



Date: August 11, 2015
To: Fred Tharp
HQ Construction, MS: 47354
Thru: Steve Roark
From: Neal Uhlmeyer
(360) 412-3420

Subject: C-8670, I-5 Portland Avenue to Port of Tacoma Road – Northbound HOV
Change Order #36 “VECP – Earthwork Complete”
Change Order #43 “VECP – CO 36 Supplement”

Requested Action:

Review Review and Region Execution Review and HQ Execution

Approval to make the change to the contract (Date): July 27, 2015

Verbal Approval to proceed with the work (Date): N/A

Description

This Value Engineering Concept Proposal (VECP) revises the work shown in the Contract Plans by deleting specific excavation, borrow, and soil testing bid items and replacing those bid items with an unclassified, lump sum item to complete the project earthwork to the lines, grades, and quality requirements specified in the Contract. The new lump sum item includes all embankments; borrow material, and all excavated material generated from the project,

Due to limitations in the Construction Contracts Information System (CCIS) this change order is supplemented by Change Order 43 which completes the accounting for the change. Change order 43 is included in this memo package.

Evolution

As earthwork was progressing in spring 2015, the parties were managing a Section 1-04.5 protest, submitted on April 6, 2015, related to the handling and disposal of excavated materials. The dispute centered around which excavated materials were covered by Addendum 3, items 7 and 10, and where those material could be taken for disposal. Ultimately the contractor proposed a VECP that resolved the protest.

The VECP relieves the Contractor from the requirement to dispose of all excavation material off-site, with certain exceptions, and instead allows embankment of excavated material on-site. The requirement to tests and dispose of MTCA level material at a RCRA Title D facility remains. The agreement to allow on-site embankment of material

is conditioned such that the contractor assumes the risk for placement and the risk for variations in quantities to complete the earthwork for the entire project. Essentially, the provisions of the change order convert the project's earthwork to a lump sum, in-place arrangement, with the contractor taking the risk to manage the quantities and placement.

Fred Tharp, Asst. State Construction Engineer, approved the change on July 27, 2015 (attachment A). Steve Roark, Region Construction Engineer, and Neal Uhlmeier, Project Engineer, approved the change on July 27, 2015 (attachment B).

Entitlement

Under the terms of this VECP, the scope of the earthwork will be completed in a manner that is equal to the contract's original functional requirements. Accordingly, the contractor is entitled to the lump sum compensation negotiated under the terms of Section 1-04.4, and the department is entitled to the offsetting value of the deleted work.

Price

The Independent Engineer's Estimate itemizes the value of deleted and added work included in this no-cost VECP change order (attachment C).

The terms of the change order allow the contractor to reuse the excavated material on-site, provided it is suitable and below MTCA levels, to the extent their contemplated staging and sequencing allows. These provisions of the change order incentivize the contractor to embank the on-site material and in doing so realize a significant savings in the amount of borrow material needed to build the project. The estimated reduction of borrow material, taking into consideration the staging inefficiencies to stockpile on-site (re-handle) and the risk for contaminated (MTCA) soils, is estimated at \$1.3 million. The provisions of the change order also transfer the weather risk for placement. The placement risk, particularly in the rainy season and during placement of wet spoils, will require timely bulking to meet schedule and compaction requirements. The costs for bulking are expected to be at least \$400,000. Finally, the risk for Section 1-04.6 quantity variations is assumed by the contractor. The staging, weather, level of contaminants encountered, and suitability of the on-site material have a direct relationship to the amount of offsite disposal and the amount of borrow material needed to complete the project. A conservative estimate for quantity variations using 10% of the original plan quantities equates to a quantity variation risk carried by the contractor of \$900,000. Therefore, there is not net cost saving for this VECP, however there is considerable risk transfer for completing the work.

Due to limitations in the Construction Contracts Information System (CCIS) this change order is supplemented by Change Order 43

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C-8670
Change Order No. 036
Change Order No. 043

Contract Time

Contract time is not affected by this change as the Work does not impact the critical path of the Contractor's progress schedule.

dj

Attachments:

Checklist

Change Order 036

Change Order 043

A: HQ Approval

B: Region & PE Approval

C: Engineer's estimate

cc: 203.036, 203.043

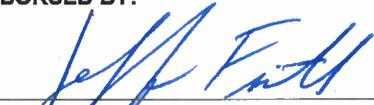
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION CHANGE ORDER

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CONTRACT NO: 008670 FEDERAL AID NO:
 CONTRACT TITLE: I-5, PORTLAND AVENUE TO PORT OF TACOMA ROAD - NORT
 CHANGE ORDER NO: 36 VECP - EARTHWORK COMPLETE

PRIME CONTRACTOR: SW0017141 HAMILTON CONSTRUCTION CO.
PO BOX 659
SPRINGFIELD OR 97477-0121

- () Ordered by Engineer under the terms of Section 1-04.4 of the Standard Specifications
 (x) Change proposed by Contractor

