



Supplemental Agreement Number <u>3</u>		Organization and Address	
Original Agreement Number		David Evans and Associates, Inc. 1115 West Bay Drive NW, Ste. 301 Olympia, WA 98502 Phone: 360-705-2185	
Project Number	Execution Date	Completion Date	
KTTC0000-0004	6/28/2011	12/31/2012	
Project Title	New Maximum Amount Payable		
Nelson Siding Rd. Safety Enhancement	\$ 886,830.29		
Description of Work Supplement No. 3 authorizes the CONSULTANT to continue with design development and completion of the Nelson Siding Road Safety Improvements project which includes roadway design and design of Big and Little Creek Bridges.			

The Local Agency of Kittitas County

desires to supplement the agreement entered into with David Evans and Associates, Inc.

and executed on 6-28-2011 and identified as Agreement No. _____

All provisions in the basic agreement remain in effect except as expressly modified by this supplement.

The changes to the agreement are described as follows:

I

Section 1, SCOPE OF WORK, is hereby changed to read:

See attached Exhibit A-1

II

Section IV, TIME FOR BEGINNING AND COMPLETION, is amended to change the number of calendar days for completion of the work to read: revised end date: December 31, 2012

III

Section V, PAYMENT, shall be amended as follows:

New maximum amount payable: \$886,830.29 Fixed fee: \$79,735.60

as set forth in the attached Exhibit A, and by this reference made a part of this supplement.

If you concur with this supplement and agree to the changes as stated above, please sign in the appropriate spaces below and return to this office for final action.

By: Raj Bharil, Vice President

Consultant Signature

By: _____

Approving Authority Signature

Sr. Associate

Date

Exhibit A-Summary of Payments

	Basic Agreement	Supplement #1	Supplement #2	Supplement #3	Total
Direct Salary Cost	127,104.00	no change	no change	138,682.00	265,786.00
Overhead (incl. payroll additives)	227,211.00	no change	no change	247,907.94	475,118.94
Direct Non-Salary Costs	62,877.00	no change	no change	3,312.75	66,189.75
Fixed Fee	38,131.00	no change	no change	41,604.60	79,735.60
Total	455,323.00	no change	no change	431,507.29	886,830.29

EXHIBIT A-1

SCOPE OF WORK

NELSON SIDING ROAD SAFETY ENHANCEMENT PROJECT KITITITAS COUNTY, WASHINGTON

INTRODUCTION

David Evans and Associates, Inc. (CONSULTANT) will provide permitting assistance and Plans, Specifications and Estimate (PS&E) for Phase 2 of the Nelson Siding Road Safety Enhancement Improvements project (PROJECT) under the direction of Kittitas County (AGENCY).

The CONSULTANT previously prepared separate roadway and bridge PS&E packages during Phase 1. The Roadway PS&E package was developed to approximately 60% completion level and the Bridge PS&E package was developed to 100% completion level, ready for advertisement. These PS&E packages included the following work:

- 1) Phase 1A: Structures PS&E:
 - a) Big Creek bridge replacement: Includes six 2'2" x 5'0" voided slab girders, 67'-10" long, beginning at Station 74+23.5 with traffic barrier; rip rap channel protection and wingwalls.
 - b) Little Creek bridge replacement: Includes six 1'6"x5'0" voided slab girders, 47'-10" long, beginning at Station 138+84.0; rip rap channel protection; and retaining walls.
 - c) Roadway improvements at Big Creek (Station 71+50 to 78+50) and Little Creek (Station 136+25 to 141+50) included approach slabs, guardrail, stormwater biofiltration swales and filter strips, and asphalt paving to transition from the approach roadway to the bridges to the existing roadway.
- 2) Phase 1B: Roadway PS&E:
 - a) Roadway plans between Nelson Siding Road (NSR) Station 0+00 and 231+29.5 which include roadway widening to achieve two 11-ft. travel lanes with 3-ft. shoulders, 4:1 fill slopes or 2:1 fill slopes with guardrail, a 4-inch pavement overlay, culvert extensions and replacements, and mailbox relocations.

The Phase 1 roadway and bridge plans were used to support the following environmental permit applications made by the AGENCY:

1. JARPA#1 for Little Creek Bridge;
2. JARPA#2 for Big Creek Bridge, No-name Creek culvert, and roadway project (Station 0+00 to 231+29.5);
3. HPA for in-water work at No Name Creek culvert, Little Creek Bridge and Big Creek Bridge;

The purpose of this supplemental scope of work (Phase 2 of the project) is to complete the roadway work started in Phase 1, expand on the work performed during Phase 1, and create a bid-ready PS&E package which will include roadway and bridge improvements as one project deliverable.

As a result of regulatory agency reviews of the Phase 1 permit applications, Phase 2 design tasks will include shifting the Little Creek Bridge approximately 10 feet to the west which will result in

David Evans and Associates, Inc.
June 28, 2011

modifications to the abutment and riprap armoring design. Associated stormwater and retaining wall details will be modified accordingly.

The AGENCY has also requested the CONSULTANT to expand the roadway design in Phase 2 to include the following work:

1. Add No Name Creek culvert replacement to the PS&E package;
2. Add overflow culvert(s) at Nelson Creek;
3. Investigate the cost impacts of incorporating an engineered vertical profile to meet 50 MPH design standards for the entire project limits (Station 0+00 to 231+29.5);

The CONSULTANT will also provide Phase 2 permitting assistance which includes supporting the AGENCY for the following applications:

1. Nationwide Permit for temporary wetland impacts at No Name Creek culvert;
2. Revised Hydraulic Project Approval (HPA) for Little Creek Bridge modifications;
3. ESA for culvert replacement at No Name Creek;

The project will be constructed with funds from CRAB grants and local funds.

DESIGN CRITERIA

The AGENCY will designate the basic premises and criteria for the design. Reports and plans will be developed in accordance with the latest edition and amendments (as of the date of signing of this Agreement) of the following documents. Changes in any design standards or requirements after work has begun may result in Extra Work.

