

# RECLAMATION

*Managing Water in the West*

**FOR OFFICIAL USE ONLY**

**Predecisional**

**Technical Memorandum No. PUB-8140-APP-2012-01  
Volume 2 – Appendix P to the Design Appraisal Report**

## **Arkansas Valley Conduit**

**Fryingpan-Arkansas Project, Colorado  
Great Plains Region**



**FOR OFFICIAL USE ONLY**



**U.S. Department of the Interior  
Bureau of Reclamation**

**August 2012**

## **Mission Statements**

The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Cover photo: Photo looking upstream at Pueblo Dam. Fish hatchery is in foreground, and Fountain Valley Authority Pump Station is at right.

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# **Arkansas Valley Conduit**

**Fryingpan-Arkansas Project, Colorado  
Great Plains Region**

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**U.S. Department of the Interior  
Bureau of Reclamation**

**August 2012**

<b>FEATURE:</b>  Arkansas Valley Conduit Alternative 1 Summary Sheet	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 1 Summary Worksheet revised 5-11-12 - removed escalation.xls\EW SUM_Construction Cost		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Reach 1</b>					<b>\$32,578,575</b>
		Reach 1 Pipeline					\$26,037,850
		Comanche Pumping Plant					\$3,500,000
		Comanche Regulating Tank (Sum of Civil Sheet + Hydraulic Sheet)					\$1,561,580
		Comanche Air Chamber (Sum of two Civil Sheets)					\$625,500
		Comanche Valve Vault (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$408,850
		Comanche Meter Vault (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$375,495
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$69,300
		<b>Reach 2</b>					<b>\$48,503,610</b>
		Reach 2 Pipeline					\$47,979,970
		Boone Spur Pipeline					\$391,040
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$132,600
		<b>Reach 3</b>					<b>\$58,533,858</b>
		Reach 3 Pipeline					\$38,851,880
		Manzanola Spur Pipeline					\$102,385
		Rocky Ford Pipeline					\$96,751
		Newdale/Grand Valley Spur					\$924,137
		S. Swink Spur Pipeline					\$524,700
		Homestead Spur Pipeline					\$150,205
		LaJunta Spur Pipeline					\$476,535
		LaJunta Water Storage Tank (Sum of Civil Sheet + Hydraulic Sheet)					\$10,294,035
		Fowler Water Storage Tank (Sum of Civil Sheet + Hydraulic Sheet)					\$6,099,730
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$1,013,500
		<b>Reach 4</b>					<b>\$33,657,742</b>
		Reach 4 Pipeline					\$31,454,875
		Hasty Spur Pipeline					\$64,657
		McClave Spur Pipeline					\$311,470
		Wiley Spur					\$1,358,640
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$468,100
		<b>Highway 96 Spur</b>					<b>\$12,114,245</b>
		Hwy 96 Pipeline					\$11,425,500
		96 Pipeline Co. Spur Pipeline					\$209,645
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$479,100

QUANTITIES		PRICES	
BY TSC Design Team	CHECKED TSC Design Team	BY <i>[Signature]</i> TSC Estimating Team 5/14/12	CHECKED <i>[Signature]</i> 5/14/12
DATE PREPARED Feb-Apr 2011	PEER REVIEW / DATE TSC Design Team	DATE PREPARED Feb-May 2011; Revised May 2012	PEER REVIEW / DATE <i>[Signature]</i> 5/14/12



<b>FEATURE:</b>  Arkansas Valley Conduit Alternative 1 Summary Sheet				<b>PROJECT:</b> Fryingpan-Arkansas Project			
<b>WOID:</b> AF523		<b>ESTIMATE LEVEL:</b> Appraisal		<b>REGION:</b> GP		<b>UNIT PRICE LEVEL:</b> Jan-11	
<b>FILE:</b>				H:\D8170\Commom\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 1 Summary Worksheet revised 5-11-12 - removed escalation.xls]EW SUM_Construction Cost			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Eads Spur (Includes May Valley)</b>					\$7,495,700
		Eads Spur Pipeline					\$3,641,100
		Eads and May Valley Spur Pipeline					\$1,234,260
		May Valley Spur Pipeline					\$1,946,700
		Eads Booster Plant					\$240,000
		Eads and May Valley Air Chamber (Sum of Civil Sheet and Hydraulic Sheet)					\$85,600
		Eads and May Valley Meter Vault (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$213,440
		Participant Tie-In Vaults*					\$134,600
* Costs for 2 Tie-In Vaults were removed from the Total Costs of the Participant Tie-In Vaults for the Loop (below)							
		<b>Loop</b>					\$10,647,216
		East End S. Side Spur					\$621,200
		Bent's Fort Spur Pipeline					\$62,866
		Cheraw Loop Pipeline					\$9,559,350
		Participant Tie-In Vaults*					\$403,800
** Costs = Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet Minus the Costs for 2 Tie-In Vaults for the Eads Spur (Includes May Valley)							
		<b>Crossings</b>					\$25,730,000
		<b>Dewatering</b>					\$4,690,000
		<b>Dust Abatement</b>					\$4,000,000
		<b>Interconnect (Sum of Pipe &amp; Valve Sheets + Civil Sheets + Cofferdam Sheet)</b>					\$3,701,082
		<b>Water Treatment Plant**</b>					\$25,924,061
** Costs include updated February 16, 2012 costs from sub-consultant B&V (Estimate sheets dated 12-01-2011).							

<b>QUANTITIES</b>		<b>PRICES</b>	
BY TSC Design Team	CHECKED TSC Design Team	BY TSC Estimating Team	CHECKED TSC Estimating Team
DATE PREPARED Feb-Apr 2011	PEER REVIEW / DATE TSC Design Team	DATE PREPARED Feb-May 2011; Revised May 2012	PEER REVIEW / DATE 5/14/12

<b>FEATURE:</b>  Arkansas Valley Conduit Alternative 1 Summary Sheet		<b>PROJECT:</b> Fryingpan-Arkansas Project	
<b>WOID:</b> AF523		<b>ESTIMATE LEVEL:</b> Appraisal	
<b>REGION:</b> GP		<b>UNIT PRICE LEVEL:</b> Jan-11	
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Subtotal 1					\$267,576,089.00
		Mobilization	5%	+/-			\$13,500,000.00
		<b>Subtotal 1 with Mobilization</b>					<b>\$281,076,089.00</b>
		Design Contingencies	12%	+/-			\$28,923,911.00
		Allowance for Procurement Strategies (APS)	0.0%	+/-			\$0.00
Type of solicitation assumed is: Full and open sealed bid competition							
		<b>CONTRACT COST</b>					<b>\$310,000,000.00</b>
		Construction Contingencies	25%	+/-			\$80,000,000.00
		<b>FIELD COST</b>					<b>\$390,000,000.00</b>
		Non-Contract Costs*					\$125,000,000.00
		<b>CONSTRUCTION COST</b>					<b>\$515,000,000.00</b>

\* Non-Contract Costs were produced and supplied by a joint effort of Eastern Colorado Area Office and Great Plains Region with input from the Technical Service Center.

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY TSC Design Team	CHECKED TSC Design Team	BY <i>[Signature]</i> TSC Estimating Team	CHECKED <i>[Signature]</i> 5/14/12
DATE PREPARED Feb-Apr 2011	PEER REVIEW / DATE TSC Design Team	DATE PREPARED Feb-May 2011; Revised May 2012	PEER REVIEW / DATE <i>[Signature]</i> 5/14/12

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Reach 1: Pueblo Res. to WTP  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;"><b>WOID:</b> AF523</td> <td style="width: 33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
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<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Sitework Items:</u>						
		Clearing (3 times trench width)	8140	210	acre	\$800.00	\$168,000.00	
		Grubbing	8140	21	acre	\$2,500.00	\$52,500.00	
		Stripping (6" thick)	8140	165,000	cy	\$2.00	\$330,000.00	
		Seeding	8140	210	acre	\$800.00	\$168,000.00	
		<u>Earthwork Items:</u>						
		Soil Excavation (1.5:1) outside urban area	8140	460,000	cy	\$4.00	\$1,840,000.00	
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume drill and blast	8140	31,000	cy	\$25.00	\$775,000.00	
		Pipe Bedding (3/4" MSA, 4" thick)	8140	8,300	cy	\$40.00	\$332,000.00	
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	460,000	cy	\$3.00	\$1,380,000.00	
		Compacting Embedment Backfill	8140	57,000	cy	\$8.00	\$456,000.00	
		All quantities above are for the actual sloped trench.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$5,501,500.00</b>	

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED Nathan Lehman	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Reach 1: Pueblo Res. to WTP  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		36" dia. steel, 0.1501" thick (60 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 1,140,000lbs total steel	8140	19,000	lin ft	\$140.00	\$2,660,000.00
		36" dia. steel, 0.25" thick (100 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=500 1,100,000 lbs total steel	8140	11,000	lin ft	\$155.00	\$1,705,000.00
		36" dia. steel, 0.3125" thick (125 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 5,875,000 lbs total steel	8140	47,000	lin ft	\$175.00	\$8,225,000.00
		36" dia. steel, 0.375" thick (151 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 4,303,500 lbs total steel	8140	28,500	lin ft	\$210.00	\$5,985,000.00
		<u>Isolation Valves (Manual operation):</u>					
		36" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$17,000.00	\$17,000.00
		36" Class 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$29,000.00	\$29,000.00
		36" Class 300 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$43,000.00	\$86,000.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	4	ea	\$7,000.00	\$28,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	4	ea		
		60" I.D. precast base shell	8140	4	ea		
		36" dia. Cast iron manhole cover and ring set	8140	4	ea		
<b>SUBTOTAL THIS SHEET</b>							<b>\$18,735,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Reach 1: Pueblo Res. to WTP  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> <tr> <td colspan="2"><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	
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<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11						
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1							

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		20	ea	\$12,000.00	\$240,000.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	200	lin ft		
		- 3/4-inch Gravel Filter	8140	80	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	1,900	lbs		
		- 6" Combination Air Valve (1 ea)	8140	20	ea		
		- 6" Butterfly Valves (1 ea)	8140	20	ea		
		<u>Blowoff Structures (to include):</u>		20	ea	\$8,300.00	\$166,000.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	160	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	24	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	7	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	2,800	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	40	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	20	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	200	lin ft		
		- 6" Tee (1 ea)	8140	20	ea		
		- 6" Blind Flange (1 ea)	8140	20	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	1,900	lbs		
		<u>Manholes-Buried (to include)</u>		40	ea	\$11,500.00	\$460,000.00
		-36" Pipe outlet (1 ea)	8140	40	ea		
		-36" blind flange (1 ea)	8140	40	ea		
		<u>Cathodic Protection</u>	8140	1	ls	\$935,350.00	\$935,350.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,801,350.00</b>
		<b>SUBTOTAL REACH 1</b>					<b>\$26,037,850.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i>
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Comanche Pumping Plant Alternative 1 Pueblo Reservoir to WTP (New St. Charles Mesa)	<b>PROJECT:</b> Fryington-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Comman\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Qty Est Comanche Pump Plant Alt 1_8420 Appraisal-Level.xlsx Pump.lz		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural/Electrical/Mechanical:					
		Pumping Plant (Total Q = 32.20 cfs w/o wf)	86-68420	1	LS	\$3,500,000.00	\$3,500,000.00
<b>Using "Appraisal Estimate of Pumping Plants and Switchyards" pumping plant program</b>							
		Pumping plant - 8.310 cfs each, 480 feet TDH;					
		Unit Brake HP: 551.4 hp; Motors: 600 hp each @ 4160 volts					
		4 pumps; vertical; supply voltage (69 kV);					
		Structures And Improvements					
		Waterways					
		Pumps and Motors					
		Accessory Electrical					
		Miscellaneous Equipment					
		Switchyards					
		<b>SUBTOTAL COMANCHE PUMPING PLANT</b>					<b>\$3,500,000.00</b>

QUANTITIES		PRICES	
<b>BY</b> R. Zelenka	<b>REVIEWED</b> Toby Turnage	<b>BY</b> Jeff Morris	<b>CHECKED</b> [Signature] 4/6/11
<b>DATE PREPARED</b> 2/18/2011	<b>PEER REVIEW / DATE</b> Toby Turnage 3.9.11	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> [Signature] 3/24/11

<b>FEATURE:</b>  Arkansas Valley Conduit Comanche Regulating Tank Alternative 1 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryington-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC -River Intake Reg Tank Alt 5 Appraisal Quant Est 8120.xlsx\CivilStructural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	265	yd <sup>3</sup>	\$6.00	\$1,590.00
		Access Roads	86-68120	40	yd <sup>3</sup>	\$6.00	\$240.00
		Excavation (tank foundation)	86-68120	105	yd <sup>3</sup>	\$25.00	\$2,625.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	85	yd <sup>3</sup>	\$25.00	\$2,125.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	230	yd <sup>3</sup>	\$40.00	\$9,200.00
		Access Roads	86-68120	40	yd <sup>3</sup>	\$40.00	\$1,600.00
		Chain Link Fence	86-68120	480	lin ft	\$40.00	\$19,200.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. One 20' wide double swing gate					
		Reinforced Concrete for Pad & Stem Foundation	86-68120	1	ls	\$25,000.00	\$25,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 20 miles					
		Concrete: 27 yd <sup>3</sup>					
		Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 3535 lbs					
		Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 7.5 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$61,580.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris	CHECKED Stuart MacGregor 4/22/11
DATE PREPARED 03/30/11	PEER REVIEW / DATE Paul Ruchti 3/31/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE [Signature] 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Comanche Regulating Tank Alternative 1 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> 11-Jan	
	<b>FILE:</b> H:\D8170\Common\Morris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Comanche Reg Tank Alt 1 Appraisal Quant Est 8420.xlsx]Hydraulic equip		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		<b>Steel regulating tank</b>					
		1 - 1,250,000-gallon steel regulating tank AWWA D100 compliance tank height 85 feet inside diameter 50 feet	86-68420	1	ls	\$1,500,000.00	\$1,500,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$1,500,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris	CHECKED Shannell Morris 4/25/11
DATE PREPARED 3/30/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE Dec 4/25/11



<b>FEATURE:</b>  Arkansas Valley Conduit Comanche Air Chamber Alternative 1 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> 11-Jan
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Comanche Air Chamber Alt 1 Appraisal Quant Est 8420.xlsx\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Air Chamber</b>	86-68420	1	ls	\$615,000.00	\$615,000.00
		18,613-gallon (2,488 cubic feet)					
		steel air chamber					
		cylinder height 18 feet					
		cylinder diameter 12 feet					
		air chamber weight 61,500 pounds					
		mounted air compressor 150 horsepower					
		SUBTOTAL THIS SHEET					\$615,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shannon</i> 4/22/11
DATE PREPARED 4/4/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>DCD</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Comanche Valve Vault Alternative 1 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\Morris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Comanche Valve Vault Alt 1 Appraisal Quant Est 8120.xlsx\CivilStructural	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Vaults</b> (Assumed: 14' W x 23' L x 20' D) (Assume: $f_c=4,500$ psi) Source: Pueblo, CO 20 miles Concrete: 110 yd3 Reinforcement (Assume 135 lb/yd3): 14,780 lbs Cement (Assume: 0.282 ton/yd3): 31 tons	86-68120	1	ls	\$100,000.00	\$100,000.00
		<b>Access &amp; Service Hatches</b> Access hatch two 3' x3' (The Bilco Co Type Q single leaf) Service hatch two 5' x 10' (The Bilco Co Type JD special sizes)	86-68120	1	ls	\$36,000.00	\$36,000.00
		<b>Miscellaneous Metalwork</b> (40-D-6601, Ladder Type 2)	86-68120	350	lbs	\$13.00	\$4,550.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$140,550.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>Sham...</i> 4/22/11
DATE PREPARED 04/06/11	PEER REVIEW / DATE Paul Ruchti 4/8/11	DATE PREPARED 04/20/11	PEER REVIEW / DATE <i>...</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Comanche Valve Vault Alternative 1 Reach 1: Pueblo Reservoir to WTP Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume valve vault size=19.5'x19.5'x16.75'd					
		assume 1 vault @ Comanche					
	1	Valve vault ventilation equipment	86-68410	1	ls	\$8,700.00	\$8,700.00
		list of equipment per vault:					
		(1)-steel centrifugal fan, 1000 cfm @ 0.25" w.g.s.p., 1/2 Hp					
		(16 ft)-12" diam, 16 ga., galv. steel duct					
		(2)-12" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-12"x16" reducer, sch 20, galv. steel pipe					
		(4)-16" diam, stainless steel bird screens					
		(2)-12"x16" reducer, 16 ga, galv. steel duct					
		(2)-12" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/2 Hp					
		(1)-fan wall switch and box					
	2	Valve vault heater	86-68410	2	ea	\$800.00	\$1,600.00
		3 kW unit heater					
		thermostatically controlled					
	3	In-line plate strainer	86-68410	1	ea	\$65,000.00	\$65,000.00
		Bolted cover design					
		Stainless steel, w/ 1/2" holes					
		flanged for 36" pipe					
Subtotal - This Sheet							\$75,300.00

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shank</i> 5/3/11
DATE PREPARED 4/7/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>Shank</i> 5/4/11

<b>FEATURE:</b>  Arkansas Valley Conduit Comanche <del>Meter &amp; Valve Vaults</del> Alternative 1 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Comman\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Valve and Meter Vaults\8420 - Valves\AVC - Comanche Meter & Valve Vaults Alt 1 Appraisal Quant Est 8420.xlsx\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Meter and Valve Vaults</b>	86-68420				
		24-inch pressure reducing valve		1	ea	\$60,000.00	\$60,000.00 ✓
		1 valve that includes reducers from 42" pipe Cla-Val class 300					
		42-inch manually-operated butterfly valve		2	ea	\$52,000.00	\$104,000.00 ✓
		2 valves AWWA class 250-B					
		36-inch manually-operated butterfly valve		1	ea	\$29,000.00	\$29,000.00 ✓
		1 valve AWWA class 250-B					
<b>SUBTOTAL THIS SHEET</b>							<b>\$193,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i>
DATE PREPARED 4/1/2011	PEER REVIEW / DATE 04/14/11	DATE PREPARED 04/27/11	PEER REVIEW / DATE <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Comanche Meter Vault Alternative 1 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryngpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;">WOID: AF523</td> <td style="width:33%;">ESTIMATE LEVEL: Appraisal</td> </tr> <tr> <td>REGION: GP</td> <td>UNIT PRICE LEVEL: Jan-11</td> </tr> </table>	WOID: AF523	ESTIMATE LEVEL: Appraisal	REGION: GP	UNIT PRICE LEVEL: Jan-11
WOID: AF523	ESTIMATE LEVEL: Appraisal				
REGION: GP	UNIT PRICE LEVEL: Jan-11				
	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Comanche Meter Vault Alt 1 Appraisal Quant Est 8120.xlsx\CivilStructural				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Vaults</b> (Assumed: 14' W x 17' L x 18' D) (Assume: $f_c=4,500$ psi) Source: Pueblo, CO 20 miles Concrete: 80 yd3 Reinforcement (Assume 135 lb/yd3): 10,900 lbs Cement (Assume: 0.282 ton/yd3): 23 tons	86-68120	1	ls	\$70,000.00	\$70,000.00
		<b>Access &amp; Service Hatches</b> Access hatch two 3' x3' (The Bilco Co Type Q single leaf) Service hatch two 5' x 10' (The Bilco Co Type JD special sizes)	86-68120	1	ls	\$36,000.00	\$36,000.00
		<b>Miscellaneous Metalwork</b> (40-D-6601, Ladder Type 2)	86-68120	315	lbs	\$13.00	\$4,095.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$110,095.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shannon King</i> 4/22/11
DATE PREPARED 04/06/11	PEER REVIEW / DATE Paul Ruchti 4/8/11	DATE PREPARED 04/20/11	PEER REVIEW / DATE <i>DCD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Comanche Meter Vault Alternative 1 Reach 1: Pueblo Reservoir to WTP Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project <hr/> <b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal <hr/> <b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11 <hr/> <b>FILE:</b>
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume meter vault size=11.25'x11.25'x16.7'd					
		assume 1 vault @ Comanche					
	1	Meter vault ventilation equipment	86-68410	1	ls	\$6,600.00	\$6,600.00
		list of equipment per vault:					
		(1)-steel centrifugal fan, 450 cfm @ 0.25" w.g.s.p., 1/6 Hp					
		(16 ft)-8" diam, 16 ga., galv. steel duct					
		(2)-8" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-8"x12" reducer, sch 20, galv. steel pipe					
		(4)-12" diam, stainless steel bird screens					
		(2)-8"x12" reducer, 16 ga, galv. steel duct					
		(2)-8" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/6 Hp					
		(1)-fan wall switch and box					
	2	Meter vault heater	86-68410	1	ea	\$800.00	\$800.00
		3 kW unit heater					
		thermostatically controlled					
	3	Flowmeter	86-68410	1	ea	\$65,000.00	\$65,000.00
		8-path ultrasonic, 36" diam					
		16 transducers with cables and 1 transmitter console					
<b>Subtotal - This Sheet</b>							<b>\$72,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawna M... 5/3/11</i>
DATE PREPARED 4/7/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DD 5/3/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Comanche Meter & Valve Vaults Alternative 1 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryngpan-Arkansas Project								
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:25%;"><b>WOID:</b></td> <td style="width:25%;">AF523</td> <td style="width:25%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:25%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> </table>		<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11						
<b>FILE:</b> H:\D8170\Comman\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Valve and Meter Vaults\8420 - Valves\AVC - Comanche Meter & Valve Vaults Alt 1 Appraisal Quant Est 8420.xlsx\Hydraulic equip									

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Meter and Valve Vaults</b>	86-68420				
		24-inch pressure reducing valve		1	ea	\$60,000.00	\$60,000.00
		1 valve that includes reducers from 42" pipe Cla-Val class 300					
		42-inch manually-operated butterfly valve		2	ea	\$52,000.00	\$104,000.00
		2 valves AWWA class 250-B					
		36-inch manually-operated butterfly valve		1	ea	\$29,000.00	\$29,000.00
		1 valve AWWA class 250-B					
<b>SUBTOTAL THIS SHEET</b>							<b>\$193,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i>
DATE PREPARED 4/1/2011	PEER REVIEW / DATE 04/14/11	DATE PREPARED 04/27/11	PEER REVIEW / DATE <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Reach 1: Pueblo Res. To WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 1 R1 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	1	ea	\$35,000.00	\$35,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$35,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>Jeff Morris</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Reach 1: Pueblo Res. To WTP Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	1	ls	\$5,600.00	\$5,600.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	1	ea	\$800.00	\$800.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	1	ea	\$13,000.00	\$13,000.00
<b>Subtotal - This Sheet</b>							<b>\$19,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>GWR</i>	CHECKED <i>Stewart</i>
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE DCD 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Reach 1: Pueblo Res. To WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b></td> <td style="width:20%;">AF523</td> <td style="width:30%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 1 R1 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (1 vault)</b>	86-68420				
		6-inch pressure reducing valve 1 valve, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		1	ea	\$7,800.00	\$7,800.00
		6-inch manually-operated butterfly valve 1 valve, 170 lbs each Henry Pratt Class 350		1	ea	\$2,800.00	\$2,800.00
		6-inch buried square-nut operated butterfly valve with valve box 1 valve, 325 lbs each Henry Pratt Class 350		1	ea	\$3,300.00	\$3,300.00
		1-inch air valve combination air valve 1 air valve, 35 lbs each		1	ea	\$1,000.00	\$1,000.00
		<b>Total</b>					<b>\$14,900.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>Gur</i>	CHECKED <i>Shawna May 5/4/11</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>DCD 5/4/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Reach 2: WTP to S. Fowler Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	325	acre	\$800.00	\$260,000.00
		Grubbing	8140	32	acre	\$2,500.00	\$80,000.00
		Stripping (6" thick)	8140	260,000	cy	\$2.00	\$520,000.00
		Seeding	8140	325	acre	\$800.00	\$260,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	770,000	cy	\$4.00	\$3,080,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	53,000	cy	\$25.00	\$1,325,000.00
		Pipe Bedding (Select material, 4" thick)	8140	13,500	cy	\$30.00	\$405,000.00
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	750,000	cy	\$3.00	\$2,250,000.00
		Compacting Embedment Backfill	8140	105,000	cy	\$8.00	\$840,000.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	8,300	cy	\$11.00	\$91,300.00
		Pipe Bedding (Select material, 4" thick)	8140	330	cy	\$50.00	\$16,500.00
		Embedment & Cover Backfill	8140	6,500	cy	\$7.00	\$45,500.00
		Compacting Embedment Backfill	8140	1,350	cy	\$14.00	\$18,900.00
		(Urban trench will require traffic control, signage, and detours for duration of work)					
		(Urban Trench Length: 4,123 ft of 36" pipe)					
		Traffic Control/Detours Urban Excavation		1	mo	\$15,000.00	\$15,000.00
		Pavement & Base/Remove & Replace Urban Excavation		4,123	lin ft	\$60.00	\$247,380.00
		Utility Relocation & Repair Urban Excavation		4,123	lin ft	\$30.00	\$123,690.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$9,578,270.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED Nathan Lehman	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Reach 2: WTP to S. Fowler Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		42" dia. steel, 0.175" thick (81 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 4,137,156 lbs total steel	8140	51,000	lin ft	\$190.00	\$9,690,000.00
		42" dia. steel, 0.25" thick (117 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=375 2,028,546 lbs total steel	8140	17,500	lin ft	\$220.00	\$3,850,000.00
		42" dia. steel, 0.3125" thick (146 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=500 10,860,356 lbs total steel	8140	74,000	lin ft	\$250.00	\$18,500,000.00
		36" dia. steel, 0.25" thick (100 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=500 1,922,200 lbs total steel	8140	19,000	lin ft	\$155.00	\$2,945,000.00
		<u>Isolation Valves (Manual operation):</u>					
		42" Class 150B (psig) Butterfly Valve w/ Operator	8140	3	ea	\$26,000.00	\$78,000.00
		42" Class 250 (psig) Butterfly Valve w/ Operator	8140	3	ea	\$52,000.00	\$156,000.00
		36" Class 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$29,000.00	\$29,000.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	7	ea	\$7,000.00	\$49,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	7	ea		
		60" I.D. precast base shell	8140	7	ea		
		36" dia. Cast iron manhole cover and ring set	8140	7	ea		
<b>SUBTOTAL THIS SHEET</b>							<b>\$35,297,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Reach 2: WTP to S. Fowler Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\summary Sheet	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		31	ea	\$12,000.00	\$372,000.00	
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	310	lin ft			
		- 3/4-inch Gravel Filter	8140	124	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	2,900	lbs			
		- 6" Combination Air Valve (1 ea)	8140	31	ea			
		- 6" Butterfly Valves (1 ea)	8140	31	ea			
		<u>Blowoff Structures (to include):</u>		31	ea	\$8,300.00	\$257,300.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	250	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	37	cy			
		- Cementitious Materials for Pad (.33 tons ea)	8140	10	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	4,400	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	62	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	31	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	310	lin ft			
		- 6" Tee (1 ea)	8140	31	ea			
		- 6" Blind Flange (1 ea)	8140	31	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	2,945	lbs			
		<u>Manholes-Buried</u>		62	ea	\$11,500.00	\$713,000.00	
		-36" dia. Pipe Outlet (1 ea)	8140	62	ea			
		-36" dia. Blind Flange (1 ea)	8140	62	ea			
		<u>Cathodic Protection</u>	8140	1	ls	\$1,762,400.00	\$1,762,400.00	
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>						\$3,104,700.00
		<b>SUBTOTAL REACH 2</b>						\$47,979,970.00

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> [Signature] 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> [Signature] 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Boone Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR25 (CIOD) C900 PVC pipe	8140	9,200	lin ft	\$6.20	\$57,040.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$1,100.00	\$1,100.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	1	ea		
		60" I.D. precast base shell	8140	1	ea		
		36" dia. Cast iron manhole cover and ring set	8140	1	ea		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$65,140.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Boone Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> <tr> <td colspan="2"><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Boone Spur</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Boone Spur	
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal						
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11						
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Boone Spur							

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Air Valve Structures (to include):</b>		2	ea	\$6,800.00	\$13,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	20	lin ft		
		- 3/4-inch Gravel Filter	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	190	lbs		
		- 2" Combination Air Valve (1 ea)	8140	2	ea		
		- 2" Ball Valves (1 ea)	8140	2	ea		
		<b>Blowoff Structures (to include):</b>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	16	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	2	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	280	lbs		
		(141 lbs ea)					
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	4	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1 ea)	8140	2	ea		
		- 6" Blind Flange (1 ea)	8140	2	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	190	lbs		
		<b>Cathodic Protection</b>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$30,200.00</b>
		<b>SUBTOTAL BOONE SPUR</b>					<b>\$391,040.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Reach 2: WTP to S. Fowler tank	<b>PROJECT:</b> Fryngpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Commo\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 1 R2 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\Civil\Structural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	2	ea	\$35,000.00	\$70,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$70,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul M Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>g. steele</i> 4/30/11
DATE PREPARED 04/15/11	PEER REVIEW / DATE 04/19/11	DATE PREPARED 04/26/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Reach 2: WTP to S. Fowler tank Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	2	ls	\$5,600.00	\$11,200.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	2	ea	\$800.00	\$1,600.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	2	ea	\$13,000.00	\$26,000.00
Subtotal - This Sheet							\$38,800.00

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>Gmk</i>	CHECKED <i>Shawn Newberry</i>
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE DCD 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Reach 2: WTP to S. Fowler tank	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 1 R2 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (2 vaults)</b>	86-68420				
		6-inch pressure reducing valve 2 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		2	ea	\$7,800.00	\$15,600.00
		6-inch manually-operated butterfly valve 2 valves, 90 lbs each AWWA Class 150-B		2	ea	\$1,300.00	\$2,600.00
		6-inch buried square-nut operated butterfly valve with valve box 2 valves, 245 lbs each AWWA Class 150-B		2	ea	\$1,800.00	\$3,600.00
		1-inch air valve combination air valve 2 air valves, 35 lbs each		2	ea	\$1,000.00	\$2,000.00
		<b>Total</b>					<b>\$23,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shanna Mayberry 5/4/11</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>Doc 5/4/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Reach 3: S. Fowler Tank to La Junta  Civil	<b>PROJECT:</b> Fryyngpan-Arkansas Project - Arkansas Valley Conduit  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	320	acre	\$800.00	\$256,000.00
		Grubbing	8140	32	acre	\$2,500.00	\$80,000.00
		Stripping (6" thick)	8140	260,000	cy	\$2.00	\$520,000.00
		Seeding	8140	320	acre	\$800.00	\$256,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	710,000	cy	\$4.00	\$2,840,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	47,000	cy	\$25.00	\$1,175,000.00
		Pipe Bedding (Select material, 4" thick)	8140	13,000	cy	\$30.00	\$390,000.00
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	700,000	cy	\$3.00	\$2,100,000.00
		Compacting Embedment Backfill	8140	88,000	cy	\$8.00	\$704,000.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	32,000	cy	\$9.00	\$288,000.00
		Pipe Bedding (Select material, 4" thick)	8140	1,350	cy	\$40.00	\$54,000.00
		Embedment & Cover Backfill	8140	26,000	cy	\$5.00	\$130,000.00
		Compacting Embedment Backfill	8140	4,900	cy	\$14.00	\$68,600.00
		(Urban trench will require traffic control, signage, and detours for duration of work)					
		(Urban Trench Length: 18,247 ft of 36" pipe)					
		Traffic Control/Detours Urban Excavation		4	mo	\$15,000.00	\$60,000.00
		Pavement & Base/Remove & Replace Urban Excavation		18,247	lin ft	\$60.00	\$1,094,820.00
		Utility Relocation & Repair Urban Excavation		18,247	lin ft	\$30.00	\$547,410.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$10,563,830.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED Nathan Lehman	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Reach 3: S. Fowler Tank to La Junta  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project - Arkansas Valley Conduit  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		36" dia. steel, 0.1501" thick (60 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=125 372,000 lbs total steel	8140	6,200	lin ft	\$140.00	\$868,000.00
		36" dia. steel, 0.1501" thick (60 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 6,000,000 lbs total steel	8140	100,000	lin ft	\$140.00	\$14,000,000.00
		36" dia. steel, 0.1707" thick (68 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=375 1,292,000 lbs total steel	8140	19,000	lin ft	\$145.00	\$2,755,000.00
		36" dia. steel, 0.25" thick (100 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=500 5,500,000 lbs total steel	8140	55,000	lin ft	\$155.00	\$8,525,000.00
		<u>Isolation Valves (Manual operation):</u>					
		36" Class 150B (psig) Butterfly Valve w/ Operator	8140	5	ea	\$17,000.00	\$85,000.00
		36" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$29,000.00	\$58,000.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	7	ea	\$7,000.00	\$49,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	7	ea		
		60" I.D. precast base shell	8140	7	ea		
		36" dia. Cast iron manhole cover and ring set	8140	7	ea		
<b>SUBTOTAL THIS SHEET</b>							<b>\$26,340,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Reach 3: S. Fowler Tank to La Junta  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project - Arkansas Valley Conduit  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		35	ea	\$7,500.00	\$262,500.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	350	lin ft		
		- 3/4-inch Gravel Filter	8140	140	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	3,300	lbs		
		- 3" Combination Air Valve (1 ea)	8140	35	ea		
		- 3" Ball Valves (1 ea)	8140	35	ea		
		<u>Blowoff Structures (to include):</u>		35	ea	\$8,300.00	\$290,500.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	280	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	41	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	12	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	4,900	lbs		
		(141 lbs ea)					
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	70	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	35	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	350	lin ft		
		- 6" Tee (1 ea)	8140	35	ea		
		- 6" Blind Flange (1 ea)	8140	35	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	3,300	lbs		
		<u>Manholes-Buried</u>		7	ea	\$11,500.00	\$80,500.00
		-36" dia. Pipe Outlet (1 ea)	8140	7	ea		
		-36" dia. Blind Flange (1 ea)	8140	7	ea		
		<u>Cathodic Protection</u>	8140	1	ls	\$1,314,550.00	\$1,314,550.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,948,050.00</b>
		<b>SUBTOTAL REACH 3</b>					<b>\$38,851,880.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Manzanola Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR25 (CIOD) C900 PVC pipe	8140	1,600	lin ft	\$6.20	\$9,920.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$1,100.00	\$1,100.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	1	ea		
		60" I.D. precast base shell	8140	1	ea		
		36" dia. Cast iron manhole cover and ring set	8140	1	ea		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$18,020.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>(Signature)</i>	<b>CHECKED</b> <i>(Signature)</i> 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Dew 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Manzanola Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valves (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		(141 lbs ea)					
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL MANZANOLA SPUR</b>					<b>\$102,385.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>3/4/22/11</i>
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Rocky Ford Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	1	acre	\$1,000.00	\$1,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	1,100	cy	\$4.00	\$4,400.00
		Seeding	8140	1	acre	\$1,500.00	\$1,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	2,100	cy	\$9.00	\$18,900.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	91	cy	\$45.00	\$4,095.00
		Pipe Bedding (Select material, 4" thick)	8140	41	cy	\$50.00	\$2,050.00
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	2,150	cy	\$7.00	\$15,050.00
		Compacting Embedment Backfill	8140	96	cy	\$16.00	\$1,536.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$51,031.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED Nathan Lehman	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Rocky Ford Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		12" DR25 (CIOD) C900 PVC pipe	8140	960	lin ft	\$22.00	\$21,120.00
		<u>Isolation Valves (Manual operation):</u>					
		12" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,500.00	\$2,500.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	1	ea		
		60" I.D. precast base shell	8140	1	ea		
		36" dia. Cast iron manhole cover and ring set	8140	1	ea		
<b>SUBTOTAL THIS SHEET</b>							<b>\$30,620.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Rocky Ford Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00	
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	10	lin ft			
		- 3/4-inch Gravel Filter	8140	4	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs			
		- 2" Combination Air Valve (1 ea)	8140	1	ea			
		- 2" Ball Valves (1 ea)	8140	1	ea			
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy			
		- Cementitious Materials for Pad (.33 tons ea)	8140	1	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	140	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	1	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft			
		- 6" Tee (1 ea)	8140	1	ea			
		- 6" Blind Flange (1 ea)	8140	1	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00	
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>	
		<b>SUBTOTAL ROCKY FORD SPUR</b>					<b>\$96,751.00</b>	