ENDORSED BY:  <hr/> CONTRACTOR 8-3-15 <hr/> DATE	SURETY CONSENT: <hr/> ATTORNEY IN FACT <hr/> DATE
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ORIGINAL CONTRACT AMOUNT: 134,709,929.50
 CURRENT CONTRACT AMOUNT: 135,813,429.43
 ESTIMATED NET CHANGE THIS ORDER: -11,271,697.75
 ESTIMATED CONTRACT TOTAL AFTER CHANGE: 124,541,731.68

Approval Required: () Region () Olympia Service Center () Local Agency

<input checked="" type="checkbox"/> APPROVAL RECOMMENDED  PROJECT ENGINEER 8/13/15 <hr/> DATE	<input type="checkbox"/> EXECUTED 8/13/15 <hr/> DATE	EXECUTED  STATE CONSTRUCTION ENGINEER 8/19/15 <hr/> DATE
<input checked="" type="checkbox"/> APPROVAL RECOMMENDED REGIONAL ADMIN:  BY:  DATE: 8/18/2015	OTHER APPROVAL WHEN REQUIRED <hr/> SIGNATURE DATE <hr/> REPRESENTING	

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All work, materials, and measurements to be in accordance with the provisions of the Standard Specifications and Special Provisions for the type of construction involved.

This contract is revised as follows:

DESCRIPTION:

This Contractor Value Engineering Concept Proposal (VECP) revises the Work shown in the Contract Plans by deleting specific excavation, borrow, and soil testing bid items and replacing those bid items with an unclassified, lump sum item to complete the project earthwork to the lines, grades, and quality requirements specified in the Contract. Project Earthwork is defined as all embankments, borrow material, and all excavated material, including all spoils generated by the Work, regardless of the nature or type of materials encountered. Project Earthwork also includes material and spoils generated from all other bid items not included in this VECP.

The parties agree that this change order shall be supplemented by change order 43, VECP CO-36 Supplement, for the sole purpose of adding accounting for the new lump sum item, CO-036, VECP Project Earthwork Complete, to the Contract.

MATERIALS:

All materials shall be in accordance with the contract specifications.

CONSTRUCTION REQUIREMENTS:

Project Earthwork shall conform to the following:

Unless otherwise specified, all Work shall be constructed in accordance with the Contract Plans and Provisions.

The Contractor may elect to use excavated material and spoils generated from the Work for embankment construction and as backfill material to supplant Select Borrow Incl. Haul (Bid Item #43) only, provided the material is suitable meaning it is free of deleterious and organic material. The Contractor may elect to use compaction aides, such as cement-treating, provided the treated material can be tested in accordance with WSDOT Test Procedure T310 and SOP 615.

All excess and unsuitable material shall be disposed of outside the project limits in accordance with Section 2-03.3(7)C. The Contractor shall be responsible for all testing and characterization to dispose of such material outside the project limits. All material characterized at or above MTCA levels shall be disposed of at a RCRA Title D facility.

The Contractor shall be responsible for constructing and maintaining all access necessary to construct and inspect the Work included in this change order.

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All costs for water pollution/ erosion control measures for handling and stockpiling excavated materials for use on the project are the responsibility of the Contractor.

The Work associated with this change shall be completed in accordance with the existing Work Zone Traffic Control (WZTC) Plans and Specifications, unless otherwise approved by the Project Engineer.

The Contractor shall provide the Project Engineer with a lump sum breakdown for the item "CO-036, VECP Project Earthwork Complete" in accordance with Section 1-09.9, within five working days from the execution date of this change order.

The following contract modifications are made part of this VECP:

The first two paragraphs of Addendum number 3, item No. 7 are deleted.
The first two paragraphs of Addendum number 3, item No. 10 are deleted.
Special Provisions, Page 173, Lines 13 through 15 are deleted.
Special Provisions, Page 535, Lines 13 through 17 are deleted.
Special Provisions, Page 544, Lines 15 through 17 are deleted.

MEASUREMENT:

No specific unit of measurement shall apply to the new lump sum item "CO-036, VECP Project Earthwork Complete".

PAYMENT:

Payment will be made in accordance with Section 1-04.1 for the following new item:

"CO-036, VECP Project Earthwork Complete", lump sum. This lump sum item shall be full compensation for completing all Work associated with this change order.

This change order deletes several Contract Bid Items. These deletions are shown on pages 5 and 6 of this change order.

CONTRACT TIME:

Contract time will not be adjusted for the Work in this change order.

DISCLAIMERS:

Upon endorsement of this change order, the Contractor agrees to the following:

The Contractor assumes any and all risk for the variations in quantities for the new lump sum item, "CO-036, VECP Project Earthwork Complete".