AGENCY publications:

1. Kittitas County Public Works Road Standards
2. Kittitas County Public Works General Special Provisions

WSDOT publications:

1. Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction, 2010
2. WSDOT Standard Plans for Road, Bridge, and Municipal Construction
3. Local Agency Guidelines (LAG) Manual
4. Design Manual
5. Hydraulics Manual
6. Highway Runoff Manual

U.S. Department of Transportation publications:

1. Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD)

Other:

1. AASHTO Geometric Design for Highways and Streets
2. Standard drawings prepared by the AGENCY and furnished to the CONSULTANT will be used as a guide in all cases where they fit design conditions.

SCOPE OF SERVICES

The original scope of work Tasks 1.0 through Task 9.0 included in the original agreement dated June 3, 2008, will be closed out upon execution of this Supplement #3. The PROJECT scope of services will be replaced with the following tasks:

TASK 10 Project Administration and Coordination

10.1 Project Management

- a) Provide overall management and administration of the design, direct and supervise staff, and review work over the course of the project.
- b) Monitor the project budget by comparing the planned versus actual rate of expenditure for each element. Identify trends and coordinate with the AGENCY on possible corrective actions. Update the project budget on a monthly basis and submit to the AGENCY with the monthly invoice.
- c) Prepare and submit a monthly progress report and invoice that identifies work performed in the previous month, work anticipated next month, budget status, schedule status, identification of project issues, and identification of potential extra work.
- d) Provide internal CONSULTANT review of reports and plans prior to submittal to the AGENCY.

10.2 Project Meetings and Coordination

- a) Attend 3 coordination meetings as scheduled by the AGENCY. The Consultant will prepare meeting records and distribute to attendees within one week of each meeting.
- b) Coordinate with AGENCY staff for project data, design issues and project updates.
- c) Coordinate with external permitting agencies to resolve design issues.

Deliverables

1. Monthly progress report and invoice – 1 copy;
2. Meeting records of meetings with AGENCY;

TASK 11 Phase 1 Design Extra Work

During Phase 1 of the project, the CONSULTANT provided additional level of effort for roadway and structural design tasks that will be added to the contract as part of this supplemental scope of work. The extra work performed by the CONSULTANT included the following:

- Funding availability concerns caused the AGENCY to notify the CONSULTANT to stop work on the project on two separate occasions, thereby affecting efficiency levels and causing rework.
- The AGENCY requested that the roadway and structural improvements be separated into two bid packages to allow the bridge improvements to be constructed by spring 2011 and take advantage of a favorable bidding climate. However, environmental permitting approval has not yet been obtained by the AGENCY and has prevented the advertisement of the PROJECT. Additional effort was provided by the CONSULTANT to assist the AGENCY with permits.

- Prepare preliminary plan and elevation exhibits for a culvert replacement at 'No Name' Creek.

TASK 12 Environmental Investigation and Permitting

The CONSULTANT will take the lead on preparing documentation necessary for environmental permitting of Phase 2 of the PROJECT, as well as coordinating with the regulatory authorities.

12.1 Environmental Permitting

The CONSULTANT will work on behalf of the AGENCY to secure a Nationwide Permit (NWP) from the U.S. Army Corps of Engineers (Corps). This includes coordination with the Washington Department of Fish and Wildlife (WDFW), United States Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS). This task includes effort associated with updating or modifying existing permits as needed including Hydraulic Project Approval (HPA) from WDFW. This task also includes preparation of a mitigation plan for temporary wetland impacts at the No-Name Creek crossing.

- a) The CONSULTANT will meet with the Corps to go over the status of the project.
- b) The CONSULTANT will coordinate with NMFS, USFWS, and WDFW regarding permit approval conditions.
- c) CONSULTANT will prepare a memorandum identifying project impacts to critical areas in support of the permit process.
- d) CONSULTANT will prepare a memorandum outlining project changes in support of the permit process.
- e) HPA Modification:
 - i) HPA has been obtained for all in-water work as shown in Phase 1 plans. The existing HPA's will be modified based on updated design drawings for Little Creek Bridge and for No Name Creek culvert replacement. Any other HPA modifications that are required will be **Extra Work** and funded by MRF/Task 18.
- f) CONSULTANT will prepare a Mitigation Plan for temporary wetland Impacts at No-Name Creek Crossing.

Assumptions

1. *Two Joint Aquatic Resource Permit Applications (JARPAs) have been submitted, one for Little Creek, and one for Big Creek and No Name Creek.*
2. *A Biological Assessment (BA) was prepared for Little Creek and Big Creek.*
3. *No permanent wetland impacts will occur.*
4. *A wetland and stream report has been prepared.*
5. *Preparation of a critical areas report is not required.*
6. *The Corps will determine that the roadside ditches are not within their jurisdiction.*
7. *Temporary wetland impacts may occur at No-Name Creek that would require consultation with the Corps.*
8. *The roadway design task will be performed such that permanent widening efforts will not encroach on existing wetlands, therefore no wetland mitigation is required for permanent impacts. A formal wetland mitigation plan is not included in this scope and budget.*

9. *No additional in-water work is proposed besides work at Big Creek, Little Creek, and No Name Creek.*
10. *Addition of Nelson Creek culvert replacement to project scope will be Extra Work.*

12.2 Endangered Species Act (ESA)

The CONSULTANT will prepare ESA documentation for the proposed No Name Creek culvert replacement action associated with the PROJECT. The ESA documentation will be prepared as an addendum to the Biological Assessment (BA) previously prepared by the CONSULTANT for bridge crossings at Big and Little Creeks (prepared during Phase 1 design).