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Newdale/Grand Valley Spur  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Sitework Items:</u>						
		Clearing (3 times trench width)	8140	27	acre	\$1,000.00	\$27,000.00	
		Grubbing	8140	3	acre	\$2,500.00	\$7,500.00	
		Stripping (6" thick)	8140	21,630	cy	\$2.00	\$43,260.00	
		Seeding	8140	27	acre	\$1,500.00	\$40,500.00	
		<u>Earthwork Items:</u>						
		Soil Excavation (1.5:1) outside urban area	8140	37,230	cy	\$6.00	\$223,380.00	
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	1,365	cy	\$35.00	\$47,775.00	
		Pipe Bedding (Select material, 4" thick)	8140	750	cy	\$50.00	\$37,500.00	
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	38,350	cy	\$5.00	\$191,750.00	
		Compacting Embedment Backfill	8140	3,170	cy	\$14.00	\$44,380.00	
		All earthwork quantities above are for the actual sloped trench.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$663,045.00</b>	

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED Nathan Lehman	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Newdale/Grand Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" DR25 (CIOD) C900 PVC pipe	8140	13,525	lin ft	\$9.00	\$121,725.00
		4" DR25 (CIOD) C900 PVC pipe	8140	7,656	lin ft	\$6.20	\$47,467.20
		<u>Isolation Valves (Manual operation):</u>					
		6" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$1,300.00	\$1,300.00
		4" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$1,100.00	\$1,100.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	2	ea	\$7,000.00	\$14,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	2	ea		
		60" I.D. precast base shell	8140	2	ea		
		36" dia. Cast iron manhole cover and ring set	8140	2	ea		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$185,592.20</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 3/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Newdale/Grand Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		5	ea	\$6,800.00	\$34,000.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	50	lin ft		
		- 3/4-inch Gravel Filter	8140	20	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	475	lbs		
		- 2" Combination Air Valve (1 ea)	8140	5	ea		
		- 2" Ball Valves (1 ea)	8140	5	ea		
		<u>Blowoff Structures (to include):</u>		5	ea	\$8,300.00	\$41,500.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	40	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	6	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	705	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	10	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	5	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	50	lin ft		
		- 6" Tee (1 ea)	8140	5	ea		
		- 6" Blind Flange (1 ea)	8140	5	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	475	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$75,500.00</b>
		<b>SUBTOTAL GRAND VALLEY SPUR</b>					<b>\$924,137.20</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition S. Swink Spur  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Sitework Items:</u>						
		Clearing (3 times trench width)	8140	14	acre	\$1,000.00	\$14,000.00	
		Grubbing	8140	2	acre	\$2,500.00	\$5,000.00	
		Stripping (6" thick)	8140	11,500	cy	\$2.00	\$23,000.00	
		Seeding	8140	14	acre	\$1,500.00	\$21,000.00	
		<u>Earthwork Items:</u>						
		Soil Excavation (1.5:1) outside urban area	8140	20,000	cy	\$6.00	\$120,000.00	
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	740	cy	\$45.00	\$33,300.00	
		Pipe Bedding (Select material, 4" thick)	8140	390	cy	\$50.00	\$19,500.00	
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	20,000	cy	\$5.00	\$100,000.00	
		Compacting Embedment Backfill	8140	1,750	cy	\$14.00	\$24,500.00	
		All earthwork quantities above are for the actual sloped trench.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$360,300.00</b>	

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED Nathan Lehman	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition S. Swink Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" DR18 (CIOD) C900 PVC pipe	8140	11,000	lin ft	\$10.00	\$110,000.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,100.00	\$2,100.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	1	ea		
		60" I.D. precast base shell	8140	1	ea		
		36" dia. Cast iron manhole cover and ring set	8140	1	ea		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$119,100.00</b>

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>3/22/11</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition S. Swink Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		3	ea	\$6,800.00	\$20,400.00	
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	30	lin ft			
		- 3/4-inch Gravel Filter	8140	12	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	290	lbs			
		- 2" Combination Air Valve (1 ea)	8140	3	ea			
		- 2" Ball Valves (1 ea)	8140	3	ea			
		<u>Blowoff Structures (to include):</u>		3	ea	\$8,300.00	\$24,900.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	24	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	4	cy			
		- Cementitious Materials for Pad (.33 tons ea)	8140	1	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	420	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	6	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	3	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft			
		- 6" Tee (1 ea)	8140	3	ea			
		- 6" Blind Flange (1 ea)	8140	3	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	290	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00	
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$45,300.00</b>	
		<b>SUBTOTAL S. SWINK SPUR</b>					<b>\$524,700.00</b>	

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Homestead Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JM\Morris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Sitework Items:</u>						
		Clearing (3 times trench width)	8140	3	acre	\$1,000.00	\$3,000.00	
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00	
		Stripping (6" thick)	8140	2,630	cy	\$4.00	\$10,520.00	
		Seeding	8140	3	acre	\$1,500.00	\$4,500.00	
		<u>Earthwork Items:</u>						
		Soil Excavation (1.5:1) outside urban area	8140	4,400	cy	\$9.00	\$39,600.00	
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	155	cy	\$45.00	\$6,975.00	
		Pipe Bedding (Select material, 4" thick)	8140	89	cy	\$50.00	\$4,450.00	
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	4,500	cy	\$7.00	\$31,500.00	
		Compacting Embedment Backfill	8140	330	cy	\$16.00	\$5,280.00	
		All earthwork quantities above are for the actual sloped trench.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$108,325.00</b>	

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED Nathan Lehman	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>4/22/11</i>
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>Dec 4/22/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Homestead Spur  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR18 (CIOD) C900 PVC pipe	8140	2,600	lin ft	\$6.80	\$17,680.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,100.00	\$2,100.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	1	ea		
		60" I.D. precast base shell	8140	1	ea		
		36" dia. Cast iron manhole cover and ring set	8140	1	ea		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$26,780.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 3/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Homestead Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> <tr> <td colspan="2"><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valves (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL HOMESTEAD SPUR</b>					<b>\$150,205.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>4/22/11</i>
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:67%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> 1 2011</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> 1 2011
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> 1 2011				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	1	acre	\$1,000.00	\$1,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	525	cy	\$6.00	\$3,150.00
		Seeding	8140	1	acre	\$1,500.00	\$1,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	0	cy	\$0.00	\$0.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	0	cy	\$0.00	\$0.00
		Pipe Bedding (Select material, 4" thick)	8140	0	cy	\$0.00	\$0.00
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	0	cy	\$0.00	\$0.00
		Compacting Embedment Backfill	8140	0	cy	\$0.00	\$0.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	2,000	cy	\$9.00	\$18,000.00
		Pipe Bedding (Select material, 4" thick)	8140	115	cy	\$45.00	\$5,175.00
		Embedment & Cover Backfill	8140	1,850	cy	\$7.00	\$12,950.00
		Compacting Embedment Backfill (Urban trench will require traffic control, signage, and detours for duration of work) (Urban Trench Length: 3,154 ft of 12" pipe)	8140	175	cy	\$16.00	\$2,800.00
		Traffic Control/Detours Urban Excavation		1	mo	\$15,000.00	\$15,000.00
		Pavement & Base/Remove & Replace Urban Excavation		3,154	lin ft	\$60.00	\$189,240.00
		Utility Relocation & Repair Urban Excavation		3,154	lin ft	\$30.00	\$94,620.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$345,935.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED Nathan Lehman	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> 1 2011</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> 1 2011
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> 1 2011				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		12" DR18 (CIOD) C900 PVC pipe	8140	3,200	lin ft	\$27.00	\$86,400.00
		<u>Isolation Valves (Manual operation):</u>					
		12" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$7,000.00	\$7,000.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	1	ea		
		60" I.D. precast base shell	8140	1	ea		
		36" dia. Cast iron manhole cover and ring set	8140	1	ea		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$100,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>WCD</i> 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Dea</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> 1 2011</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\UMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> 1 2011
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> 1 2011				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		2	ea	\$6,800.00	\$13,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	20	lin ft		
		- 3/4-inch Gravel Filter	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	190	lbs		
		- 2" Combination Air Valve (1 ea)	8140	2	ea		
		- 2" Ball Valves (1 ea)	8140	2	ea		
		<u>Blowoff Structures (to include):</u>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	16	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	3	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	280	lbs		
		(141 lbs ea)					
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	4	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1 ea)	8140	2	ea		
		- 6" Blind Flange (1 ea)	8140	2	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	190	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$30,200.00</b>
		<b>SUBTOTAL LA JUNTA SPUR</b>					<b>\$476,535.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>3 4/22/11</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Dec 4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit LaJunta South Water Storage Tank Alternative 1 Reach 3: S. Fowler Tank to La Junta	<b>PROJECT:</b> Fryington-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - LaJunta South Water Tank Alt 1 Appraisal Quant Est 8120.xlsx\CivilStructural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	1,315	yd <sup>3</sup>	\$4.00	\$5,260.00
		Access Roads	86-68120	35	yd <sup>3</sup>	\$6.00	\$210.00
		Excavation (tank foundation)	86-68120	2,845	yd <sup>3</sup>	\$15.00	\$42,675.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	2,015	yd <sup>3</sup>	\$16.00	\$32,240.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	1,110	yd <sup>3</sup>	\$35.00	\$38,850.00
		Access Roads	86-68120	35	yd <sup>3</sup>	\$40.00	\$1,400.00
		Chain Link Fence	86-68120	1,335	lin ft	\$40.00	\$53,400.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. Three 20' wide double swing gate					
		<b>Reinforced Concrete for Pad &amp; Stem Foundation</b>	86-68120	1	ls	\$620,000.00	\$620,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 70 miles					
		Concrete: 876 yd <sup>3</sup>					
		Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 118,265 lbs					
		Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 247 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$794,035.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/22/11	PEER REVIEW / DATE Paul Ruchti 3/30/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE DCD 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit LaJunta South Water Storage Tank Alternative 1 Reach 3: S. Fowler Tank to La Junta	<b>PROJECT:</b> Fryingpan-Arkansas Project
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Water Storage Tanks\La Junta Water Storage Tank\8420 Mechanical (Tank)\AVC - LaJunta South Water Tank Alt 1 8420.xlsx\Hydraulic equip	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		Steel water storage tanks					
		5 - 1,000,000-gallon steel water storage tanks (5,000,000 gallons combined capacity)	86-68420	1	ls	\$9,500,000.00	\$9,500,000.00
		AWWA D100 compliance minimum water surface 40 feet (above foundation) maximum water surface 80.58 feet (above foundation) diameter 74 feet					
<b>SUBTOTAL THIS SHEET</b>							<b>\$9,500,000.00</b>

QUANTITIES		PRICES	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shaneil Mae Young</i> 4/26/11
DATE PREPARED 3/31/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE DCD 4/26/11

<b>FEATURE:</b>  Arkansas Valley Conduit Fowler South Water Storage Tank Alternative 1 Reach 3: S. Fowler Tank to La Junta	<b>PROJECT:</b> Fryington-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC -Fowler South Water Tank Alt 1 Appraisal Quant Est 8120.xlsx\Civil\Structural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	2,020	yd <sup>3</sup>	\$4.00	\$8,080.00
		Access Roads	86-68120	75	yd <sup>3</sup>	\$6.00	\$450.00
		Excavation (tank foundation)	86-68120	1,100	yd <sup>3</sup>	\$15.00	\$16,500.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	810	yd <sup>3</sup>	\$25.00	\$20,250.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	1,390	yd <sup>3</sup>	\$35.00	\$48,650.00
		Access Roads	86-68120	75	yd <sup>3</sup>	\$40.00	\$3,000.00
		Chain Link Fence	86-68120	1,320	lin ft	\$40.00	\$52,800.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. Two 20' wide double swing gate					
		<b>Reinforced Concrete for Ring Foundation</b>	86-68120	1	ls	\$250,000.00	\$250,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 40 miles					
		Concrete: 335 yd3					
		Reinforcement (Assume 135 lb/yd3): 45,240 lbs					
		Cement (Assume: 0.282 ton/yd3): 95 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$399,730.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i>
DATE PREPARED 03/22/11	PEER REVIEW / DATE Paul Ruchti 3/30/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Fowler South Water Storage Tank Alternative 1 Reach 3: S. Fowler Tank to La Junta	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Water Storage Tanks\Fowler Water Storage Tank\8420 Mechanical\AVC -Fowler South Water Tank Alt 1 Appraisal Quant Est

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		Steel water storage tanks					
		3 - 2,115,000-gallon steel water storage tank (6,345,000 gallons combined capacity)	86-68420	1	ls	\$5,700,000.00	\$5,700,000.00
		AWWA D100 compliance minimum water surface 0 feet (above foundation)					
		maximum water surface 25 feet (above foundation)					
		diameter 120 feet					
<b>SUBTOTAL THIS SHEET</b>							<b>\$5,700,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Steven New York</i> 4/26/11
DATE PREPARED 3/31/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE <i>NCD</i> 4/26/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Reach 3: S. Fowler tank to La Junta	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 1 R3 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\Civil\Structural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	15	ea	\$35,000.00	\$525,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$525,000.00</b>

QUANTITIES		PRICES	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>g...</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>...</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Reach 3: S. Fowler tank to La Junta Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	15	ls	\$5,600.00	\$84,000.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	15	ea	\$800.00	\$12,000.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	15	ea	\$13,000.00	\$195,000.00
<b>Subtotal - This Sheet</b>							<b>\$291,000.00</b>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>Smiz</i>	CHECKED <i>Shunka</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Reach 3: S. Fowler tank to La Junta	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-In\8420 - Valves\AVC - Alt 1 R3 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (15 vaults)</b>	86-68420				
		6-inch pressure reducing valve 15 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		15	ea	\$7,800.00	\$117,000.00
		6-inch manually-operated butterfly valve 13 valves, 90 lbs each AWWA Class 150-B		13	ea	\$1,300.00	\$16,900.00
		2 valves, 130 lbs each AWWA Class 250-B		2	ea	\$2,300.00	\$4,600.00
		6-inch buried square-nut operated butterfly valve with valve box 13 valves, 245 lbs each AWWA Class 150-B		13	ea	\$2,800.00	\$36,400.00
		2 valves, 285 lbs each AWWA Class 250-B		2	ea	\$3,800.00	\$7,600.00
		1-inch air valve combination air valve 15 air valves, 35 lbs each		15	ea	\$1,000.00	\$15,000.00
		<b>Total</b>					<b>\$197,500.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>GMR</i>	CHECKED <i>Shawna...</i> 5/4/11
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>DRD</i> 5/4/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Reach 4: La Junta to Lamar  <b>Civil</b>	<b>PROJECT:</b> Fryingspan-Arkansas Project - Arkansas Valley Conduit  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	490	acre	\$800.00	\$392,000.00
		Grubbing	8140	49	acre	\$2,500.00	\$122,500.00
		Stripping (6" thick)	8140	400,000	cy	\$2.00	\$800,000.00
		Seeding	8140	490	acre	\$800.00	\$392,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	880,000	cy	\$4.00	\$3,520,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	45,000	cy	\$25.00	\$1,125,000.00
		Pipe Bedding (Select material, 4" thick)	8140	16,000	cy	\$30.00	\$480,000.00
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	900,000	cy	\$3.00	\$2,700,000.00
		Compacting Embedment Backfill	8140	67,000	cy	\$8.00	\$536,000.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$10,067,500.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED Nathan Lehman	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Reach 4: La Junta to Lamar  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project - Arkansas Valley Conduit  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		24" DR25 (CIOD) C905 PVC pipe	8140	93,000	lin ft	\$68.00	\$6,324,000.00
		24" DR25 (CIOD) C905 PVC pipe	8140	87,000	lin ft	\$68.00	\$5,916,000.00
		20" DR18 (CIOD) C905 PVC pipe	8140	52,000	lin ft	\$60.00	\$3,120,000.00
		18" DR18 (CIOD) C905 PVC pipe	8140	42,000	lin ft	\$50.00	\$2,100,000.00
		18" dia. steel, 0.1442" thick (30#/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 1,080,000 lbs total steel	8140	36,000	lin ft	\$75.00	\$2,700,000.00
		<u>Isolation Valves (Manual operation):</u>					
		24" Class 150B (psig) Butterfly Valve w/ Operator	8140	4	ea	\$9,000.00	\$36,000.00
		24" Class 150B (psig) Butterfly Valve w/ Operator	8140	3	ea	\$9,000.00	\$27,000.00
		20" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$10,500.00	\$21,000.00
		18" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$8,600.00	\$17,200.00
		18" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$15,500.00	\$15,500.00
		<u>Isolation Valve Manhole (to include):</u>		12	ea	\$7,000.00	\$84,000.00
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	12	ea		
		60" I.D. x 6" wall precast 36" Riser	8140	12	ea		
		60" I.D. precast base shell	8140	12	ea		
		36" dia. Cast iron manhole cover and ring set	8140	12	ea		
<b>SUBTOTAL THIS SHEET</b>							<b>\$20,360,700.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> NCO 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Reach 4: La Junta to Lamar  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project - Arkansas Valley Conduit  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		59	ea	\$6,800.00	\$401,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	590	lin ft		
		- 3/4-inch Gravel Filter	8140	235	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	5,600	lbs		
		- 2" Combination Air Valve (1 ea)	8140	59	ea		
		- 2" Ball Valves (1 ea)	8140	59	ea		
		<u>Blowoff Structures (to include):</u>		59	ea	\$8,300.00	\$489,700.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	470	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	70	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	20	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	8,300	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	120	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	59	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	590	lin ft		
		- 6" Tee (1 ea)	8140	59	ea		
		- 6" Blind Flange (1 ea)	8140	59	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	5,600	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$135,775.00	\$135,775.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,026,675.00</b>
		<b>SUBTOTAL REACH 4</b>					<b>\$31,454,875.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Hasty Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	1	acre	\$1,000.00	\$1,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	710	cy	\$6.00	\$4,260.00
		Seeding	8140	1	acre	\$1,500.00	\$1,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	1,350	cy	\$9.00	\$12,150.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	59	cy	\$45.00	\$2,655.00
		Pipe Bedding (Select material, 4" thick)	8140	26	cy	\$50.00	\$1,300.00
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	1,400	cy	\$7.00	\$9,800.00
		Compacting Embedment Backfill	8140	63	cy	\$16.00	\$1,008.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$36,173.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED Nathan Lehman	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11



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<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR18 (CIOD) C900 PVC pipe	8140	630	lin ft	\$6.80	\$4,284.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,100.00	\$2,100.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	1	ea		
		60" I.D. precast base shell	8140	1	ea		
		36" dia. Cast iron manhole cover and ring set	8140	1	ea		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$13,384.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Hasty Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
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<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valves (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL HASTY SPUR</b>					<b>\$64,657.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 3/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition McClave Spur  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" DR25 (CIOD) C900 PVC pipe	8140	5,500	lin ft	\$9.00	\$49,500.00
		<u>Isolation Valves (Manual operation):</u>					
		6" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$1,300.00	\$1,300.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	1	ea		
		60" I.D. precast base shell	8140	1	ea		
		36" dia. Cast iron manhole cover and ring set	8140	1	ea		
<b>SUBTOTAL THIS SHEET</b>							<b>\$57,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition McClave Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		2	ea	\$6,800.00	\$13,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	20	lin ft		
		- 3/4-inch Gravel Filter	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	190	lbs		
		- 2" Combination Air Valve (1 ea)	8140	2	ea		
		- 2" Ball Valves (1 ea)	8140	2	ea		
		<u>Blowoff Structures (to include):</u>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	16	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	2	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	280	lbs		
		(141 lbs ea)					
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	4	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1 ea)	8140	2	ea		
		- 6" Blind Flange (1 ea)	8140	2	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	190	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$30,200.00</b>
		<b>SUBTOTAL McCLAVE SPUR</b>					<b>\$311,470.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>4/22/11</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>4/22/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Wiley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D81701Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8#/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 158,000 lbs total steel	8140	19,750	lin ft	\$34.00	\$671,500.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	1	ea		
		60" I.D. precast base shell	8140	1	ea		
		36" dia. Cast iron manhole cover and ring set	8140	1	ea		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$680,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Wiley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		4	ea	\$6,800.00	\$27,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	40	lin ft		
		- 3/4-inch Gravel Filter	8140	16	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	380	lbs		
		- 2" Combination Air Valve (1 ea)	8140	4	ea		
		- 2" Ball Valves (1 ea)	8140	4	ea		
		<u>Blowoff Structures (to include):</u>		4	ea	\$8,300.00	\$33,200.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	32	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	5	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	560	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	8	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	4	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	40	lin ft		
		- 6" Tee (1 ea)	8140	4	ea		
		- 6" Blind Flange (1 ea)	8140	4	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	380	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$33,690.00	\$33,690.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$94,090.00</b>
		<b>SUBTOTAL WILEY SPUR</b>					<b>\$1,358,640.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Reach 4: La Junta to Lamar				<b>PROJECT:</b> Fryingpan-Arkansas Project			
<b>WOID:</b> AF523		<b>ESTIMATE LEVEL:</b> Appraisal		<b>REGION:</b> GP		<b>UNIT PRICE LEVEL:</b> Jan-11	
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 1 R4 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural							

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	7	ea	\$35,000.00	\$245,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
<b>SUBTOTAL THIS SHEET</b>							<b>\$245,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Reach 4: La Junta to Lamar Mechanical Equipment	<b>PROJECT:</b> Fryngpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	7	ls	\$5,600.00	\$39,200.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	7	ea	\$800.00	\$5,600.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	7	ea	\$13,000.00	\$91,000.00
Subtotal - This Sheet							\$135,800.00
<del>Total - Sheets 1 thru 6</del>							<del>\$776,000.00</del>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawn [Signature]</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCO</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Reach 4: La Junta to Lamar	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 1 R4 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (7 vaults)</b>	86-68420				
		6-inch pressure reducing valve 7 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		7	ea	\$7,800.00	\$54,600.00
		6-inch manually-operated butterfly valve 5 valves, 90 lbs each AWWA Class 150-B		5	ea	\$1,300.00	\$6,500.00
		2 valves, 130 lbs each AWWA Class 250-B		2	ea	\$2,300.00	\$4,600.00
		6-inch buried square-nut operated butterfly valve with valve box 5 valves, 245 lbs each AWWA Class 150-B		5	ea	\$1,800.00	\$9,000.00
		2 valves, 285 lbs each AWWA Class 250-B		2	ea	\$2,800.00	\$5,600.00
		1-inch air valve combination air valve 7 air valves, 35 lbs each		7	ea	\$1,000.00	\$7,000.00
		<b>Total</b>					<b>\$87,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawn...</i> 5/4/11
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>...</i> 5/4/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition HWY 96 Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		18" DR18 (CIOD) C905 PVC pipe	8140	39,000	lin ft	\$50.00	\$1,950,000.00
		16" dia. steel, 0.1345" thick (25#/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 1,400,000 lbs total steel	8140	56,000	lin ft	\$70.00	\$3,920,000.00
		12" DR14 (CIOD) C900 PVC pipe	8140	3,500	lin ft	\$31.00	\$108,500.00
		10" dia. steel, 0.1345" thick (16#/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 400,000 lbs total steel	8140	25,000	lin ft	\$48.00	\$1,200,000.00
		<u>Isolation Valves (Manual operation):</u>					
		18" Class 250 (psig) Butterfly Valve w/ Operator	8140	3	ea	\$8,600.00	\$25,800.00
		16" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$11,000.00	\$11,000.00
		12" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$7,000.00	\$7,000.00
		10" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$5,000.00	\$5,000.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	6	ea	\$7,000.00	\$42,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	6	ea		
		60" I.D. precast base shell	8140	6	ea		
		36" dia. Cast iron manhole cover and ring set	8140	6	ea		
<b>SUBTOTAL THIS SHEET</b>							<b>\$7,269,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>JK</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>DCD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition HWY 96 Spur  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		24	ea	\$6,800.00	\$163,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	240	lin ft		
		- 3/4-inch Gravel Filter	8140	96	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	2,300	lbs		
		- 2" Combination Air Valve (1 ea)	8140	24	ea		
		- 2" Ball Valves (1 ea)	8140	24	ea		
		<u>Blowoff Structures (to include):</u>		24	ea	\$8,300.00	\$199,200.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	190	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	28	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	8	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	3,400	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	48	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	24	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	240	lin ft		
		- 6" Tee (1 ea)	8140	24	ea		
		- 6" Blind Flange (1 ea)	8140	24	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	2,300	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$256,800.00	\$256,800.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$619,200.00</b>
		<b>SUBTOTAL HWY 96 SPUR</b>					<b>\$11,425,500.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition 96 Pipeline Co. Spur  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	3	acre	\$1,000.00	\$3,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	2,400	cy	\$4.00	\$9,600.00
		Seeding	8140	3	acre	\$1,500.00	\$4,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	4,000	cy	\$9.00	\$36,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	140	cy	\$45.00	\$6,300.00
		Pipe Bedding (Select material, 4" thick)	8140	81	cy	\$50.00	\$4,050.00
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	4,100	cy	\$7.00	\$28,700.00
		Compacting Embedment Backfill	8140	300	cy	\$16.00	\$4,800.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$99,450.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED Nathan Lehman	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition 96 Pipeline Co. Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8#/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=875 19,200 lbs total steel	8140	2,400	lin ft	\$34.00	\$81,600.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	1	ea		
		60" I.D. precast base shell	8140	1	ea		
		36" dia. Cast iron manhole cover and ring set	8140	1	ea		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$90,900.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition 96 Pipeline Co. Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valves (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		(141 lbs ea)					
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$4,195.00	\$4,195.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$19,295.00</b>
		<b>SUBTOTAL 96 PIPELINE CO. SPUR</b>					<b>\$209,645.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 HWY 96 Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 1 96 Spur Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	7	ea	\$35,000.00	\$245,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$245,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>g... 4/30/11</i>
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>DCD 4/30/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 HWY 96 Spur Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment	86-68410	7	ls	\$5,600.00	\$39,200.00
		list of equipment per vault:					
		(1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp					
		(12 ft)-6" diam, 16 ga., galv. steel duct					
		(2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-6"x8" reducer, sch 20, galv. steel pipe					
		(4)-8" diam, stainless steel bird screens					
		(2)-6"x8" reducer, 16 ga, galv. steel duct					
		(2)-6" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/6 Hp					
		(1)-fan wall switch and box					
	2	Meter vault heater	86-68410	7	ea	\$800.00	\$5,600.00
		3 kW unit heater					
		thermostatically controlled					
	3	Flowmeter system	86-68410	7	ea	\$13,000.00	\$91,000.00
		6" diameter, microprocessor-based,					
		flanged electro-magnetic flowmeter with					
		remote wall-mounted transmitter					
		weight= approx 85 lbs					
		120 Volt AC					
<b>Subtotal - This Sheet</b>							<b>\$135,800.00</b>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shannon...</i>
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 HWY 96 Spur (Reach 2A)	<b>PROJECT:</b> Fryingspan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 1 96 Spur Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		Participant Tie-In Vaults (7 vaults)	86-68420				
		6-inch pressure reducing valve 7 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		7	ea	\$7,800.00	\$54,600.00
		6-inch manually-operated butterfly valve 6 valves, 130 lbs each AWWA Class 250-B 1 valve, 170 lbs each Henry Pratt Class 350		6	ea	\$2,300.00	\$13,800.00
		6-inch buried square-nut operated butterfly valve with valve box 6 valves, 285 lbs each AWWA Class 250-B 1 valve, 325 lbs each Henry Pratt Class 350		6	ea	\$2,800.00	\$16,800.00
		1-inch air valve combination air valve 7 air valves, 35 lbs each		1	ea	\$3,300.00	\$3,300.00
		1-inch air valve combination air valve 7 air valves, 35 lbs each		7	ea	\$1,000.00	\$7,000.00
		<b>Total</b>					<b>\$98,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawna McCoy 5/4/11</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>D. Drake 5/4/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Eads Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\COMMON\JMORRIS\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	53	acre	\$1,000.00	\$53,000.00
		Grubbing	8140	5	acre	\$2,500.00	\$12,500.00
		Stripping (6" thick)	8140	43,000	cy	\$2.00	\$86,000.00
		Seeding	8140	53	acre	\$1,500.00	\$79,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	71,000	cy	\$6.00	\$426,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	9,200	cy	\$35.00	\$322,000.00
		Pipe Bedding (Select material, 4" thick)	8140	1,700	cy	\$40.00	\$68,000.00
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	79,000	cy	\$5.00	\$395,000.00
		Compacting Embedment Backfill	8140	5,500	cy	\$14.00	\$77,000.00
		All earthwork quantities above are for the actual sloped trench.					
<b>SUBTOTAL THIS SHEET</b>							<b>\$1,519,000.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED Nathan Lehman	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 4/20/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>DCD</i> 4/20/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Eads Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\UMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		10" DR25 (CIOD) C900 PVC pipe	8140	110,000	lin ft	\$16.00	\$1,760,000.00
		<u>Isolation Valves (Manual operation):</u>					
		10" Class 150B (psig) Butterfly Valve w/ Operator	8140	5	ea	\$2,000.00	\$10,000.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	5	ea	\$7,000.00	\$35,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	5	ea		
		60" I.D. precast base shell	8140	5	ea		
		36" dia. Cast iron manhole cover and ring set	8140	5	ea		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,805,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>WCD</i> 4/20/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>WCD</i> 4/20/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Eads Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		21	ea	\$6,800.00	\$142,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	210	lin ft		
		- 3/4-inch Gravel Filter	8140	84	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	2,000	lbs		
		- 2" Combination Air Valve (1 ea)	8140	21	ea		
		- 2" Ball Valves (1 ea)	8140	21	ea		
		<u>Blowoff Structures (to include):</u>		21	ea	\$8,300.00	\$174,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	170	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	25	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	7	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	3,000	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	42	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	21	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	210	lin ft		
		- 6" Tee (1 ea)	8140	21	ea		
		- 6" Blind Flange (1 ea)	8140	21	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	2,000	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$317,100.00</b>
		<b>SUBTOTAL EADS SPUR</b>					<b>\$3,641,100.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>LLS</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>Doc</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Eads & May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width: 100%;"> <tr> <td style="width: 33%;">WOID:</td> <td style="width: 33%;">AF523</td> <td style="width: 34%;">ESTIMATE LEVEL:</td> <td style="width: 34%;">Appraisal</td> </tr> <tr> <td>REGION:</td> <td>GP</td> <td>UNIT PRICE LEVEL:</td> <td>Jan-11</td> </tr> <tr> <td colspan="4">FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1</td> </tr> </table>	WOID:	AF523	ESTIMATE LEVEL:	Appraisal	REGION:	GP	UNIT PRICE LEVEL:	Jan-11	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1			
WOID:	AF523	ESTIMATE LEVEL:	Appraisal										
REGION:	GP	UNIT PRICE LEVEL:	Jan-11										
FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1													

