 6.2.7. WDFW stated there is some existing geomorphic analyses for the Teanaway River. CONSULTANT will utilize existing information to the extent possible; however the previous analyses may have been associated with the Teanaway River rather than specific to Lick Creek.
- 6.2.8. A sediment transport model will not be developed. It is assumed the proposed structures will allow for natural sediment movement by following WDFW guidelines.
- 6.2.9. The hydraulic analysis will include information to support the design of the Teanaway Road bridge and up to two (2) residential access bridges.
- 6.2.10. The current culverts under residential access are not within any FEMA Flood Hazard Boundary. It is assumed the proposed structures and channel design will meet County Floodplain Code and therefore a no-rise analysis is not required. If the design is identified not meeting County Floodplain Code additional effort will be required that is beyond this scope of work.
- 6.2.11. No bank stability analyses will be conducted on the residential/private property.
- 6.2.12. The creek design will utilize the existing creek alignment and geomorphic features (e.g. creek substrate, woody material, etc).

EXCLUSIONS

1. GENERAL
 - 1.1. All Civil and MOT design elements.
 - 1.2. Development of specification run list
 - 1.3. Compilation of specifications and into one document.
 - 1.4. Compilation of estimate into one document.
 - 1.5. Assembly of Plans, Specifications, and Estimate submittals.
 - 1.6. Bid Support Services and Design Services During Construction.
2. ENVIRONMENTAL
 - 2.1. NEPA full Environmental Analysis (Environmental Assessment (EA) or Environmental Impact Statement (EIS)).
 - 2.2. SEPA review and Local Agency Permits/Approvals/Reports.
3. HYDRAULICS
 - 3.1. Storey Creek
 - 3.1.1. All hydraulic documentation (i.e. hydraulic analysis, bank stability assessment and design, and scour analysis).
 - 3.1.2. Temporary diversion assistance
 - 3.1.3. Support during construction
 - 3.2. Lick Creek
 - 3.2.1. Post-fire hydrology will not be conducted.
 - 3.2.2. Temporary diversion assistance
 - 3.2.3. Support during construction
4. RIGHT OF WAY

- 4.1. Services related to obtaining releases of financial and utility encumbrances from title.
- 4.2. Filing of condemnation and subsequent litigation including negotiation and preparation of possession and use agreements.
- 4.3. Closing costs such as recording fees, title insurance fees, transfer taxes, etc.; penalty costs for pre-payments; costs of a pre-existing mortgage; the prorate share of real property taxes paid subsequent to vesting title to the COUNTY.
- 4.4. Continued negotiations for complicated transactions and/or negotiating for Possession & Use agreements.
- 4.5. Continuing negotiations for those parcels listed for condemnation.
- 4.6. Appraisal and review appraisals (if necessary) and/or for condemnation purposes.
- 4.7. Providing litigation assistance to the COUNTY and legal counsel during appeals, grievances, hearings, and/or court proceedings.
- 4.8. Legal descriptions.
- 4.9. Relocation services.

OWNER CLARIFICATIONS OR PROVIDED DATA

1. Existing hydraulic parameters from stream channel survey and analysis
2. Topographic survey and base map(s)
3. Existing right-of-way plans and legal descriptions of parcel(s) in project area.
4. Existing reports and/or studies of the vicinity