Assumptions

1. *ESA documentation is required due to in-water work at No Name Creek, which was not included in the Phase 1 BA.*
2. *The ESA documentation will be limited to the No Name Creek crossing and will not be required to address the entire roadway improvement project.*
3. *Preparation of an overall project biological assessment will be Extra Work and funded by MRF/Task 18 if needed.*

Deliverables

1. ESA Memorandum with graphics and Phase 2 design drawings;
2. Temporary Wetland Impact Mitigation Plan at No Name Creek;

12.3 Work Area Isolation and Turbidity Plan

- a) Prepare a Work Area Isolation Plan or Dewatering Plan for all three stream crossings (Big, Little, and No Name creeks). The plan will identify the method(s) of isolation, upstream and downstream extent of isolation, pipe size, and additional considerations based on provisions within the project-specific HPA(s).
- b) Prepare a turbidity plan that documents the upstream and downstream sampling sites, method of sampling, frequency of sampling, range of acceptable measurements based on background readings, and data collection and reporting requirements for all three stream crossings (Big, Little, and No Name creeks).

Assumptions

1. *Contractor will provide and install work area isolation layout per approved plans.*

Deliverables

1. Work Area Isolation Plan
2. Turbidity Plan

12.4 Fish Salvage Special Provisions

- a) The CONSULTANT will prepare special provisions for fish salvage operations to be performed by the AGENCY's Contractor at Big Creek, Little Creek (if present), and No Name Creek. CONSULTANT shall coordinate with WDFW and NMFS for fish salvage operation requirements to be included in the special provisions. The special provisions will include direction to the Contractor for installation of fish barriers,

removal of fish within work area prior to de-waters, removal of fish during de-watering, and reporting requirements.

Assumptions

1. *Contractor will provide a biologist and equipment to salvage fish from Big Creek, Little Creek (if present), and No Name Creek. The Contractor's biologist will need to provide documented fish salvage experience, adhere to strict fish handling protocols, and report capture results.*
2. *The Contractor's fish salvage operation requires a valid scientific collection permit from the WDFW.*

Deliverables

1. Special Provisions at 75%, 90% and Final Submittal

General Permitting Assumptions

1. *The entire project has been investigated for cultural/historical issues and the associated documentation has been submitted to the appropriate regulatory authorities.*
2. *The entire project has gone through the State Environmental Policy Act (SEPA) process and a Determination of Non-Significance (DNS) was issued.*
3. *No Critical-Areas permits are required by Kittitas County.*
4. *An Environmental contingency reserve will be established using Management Reserve Funds (MRF) for unforeseen tasks and additional environmental requests from the AGENCY (see Task 18).*

TASK 13 Phase 2 Roadway and Bridge Design – 75% PS&E

These tasks amend the Phase-1A 100% PS&E submitted to the AGENCY on March 31, 2011 for the Big and Little Creek Bridge Replacement project, amends and builds on the Phase-1B 60% Roadway PS&E submitted to the AGENCY in August 2009, builds on the plan and elevation sketches previously developed by the CONSULTANT for No Name Creek culvert, and builds on the items discussed in a joint meeting with the AGENCY on May 9, 2011 (see the meeting minutes for details). Comments received from the AGENCY for the bridge PS&E were received on April 12, 2011 and will be incorporated into the Phase 2 documents.

The CONSULTANT will perform the following work tasks as identified below:

13.1 75% Roadway Design

The CONSULTANT will combine design elements from the Phase 1A Big Creek and Little Creek PS&E, the Phase 1B roadway PS&E, and the Phase 1 layout for No Name Creek culvert replacement with new design elements from Phase 2 into a 75% PS&E package for submittal to the AGENCY. The CONSULTANT will perform the following tasks to expand on the design efforts for a 75% PS&E deliverable package.

a) HMA Quantity Analysis

- i) 'Engineered Profile' Analysis: Phase 1B roadway design assumed a 3-inch HMA overlay for the entire extent of the project (4.4 miles). CONSULTANT will develop an 'engineered' profile that meets a 50-MPH design speed, accommodates a minimum of 3-inches of new HMA depth, and does not require existing pavement

grinding, for the purpose of evaluating HMA cost impacts. This 'engineered profile' will be evaluated along the existing striped centerline of Nelson Siding Road, corresponding to the horizontal alignment shown in Phase 1 roadway plans.

- ii) HMA Prelevel Quantity Analysis: A quantity take off will be prepared to evaluate the amount of asphalt pre-level required to construct the 'engineered' profile. Prior to developing a roadway profile and incorporating it into the PS&E plans for the entire length of the project, the CONSULTANT will present the findings to the AGENCY as a preliminary Vertical Alignment strip map with pre-leveling costs. The AGENCY will then determine if an 'engineered' profile will be used in the PS&E package or if a standard 3-inch overlay will be included.
- iii) Once the AGENCY selects a preferred HMA paving methodology ('engineered' vs. overlay), CONSULTANT will develop a finished grade profile in TASK 13.1(c) that corresponds to the updated horizontal construction centerline evaluated in Task 13.1(b).

b) Horizontal Design

The AGENCY-provided horizontal alignment from Phase 1B consists of 15 horizontal curves and 9 angle points. Based on the AGENCY's CRAB funding application, three of the horizontal curves have been granted 'Design Exceptions' from achieving 50-MPH design and are allowed to be improved to a 35-MPH design speed.