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Sitework Items:</u>						
		Clearing (3 times trench width)	8140	6	acre	\$1,000.00	\$6,000.00	
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00	
		Stripping (6" thick)	8140	4,800	cy	\$4.00	\$19,200.00	
		Seeding	8140	6	acre	\$1,500.00	\$9,000.00	
		<u>Earthwork Items:</u>						
		Soil Excavation (1.5:1) outside urban area	8140	4,900	cy	\$9.00	\$44,100.00	
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	3,000	cy	\$35.00	\$105,000.00	
		Pipe Bedding (Select material, 4" thick)	8140	240	cy	\$50.00	\$12,000.00	
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	7,500	cy	\$7.00	\$52,500.00	
		Compacting Embedment Backfill	8140	410	cy	\$16.00	\$6,560.00	
		All earthwork quantities above are for the actual sloped trench.						
		SUBTOTAL THIS SHEET						\$256,860.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED Nathan Lehman	BY Jeff Morris	CHECKED
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Eads & May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D81701\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		12" DR18 (CIOD) C900 PVC pipe	8140	32,000	lin ft	\$27.00	\$864,000.00
		<u>Isolation Valves (Manual operation):</u>					
		12" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$4,400.00	\$8,800.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	2	ea	\$7,000.00	\$14,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	2	ea		
		60" I.D. precast base shell	8140	2	ea		
		36" dia. Cast iron manhole cover and ring set	8140	2	ea		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$886,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Eads & May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		6	ea	\$6,800.00	\$40,800.00	
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	60	lin ft			
		- 3/4-inch Gravel Filter	8140	24	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	570	lbs			
		- 2" Combination Air Valve (1 ea)	8140	6	ea			
		- 2" Ball Valves (1 ea)	8140	6	ea			
		<u>Blowoff Structures (to include):</u>		6	ea	\$8,300.00	\$49,800.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	48	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	7	cy			
		- Cementitious Materials for Pad (.33 tons ea)	8140	2	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	850	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	12	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	6	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft			
		- 6" Tee (1 ea)	8140	6	ea			
		- 6" Blind Flange (1 ea)	8140	6	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	570	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00	
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>					\$90,600.00	
		<b>SUBTOTAL EADS &amp; MAY VALLEY SPUR</b>					\$1,234,260.00	

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>W. Chris Duke</i> 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>W. Chris Duke</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D81701Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		12" DR14 (CIOD) C900 PVC pipe	8140	27,000	lin ft	\$31.00	\$837,000.00
		<u>Isolation Valves (Manual operation):</u>					
		12" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$4,400.00	\$8,800.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	2	ea	\$7,000.00	\$14,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	2	ea		
		60" I.D. precast base shell	8140	2	ea		
		36" dia. Cast iron manhole cover and ring set	8140	2	ea		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$859,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		6	ea	\$6,800.00	\$40,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	60	lin ft		
		- 3/4-inch Gravel Filter	8140	24	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	570	lbs		
		- 2" Combination Air Valve (1 ea)	8140	6	ea		
		- 2" Ball Valves (1 ea)	8140	6	ea		
		<u>Blowoff Structures (to include):</u>		6	ea	\$8,300.00	\$49,800.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	48	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	7	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	2.0	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	850	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	12	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	6	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 6" Tee (1 ea)	8140	6	ea		
		- 6" Blind Flange (1 ea)	8140	6	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	570	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$90,600.00</b>
		<b>SUBTOTAL MAX VALLEY SPUR</b>					<b>\$1,946,700.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>4/22/11</i>
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>4/22/11</i>





<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Air Chamber Alternative 1 Eads & May Valley Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> 11-Jan
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Air Chamber Alt 1 Appraisal Quant Est 8420.xlsx\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Air Chamber</b>	86-68420	1	ls	\$83,000.00	\$83,000.00
		1,200-gallon (160 cubic feet) steel air chamber cylinder height 6 feet 6 inches cylinder diameter 5 feet air chamber weight 8,300 pounds mounted air compressor 6 horsepower					
<b>SUBTOTAL THIS SHEET</b>							<b>\$83,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>Shanell May 4/22/11</i>
DATE PREPARED 4/4/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>DCD 4/22/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Meter Vault Alternative 1 Eads & May Valley Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
	<b>FILE:</b> H:\D81701\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Meter Vaults Alt 4 Appraisal Quant Est 8120.xlsx\CivilStructural				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Vaults</b>	86-68120	1	ls	\$100,000.00	\$100,000.00
		(Assumed: two 12' W x 14' L x 16' D)					
		(Assume: $f_c=4,500$ psi)					
		Source: Pueblo, CO 85 miles					
		Concrete: 115 yd3					
		Reinforcement (Assume 135 lb/yd3): 15,650 lbs					
		Cement (Assume: 0.282 ton/yd3): 33 tons					
		<b>Access &amp; Service Hatches</b>	86-68120	1	ls	\$41,000.00	\$41,000.00
		Access hatch four 3' x3'					
		(The Bilco Co Type Q single leaf)					
		Service hatch two 5' x 10'					
		(The Bilco Co Type JD special sizes)					
		<b>Miscellaneous Metalwork</b>	86-68120	280	lbs	\$13.00	\$3,640.00
		(40-D-6601, Ladder Type 2)					
<b>SUBTOTAL THIS SHEET</b>							<b>\$144,640.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shamus Moore 4/22/11</i>
DATE PREPARED 04/06/11	PEER REVIEW / DATE Paul Ruchti 4/8/11	DATE PREPARED 04/20/11	PEER REVIEW / DATE <i>DCD 4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Eads and May Valley Meter Vaults Alternative 1 Eads and May Valley Spur Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: Jan-11
	FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume meter vault size=11.25'x11.25'x16.7'd					
		assume 2 vaults @ Eads					
	1	Meter vault ventilation equipment	86-68410	2	ls	\$6,600.00	\$13,200.00
		list of equipment per vault:					
		(1)-steel centrifugal fan, 450 cfm @ 0.25" w.g.s.p., 1/6 Hp					
		(16 ft)-8" diam, 16 ga., galv. steel duct					
		(2)-8" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-8"x12" reducer, sch 20, galv. steel pipe					
		(4)-12" diam, stainless steel bird screens					
		(2)-8"x12" reducer, 16 ga, galv. steel duct					
		(2)-8" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/6 Hp					
		(1)-fan wall switch and box					
	2	Meter vault heater	86-68410	2	ea	\$800.00	\$1,600.00
		3 kW unit heater					
		thermostatically controlled					
	3	Flowmeter	86-68410	2	ea	\$25,000.00	\$50,000.00
		Single-path ultrasonic, 12" diam					
		2 transducers with cables and 1 transmitter console					
		Subtotal - This Sheet					\$64,800.00
		<del>Total - Sheets 1 thru 3</del>					<del>\$212,500.00</del>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>GRuff</i>	CHECKED <i>Shawn Adams 5/3/11</i>
DATE PREPARED 4/7/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>for DCA 5/4/11</i>





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition <del>Holbrook Center Spur</del> East End S. Side Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR14 (CIOD) C900 PVC pipe	8140	16,000	lin ft	\$7.50	\$120,000.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	1	ea		
		60" I.D. precast base shell	8140	1	ea		
		36" dia. Cast iron manhole cover and ring set	8140	1	ea		
<b>SUBTOTAL THIS SHEET</b>							<b>\$129,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 3 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition <del>Holbrook Center Spur</del> East End S. Side Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		4	ea	\$6,800.00	\$27,200.00	
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	40	lin ft			
		- 3/4-inch Gravel Filter	8140	16	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	380	lbs			
		- 2" Combination Air Valve (1 ea)	8140	4	ea			
		- 2" Ball Valves (1 ea)	8140	4	ea			
		<u>Blowoff Structures (to include):</u>		4	ea	\$8,300.00	\$33,200.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	32	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	5	cy			
		- Cementitious Materials for Pad (.33 tons ea)	8140	2	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	560	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	8	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	4	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	40	lin ft			
		- 6" Tee (1 ea)	8140	4	ea			
		- 6" Blind Flange (1 ea)	8140	4	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	380	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00	
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$60,400.00</b>	
		<b>SUBTOTAL HOLBROOK CENTER SPUR</b>					<b>\$621,200.00</b>	

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Bent's Fort Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	1	acre	\$1,000.00	\$1,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	720	cy	\$6.00	\$4,320.00
		Seeding	8140	1	acre	\$1,500.00	\$1,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	1,200	cy	\$9.00	\$10,800.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	42	cy	\$45.00	\$1,890.00
		Pipe Bedding (Select material, 4" thick)	8140	24	cy	\$50.00	\$1,200.00
		Embedment & Cover Backfill (does not incl. shrink/swell)	8140	1,200	cy	\$7.00	\$8,400.00
		Compacting Embedment Backfill	8140	91	cy	\$16.00	\$1,456.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$33,066.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Bent's Fort Spur  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
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<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR14 (CIOD) C900 PVC pipe	8140	720	lin ft	\$7.50	\$5,400.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	1	ea		
		60" I.D. precast base shell	8140	1	ea		
		36" dia. Cast iron manhole cover and ring set	8140	1	ea		
<b>SUBTOTAL THIS SHEET</b>							<b>\$14,700.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>LS</i> 4/22/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>DCO</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Bent's Fort Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valves (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		(141 lbs ea)					
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL BENT'S FORD SPUR</b>					<b>\$62,866.00</b>

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>54/22/11</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>4/22/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Cheraw Loop  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\DB170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		16" DR25 (CIOD) C905 PVC pipe	8140	57,000	lin ft	\$32.00	✓ \$1,824,000.00
		16" DR18 (CIOD) C905 PVC pipe	8140	28,000	lin ft	\$40.00	✓ \$1,120,000.00
		16" dia. steel, 0.1345" thick (25#/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 266,700 lbs total steel	8140	10,500	lin ft	\$70.00	✓ \$735,000.00
		<u>Isolation Valves (Manual operation):</u>					
		16" Class 150B (psig) Butterfly Valve w/ Operator	8140	2	ea	\$3,900.00	\$7,800.00
		16" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$6,200.00	\$12,400.00
		16" Class 300 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$11,000.00	\$22,000.00
		<u>Isolation Valve Manhole (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring 36" access	8140	6	ea	\$7,000.00	\$42,000.00
		60" I.D. x 6" wall precast 36" Riser	8140	6	ea		
		60" I.D. precast base shell	8140	6	ea		
		36" dia. Cast iron manhole cover and ring set	8140	6	ea		
<b>SUBTOTAL THIS SHEET</b>							<b>\$3,763,200.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> JCD 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Cheraw Loop  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Alt 1 Max Day Estimators Version Rev2.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		18	ea	\$6,800.00	\$122,400.00
		- 48" dia. Concrete Pipe, vertical (10 ft. ea)	8140	180	lin ft		
		- 3/4-inch Gravel Filter	8140	72	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	1,700	lbs		
		- 2" Combination Air Valve (1 ea)	8140	18	ea		
		- 2" Ball Valves (1 ea)	8140	18	ea		
		<u>Blowoff Structures (to include):</u>		18	ea	\$8,300.00	\$149,400.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	145	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	21	cy		
		- Cementitious Materials for Pad (.33 tons ea)	8140	6	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew) (141 lbs ea)	8140	2,500	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	36	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	18	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	180	lin ft		
		- 6" Tee (1 ea)	8140	18	ea		
		- 6" Blind Flange (1 ea)	8140	18	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	1,700	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$37,850.00	\$37,850.00
		*Assume 5% of cost for all steel items above (pipe and mech. equipment)					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$309,650.00</b>
		<b>SUBTOTAL CHERAW LOOP</b>					<b>\$9,559,350.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/22/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Loop	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-ins\8120 - Site Work\AVC - Alt 1 Loop Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\Civil\Structural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	8	ea	\$35,000.00	\$280,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
<b>SUBTOTAL THIS SHEET</b>							<b>\$280,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Loop Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	8	ls	\$5,600.00	\$44,800.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	8	ea	\$800.00	\$6,400.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	8	ea	\$13,000.00	\$104,000.00
<b>Subtotal - This Sheet</b>							<b>\$155,200.00</b>

QUANTITIES		PRICES	
<b>BY</b> AM Ritt	<b>REVIEWED</b> R. Christensen	<b>BY</b> G. Ruff <i>Smile</i>	<b>CHECKED</b> <i>Shanika Jones 4/30/11</i>
<b>DATE PREPARED</b> 4/20/2011	<b>PEER REVIEW / DATE</b> D. Hulse - 4/14/11	<b>DATE PREPARED</b> 04/28/11	<b>PEER REVIEW / DATE</b> <i>DCD 4/30/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 1 Loop (Reach 3A)	<b>PROJECT:</b> Fryngpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 1 Loop Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (8 vaults)</b>	86-68420				
		6-inch pressure reducing valve 8 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		8	ea	\$7,800.00	\$62,400.00
		6-inch manually-operated butterfly valve 4 valves, 90 lbs each AWWA Class 150-B		4	ea	\$1,300.00	\$5,200.00
		4 valves, 130 lbs each AWWA Class 250-B		4	ea	\$2,300.00	\$9,200.00
		6-inch buried square-nut operated butterfly valve with valve box 4 valves, 245 lbs each AWWA Class 150-B		4	ea	\$1,800.00	\$7,200.00
		4 valves, 285 lbs each AWWA Class 250-B		4	ea	\$2,800.00	\$11,200.00
		1-inch air valve combination air valve 8 air valves, 35 lbs each		8	ea	\$1,000.00	\$8,000.00
		<b>Total</b>					<b>\$103,200.00</b>

QUANTITIES		PRICES	
<b>BY</b> Ken Smith	<b>REVIEWED</b> N. Nakamoto	<b>BY</b> G. Ruff <i>G. Ruff</i>	<b>CHECKED</b> <i>Shawna MacFarlan 5/4/11</i>
<b>DATE PREPARED</b> 4/22/2011	<b>PEER REVIEW / DATE</b> D. Drake / 4/25/11	<b>DATE PREPARED</b> 05/03/11	<b>PEER REVIEW / DATE</b> <i>DCD 5/4/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Crossings Alternative 1, Max Day Condition Crossings  <b>Civil</b>	<b>PROJECT:</b> Frypan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\U\Morris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 5 crossings.xlsx\Sheet1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Gravel Road Crossings (to include):</u>		18	ea	\$10,000.00	\$180,000.00
		Compacting backfill for road base (192 cy ea)	8140	3,500	cy		
		Aggregate Base Course (6" thick) (22 cy ea)	8140	400	cy		
		Gravel surfacing (6" thick) (23 cy ea)	8140	400	cy		
		Temporary barricades & signage (1 ea)	8140	18	ls		
		(assume req'd for 2 days per crossing)					
		<u>Paved Road Crossings, 2 lane (to include):</u>		238	ea	\$25,000.00	\$5,950,000.00
		Compacting backfill for road base (194 cy ea)	8140	46,000	cy		
		Aggregate base course (6" thick) ( 23 cy ea)	8140	5,500	cy		
		Asphalt surfacing (6" thick) (23 cy ea)	8140	5,500	cy		
		Temporary barricades & signage (1 ea)	8140	238	ls		
		(assume paved and req'd for 5 days ea)					
		<u>Major Road Crossings, 4 lanes (to include):</u>		26	ea	\$60,000.00	\$1,560,000.00
		Compacting backfill for road base (341 cy ea)	8140	8,900	cy		
		Aggregate base course (6" thick) (39 cy ea)	8140	1,000	cy		
		Asphalt surfacing (6" thick) (40 cy ea)	8140	1,000	cy		
		Temp. detour, barricades, & signage (1000')	8140	26	ls		
		(assume paved and req'd for 10 days ea)					
		<u>Interstate and Highway Crossings (to include):</u>		32	ea	\$300,000.00	\$9,600,000.00
		Horizontal Directional Drilling, 36" dia carrier pipe, min. cover depth is 20 ft, 500 lin. ft. each	8140	16,000	lin. ft.		
		48" dia casing pipe, welded steel 1/4" thick	8140	16,000	lin. ft.		
		Grout between borehole and casing pipe	8140	9,300	cy		
		<u>Railroad Crossing (to include):</u>		12	ea	\$120,000.00	\$1,440,000.00
		Horizontal Directional Drilling, 36" dia carrier pipe, min. cover depth is 20 ft, 150 lin. ft. each	8140	1,800	lin. ft.		
		48" dia casing pipe, welded steel 1/4" thick	8140	1,800	lin. ft.		
		Grout between borehole and casing pipe	8140	1,050	cy		
<b>SUBTOTAL THIS SHEET</b>							<b>\$18,730,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> <i>Jeff Morris and Michael Kramer</i> Jeff Morris and Michael Kramer	<b>CHECKED</b> <i>me g... 4/6/11</i>
<b>DATE PREPARED</b> 01/31/11	<b>PEER REVIEW / DATE</b> Dave Edwards	<b>DATE PREPARED</b> 04/06/11	<b>PEER REVIEW / DATE</b> <i>DCD 4/6/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Crossings Alternative 1, Max Day Condition Crossings  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 5 crossings.xlsx\Sheet1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Major River Crossing (to include):</u>		7	ea	\$1,000,000.00	\$7,000,000.00
		Horizontal Directional Drilling, 36" dia. Pipe, 48" dia. Casing pipe; average cover depth is 20 ft (1000 lin. ft ea)	8140	7,000	lin ft		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$7,000,000.00</b>
		<b>SUBTOTAL CROSSINGS ALTERNATIVE 1 THIS SHEET</b>					<b>\$25,730,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> <i>Jeff Morris and Michael Kramer</i>	<b>CHECKED</b> <i>me gary Alt</i> 4/6/11
<b>DATE PREPARED</b> 01/31/11	<b>PEER REVIEW / DATE</b> Dave Edwards	<b>DATE PREPARED</b> 04/06/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/6/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 1 Max Day Condition Dewatering  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Dewaterings All Alts 031011.xlsx\All 5	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Well Set Up (to include):</u>			ea		
		Mobilization/Demobilization					
		Unwatering System- Power for dewatering system shall be sufficient to handle power for unwatering system at the same time					
		Installation of 15' deep wells, Pump 100 gpm					
		8 inch dia. 5 ft long slotted well screens					
		8 inch dia. well casing					
		Install 2 inch dia. monitoring well					
		Well Development					
		Well completion pumping test 4 hr					
		Discharge Piping if no settling pond needed					
		check valves					
		flow meters					
		sampling ports					
		Power					
		All necessary generators, wiring, connections fuel, maintenance, rentals, etc. to provide power to dewatering system					
		Well Removal and Decommissioning					
		<u>Well Set Ups per Reach/Spur:</u>					
		Duration of operation is approximately 2 months operating time per well					
		Reaches 1 through 4	8140	970	ea	\$3,500.00	\$3,395,000.00
		18.28 miles in saturated areas requiring 1 well per 100' of pipe trench					
		Spurs	8140	370	ea	\$3,500.00	\$1,295,000.00
		6.94 miles in saturated areas requiring 1 well per 100' of pipe trench					
<b>SUBTOTAL THIS SHEET</b>							<b>\$4,690,000.00</b>

QUANTITIES		PRICES	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>DCD</i> 04-08-11
DATE PREPARED 03/15/11	PEER REVIEW / DATE Dave Edwards	DATE PREPARED 04/08/11	PEER REVIEW / DATE <i>DCD</i> 4/8/11



<b>FEATURE:</b>  Arkansas Valley Conduit Interconnect (Alternatives 1, 3, 4) Option B Piping, Appurtenances <b>Mechanical</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Steel Pipe and Valves:</u>					
		<u>Steel Pipe:</u>					
		8" Sch. 20 steel pipe (23 lb/ft)	8420	35	lin ft	\$180.00	\$6,300.00
		4" Std. wall steel pipe (11 lb/ft)	8420	56	lin ft	\$90.00	\$5,040.00
		<u>Flanges</u>					
		90-inch pipe Dia: 8 AWWA class D flanges 1,872 pounds each	8420	14,976	pounds	\$4.00	\$59,904.00
		84-inch pipe Dia: 2 AWWA class D flanges 1,646 pounds each	8420	3,292	pounds	\$4.00	\$13,168.00
		48-inch pipe Dia: 2 AWWA class D flanges 460 pounds each	8420	920	pounds	\$5.00	\$4,600.00
		42-inch pipe Dia: 4 AWWA class D flanges 364 pounds each	8420	1,456	pounds	\$5.00	\$7,280.00
		36-inch pipe Dia: 6 AWWA class D flanges 261 pounds each	8420	1,566	pounds	\$5.00	\$7,830.00
		30-inch pipe Dia: 4 AWWA class D flanges 164 pounds each	8420	656	pounds	\$5.00	\$3,280.00
		8-inch pipe Dia: 10 AWWA class D flanges 15 pounds each	8420	150	pounds	\$5.00	\$750.00
		4-inch pipe Dia: 16 AWWA class D flanges 8 pounds each	8420	128	pounds	\$5.00	\$640.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$108,792.00</b>

QUANTITIES		PRICES	
<b>BY</b> Ken Smith	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris	<b>CHECKED</b> Samuel Newberry 4/22/11
<b>DATE PREPARED</b> 3/30/2011	<b>PEER REVIEW / DATE</b> Nathan Nakamoto 3/30/11	<b>DATE PREPARED</b> 04/12/11	<b>PEER REVIEW / DATE</b> DCD 4/22/11


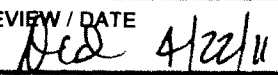
<b>FEATURE:</b>  Arkansas Valley Conduit Interconnect (Alternatives 1, 3, 4) Option B Valves <b>Mechanical</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF641</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> <tr> <td colspan="2"><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1</td> </tr> </table>	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1	
<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal						
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11						
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1							

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Valves</u>					
		90" Dia.: AWWA class 150B 4 butterfly valves manually-operated 19,700 pounds each	8420	4	ea	\$150,000.00	\$600,000.00
		84" Dia: AWWA class 150B 1 butterfly valves manually-operated 16,400 pounds each	8420	1	ea	\$130,000.00	\$130,000.00
		48" Dia. AWWA class 150B 1 butterfly valves manually-operated 6,925 pounds each	8420	1	ea	\$36,000.00	\$36,000.00
		42" Dia. AWWA class 150B 2 butterfly valves manually-operated 4,544 pounds each	8420	2	ea	\$26,000.00	\$52,000.00
		36" Dia. AWWA class 150B 3 butterfly valve manually-operated 3,425 pounds each	8420	3	ea	\$17,000.00	\$51,000.00
		30" Dia. AWWA class 150B 2 butterfly valves manually-operated 2,435 pounds each	8420	2	ea	\$14,500.00	\$29,000.00
		8" Dia. AWWA class 150B 5 butterfly valves manually-operated 125 pounds each	8420	5	ea	\$1,900.00	\$9,500.00
		4" Dia. AWWA class 150B 8 butterfly valves manually-operated 71 pounds each	8420	8	ea	\$1,100.00	\$8,800.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$916,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	CHECKED Jeremy Lorberau	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Jeremy Lorberau</i> 4/22/11
DATE PREPARED 3/30/2011	PEER REVIEW / DATE Nathan Nakamoto 3/30/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>DCD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Dam N/S Interconnect Option B (Alternatives 1, 3, 4) Piping  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Sitework Items:</b>					
		Clearing (3 times trench width)	8140	6.1	acre	\$1,000.00	\$6,080.00
		Grubbing (10% of clearing area)	8140	0.61	acre	\$2,500.00	\$1,525.00
		Unwatering trench (Soil to avg. depth of 6', rock from 6' to 15.5', sandstone w/ minor fractures, groundwater el varies from surface to over 15')	8140	1	ls	Included in Cofferdam Worksheets	
		Water for dust abatement	8140	310	Mgal	\$20.00	\$6,200.00
		Stripping (3 times width, 6" thick)	8140	1650	cy	\$4.00	\$6,600.00
		Seeding	8140	6.1	acre	\$1,500.00	\$9,120.00
		<b>Earthwork Items:</b>					
		Soil excavation (1.5:1 slopes, avg. 6' deep)	8140	15500	cy	\$6.00	\$93,000.00
		Rock excavation (sandstone, 0.25:1 slopes, 4.4' to 13' deep, groundwater varies in depth, blast & excavator removal)	8140	5200	cy	\$35.00	\$182,000.00
		Pipe Bedding 4" < 54" dia., 6" > 54" dia.)	8140	450	cy	\$50.00	\$22,500.00
		Backfill	8140	17000	cy	\$5.00	\$85,000.00
		Compacted Backfill (Embedment)	8140	2600	cy	\$14.00	\$36,400.00
		<b>Pipe Items:</b>					
		90" ID Steel pipe, 0.375" thick, mortar lined & epoxy coated, Class 250 ft, (L=2109.6 ft)	8140	770000	lbs	\$1.90	\$1,463,000.00
		48" ID Steel pipe, 0.25" thick, mortar lined & epoxy coated, Class 125 ft, (L=117.6 ft)	8140	15500	lbs	\$2.30	\$35,650.00
		42" ID Steel pipe, 0.175" thick, mortar lined & epoxy coated, Class 125 ft, (L=90.3 ft)	8140	7300	lbs	\$2.35	\$17,155.00
		36" ID Steel pipe, 0.1501" thick, mortar lined & epoxy coated, Class 125 ft, (L=215.99 ft)	8140	13000	lbs	\$2.40	\$31,200.00
		30" ID Steel pipe, 0.1345" thick, mortar lined & epoxy coated, Class 125 ft, (L=60 ft)	8140	2700	lbs	\$2.80	\$7,560.00
		Cathodic Protection (5% of steel pipe cost)	8140	1	ls	\$78,000.00	\$78,000.00
		<b>Cofferdam: See Estimate done by 8312</b>	8312				
<b>SUBTOTAL THIS SHEET</b>							<b>\$2,080,990.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED Steve Robertson	BY Jeff Morris	CHECKED 
DATE PREPARED 03/24/11	PEER REVIEW / DATE David Edwards 3/24/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE 

<b>FEATURE:</b>  Arkansas Valley Conduit Dam N/S Interconnect Option B (Alternatives 1, 3, 4) Pipe Appurtenances  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF641</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Pipe Appurtenances:</b>					
		90 x 30 x 90 Tee	8140	1	ea	\$9,300.00	\$9,300.00
		90 x 36 x 90 Tee	8140	1	ea	\$10,500.00	\$10,500.00
		30 x 30 x 30 Tee	8140	1	ea	\$9,000.00	\$9,000.00
		90 x 90 x 90 Tee	8140	1	ea	\$52,500.00	\$52,500.00
		90 x 90 x 42 Tee	8140	1	ea	\$15,750.00	\$15,750.00
		42 x 42 x 42 Tee	8140	1	ea	\$15,000.00	\$15,000.00
		48 x 36 x 42 Tee	8140	1	ea	\$28,500.00	\$28,500.00
		36 x 36 x 36 Tee	8140	1	ea	\$10,950.00	\$10,950.00
		84 x 90 x 84 x 42 Cross	8140	1	ea	\$135,000.00	\$135,000.00
		<b>Isolation Valve Manholes (to include):</b>					
		48" ID x 6" wall precast flat top with concentric ring, 36" access	8140	13	ea	\$4,500.00	\$58,500.00
		48" ID x 6" wall precast 36" riser					
		48" ID precast 72" base shell					
		36" dia. cast iron manhole cover and ring set					
		Cathodic Protection (5% of steel cost)	8140	1	ls	\$7,600.00	\$7,600.00
		<b>SUBTOTAL SHEET 1</b>					\$2,080,990.00
		<b>SUBTOTAL THIS SHEET</b>					\$345,000.00
		<b>SUBTOTAL INTERCONNECT PIPING AND APPURTENANCES</b>					\$2,425,990.00

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED Steve Robertson	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/24/11	PEER REVIEW / DATE David Edwards 3/24/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE DCD 4/22/11

<b>FEATURE:</b> Arkansas Valley Conduit Dam N/S Interconnect Option B (Alternatives 1, 3, 4) Sandbag Cofferdam	<b>PROJECT:</b> Fryingpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF641</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Sandbag Cofferdam Estimate.xls\Sandbag Cofferdam				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Foundation Preperation remove ~330 yds of river bottom sediment	86-68312	1	LS	\$30,000.00	\$30,000.00
		Furnish and install 914 - 3.5x3.5x3.5 ft Sandbags Fill sandbags with common excavation soils. Sand is available in the common exe.	86-68312	1,450	LS yd <sup>3</sup>	\$110,000.00 Included in lump sum above.	\$110,000.00
		Furnish and install 40 mil PVC membrane as the sand bags are being erected. (1st half of river excavation)	86-68312	810	yd <sup>2</sup>	Included in F&I sandbags item above.	
		Install and maintain 2 sump pumps for 1.5 months 2 pumps pumping at 20 gpm	86-68312	1	LS	\$35,000.00	\$35,000.00
		Remove and relocate 1,450 sandbags to the other side of river	86-68312	1	LS	\$75,000.00	\$75,000.00
		Furnish and install 40 mil PVC membrane as the sand bags are being erected. (2nd half of river excavation) - assuming 1st half membrane will not be reusable	86-68312	810	yd <sup>2</sup>	Included in remove and relocate sandbags item above.	
<b>SUBTOTAL THIS SHEET</b>							<b>\$250,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Paul Craig	CHECKED Ryan Davidson	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shannon</i> 4/22/11
DATE PREPARED 01/21/11	PEER REVIEW Allen Kiene	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>DD</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Alternative 2 Summary Sheet	<b>PROJECT:</b> Fryingpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 2 Summary Worksheet revised 5-11-12 - removed escalation.xls\EW SUM_Construction Cost					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Reach 1</b>					<b>\$25,103,150</b>
		Reach 1 Pipeline					\$25,103,150
		<b>Reach 2</b>					<b>\$44,491,305</b>
		Reach 2 Pipeline					\$43,885,895
		Boone Spur Pipeline					\$404,510
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$200,900
		<b>Reach 3</b>					<b>\$59,239,581</b>
		Reach 3 Pipeline					\$39,515,480
		Manzanola Spur Pipeline					\$102,180
		Rocky Ford Pipeline					\$96,306
		Newdale/Grand Valley Spur					\$993,290
		S. Swink Spur Pipeline					\$524,550
		Homestead Spur Pipeline					\$150,360
		LaJunta Spur Pipeline					\$465,150
		LaJunta Water Storage Tank (Sum of Civil Sheet + Hydraulic Sheet)					\$10,294,035
		Fowler Water Storage Tank (Sum of Civil Sheet + Hydraulic Sheet)					\$6,099,730
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$998,500
		<b>Reach 4</b>					<b>\$33,068,660</b>
		Reach 4 Pipeline					\$31,425,935
		Hasty Spur Pipeline					\$58,250
		McClave Spur Pipeline					\$310,550
		Wiley Spur					\$803,825
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$470,100
		<b>Highway 96 Spur</b>					<b>\$12,681,095</b>
		Hwy 96 Pipeline					\$11,990,100
		96 Pipeline Co. Spur Pipeline					\$208,895
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$482,100
		<b>Eads Spur (Includes May Valley)</b>					<b>\$8,996,640</b>
		Eads Spur Pipeline					\$4,544,100
		Eads and May Valley Spur Pipeline					\$2,137,700
		May Valley Spur Pipeline					\$1,436,400

QUANTITIES		PRICES	
BY TSC Design Team	CHECKED TSC Design Team	BY <i>[Signature]</i> TSC Estimating Team 5/14/12	CHECKED <i>[Signature]</i> 5/14/12
DATE PREPARED Feb-Apr 2011	PEER REVIEW / DATE TSC Design Team	DATE PREPARED Feb-May 2011; Revised May 2012	PEER REVIEW / DATE <i>[Signature]</i> 5/14/12

**FEATURE:**  
  
Arkansas Valley Conduit  
Alternative 2 Summary Sheet

**PROJECT:**  
Fryingpan-Arkansas Project

<b>WIOD:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 2 Summary Worksheet revised 5-11-12 - removed escalation.xls\EW SUM_Construction Cost	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Eads and May Valley Booster Plant					\$430,000
		Eads and May Valley Air Chamber (Sum of Civil Sheet and Hydraulic Sheet)					\$95,600
		Eads and May Valley Meter Vault (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$218,240
		Participant Tie-In Vaults*					\$134,600
* Costs for 2 Tie-In Vaults were removed from the Total Costs of the Participant Tie-In Vaults for the Loop (below)							
		<b>Loop</b>					<b>\$8,032,003</b>
		Bent's Fort Spur Pipeline					\$62,773
		Cheraw Loop Pipeline					\$6,862,380
		East End S. Side Spur					\$703,050
		Participant Tie-In Vaults*					\$403,800
** Costs = Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet Minus the Costs for 2 Tie-In Vaults for the Eads Spur (Includes May Valley)							
		<b>Crossings</b>					<b>\$27,245,000</b>
		<b>Dewatering</b>					<b>\$4,095,000</b>
		<b>Dust Abatement</b>					<b>\$4,000,000</b>
		<b>Water Treatment Plant**</b>					<b>\$25,924,061</b>
** Costs include updated February 16, 2012 costs from sub-consultant B&V (Estimate sheets dated 12-01-2011).							