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The Contractor reserves the right to negotiate variations in quantities for bid items not included in this VECP with the exception of the excavated material generated from the bid items not included in this VECP. The Contractor assumes the risk for testing and disposing of the excavated material generated from all other bid items not included in this VECP, and for any variation in quantities associated with those excavated materials. (For example, the bid item 450 - Stone Column Ground Improvement, remains eligible under Section 1-04.6, however any increased costs related to the handling, testing and disposal of excavated materials generated from the bid item Work will not be considered under Section 1-04.6.)

The Contractor accepts all constructability and delay risks associated with this VECP.

The Contractor waives all rights to impacts resulting from the development, execution and construction of this change order on other project Work.

The Contractor accepts the risk for the construction of all temporary features associated with this change order.

The Contracting Agency reserves the right to use all or part of this proposal on future projects without further obligation or compensation.

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ITEM NO	GROUP NO	STD ITEM	ITEM DESCRIPTION	UNIT MEASURE	UNIT PRICE	EST QTY CHANGE	EST AMT CHANGE
0037	01	0310	ROADWAY EXCAVATION INCL. HAUL	C.Y.	47.30	-34,500.00	-1,631,850.00
0037	02	0310	ROADWAY EXCAVATION INCL. HAUL	C.Y.	47.30	-8,400.00	-397,320.00
0037	03	0310	ROADWAY EXCAVATION INCL. HAUL	C.Y.	47.30	-11,330.00	-535,909.00
0037	07	0310	ROADWAY EXCAVATION INCL. HAUL	C.Y.	47.30	-3,360.00	-158,928.00
0037	11	0310	ROADWAY EXCAVATION INCL. HAUL	C.Y.	47.30	-970.00	-45,881.00
0038	02	0330	ROADWAY EXCAVATION INCL. HAUL - AREA SURC	C.Y.	7.45	-43,230.00	-322,063.50
0039	01	0330	ROADWAY EXCAVATION INCL. HAUL - AREA LEVE	C.Y.	49.00	-770.00	-37,730.00
0039	02	0330	ROADWAY EXCAVATION INCL. HAUL - AREA LEVE	C.Y.	49.00	-450.00	-22,050.00
0039	09	0330	ROADWAY EXCAVATION INCL. HAUL - AREA LEVE	C.Y.	49.00	-1,170.00	-57,330.00
0039	10	0330	ROADWAY EXCAVATION INCL. HAUL - AREA LEVE	C.Y.	49.00	-690.00	-33,810.00
0040	03	0330	ROADWAY EXCAVATION INCL. HAUL - AREA CSTW	C.Y.	48.00	-11,470.00	-550,560.00
0043	01	0408	SELECT BORROW INCL. HAUL	TON	9.25	-46,660.00	-431,605.00
0043	02	0408	SELECT BORROW INCL. HAUL	TON	9.25	-420,079.00	-3,885,730.75
0043	03	0408	SELECT BORROW INCL. HAUL	TON	9.25	-5,830.00	-53,927.50
0043	09	0408	SELECT BORROW INCL. HAUL	TON	9.25	-120.00	-1,110.00
0049	01	1030	DITCH EXCAVATION INCL. HAUL	C.Y.	57.50	-30.00	-1,725.00
0049	03	1030	DITCH EXCAVATION INCL. HAUL	C.Y.	57.50	-1,930.00	-110,975.00
0121	01	4006	STRUCTURE EXCAVATION CLASS A INCL. HAUL	C.Y.	56.00	-10,364.00	-580,384.00
0121	02	4006	STRUCTURE EXCAVATION CLASS A INCL. HAUL	C.Y.	56.00	-5,289.00	-296,184.00
0121	03	4006	STRUCTURE EXCAVATION CLASS A INCL. HAUL	C.Y.	56.00	-901.00	-50,456.00
0121	09	4006	STRUCTURE EXCAVATION CLASS A INCL. HAUL	C.Y.	56.00	-420.00	-23,520.00
0125	01	4013	SHORING OR EXTRA EXCAVATION CL. A RETAINI	L.S.	475,000.00	0.00	-73,050.73
0125	02	4013	SHORING OR EXTRA EXCAVATION CL. A RETAINI	L.S.	475,000.00	0.00	-401,949.27
0337	01	7006	STRUCTURE EXCAVATION CLASS B INCL. HAUL	C.Y.	43.25	-9,570.00	-413,902.50
0337	02	7006	STRUCTURE EXCAVATION CLASS B INCL. HAUL	C.Y.	43.25	-9,620.00	-416,065.00
0337	03	7006	STRUCTURE EXCAVATION CLASS B INCL. HAUL	C.Y.	43.25	-4,054.00	-175,335.50
0337	09	7006	STRUCTURE EXCAVATION CLASS B INCL. HAUL	C.Y.	43.25	-480.00	-20,760.00
0463	03		MTCA MATERIAL EXCAVATION INCL. HAUL	C.Y.	53.20	-6,980.00	-371,336.00
0464	01		SOIL TESTING AND CHARACTERIZATION - ROADW	L.S.	135,250.00	0.00	-55,965.96
0464	02		SOIL TESTING AND CHARACTERIZATION - ROADW	L.S.	135,250.00	0.00	-32,646.81
0464	03		SOIL TESTING AND CHARACTERIZATION - ROADW	L.S.	135,250.00	0.00	-23,319.15
0464	07		SOIL TESTING AND CHARACTERIZATION - ROADW	L.S.	135,250.00	0.00	-4,662.76
0464	09		SOIL TESTING AND CHARACTERIZATION - ROADW	L.S.	135,250.00	0.00	-9,327.66
0464	10		SOIL TESTING AND CHARACTERIZATION - ROADW	L.S.	135,250.00	0.00	-4,663.83
0464	11		SOIL TESTING AND CHARACTERIZATION - ROADW	L.S.	135,250.00	0.00	-4,663.83
0465	01		SOIL TESTING AND CHARACTERIZATION - STRUC	L.S.	35,000.00	0.00	-20,762.70
0465	02		SOIL TESTING AND CHARACTERIZATION - STRUC	L.S.	35,000.00	0.00	-5,338.98
0465	03		SOIL TESTING AND CHARACTERIZATION - STRUC	L.S.	35,000.00	0.00	-2,372.88
0465	04		SOIL TESTING AND CHARACTERIZATION - STRUC	L.S.	35,000.00	0.00	-593.22
0465	05		SOIL TESTING AND CHARACTERIZATION - STRUC	L.S.	35,000.00	0.00	-593.22
0465	06		SOIL TESTING AND CHARACTERIZATION - STRUC	L.S.	35,000.00	0.00	-593.22
0465	07		SOIL TESTING AND CHARACTERIZATION - STRUC	L.S.	35,000.00	0.00	-593.24
0465	09		SOIL TESTING AND CHARACTERIZATION - STRUC	L.S.	35,000.00	0.00	-2,372.88
0465	10		SOIL TESTING AND CHARACTERIZATION - STRUC	L.S.	35,000.00	0.00	-593.22
0465	11		SOIL TESTING AND CHARACTERIZATION - STRUC	L.S.	35,000.00	0.00	-1,186.44