The remaining 12 horizontal curves will be evaluated to determine if they meet 50-MPH design speed per AASHTO standards, as well as evaluating the angle points to incorporate horizontal curves that meet 50-MPH design criteria. The AGENCY's goal is to upgrade the remaining 12 curves such that the horizontal curve radii and associated superelevation rates can be modified to achieve a 50-MPH design speed. However, if upgrading the horizontal curve creates an encroachment on adjacent wetlands or existing right of way limits, other design alternatives will be pursued in the following order:

1. Construct 2:1 fill slopes and install guardrail if fill height is greater than 6-feet;
2. AGENCY to request a Design Exception from CRAB to construct a lower speed curve with signage that meets MUTCD guidelines;
3. If AGENCY is not granted a Design Exception, construct retaining wall to avoid encroachment;

Following is a list of tasks to be performed to confirm the PROJECT horizontal alignment meets CRAB funding guidelines:

- i) Check 15 horizontal roadway curves to verify horizontal radius and associated superelevation rates achieve minimum standards for 50 MPH design speed. Also incorporate horizontal curves at 9 angle points and evaluate superelevation rate required to achieve 50-MPH design per AASHTO standards.
- ii) Modify stationing of 'NS-line' after horizontal curves and angle points are revised in above task. This re-stationing task will affect roadway and bridge plans developed in Phase 1 and will require updates to station callouts in various plan sheets (see Task 13.3).
- iii) Design and detail in the plans the corrected super-elevation needs, including runoff lengths, stationing, and HMA pre-leveling quantities, for the updated horizontal alignment.

- iv) Estimate the amount of pre-level required where roadway centerline alignment shifts occur (existing roadway crown moves laterally). Create 50-ft. cross sections indicating prelevel quantities and submit to AGENCY.
- v) Perform turning radius analysis at the intersection of Nelson Siding Road and Westside Road, detail where pavement can be removed and flatten the curve of Nelson Siding Road (to the north) as much as possible. As requested by the AGENCY, this task is necessary to reduce confusion for vehicles in an area where there is too much existing pavement.
- vi) Identify limits of existing fence to be relocated and include in plans.
- vii) Identify existing mailboxes to be relocated.
- viii) Prepare driveway approach paving limits (at 101 locations) between roadway shoulder and right of way limits.
- ix) Prepare 15 side street paving limit transitions to match into existing pavement.

Horizontal Design Assumptions:

1. *Adjust superelevation design to 50mph on Nelson Siding Road (NS-Line) except for the three curves at approximate PI Stations of 5+94, 97+90, and 204+73, which will be 35mph posted speed and have been granted a design deviation request by CRAB. Assume 16 curves will need super-elevation details in the plans.*
2. *If adjustments to horizontal curve radii to meet 50MPH design speed force the roadway widening footprint to encroach on existing right of way or wetlands, the AGENCY will request a design speed deviation from CRAB for that horizontal curve.*
3. *Horizontal curve evaluation will assume a 50MPH design speed utilizing Exhibit 3-26 (minimum Radii for Design Superelevation Rates, Design Speeds, and $e_{max} = 6\%$) from the AASHTO Geometric Design of Highways and Roads manual. Based on AGENCY preference, a 4% super-elevation will be considered for selecting the minimum radius, however, should the existing pavement cross slope be steeper than 4% or the required horizontal curve radius forces encroachment on right of way or wetlands, then the CONSULTANT will utilize a 6% maximum superelevation (with a smaller associated radius) for that curve.*
4. *Changes in the horizontal alignment may require the installation of retaining walls and/or guardrail to avoid right of way and wetland impacts. Retaining wall design will be considered Extra Work.*
5. *At Westside Road, no additional right of way will be needed and guardrail may be incorporated into the design to stay out of the wet ditches and to ensure no additional right of way is required. If necessary, under-drains may be utilized to control the water in the wet ditches. There will be no profile grade changes at Westside Road.*

c) Vertical Design

After the AGENCY has evaluated the HMA preleveling cost impacts associated with an 'engineered profile', the AGENCY will direct the CONSULTANT to develop the roadway design using either an overlay method or an engineered profile. If the AGENCY selects the 'engineered profile' method, the CONSULTANT will develop this vertical alignment concurrently with the Horizontal Design task noted above and the Roadway Sections task noted below. This is necessary to avoid encroachment into existing wetlands or right of way.

- i) Plan/Profile Sheets:
 - Develop plan/profile view roadway sheets with associated construction notes, and earthwork quantities at locations where a roadway profile is needed due to changes in existing centerline (due to curvature changes) modifications of superelevation or in areas selected by the AGENCY for vertical curves improvements in target sections. The plan/profile sheets will be developed regardless of which profile methodology is selected by the AGENCY.
- ii) Overlay Profile:
 - Incorporate an overlay profile into the plan/profile sheets that utilizes tangential sections, instead of vertical curves, that best fits a finished grade that is at least 3-inches higher than existing grade. The profile view will include centerline elevations at 50-foot intervals for existing ground and finished grade surface.
- iii) 'Engineered Profile' Design (Optional Task – See Task 18 MRF/Extra Work):
 - Prepare vertical alignment with vertical curves to meet 50-MPH design speeds. This vertical alignment will be tied to the final, adjusted horizontal alignment established in the above task, which meets the 50-MPH design speed or has been granted design deviations. Previously developed profiles for Big Creek and Little Creek PS&E will be modified at the existing roadway tie-ins at the touch down points (previously developed profiles assumed no other work being performed outside the touchdown points).
- iv) HMA Prelevel Quantity:
 - Evaluate HMA prelevel quantity associated with 'overlay' profile (or 'engineered' profile if selected) and identify quantities in each sheet in profile view.

Vertical Design Assumptions:

1. *The 'engineered' profile option will be designed to 50mph on Nelson Siding Road, except for the three curves at approximate PI Stations of 5+94, 97+90, and 204+73, which will use 35mph posted speed.*
2. *If AGENCY decides to incorporate an 'engineered' roadway profile over any part of the project, the Management Reserve Fund will be used to fund the additional design costs. If the optional 'engineered' profile task is not authorized by the AGENCY, the CONSULTANT will create profiles for Big Creek and Little Creek bridge replacements and for No-name Creek culvert replacement, and prepare an overlay profile for the remaining applicable limits of the PROJECT described herein.*
3. *Phase 2 design will utilize 2:1 slopes to avoid encroachment into existing right of way, wetlands, and Kittitas Reclamation District (KRD) facilities.*

d) Roadway Sections

- i) Merge typical roadway sections that have been developed in the Phase 1 plans and include additional sections as required.
- ii) Prepare earthwork cross sections using Civil-3D software and determine cut and fill slope limits (fill slopes will be 2:1 or flatter). **The earthwork cross sectional templates will be created where the new profiles are provided in the plans after final centerline stationing is established.**
- iii) Provide staking data for proposed roadway design. CONSULTANT will develop the Civil-3D cross section templates and control points such that staking data

output will include back of ditch/toe of slope (if applicable), bottom of ditch, subgrade break, edge of shoulder break points, base course (at shoulders and centerline), and two lifts of HMA (at shoulders and centerline). CONSULTANT will prepare a "Staking Points Typical Section" Exhibit for AGENCY comment, prior to this work, to establish the AGENCY-desired staking points.