QUANTITIES		PRICES	
BY TSC Design Team	CHECKED TSC Design Team	BY <i>[Signature]</i> TSC Estimating Team 5/14/12	CHECKED <i>[Signature]</i> 5/14/12
DATE PREPARED Feb-Apr 2011	PEER REVIEW / DATE TSC Design Team	DATE PREPARED Feb-May 2011; Revised May 2012	PEER REVIEW / DATE <i>[Signature]</i> 5/14/12



<b>FEATURE:</b>  Arkansas Valley Conduit Alternative 2 Summary Sheet	<b>PROJECT:</b> Fryingpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
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<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 2 Summary Worksheet revised 5-11-12 - removed escalation.xls]EW SUM_Construction Cost				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Subtotal 1					\$252,876,495.00
		Mobilization	5%	+/-			\$12,500,000.00
		<b>Subtotal 1 with Mobilization</b>					<b>\$265,376,495.00</b>
		Design Contingencies	12%	+/-			\$34,623,505.00
		Allowance for Procurement Strategies (APS)	0.0%	+/-			\$0.00
		Type of solicitation assumed is: Full and open sealed bid competition					
		<b>CONTRACT COST</b>					<b>\$300,000,000.00</b>
		Construction Contingencies	25%	+/-			\$70,000,000.00
		<b>FIELD COST</b>					<b>\$370,000,000.00</b>
		Non-Contract Costs*					\$125,000,000.00
		<b>CONSTRUCTION COST</b>					<b>\$495,000,000.00</b>

\* Non-Contract Costs were produced and supplied by a joint effort of Eastern Colorado Area Office and Great Plains Region with input from the Technical Service Center.

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY TSC Design Team	CHECKED TSC Design Team	BY <i>[Signature]</i> TSC Estimating Team	CHECKED <i>[Signature]</i> 5/14/12
DATE PREPARED Feb-Apr 2011	PEER REVIEW / DATE TSC Design Team	DATE PREPARED Feb-May 2011; Revised May 2012	PEER REVIEW / DATE <i>[Signature]</i> 5/14/12

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Reach 1: Pueblo Res. to WTP South Rd & 21st  <b>Civil</b>	<b>PROJECT:</b> Frylingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	55	acre	\$1,000.00	\$55,000.00
		Grubbing	8140	5	acre	\$2,500.00	\$12,500.00
		Stripping (6" thick)	8140	43,000	cy	\$2.00	\$86,000.00
		Seeding	8140	55	acre	\$1,500.00	\$82,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	126,000	cy	\$4.00	\$504,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume drill and blast	8140	9,000	cy	\$35.00	\$315,000.00
		Pipe Bedding (Select material, 4" thick)	8140	2,200	cy	\$40.00	\$88,000.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	125,000	cy	\$3.00	\$375,000.00
		Compacting Embedment Backfill	8140	17,500	cy	\$10.00	\$175,000.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	67,000	cy	\$9.00	\$603,000.00
		Pipe Bedding (Select material, 4" thick)	8140	2,700	cy	\$40.00	\$108,000.00
		Embedment & Cover Backfill	8140	52,000	cy	\$5.00	\$260,000.00
		Compacting Embedment Backfill (Urban trench will require traffic control, signage, and detours for duration of work) (Urban Trench Length: 33,185 ft of 42" pipe)	8140	10,500	cy	\$10.00	\$105,000.00
		Traffic Control/Detours Urban Excavation		8	mo	\$15,000.00	\$120,000.00
		Pavement & Base/Remove & Replace Urban Excavation		33,185	lin ft	\$60.00	\$1,991,100.00
		Utility Relocation & Repair Urban Excavation		33,185	lin ft	\$30.00	\$995,550.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$5,875,850.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> NCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Reach 1: Pueblo Res. to WTP South Rd & 21st  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		48" dia. steel, 0.25" thick (132 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250	8140	59,000	lin ft	\$300.00	\$17,700,000.00
		7,788,000 lbs total steel					
		<u>Isolation Valves (Manual operation):</u>					
		48" Class 150B (psig) Butterfly Valve w/ Operator	8140	3	ea	\$36,000.00	\$108,000.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	3	ea	\$7,000.00	\$21,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$17,829,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>JMorris</i>	<b>CHECKED</b> <i>WCD</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> WCD 4/29/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Reach 1: Pueblo Res. to WTP South Rd & 21st  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\DB170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		12	ea	\$12,000.00	\$144,000.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	120	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	48	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	1,140	lbs		
		- 6" Combination Air Valve (1 ea)	8140	12	ea		
		- 6" Butterfly Valve (1 ea)	8140	12	ea		
		<u>Blowoff Structures (to include):</u>		12	ea	\$8,300.00	\$99,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	96	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	14	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	4	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	1,700	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	24	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	12	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	120	lin ft		
		- 6" Tee (1 ea)	8140	12	ea		
		- 6" Blind Flange (1 ea)	8140	12	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	1,140	lbs		
		<u>Manholes-Buried (to include):</u>		23	ea	\$11,500.00	\$264,500.00
		-36" Pipe outlet (1 ea)	8140	23	ea		
		-36" blind flange (1 ea)	8140	23	ea		
		<u>Cathodic Protection</u>	8140	1	ls	\$890,400.00	\$890,400.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,398,500.00</b>
		<b>SUBTOTAL REACH 1</b>					<b>\$25,103,150.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> JCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Reach 2: S. Rd & 21st WTP to Fowler S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	360	acre	\$800.00	\$288,000.00
		Grubbing	8140	36	acre	\$2,500.00	\$90,000.00
		Stripping (6" thick)	8140	290,000	cy	\$2.00	\$580,000.00
		Seeding	8140	360	acre	\$800.00	\$288,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	810,000	cy	\$4.00	\$3,240,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	55,000	cy	\$25.00	\$1,375,000.00
		Pipe Bedding (Select material, 4" thick)	8140	14,500	cy	\$30.00	\$435,000.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	800,000	cy	\$3.00	\$2,400,000.00
		Compacting Embedment Backfill	8140	105,000	cy	\$8.00	\$840,000.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	8,300	cy	\$11.00	\$91,300.00
		Pipe Bedding (Select material, 4" thick)	8140	330	cy	\$50.00	\$16,500.00
		Embedment & Cover Backfill	8140	6,500	cy	\$7.00	\$45,500.00
		Compacting Embedment Backfill	8140	1,350	cy	\$14.00	\$18,900.00
		(Urban trench will require traffic control, signage, and detours for duration of work)					
		(Urban Trench Length: 4,123 ft of 42" pipe)					
		Traffic Control/Detours Urban Excavation		1	mo	\$15,000.00	\$15,000.00
		Pavement & Base/Remove & Replace Urban Excavation		4,123	lin ft	\$60.00	\$247,380.00
		Utility Relocation & Repair Urban Excavation		4,123	lin ft	\$30.00	\$123,690.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$10,094,270.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Reach 2: S. Rd & 21st WTP to Fowler S. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
<b>Civil</b>	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		42" dia. steel, 0.175" thick (81 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=125 1,255,500 lbs total steel	8140	15,500	lin ft	\$190.00	\$2,945,000.00
		42" dia. steel, 0.175" thick (81 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 3,969,000 lbs total steel	8140	49,000	lin ft	\$190.00	\$9,310,000.00
		36" dia. steel, 0.1501" thick (60 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 492,000 lbs total steel	8140	8,200	lin ft	\$140.00	\$1,148,000.00
		36" dia. steel, 0.1707" thick (68 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=375 1,190,000 lbs total steel	8140	17,500	lin ft	\$145.00	\$2,537,500.00
		36" dia. steel, 0.25" thick (100 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=500 9,400,000 lbs total steel	8140	94,000	lin ft	\$155.00	\$14,570,000.00
		<u>Isolation Valves (Manual operation):</u>					
		42" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$26,000.00	\$26,000.00
		42" Class 150B (psig) Butterfly Valve w/ Operator	8140	2	ea	\$26,000.00	\$52,000.00
		36" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$17,000.00	\$17,000.00
		36" Class 250 (psig) Butterfly Valve w/ Operator	8140	3	ea	\$29,000.00	\$87,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	7	ea	\$7,000.00	\$49,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$30,741,500.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>AA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> SCD 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Reach 2: S. Rd & 21st WTP to Fowler S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx)Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		35	ea	\$12,000.00	\$420,000.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	350	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	140	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	3,350	lbs		
		- 6" Combination Air Valve (1 ea)	8140	35	ea		
		- 6" Butterfly Valve (1 ea)	8140	35	ea		
		<u>Blowoff Structures (to include):</u>		35	ea	\$8,300.00	\$290,500.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	280	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	41	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	12	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	4,900	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	70	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	35	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	350	lin ft		
		- 6" Tee (1 ea)	8140	35	ea		
		- 6" Blind Flange (1 ea)	8140	35	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	3,350	lbs		
		<u>Manholes-Buried (to include):</u>		70	ea	\$11,500.00	\$805,000.00
		-36" Pipe outlet (1 ea)	8140	70	ea		
		-36" blind flange (1 ea)	8140	70	ea		
		<u>Cathodic Protection</u>	8140	1	ls	\$1,534,625.00	\$1,534,625.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$3,050,125.00</b>
		<b>SUBTOTAL REACH 2</b>					<b>\$43,885,895.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>AA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> J. Duke 4/27/11





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Boone Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		2	ea	\$6,800.00	\$13,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	190	lbs		
		- 2" Combination Air Valve (1 ea)	8140	2	ea		
		- 2" Ball Valve (1 ea)	8140	2	ea		
		<u>Blowoff Structures (to include):</u>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	16	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	2	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	280	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	4	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1 ea)	8140	2	ea		
		- 6" Blind Flange (1 ea)	8140	2	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	190	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$30,200.00</b>
		<b>SUBTOTAL BOONE SPUR</b>					<b>\$404,510.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>JMorris</i>	<b>CHECKED</b> <i>JA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCS</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 Reach 2: S. Rd & 21st WTP to Fowler S. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\DB170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 2 R2 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\Civil\Structural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	3	ea	\$35,000.00	\$105,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$105,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> Doc 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 Reach 2: S. Rd & 21st WTP to Fowler S. Tank Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	3	ls	\$5,600.00	\$16,800.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	3	ea	\$800.00	\$2,400.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	3	ea	\$13,000.00	\$39,000.00
Subtotal - This Sheet							\$58,200.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>[Signature]</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE DCD 4/30/11

<b>FEATURE:</b>				<b>PROJECT:</b>			
Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 Reach 2: S. Rd & 21st WTP to Fowler S. Tank				Fryingpan-Arkansas Project			
<b>WOID:</b>		AF523		<b>ESTIMATE LEVEL:</b>		Appraisal	
<b>REGION:</b>		GP		<b>UNIT PRICE LEVEL:</b>		Jan-11	
<b>FILE:</b>				H:\D81701Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 2 R2 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (3 vaults)</b>	86-68420				
		6-inch pressure reducing valve 3 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		3	ea	\$7,800.00	\$23,400.00
		6-inch manually-operated butterfly valve 2 valves, 90 lbs each AWWA Class 150-B		2	ea	\$1,300.00	\$2,600.00
		1 valve, 130 lbs each AWWA Class 250-B		1	ea	\$2,300.00	\$2,300.00
		6-inch buried square-nut operated butterfly valve with valve box 2 valves, 245 lbs each AWWA Class 150-B		2	ea	\$1,800.00	\$3,600.00
		1 valve, 285 lbs each AWWA Class 250-B		1	ea	\$2,800.00	\$2,800.00
		1-inch air valve combination air valve 3 air valves, 35 lbs each		3	ea	\$1,000.00	\$3,000.00
		<b>Total</b>					<b>\$37,700.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shana May 5/4/11</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>DCD 5/4/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Reach 3: Fowler S. Tank to La Junta S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b></td> <td style="width:20%;">AF523</td> <td style="width:30%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	320	acre	\$800.00	\$256,000.00
		Grubbing	8140	32	acre	\$2,500.00	\$80,000.00
		Stripping (6" thick)	8140	260,000	cy	\$2.00	\$520,000.00
		Seeding	8140	320	acre	\$800.00	\$256,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	710,000	cy	\$4.00	\$2,840,000.00
		Rock Excavation (0.25:1) outside urban area	8140	47,000	cy	\$25.00	\$1,175,000.00
		(20% of length is assumed partial rock exc.)					
		assume rippable material					
		Pipe Bedding (Select material, 4" thick)	8140	13,000	cy	\$30.00	\$390,000.00
		Embedment & Cover Backfill	8140	700,000	cy	\$3.00	\$2,100,000.00
		(does not include shrink/swell)					
		Compacting Embedment Backfill	8140	88,000	cy	\$8.00	\$704,000.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	37,000	cy	\$9.00	\$333,000.00
		Pipe Bedding (Select material, 4" thick)	8140	1,600	cy	\$40.00	\$64,000.00
		Embedment & Cover Backfill	8140	32,000	cy	\$5.00	\$160,000.00
		Compacting Embedment Backfill	8140	5,800	cy	\$14.00	\$81,200.00
		(Urban trench will require traffic control, signage, and detours for duration of work)					
		(Urban Trench Length: 18,247 ft of 36" pipe)					
		Traffic Control/Detours Urban Excavation		4	mo	\$15,000.00	\$60,000.00
		Pavement & Base/Remove & Replace Urban Excavation		18,247	lin ft	\$60.00	\$1,094,820.00
		Utility Relocation & Repair Urban Excavation		18,247	lin ft	\$30.00	\$547,410.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$10,661,430.00</b>

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>NA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>NA</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Reach 3: Fowler S. Tank to La Junta S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\UMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		36" dia. steel, 0.1501" thick (60 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=125 1,560,000 lbs total steel	8140	26,000	lin ft	\$140.00	\$3,640,000.00
		36" dia. steel, 0.1501" thick (60 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 4,860,000 lbs total steel	8140	81,000	lin ft	\$140.00	\$11,340,000.00
		36" dia. steel, 0.1707" thick (68 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=375 2,924,000 lbs total steel	8140	43,000	lin ft	\$145.00	\$6,235,000.00
		36" dia. steel, 0.25" thick (100 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=500 3,100,000 lbs total steel	8140	31,000	lin ft	\$155.00	\$4,805,000.00
		<u>Isolation Valves (Manual operation):</u>					
		36" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$17,000.00	\$17,000.00
		36" Class 150B (psig) Butterfly Valve w/ Operator	8140	3	ea	\$17,000.00	\$51,000.00
		36" Class 150B (psig) Butterfly Valve w/ Operator	8140	2	ea	\$17,000.00	\$34,000.00
		36" Class 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$29,000.00	\$29,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	7	ea	\$7,000.00	\$49,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$26,200,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> JCO 4/21/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Reach 3: Fowler S. Tank to La Junta S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		35	ea	\$7,500.00	\$262,500.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	350	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	140	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	3,350	lbs		
		- 3" Combination Air Valve (1 ea)	8140	35	ea		
		- 3" Ball Valve (1 ea)	8140	35	ea		
		<u>Blowoff Structures (to include):</u>		35	ea	\$8,300.00	\$290,500.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	280	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	41	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	12	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	4,900	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	70	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	35	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	350	lin ft		
		- 6" Tee (1 ea)	8140	35	ea		
		- 6" Blind Flange (1 ea)	8140	35	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	3,350	lbs		
		<u>Manholes-Buried (to include):</u>		69	ea	\$11,500.00	\$793,500.00
		-36" Pipe outlet (1 ea)	8140	69	ea		
		-36" blind flange (1 ea)	8140	69	ea		
		<u>Cathodic Protection</u>	8140	1	ls	\$1,307,550.00	\$1,307,550.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$2,654,050.00</b>
		<b>SUBTOTAL REACH 3</b>					<b>\$39,515,480.00</b>

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>W</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>sed</i> 4/27/11



<b>FEATURE:</b>  <b>Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Manzanola Spur</b>  <b>Civil</b>	<b>PROJECT:</b> <b>Fryingpan-Arkansas Project</b>  <b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal <b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11 <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR25 (CIOD) C900 PVC pipe	8140	1,600	lin ft	\$6.20	\$9,920.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$1,100.00	\$1,100.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$18,020.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>PCD 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Manzanola Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL MANZANOLA SPUR</b>					<b>\$102,180.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>W</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD 4/27/11</i>



**FEATURE:**  
 Arkansas Valley Conduit  
 Pipeline  
 Alternative 2 Max Day Condition  
 Rocky Ford Spur

**PROJECT:**  
 Fryingpan-Arkansas Project

**WOID:** AF523      **ESTIMATE LEVEL:** Appraisal

**REGION:** GP      **UNIT PRICE LEVEL:** Jan-11

**FILE:** H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet

Civil

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		12" DR25 (CIOD) C900 PVC pipe	8140	960	lin ft	\$22.00	\$21,120.00
		<u>Isolation Valves (Manual operation):</u>					
		12" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,500.00	\$2,500.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$30,620.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>JMorris</i>	CHECKED <i>W</i>
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>Dec 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Rocky Ford Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL ROCKY FORD SPUR</b>					<b>\$96,306.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>MA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Doc 4/27/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Newdale/Grand Valley/W. Grand Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project			
	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal
	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	27	acre	\$1,000.00	\$27,000.00
		Grubbing	8140	3	acre	\$2,500.00	\$7,500.00
		Stripping (6" thick)	8140	22,000	cy	\$2.00	\$44,000.00
		Seeding	8140	27	acre	\$1,500.00	\$40,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	39,000	cy	\$6.00	\$234,000.00
		Rock Excavation (0.25:1) outside urban area	8140	1,500	cy	\$35.00	\$52,500.00
		(20% of length is assumed partial rock exc.) assume rippable material					
		Pipe Bedding (Select material, 4" thick)	8140	775	cy	\$50.00	\$38,750.00
		Embedment & Cover Backfill	8140	39,000	cy	\$5.00	\$195,000.00
		(does not include shrink/swell)					
		Compacting Embedment Backfill	8140	3,700	cy	\$14.00	\$51,800.00
		All earthwork quantities above are for the actual sloped trench.					
<b>SUBTOTAL THIS SHEET</b>							<b>\$691,050.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Newdale/Grand Valley/W. Grand Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xls\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR25 (CIOD) C900 PVC pipe	8140	7,700	lin ft	\$6.20	\$47,740.00
		8" DR25 (CIOD) C900 PVC pipe	8140	13,500	lin ft	\$12.00	\$162,000.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$1,100.00	\$1,100.00
		8" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$1,900.00	\$1,900.00
		<u>Isolation Valve Manholes (to include):</u>	8140	2	ea	\$7,000.00	\$14,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$226,740.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>NA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Newdale/Grand Valley/W. Grand Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		5	ea	\$6,800.00	\$34,000.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	50	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	20	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	475	lbs		
		- 2" Combination Air Valve (1 ea)	8140	5	ea		
		- 2" Ball Valve (1 ea)	8140	5	ea		
		<u>Blowoff Structures (to include):</u>		5	ea	\$8,300.00	\$41,500.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	40	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	6	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	700	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	10	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	5	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	50	lin ft		
		- 6" Tee (1 ea)	8140	5	ea		
		- 6" Blind Flange (1 ea)	8140	5	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	475	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$75,500.00</b>
		<b>SUBTOTAL NEWDALE SPUR</b>					<b>\$993,290.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>MA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>SED</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition South Swink Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	14	acre	\$1,000.00	\$14,000.00
		Grubbing	8140	2	acre	\$2,500.00	\$5,000.00
		Stripping (6" thick)	8140	11,500	cy	\$2.00	\$23,000.00
		Seeding	8140	14	acre	\$1,500.00	\$21,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	20,000	cy	\$6.00	\$120,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	750	cy	\$45.00	\$33,750.00
		Pipe Bedding (Select material, 4" thick)	8140	390	cy	\$50.00	\$19,500.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	19,900	cy	\$5.00	\$99,500.00
		Compacting Embedment Backfill	8140	1,800	cy	\$14.00	\$25,200.00
		All earthwork quantities above are for the actual sloped trench.					
<b>SUBTOTAL THIS SHEET</b>							<b>\$360,950.00</b>

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris <i>JMorris</i>	<b>CHECKED</b> <i>NH</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>SCD</i> 4/27/11

<b>FEATURE:</b>  <p align="center"><b>Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition South Swink Spur</b></p>	<b>PROJECT:</b> <p align="center"><b>Fryingpan-Arkansas Project</b></p>								
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<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11						
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" DR18 (CIOD) C900 PVC pipe	8140	10,900	lin ft	\$10.00	\$109,000.00
		<u>Isolation Valves (Manual operation):</u>					
		6" Class 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$118,300.00</b>

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>MA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Dec 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition South Swink Spur  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		3	ea	\$6,800.00	\$20,400.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	36	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	285	lbs		
		- 2" Combination Air Valve (1 ea)	8140	3	ea		
		- 2" Ball Valve (1 ea)	8140	3	ea		
		<u>Blowoff Structures (to include):</u>		3	ea	\$8,300.00	\$24,900.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	24	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	4	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	420	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	6	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	3	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 6" Tee (1 ea)	8140	3	ea		
		- 6" Blind Flange (1 ea)	8140	3	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	285	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation					
		No. 09SP101729 dated August 2009. Soils are assumed to be similar to those					
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$45,300.00</b>
		<b>SUBTOTAL S. SWINK SPUR</b>					<b>\$524,550.00</b>

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>MA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DED 4/27/11







<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Homestead Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL HOMESTEAD SPUR</b>					<b>\$150,360.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>MA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	1	acre	\$1,000.00	\$1,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	525	cy	\$6.00	\$3,150.00
		Seeding	8140	1	acre	\$1,500.00	\$1,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	0	cy	\$0.00	\$0.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	0	cy	\$0.00	\$0.00
		Pipe Bedding (Select material, 4" thick)	8140	0	cy	\$0.00	\$0.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	0	cy	\$0.00	\$0.00
		Compacting Embedment Backfill	8140	0	cy	\$0.00	\$0.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	2,000	cy	\$11.00	\$22,000.00
		Pipe Bedding (Select material, 4" thick)	8140	120	cy	\$50.00	\$6,000.00
		Embedment & Cover Backfill	8140	2,000	cy	\$7.00	\$14,000.00
		Compacting Embedment Backfill	8140	180	cy	\$18.00	\$3,240.00
		(Urban trench will require traffic control, signage, and detours for duration of work) (Urban Trench Length: 3,154 ft of 12" pipe)					
		Traffic Control/Detours Urban Excavation		1	mo	\$15,000.00	\$15,000.00
		Pavement & Base/Remove & Replace Urban Excavation		3,154	lin ft	\$60.00	\$189,240.00
		Utility Relocation & Repair Urban Excavation		3,154	lin ft	\$30.00	\$94,620.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$352,250.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>NA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCA 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingspan-Arkansas Project  <b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal <b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11 <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		12" DR18 (CIOD) C900 PVC pipe	8140	3,200	lin ft	\$27.00	\$86,400.00
		<u>Isolation Valves (Manual operation):</u>					
		12" Class 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$4,400.00	\$4,400.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$97,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DGD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL LA JUNTA SPUR</b>					<b>\$465,150.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>NA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Doc 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit LaJunta South Water Storage Tank Alternative 2 Reach 3: S. Fowler Tank to La Junta	<b>PROJECT:</b> Fryington-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Comm\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - LaJunta South Water Tank Alt 2 Appraisal Quant Est 8120.xlsx\CivilStructural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	1,315	yd <sup>3</sup>	\$4.00	\$5,260.00
		Access Roads	86-68120	35	yd <sup>3</sup>	\$6.00	\$210.00
		Excavation (tank foundation)	86-68120	2,845	yd <sup>3</sup>	\$15.00	\$42,675.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	2,015	yd <sup>3</sup>	\$16.00	\$32,240.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	1,110	yd <sup>3</sup>	\$35.00	\$38,850.00
		Access Roads	86-68120	35	yd <sup>3</sup>	\$40.00	\$1,400.00
		Chain Link Fence	86-68120	1,335	lin ft	\$40.00	\$53,400.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. Three 20' wide double swing gate					
		Reinforced Concrete for Pad & Stem Foundation	86-68120	1	ls	\$620,000.00	\$620,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 70 miles					
		Concrete: 876 yd <sup>3</sup>					
		Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 118,265 lbs					
		Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 247 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$794,035.00</b>

QUANTITIES		PRICES	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul Ruchti	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>Sheana...</i>
<b>DATE PREPARED</b> 03/22/11	<b>PEER REVIEW / DATE</b> Paul Ruchti 3/30/11	<b>DATE PREPARED</b> 04/12/11	<b>PEER REVIEW / DATE</b> DCO 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit LaJunta South Water Storage Tank Alternative 2 Reach 3: S. Fowler Tank to La Junta	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Water Storage Tanks\La Junta Water Storage Tank\8420 Mechanical (Tank)\AVC - LaJunta South Water Tank Alt 2 8420.xlsx\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		Steel water storage tanks					
		5 - 1,000,000-gallon steel water storage tanks (5,000,000 gallons combined capacity)	86-68420	1	ls	\$9,500,000.00	\$9,500,000.00
		AWWA D100 compliance					
		minimum water surface 25 feet (above foundation)					
		maximum water surface 65.58 feet (above foundation)					
		diameter 74 feet					
		SUBTOTAL THIS SHEET					\$9,500,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shawn</i> 4/26/11
DATE PREPARED 3/31/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE <i>DD</i> 4/26/11

<b>FEATURE:</b>  Arkansas Valley Conduit Fowler South Water Storage Tank Alternative 2 Reach 3: S. Fowler Tank to La Junta	<b>PROJECT:</b> Fryington-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC -Fowler South Water Tank Alt 2 Appraisal Quant Est 8120.xlsx\CivilStructural	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	2,020	yd <sup>3</sup>	\$4.00	\$8,080.00
		Access Roads	86-68120	75	yd <sup>3</sup>	\$6.00	\$450.00
		Excavation (tank foundation)	86-68120	1,100	yd <sup>3</sup>	\$15.00	\$16,500.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	810	yd <sup>3</sup>	\$25.00	\$20,250.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	1,390	yd <sup>3</sup>	\$35.00	\$48,650.00
		Access Roads	86-68120	75	yd <sup>3</sup>	\$40.00	\$3,000.00
		Chain Link Fence	86-68120	1,320	lin ft	\$40.00	\$52,800.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. Two 20' wide double swing gate					
		<b>Reinforced Concrete for Ring Foundation</b>	86-68120	1	ls	\$250,000.00	\$250,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 40 miles					
		Concrete: 335 yd <sup>3</sup>					
		Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 45,240 lbs					
		Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 95 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$399,730.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>Shawn...</i>
DATE PREPARED 03/22/11	PEER REVIEW / DATE Paul Ruchti 3/30/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>...</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Fowler South Water Storage Tank Alternative 2 Reach 3: S. Fowler Tank to La Junta	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: Jan-11
	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Water Storage Tanks\Fowler Water Storage Tank\8420 Mechanical\AVC -Fowler South Water Tank Alt 2 Appraisal Quant Est

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		Steel water storage tanks					
		3 - 2,115,000-gallon steel water storage tank (6,345,000 gallons combined capacity)	86-68420	1	ls	\$5,700,000.00	\$5,700,000.00
		AWWA D100 compliance					
		minimum water surface 0 feet (above foundation)					
		maximum water surface 25 feet (above foundation)					
		diameter 120 feet					
		SUBTOTAL THIS SHEET					\$5,700,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shannon McLaughlin</i> 4/26/11
DATE PREPARED 3/31/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE <i>DD</i> 4/26/11



<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 Reach 3: Fowler S. Tank to La Junta S. Tank	<b>PROJECT:</b> Fryngpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 2 R3 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	15	ea	\$35,000.00	\$525,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$525,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>J. Barthel</i> 8/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>Barthel</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 Reach 3: Fowler S. Tank to La Junta S. Tank Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	15	ls	\$5,600.00	\$84,000.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	15	ea	\$800.00	\$12,000.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	15	ea	\$13,000.00	\$195,000.00
Subtotal - This Sheet							\$291,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>Gurik</i>	CHECKED <i>[Signature]</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 Reach 3: Fowler S. Tank to La Junta S. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b></td> <td style="width:20%;">AF523</td> <td style="width:30%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 2 R3 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (15 vaults)</b>	86-68420				
		6-inch pressure reducing valve 15 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		15	ea	\$7,800.00	\$117,000.00
		6-inch manually-operated butterfly valve 13 valves, 90 lbs each AWWA Class 150-B		13	ea	\$1,300.00	\$16,900.00
		2 valves, 130 lbs each AWWA Class 250-B		2	ea	\$2,300.00	\$4,600.00
		6-inch buried square-nut operated butterfly valve with valve box 13 valves, 245 lbs each AWWA Class 150-B		13	ea	\$1,800.00	\$23,400.00
		2 valves, 285 lbs each AWWA Class 250-B		2	ea	\$2,800.00	\$5,600.00
		1-inch air valve combination air valve 15 air valves, 35 lbs each		15	ea	\$1,000.00	\$15,000.00
		<b>Total</b>					<b>\$182,500.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawn McYoung 5/4/11</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>DRD 5/4/11</i>



<b>FEATURE:</b>  Fryingpan-Arkansas Project Arkansas Valley Conduit Pipeline Reach 4: La Junta S. Tank to Lamar  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		24" DR25 (CIOD) C905 PVC pipe	8140	93,000	lin ft	\$68.00	\$6,324,000.00
		24" DR25 (CIOD) C905 PVC pipe	8140	87,000	lin ft	\$68.00	\$5,916,000.00
		20" DR18 (CIOD) C905 PVC pipe	8140	52,000	lin ft	\$60.00	\$3,120,000.00
		18" DR18 (CIOD) C905 PVC pipe	8140	42,000	lin ft	\$50.00	\$2,100,000.00
		18" dia. steel, 0.1442" thick (30 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 1,080,000 lbs total steel	8140	36,000	lin ft	\$75.00	\$2,700,000.00
		<u>Isolation Valves (Manual operation):</u>					
		24" Class 150B (psig) Butterfly Valve w/ Operator	8140	4	ea	\$9,000.00	\$36,000.00
		24" Class 150B (psig) Butterfly Valve w/ Operator	8140	3	ea	\$9,000.00	\$27,000.00
		20" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$10,500.00	\$21,000.00
		18" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$8,600.00	\$17,200.00
		18" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$15,500.00	\$15,500.00
		<u>Isolation Valve Manholes (to include):</u>	8140	12	ea	\$7,000.00	\$84,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					\$20,360,700.00

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>WA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>dad</i> 4/27/11

<b>FEATURE:</b>  Fryingpan-Arkansas Project Arkansas Valley Conduit Pipeline Reach 4: La Junta S. Tank to Lamar  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		59	ea	\$6,800.00	\$401,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	590	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	236	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	5,600	lbs		
		- 2" Combination Air Valve (1 ea)	8140	59	ea		
		- 2" Ball Valve (1 ea)	8140	59	ea		
		<u>Blowoff Structures (to include):</u>		59	ea	\$8,300.00	\$489,700.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	472	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	70	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	20	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	8,300	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	120	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	59	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	590	lin ft		
		- 6" Tee (1 ea)	8140	59	ea		
		- 6" Blind Flange (1 ea)	8140	59	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	5,600	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$135,775.00	\$135,775.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,026,675.00</b>
		<b>SUBTOTAL REACH 4</b>					<b>\$31,425,935.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>MA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> JCB 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Hasty Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal <b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11 <b>FILE:</b> H:\D8170\Common\IMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR18 (CIOD) C900 PVC pipe	8140	625	lin ft	\$6.80	\$4,250.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,100.00	\$2,100.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$13,350.00</b>

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>NA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>SCD 4/27/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Hasty Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL HASTY SPUR</b>					<b>\$58,250.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>W</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition McClave Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" DR25 (CIOD) C900 PVC pipe	8140	5,500	lin ft	\$9.00	\$49,500.00
		<u>Isolation Valves (Manual operation):</u>					
		6" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$1,300.00	\$1,300.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$57,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition McClave Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
<b>Civil</b>	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		2	ea	\$6,800.00	\$13,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	190	lbs		
		- 2" Combination Air Valve (1 ea)	8140	2	ea		
		- 2" Ball Valve (1 ea)	8140	2	ea		
		<u>Blowoff Structures (to include):</u>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	16	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	2	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	280	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	4	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1 ea)	8140	2	ea		
		- 6" Blind Flange (1 ea)	8140	2	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	190	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$30,200.00</b>
		<b>SUBTOTAL McCLAVE SPUR</b>					<b>\$310,550.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>JH</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Wiley Spur				<b>PROJECT:</b> Fryingpan-Arkansas Project			
<b>WOID:</b> AF523		<b>ESTIMATE LEVEL:</b> Appraisal		<b>REGION:</b> GP		<b>UNIT PRICE LEVEL:</b> Jan-11	
<b>Civil</b>				<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR14 (CIOD) C900 PVC pipe	8140	19,750	lin ft	\$7.50	\$148,125.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$157,425.00</b>

