

VALUE ENGINEERING CHANGE PROPOSAL MISSOURI DEPARTMENT OF TRANSPORTATION

Conceptual Proposal Final Proposal Date 04/22/2013

Contract ID 120629-C01 Job No. J4I1690

County Clay Route 35 Original Contract Amount 11,358,665.34

Contractor Phillips Grading and Const Inc. By Kevin Jones

Designed By John Smith, PE Phone 573-447-8070

VECP# 00113-24 (to be completed by C.O.) VECP or PDVECP

1. Description of existing requirements and proposed change(s). Advantages/Disadvantages

The change proposal is on the details to the proposed box connector and west box extension on culvert number L04802/K01061. We would like to tie to the existing exterior wings at each location and locate the transverse joints at the ends of the existing endsection. This would eliminate the need for the temporary shoring and still meet the requirements of the transverse joint locations according to MoDOT Standard Plans. This proposal will provide a product of equal quality that reduces the project cost. Advantages include the elimination of safety risks associated with shoring and a decrease in overall exposure to the travelling public.

2. Estimate of reduction in construction costs. \$56,923.59

3. Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.

No Change

4. Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.

04-22-13
(date)

5. Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.

05-13-13 Subcontract will start on Contract work
(date) (effect)

6. Dates of any previous or concurrent submission of the same proposal.

10-19-12
(date and/or dates)

Additional Comments:

**** Portion Below This Line To Be Filled Out by MoDOT ****

Comments:

After review of the information provided, I recommend approval of the suggested work. Contractor addressed comments from the conceptual VE. This included providing detailed drawings and design calculations, signed and stamped by a Licensed PE. A cost breakdown was also requested and provided, which shows the total cost savings.

Submitted By Resident Engineer

Date

Comments:

I concur with the recommendation of the RE. The submittal has all supporting information to substantiate the proposal.

**Approval
Recommended**

District Engineer

Date

**Rejection
Recommended**

Comments:

-----NOT REQUIRED-----
Non-Full Oversight Project

**Approval
Recommended**

Federal Highway Administration
Required for FHWA Full Oversight Projects

Date

**Rejection
Recommended**

Comments:

Approval

State Construction and Materials Engineer

Date

Rejection

Line Number	Item Description	Original Qty/Price				VE Qty/Price			
2420	TEMPORARY SHORING	1	LS	\$48,600.00	\$48,600.00	0	LS	\$48,600.00	\$0.00
2440	Class B-1 Concrete (Culverts-Bridge)	337.5	CY	\$336.80	\$113,670.00	247.5	CY	\$336.80	\$83,358.00
2460	REINFORCING STEEL (CULVERTS-BRIDGE)	56850	LB	\$0.95	\$54,007.50	40932	LB	\$0.95	\$38,885.40
New Item	Engineering VE Fees					1	LS	\$7,206.15	\$7,206.15
New Item	*VE RCB adjustment to retain original labor and equipment					1	LS	\$29,904.36	\$29,904.36
					\$216,277.50	\$159,353.91			

Total Savings of VECP \$56,923.59

Total Savings Paid to Contractor \$28,461.80

Total Savings To MoDOT \$28,461.80

** Price includes the same formwork, manpower, and equipment for VE as included in the original proposal. Although there is overall less bid qty, the resources required for VE remain the same. For example; The formwork will still be required along all existing faces. With the required work/effort being the same as original, additional information for approval should not be required due to no change. Therefore, this price reflects a deduction for materials only from original bid as follows:*

Class B-1 Concrete (Culverts-Bridge)	90	CY	\$336.80	\$30,312.00
Class B-1 Concrete Ready Mix (Materials Only)	90	CY	(\$96.50)	(\$8,685.00)
REINFORCING STEEL (CULVERTS-BRIDGE)	15918	LBS	\$0.95	\$15,122.10
Reinforcing Steel (Materials Only)	15918	LBS	(\$0.43)	(\$6,844.74)
				\$29,904.36

FL Whitney has offered the following, at no cost to MODOT, in an effort to expedite a timely turn-a-round on VE approval:

VE Drill and Epoxy Bars	1	LS	\$6,576.00	\$6,576.00
VE Fee from Rebar Supply for detailing	1	LS	\$5,000.00	\$5,000.00
				\$11,576.00

Invoice

Trabue, Hansen & Hinshaw, Inc.
1901 Pennsylvania Drive
Columbia, MO 65202

March 26, 2013
Project No: 006651
Invoice No: 18152

Chris Quinn
Phillips Grading & Construction Inc.
5900F N. Tower Drive
Columbia, MO 65201