iv) Utility Pole Relocations:

- CONSULTANT will prepare an exhibit for overhead utility providers that identifies allowable areas for pole relocations located between new back-of-ditch line and existing right of way.
- After AGENCY and PSE review the first draft of roadway cross sections and provide CONSULTANT with desired utility pole locations, CONSULTANT will revise the roadway design one time. This work could include adjusting horizontal curve radii and superelevations (which may require obtaining additional deviations from CRAB), adding retaining walls, and/or adding guardrail.
- Incorporate utility provider approved utility relocation drawings prepared by the AGENCY into the project contract documents. This work will include adjusting roadside to accommodate vaults, pedestals, and utility poles.
- After this work is complete, CONSULTANT will provide the final cross sections to KRD for their relocation work.

v) Determine locations where cut/fill lines extend beyond existing right of way or wetland limits. Discuss with AGENCY need for retaining walls, which will be Extra Work for retaining wall design.

vi) Evaluate roadway excavation and embankment quantities and include in profile view of roadway sheets.

Roadway Sections Assumptions:

1. AGENCY to provide CONSULTANT with overhead and underground utility relocation plan, including power, cable, phone, fiber optic if applicable. Plan will include new location for poles, pedestals, and vaults, to be relocated by others. Utility Relocation Plan will be in AutoCAD, for reference with roadway plans.
2. AGENCY to utilize CONSULTANT-prepared ditch sketches for KRD prior to creating utility relocation plans.
3. Roadway staking data provided by CONSULTANT does not include structure staking data for Little Creek Bridge, Big Creek Bridge and No-Name Creek culvert.
4. At existing roadway tangent segments, existing roadway crown cross sectional slopes will be maintained (excluding horizontal curve superelevation runout), except for existing crown slopes less than 1.5% will be increased to be a minimum of 1.5%.

e) **Channelization**

- i) Prepare a temporary detour plan within PROJECT limits.
- ii) Prepare a signing and striping plan for the PROJECT limits.

Channelization Assumptions:

1. Temporary detour signing modifications on I-90 associated with Nelson Siding Road closures for bridge construction will be handled by the AGENCY and any CAD drawings will be developed by the AGENCY.

2. *Temporary project detour plans will include Class A signs to be installed by the Contractor.*

f) **Drainage Design**

Several of the existing roadside ditches have flowing water in them. It is anticipated that the flowing water is irrigation water (source to be determined by the CONSULTANT) and in order to design the proper roadway section for the road, the ditches will need to be relocated. Also, some culverts beneath Nelson Siding Road that transport the flowing water will need extensions or replacement. The CONSULTANT will determine which ditches need relocation and which culverts will need replacement or extended.

i) **Ditch Design**

- Evaluate roadside drainage ditch flow line locations after cut/fill limits are determined.
- Adjust roadway section slopes to keep ditch flow line within existing right of way limits.
- CONSULTANT will provide the AGENCY with plan view exhibits of KRD facilities that need to be relocated, to be forwarded on to KRD by the AGENCY. This exhibit will be provided after the CONSULTANT receives the final approved utility relocation plan from the AGENCY and has incorporated that plan into the roadway design. Ditch relocation information will include ditch beginning and ending stationing/offsets with ditch flow line elevations. CONSULTANT will proceed with roadway widening design and fill limits as if the KRD ditch relocation work occurs based on the CONSULTANT's cross section design and is completed prior to the AGENCY's contractor starting their work. Ditch excavation performed by KRD will not be included in the CONSULTANT's quantity takeoffs for the PROJECT estimate.

ii) **Existing Culverts:**

- Evaluate existing non-KRD culverts and determine limits for culvert extension to match new toe of fill slope. All KRD-culverts will be extended by KRD.

iii) **Stormwater Treatment:**

- Prepare stormwater treatment design for No Name Creek culvert replacement.
- Update stormwater treatment facilities to reflect the shift of Little Creek Bridge to the west.
- Merge stormwater treatment design completed for the 100% PS&E for Big and Little Creek bridge replacements with stormwater design anticipated for No Name Creek culvert replacement.
- Prepare grass lined ditches for stormwater treatment within the project limits not already covered by biofiltration swales and filter strips in Phase 1 plans.

iv) **Prepare stormwater conveyance and treatment details.**

v) **Prepare Preliminary Stormwater Report for the entire Phase 2 project.**

Drainage Assumptions:

- 1) *All ditches with flowing water are assumed to be irrigation water except for the ditches in the vicinity of Nelson Creek that crosses Nelson Siding Road at approximate Station 189+25.*
- 2) *KRD will relocate all their ditches that interfere with the PROJECT.*

- 3) *Any siphons or cross pipes that need relocation, pipe extensions, or replacement will be performed by KRD.*
- 4) *The AGENCY will coordinate with KRD for irrigation facility relocations and timing of that work.*
- 5) *Stormwater treatment design shall comply with WSDOT Highway Runoff Manual and Hydraulics Manual.*
- 6) *Stormwater quantity control will not be required on this project.*

13.2 75% Structural Design

a) Little Creek Bridge Design:

- i) Re-evaluate bridge design: Structural design for Big Creek and Little Creek bridges was completed during Phase-1A and submitted to the AGENCY on March 31, 2011. After that submittal, various regulatory authorities have requested Little Creek Bridge to be shifted 10 feet to the west. To accommodate this shift, the CONSULTANT must re-evaluate the bridge design due to the fact the easterly abutment will be taller and closer to the stream.
- ii) Retaining Wall redesign: Modify retaining wall design after Little Creek bridge has shifted to the west. Revise plan and profile layout.
- iii) Hydraulic Analysis: update hydraulic analysis report to reflect the changes made to the Little Creek Bridge location and configuration of the design channel.
- iv) Revise CAD drawings according to the redesign.