<b>QUANTITIES</b>				<b>PRICES</b>			
<b>BY</b> Jeremy Lorberau		<b>CHECKED</b> W. Chris Duke		<b>BY</b> Jeff Morris <i>Jeff Morris</i>		<b>CHECKED</b> <i>JA</i>	
<b>DATE PREPARED</b> 03/09/11		<b>PEER REVIEW / DATE</b> Steven J. Robertson		<b>DATE PREPARED</b> 03/15/11		<b>PEER REVIEW / DATE</b> <i>SDC 4/27/11</i>	

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Wiley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		4	ea	\$6,800.00	\$27,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	40	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	16	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	380	lbs		
		- 2" Combination Air Valve (1 ea)	8140	4	ea		
		- 2" Ball Valve (1 ea)	8140	4	ea		
		<u>Blowoff Structures (to include):</u>		4	ea	\$8,300.00	\$33,200.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	32	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	5	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	560	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	8	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	4	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	40	lin ft		
		- 6" Tee (1 ea)	8140	4	ea		
		- 6" Blind Flange (1 ea)	8140	4	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	380	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$60,400.00</b>
		<b>SUBTOTAL WILEY SPUR</b>					<b>\$803,825.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>AA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DED 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2  Reach 4: La Junta S. Tank to Lamar	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 2 R4 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	7	ea	\$35,000.00	\$245,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$245,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>g...</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>...</i> 4/30/11



<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 Reach 4: La Junta S. Tank to Lamar Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	7	ls	\$5,600.00	\$39,200.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	7	ea	\$800.00	\$5,600.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	7	ea	\$13,000.00	\$91,000.00
<b>Subtotal - This Sheet</b>							<b>\$135,800.00</b>
<del>Total - Sheets 1 thru 5</del>							<del>\$776,000.00</del>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>GRuff</i>	CHECKED <i>Shirley Ann</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 Reach 4: La Junta S. Tank to Lamar	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 2 R4 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (7 vaults)</b>	86-68420				
		6-inch pressure reducing valve 7 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		7	ea	\$7,800.00	\$54,600.00
		6-inch manually-operated butterfly valve 4 valves, 90 lbs each AWWA Class 150-B		4	ea	\$1,300.00	\$5,200.00
		3 valves, 130 lbs each AWWA Class 250-B		3	ea	\$2,300.00	\$6,900.00
		6-inch buried square-nut operated butterfly valve with valve box 4 valves, 245 lbs each AWWA Class 150-B		4	ea	\$1,800.00	\$7,200.00
		3 valves, 285 lbs each AWWA Class 250-B		3	ea	\$2,800.00	\$8,400.00
		1-inch air valve combination air valve 7 air valves, 35 lbs each		7	ea	\$1,000.00	\$7,000.00
		<b>Total</b>					<b>\$89,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>Burr</i>	CHECKED <i>Samuel</i> 5/4/11
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>Doc</i> 5/4/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Highway 96 Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		18" DR18 (CIOD) C905 PVC pipe	8140	22,000	lin ft	\$50.00	\$1,100,000.00
		18" dia. steel, 0.1442" thick (30 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 510,000 lbs total steel	8140	17,000	lin ft	\$75.00	\$1,275,000.00
		16" dia. steel, 0.1345" thick (25 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 1,075,000 lbs total steel	8140	43,000	lin ft	\$70.00	\$3,010,000.00
		16" dia. steel, 0.1544" thick (29 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 377,000 lbs total steel	8140	13,000	lin ft	\$70.00	\$910,000.00
		12" dia. steel, 0.1345" thick (19 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 66,500 lbs total steel	8140	3,500	lin ft	\$55.00	\$192,500.00
		10" dia. steel, 0.1345" thick (16 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 400,000 lbs total steel	8140	25,000	lin ft	\$48.00	\$1,200,000.00
		<u>Isolation Valves (Manual operation):</u>					
		18" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$8,600.00	\$17,200.00
		18" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$15,500.00	\$15,500.00
		16" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$11,000.00	\$11,000.00
		16" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$11,000.00	\$11,000.00
		10" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$5,000.00	\$5,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	6	ea	\$7,000.00	\$42,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$7,789,200.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Highway 96 Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		24	ea	\$6,800.00	\$163,200.00	
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	240	lin ft			
		- 3/4-inch Gravel Filter (4 cy ea)	8140	96	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	2,300	lbs			
		- 2" Combination Air Valve (1 ea)	8140	24	ea			
		- 2" Ball Valve (1 ea)	8140	24	ea			
		<u>Blowoff Structures (to include):</u>		24	ea	\$8,300.00	\$199,200.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	190	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	28	cy			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	8	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	3,400	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	48	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	24	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	240	lin ft			
		- 6" Tee (1 ea)	8140	24	ea			
		- 6" Blind Flange (1 ea)	8140	24	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	2,300	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$331,500.00	\$331,500.00	
		*Assume 5% of cost for all steel items above						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$693,900.00</b>	
		<b>SUBTOTAL HWY 96 SPUR</b>					<b>\$11,990,100.00</b>	

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>WCD</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>WCD</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition 96 Pipeline Co. Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=875 19,200 lbs total steel	8140	2,400	lin ft	\$34.00	\$81,600.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$90,900.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>WA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> JCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition 96 Pipeline Co. Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$4,195.00	\$4,195.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$19,295.00</b>
		<b>SUBTOTAL 96 PIPELINE CO SPUR</b>					<b>\$208,895.00</b>

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>WCD</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>WCD</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 HWY 96 Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 2 96 Spur Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\Civil\Structural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	7	ea	\$35,000.00	\$245,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$245,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>Justin</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>Doc</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 HWY 96 Spur Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	7	ls	\$5,600.00	\$39,200.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	7	ea	\$800.00	\$5,600.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	7	ea	\$13,000.00	\$91,000.00
<b>Subtotal - This Sheet</b>							<b>\$135,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawn...</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 HWY 96 Spur (Reach 2A)		<b>PROJECT:</b> Fryingpan-Arkansas Project	
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal		
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11		
<b>FILE:</b>	H:\D81701\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 2 96 Spur Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip		

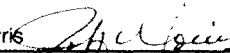
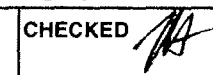

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (7 vaults)</b>	86-68420				
		6-inch pressure reducing valve 7 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		7	ea	\$7,800.00	\$54,600.00
		6-inch manually-operated butterfly valve 3 valves, 130 lbs each AWWA Class 250-B		3	ea	\$2,300.00	\$6,900.00
		4 valves, 170 lbs each Henry Pratt Class 350		4	ea	\$2,800.00	\$11,200.00
		6-inch buried square-nut operated butterfly valve with valve box 3 valves, 285 lbs each AWWA Class 250-B		3	ea	\$2,800.00	\$8,400.00
		4 valves, 325 lbs each Henry Pratt Class 350		4	ea	\$3,300.00	\$13,200.00
		1-inch air valve combination air valve 7 air valves, 35 lbs each		7	ea	\$1,000.00	\$7,000.00
		<b>Total</b>					\$101,300.00

QUANTITIES		PRICES	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawna...</i> 5/4/11
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>D. Drake</i> 5/4/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Eads Spur  Civil				<b>PROJECT:</b> Fryingpan-Arkansas Project			
<b>WOID:</b> AF523		<b>ESTIMATE LEVEL:</b> Appraisal		<b>REGION:</b> GP		<b>UNIT PRICE LEVEL:</b> Jan-11	
<b>FILE:</b>				H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Ssummary Sheet			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		8" DR18 (CIOD) C900 PVC pipe	8140	110,000	lin ft	\$14.00	\$1,540,000.00
		<u>Isolation Valves (Manual operation):</u>					
		8" Class 250 (psig) Butterfly Valve w/ Operator	8140	5	ea	\$2,800.00	\$14,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	5	ea	\$7,000.00	\$35,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					\$1,589,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris 	CHECKED 
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE  4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Eads Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xls\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		21	ea	\$6,800.00	\$142,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	210	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	84	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	2,000	lbs		
		- 2" Combination Air Valve (1 ea)	8140	21	ea		
		- 2" Ball Valve (1 ea)	8140	21	ea		
		<u>Blowoff Structures (to include):</u>		21	ea	\$8,300.00	\$174,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	170	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	25	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	7	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	3,000	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	42	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	21	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	210	lin ft		
		- 6" Tee (1 ea)	8140	21	ea		
		- 6" Blind Flange (1 ea)	8140	21	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	2,000	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$317,100.00</b>
		<b>SUBTOTAL EADS SPUR</b>					<b>\$4,544,100.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>MS</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Deed</i> 4/27/11

<p><b>FEATURE:</b></p> <p style="text-align: center;">Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Eads &amp; May Valley Spur</p> <p><b>Civil</b></p>	<p><b>PROJECT:</b> Fryingpan-Arkansas Project</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <p><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx Summary Sheet</p>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	44	acre	\$1,000.00	\$44,000.00
		Grubbing	8140	5	acre	\$2,500.00	\$12,500.00
		Stripping (6" thick)	8140	36,000	cy	\$2.00	\$72,000.00
		Seeding	8140	44	acre	\$1,500.00	\$66,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	69,000	cy	\$6.00	\$414,000.00
		Rock Excavation (0.25:1) outside urban area	8140	3,000	cy	\$35.00	\$105,000.00
		(20% of length is assumed partial rock exc.) assume rippable material					
		Pipe Bedding (Select material, 4" thick)	8140	1,300	cy	\$40.00	\$52,000.00
		Embedment & Cover Backfill	8140	70,000	cy	\$5.00	\$350,000.00
		(does not include shrink/swell)					
		Compacting Embedment Backfill	8140	3,200	cy	\$14.00	\$44,800.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,160,300.00</b>

QUANTITIES		PRICES	
<p><b>BY</b> Jeremy Lorberau</p>	<p><b>CHECKED</b> Nathan Lehman</p>	<p><b>BY</b> Jeff Morris <i>Jeff Morris</i></p>	<p><b>CHECKED</b> <i>MA</i></p>
<p><b>DATE PREPARED</b> 03/09/11</p>	<p><b>PEER REVIEW / DATE</b> Steven J. Robertson</p>	<p><b>DATE PREPARED</b> 03/15/11</p>	<p><b>PEER REVIEW / DATE</b> <i>DCD 4/27/11</i></p>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Eads & May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx Summary Sheet	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		12" DR18 (CIOD) C900 PVC pipe	8140	32,000	lin ft	\$27.00	\$864,000.00
		<u>Isolation Valves (Manual operation):</u>					
		12" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$4,400.00	\$8,800.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	2	ea	\$7,000.00	\$14,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$886,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>JLH</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Dec</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Eads & May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		6	ea	\$6,800.00	\$40,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	24	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	570	lbs		
		- 2" Combination Air Valve (1 ea)	8140	6	ea		
		- 2" Ball Valve (1 ea)	8140	6	ea		
		<u>Blowoff Structures (to include):</u>		6	ea	\$8,300.00	\$49,800.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	48	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	7	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	850	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	12	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	6	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 6" Tee (1 ea)	8140	6	ea		
		- 6" Blind Flange (1 ea)	8140	6	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	570	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$90,600.00</b>
		<b>SUBTOTAL EADS &amp; MAY VALLEY SPUR</b>					<b>\$2,137,700.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>HA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>SCD 4/27/11</i>

<p><b>FEATURE:</b></p> <p><b>Arkansas Valley Conduit</b>  <b>Pipeline</b>  <b>Alternative 2 Max Day Condition</b>  <b>May Valley Spur</b></p>	<p><b>PROJECT:</b>  <b>Fryingpan-Arkansas Project</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <p><b>FILE:</b> H:\DB170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet</p>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	40	acre	\$1,000.00	\$40,000.00
		Grubbing	8140	4	acre	\$2,500.00	\$10,000.00
		Stripping (6" thick)	8140	31,000	cy	\$2.00	\$62,000.00
		Seeding	8140	40	acre	\$1,500.00	\$60,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	63,000	cy	\$6.00	\$378,000.00
		Rock Excavation (0.25:1) outside urban area	8140	2,800	cy	\$35.00	\$98,000.00
		(20% of length is assumed partial rock exc.) assume rippable material					
		Pipe Bedding (Select material, 4" thick)	8140	1,200	cy	\$40.00	\$48,000.00
		Embedment & Cover Backfill	8140	63,000	cy	\$5.00	\$315,000.00
		(does not include shrink/swell)					
		Compacting Embedment Backfill	8140	3,300	cy	\$14.00	\$46,200.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,057,200.00</b>

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris <i>(Signature)</i>	<b>CHECKED</b> <i>(Signature)</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>(Signature)</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal <b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11 <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" DR18 (CIOD) C905 PVC pipe	8140	27,000	lin ft	\$10.00	\$270,000.00
		<u>Isolation Valves (Manual operation):</u>					
		6" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$2,300.00	\$4,600.00
		<u>Isolation Valve Manholes (to include):</u>	8140	2	ea	\$7,000.00	\$14,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$288,600.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Jeremy Lorberau	CHECKED W. Chris Duke	BY Jeff Morris <i>JL</i>	CHECKED <i>WCD</i>
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>WCD 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		6	ea	\$6,800.00	\$40,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	24	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	570	lbs		
		- 2" Combination Air Valve (1 ea)	8140	6	ea		
		- 2" Ball Valve (1 ea)	8140	6	ea		
		<u>Blowoff Structures (to include):</u>		6	ea	\$8,300.00	\$49,800.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	48	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	7	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	850	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	12	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	6	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 6" Tee (1 ea)	8140	6	ea		
		- 6" Blind Flange (1 ea)	8140	6	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	570	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation					
		No. 09SP101729 dated August 2009. Soils are assumed to be similar to those					
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$90,600.00</b>
		<b>SUBTOTAL MAY VALLEY SPUR</b>					<b>\$1,436,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>JMorris</i>	<b>CHECKED</b> <i>WCD</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCO 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Eads/May Valley Booster Plant - 8-inch Spur Alternative 2 Eads Spur	<b>PROJECT:</b> Fryington-Arkansas Project												
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b></td> <td style="width:20%;">AF523</td> <td style="width:30%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> <tr> <td><b>FILE:</b></td> <td colspan="3">H:\D8170\Commo\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Qty Est Eads Booster Plant Alt 2_8420 Appraisal-Level.xls\Pump Iiz</td> </tr> </table>	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11	<b>FILE:</b>	H:\D8170\Commo\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Qty Est Eads Booster Plant Alt 2_8420 Appraisal-Level.xls\Pump Iiz		
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<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11										
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural/Electrical/Mechanical:					
		Booster Plant	86-68420	1	LS	\$430,000.00	\$430,000.00
		<b>Using "Appraisal Estimate of Pumping Plants and Switchyards" pumping plant program</b>					
		Booster Plant - 1.125 cfs each, 455 feet TDH;					
		Unit Brake HP: 71.5 hp; Motors: 75 hp each @ 480 volts					
		Booster Plant - (1 + 1 installed spare)					
		2 pumps; vertical can; supply voltage (69 kV)					
		Structures And Improvements					
		Waterways					
		Pumps and Motors					
		Accessory Electrical					
		Miscellaneous Equipment					
		Switchyards					
<b>SUBTOTAL EADS/MAY VALLEY BOOSTER PLANT</b>							<b>\$430,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. Zelenka	REVIEWED Toby Turnage	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 4/6/11
DATE PREPARED 2/18/2011	PEER REVIEW / DATE Toby Turnage 3.10.11	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 3/26/11



<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Air Chamber Alternative 2 Eads & May Valley Spur	<b>PROJECT:</b> Fryngpan-Arkansas Project								
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b></td> <td style="width:30%;">AF523</td> <td style="width:30%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:10%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>11-Jan</td> </tr> </table>	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	11-Jan
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	11-Jan						
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Air Chamber Alt 2 Appraisal Quant Est 8420.xlsx\Hydraulic equip									

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Air Chamber</b>	86-68420	1	ls	\$93,000.00	\$93,000.00
		1,200-gallon (160 cubic feet) steel air chamber cylinder height 6 feet 6 inches cylinder diameter 5 feet air chamber weight 9,300 pounds mounted air compressor 9 horsepower					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$93,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Sharon May 4/22/11</i>
DATE PREPARED 4/4/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>Dev 4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Meter Vault Alternative 2 Eads & May Valley Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Meter Vaults Alt 4 Appraisal Quant Est 8120.xlsx\CivilStructural				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Vaults</b> (Assumed: two 12' W x 14' L x 16' D) (Assume: f <sub>c</sub> =4,500 psi) Source: Pueblo, CO 85 miles Concrete: 115 yd3 Reinforcement (Assume 135 lb/yd3): 15,650 lbs Cement (Assume: 0.282 ton/yd3): 33 tons	86-68120	1	ls	\$100,000.00	\$100,000.00
		<b>Access &amp; Service Hatches</b> Access hatch four 3' x3' (The Bilco Co Type Q single leaf) Service hatch two 5' x 10' (The Bilco Co Type JD special sizes)	86-68120	1	ls	\$41,000.00	\$41,000.00
		<b>Miscellaneous Metalwork</b> (40-D-6601, Ladder Type 2)	86-68120	280	lbs	\$13.00	\$3,640.00
							<b>\$144,640.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul Ruchti	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>Shawn...</i> 4/22/11
<b>DATE PREPARED</b> 04/06/11	<b>PEER REVIEW / DATE</b> Paul Ruchti 4/8/11	<b>DATE PREPARED</b> 04/20/11	<b>PEER REVIEW / DATE</b> DCD 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Eads and May Valley Meter Vaults Alternative 2 Eads and May Valley Spur Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: Jan-11
	FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume meter vault size=11.25'x11.25'x16.7'd					
		assume 2 vaults @ Eads					
	1	Meter vault ventilation equipment	86-68410	2	ls	\$6,600.00	\$13,200.00
		list of equipment per vault:					
		(1)-steel centrifugal fan, 450 cfm @ 0.25" w.g.s.p., 1/6 Hp					
		(16 ft)-8" diam, 16 ga., galv. steel duct					
		(2)-8" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-8"x12" reducer, sch 20, galv. steel pipe					
		(4)-12" diam, stainless steel bird screens					
		(2)-8"x12" reducer, 16 ga, galv. steel duct					
		(2)-8" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/6 Hp					
		(1)-fan wall switch and box					
	2	Meter vault heater	86-68410	2	ea	\$800.00	\$1,600.00
		3 kW unit heater					
		thermostatically controlled					
	3	Flowmeter	86-68410	2	ea	\$25,000.00	\$50,000.00
		Single-path ultrasonic, 12" diam					
		2 transducers with cables and 1 transmitter console					
		<b>Total</b>					<del>\$64,800.00</del> \$64,800.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Stanley</i> 5/3/11
DATE PREPARED 4/7/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>AD</i> 5/3/11

<b>FEATURE:</b>  <b>Arkansas Valley Conduit</b> <b>Eads &amp; May Valley Meter Vaults</b> <b>Alternative 2</b> <b>Eads &amp; May Valley Spur</b>	<b>PROJECT:</b> <b>Fryingpan-Arkansas Project</b>	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Valve and Meter Vaults\8420 - Valves\AVC - Eads & May Valley Meter Vaults Alt 2 Appraisal Quant Est 8420.xlsx\Hydraulic equip	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Meter Vaults</b>	86-68420				
		12-inch manually-operated butterfly valves		2	ea	\$4,400.00	\$8,800.00
		2 valves, 300 lbs each					
		AWWA Class 250-B					
<b>SUBTOTAL THIS SHEET</b>							<b>\$8,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Ken Smith	<b>REVIEWED</b> Dan Drake	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>JD</i>
<b>DATE PREPARED</b> 4/4/2011	<b>PEER REVIEW / DATE</b> 04/14/11	<b>DATE PREPARED</b> 04/27/11	<b>PEER REVIEW / DATE</b> <i>JD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Bent's Fort Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	1	acre	\$1,000.00	\$1,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	720	cy	\$6.00	\$4,320.00
		Seeding	8140	1	acre	\$1,500.00	\$1,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	1,200	cy	\$9.00	\$10,800.00
		Rock Excavation (0.25:1) outside urban area	8140	40	cy	\$45.00	\$1,800.00
		(20% of length is assumed partial rock exc.) assume rippable material					
		Pipe Bedding (Select material, 4" thick)	8140	25	cy	\$50.00	\$1,250.00
		Embedment & Cover Backfill	8140	1,200	cy	\$7.00	\$8,400.00
		(does not include shrink/swell)					
		Compacting Embedment Backfill	8140	90	cy	\$16.00	\$1,440.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					
							<b>\$33,010.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>			<b>PROJECT:</b>			
Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Bent's Fort Spur			Fryingpan-Arkansas Project			
<b>Civil</b>			<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal
			<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
			<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR14 (CIOD) C900 PVC pipe	8140	715	lin ft	\$7.50	\$5,362.50
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$14,662.50</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b>	<b>CHECKED</b>	<b>BY</b>	<b>CHECKED</b>
Jeremy Lorberau	W. Chris Duke	Jeff Morris <i>JMorris</i>	<i>W</i>
<b>DATE PREPARED</b>	<b>PEER REVIEW / DATE</b>	<b>DATE PREPARED</b>	<b>PEER REVIEW / DATE</b>
03/09/11	Steven J. Robertson	03/15/11	<i>JCD 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Bent's Fort Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL BENT'S FORT SPUR</b>					<b>\$62,772.50</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>W</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Cheraw Loop  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		16" DR25 (CIOD) C905 PVC pipe	8140	57,000	lin ft	\$32.00	\$1,824,000.00
		16" DR18 (CIOD) C905 PVC pipe	8140	28,500	lin ft	\$40.00	\$1,140,000.00
		16" dia. steel, 0.1345" thick (25 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 262,500 lbs total steel	8140	10,500	lin ft	\$70.00	\$735,000.00
		<u>Isolation Valves (Manual operation):</u>					
		16" Class 150B (psig) Butterfly Valve w/ Operator	8140	3	ea	\$3,900.00	\$11,700.00
		16" Class 250 (psig) Butterfly Valve w/ Operator	8140	3	ea	\$6,200.00	\$18,600.00
		<u>Isolation Valve Manholes (to include):</u>	8140	6	ea	\$7,000.00	\$42,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$3,771,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> JED 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Cheraw Loop  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b></td> <td style="width:30%;">AF523</td> <td style="width:30%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:10%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> </table> <b>FILE:</b> H:\DB170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xlsx\Summary Sheet	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		19	ea	\$6,800.00	\$129,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	190	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	76	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	1,800	lbs		
		- 2" Combination Air Valve (1 ea)	8140	19	ea		
		- 2" Ball Valve (1 ea)	8140	19	ea		
		<u>Blowoff Structures (to include):</u>		19	ea	\$8,300.00	\$157,700.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	150	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	23	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	3	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	2,700	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	38	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	19	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	190	lin ft		
		- 6" Tee (1 ea)	8140	19	ea		
		- 6" Blind Flange (1 ea)	8140	19	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	1,800	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$37,680.00	\$37,680.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$324,580.00</b>
		<b>SUBTOTAL CHERAW LOOP</b>					<b>\$6,862,380.00</b>

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>MA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW DATE</b> Sed 4/27/11







<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition East End & South Side Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 2 Max Day Estimators version Rev 2.xls\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		4	ea	\$6,800.00	\$27,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	40	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	16	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	380	lbs		
		- 2" Combination Air Valve (1 ea)	8140	4	ea		
		- 2" Ball Valve (1 ea)	8140	4	ea		
		<u>Blowoff Structures (to include):</u>		4	ea	\$8,300.00	\$33,200.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	32	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	5	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	560	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	8	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	4	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	40	lin ft		
		- 6" Tee (1 ea)	8140	4	ea		
		- 6" Blind Flange (1 ea)	8140	4	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	380	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation					
		No. 09SP101729 dated August 2009. Soils are assumed to be similar to those					
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$60,400.00</b>
		<b>SUBTOTAL EAST END S. SIDE SPUR</b>					<b>\$703,050.00</b>

QUANTITIES		PRICES	
<b>BY</b> Jeremy Lorberau	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>JA</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/29/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 Loop	<b>PROJECT:</b> Fryngpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 2 Loop Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\Civil\Structural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	8	ea	\$35,000.00	\$280,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$280,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 Loop Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	8	ls	\$5,600.00	\$44,800.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	8	ea	\$800.00	\$6,400.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	8	ea	\$13,000.00	\$104,000.00
<b>Subtotal - This Sheet</b>							<b>\$155,200.00</b>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>[Signature]</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 2 Loop (Reach 3A)	<b>PROJECT:</b> Fryingspan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\B420 - Valves\AVC - Alt 2 Loop Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (8 vaults)</b>	86-68420				
		6-inch pressure reducing valve 8 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		8	ea	\$7,800.00	\$62,400.00
		6-inch manually-operated butterfly valve 4 valves, 90 lbs each AWWA Class 150-B		4	ea	\$1,300.00	\$5,200.00
		4 valve, 130 lbs each AWWA Class 250-B		4	ea	\$2,300.00	\$9,200.00
		6-inch buried square-nut operated butterfly valve with valve box 4 valves, 245 lbs each AWWA Class 150-B		4	ea	\$1,800.00	\$7,200.00
		4 valves, 285 lbs each AWWA Class 250-B		4	ea	\$2,800.00	\$11,200.00
		1-inch air valve combination air valve 8 air valves, 35 lbs each		8	ea	\$1,000.00	\$8,000.00
<b>Total</b>							<b>\$103,200.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>smir</i>	CHECKED <i>Sham... 5/4/11</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>5/4/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Crossings Alternative 2, Max Day Condition Crossings  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 5 crossings.xlsx\Sheet1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Gravel Road Crossings (to include):</u>		17	ea	\$10,000.00	\$170,000.00
		Compacting backfill for road base (192 cy each)	8140	3,300	cy		
		Aggregate Base Course (6" thick) (22 cy each)	8140	380	cy		
		Gravel surfacing (6" thick) (23 cy each)	8140	390	cy		
		Temporary barricades & signage (1 each) (assume req'd for 2 days per crossing)	8140	17	ls		
		<u>Paved Road Crossings, 2 lane (to include):</u>		275	ea	\$25,000.00	\$6,875,000.00
		Compacting backfill for road base (194 cy each)	8140	53,000	cy		
		Asphalt base course (6" thick) (23 cy each)	8140	6,300	cy		
		Asphalt surfacing (6" thick) (23 cy each)	8140	6,300	cy		
		Temporary barricades & signage ( 1 each) (assume paved and req'd for 5 days ea)	8140	275	ls		
		<u>Major Road Crossings, 4 lanes (to include):</u>		34	ea	\$60,000.00	\$2,040,000.00
		Compacting backfill for road base (341 cy each)	8140	11,500	cy		
		Asphalt base course (6" thick) (39 cy each)	8140	1,350	cy		
		Asphalt surfacing (6" thick) (40 cy each)	8140	1,350	cy		
		Temp. detour, barricades, & signage (1000') (assume paved and req'd for 10 days ea)	8140	34	ls		
		<u>Interstate and Highway Crossings (to include):</u>		32	ea	\$300,000.00	\$9,600,000.00
		Horizontal Directional Drilling, 36" dia carrier pipe, min. cover depth is 20 ft, 500 lin. ft. each	8140	16,000	lin. ft.		
		48" dia casing pipe, welded steel 1/4" thick	8140	16,000	lin. ft.		
		Grout between borehole and casing pipe	8140	9,300	cy		
		<u>Railroad Crossing (to include):</u>		13	ea	\$120,000.00	\$1,560,000.00
		Horizontal Directional Drilling, 36" dia carrier pipe, min. cover depth is 20 ft, 150 lin. ft. each	8140	1,950	lin. ft.		
		48" dia casing pipe, welded steel 1/4" thick	8140	1,950	lin. ft.		
		Grout between borehole and casing pipe	8140	1,150	cy		
<b>SUBTOTAL THIS SHEET</b>							<b>\$20,245,000.00</b>

QUANTITIES		PRICES	
BY Michael Shepherd	CHECKED W. Chris Duke	BY <i>Jeff Morris and Michael Kramer</i> Jeff Morris and Michael Kramer	CHECKED <i>me g - g h</i> 4/6/11
DATE PREPARED 02/07/11	PEER REVIEW / DATE Dave Edwards	DATE PREPARED 04/06/11	PEER REVIEW / DATE <i>DCD</i> 4/6/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Crossings Alternative 2, Max Day Condition Crossings  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 5 crossings.xlsx]Sheet1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Major River Crossing (to include):</u>		7	ea	\$1,000,000.00	\$7,000,000.00
		Horizontal Directional Drilling, 36" dia. Pipe, 48" (1000 lin. ft ea)	8140	7,000	lin ft		
		48" dia. Casing pipe, 1/4" thick (1000 lin. ft ea) average cover depth is 20 ft	8140	7,000	lin ft		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$7,000,000.00</b>
		<b>SUBTOTAL CROSSINGS ALTERNATIVE 2 THIS SHEET</b>					<b>\$27,245,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> <i>Jeff Morris and Michael Kramer</i> Jeff Morris and Michael Kramer	<b>CHECKED</b> <i>me gus tim 4/6/11</i> me gus tim 4/6/11
<b>DATE PREPARED</b> 02/07/11	<b>PEER REVIEW / DATE</b> Dave Edwards	<b>DATE PREPARED</b> 04/06/11	<b>PEER REVIEW / DATE</b> <i>DES 4/6/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 2 Max Day Condition Dewatering  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Dewaterings All Alts 031011.xlsx\Alt 5	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Well Set Up (to include):</u>			ea		
		Mobilization/Demobilization					
		Unwatering System- Power for dewatering system shall be sufficient to handle power for unwatering system at the same time					
		Installation of 15' deep wells, Pump 100 gpm					
		8 inch dia. 5 ft long slotted well screens					
		8 inch dia. well casing					
		Install 2 inch dia. monitoring well					
		Well Development					
		Well completion pumping test 4 hr					
		Discharge Piping if no settling pond needed					
		check valves					
		flow meters					
		sampling ports					
		Power					
		All necessary generators, wiring, connections fuel, maintenance, rentals, etc. to provide power to dewatering system					
		Well Removal and Decommissioning					
		<u>Well Set Ups per Reach/Spur:</u>					
		Duration of operation is approximately 2 months operating time per well					
		Reaches 1 through 4	8140	800	ea	\$3,500.00	\$2,800,000.00
		15.19 miles in saturated areas requiring 1 well per 100' of pipe trench					
		Spurs	8140	370	ea	\$3,500.00	\$1,295,000.00
		6.94 miles in saturated areas requiring 1 well per 100' of pipe trench					
<b>SUBTOTAL THIS SHEET</b>							<b>\$4,095,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>WCD</i> 09-08-11
DATE PREPARED 03/15/11	PEER REVIEW / DATE Dave Edwards	DATE PREPARED 04/08/11	PEER REVIEW / DATE <i>WCD</i> 4/8/11

**FEATURE:**

Arkansas Valley Conduit  
 Pipeline Crossings  
 Alternative 2 Max Day Condition  
 Dust Abatement

**PROJECT:**  
 Fryingpan-Arkansas Project

**WOID:** AF523      **ESTIMATE LEVEL:** Appraisal  
**REGION:** GP      **UNIT PRICE LEVEL:** Jan-11

**FILE:** H:\D81701Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 2 dust abatement.xlsx\Sheet2

Civil

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Dust Abatement (to include):</u>					
		Four Water Wagons, 4 drivers 6-8 passes per day ea., (0.06" water application/pass, 20' to 75' width) (duration estimated 3 years)	8140	400,000	MGal	\$10.00	\$4,000,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$4,000,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>mc</i> <i>guy</i> <i>h</i> <i>4/6/11</i>
DATE PREPARED 02/24/11	PEER REVIEW / DATE Dave Edwards	DATE PREPARED 04/06/11	PEER REVIEW / DATE <i>Bob</i> <i>4/6/11</i>


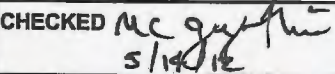

<b>FEATURE:</b>  Arkansas Valley Conduit Alternative 3 Summary Sheet	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 3 Summary Worksheet revised 5-11-12 - removed escalation.xls\EW SUM_Construction Cost

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Reach 1</b>					<b>\$4,065,859</b>
		Reach 1 Pipeline					\$2,033,164
		Whitlock Pumping Plant					\$1,700,000
		Whitlock Air Chamber (Sum of Civil Sheet and Hydraulic Sheet)					\$124,200
		Whitlock Meter Vault (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$208,495
		<b>Reach 2</b>					<b>\$55,244,210</b>
		Reach 2 Pipeline					\$50,479,529
		St. Charles Spur Pipeline					\$2,268,108
		Avondale Spur Pipeline					\$789,383
		Fowler Spur Pipeline					\$635,410
		Central Pueblo Regulating Tank (Sum of Civil Sheet and Hydraulic Sheet)					\$801,580
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$270,200
		<b>Reach 3</b>					<b>\$46,373,191</b>
		Reach 3 Pipeline					\$23,060,821
		N&W Holbrook Spur Pipeline					\$693,210
		LaJunta Water Storage Tank (Sum of Civil Sheet + Hydraulic Sheet)					\$12,794,035
		Fowler Water Storage Tank (Sum of Civil Sheet + Hydraulic Sheet)					\$8,790,525
		Fowler Tank Access Road					\$693,100
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$341,500
		<b>Reach 4</b>					<b>\$39,053,753</b>
		Reach 4 Pipeline					\$35,299,466
		Hasty Spur Pipeline					\$76,541
		McClave Spur Pipeline					\$460,768
		Wiley Spur					\$1,684,617
		Las Animas Spur Pipeline					\$911,661
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$620,700
		<b>Highway 96 Spur</b>					<b>\$6,875,093</b>
		Hwy 96 Pipeline					\$6,327,796
		96 Pipeline Co. Spur Pipeline					\$136,497
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$410,800

<b>QUANTITIES</b>		<b>PRICES</b>	
BY TSC Design Team	CHECKED TSC Design Team	BY <i>[Signature]</i> TSC Estimating Team	CHECKED <i>[Signature]</i> 5/14/12
DATE PREPARED Feb-Apr 2011	PEER REVIEW / DATE TSC Design Team	DATE PREPARED Feb-May 2011; Revised May 2012	PEER REVIEW / DATE <i>[Signature]</i> 5/14/12

<b>FEATURE:</b>  Arkansas Valley Conduit Alternative 3 Summary Sheet	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 3 Summary Worksheet revised 5-11-12 - removed escalation.xls\EW_SUM_Construction Cost	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<b>Eads Spur (Includes May Valley)</b>					<b>\$9,277,315</b>	
		Eads Spur Pipeline					\$4,290,066	
		Eads and May Valley Spur Pipeline					\$2,870,253	
		May Valley Spur Pipeline					\$1,264,356	
		Eads and May Valley Booster Plant					\$410,000	
		Eads and May Valley Air Chamber (Sum of Civil Sheet and Hydraulic Sheet)					\$91,600	
		Eads and May Valley Meter Vault (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$215,440	
		Participant Tie-In Vaults*					\$135,600	
		* Costs for 2 Tie-In Vaults were removed from the Total Costs of the Participant Tie-In Vaults for the Loop (below)						
		<b>Loop</b>					<b>\$24,821,848</b>	
		Bent's Fort Spur Pipeline					\$96,924	
		South Loop Spur Pipeline					\$19,731,099	
		Valley Water Spur Pipeline					\$1,185,862	
		Newdale/Grand Valley Spur					\$961,483	
		Manzanola Spur Pipeline					\$104,275	
		Rocky Ford Spur Pipeline					\$109,450	
		S. Swink Spur Pipeline					\$893,593	
		Homestead Spur Pipeline					\$226,743	
		LaJunta Spur Pipeline					\$563,219	
		Participant Tie-In Vaults*					\$949,200	
		** Costs = Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet Minus the Costs for 2 Tie-In Vaults for the Eads Spur (Includes May Valley)						

QUANTITIES		PRICES	
BY TSC Design Team	CHECKED TSC Design Team	BY  TSC Estimating Team	CHECKED  TSC Estimating Team
DATE PREPARED Feb-Apr 2011	PEER REVIEW / DATE TSC Design Team	DATE PREPARED Feb-May 2011; Revised May 2012	PEER REVIEW / DATE  5/14/12



<b>FEATURE:</b>  Arkansas Valley Conduit Alternative 3 Summary Sheet	<b>PROJECT:</b> Fryingpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 3 Summary Worksheet revised 5-11-12 - removed escalation.xls]EW SUM_Construction Cost				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Crossings</b>					<b>\$26,105,000</b>
		<b>Dewatering</b>					<b>\$4,515,000</b>
		<b>Dust Abatement</b>					<b>\$4,000,000</b>
		<b>Interconnect (Sum of Pipe &amp; Valve Sheets + Civil Sheets + Cofferdam Sheet)</b>					<b>\$3,701,082</b>
		<b>Water Treatment Plant**</b>					<b>\$30,076,061</b>
		** Costs include updated February 16, 2012 costs from sub-consultant B&V (Estimate sheets dated 12-01-2011).					
		<b>Subtotal 1</b>					<b>\$254,108,412.00</b>
		Mobilization	5%	+/-			\$12,500,000.00
		<b>Subtotal 1 with Mobilization</b>					<b>\$266,608,412.00</b>
		Design Contingencies	12%	+/-			\$33,391,588.00
		Allowance for Procurement Strategies (APS)	0.0%	+/-			\$0.00
		Type of solicitation assumed is: Full and open sealed bid competition					
		<b>CONTRACT COST</b>					<b>\$300,000,000.00</b>
		Construction Contingencies	25%	+/-			\$70,000,000.00
		<b>FIELD COST</b>					<b>\$370,000,000.00</b>
		Non-Contract Costs*					\$125,000,000.00
		<b>CONSTRUCTION COST</b>					<b>\$495,000,000.00</b>

\* Non-Contract Costs were produced and supplied by a joint effort of Eastern Colorado Area Office and Great Plains Region with input from the Technical Service Center.