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ITEM NO	GROUP NO	STD ITEM	ITEM DESCRIPTION	UNIT MEASURE	UNIT PRICE	EST QTY CHANGE	EST AMT CHANGE
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-11,271,697.75



CHANGE

APPROVAL

A change order is being proposed that, according to the Construction Manual change order checklist, requires approval by the State Construction Office.

DATE: 7/27/2015 CONTRACT: C-8670

REQUESTED BY: Steve

Why is HQ Approval Needed?: (number from Checklist) 1.

Approval is granted for a Contractor proposed Value Engineering Change Proposal to convert unit bid items into a single 'earthwork' - lump Sum' bid item.

Discussion/Remarks:

Approved by: Fred Tharp

FHWA Approval by: N/A

NOTE: Change greater than \$200,000 on Federal Stewardship requires FHWA approval.

For checklist items 5 through 15 this approval does not constitute authority to proceed with the work. That authority must be obtained from the person who will execute the change order.

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TO	Steve	FROM	Fred Tharp
OF			State Construction Office
COPY		PHONE	(360) 705-7816

Executed by the State Construction Office

1. A cost or credit equal to or exceeding \$200,000.
2. A change in the contract documents beyond the scope, intent, or termini of the original contract.
3. Revision or deletion of work that affects the condition of award requirements.
4. A change in contract time greater than 30 working days or a change in contract time unrelated to a change order.

Approved by State Construction Office; Executed by Region

7. A determination of impacts and/or overhead.
8. HQ generated specification.
10. Material or product substitution.
11. A structural design change in the roadway section (approval by HQ Materials Lab).
12. A determination of changed condition under Section 1-04.7.
13. Settlement of a claim submitted under Section 1-09.11(2).
14. Repair of damage qualifying under Section 1-07.13 of the Standard Specs regarding "acts of God" or "acts of the public enemy or of government authorities."
15. Structural change to a structure.

Jones, Daniel

From: Uhlmeyer, Neal
Sent: Monday, July 27, 2015 12:52 PM
To: Steingrebe, Mark
Cc: Jones, Daniel
Subject: FW: C8670 - VECP Earthwork
Attachments: 8670 VECP Earthwork freds.pdf

Mark,

This change has my approval. Please note the note below requiring HQ execution.