Little Creek Bridge Assumptions:

1. *The bridge will be moved longitudinally 10 feet to the west. Pier two will be located in approximately the same location as pier 2 of the existing bridge.*
2. *No additional geotechnical data will be required with the bridge shift.*

b) No Name Creek Culvert Design:

- i) CONSULTANT shall prepare plans for a prefabricated bottomless arch culvert to replace the existing culvert.

No Name Creek Culvert Assumptions:

1. *Allowable bearing pressure for the concrete block footing for the arch culvert will be 2500 PSF. There will be no geotechnical data required for the design.*
2. *The size, shape and hydraulic analysis to be provided by the AGENCY.*
3. *There will be no permanent impacts to the existing wetlands.*
4. *The adjacent road approach will be preserved by using strong post guardrail designs.*
5. *The CONSULTANT may utilize moment slabs with concrete barrier attached.*
6. *Headwalls or shallow block walls may be needed to prevent encroachment into the existing wetlands with the permanent facility.*

13.3 75% Submittal Plan Preparation

a) New sheet production:

This work consists of creating new project plans for work identified in Phase 2 tasks.

i) Roadway Plan/Profile Sheets:

- This work consists of converting Phase 1 plan/plan sheets into stacked plan/profile sheets.

- ii) No Name Creek Culvert Plan/Profile and miscellaneous detail sheets
- b) Update Phase 1 sheets
 - i) Merge plans from the two separate design packages created in Phase 1 into one comprehensive Phase 2 plan set.
 - ii) Update station/offset callouts in roadway plans, Little Creek bridge plans, and Big Creek bridge plans as a result of modified horizontal and vertical alignment changes.

13.4 Construction Cost Estimate

Prepare a preliminary Engineer's Opinion of Probable Cost (Cost Estimate) based on the preliminary design elements discussed above.

13.5 Preliminary Design Summary Report

Prepare Preliminary Design Summary Report to document design decisions and assumptions from the preliminary design task. Submit to AGENCY.

13.6 Preliminary Special Provisions

Prepare preliminary special provisions to append WSDOT standard specifications and AGENCY-provided general special provisions.

75% Submittal Deliverables:

1. Prelevel quantity takeoff and cross sections for 'engineered' profile along Phase 1 roadway centerline;
2. Staking Points Typical Section Exhibit (PDF);
3. Suggested Utility Relocation Plan Exhibit (PDF, 11x17 hard copy);
 - a. Plan view includes limits of proposed back of ditch, existing right of way lines, and suggested areas for pole relocation that will not require right of way acquisition;
4. KRD Ditch Relocation Plan Exhibit (PDF, 11x17 hard copy)
 - a. Plan view includes beginning and end of ditch station/offsets, ditch flow line elevations, and equipment to be relocated;
5. Roadway and Bridge Design Plans (3 - 11"x17" hard copies, PDF file)

1. Title sheet
2. Abbreviations, Index and Legend
3. Summary of Quantities
4. Roadway Typical Sections
5. Roadway Alignment Plan (200-scale) – 5 sheets
6. Site Preparation and TESC Plan (40-scale) – 26 sheets
7. Roadway Plan/Profile sheets (40-scale) – 52 sheets
a. Plan view includes proposed horizontal centerline alignment and curve data, paving limits, culverts, ditch flow line, guardrail, mailboxes, driveway approaches, wetland areas, utility relocations, and retaining walls;
b. Profile view includes existing and proposed centerline, superelevation diagram, quantities (HMA, Roadway Excavation, Embankment Compaction, Gravel Borrow, Structure Excavation);
8. Roadway Details – 3 sheets

9. Mailbox Relocation Schedule – 1 sheet
10. Culvert Extension & Replacement Schedule – 2 sheets
11. Driveway Approach Schedule & Details – 2 sheets
12. Drainage Details – 3 sheets
13. Striping and Signing Plan (40-scale) – 26 sheets
14. Striping and Signing Details/Schedule – 2 sheets
15. Detour Plan (100-scale) – 4 sheets
16. Detour Plan Details – 1 sheet
17. Wall Plan/Profile/Details (Extra Work if required)
18. Bridge Layout – Little Creek Bridge (LCB)
19. Foundation Plan - LCB
20. Abutment Details- LCB
21. Wingwall Details - LCB
22. Bearing Details - LCB
23. Framing Plan - LCB
24. Girder Details - LCB
25. Topping Concrete Reinforcement - LCB
26. Traffic Barrier Plan/Details - LCB
27. Approach Slab Plan/Details - LCB
28. Barlist - LCB
29. Bridge Layout – Big Creek Bridge (BCB)
30. Foundation Plan - BCB
31. Abutment Details- BCB
32. Wingwall Details - BCB
33. Bearing Details - BCB
34. Framing Plan - BCB
35. Girder Details - BCB
36. Topping Concrete Reinforcement - BCB
37. Traffic Barrier Plan/Details - BCB
38. Approach Slab Plan/Details - BCB
39. Barlist - BCB
40. Culvert Plan – No-Name Creek
41. Culvert Profile - No-Name Creek
42. Culvert Details - No-Name Creek
43. AGENCY PROVIDED Utility Relocation Plan (Reference Only)