Project 006651 Flintlock Road

Professional Services from February 01, 2013 to March 01, 2013

Professional Personnel

	Hours	Rate	Amount	
Engineer 5	11.00	140.00	1,540.00	
Technician 5	3.80	85.00	323.00	
Totals	14.80		1,863.00	
Total Labor				1,863.00

Billing Limits

	Current	Prior	To-Date	
Total Billings	1,863.00	5,000.00	6,863.00	
Limit			10,000.00	
Remaining			3,137.00	
		Total this Invoice		\$1,863.00

Billings to Date

	Current	Prior	Total	A/R Balance
Labor	1,863.00	4,948.61	6,811.61	
Expense	0.00	51.39	51.39	
Totals	1,863.00	5,000.00	6,863.00	1,863.00



8708 N. Oregon Ave., Kansas City, MO 64154 ☐ 816-298-6297 phone/fax ☐ FLWhitneyCorporation@yahoo.com

April 22, 2013

Original BID.

2440	CLASS B-1 CONCRETE (Culverts-Bridge)	337.5 c.y.	@	325	=	109,687.50
2460	REINFORCING STEEL (Culverts-Bridge)	56,850 lbs.	@	.90	=	51,165.00
	TOTAL					\$160,852.50

The plan to tie together these boxes and extend the west end in the manner detailed in the VE Proposal would save approximately 90 yards of concrete and 15,918 lbs. of steel.

Breakdown of Savings by Material Cost.

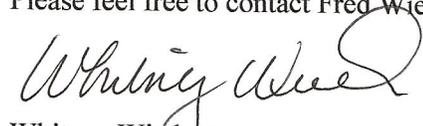
2440	CLASS B-1 CONCRETE (GEIGER)	90 c.y.	@	96.5	=	\$8,685.00
2460	REINFORC. STEEL (CARTER WATERS)	15,918 lbs.	@	.43	=	\$6,844.74
	TOTAL					\$15,529.74

While this VE Proposal will overall save time for the entire project, our man hours will increase due to the nature of the proposed work. Most notably, drilling and epoxying of bars into existing concrete, new complex formwork, and additionally a new bar list will have to be generated. Although our costs will change, there will be an overall material savings of \$15,529.74.

Change Order: New Totals for VE PROPOSAL Items.

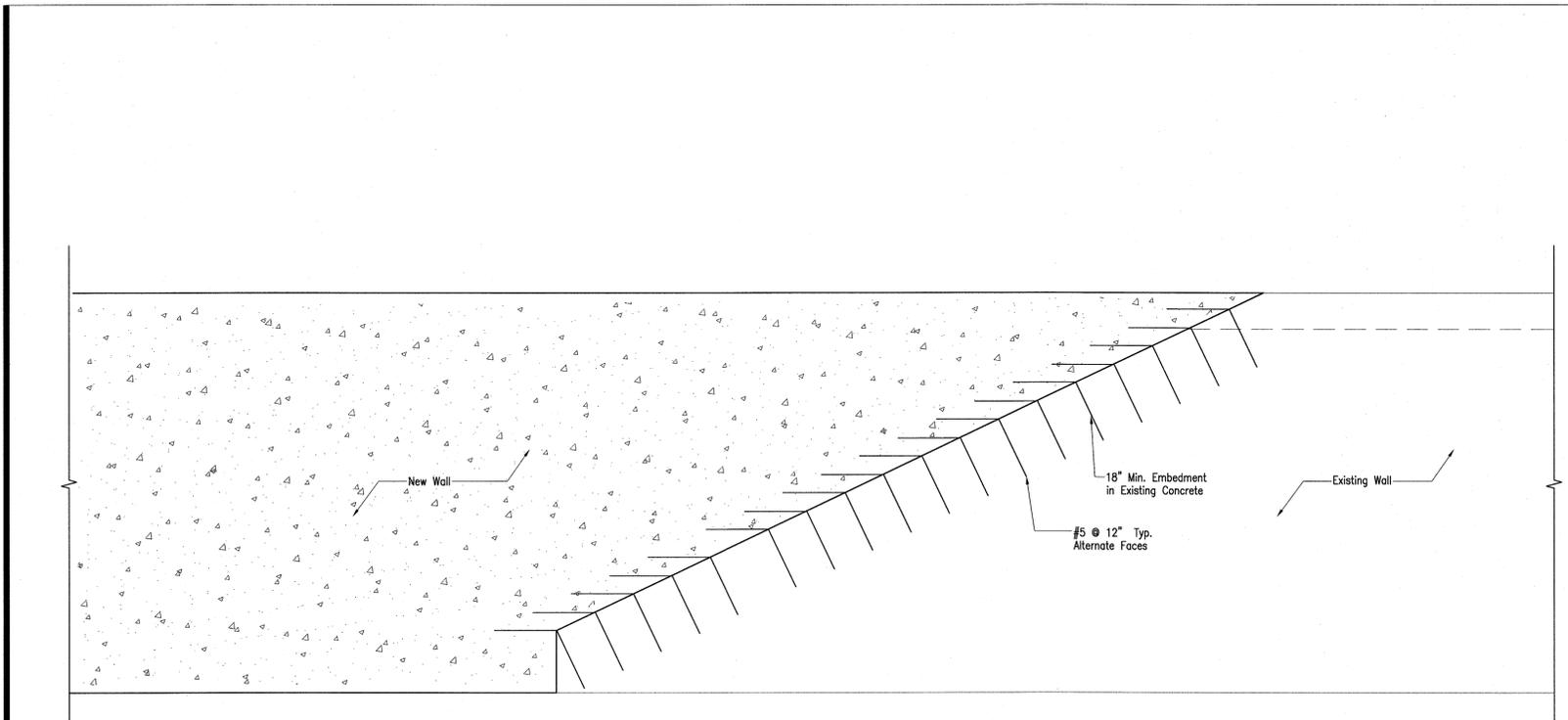
2440 & 2460	TOTAL for VE PROPOSAL (Culverts-Bridge)				=	\$145,322.76
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Please feel free to contact Fred Wiedner (816) 868-6933 regarding this VE Proposal Cost Explanation.