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
<b>BY</b> TSC Design Team	<b>CHECKED</b> TSC Design Team	<b>BY</b> <i>[Signature]</i> TSC Estimating Team	<b>CHECKED</b> <i>[Signature]</i> 5/14/12
<b>DATE PREPARED</b> Feb-Apr 2011	<b>PEER REVIEW / DATE</b> TSC Design Team	<b>DATE PREPARED</b> Feb-May 2011; Revised May 2012	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 5/14/12

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Reach 1: Pueblo Res. Wye to WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
<b>Civil</b>	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7 2011.xlsx\Reach 1

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	3	acre	\$1,000.00	\$3,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	2,325	cy	\$4.00	\$9,300.00
		Seeding	8140	3	acre	\$1,500.00	\$4,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	0	cy	\$0.00	\$0.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume drill and blast	8140	0	cy	\$0.00	\$0.00
		Pipe Bedding (Select material, 4" thick)	8140	0	cy	\$0.00	\$0.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	0	cy	\$0.00	\$0.00
		Compacting Embedment Backfill	8140	0	cy	\$0.00	\$0.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	12,145	cy	\$9.00	\$109,305.00
		Pipe Bedding (Select material, 4" thick)	8140	520	cy	\$50.00	\$26,000.00
		Embedment & Cover Backfill	8140	9,800	cy	\$7.00	\$68,600.00
		Compacting Embedment Backfill	8140	1,890	cy	\$14.00	\$26,460.00
		(Urban trench will require traffic control, signage, and detours for duration of work) (Urban Trench Length: 6977 ft of 36" pipe)					
		Traffic Control/Detours Urban Excavation		2	mo	\$15,000.00	\$30,000.00
		Pavement & Base/Remove & Replace Urban Excavation		6,977	lin ft	\$60.00	\$418,620.00
		Utility Relocation & Repair Urban Excavation		6,977	lin ft	\$30.00	\$209,310.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					
		<b>\$907,595.00</b>					

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris	<b>CHECKED</b> [Signature]
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> [Signature] 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Reach 1: Pueblo Res. Wye to WTP  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WIOD:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Reach 1	<b>WIOD:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WIOD:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		36" dia. steel, 0.1501" thick (60 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250	8140	6,977	lin ft	\$140.00	\$976,780.00
		418,620 lbs total steel					
		<u>Isolation Valves (Manual operation):</u>					
		36" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$17,000.00	\$17,000.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,000,780.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> JCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Reach 1: Pueblo Res. Wye to WTP  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7 2011.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		2	ea	\$12,000.00	\$24,000.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	190	lbs		
		- 6" Combination Air Valve (1 ea)	8140	2	ea		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		<u>Blowoff Structures (to include):</u>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	16	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	3	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	282	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	4	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1 ea)	8140	2	ea		
		- 6" Blind Flange (1 ea)	8140	2	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	190	lbs		
		<u>Manholes-Buried (to include):</u>		3	ea	\$11,500.00	\$34,500.00
		-36" Pipe outlet (1 ea)	8140	3	ea		
		-36" blind flange (1 ea)	8140	3	ea		
		<u>Cathodic Protection</u>	8140	1	ls	\$49,689.00	\$49,689.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$124,789.00</b>
		<b>SUBTOTAL REACH 1</b>					<b>\$2,033,164.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> [Signature]
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> [Signature] 4/27/11





<b>FEATURE:</b>  Arkansas Valley Conduit Whitlock Air Chamber Alternative 3 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryington-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: Jan-11
	FILE: H:\DB170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Whitlock Air Chamber Alt 3 Appraisal Quant Est 8120.xlsx\Civil\Structural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Foundation</b> (slab-on-grade foundation type) (Assume: $f_c=4,500$ psi) Source: Pueblo, CO 20 miles Concrete: 3.7 yd3 Reinforcement (Assume 135 lb/yd3): 510 lbs Cement (Assume: 0.282 ton/yd3): 1.1 tons	86-68120	1	ls	\$4,200.00	\$4,200.00
		<b>SUBTOTAL THIS SHEET</b>					\$4,200.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 04/04/11	PEER REVIEW / DATE Paul Ruchti 4/5/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Whitlock Air Chamber Alternative 3 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryngpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: 11-Jan
	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Whitlock Air Chamber Alt 3 Appraisal Quant Est 8420.xlsx\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Air Chamber</b>	86-68420	1	ls	\$120,000.00	\$120,000.00
		Steel air chamber					
		4,702-gallon (629 cubic feet)					
		steel air chamber					
		cylinder height 14 feet					
		cylinder diameter 7 feet					
		air chamber weight 11,800 pounds					
		mounted air compressor 6 horsepower					
		SUBTOTAL THIS SHEET					\$120,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shane...</i> 4/22/11
DATE PREPARED 4/4/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>DCD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Whitlock Meter Vault Alternative 3 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Whitlock Meter Vault Alt 3 Appraisal Quant Est 8120.xlsx\CivilStructural				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Vaults</b> (Assumed: 14' W x 17' L x 18' D) (Assume: f <sub>c</sub> =4,500 psi) Source: Pueblo, CO 20 miles Concrete: 80 yd <sup>3</sup> Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 10,900 lbs Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 23 tons	86-68120	1	ls	\$70,000.00	\$70,000.00
		<b>Access &amp; Service Hatches</b> Access hatch two 3' x3' (The Bilco Co Type Q single leaf) Service hatch two 5' x 10' (The Bilco Co Type JD special sizes)	86-68120	1	ls	\$36,000.00	\$36,000.00
		<b>Miscellaneous Metalwork</b> (40-D-6601, Ladder Type 2)	86-68120	315	lbs	\$13.00	\$4,095.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$110,095.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Sharon MacG...</i> 4/22/11
DATE PREPARED 04/06/11	PEER REVIEW / DATE Paul Ruchti 4/8/11	DATE PREPARED 04/20/11	PEER REVIEW / DATE <i>DCD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Whitlock Meter Vault Alternative 3 Reach 1: Pueblo Reservoir to WTP Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">WOID:</td> <td style="width:20%;">AF523</td> <td style="width:30%;">ESTIMATE LEVEL:</td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td>REGION:</td> <td>GP</td> <td>UNIT PRICE LEVEL:</td> <td>Jan-11</td> </tr> <tr> <td colspan="4">FILE:</td> </tr> </table>	WOID:	AF523	ESTIMATE LEVEL:	Appraisal	REGION:	GP	UNIT PRICE LEVEL:	Jan-11	FILE:			
WOID:	AF523	ESTIMATE LEVEL:	Appraisal										
REGION:	GP	UNIT PRICE LEVEL:	Jan-11										
FILE:													

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume meter vault size=11.25'x11.25'x16.7'd					
		assume 1 vault @ Whitlock					
	1	Meter vault ventilation equipment	86-68410	1	ls	\$6,600.00	\$6,600.00
		list of equipment per vault:					
		(1)-steel centrifugal fan, 450 cfm @ 0.25" w.g.s.p., 1/6 Hp					
		(16 ft)-8" diam, 16 ga., galv. steel duct					
		(2)-8" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-8"x12" reducer, sch 20, galv. steel pipe					
		(4)-12" diam, stainless steel bird screens					
		(2)-8"x12" reducer, 16 ga, galv. steel duct					
		(2)-8" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/6 Hp					
		(1)-fan wall switch and box					
	2	Meter vault heater	86-68410	1	ea	\$800.00	\$800.00
		3 kW unit heater					
		thermostatically controlled					
	3	Flowmeter	86-68410	1	ea	\$65,000.00	\$65,000.00
		8-path ultrasonic, 42" diam					
		16 transducers with cables and 1 transmitter console					
<b>Subtotal - This Sheet</b>							<b>\$72,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Steve [unclear]</i> 5/3/11
DATE PREPARED 4/7/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>[Signature]</i> 5/3/11

<p><b>FEATURE:</b></p> <p><b>Arkansas Valley Conduit</b>  <b>Whitlock Meter Vault</b>  <b>Alternative 3</b>  <b>Reach 1: Pueblo Reservoir to WTP</b></p>	<p><b>PROJECT:</b>  <b>Fryingpan-Arkansas Project</b></p> <p><b>WOID:</b> AF523      <b>ESTIMATE LEVEL:</b> Appraisal  <b>REGION:</b> GP      <b>UNIT PRICE LEVEL:</b> Jan-11</p> <p><b>FILE:</b> H:\D8170\Commom\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Valve and Meter Vaults\8420 - Valves\AVC - Whitlock Meter Vault Alt 3 Appraisal Quant Est 8420.xlsx\Hydraulic equip</p>
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Meter Vault</b>	86-68420				
		42-inch manually-operated butterfly valve		1	ea	\$26,000.00	\$26,000.00
		1 valve					
		AWWA Class 150-B					
<b>SUBTOTAL THIS SHEET</b>							<b>\$26,000.00</b>

QUANTITIES		PRICES	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>MA</i>
DATE PREPARED 4/4/2011	PEER REVIEW / DATE 04/14/11	DATE PREPARED 04/27/11	PEER REVIEW / DATE <i>Drake</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Reach 2: S. Rd & 21st WTP to Fowler S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Reach 2	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	357	acre	\$800.00	\$285,600.00
		Grubbing	8140	36	acre	\$2,500.00	\$90,000.00
		Stripping (6" thick)	8140	276,720	cy	\$2.00	\$553,440.00
		Seeding	8140	357	acre	\$800.00	\$285,600.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	764,425	cy	\$4.00	\$3,057,700.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	50,910	cy	\$25.00	\$1,272,750.00
		Pipe Bedding (Select material, 4" thick)	8140	13,920	cy	\$30.00	\$417,600.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	755,380	cy	\$3.00	\$2,266,140.00
		Compacting Embedment Backfill	8140	94,850	cy	\$8.00	\$758,800.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	61,560	cy	\$9.00	\$554,040.00
		Pipe Bedding (Select material, 4" thick)	8140	2,460	cy	\$40.00	\$98,400.00
		Embedment & Cover Backfill	8140	48,160	cy	\$5.00	\$240,800.00
		Compacting Embedment Backfill (Urban trench will require traffic control, signage, and detours for duration of work) (Urban Trench Length: 30,683.2 ft of 42" pipe)	8140	9,920	cy	\$14.00	\$138,880.00
		Traffic Control/Detours Urban Excavation		7	mo	\$15,000.00	\$105,000.00
		Pavement & Base/Remove & Replace Urban Excavation		30,683	lin ft	\$60.00	\$1,840,980.00
		Utility Relocation & Repair Urban Excavation		30,683	lin ft	\$30.00	\$920,490.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$12,886,220.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> #3
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> ACO 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Reach 2: S. Rd & 21st WTP to Fowler S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7 2011.xlsx\Reach 2	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		30" dia. steel, 0.1428" thick (48 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=375 573,024 lbs total steel	8140	11,938	lin ft	\$125.00	\$1,492,250.00 ✓
		36" dia. steel, 0.1707" thick (68 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=375 3,355,041 lbs total steel	8140	49,339	lin ft	\$145.00	\$7,154,155.00 ✓
		36" dia. steel, 0.2500" thick (100 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=500 4,137,737 lbs total steel	8140	41,377	lin ft	\$155.00	\$6,413,435.00 ✓
		36" dia. steel, 0.3125" thick (125 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 7,940,965 lbs total steel	8140	63,528	lin ft	\$175.00	\$11,117,400.00 ✓
		42" dia. steel, 0.175" thick (81 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=125 1,210,761 lbs total steel	8140	14,948	lin ft	\$190.00	\$2,840,120.00 ✓
		42" dia. steel, 0.175" thick (81 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 2,064,540 lbs total steel	8140	25,488	lin ft	\$190.00	\$4,842,720.00 ✓
		<u>Isolation Valves (Manual operation):</u>					
		30" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$14,500.00	\$14,500.00
		36" Class 150B (psig) Butterfly Valve w/ Operator	8140	2	ea	\$17,000.00	\$34,000.00
		36" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$29,000.00	\$58,000.00
		36" Class 300 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$43,000.00	\$86,000.00
		42" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$26,000.00	\$26,000.00
		42" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$26,000.00	\$26,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	9	ea	\$7,000.00	\$63,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$34,167,580.00</b> ✓

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> \$73
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Doc 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Reach 2: S. Rd & 21st WTP to Fowler S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\Morris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Reach 2	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		40	ea	\$12,000.00	\$480,000.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	400	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	160	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	3,800	lbs		
		- 6" Combination Air Valve (1 ea)	8140	40	ea		
		- 6" Butterfly Valve (1 ea)	8140	40	ea		
		<u>Blowoff Structures (to include):</u>		40	ea	\$8,300.00	\$332,000.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	320	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	47	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	13	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	5,640	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	80	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	40	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	400	lin ft		
		- 6" Tee (1 ea)	8140	40	ea		
		- 6" Blind Flange (1 ea)	8140	40	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	3,800	lbs		
		<u>Manholes-Buried (to include):</u>		79	ea	\$11,500.00	\$908,500.00
		-36" Pipe outlet (1 ea)	8140	79	ea		
		-36" blind flange (1 ea)	8140	79	ea		
		<u>Cathodic Protection</u>	8140	1	ls	\$1,705,229.00	\$1,705,229.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$3,425,729.00</b>
		<b>SUBTOTAL REACH 2</b>					<b>\$50,479,529.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 5/2/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11

**FEATURE:**  
 Arkansas Valley Conduit  
 Pipeline  
 Alternative 3 Max Day Condition  
 St. Charles Mesa Spur

**Civil**

**PROJECT:**  
 Fryingpan-Arkansas Project

<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11

**FILE:** H:\DB170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\St. Charles Spur

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	36	acre	\$1,000.00	\$36,000.00
		Grubbing	8140	4	acre	\$2,500.00	\$10,000.00
		Stripping (6" thick)	8140	28,920	cy	\$2.00	\$57,840.00
		Seeding	8140	36	acre	\$1,500.00	\$54,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	63,350	cy	\$6.00	\$380,100.00
		Rock Excavation (0.25:1) outside urban area	8140	3,180	cy	\$35.00	\$111,300.00
		(20% of length is assumed partial rock exc.) assume rippable material					
		Pipe Bedding (Select material, 4" thick)	8140	1,160	cy	\$40.00	\$46,400.00
		Embedment & Cover Backfill	8140	63,510	cy	\$5.00	\$317,550.00
		(does not include shrink/swell)					
		Compacting Embedment Backfill	8140	4,525	cy	\$14.00	\$63,350.00
		All earthwork quantities above are for the actual sloped trench.					
<b>SUBTOTAL THIS SHEET</b>							<b>\$1,076,540.00</b>

QUANTITIES		PRICES	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris	<b>CHECKED</b> #3
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Ded 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition St. Charles Mesa Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\St. Charles Spur	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		20" dia. DR25 (CIOD) C905 PVC pipe	8140	22,966	lin ft	\$48.00	\$1,102,368.00
		<u>Isolation Valves (Manual operation):</u>					
		20" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$6,700.00	\$6,700.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,116,068.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>WCD</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> WCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition St. Charles Mesa Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\St. Charles Spur		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		5	ea	\$6,800.00	\$34,000.00	
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	50	lin ft			
		- 3/4-inch Gravel Filter (4 cy ea)	8140	20	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	475	lbs			
		- 2" Combination Air Valve (1 ea)	8140	5	ea			
		- 2" Ball Valve (1 ea)	8140	5	ea			
		<u>Blowoff Structures (to include):</u>		5	ea	\$8,300.00	\$41,500.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	40	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	6	cy			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	705	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	10	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	5	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	50	lin ft			
		- 6" Tee (1 ea)	8140	5	ea			
		- 6" Blind Flange (1 ea)	8140	5	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	475	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00	
		*Assume 5% of cost for all steel items above						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>						<b>\$75,500.00</b>
		<b>SUBTOTAL ST. CHARLES SPUR</b>						<b>\$2,268,108.00</b>

QUANTITIES		PRICES	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> [Signature] 5/2/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> [Signature] 5/2/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Avondale Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
<b>Civil</b>	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Avondale Spur

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	11	acre	\$1,000.00	\$11,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	8,285	cy	\$4.00	\$33,140.00
		Seeding	8140	11	acre	\$1,500.00	\$16,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	14,980	cy	\$6.00	\$89,880.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	590	cy	\$45.00	\$26,550.00
		Pipe Bedding (Select material, 4" thick)	8140	300	cy	\$50.00	\$15,000.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	15,175	cy	\$5.00	\$75,875.00
		Compacting Embedment Backfill	8140	1,570	cy	\$14.00	\$21,980.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	1,580	cy	\$11.00	\$17,380.00
		Pipe Bedding (Select material, 4" thick)	8140	95	cy	\$50.00	\$4,750.00
		Embedment & Cover Backfill	8140	1,450	cy	\$7.00	\$10,150.00
		Compacting Embedment Backfill	8140	300	cy	\$18.00	\$5,400.00
		(Urban trench will require traffic control, signage, and detours for duration of work)					
		(Urban Trench Length:2,909 ft of 8" pipe)					
		Traffic Control/Detours Urban Excavation		1	mo	\$15,000.00	\$15,000.00
		Pavement & Base/Remove & Replace Urban Excavation		2,909	lin ft	\$60.00	\$174,540.00
		Utility Relocation & Repair Urban Excavation		2,909	lin ft	\$30.00	\$87,270.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$606,915.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> [Signature]
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> [Signature] 4/27/11

**FEATURE:**

**Arkansas Valley Conduit  
Pipeline  
Alternative 3 Max Day Condition  
Avondale Spur**

**Civil**

**PROJECT:**  
Fryingpan-Arkansas Project

<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xls\Avondale Spur	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		8" dia. DR25 (CIOD) C900 PVC pipe	8140	10,689	lin ft	\$12.00	\$128,268.00
		<u>Isolation Valves (Manual operation):</u>					
		8" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$1,900.00	\$1,900.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$137,168.00</b>

QUANTITIES		PRICES	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>[Signature]</i>	CHECKED #3
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Avondale Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xls\Avondale Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		3	ea	\$6,800.00	\$20,400.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	12	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	285	lbs		
		- 2" Combination Air Valve (1 ea)	8140	3	ea		
		- 2" Ball Valve (1 ea)	8140	3	ea		
		<u>Blowoff Structures (to include):</u>		3	ea	\$8,300.00	\$24,900.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	24	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	4	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	423	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	6	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	3	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 6" Tee (1 ea)	8140	3	ea		
		- 6" Blind Flange (1 ea)	8140	3	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	285	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$45,300.00</b>
		<b>SUBTOTAL AVONDALE SPUR</b>					<b>\$789,383.00</b>

QUANTITIES		PRICES	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>WJ</i>
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>Dec 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Fowler Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"><b>WOID:</b> AF523</td> <td style="width: 50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Fowler Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Sitework Items:</u>						
		Clearing (3 times trench width)	8140	10	acre	\$1,000.00	\$10,000.00	
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00	
		Stripping (6" thick)	8140	8,020	cy	\$4.00	\$32,080.00	
		Seeding	8140	10	acre	\$1,500.00	\$15,000.00	
		<u>Earthwork Items:</u>						
		Soil Excavation (1.5:1) outside urban area	8140	13,990	cy	\$6.00	\$83,940.00	
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	520	cy	\$45.00	\$23,400.00	
		Pipe Bedding (Select material, 4" thick)	8140	280	cy	\$50.00	\$14,000.00	
		Embedment & Cover Backfill (does not include shrink/swell)	8140	14,200	cy	\$5.00	\$71,000.00	
		Compacting Embedment Backfill	8140	1,260	cy	\$14.00	\$17,640.00	
		All earthwork quantities above are for the actual sloped trench.						
<b>SUBTOTAL THIS SHEET</b>							<b>\$269,560.00</b>	

QUANTITIES		PRICES	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Fowler Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Fowler Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" dia. steel, 0.1345" thick (10 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 77,650 lbs total steel	8140	7,765	lin ft	\$40.00	\$310,600.00
		<u>Isolation Valves (Manual operation):</u>					
		6" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,400.00	\$2,400.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$320,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> #3
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCB 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Fowler Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xls\Fowler Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		2	ea	\$6,800.00	\$13,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$15,650.00	\$15,650.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$45,850.00</b>
		<b>SUBTOTAL FOWLER SPUR</b>					<b>\$635,410.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> #3
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Dec 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Central Pueblo Regulating Tank Alternative 3 Reach 2: S. Rd & 21st WTP to Fowler S. Tank	<b>PROJECT:</b> Fryington-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Whitlock Reg Tank Alt 3 Appraisal Quant Est 8120.xlsx\CivilStructural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	265	yd <sup>3</sup>	\$6.00	\$1,590.00
		Access Roads	86-68120	40	yd <sup>3</sup>	\$6.00	\$240.00
		Excavation (tank foundation)	86-68120	105	yd <sup>3</sup>	\$25.00	\$2,625.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	85	yd <sup>3</sup>	\$25.00	\$2,125.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	230	yd <sup>3</sup>	\$40.00	\$9,200.00
		Access Roads	86-68120	40	yd <sup>3</sup>	\$40.00	\$1,600.00
		Chain Link Fence	86-68120	480	lin ft	\$40.00	\$19,200.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. One 20' wide double swing gate					
		Reinforced Concrete for Pad & Stem Foundation	86-68120	1	ls	\$25,000.00	\$25,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 20 miles					
		Concrete: 27 yd3					
		Reinforcement (Assume 135 lb/yd3): 3535 lbs					
		Cement (Assume: 0.282 ton/yd3): 7.5 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$61,580.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris	CHECKED <i>Sharon McQueen</i> 4/22/11
DATE PREPARED 03/30/11	PEER REVIEW / DATE Paul Ruchti 3/31/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>Paul</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Central Pueblo Regulating Tank Alternative 3 Reach 2: S. Rd & 21st WTP to Fowler S. Tank	<b>PROJECT:</b> Fryngpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> 11-Jan	
	<b>FILE:</b> H:\D8170\Commom\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Central Pueblo Reg Tank Alt 3 Appraisal Quant Est 8420.xlsx\Hydraulic equip		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		<b>Steel regulating tank</b>					
		1 - 590,000-gallon steel regulating tank AWWA D100 compliance tank height 40 feet inside diameter 50 feet	86-68420	1	ls	\$740,000.00	\$740,000.00
SUBTOTAL THIS SHEET							\$740,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shane Mackay</i> 4/25/11
DATE PREPARED 3/30/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE <i>D. Co.</i> 4/25/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 Reach 2: S. Rd & 21st WTP to Fowler S. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 3 R2 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	4	ea	\$35,000.00	\$140,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$140,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>g. z. Ali</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>Doc</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 Reach 2: S. Rd & 21st WTP to Fowler S. Tank Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	4	ls	\$5,600.00	\$22,400.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	4	ea	\$800.00	\$3,200.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	4	ea	\$13,000.00	\$52,000.00
<b>Subtotal - This Sheet</b>							<b>\$77,600.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>David M. ... 4/30/11</i>
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>D. Hulse 4/30/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 Reach 2: S. Rd & 21st WTP to Fowler S. Tank	<b>PROJECT:</b> Fryngpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 3 R2 Participant Tie-In Vaults Appraisal Quant Est 8420.xls\Hydraulic Equip		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		Participant Tie-In Vaults (4 vaults)	86-68420				
		6-inch pressure reducing valve 4 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		4	ea	\$7,800.00	\$31,200.00
		6-inch manually-operated butterfly valve 2 valves, 90 lbs each AWWA Class 150-B 1 valve, 130 lbs each AWWA Class 250-B 1 valve, 170 lbs each Henry Pratt Class 350		2	ea	\$1,300.00	\$2,600.00
		6-inch buried square-nut operated butterfly valve with valve box 2 valves, 245 lbs each AWWA Class 150-B 1 valve, 285 lbs each AWWA Class 250-B 1 valve, 325 lbs each Henry Pratt Class 350		2	ea	\$1,800.00	\$3,600.00
		1-inch air valve combination air valve 4 air valves, 35 lbs each		1	ea	\$2,800.00	\$2,800.00
				1	ea	\$2,800.00	\$2,800.00
				1	ea	\$3,300.00	\$3,300.00
				4	ea	\$1,000.00	\$4,000.00
		<b>Total</b>					<b>\$52,600.00</b>

QUANTITIES		PRICES	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawn...</i> 5/4/11
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>DCD</i> 5/4/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Reach 3: Fowler S. Tank to La Junta S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Reach 3

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	255	acre	\$800.00	\$204,000.00
		Grubbing	8140	26	acre	\$2,500.00	\$65,000.00
		Stripping (6" thick)	8140	205,430	cy	\$2.00	\$410,860.00
		Seeding	8140	255	acre	\$800.00	\$204,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	496,730	cy	\$4.00	\$1,986,920.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	28,400	cy	\$25.00	\$710,000.00
		Pipe Bedding (Select material, 4" thick)	8140	8,990	cy	\$40.00	\$359,600.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	494,600	cy	\$3.00	\$1,483,800.00
		Compacting Embedment Backfill	8140	46,940	cy	\$10.00	\$469,400.00
		All earthwork quantities above are for the actual sloped trench.					
<b>SUBTOTAL THIS SHEET</b>							<b>\$5,893,580.00</b>

QUANTITIES		PRICES	
BY Nathan Lehman	CHECKED Jeremy Lorberau	BY Jeff Morris <i>J. Morris</i>	CHECKED #3
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>JCD 4/27/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Reach 3: Fowler S. Tank to La Junta S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Reach 3	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		24" dia. DR25 (CIOD) C905 PVC pipe	8140	19,141	lin ft	\$68.00	\$1,301,588.00
		24" dia. DR18 (CIOD) C905 PVC pipe	8140	38,918	lin ft	\$90.00	\$3,502,620.00
		22" dia. steel, 0.1751" thick (44 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 2,191,288 lbs total steel	8140	49,802	lin ft	\$100.00	\$4,980,200.00
		36" dia. steel, 0.1501" thick (60 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 495,473 lbs total steel	8140	8,258	lin ft	\$140.00	\$1,156,120.00
		36" dia. steel, 0.1707" thick (68 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=375 2,294,517 lbs total steel	8140	33,743	lin ft	\$145.00	\$4,892,735.00
		<u>Isolation Valves (Manual operation):</u>					
		24" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$9,000.00	\$9,000.00
		24" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$15,000.00	\$30,000.00
		24" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$22,500.00	\$22,500.00
		36" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$17,000.00	\$17,000.00
		36" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$17,000.00	\$17,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	6	ea	\$7,000.00	\$42,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,970,763.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> \$5 <i>[Signature]</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> JCB 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Reach 3: Fowler S. Tank to La Junta S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Reach 3	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		29	ea	\$7,500.00	\$217,500.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	290	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	116	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	2,755	lbs		
		- 3" Combination Air Valve (1 ea)	8140	29	ea		
		- 3" Ball Valve (1 ea)	8140	29	ea		
		<u>Blowoff Structures (to include):</u>		29	ea	\$8,300.00	\$240,700.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	232	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	34	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	10	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	4,089	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	58	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	29	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	290	lin ft		
		- 6" Tee (1 ea)	8140	29	ea		
		- 6" Blind Flange (1 ea)	8140	29	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	2,755	lbs		
		<u>Manholes-Buried (to include):</u>		16	ea	\$11,500.00	\$184,000.00
		-36" Pipe outlet (1 ea)	8140	16	ea		
		-36" blind flange (1 ea)	8140	16	ea		
		<u>Cathodic Protection</u>	8140	1	ls	\$554,277.75	\$554,277.75
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,196,477.75</b>
		<b>SUBTOTAL REACH 3</b>					<b>\$23,060,820.75</b>

QUANTITIES		PRICES	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i>
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/27/11

**FEATURE:**  
**Arkansas Valley Conduit  
 Pipeline  
 Alternative 3 Max Day Condition  
 North and West Holbrook Spur**

**Civil**

**PROJECT:**  
**Fryingpan-Arkansas Project**

<b>WOID:</b>	<b>AF523</b>	<b>ESTIMATE LEVEL:</b>	<b>Appraisal</b>
<b>REGION:</b>	<b>GP</b>	<b>UNIT PRICE LEVEL:</b>	<b>Jan-11</b>
<b>FILE:</b>	H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7 2011.xls\N & W Holbrook Spur		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	20	acre	\$1,000.00	\$20,000.00
		Grubbing	8140	2	acre	\$2,500.00	\$5,000.00
		Stripping (6" thick)	8140	15,790	cy	\$2.00	\$31,580.00
		Seeding	8140	20	acre	\$1,500.00	\$30,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	27,100	cy	\$6.00	\$162,600.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	990	cy	\$45.00	\$44,550.00
		Pipe Bedding (Select material, 4" thick)	8140	545	cy	\$50.00	\$27,250.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	27,430	cy	\$5.00	\$137,150.00
		Compacting Embedment Backfill	8140	2,260	cy	\$14.00	\$31,640.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$489,770.00</b>