6. Preliminary Storm Drainage Report (1 double sided hard copy; PDF file);
7. Preliminary Cost Estimate (1 double sided hard copy; MS Excel; PDF file);
8. Preliminary Design Summary Report (1 double sided hard copy; PDF file);
9. Preliminary Special Provisions (1 double sided hard copy; MS Word; PDF file);
10. Updated Hydraulic Analysis for Little Creek;

TASK 14 Phase 2 Roadway and Bridge Design - 90% PS&E

This task involves incorporating AGENCY comments from the 75% design submittal as well as developing the plans to a greater level of detail. One round of revisions will be made to each of

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the following tasks and then submitted to the AGENCY for review and comment. The AGENCY will compile all internal review comments and provide CONSULTANT with one comprehensive set of comments. The CONSULTANT will perform the following work tasks as identified below:

14.1 90% Roadway Design

a) Horizontal Design

Update construction centerline alignment, paving limits, guardrail limits, drainage ditches, culvert extensions, and mailbox relocations.

b) Vertical Design

- i) Incorporate applicable AGENCY review comments. Revise cut and fill limits in project plans.
- ii) Update roadway approaches and driveway profiles in table format.

c) Channelization

- i) Update Detour Plan.
- ii) Update signing and striping plans.

d) Roadway Sections

- i) Update Civil-3D roadway template and run earthwork calculations to determine cut and fill quantities.
- ii) Update typical roadway sections.

e) Drainage Design

- i) Update drainage ditch flowlines and existing culvert extensions.
- ii) Update stormwater treatment facilities layout and details.
- iii) Provide final coordination with KRD for their relocation of KRD culverts (to be shown as 'work by others' in project plans).

f) Details

- i) Prepare non-standard AGENCY details for plan sheets.

14.2 90% Structural Design

a) Little Creek Bridge Design

- i) Update bridge and retaining wall design based on 75% Submittal AGENCY comments and any permit approval conditions provided by regulatory authorities.

b) No-name Creek Culvert Design

- i) Update culvert design based on 75% Submittal AGENCY comments and any permit approval conditions provided by regulatory authorities.

14.3 90% Submittal Plan Preparation

This work consists of updating the 75% plan set sheets to incorporate 90% design changes and providing additional level of detail to the plan sheets.

14.4 90% Cost Estimate

Update the cost estimate based on the 90% design elements and submit to AGENCY. The cost estimate will be organized by unit bid items following the WSDOT standard specification sections. Unit bid prices will be compiled from recent bid tabs obtained by CONSULTANT and AGENCY.

14.5 90% Special Provisions

Update roadway and structural special provisions based on 90% design elements.

90% Submittal Deliverables:

1. 90% Plans (1 - 22"x34" hard copy; 2 – 11"x17" hard copies; PDF file)
2. 90% Cost Estimate (Excel file; PDF file)
3. 90% Special Provisions (Word file; PDF file)

TASK 15 Final PS&E – Phase 2

This task involves incorporating minor AGENCY 90% review comments in one round of updates and submitting to AGENCY for approval. The CONSULTANT will perform the following work tasks as identified below:

15.1 Final Plans

Incorporate AGENCY's 90% review comments into final design:

- a) Roadway Design
- b) Bridge and Culvert Design

15.2 Final Storm Drainage Report

Prepare final report based on AGENCY's 90% review comments and any permit conditions received from regulatory authorities.

15.3 Final Hydraulic Analysis Report

Prepare final report based on AGENCY's 90% review comments and any permit conditions received from regulatory authorities.

15.4 Final Design Summary

Prepare final summary based on changes to the design during the 90% and Final design stages.

15.5 Final Special Provisions

Prepare final special provisions and Bid Proposal. AGENCY will prepare the contract bid package and insert the CONSULTANT-prepared Special Provisions and Bid Proposal sheet.

15.6 Final Cost Estimate

- a) Prepare final cost estimate
- b) Evaluate final quantities and include in Summary of Quantities sheet in final plan set.

Deliverables:

1. Final Plans (1 - 22"x34" mylar, PDF and AutoCAD files)
2. Final Storm Drainage Report (3 hard copies)
3. Final Hydraulic Analysis Report (1 hard copy and PDF)
4. Final Design Summary (1 hard copy)
5. Final Cost Estimate (MS Excel file and 1 copy)
6. Final Special Provisions (MS Word file and 1 copy)
7. Project CD

TASK 16 Bid/Award Phase Assistance

This task involves assisting the AGENCY during the bidding and award phase. The CONSULTANT will perform the following work tasks as identified below:

- 16.1 Prepare contract documents addenda (assume two addenda with 6 hours of staff time per addenda).
- 16.2 Attend one pre-bid meeting.

Deliverables:

- 1. Bid package Addendum (PDF file)

TASK 17 Construction Support Services

- 17.1 Construction Phase Coordination
 - a) Attend pre-construction meeting.
 - b) Perform two onsite project observation visits.
 - c) Coordinate with Contractor and AGENCY for resolution of project design issues (assumes 32 hours of staff time).
- 17.2 Submittal and Shop Drawing Review
 - a) Perform submittal reviews relating to roadway and drainage, items identified in the contract special provisions and as required in the WSDOT Standard Specifications and Construction Manual.
 - b) Perform shop drawing reviews relating to culvert, retaining walls, and bridge items.
 - c) Review the Contractor's Fish Salvage plan.
- 17.3 Respond to RFI's
 - a) Respond to Contractor's requests for information (RFI's). This task assumes 24 hours of staff time.
- 17.4 Record Drawings
 - a) Prepare an electronic set of record drawings upon completion of the construction work, using available information supplied by the Contractor(s), on-site representative personnel, suppliers, and other sources. Contractor shall provide as-built information detailing final location of installed items and including underground items.