Neal Uhlmeyer, PE
Project Engineer
WSDOT Lacey Project Office
(360) 412-3421

From: Roark, Steve
Sent: Monday, July 27, 2015 12:51 PM
To: Uhlmeyer, Neal
Subject: FW: C8670 - VECP Earthwork

Neal,

You have approval and we are coding this as a #1, meaning it requires HQ execution given the absolute value. Please have the entire package ready as we discussed.

Steve

From: Tharp, Fred
Sent: Monday, July 27, 2015 11:49 AM
To: Roark, Steve
Subject: RE: C8670 - VECP Earthwork

Approval attached.

From: Roark, Steve
Sent: Monday, July 27, 2015 11:16 AM
To: Tharp, Fred
Subject: FW: C8670 - VECP Earthwork

Fred,

Neal is getting ready to send the VECP to Hamilton for signature. We need formal Concept Approval for the file and Change Approval for the contract modifications, notably the language dealing with variation in quantities.

Otherwise, unless you see a different nexus, this VECP would be executed by the PE with HQ and Region approval.

Steve

From: Roark, Steve
Sent: Tuesday, July 21, 2015 7:35 AM
To: Tharp, Fred (TharpF@wsdot.wa.gov); Uhlmeyer, Neal
Subject: C8670 - VECP Earthwork

Fred,

Here is the language, with edits, from our meeting on Friday with Hamilton and KLB for your review. We are preparing the CO based on this language. Hamilton agrees that suspicious material - petroleum odor, etc. - would require testing to confirm disposal requirement, otherwise material can and should be embanked on-site. Hamilton also acknowledged that they will to import spec material for those bid items not included in the VECP. An example would be BI 342, Gravel Backfill for Trench.

Once executed, we will back out payments to date and make an equivalent adjustment using the new lump sum VECP bid item.

Steve Roark
OR Construction
(360) 357-2607
Mobile: (360) 791-2071

Contract 8670 Change Order 36
VECP – Earthwork Complete
Project Engineer's Estimate

This is an independent engineer's estimate for Change Order No. 36 VECP Earthwork Complete. The Estimate itemizes the value of deleted work and added work included in the no-cost VECP change order.

ADDED WORK

Staging Inefficiencies: Re-handling and Stockpiling

Additional handling includes work to sort and stockpile material for later placement then to reload material for placement. Travel times to and from the north levee stockpile site were measured from various locations on the project and averaged. The average round trip to travel, unload and return is 30 minutes. A force account analysis shows that \$5.21 per CY is appropriate for additional handling. This rate was applied to the amount that is anticipated will be embanked onsite which is 114,120 CY. This yields a cost for additional handling of 114,120 CY x \$5.21 = \$594,565. This estimate for additional handling is considered conservative (lower than probable) as the contractor will incur additional costs to stage work and manage the entire quantity of excavation on the project.

Bulking Cost

Bulking Costs includes work that the Contractor will perform in order to embank wet material in both the wet and dry seasons. The process involves introducing Portland cement into the embanked material when necessary. A figure of 60% of selected materials that may require bulking was used for this estimate. This represents 37.5% of the overall quantity anticipated to be reused on site. Bulking percentages range from 2% to 6% of volume. This estimate uses the mid-range of 4% and yields a bulking material cost of \$249,580. Additional labor and equipment to complete the bulking process for the anticipated volume is \$166,529. Bulking Total = \$416,109.

Additional MTCA Haul and Disposal

Additional MTCA Haul and Disposal is an estimate for the testing, characterization, additional handling, additional haul and additional disposal costs for soils that may be encountered that are above MTCA Levels. This estimate compares costs to dispose at a Title D facility to costs to dispose standard pit. For this project the pits being utilized are Miles Sand and Gravel Lacey and LRI. The estimate assumes that approximately 0.70% of the total project excavation, 1360 CY, will be above MTCA levels requiring disposal at a Title D Facility.

Contract 8670 Change Order 36
VECP – Earthwork Complete
Project Engineer's Estimate

Miles Sand and Gravel – Estimated disposal fee for clean material at the Miles Reservation Road pit ranges from \$8 to \$16/ton based on moisture content. \$10/ton was selected based on the variation of the material that may be seen. With a 21% service markup and a 7% prime markup an estimated disposal fee of \$12.94/ton was determined ($\$10/\text{ton} \times 1.21 \times 1.07 = 12.94/\text{ton}$). Based on experience from the EBNV project and discussions on recent experience from the Fife Project Office, LRI disposal fees range from \$22 to \$30 per ton. The mid-range of \$26 per ton was selected due to variation of the material that may be seen. With a 21% service markup and a 7% prime markup an estimated disposal fee of \$33.66/ton was determined ($\$26/\text{ton} \times 1.21 \times 1.07 = 33.66/\text{ton}$).