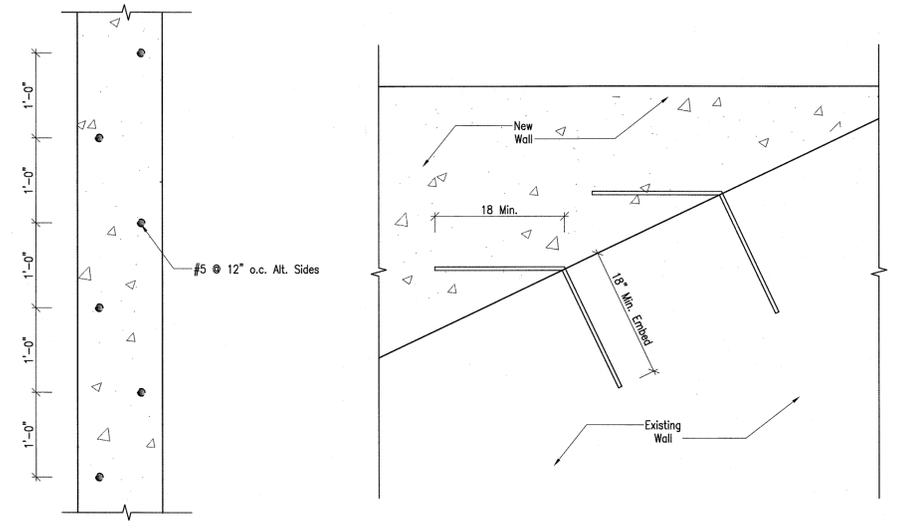

Whitney Wiedner

“The reward for work well done is the opportunity to do more.” ~ Jonas Salk

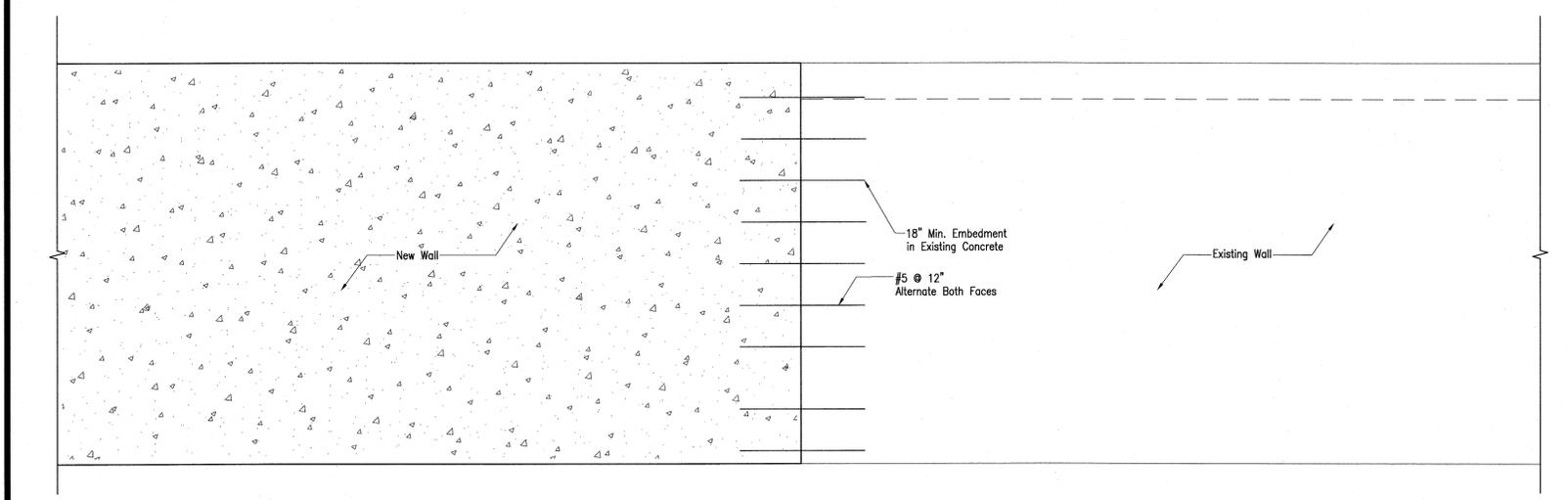
EQUAL OPPORTUNITY EMPLOYER



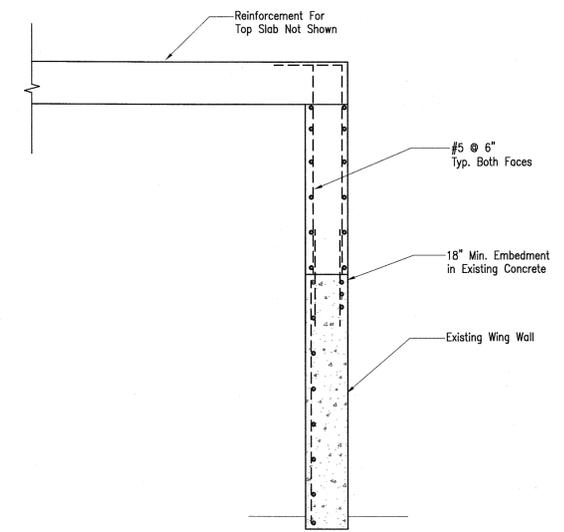
1 Elevation @ Existing Ext. Wall Connection
S100 1/2"=1'-0"



2 Detail Section @ New/Existing Wall Connection
S100 1"=1'-0"



3 Elevation @ Existing Int. Wall Connection
S100 1/2"=1'-0"

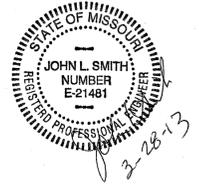


4 Detail Section @ Wall
S100 1/2"=1'-0"

Revisions No.	Date	Description	Initials

THHinc
Consulting Engineers
TRABUE, HANSEN &
HINSHAW, INC.
1901 Pennsylvania Dr.
Columbia, MO 65202
Phone (573) 814-1568
Fax (573) 814-1128
Corp. Reg. No. MO E-1494-D

PHILLIPS GRADING AND CONSTRUCTION
CULVERT WALL EXTENSION
FLINTLOCK ROAD
Elevations/Details



Client Proj # 0000
THHinc Proj # 6651
Engineer: ---
Designer: ---
Drafter: ---
Plotted: 04/05/2013

DWG. S100
SHT. 1 OF 1

Structural Calculations

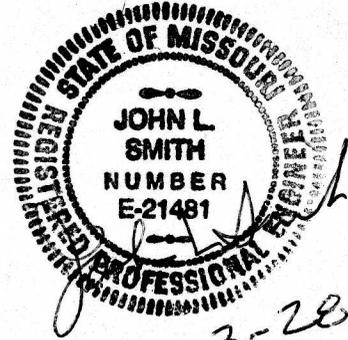
for

Culvert Extension

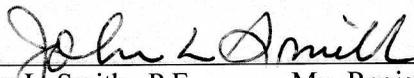
MODOT Project Number J4I1690

Phillips Grading and Construction

March 2013



I hereby certify that these calculations were prepared by me or under my direct supervision. I am a Professional Structural Engineer in good standing in the State of Missouri.