TASK 18 Management Reserve Fund/Extra Work

A Management Reserve Fund (MRF) will be created to account for any unanticipated needs outside of the above listed scope of services and will be used for tasks considered to be 'Extra Work'. This fund can only be utilized with advance written authorization by the AGENCY. Following is a summary of tasks that may arise during the project that will need to be added to the contract scope of services:

- 18.1 'Engineered' Roadway Profile Design
 - a) See Task 13.1(c) iii for task description.
- 18.2 Modification to HPAs for Phase 2 design changes (beyond HPA work for Little Creek bridge and No Name Creek culvert):
 - a) MRF will be used to fund Task 12.1(e) ii if authorized by the AGENCY.
- 18.3 Environmental Contingency Reserve:
 - a) A contingency reserve is being set-up to provide a funding source for unforeseen tasks or additional environmental requests from the AGENCY. These funds are for biological

or permitting support not addressed in this scope of services. Use of these funds requires written authorization by the AGENCY prior to initiating this task.

18.4 Retaining Wall Layout;

GENERAL ASSUMPTIONS

This Scope of Services is based on the following assumptions:

1. The budget for the Scope of Services is based on a project schedule of 8 months.
2. Project construction and all associated work must be completed by April 2013 in order to qualify for funding reimbursement from CRAB.
3. The level of effort for a given work task is limited to the amount of labor and expenses indicated in Exhibit C. Out-of-scope services beyond these limits will be provided as Extra Work. The CONSULTANT reserves the opportunity to shift budget between work tasks and between labor and expenses.
4. AGENCY shall provide a proposed roadway construction centerline with stationing for Nelson Siding Road.

DOCUMENTS TO BE FURNISHED BY CONSULTANT

The documents, exhibits, or other presentations as described as Deliverables under SCOPE OF SERVICES ("Documents") will be furnished by CONSULTANT to AGENCY upon completion of the various tasks. Whether the Documents are submitted in electronic media or in tangible format, any use of the Documents on another project or on extensions of this project beyond the use for which they were intended, or any modification of the Documents, or conversion of the Documents to an alternate system or format will be without liability or legal exposure to CONSULTANT. AGENCY will assume all risks associated with such use, modifications, or conversions. CONSULTANT may remove from the electronic Documents delivered to AGENCY all references to CONSULTANT's involvement and will retain a tangible copy of the Documents delivered to AGENCY which will govern the interpretation of the Documents and the information recorded. Electronic files are considered working files only—CONSULTANT is not required to maintain electronic files beyond 90 days after project final billing, and makes no warranty as to the viability of electronic files beyond 90 days from date of transmittal.

ITEMS AND SERVICES TO BE FURNISHED BY AGENCY

AGENCY will provide the following items and services to CONSULTANT. CONSULTANT is entitled to rely on the accuracy and completeness of the items and services furnished by the AGENCY.

1. Existing conditions digital terrain model (DTM) based on topographic survey.
2. AGENCY standard details in AutoCAD format.
3. Proposed utility locations in AutoCAD format.
4. Existing right of way map in electronic format (AutoCAD).
5. Existing Conditions base map in electronic format (AutoCAD).
6. Rights-of-entry upon all lands necessary for the performance of the work described in the Scope of Services.

TIME FOR PERFORMANCE

Work described above will be performed such that the final bid advertisement documents will be submitted in January, 2012, for construction bid advertisement. Following is an estimated delivery schedule for the PROJECT deliverables:

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➤ Supplement #3 Notice To Proceed from AGENCY	July 11, 2011
➤ Preliminary Roadway Vertical Alignment Strip Map & Pre-leveling Quantities	July 29, 2011
➤ 75% Roadway & Bridge PS&E	Sept. 30, 2011
➤ 90% Roadway & Bridge PS&E	Nov. 10, 2011
➤ Final Roadway & Bridge PS&E	Jan. 20, 2012
➤ Project Advertisement	Feb. 13, 2012

A final schedule will be prepared by the CONSULTANT with input from the AGENCY after receiving notice to proceed for Supplement #3.

Prepared: June 28, 2011
Kittitas County
Nelson Sliding Road - Phase 2 (Supplement #3)
EXHIBIT E-1
Consultant Fee Determination Summary Sheet
(Cost Plus Fixed Fee)

David Evans and Associates, Inc. Design Labor:				
Classification		Hrs.	x	Hourly Rate
				Staff Type Direct Cost
Principal In Charge	(PICH)	16.0		\$80.00
Project Manager	(PMGR)	184.0		\$59.00
Sr. Prof. Engineer	(SPEN)	28.0		\$60.00
Professional Engineer	(PFEN)	667.0		\$50.00
Sr. Design Engineer	(SDEN)	247.0		\$36.00
Design Engineer	(DEEN)	16.0		\$31.00
Sr. Cadd Technician	(SCAD)	533.0		\$35.00
CADD Technician	(CADD)	661.0		\$23.50
Water Resources Engr	(WREN)	36.0		\$43.00
Sr. Scientist	(SSCI)	501.0		\$38.00
Structural Manager	(SMGR)	132.0		\$63.00
Sr. Bridge Engineer	(SBEN)	325.0		\$40.00
Environmental Planner	(ENVP)	16.0		\$33.00
Administrative Assistant	(ADMA)	42.0		\$24.00
Executive Administrator	(EXAD)	22.5		\$25.00
Sr. Constr. Engr	(SCEN)	101.0		\$39.00
DEA Labor Total:		3,527.5		
Overhead Rate:		178.76%		
Fee:		30.00%		
Subtotal DSC + OH + Fee				
DEA Expenses:				
				Direct Cost:
a) Mylars (external printing)	160 sheets @	\$15.00	Sheet	\$2,400.00
b) deliveries/mail				\$200.00
c) mileage	1000 Miles @	\$0.555	/Mile	\$555.00
Subtotal				\$3,155.00
Markup @		5.00%		\$157.75
DEA Expenses Total:				\$3,312.75
DEA Design Labor & Expenses Total:				\$431,507.29

Management Reserve Fund (see Task 18)	\$0.00
Consultant Contract Total:	
	\$431,507.29