<b>QUANTITIES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson

<b>PRICES</b>	
<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> #7
<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Dec 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition North and West Holbrook Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\N & W Holbrook Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. DR14 (CIOD) C900 PVC pipe	8140	7,387	lin ft	\$7.50	\$55,402.50
		6" dia. DR18 (CIOD) C900 PVC pipe	8140	5,348	lin ft	\$10.00	\$53,480.00
		6" dia. DR14 (CIOD) C900 PVC pipe	8140	2,787	lin ft	\$11.00	\$30,657.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		6" Clas 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>	8140	2	ea	\$7,000.00	\$14,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$158,139.50</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>3/5/2/11</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Dec 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition North and West Holbrook Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\N & W Holbrook Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		3	ea	\$6,800.00	\$20,400.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	12	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	285	lbs		
		- 2" Combination Air Valve (1 ea)	8140	3	ea		
		- 2" Ball Valve (1 ea)	8140	3	ea		
		<u>Blowoff Structures (to include):</u>		3	ea	\$8,300.00	\$24,900.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	24	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	4	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	423	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	6	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	3	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 6" Tee (1 ea)	8140	3	ea		
		- 6" Blind Flange (1 ea)	8140	3	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	285	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$45,300.00</b>
		<b>SUBTOTAL N&amp;W HOLBROOK SPUR</b>					<b>\$693,209.50</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> #7
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit La Junta North Water Storage Tank Alternative 3 Reach 3: Fowler S. Tank to La Junta S. Tank		<b>PROJECT:</b> Fryington-Arkansas Project	
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal		
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11		
<b>FILE:</b>	H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - LaJunta North Water Tank Alt 3 Appraisal Quant Est 8120.xlsx\CivilStructural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	1,315	yd <sup>3</sup>	\$4.00	\$5,260.00
		Access Roads	86-68120	35	yd <sup>3</sup>	\$6.00	\$210.00
		Excavation (tank foundation)	86-68120	2,845	yd <sup>3</sup>	\$15.00	\$42,675.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	2,015	yd <sup>3</sup>	\$16.00	\$32,240.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	1,110	yd <sup>3</sup>	\$35.00	\$38,850.00
		Access Roads	86-68120	35	yd <sup>3</sup>	\$40.00	\$1,400.00
		Chain Link Fence	86-68120	1,335	lin ft	\$40.00	\$53,400.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. Three 20' wide double swing gate					
		Reinforced Concrete for Pad & Stem Foundation	86-68120	1	ls	\$620,000.00	\$620,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 70 miles					
		Concrete: 876 yd <sup>3</sup>					
		Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 118,265 lbs					
		Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 247 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$794,035.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti 3/30/11	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>La Junta North Water Tank 4/22/11</i>
DATE PREPARED 03/22/11	PEER REVIEW / DATE Paul Ruchti	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>DCD 4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit La Junta North Water Storage Tank Alternative 3 Reach 3: Fowler S. Tank to La Junta S. Tank	<b>PROJECT:</b> Fryngpan-Arkansas Project				
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>		<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Water Storage Tanks\La Junta Water Storage Tank\8420 Mechanical (Tank)\AVC - LaJunta North Water Tank Alt 3 8420.xlsx\Hydraulic equip					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		Steel water storage tanks					
		5 - 1,000,000-gallon steel water storage tanks (5,000,000 gallons combined capacity)	86-68420	1	ls	\$12,000,000.00	\$12,000,000.00
		AWWA D100 compliance minimum water surface 200 feet (above foundation) maximum water surface 240.58 feet (above foundation) diameter 74 feet					
<b>SUBTOTAL THIS SHEET</b>							<b>\$12,000,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shannon Mack</i> 4/24/11
DATE PREPARED 3/31/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE <i>DCR</i> 4/26/11

<b>FEATURE:</b>  Arkansas Valley Conduit Fowler North Water Storage Tank Alternative 3 Reach 3: Fowler S. Tank to La Junta S. Tank	<b>PROJECT:</b> Fryington-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC -Fowler North Water Tank Alt 3 Appraisal Quant Est 8120.xlsx\CivilStructural	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	2,145	yd <sup>3</sup>	\$4.00	\$8,580.00
		Access Roads	86-68120	75	yd <sup>3</sup>	\$6.00	\$450.00
		Excavation (tank foundation)	86-68120	1,530	yd <sup>3</sup>	\$15.00	\$22,950.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	1,120	yd <sup>3</sup>	\$16.00	\$17,920.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	1,235	yd <sup>3</sup>	\$35.00	\$43,225.00
		Access Roads	86-68120	75	yd <sup>3</sup>	\$40.00	\$3,000.00
		Chain Link Fence	86-68120	1,360	lin ft	\$40.00	\$54,400.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. Two 20' wide double swing gate					
		<b>Reinforced Concrete for Pad &amp; Stem Foundation</b>	86-68120	1	ls	\$340,000.00	\$340,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 40 miles					
		Concrete: 465 yd <sup>3</sup>					
		Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 62,835 lbs					
		Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 131 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$490,525.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris	CHECKED <i>[Signature]</i>
DATE PREPARED 03/22/11	PEER REVIEW / DATE Paul Ruchti 3/30/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE DCD 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Fowler North Water Storage Tank Alternative 3 Reach 3: Fowler S. Tank to La Junta S. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: Jan-11
	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Water Storage Tanks\Fowler Water Storage Tank\8420 Mechanical\AVC -Fowler North Water Tank Alt 3 Appraisal Quant Est

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		Steel water storage tanks					
		4 - 2,295,000-gallon steel water storage tank (9,180,000 gallons combined capacity)	86-68420	1	ls	\$8,300,000.00	\$8,300,000.00
		AWWA D100 compliance minimum water surface 0 feet (above foundation) maximum water surface 25 feet (above foundation) diameter 120 feet					
		SUBTOTAL THIS SHEET					\$8,300,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Stacy...</i> 4/26/11
DATE PREPARED 3/31/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE <i>DD</i> 4/26/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Fowler N Tank Access Road	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
<b>Civil</b>	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Fowler N Tank Road.xlsx\Alt 3

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Road Access (to include):</u>					
		Stripping (6" thick)	86-68140	3,100	cy	\$4.00	\$12,400.00
		gravel (6" thick)	86-68140	3,100	cy	\$35.00	\$108,500.00
		(20' wide access, 8,300' long)					
		<u>Concrete bridge(70' Double Span) to include:</u>		1	bridge	Included in Items below.	
		Abutment excavation (2200 ea)	86-68140	2,200	cy	\$25.00	\$55,000.00
		Backfill - abutments (2100 ea)	86-68140	2,100	cy	\$30.00	\$63,000.00
		Compacting backfill (2100 ea)	86-68140	2,100	cy	\$30.00	\$63,000.00
		Comp. approach ramp embankment (85 ea)	86-68140	85	cy	\$40.00	\$3,400.00
		Concrete - bridge abutment (85 ea)	86-68140	85	cy	\$1,300.00	\$110,500.00
		Concrete - bridge deck & girders (90 ea)	86-68140	90	cy	\$1,700.00	\$153,000.00
		Concrete - pier & footing (35 ea)	86-68140	35	cy	\$1,500.00	\$52,500.00
		Reinforcement (140 #/cy) (30,000 ea)	86-68140	30,000	lbs	\$1.70	\$51,000.00
		Cementitious Materials (6 sack mix) (60 ea)	86-68140	60	tons	Included in Concrete Items Above.	
		Beam-type guardrail (180 ea)	86-68140	180	lin. ft.	\$60.00	\$10,800.00
		Detour barricades & signage	86-68140	1	ls	\$10,000.00	\$10,000.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$693,100.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Sean May</i> 4/22/11
DATE PREPARED 03/31/11	PEER REVIEW / DATE Dave Edwards	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>DCD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 Reach 3: Fowler S. Tank to La Junta S. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\B120 - Site Work\AVC - Alt 3 R3 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	5	ea	\$35,000.00	\$175,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$175,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 Reach 3: Fowler S. Tank to La Junta S. Tank Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	5	ls	\$5,600.00	\$28,000.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	5	ea	\$800.00	\$4,000.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	5	ea	\$13,000.00	\$65,000.00
<b>Subtotal - This Sheet</b>							<b>\$97,000.00</b>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>Gur</i>	CHECKED <i>Shirley</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 Reach 3: Fowler S. Tank to La Junta S. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 3 R3 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (5 vaults)</b>	86-68420				
		6-inch pressure reducing valve 5 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		5	ea	\$7,800.00	\$39,000.00
		6-inch manually-operated butterfly valve 5 valves, 130 lbs each AWWA Class 250-B		5	ea	\$2,300.00	\$11,500.00
		6-inch buried square-nut operated butterfly valve with valve box 5 valves, 285 lbs each AWWA Class 250-B		5	ea	\$2,800.00	\$14,000.00
		1-inch air valve combination air valve 5 air valves, 35 lbs each		5	ea	\$1,000.00	\$5,000.00
		<b>Total</b>					<b>\$69,500.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawn McGray</i> 5/4/11
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>DR</i> 5/4/11



<b>FEATURE:</b>  Fryingpan-Arkansas Project Arkansas Valley Conduit Pipeline Reach 4: La Junta S. Tank to Lamar  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Reach 4	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		16" dia. steel, 0.1544" thick (29 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 908,369 lbs total steel	8140	31,323	lin ft	\$70.00	\$2,192,610.00
		16" dia. steel, 0.1875" thick (35 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=875 1,266,563 lbs total steel	8140	36,188	lin ft	\$75.00	\$2,714,100.00
		18" dia. steel, 0.1730" thick (36 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 2,246,174 lbs total steel	8140	62,394	lin ft	\$80.00	\$4,991,520.00
		20" dia. steel, 0.1596" thick (36 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 2,795,500 lbs total steel	8140	77,653	lin ft	\$90.00	\$6,988,770.00
		24" dia. DR25 (CIOD) C905 PVC pipe	8140	14,322	lin ft	\$68.00	\$973,896.00
		24" dia. DR18 (CIOD) C905 PVC pipe	8140	71,988	lin ft	\$90.00	\$6,478,920.00
		<u>Isolation Valves (Manual operation):</u>					
		16" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$11,000.00	\$11,000.00
		16" Class 300 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$11,000.00	\$22,000.00
		18" Class 300 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$15,500.00	\$31,000.00
		20" Class 300 (psig) Butterfly Valve w/ Operator	8140	3	ea	\$18,000.00	\$54,000.00
		24" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$9,000.00	\$9,000.00
		24" Class 250 (psig) Butterfly Valve w/ Operator	8140	3	ea	\$15,000.00	\$45,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	12	ea	\$7,000.00	\$84,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					\$24,595,816.00

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Fryingpan-Arkansas Project Arkansas Valley Conduit Pipeline Reach 4: La Junta S. Tank to Lamar  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Reach 4	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		56	ea	\$6,800.00	\$380,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	560	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	224	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	5,320	lbs		
		- 2" Combination Air Valve (1 ea)	8140	56	ea		
		- 2" Ball Valve (1 ea)	8140	56	ea		
		<u>Blowoff Structures (to include):</u>		56	ea	\$8,300.00	\$464,800.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	448	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	66	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	18	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	7,896	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	112	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	56	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	560	lin ft		
		- 6" Tee (1 ea)	8140	56	ea		
		- 6" Blind Flange (1 ea)	8140	56	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	5,320	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$850,250.00	\$850,250.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,695,850.00</b>
		<b>SUBTOTAL REACH 4</b>					<b>\$35,299,466.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> #3
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCA 4/27/11





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Hasty Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Hasty Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750	8140	626	lin ft	\$34.00	\$21,284.00
		5,008 lbs total steel					
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$30,584.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> #13
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Hasty Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Hasty Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$1,179.20	\$1,179.20
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$16,279.20</b>
		<b>SUBTOTAL HASTY SPUR</b>					<b>\$76,541.20</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>#3</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition McClave Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:67%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\McClave Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 43,872 lbs total steel	8140	5,484	lin ft	\$34.00	\$186,456.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$195,756.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>WCD</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>WCD 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition McClave Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\McClave Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		2	ea	\$6,800.00	\$13,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	190	lbs		
		- 2" Combination Air Valve (1 ea)	8140	2	ea		
		- 2" Ball Valve (1 ea)	8140	2	ea		
		<u>Blowoff Structures (to include):</u>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	16	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	2	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	282	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	4	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1 ea)	8140	2	ea		
		- 6" Blind Flange (1 ea)	8140	2	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	190	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$9,437.80	\$9,437.80
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$39,637.80</b>
		<b>SUBTOTAL McCLAVE SPUR</b>					<b>\$460,768.80</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>WCD</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> WCD 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Wiley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Wiley Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		8" dia. steel, 0.1345" thick (13 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=1,000 256,750 lbs total steel	8140	19,750	lin ft	\$45.00	\$888,750.00
		<u>Isolation Valves (Manual operation):</u>					
		8" Class 300 Gate Valve w/ Operator	8140	1	ea	\$3,000.00	\$3,000.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$898,750.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> #7
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> JCD 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Wiley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7 2011.xlsx\Wiley Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		4	ea	\$6,800.00	\$27,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	40	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	16	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	380	lbs		
		- 2" Combination Air Valve (1 ea)	8140	4	ea		
		- 2" Ball Valve (1 ea)	8140	4	ea		
		<u>Blowoff Structures (to include):</u>		4	ea	\$8,300.00	\$33,200.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	32	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	5	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	564	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	8	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	4	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	40	lin ft		
		- 6" Tee (1 ea)	8140	4	ea		
		- 6" Blind Flange (1 ea)	8140	4	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	380	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$44,587.50	\$44,587.50
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$104,987.50</b>
		<b>SUBTOTAL WILEY SPUR</b>					<b>\$1,684,617.50</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> #3
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Las Animas  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:67%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xls\Las Animas Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		12" dia. steel, 0.1345" thick (19 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750	8140	9,004	lin ft	\$55.00	\$495,220.00
		171,076 lbs total steel					
		<u>Isolation Valves (Manual operation):</u>					
		12" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$7,000.00	\$7,000.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$509,220.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> #3
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> ACD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Las Animas  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Las Animas Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		2	ea	\$6,800.00	\$13,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	190	lbs		
		- 2" Combination Air Valve (1 ea)	8140	2	ea		
		- 2" Ball Valve (1 ea)	8140	2	ea		
		<u>Blowoff Structures (to include):</u>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	16	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	2	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	282	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	4	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1 ea)	8140	2	ea		
		- 6" Blind Flange (1 ea)	8140	2	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	190	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$25,111.00	\$25,111.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$55,311.00</b>
		<b>SUBTOTAL LAS ANIMAS SPUR</b>					<b>\$911,661.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>#3</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Doc 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 Reach 4: La Junta S. Tank to Lamar	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 3 R4 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\Civil\Structural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	9	ea	\$35,000.00	\$315,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$315,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>g-g Allen</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 Reach 4: La Junta S. Tank to Lamar Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment	86-68410	9	ls	\$5,600.00	\$50,400.00
		list of equipment per vault:					
		(1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp					
		(12 ft)-6" diam, 16 ga., galv. steel duct					
		(2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-6"x8" reducer, sch 20, galv. steel pipe					
		(4)-8" diam, stainless steel bird screens					
		(2)-6"x8" reducer, 16 ga, galv. steel duct					
		(2)-6" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/6 Hp					
		(1)-fan wall switch and box					
	2	Meter vault heater	86-68410	9	ea	\$800.00	\$7,200.00
		3 kW unit heater					
		thermostatically controlled					
	3	Flowmeter system	86-68410	9	ea	\$13,000.00	\$117,000.00
		6" diameter, microprocessor-based,					
		flanged electro-magnetic flowmeter with					
		remote wall-mounted transmitter					
		weight= approx 85 lbs					
		120 Volt AC					
		Subtotal - This Sheet					\$174,600.00
		<del>Total - Sheets 1 thru 5</del>					<del>\$776,000.00</del>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>lwr</i>	CHECKED <i>Shawna</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 Reach 4: La Junta S. Tank to Lamar	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 3 R4 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (9 vaults)</b>	86-68420				
		6-inch pressure reducing valve					
		7 valves, 160 lbs each		7	ea	\$7,800.00	\$54,600.00
		Cla-Val ANSI class 150 steel (285 psi rated)					
		2 valves, 160 lbs each		2	ea	\$8,300.00	\$16,600.00
		Cla-Val ANSI class 300 steel (400 psi rated)					
		6-inch manually-operated butterfly valve					
		1 valves, 90 lbs each		1	ea	\$1,300.00	\$1,300.00
		AWWA Class 150-B					
		4 valve, 130 lbs each		4	ea	\$2,300.00	\$9,200.00
		AWWA Class 250-B					
		4 valve, 170 lbs each		4	ea	\$2,800.00	\$11,200.00
		Henry Pratt Class 350					
		6-inch buried square-nut operated butterfly valve with valve box					
		1 valve, 245 lbs each		1	ea	\$1,800.00	\$1,800.00
		AWWA Class 150-B					
		4 valve, 285 lbs each		4	ea	\$2,800.00	\$11,200.00
		AWWA Class 250-B					
		4 valve, 325 lbs each		4	ea	\$3,300.00	\$13,200.00
		Henry Pratt Class 350					
		1-inch air valve					
		combination 300 psi air valve					
		7 air valves, 35 lbs each		7	ea	\$1,000.00	\$7,000.00
		high-pressure 600 psi combination air valve					
		2 air valves, 140 lbs each		2	ea	\$2,500.00	\$5,000.00
		<b>Total</b>					<b>\$131,100.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Ken Smith	<b>REVIEWED</b> N. Nakamoto	<b>BY</b> G. Ruff <i>B. Ruff</i>	<b>CHECKED</b> <i>Shamara Taylor 5/4/11</i>
<b>DATE PREPARED</b> 4/22/2011	<b>PEER REVIEW / DATE</b> D. Drake / 4/25/11	<b>DATE PREPARED</b> 05/03/11	<b>PEER REVIEW / DATE</b> <i>DD 5/4/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Highway 96 Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7 2011.xlsx\Hwy 96 Spur	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	140	acre	\$800.00	\$112,000.00
		Grubbing	8140	14	acre	\$2,500.00	\$35,000.00
		Stripping (6" thick)	8140	114,675	cy	\$2.00	\$229,350.00
		Seeding	8140	140	acre	\$800.00	\$112,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	236,350	cy	\$4.00	\$945,400.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	11,070	cy	\$25.00	\$276,750.00
		Pipe Bedding (Select material, 4" thick)	8140	4,440	cy	\$40.00	\$177,600.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	238,000	cy	\$3.00	\$714,000.00
		Compacting Embedment Backfill	8140	18,100	cy	\$10.00	\$181,000.00
All earthwork quantities above are for the actual sloped trench.							
<b>SUBTOTAL THIS SHEET</b>							<b>\$2,783,100.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 5/2/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Highway 96 Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Hwy 96 Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		10" dia. DR25 (CIOD) C900 PVC pipe	8140	25,097	lin ft	\$16.00	\$401,552.00
		12" dia. DR25 (CIOD) C900 PVC pipe	8140	66	lin ft	\$22.00	\$1,452.00
		14" dia. DR25 (CIOD) C905 PVC pipe	8140	3,442	lin ft	\$26.00	\$89,492.00
		18" dia. DR25 (CIOD) C905 PVC pipe	8140	38,409	lin ft	\$40.00	\$1,536,360.00
		18" dia. DR25 (CIOD) C905 PVC pipe	8140	29,296	lin ft	\$40.00	\$1,171,840.00
		<u>Isolation Valves (Manual operation):</u>					
		10" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,000.00	\$2,000.00
		14" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$3,600.00	\$3,600.00
		18" Class 150B (psig) Butterfly Valve w/ Operator	8140	2	ea	\$5,500.00	\$11,000.00
		18" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$5,500.00	\$5,500.00
		<u>Isolation Valve Manholes (to include):</u>	8140	5	ea	\$7,000.00	\$35,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$3,257,796.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> #3
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCO 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Highway 96 Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WIOD:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Hwy 96 Spur	<b>WIOD:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WIOD:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		19	ea	\$6,800.00	\$129,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	190	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	76	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	1,805	lbs		
		- 2" Combination Air Valve (1 ea)	8140	19	ea		
		- 2" Ball Valve (1 ea)	8140	19	ea		
		<u>Blowoff Structures (to include):</u>		19	ea	\$8,300.00	\$157,700.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	152	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	22	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	6	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	2,679	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	38	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	19	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	190	lin ft		
		- 6" Tee (1 ea)	8140	19	ea		
		- 6" Blind Flange (1 ea)	8140	19	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	1,805	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$286,900.00</b>
		<b>SUBTOTAL HWY 96 SPUR</b>					<b>\$6,327,796.00</b>

QUANTITIES		PRICES	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> #7
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition 96 Pipeline Co. Spur  <b>Civil</b>			<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%"> <tr> <td style="width: 30%"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\COMMON\JMORRIS\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xls\96 Pipeline Co Spur			<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal								
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11								

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	3	acre	\$1,000.00	\$3,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	2,395	cy	\$4.00	\$9,580.00
		Seeding	8140	3	acre	\$1,500.00	\$4,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	4,025	cy	\$9.00	\$36,225.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	140	cy	\$45.00	\$6,300.00
		Pipe Bedding (Select material, 4" thick)	8140	81	cy	\$50.00	\$4,050.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	4,080	cy	\$7.00	\$28,560.00
		Compacting Embedment Backfill	8140	81	cy	\$16.00	\$1,296.00
		All earthwork quantities above are for the actual sloped trench.					
		SUBTOTAL THIS SHEET					\$96,011.00

<b>QUANTITIES</b>			<b>PRICES</b>		
BY Nathan Lehman	CHECKED Jeremy Lorberau	BY Jeff Morris	CHECKED #3		
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE Dad 4/27/11		

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition 96 Pipeline Co. Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xls\96 Pipeline Co Spur		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. DR18 (CIOD) C900 PVC pipe	8140	2,395	lin ft	\$6.80	\$16,286.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,100.00	\$2,100.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$25,386.00</b>

QUANTITIES		PRICES	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED 5/2/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE DWD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition 96 Pipeline Co. Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7 2011.xlsx\96 Pipeline Co Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL 96 PIPELINE CO. SPUR</b>					<b>\$136,497.00</b>

QUANTITIES		PRICES	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i>
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 HWY 96 Spur	<b>PROJECT:</b> Fryngpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 3 96 Spur Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\Civil\Structural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	6	ea	\$35,000.00	\$210,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
<b>SUBTOTAL THIS SHEET</b>							<b>\$210,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 HWY 96 Spur Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	6	ls	\$5,600.00	\$33,600.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	6	ea	\$800.00	\$4,800.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	6	ea	\$13,000.00	\$78,000.00
Subtotal - This Sheet							\$116,400.00

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>GR</i>	CHECKED <i>[Signature]</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE DCD 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 HWY 96 Spur (Reach 2A)	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 3 96 Spur Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (6 vaults)</b>	86-68420				
		6-inch pressure reducing valve 6 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		6	ea	\$7,800.00	\$46,800.00
		6-inch manually-operated butterfly valve 5 valves, 130 lbs each AWWA Class 250-B		5	ea	\$2,300.00	\$11,500.00
		1 valve, 170 lbs each Henry Pratt Class 350		1	ea	\$2,800.00	\$2,800.00
		6-inch buried square-nut operated butterfly valve with valve box 5 valves, 285 lbs each AWWA Class 250-B		5	ea	\$2,800.00	\$14,000.00
		1 valve, 325 lbs each Henry Pratt Class 350		1	ea	\$3,300.00	\$3,300.00
		1-inch air valve combination air valve 6 air valves, 35 lbs each		6	ea	\$1,000.00	\$6,000.00
<b>Total</b>							<b>\$84,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawn May 5/4/11</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>Doc 5/4/11</i>





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Eads Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Eads Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		8" dia. DR25 (CIOD) C900 PVC pipe	8140	108,338	lin ft	\$12.00	\$1,300,056.00
		<u>Isolation Valves (Manual operation):</u>					
		8" Class 150B (psig) Butterfly Valve w/ Operator	8140	4	ea	\$1,900.00	\$7,600.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	4	ea	\$7,000.00	\$28,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$1,335,656.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>WCD</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>WCD 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Eads Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Eads Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		21	ea	\$6,800.00	\$142,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	210	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	84	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	1,995	lbs		
		- 2" Combination Air Valve (1 ea)	8140	21	ea		
		- 2" Ball Valve (1 ea)	8140	21	ea		
		<u>Blowoff Structures (to include):</u>		21	ea	\$8,300.00	\$174,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	168	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	25	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	7	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	2,961	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	42	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	21	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	210	lin ft		
		- 6" Tee (1 ea)	8140	21	ea		
		- 6" Blind Flange (1 ea)	8140	21	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	1,995	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$317,100.00</b>
		<b>SUBTOTAL EADS SPUR</b>					<b>\$4,290,066.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> #3
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> NED 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Eads & May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Eads & May Valley Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		10" dia. steel, 0.1345" thick (16 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 506,128 lbs total steel	8140	31,633	lin ft	\$48.00	\$1,518,384.00
		<u>Isolation Valves (Manual operation):</u>					
		10" Class 300 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$5,000.00	\$10,000.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	2	ea	\$7,000.00	\$14,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$1,542,384.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> #7
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Doc 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Eads & May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Eads & May Valley Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		6	ea	\$6,800.00	\$40,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	24	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	570	lbs		
		- 2" Combination Air Valve (1 ea)	8140	6	ea		
		- 2" Ball Valve (1 ea)	8140	6	ea		
		<u>Blowoff Structures (to include):</u>		6	ea	\$8,300.00	\$49,800.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	48	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	7	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	846	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	12	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	6	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 6" Tee (1 ea)	8140	6	ea		
		- 6" Blind Flange (1 ea)	8140	6	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	570	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$76,419.20	\$76,419.20
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$167,019.20</b>
		<b>EADS &amp; MAY VALLEY SPUR</b>					<b>\$2,870,253.20</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> #7
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11



**FEATURE:**

Arkansas Valley Conduit  
 Pipeline  
 Alternative 3 Max Day Condition  
 May Valley Spur

**Civil**

**PROJECT:**  
 Fryingpan-Arkansas Project

<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11

**FILE:** H:\D8170\Commo\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\May Valley Spur

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" dia. DR14 (CIOD) C900 PVC pipe	8140	27,056	lin ft	\$11.00	\$297,616.00
		<u>Isolation Valves (Manual operation):</u>					
		6" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,400.00	\$2,400.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$307,016.00</b>

QUANTITIES		PRICES	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>#3</i>
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>JCO</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\May Valley Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		6	ea	\$6,800.00	\$40,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	24	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	570	lbs		
		- 2" Combination Air Valve (1 ea)	8140	6	ea		
		- 2" Ball Valve (1 ea)	8140	6	ea		
		<u>Blowoff Structures (to include):</u>		6	ea	\$8,300.00	\$49,800.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	48	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	7	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	846	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	12	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	6	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 6" Tee (1 ea)	8140	6	ea		
		- 6" Blind Flange (1 ea)	8140	6	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	570	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$90,600.00</b>
		<b>SUBTOTAL MAY VALLEY SPUR</b>					<b>\$1,264,356.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Eads/May Valley Booster Plant - 8-inch Spur Alternative 3 Eads Spur	<b>PROJECT:</b> Fryington-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\COMMON\MORRIS\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Qty Est Eads Booster Plant Alt 3_8420 Appraisal-Level.xlsx\Pump.liz		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Civil/Structural/Electrical/Mechanical:						
		Booster Plant	86-68420	1	LS	\$410,000.00	\$410,000.00	
		<b>Using "Appraisal Estimate of Pumping Plants and Switchyards" pumping plant program</b>						
		Booster Plant - 1.125 cfs each, 405 feet TDH;						
		Unit Brake HP: 64.0 hp; Motors: 75 hp each @ 480 volts						
		Booster Plant - (1 + 1 installed spare)						
		2 pumps; vertical can; supply voltage (69 kV)						
		Structures And Improvements						
		Waterways						
		Pumps and Motors						
		Accessory Electrical						
		Miscellaneous Equipment						
		Switchyards						
		<b>SUBTOTAL EADS/MAY VALLEY BOOSTER PLANT</b>					<b>\$410,000.00</b>	

QUANTITIES		PRICES	
BY R. Zelenka	REVIEWED Toby Turnage	BY Jeff Morris	CHECKED <i>[Signature]</i> 4/6/11
DATE PREPARED 2/18/2011	PEER REVIEW / DATE Toby Turnage 3.10.11	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 3/31/11

<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Air Chamber Alternative 3 Eads & May Valley Spur	<b>PROJECT:</b> Fryington-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Air Chamber Alt 3 Appraisal Quant Est 8120.xlsx\CivilStructural	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Foundation</b> (slab-on-grade foundation type) (Assume: f <sub>c</sub> =4,500 psi) Source: Pueblo, CO 85 miles Concrete: 2.3 yd3 Reinforcement (Assume 135 lb/yd3): 310 lbs Cement (Assume: 0.282 ton/yd3): 0.6 tons	86-68120	1	ls	\$2,600.00	\$2,600.00
		<b>SUBTOTAL THIS SHEET</b>					\$2,600.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>Shawnal...</i>
DATE PREPARED 04/04/11	PEER REVIEW / DATE Paul Ruchti 4/5/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>Bob</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Air Chamber Alternative 3 Eads & May Valley Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> 11-Jan
	<b>FILE:</b> H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Air Chamber Alt 3 Appraisal Quant Est 8420.xlsx\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Air Chamber</b>	86-68420	1	ls	\$89,000.00	\$89,000.00
		1,200-gallon (160 cubic feet) steel air chamber cylinder height 6 feet 6 inches cylinder diameter 5 feet air chamber weight 8,900 pounds mounted air compressor 7.5 horsepower					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$89,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shamuel New York 4/22/11</i>
DATE PREPARED 4/4/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>DCD 4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Meter Vault Alternative 3 Eads & May Valley Spur	<b>PROJECT:</b> Fryngpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Meter Vaults Alt 4 Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Vaults</b> (Assumed: two 12' W x 14' L x 16' D) (Assume: $f_c=4,500$ psi) Source: Pueblo, CO 85 miles Concrete: 115 yd3 Reinforcement (Assume 135 lb/yd3): 15,650 lbs Cement (Assume: 0.282 ton/yd3): 33 tons	86-68120	1	ls	\$100,000.00	\$100,000.00
		<b>Access &amp; Service Hatches</b> Access hatch four 3' x3' (The Bilco Co Type Q single leaf) Service hatch two 5' x 10' (The Bilco Co Type JD special sizes)	86-68120	1	ls	\$41,000.00	\$41,000.00
		<b>Miscellaneous Metalwork</b> (40-D-6601, Ladder Type 2)	86-68120	280	lbs	\$13.00	\$3,640.00
		<b>SUBTOTAL THIS SHEET</b>					\$144,640.00

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Sham...</i> 4/22/11
DATE PREPARED 04/06/11	PEER REVIEW / DATE Paul Ruchti 4/8/11	DATE PREPARED 04/20/11	PEER REVIEW / DATE <i>...</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Eads and May Valley Meter Vaults Alternative 3 Eads and May Valley Spur Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">WOID:</td> <td style="width:20%;">AF523</td> <td style="width:30%;">ESTIMATE LEVEL:</td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td>REGION:</td> <td>GP</td> <td>UNIT PRICE LEVEL:</td> <td>Jan-11</td> </tr> </table> FILE:	WOID:	AF523	ESTIMATE LEVEL:	Appraisal	REGION:	GP	UNIT PRICE LEVEL:	Jan-11
WOID:	AF523	ESTIMATE LEVEL:	Appraisal						
REGION:	GP	UNIT PRICE LEVEL:	Jan-11						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume meter vault size=11.25'x11.25'x16.7'd					
		assume 2 vaults @ Eads					
	1	Meter vault ventilation equipment	86-68410	2	ls	\$6,600.00	\$13,200.00
		list of equipment per vault:					
		(1)-steel centrifugal fan, 450 cfm @ 0.25" w.g.s.p., 1/6 Hp					
		(16 ft)-8" diam, 16 ga., galv. steel duct					
		(2)-8" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-8"x12" reducer, sch 20, galv. steel pipe					
		(4)-12" diam, stainless steel bird screens					
		(2)-8"x12" reducer, 16 ga, galv. steel duct					
		(2)-8" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/6 Hp					
		(1)-fan wall switch and box					
	2	Meter vault heater	86-68410	2	ea	\$800.00	\$1,600.00
		3 kW unit heater					
		thermostatically controlled					
	3	Flowmeter	86-68410	2	ea	\$25,000.00	\$50,000.00
		Single-path ultrasonic, 12" diam					
		2 transducers with cables and 1 transmitter console					
		<b>Subtotal - This Sheet</b>					<b>\$64,800.00</b>
		<b>Total - Sheets 1 thru 2</b>					<b>\$137,200.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>GWR</i>	CHECKED <i>Alan M. Jones 5/3/11</i>
DATE PREPARED 4/7/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>NOV 5/3/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Meter Vaults Alternative 3 Eads & May Valley Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Valve and Meter Vaults\8420 - Valves\AVC - Eads & May Valley Meter Vaults Alt 3 Appraisal Quant Est 8420.xlsx]Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Meter Vaults</b>	86-68420				
		10-inch manually-operated butterfly valves		2	ea	\$3,000.00	\$6,000.00
		2 valves, 225 lbs each					
		AWWA Class 250-B					
<b>SUBTOTAL THIS SHEET</b>							<b>\$6,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>JD</i>
DATE PREPARED 4/4/2011	PEER REVIEW / DATE 04/14/11	DATE PREPARED 04/27/11	PEER REVIEW / DATE <i>DD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Bent's Fort Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Bent's Fort Spur			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	1	acre	\$1,000.00	\$1,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	760	cy	\$6.00	\$4,560.00
		Seeding	8140	1	acre	\$1,500.00	\$1,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	1,380	cy	\$9.00	\$12,420.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	55	cy	\$45.00	\$2,475.00
		Pipe Bedding (Select material, 4" thick)	8140	27	cy	\$50.00	\$1,350.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	1,395	cy	\$7.00	\$9,765.00
		Compacting Embedment Backfill	8140	145	cy	\$16.00	\$2,320.00
		All earthwork quantities above are for the actual sloped trench.					
<b>SUBTOTAL THIS SHEET</b>							<b>\$37,890.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Dad 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Bent's Fort Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\DB170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Bent's Fort Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		8" dia. steel, 0.1345" thick (13 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750	8140	715	lin ft	\$45.00	\$32,175.00
		9,295 lbs total steel					
		<u>Isolation Valves (Manual operation):</u>					
		8" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$3,000.00	\$3,000.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$42,175.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> #7
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Bent's Fort Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Bent's Fort Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$1,758.75	\$1,758.75
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$16,858.75</b>
		<b>SUBTOTAL BENT'S FORT SPUR</b>					<b>\$96,923.75</b>