The cost difference in haul between Miles Reservation Road pit and LRI added \$1.48 per ton (0.3 hours round trip = \$44.10 truck, trailer, teamster / 29.6 ton = \$1.48/ton). The additional cost for MTCA material \$25.81 Ton or \$50.33 / CY assuming wet material. Total Cost estimated for additional MTCA material is \$68,449 (1360 CY x \$50.33 - \$68,449). Additional testing for MTCA material that may have otherwise been embanked on site is estimated at \$29,866 (41 tests x \$732 / test = \$30,012). Total Additional MTCA Haul and Disposal = \$98,460.

Overrun / Underrun

Under the terms of the change order the Contractor is not eligible to renegotiate overruns and underruns for the affected items or for items that have quantity changes as a result of the change. The estimate uses 8% of the value of the excavation items that are affected by this change and deemed non-renegotiable, which equals \$875,795. Select borrow was not considered in this evaluation as there will be a guaranteed underrun.

Added Work

Staging Inefficiencies =	\$594,565
Bulking Total =	\$416,109
Additional MTCA =	\$98,460
Overrun / Underrun =	<u>\$875,795</u>

Added Work Total \$1,984,930

Contract 8670 Change Order 36
VECP – Earthwork Complete
Project Engineer's Estimate

DELETED WORK

Import of Select Borrow

The change order allows the Contractor to reuse excavated material onsite to the extent their contemplated staging and sequencing allows. This will reduce the amount of select borrow that is required to be imported. The Engineer's estimate for the amount of onsite material that will be reused is 114,163 CY and is based on a reasonable estimation of material suitability and availability. The estimates for each excavation material range from 50% to 85%. At the bid rate of \$9.25 / Ton the savings in Select Borrow is \$1,953,614 (114,120 CY x 1.85 Ton/CY x \$9.25/Ton = \$1,952,879).

Deleted Work Total = \$1,952,879

COST SUMMARY

Added Work \$1,984,930
Deleted Work \$1,952,879

Total \$32,051 Added Work

**C-8670 Change Order 36
VECP - Earthwork Complete**

Change Order Quantities and Estimate of Reuse Onsite

Change Order Excavation Quantities

BI	Item Name	Unit	Qty.	Unit Price	Bid Amount
37	Roadway Ex. Incl. Haul	CY	58,560	\$47.30	\$2,769,888.00
38	Roadway Ex. - Surcharge	CY	43,230	\$7.45	\$322,063.50
39	Roadway Ex. Levee Revetment	CY	3,080	\$49.00	\$150,920.00
40	Roadway Ex. CSTW	CY	11,470	\$48.00	\$550,560.00
43	Select Borrow	Tons	472,689	\$9.25	\$4,372,373.25
49	Ditch Ex.	CY	1,960	\$57.50	\$112,700.00
121	Structure Ex. Class A	CY	16,974	\$56.00	\$950,544.00
125	Shoring CI A Ret Wall	LS	475,000		\$475,000.00
337	Structure. Ex. Class B	CY	23,724	\$43.25	\$1,026,063.00
463	MTCA Material Ex.	CY	6,980	\$53.20	\$371,336.00
464	Soil Test & Character Rd. Ex.	LS	1		\$135,250.00
465	Soil Test & Character Structure Ex.	LS	1		\$35,000.00
Total as Bid:			165,978	\$45.21	\$11,271,697.75

Additional Excavation/ Spoils			Est. Reuse
Excavation Material Above (less BI 38 and BI 463):	115,768	CY	57,884
Est. Soil Cement Columns Spoils:	16,800	CY	13,440
Est. Stone Column/ Pre-Drill:	20,000	CY	17,000
Est. Jet Grouting Spoils:	20,000	CY	16,000
Soil Excavation for Shaft	14,530	CY	7,265
Prefabricated Vertical Drain Spoils:	395	CY	316
Illumination/Signal/ITS Spoils:	130	CY	65
Bid Item #125:	4,300	CY	2,150
Est. Job Total:	191,923	CY	114,120
Est. Reuse Total	114,120	CY	
Deleted Work Total	\$1,952,879		
(114120 CY x 1.85t/cy x \$9.25/t)			

Added Work Summary	
Bulking:	(\$416,109)
MCTA	(\$98,460)
Over/Under Risk @ 8% of Project Volume:	(\$875,795)
Staging inefficiencies: Re-handling & Stockpiling	(\$594,565)
Added Work Total	(\$1,984,930)

<p>CONTRACT # 8670 CHANGE ORDER # 36/43 ATTACHMENT # C PAGE 4 OF 10</p>

**C-8670 Change Order 36
VECP - Earthwork Complete**

Bulking

A figure of 60% of selected materials that may require bulking was used for this estimate. This represents 37.5% of the overall quantity anticipated to be reused on site. Bulking percentages range from 2% to 6% of volume. This estimate uses the mid-range of 4% cement.