John L. Smith, P.E. Mo. Registration E-21481



Trabue, Hansen & Hinshaw, Inc.
1901 Pennsylvania Avenue
Columbia, MO 65202

(573) 814-1568
Corp. Reg. # MO E-1454-D

SHEAR TRANSFER

Perpendicular to Shear Plane

$$V_n = A_v * f_y * \mu$$

Inclined Plane

$$V_n = A_v * f_y * (\mu * \sin 45 + \cos 45)$$

$\mu = 1$ for pours against hardened concrete

Assuming #5@12" each face $A_s = 0.62 \text{ in}^2$ per foot

Perpendicular: $V_n = 0.62 * 60 * 1 = 37.2$ kips

Inclined: $V_n = 0.62 * 60 * (1 * 0.707 + 0.707) = 62.6$ kips

Allowable capacity exceeds shear demand

VALUE ENGINEERING CHANGE PROPOSAL MISSOURI DEPARTMENT OF TRANSPORTATION

Conceptual Proposal **Final Proposal** **Date** 10-19-12

Contract ID 120629-C01 **Job No.** J4I1690

County Clay **Route** 35 **Original Contract Amount** 11,358,665.34

Contractor Phillips Grading and Const Inc. **By** Chris Quinn

Designed By Troy Pinkerton **Phone** 573-447-8070

VECP# 001 (to be completed by C.O.) **VECP** **or** **PDVECP**

1. Description of existing requirements and proposed change(s). Advantages/Disadvantages

The change proposal is on the details to the proposed box connector and west box extension on culvert number L04802/K01061. We would like to tie to the existing wings at each location and locate the transverse joints at the ends of the existing endsection. This would eliminate the need for the temporary shoring and still meet the requirements of the transverse joint locations according to MoDOT Standard Plans. I have attached a sketch for clarity. The advantage is the risk that is eliminated by not having to do the shoring. The shoring of the types of soils believed to be present are concerning.

2. Estimate of reduction in construction costs. 40,000

3. Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.

No Change

4. Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.

10-26-12
(date)

5. Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.

10-31-12 Subcontract will start on Contract work
(date) (effect)

6. Dates of any previous or concurrent submission of the same proposal.

n/a
(date and/or dates)

Additional Comments:

**** Portion Below This Line To Be Filled Out by MoDOT ****

Comments:

Submitted By Resident Engineer

Date

Comments:

**Approval
Recommended**

District Engineer

Date

**Rejection
Recommended**

Comments:

**Approval
Recommended**

Federal Highway Administration
Required for FHWA Full Oversight Projects

Date

**Rejection
Recommended**

Comments:

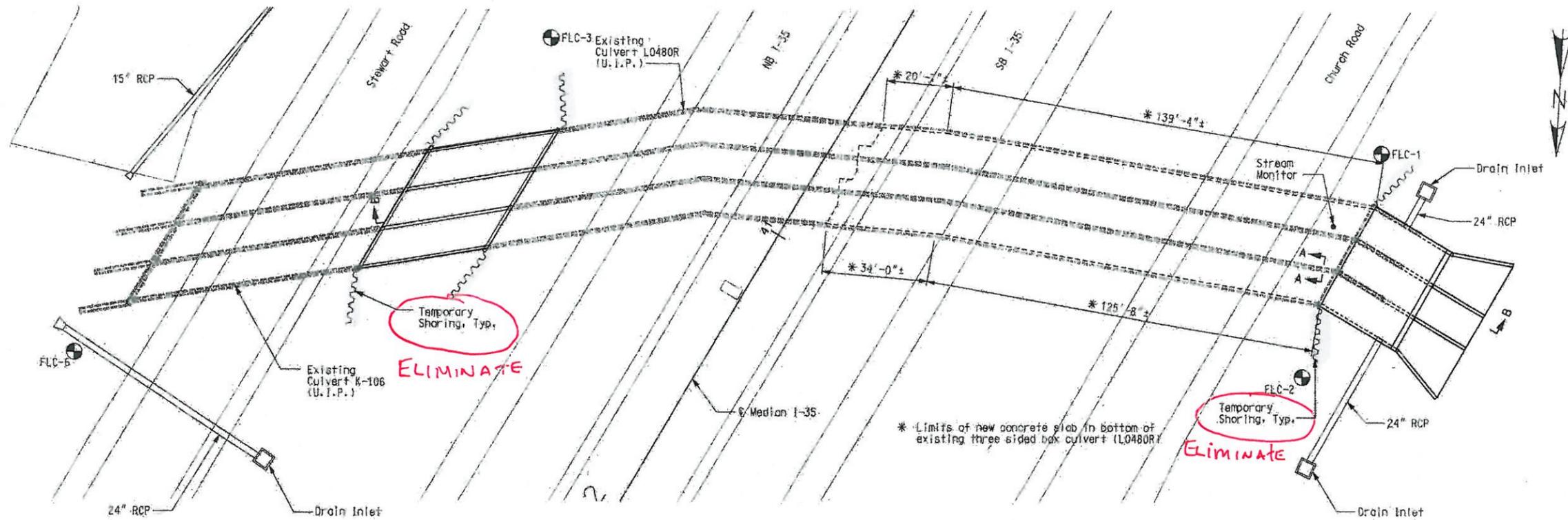
Approval

State Construction and Materials Engineer

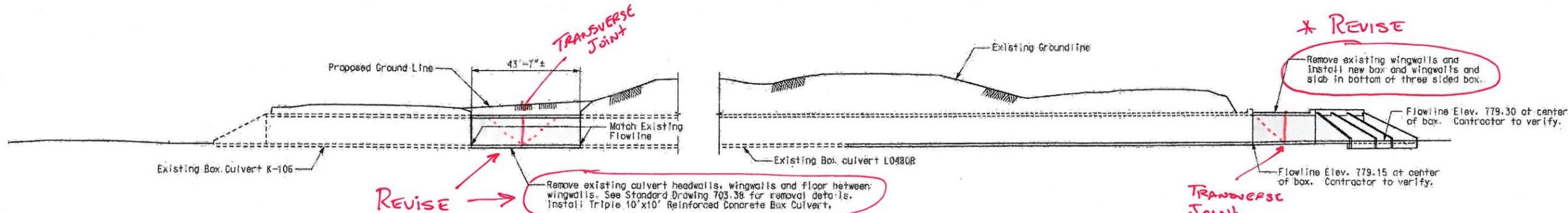
Date

Rejection

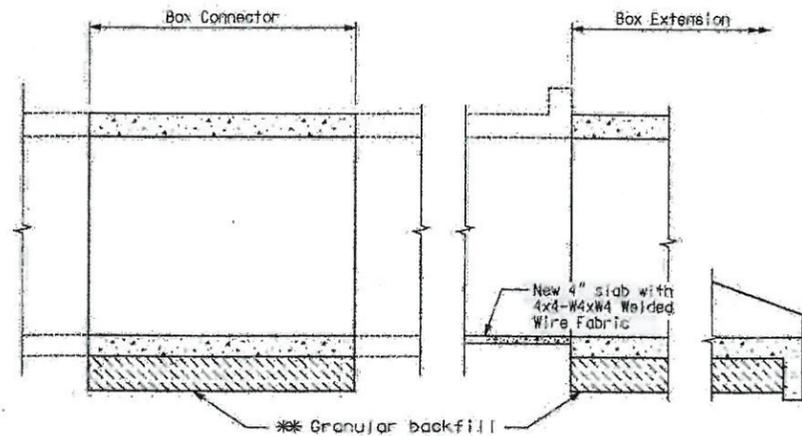
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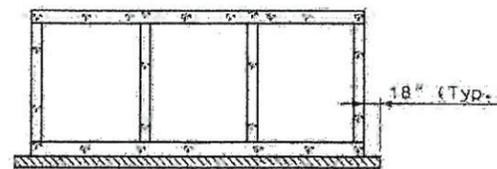
PLAN



ELEVATION

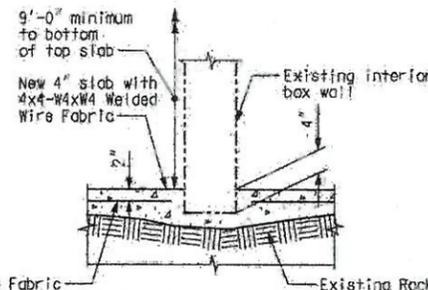


SECTION B-B



SECTION THRU BOX (Normal to Structure)

Note: If unsuitable material is encountered, excavation of unsuitable material and furnishing and placing of granular backfill shall be in accordance with Sec 208.



SECTION A-A

Concrete Slab in Bottom of Box Culvert Notes:
 * Class B Concrete f'c = 3000 psi shall be used for the slab.
 * Removal of debris in the box is a (Roadway item). The condition of the bottom of the box shall be approved by the engineer prior to placement of the concrete. The cost to furnish and install the concrete and welded wire fabric in the bottom of the box culvert, as shown on the plans, will be considered completely covered by the contract price for "Concrete Slab in Bottom of Box Culvert".

BENCH MARKS:

- BM #55: Chiseled "D" NW cor. of NE wingwall, N side of NE 7th St. over Little Shoal Crk, approx. 400' W of the intersection of NE Flintlock & NE 7th St. N115809.7660 E2797101.0824 Elev. 800.78
- TBM #7: Chiseled "D" on top NW cor. of a curb inlet, NW of Liberty S. Valley JHS. @ drive to football field. N114331.1653 E2799009.1847 Elev. 805.52

GENERAL PLAN AND ELEVATION

Note: This drawing is not to scale. Follow Dimensions.

Sheet No. 2 of 7



DATE	4/23/12
DATE PREPARED	1/10/09
ROUTE	I-35
STATE	MO
DISTRICT	BR
SHEET NO.	177
COUNTY	CLAY
JOB NO.	J411690
CONTRACT NO.	
PROJECT NO.	

BRIDGE NO. L04802/K01061

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

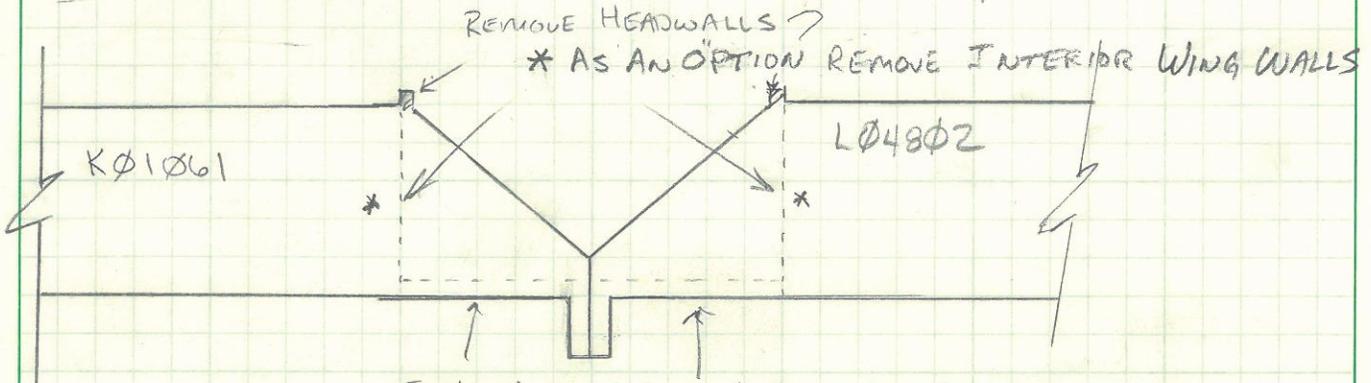


HNTB

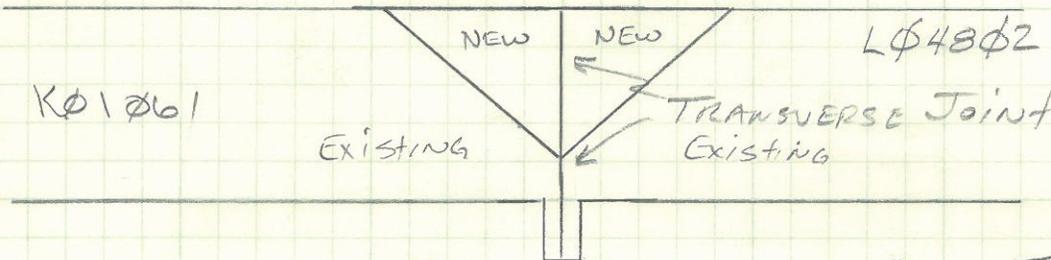
715 KIRK DRIVE
 KANSAS CITY, MO 64105-1310
 TELEPHONE (816) 472-1201
 CERTIFICATE OF AUTHORITY
 NO. 001210

105 WEST CAPITAL
 JEFFERSON CITY, MO 65102
 1-888-ASK-MODOT (1-888-275-6636)

① Modification of Box Connector: LØ48Ø2 / KØ1Ø61
REFERENCE PLAN SHEETS 176 & 177



EXTERIOR WING WALLS TO REMAIN
MAKE FULL DEPTH CUTS IN EXISTING STRUCTURE.
FIELD DRILL HOLES TO ANCHOR REINFORCING STEEL INTO
EXISTING. NEW STEEL PER STANDARD PLANS.



EXTEND EXISTING WING WALLS + POUR TOP

ALL STEEL PER STANDARD PLANS.