BI	Item Name	Unit	Qty.	Bulk	60.00%		
37	Roadway Ex. Incl. Haul	CY	29,280	yes	17568		
39	Roadway Ex. Levee Revetment	CY	1,540	yes	924		
40	Roadway Ex. CSTW	CY	5,735	yes	3441		
49	Ditch Ex.	CY	980	yes	588		
121	Structure Ex. Class A	CY	8,487	no			
122	Soil Ex. For Shaft	CY	7,265	yes	4359		
337	Structure Ex. Class B	CY	11,862	no			
463	MTCA Material Ex.	CY	6,980	no			
	Soil Cement Columns	CY	13,440	no			
	Stone Column/ Pre-Drill	CY	17,000	yes	14450		
	Jet Grouting	CY	16,000	no			
	Prefabricated Vertical Drain	CY	316	yes	190		
	Illumination/Signal/ITS Spoils	CY	65	no			
	Bid Item #125	CY	2,150	yes	1290		
Total to be Bulked					42810	CY	
					2%	3%	
					4%	5%	
					6%		
	Cement Cost /100 CY Excavation		\$291	\$437	\$583	\$729	\$875
	Bulking Material Cost/		\$124,576	\$187,078	\$249,580	\$312,082	\$374,584
	Bulking Material Cost@ 4%						\$249,580
Additional Equipment		Equip Rate	Operator	Unit			
Cement Spreader (10 YD)		\$55	\$50	HR	\$105		
Sheeps Foot		\$139	\$50	HR	\$189		
Rotomill		\$45	\$50	HR	\$95		
					Total / HR	\$389	
Labor and Equipment Cost per Day of Bulking					\$3,890		
Production Bulking 1000 Yards a Day					42.8096		
Labor and Equipment Cost Bulking Total					\$166,529		
Project Bulking Total					\$416,109		

<p>CONTRACT # 8670 CHANGE ORDER # 36/43 ATTACHMENT # C PAGE 6 OF 10</p>

**C-8670 Change Order 36
VECP - Earthwork Complete**

MTCA

Basis of Estimate:

This Engineer's Estimate is for the testing, characterization, additional handling, disposal costs for soils that may be encountered that are above MTCA Levels. This estimate compares costs to dispose at a Title D facility to costs to dispose standard pit. For this project the pits being utilized are Miles Sand and Gravel Lacey and LRI. The estimate assumes that approximately 0.75% of the total project excavation, not including MTCA excavation identified in the Contract, will be above MTCA levels requiring disposal at a Title D Facility.

	Base	Handling	Added Haul	Per Ton	CY Cost
		Per ton	Per Ton	Cost	
Disposal Cost / Ton Miles S and G \$12.94	\$12.94			\$12.94	\$25.23
Disposal Cost / Ton LRI \$33.66	\$33.66	\$3.61	\$1.48	\$38.75	\$75.56
LRI - Miles Difference CY	CY \$75.56	CY \$25.23	Difference \$50.33	Est. CY 1360	\$68,448.12
Testing*	Est	Tests 41	Per Test \$732.00		\$30,012.00
MTCA Risk Total					\$98,460.12
*Testing Estimate is based on 3 tests/100 cu yards per DOE Publication No. 10-09-057 - September 2011. Price Quote obtained from WSDOT Hazmat Group.					

C-8670 Change Order 36
VECP - Earthwork Complete

Overrun/Underrun

Basis of Estimate:

This Engineer's Estimate is for the quantification of the contractors risk associated with the terms of this change order that excludes the renegotiation of over and underruns for the items directly related to the change or as a result of the change. The estimate is a composite price for 10% of the excavation items. Select borrow was not considered in this evaluation as there will be a guaranteed underrun.

BI	Item Name	Unit	Qty.	Unit Price
37	Roadway Ex. Incl. Haul	CY	58,560	\$47.30
38	Roadway Ex. - Surcharge	CY	43,230	\$7.45
39	Roadway Ex. Levee Revetment	CY	3,080	\$49.00
40	Roadway Ex. CSTW	CY	11,470	\$48.00
49	Ditch Ex.	CY	1,960	\$57.50
121	Structure Ex. Class A	CY	16,974	\$56.00
337	Structure Ex. Class B	CY	23,724	\$43.25
463	MTCA Material Ex.	CY	6,980	\$53.20
	Est. Soil Cement Columns Spoils:	CY	16,800	
	Est. Stone Column/ Pre-Drill:	CY	20,000	
	Est. Jet Grouting Spoils:	CY	20,000	
	Soil Ex. for Shaft	CY	14,530	
	Prefabricated Vertical Drain Spoils:	CY	395	
	Illumination/Signal/ITS Spoils:	CY	130	
	Bid Item #125:	CY	4,300	
	Average	CY	242,133	\$45.21
	Total		\$10,947,438	
	Less Over/Under Risk @ 8% of Project Volume:		\$875,795	

**CONTRACT # 8670 CHANGE ORDER # 36/43 ENGINEER'S ESTIMATE
DELETED ITEM / NEW ITEM COMPARISON**

Deleted Item No.	Item Description	Unit	Quantity	Unit Price	Bid Amount
37	Roadway Excavation Incl. Haul	CY	58560	\$47.30	\$2,769,888.00
38	Roadway Excavation Incl. Haul - Area Sur	CY	43230	\$7.45	\$322,063.50
39	Roadway Excavation Incl. Haul - Area Lev	CY	3080	\$49.00	\$150,920.00
40	Roadway Excavation Incl. Haul - Area CST	CY	11470	\$48.00	\$550,560.00
43	Select Borrow Incl. Haul	Ton	472689	\$9.25	\$4,372,373.25
49	Ditch Excavation Incl. Haul	CY	1960	\$57.50	\$112,700.00
121	Structure Excavation Class A Incl. Haul	CY	16974	\$56.00	\$950,544.00
125	Shoring or Extra Excavation Cl. A Retaining Walls	LS	1	\$475,000.00	\$475,000.00
337	Structure Excavation Class B Incl. Haul	CY	23724	\$43.25	\$1,026,063.00
463	MTCA Material Excavation Including Haul	CY	6980	\$53.20	\$371,336.00
464	Soil Testing and Characterization - Roadway Ex	LS	1	\$135,250.00	\$135,250.00
465	Soil Testing and Characterization - Structure Ex	LS	1	\$35,000.00	\$35,000.00
Total of deleted items listed in change order 36 =					(\$11,271,697.75)
New	CO-036, VECP Project Earthwork Complete	LS	1	\$11,271,697.75	\$11,271,697.75

CHANGE ORDER-CHECKLIST

Cont. #: <u>8670</u> Cont. Title: <u>I-5 Portland Avenue to Port of Tacoma Road - Northbound HOV</u> C.O. #: <u>036 & 043</u> C.O. Title: <u>I-5 Portland Avenue to Port of Tacoma Road - Northbound HOV</u>	If yes, State Construction Office Approval Required.	
I. Executed by the State Construction Office		
1. Cost or credit equal to or exceeding \$200,000.*1	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	X
2. Change in the contract documents beyond the scope, intent or termini of the original contract.*2	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	X
3. Any proposed revision or deletion of work that affects the condition of award requirements. (Must be coded "CO" in CCIS)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	X
4. Change in contract time greater than 30 working days, or a change in contract time not related to any change order.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	X
II. Executed by the Region		
5. Cost or credit greater than \$100,000 but less than \$200,000. *1	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
6. Change in contract time greater than 10 and less than or equal to 30 working days (must be related to changes implemented by change order).	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
III. Executed by the Project Engineer		
7. Determination of impacts and/or overhead.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	X
8. Specification change involving Headquarters generated specification. <i>(Includes Region generated specification requiring State Construction Office Approval)</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	X
9. Specification change involving Region generated specifications.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
10. Material or product substitution.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	X
11. Structural design change in the roadway section. <i>(Requires State Materials Lab approval)</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
12. Determination of changed condition. <i>(Section 1-04.7 of the Standard Specifications)</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	X
13. Settlement of a claim. <i>(Section 1-09.11(2) of the Standard Specifications)</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	X
14. Repair of damage regarding "acts of God" or "acts of the public enemy or of government authorities". <i>(Section 1-07.13 of the Standard Specification)</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	X
15. Structural change to structures. <i>(See BTA authority as shown in the Construction Manual)</i>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	X

Approvals obtained: Project Engineer (Required): Neal Uhlmeier Date: 7/27/2015
 Region (Required if yes marked): Steve Roark Date: 7/27/2015
 State Construction Office: Fred Tharp Date: 7/27/2015
 State Materials Lab: _____ Date: _____
 Other (Local Agency, FHWA, Surety, etc.): _____ Date: _____

To be completed by the Project Engineer :

CO Reason(s) (See "2008 Codes and Definitions" on HQ Construction SharePoint): AB.06 AP AF
 Change Order Prepared By: Mark Steingrebe Date: 7/27/2015
 Has change been entered as lesson learned? Yes No Has design documentation been updated? Yes No
 Is this project under full FHWA stewardship oversight? *1 Yes No

To be completed by the Region :

Is the change eligible for Federal participation where applicable? Yes No
 Change Order Reviewed by: May on the Date: 8/18/15

*1 Change (Cost or Credit) greater than \$200,000 or greater than 30 days on Full Federal Stewardship Oversight projects requires FHWA approval. (see Construction Manual - Chapter 1-2.4C(3), Chapter 1-3.4, and <http://www.wsdot.wa.gov/biz/construction/Stewardship/Stewardship.xls>)
 *2 Per RCW 47.28.050, any change beyond \$7,500 that is beyond the original scope shall go through the competitive bidding process.