STAEDTLER® No. 937 811E
Engineer's Computation Pad

Troy Pinkerton, P.E.
Project Manager / Estimator

p: (573)447-8070
f: (573)447-8074



e: tpinkerton@phillipsgrading.com

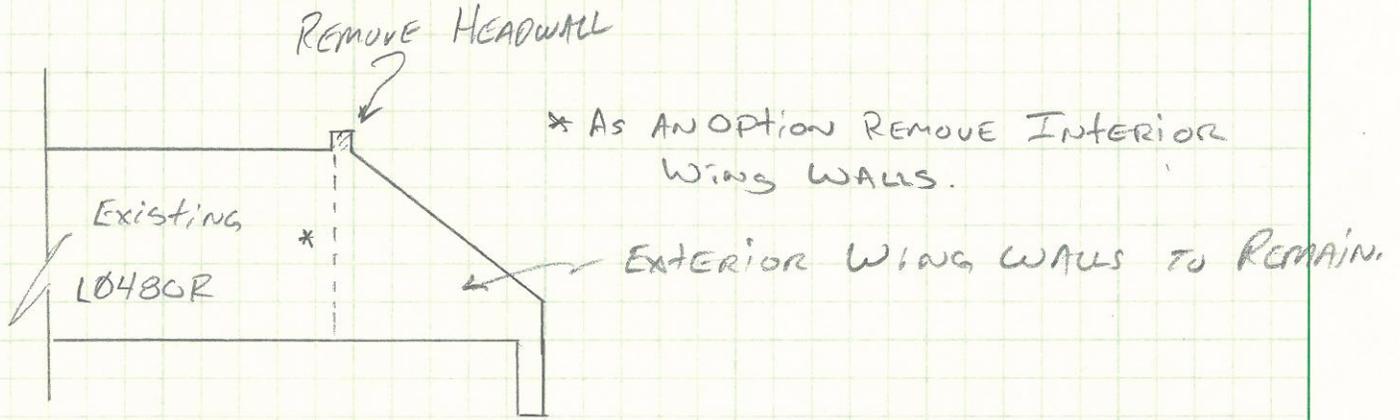
MOVING THE EARTH. ONE JOB AT A TIME.

NOT TO SCALE.

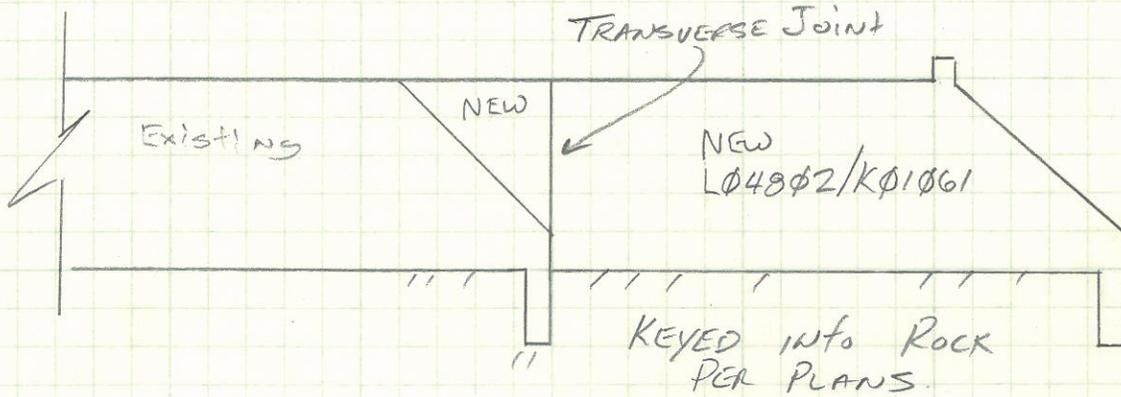
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NEW...

② MODIFICATION OF BOX EXTENSION: L ϕ 48 ϕ R
REFERENCE PLAN SHEETS 176 & 177



MAKE FULL DEPTH CUTS IN EXISTING STRUCTURE. FIELD DRILL HOLES TO ANCHOR REINFORCING STEEL INTO EXISTING STRUCTURE. ALL NEW STEEL PER STANDARD PLANS.



EXTEND EXISTING WING WALLS & POUR TOP TO THE LIMITS OF NEW TRANSVERSE JOINT.

Not to Scale.

Troy Pinkerton, P.E.
Project Manager / Estimator

p: (573)447-8070
f: (573)447-8074



e: tpinkerton@phillipsgrading.com

MOVING THE EARTH. ONE JOB AT A TIME.