QUANTITIES		PRICES	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> #3
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Dec 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition South Loop  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\South Loop	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	255	acre	\$800.00	\$204,000.00
		Grubbing	8140	25	acre	\$2,500.00	\$62,500.00
		Stripping (6" thick)	8140	200,550	cy	\$2.00	\$401,100.00
		Seeding	8140	250	acre	\$800.00	\$200,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	440,100	cy	\$4.00	\$1,760,400.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	22,115	cy	\$25.00	\$552,875.00
		Pipe Bedding (Select material, 4" thick)	8140	8,030	cy	\$40.00	\$321,200.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	441,040	cy	\$3.00	\$1,323,120.00
		Compacting Embedment Backfill	8140	31,650	cy	\$10.00	\$316,500.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	13,580	cy	\$9.00	\$122,220.00
		Pipe Bedding (Select material, 4" thick)	8140	720	cy	\$50.00	\$36,000.00
		Embedment & Cover Backfill	8140	11,780	cy	\$5.00	\$58,900.00
		Compacting Embedment Backfill (Urban trench will require traffic control, signage, and detours for duration of work) (Urban Trench Length: 16,540 ft of 18" pipe)	8140	1,440	cy	\$14.00	\$20,160.00
		Traffic Control/Detours Urban Excavation		4	mo	\$15,000.00	\$60,000.00
		Pavement & Base/Remove & Replace Urban Excavation		16,540	lin ft	\$60.00	\$992,400.00
		Utility Relocation & Repair Urban Excavation		16,540	lin ft	\$30.00	\$496,200.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$6,927,575.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>HL</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Dec 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition South Loop  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\South Loop	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		18" dia. DR18 (CIOD) C905 PVC pipe	8140	22,098	lin ft	\$50.00	\$1,104,900.00
		18" dia. steel, 0.1442" thick (30 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 2,169,600 lbs total steel	8140	72,320	lin ft	\$75.00	\$5,424,000.00
		18" dia. steel, 0.1730" thick (36 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 316,728 lbs total steel	8140	8,798	lin ft	\$80.00	\$703,840.00
		20" dia. DR25 (CIOD) C905 PVC pipe	8140	10,835	lin ft	\$48.00	\$520,080.00
		20" dia. DR18 (CIOD) C905 PVC pipe	8140	16,861	lin ft	\$60.00	\$1,011,660.00
		24" dia. DR25 (CIOD) C905 PVC pipe	8140	44,814	lin ft	\$68.00	\$3,047,352.00
		<u>Isolation Valves (Manual operation):</u>					
		18" Class 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$8,600.00	\$8,600.00
		18" Class 300 (psig) Butterfly Valve w/ Operator	8140	3	ea	\$15,500.00	\$46,500.00
		18" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$15,500.00	\$15,500.00
		20" Class 150B (psig) Butterfly Valve w/ Operator	8140	1	ea	\$6,700.00	\$6,700.00
		20" Class 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$10,500.00	\$10,500.00
		24" Class 150B (psig) Butterfly Valve w/ Operator	8140	2	ea	\$9,000.00	\$18,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	9	ea	\$7,000.00	\$63,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$11,980,632.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> [Signature]
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCO 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition South Loop  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\South Loop	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		34	ea	\$6,800.00	\$231,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	340	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	136	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	3,230	lbs		
		- 2" Combination Air Valve (1 ea)	8140	34	ea		
		- 2" Ball Valve (1 ea)	8140	34	ea		
		<u>Blowoff Structures (to include):</u>		34	ea	\$8,300.00	\$282,200.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	272	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	40	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	11	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	4,794	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	68	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	34	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	340	lin ft		
		- 6" Tee (1 ea)	8140	34	ea		
		- 6" Blind Flange (1 ea)	8140	34	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	3,230	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$309,492.00	\$309,492.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$822,892.00</b>
		<b>SUBTOTAL SOUTH LOOP</b>					<b>\$19,731,099.00</b>

QUANTITIES		PRICES	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>WCD</i> 5/2/11
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>WCD</i> 5/2/11

<p><b>FEATURE:</b></p> <p><b>Arkansas Valley Conduit</b>  <b>Pipeline</b>  <b>Alternative 3 Max Day Condition</b>  <b>Valley Water Spur</b></p> <p><b>Civil</b></p>	<p><b>PROJECT:</b>  <b>Fryingpan-Arkansas Project</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:25%;"><b>WOID:</b></td> <td style="width:25%;">AF523</td> <td style="width:25%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:25%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> </table> <p><b>FILE:</b> H:\D8170\COMMON\JMORRIS\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Valley Water Spur</p>	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	37	acre	\$1,000.00	\$37,000.00
		Grubbing	8140	4	acre	\$2,500.00	\$10,000.00
		Stripping (6" thick)	8140	29,890	cy	\$2.00	\$59,780.00
		Seeding	8140	37	acre	\$1,500.00	\$55,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	50,240	cy	\$6.00	\$301,440.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	1,770	cy	\$35.00	\$61,950.00
		Pipe Bedding (Select material, 4" thick)	8140	1,015	cy	\$40.00	\$40,600.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	50,900	cy	\$5.00	\$254,500.00
		Compacting Embedment Backfill	8140	3,790	cy	\$14.00	\$53,060.00
		All earthwork quantities above are for the actual sloped trench.					
<b>SUBTOTAL THIS SHEET</b>							<b>\$873,830.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 5/25/11
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<p><b>FEATURE:</b></p> <p><b>Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Valley Water Spur</b></p> <p><b>Civil</b></p>	<p><b>PROJECT:</b> Fryingpan-Arkansas Project</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <p><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Valley Water Spur</p>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. DR18 (CIOD) C900 PVC pipe	8140	29,887	lin ft	\$6.80	\$203,231.60
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 250 (psig) Butterfly Valve w/ Operator	8140	2	ea	\$2,100.00	\$4,200.00
		<u>Isolation Valve Manholes (to include):</u>	8140	2	ea	\$7,000.00	\$14,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$221,431.60</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<p><b>BY</b> Nathan Lehman</p>	<p><b>CHECKED</b> W. Chris Duke</p>	<p><b>BY</b> Jeff Morris <i>JM</i></p>	<p><b>CHECKED</b> <i>WCD</i></p>
<p><b>DATE PREPARED</b> 03/07/11</p>	<p><b>PEER REVIEW / DATE</b> Steven J. Robertson</p>	<p><b>DATE PREPARED</b> 03/15/11</p>	<p><b>PEER REVIEW / DATE</b> <i>Dec 4/27/11</i></p>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Valley Water Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Valley Water Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		6	ea	\$6,800.00	\$40,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	24	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		6	ea	\$8,300.00	\$49,800.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$90,600.00</b>
		<b>SUBTOTAL VALLEY WATER SPUR</b>					<b>\$1,185,861.60</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>HTJ</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Doc</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Newdale/Grand Valley/W. Grand Valley Spur  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Newdale Spur		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Sitework Items:</u>						
		Clearing (3 times trench width)	8140	27	acre	\$1,000.00	\$27,000.00	
		Grubbing	8140	3	acre	\$2,500.00	\$7,500.00	
		Stripping (6" thick)	8140	21,625	cy	\$2.00	\$43,250.00	
		Seeding	8140	27	acre	\$1,500.00	\$40,500.00	
		<u>Earthwork Items:</u>						
		Soil Excavation (1.5:1) outside urban area	8140	37,255	cy	\$6.00	\$223,530.00	
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	1,370	cy	\$35.00	\$47,950.00	
		Pipe Bedding (Select material, 4" thick)	8140	750	cy	\$50.00	\$37,500.00	
		Embedment & Cover Backfill (does not include shrink/swell)	8140	37,750	cy	\$5.00	\$188,750.00	
		Compacting Embedment Backfill	8140	3,175	cy	\$14.00	\$44,450.00	
		All earthwork quantities above are for the actual sloped trench.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$660,430.00</b>	

QUANTITIES		PRICES	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> #7
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Dec 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Newdale/Grand Valley/W. Grand Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Newdale Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. DR14 (CIOD) C900 PVC pipe	8140	7,468	lin ft	\$7.50	\$56,010.00
		6" dia. DR14 (CIOD) C900 PVC pipe	8140	13,713	lin ft	\$11.00	\$150,843.00
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		6" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,400.00	\$2,400.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	2	ea	\$7,000.00	\$14,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$225,553.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>WCD</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>WCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Newdale/Grand Valley/W. Grand Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Newdale Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		5	ea	\$6,800.00	\$34,000.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	50	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	20	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	475	lbs		
		- 2" Combination Air Valve (1 ea)	8140	5	ea		
		- 2" Ball Valve (1 ea)	8140	5	ea		
		<u>Blowoff Structures (to include):</u>		5	ea	\$8,300.00	\$41,500.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	40	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	6	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	705	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	10	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	5	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	50	lin ft		
		- 6" Tee (1 ea)	8140	5	ea		
		- 6" Blind Flange (1 ea)	8140	5	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	475	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation					
		No. 09SP101 729 dated August 2009. Soils are assumed to be similar to those					
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$75,500.00</b>
		<b>SUBTOTAL NEWDALE SPUR</b>					<b>\$961,483.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>W. Chris Duke</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Deed</i> 4/27/11



**ESTIMATE WORKSHEET**

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Manzanola Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:25%;"><b>WIOD:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WIOD:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WIOD:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
	<b>FILE:</b> H:\D8170\Commo\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7 2011.xls\Manzanola Spur				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. DR18 (CIOD) C900 PVC pipe	8140	1,636	lin ft	\$6.80	\$11,124.80
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 250 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,100.00	\$2,100.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$20,224.80</b>

QUANTITIES		PRICES	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>HZ</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Doc 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Manzanola Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Manzanola Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation					
		No. 09SP101729 dated August 2009. Soils are assumed to be similar to those					
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL MANZANOLA SPUR</b>					<b>\$104,274.80</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Rocky Ford Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Rocky Ford Spur		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	1	acre	\$1,000.00	\$1,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	1,085	cy	\$4.00	\$4,340.00
		Seeding	8140	1	acre	\$1,500.00	\$1,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	2,100	cy	\$9.00	\$18,900.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	90	cy	\$45.00	\$4,050.00
		Pipe Bedding (Select material, 4" thick)	8140	40	cy	\$50.00	\$2,000.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	2,100	cy	\$7.00	\$14,700.00
		Compacting Embedment Backfill	8140	100	cy	\$16.00	\$1,600.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$50,590.00</b>

QUANTITIES		PRICES	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris <i>JMorris</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>OCB 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Rocky Ford Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Rocky Ford Spur	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		12" dia. DR14 (CIOD) C900 PVC pipe	8140	960	lin ft	\$31.00	\$29,760.00
		<u>Isolation Valves (Manual operation):</u>					
		12" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$7,000.00	\$7,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$43,760.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>W.C.</i>
DATE PREPARED 03/07/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE D.C.D. 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Rocky Ford Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Rocky Ford Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL ROCKY FORD SPUR</b>					<b>\$109,450.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition South Swink Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\J.S. Swink Spur		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	14	acre	\$1,000.00	\$14,000.00
		Grubbing	8140	2	acre	\$2,500.00	\$5,000.00
		Stripping (6" thick)	8140	11,270	cy	\$4.00	\$45,080.00
		Seeding	8140	14	acre	\$1,500.00	\$21,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	19,670	cy	\$6.00	\$118,020.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	735	cy	\$45.00	\$33,075.00
		Pipe Bedding (Select material, 4" thick)	8140	390	cy	\$50.00	\$19,500.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	19,930	cy	\$5.00	\$99,650.00
		Compacting Embedment Backfill	8140	1,775	cy	\$14.00	\$24,850.00
All earthwork quantities above are for the actual sloped trench.							
<b>SUBTOTAL THIS SHEET</b>							<b>\$380,175.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition South Swink Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\J. Swink Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" dia. steel, 0.1345" thick (10 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750	8140	10,919	lin ft	\$40.00	\$436,760.00
		109,190 lbs total steel					
		<u>Isolation Valves (Manual operation):</u>					
		6" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,400.00	\$2,400.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$446,160.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>HC</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition South Swink Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\J. Swink Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		3	ea	\$6,800.00	\$20,400.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	12	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	285	lbs		
		- 2" Combination Air Valve (1 ea)	8140	3	ea		
		- 2" Ball Valve (1 ea)	8140	3	ea		
		<u>Blowoff Structures (to include):</u>		3	ea	\$8,300.00	\$24,900.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	24	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	4	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	423	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	6	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	3	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 6" Tee (1 ea)	8140	3	ea		
		- 6" Blind Flange (1 ea)	8140	3	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	285	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$21,958.00	\$21,958.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$67,258.00</b>
		<b>SUBTOTAL S. SWINK SPUR</b>					<b>\$893,593.00</b>

QUANTITIES		PRICES	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> #7
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Homestead Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\Homestead Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750	8140	2,626	lin ft	\$34.00	\$89,284.00
		21,008 lbs total steel					
		<u>Isolation Valves (Manual operation):</u>					
		4" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$98,584.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> \$7 <i>7</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Dec 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Homestead Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\DB170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xls\Homestead Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$4,579.20	\$4,579.20
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation					
		No. 09SP101729 dated August 2009. Soils are assumed to be similar to those					
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$19,679.20</b>
		<b>SUBTOTAL HOMESTEAD SPUR</b>					<b>\$226,743.20</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:67%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\La Junta Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	1	acre	\$1,000.00	\$1,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	525	cy	\$6.00	\$3,150.00
		Seeding	8140	1	acre	\$1,500.00	\$1,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	0	cy	\$0.00	\$0.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	0	cy	\$0.00	\$0.00
		Pipe Bedding (Select material, 4" thick)	8140	0	cy	\$0.00	\$0.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	0	cy	\$0.00	\$0.00
		Compacting Embedment Backfill	8140	0	cy	\$0.00	\$0.00
		All earthwork quantities above are for the actual sloped trench.					
		Soil Excavation (box w/ supports, ~10' deep)	8140	2,045	cy	\$11.00	\$22,495.00
		Pipe Bedding (Select material, 4" thick)	8140	120	cy	\$50.00	\$6,000.00
		Embedment & Cover Backfill	8140	1,840	cy	\$7.00	\$12,880.00
		Compacting Embedment Backfill	8140	180	cy	\$18.00	\$3,240.00
		(Urban trench will require traffic control, signage, and detours for duration of work) (Urban Trench Length: 3,154 ft of 12" pipe)					
		Traffic Control/Detours Urban Excavation		1	mo	\$15,000.00	\$15,000.00
		Pavement & Base/Remove & Replace Urban Excavation		3,154	lin ft	\$60.00	\$189,240.00
		Utility Relocation & Repair Urban Excavation		3,154	lin ft	\$30.00	\$94,620.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$351,625.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> #13
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCA 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\La Junta Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		12" dia. steel, 0.1345" thick (19 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750	8140	3,154	lin ft	\$55.00	\$173,470.00
		59,926 lbs total steel					
		<u>Isolation Valves (Manual operation):</u>					
		12" Class 300 (psig) Butterfly Valve w/ Operator	8140	1	ea	\$7,000.00	\$7,000.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$187,470.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> #3
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Doc 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 3 Max Day 3-7-2011.xlsx\La Junta Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch Gravel Filter (4 cy ea)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$9,023.50	\$9,023.50
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$24,123.50</b>
		<b>SUBTOTAL LA JUNTA SPUR</b>					<b>\$563,218.50</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> #3
<b>DATE PREPARED</b> 03/07/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Dec 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 Loop	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 3 Loop Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	16	ea	\$35,000.00	\$560,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$560,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul M Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>g. g. Allen</i> 4/30/11
DATE PREPARED 04/15/11	PEER REVIEW / DATE 04/19/11	DATE PREPARED 04/26/11	PEER REVIEW / DATE <i>DCO</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 Loop Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	16	ls	\$5,600.00	\$89,600.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	16	ea	\$800.00	\$12,800.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	16	ea	\$13,000.00	\$208,000.00
<b>Subtotal - This Sheet</b>							<b>\$310,400.00</b>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>GRuff</i>	CHECKED <i>Sean Ryan</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 3 Loop (Reach 3A)	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 3 Loop Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (16 vaults)</b>	86-68420				
		6-inch pressure reducing valve 16 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		16	ea	\$7,800.00	\$124,800.00
		6-inch manually-operated butterfly valve 4 valves, 90 lbs each AWWA Class 150-B		4	ea	\$1,300.00	\$5,200.00
		12 valves, 130 lbs each AWWA Class 250-B		12	ea	\$2,300.00	\$27,600.00
		6-inch buried square-nut operated butterfly valve with valve box 4 valves, 245 lbs each AWWA Class 150-B		4	ea	\$1,800.00	\$7,200.00
		12 valves, 285 lbs each AWWA Class 250-B		12	ea	\$2,800.00	\$33,600.00
		1-inch air valve combination air valve 16 air valves, 35 lbs each		16	ea	\$1,000.00	\$16,000.00
		<b>Total</b>					<b>\$214,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>GR</i>	CHECKED <i>Shannon Gray 5/4/11</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>DCD 5/4/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Crossings Alternative 3, Max Day Condition Crossings  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\UMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 5 crossings.xlsx\Sheet1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Gravel Road Crossings (to include):</u>		10	ea	\$10,000.00	\$100,000.00
		Compacting backfill for road base (192 cy each)	8140	1,900	cy		
		Aggregate Base Course (6" thick) (22 cy each)	8140	220	cy		
		Gravel surfacing (6" thick) (23 cy each)	8140	230	cy		
		Temporary barricades & signage (1 each) (assume req'd for 2 days per crossing)	8140	10	ls		
		<u>Paved Road Crossings, 2 lane (to include):</u>		237	ea	\$25,000.00	\$5,925,000.00
		Compacting backfill for road base (194 cy each)	8140	46,000	cy		
		Asphalt base course (6" thick) (23 cy each)	8140	5,500	cy		
		Asphalt surfacing (6" thick) (23 cy each)	8140	5,500	cy		
		Temporary barricades & signage ( 1 each) (assume paved and req'd for 5 days ea)	8140	237	ls		
		<u>Major Road Crossings, 4 lanes (to include):</u>		35	ea	\$60,000.00	\$2,100,000.00
		Compacting backfill for road base (341 cy each)	8140	12,000	cy		
		Asphalt base course (6" thick) (39 cy each)	8140	1,400	cy		
		Asphalt surfacing (6" thick) (40 cy each)	8140	1,400	cy		
		Temp. detour, barricades, & signage (1000') (assume paved and req'd for 10 days ea)	8140	35	ls		
		<u>Interstate and Highway Crossings (to include):</u>		31	ea	\$300,000.00	\$9,300,000.00
		Horizontal Directional Drilling, 36" dia carrier pipe, min. cover depth is 20 ft, 500 lin. ft. each	8140	15,500	lin. ft.		
		48" dia casing pipe, welded steel 1/4" thick	8140	15,500	lin. ft.		
		Grout between borehole and casing pipe	8140	9,000	cy		
		<u>Railroad Crossing (to include):</u>		14	ea	\$120,000.00	\$1,680,000.00
		Horizontal Directional Drilling, 36" dia carrier pipe, min. cover depth is 20 ft, 150 lin. ft. each	8140	2,100	lin. ft.		
		48" dia casing pipe, welded steel 1/4" thick	8140	2,100	lin. ft.		
		Grout between borehole and casing pipe	8140	1,200	cy		
<b>SUBTOTAL THIS SHEET</b>							<b>\$19,105,000.00</b>

QUANTITIES		PRICES	
BY Michael Shepherd	CHECKED W. Chris Duke	BY <i>Jeff Morris and Michael Kramer</i>	CHECKED <i>me g... 4/6/11</i>
DATE PREPARED 02/07/11	PEER REVIEW / DATE Dave Edwards	DATE PREPARED 04/06/11	PEER REVIEW / DATE <i>4/6/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Crossings Alternative 3, Max Day Condition Crossings  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\UMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 5 crossings.xlsx\Sheet1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Major River Crossing (to include):</u>		7	ea	\$1,000,000.00	\$7,000,000.00
		Horizontal Directional Drilling, 36" dia. (1000 lin ft ea)	8140	7,000	lin ft		
		48" Dia Casing Pipe, 1/4" thick (1000 lin. ft ea) avg. cover depth is 20 ft	8140	7,000	lin ft		
		SUBTOTAL THIS SHEET					\$7,000,000.00
		SUBTOTAL CROSSINGS ALTERNATIVE 3 THIS SHEET					\$26,105,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> <i>Jeff Morris and Michael Kramer</i> Jeff Morris and Michael Kramer	<b>CHECKED</b> <i>McGuffin</i>
<b>DATE PREPARED</b> 02/07/11	<b>PEER REVIEW / DATE</b> Dave Edwards	<b>DATE PREPARED</b> 04/06/11	<b>PEER REVIEW / DATE</b> <i>04/06/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 3 Max Day Condition Dewatering  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Dewaterings All Alts 031011.xlsx\Alt 5	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Well Set Up (to include):</u>			ea		
		Mobilization/Demobilization					
		Unwatering System- Power for dewatering system shall be sufficient to handle power for unwatering system at the same time					
		Installation of 15' deep wells, Pump 100 gpm					
		8 inch dia. 5 ft long slotted well screens					
		8 inch dia. well casing					
		Install 2 inch dia. monitoring well					
		Well Development					
		Well completion pumping test 4 hr					
		Discharge Piping if no settling pond needed					
		check valves					
		flow meters					
		sampling ports					
		Power					
		All necessary generators, wiring, connections fuel, maintenance, rentals, etc. to provide power to dewatering system					
		Well Removal and Decommissioning					
		<u>Well Set Ups per Reach/Spur:</u>					
		Duration of operation is approximately 2 months operating time per well					
		Reaches 1 through 4	8140	850	ea	\$3,500.00	\$2,975,000.00
		16.08 miles in saturated areas requiring 1 well per 100' of pipe trench					
		Spurs	8140	440	ea	\$3,500.00	\$1,540,000.00
		8.30 miles in saturated areas requiring 1 well per 100' of pipe trench					
<b>SUBTOTAL THIS SHEET</b>							<b>\$4,515,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>DC</i> 04-08-11
DATE PREPARED 03/15/11	PEER REVIEW / DATE Dave Edwards	DATE PREPARED 04/08/11	PEER REVIEW / DATE <i>DC</i> 4/8/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Crossings Alternative 3 Max Day Condition Dust Abatement  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> <tr> <td colspan="2"><b>FILE:</b> H:\D8170\Commo\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 2 dust abatement.xlsx\Sheet2</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	<b>FILE:</b> H:\D8170\Commo\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 2 dust abatement.xlsx\Sheet2	
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal						
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11						
<b>FILE:</b> H:\D8170\Commo\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 2 dust abatement.xlsx\Sheet2							

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Dust Abatement (to include):</u>					
		Four Water Wagons, 4 drivers 6-8 passes per day ea., (0.06" water application/pass, 20' to 75' width) (duration estimated 3 years)	8140	400,000	MGal	\$10.00	\$4,000,000.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$4,000,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED <i>mc g... 4/6/11</i>
DATE PREPARED 02/24/11	PEER REVIEW / DATE Dave Edwards	DATE PREPARED 04/06/11	PEER REVIEW / DATE <i>DEC 4/6/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Interconnect (Alternatives 1, 3, 4) Option B Piping, Appurtenances <b>Mechanical</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Steel Pipe and Valves:</u>					
		<u>Steel Pipe:</u>					
		8" Sch. 20 steel pipe (23 lb/ft)	8420	35	lin ft	\$180.00	\$6,300.00
		4" Std. wall steel pipe (11 lb/ft)	8420	56	lin ft	\$90.00	\$5,040.00
		<u>Flanges</u>					
		90-inch pipe Dia: 8 AWWA class D flanges 1,872 pounds each	8420	14,976	pounds	\$4.00	\$59,904.00
		84-inch pipe Dia: 2 AWWA class D flanges 1,646 pounds each	8420	3,292	pounds	\$4.00	\$13,168.00
		48-inch pipe Dia: 2 AWWA class D flanges 460 pounds each	8420	920	pounds	\$5.00	\$4,600.00
		42-inch pipe Dia: 4 AWWA class D flanges 364 pounds each	8420	1,456	pounds	\$5.00	\$7,280.00
		36-inch pipe Dia: 6 AWWA class D flanges 261 pounds each	8420	1,566	pounds	\$5.00	\$7,830.00
		30-inch pipe Dia: 4 AWWA class D flanges 164 pounds each	8420	656	pounds	\$5.00	\$3,280.00
		8-inch pipe Dia: 10 AWWA class D flanges 15 pounds each	8420	150	pounds	\$5.00	\$750.00
		4-inch pipe Dia: 16 AWWA class D flanges 8 pounds each	8420	128	pounds	\$5.00	\$640.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$108,792.00</b>

QUANTITIES		PRICES	
<b>BY</b> Ken Smith	<b>CHECKED</b> Jeremy Lorberau	<b>BY</b> Jeff Morris	<b>CHECKED</b> Samuel Newberry 4/22/11
<b>DATE PREPARED</b> 3/30/2011	<b>PEER REVIEW / DATE</b> Nathan Nakamoto 3/30/11	<b>DATE PREPARED</b> 04/12/11	<b>PEER REVIEW / DATE</b> DCD 4/22/11


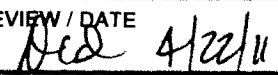
<b>FEATURE:</b>  Arkansas Valley Conduit Interconnect (Alternatives 1, 3, 4) Option B Valves <b>Mechanical</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF641</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> <tr> <td colspan="2"><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1</td> </tr> </table>	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1	
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<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11						
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1							

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Valves</u>					
		90" Dia.: AWWA class 150B 4 butterfly valves manually-operated 19,700 pounds each	8420	4	ea	\$150,000.00	\$600,000.00
		84" Dia: AWWA class 150B 1 butterfly valves manually-operated 16,400 pounds each	8420	1	ea	\$130,000.00	\$130,000.00
		48" Dia. AWWA class 150B 1 butterfly valves manually-operated 6,925 pounds each	8420	1	ea	\$36,000.00	\$36,000.00
		42" Dia. AWWA class 150B 2 butterfly valves manually-operated 4,544 pounds each	8420	2	ea	\$26,000.00	\$52,000.00
		36" Dia. AWWA class 150B 3 butterfly valve manually-operated 3,425 pounds each	8420	3	ea	\$17,000.00	\$51,000.00
		30" Dia. AWWA class 150B 2 butterfly valves manually-operated 2,435 pounds each	8420	2	ea	\$14,500.00	\$29,000.00
		8" Dia. AWWA class 150B 5 butterfly valves manually-operated 125 pounds each	8420	5	ea	\$1,900.00	\$9,500.00
		4" Dia. AWWA class 150B 8 butterfly valves manually-operated 71 pounds each	8420	8	ea	\$1,100.00	\$8,800.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$916,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	CHECKED Jeremy Lorberau	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>Thomas May 4/22/11</i>
DATE PREPARED 3/30/2011	PEER REVIEW / DATE Nathan Nakamoto 3/30/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>DCD 4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Dam N/S Interconnect Option B (Alternatives 1, 3, 4) Piping  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Sitework Items:</b>					
		Clearing (3 times trench width)	8140	6.1	acre	\$1,000.00	\$6,080.00
		Grubbing (10% of clearing area)	8140	0.61	acre	\$2,500.00	\$1,525.00
		Unwatering trench (Soil to avg. depth of 6', rock from 6' to 15.5', sandstone w/ minor fractures, groundwater el varies from surface to over 15')	8140	1	ls	Included in Cofferdam Worksheets	
		Water for dust abatement	8140	310	Mgal	\$20.00	\$6,200.00
		Stripping (3 times width, 6" thick)	8140	1650	cy	\$4.00	\$6,600.00
		Seeding	8140	6.1	acre	\$1,500.00	\$9,120.00
		<b>Earthwork Items:</b>					
		Soil excavation (1.5:1 slopes, avg. 6' deep)	8140	15500	cy	\$6.00	\$93,000.00
		Rock excavation (sandstone, 0.25:1 slopes, 4.4' to 13' deep, groundwater varies in depth, blast & excavator removal)	8140	5200	cy	\$35.00	\$182,000.00
		Pipe Bedding 4" < 54" dia., 6" > 54" dia.)	8140	450	cy	\$50.00	\$22,500.00
		Backfill	8140	17000	cy	\$5.00	\$85,000.00
		Compacted Backfill (Embedment)	8140	2600	cy	\$14.00	\$36,400.00
		<b>Pipe Items:</b>					
		90" ID Steel pipe, 0.375" thick, mortar lined & epoxy coated, Class 250 ft, (L=2109.6 ft)	8140	770000	lbs	\$1.90	\$1,463,000.00
		48" ID Steel pipe, 0.25" thick, mortar lined & epoxy coated, Class 125 ft, (L=117.6 ft)	8140	15500	lbs	\$2.30	\$35,650.00
		42" ID Steel pipe, 0.175" thick, mortar lined & epoxy coated, Class 125 ft, (L=90.3 ft)	8140	7300	lbs	\$2.35	\$17,155.00
		36" ID Steel pipe, 0.1501" thick, mortar lined & epoxy coated, Class 125 ft, (L=215.99 ft)	8140	13000	lbs	\$2.40	\$31,200.00
		30" ID Steel pipe, 0.1345" thick, mortar lined & epoxy coated, Class 125 ft, (L=60 ft)	8140	2700	lbs	\$2.80	\$7,560.00
		Cathodic Protection (5% of steel pipe cost)	8140	1	ls	\$78,000.00	\$78,000.00
		<b>Cofferdam: See Estimate done by 8312</b>	8312				
<b>SUBTOTAL THIS SHEET</b>							<b>\$2,080,990.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED Steve Robertson	BY Jeff Morris	CHECKED 
DATE PREPARED 03/24/11	PEER REVIEW / DATE David Edwards 3/24/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE  4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Dam N/S Interconnect Option B (Alternatives 1, 3, 4) Pipe Appurtenances  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF641</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Pipe Appurtenances:</b>					
		90 x 30 x 90 Tee	8140	1	ea	\$9,300.00	\$9,300.00
		90 x 36 x 90 Tee	8140	1	ea	\$10,500.00	\$10,500.00
		30 x 30 x 30 Tee	8140	1	ea	\$9,000.00	\$9,000.00
		90 x 90 x 90 Tee	8140	1	ea	\$52,500.00	\$52,500.00
		90 x 90 x 42 Tee	8140	1	ea	\$15,750.00	\$15,750.00
		42 x 42 x 42 Tee	8140	1	ea	\$15,000.00	\$15,000.00
		48 x 36 x 42 Tee	8140	1	ea	\$28,500.00	\$28,500.00
		36 x 36 x 36 Tee	8140	1	ea	\$10,950.00	\$10,950.00
		84 x 90 x 84 x 42 Cross	8140	1	ea	\$135,000.00	\$135,000.00
		<b>Isolation Valve Manholes (to include):</b>					
		48" ID x 6" wall precast flat top with concentric ring, 36" access	8140	13	ea	\$4,500.00	\$58,500.00
		48" ID x 6" wall precast 36" riser					
		48" ID precast 72" base shell					
		36" dia. cast iron manhole cover and ring set					
		Cathodic Protection (5% of steel cost)	8140	1	ls	\$7,600.00	\$7,600.00
		<b>SUBTOTAL SHEET 1</b>					\$2,080,990.00
		<b>SUBTOTAL THIS SHEET</b>					\$345,000.00
		<b>SUBTOTAL INTERCONNECT PIPING AND APPURTENANCES</b>					\$2,425,990.00

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED Steve Robertson	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/24/11	PEER REVIEW / DATE David Edwards 3/24/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE DCD 4/22/11

<b>FEATURE:</b> Arkansas Valley Conduit Dam N/S Interconnect Option B (Alternatives 1, 3, 4) Sandbag Cofferdam	<b>PROJECT:</b> Fryingpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF641</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Sandbag Cofferdam Estimate.xls\Sandbag Cofferdam				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Foundation Preperation remove ~330 yds of river bottom sediment	86-68312	1	LS	\$30,000.00	\$30,000.00
		Furnish and install 914 - 3.5x3.5x3.5 ft Sandbags Fill sandbags with common excavation soils. Sand is available in the common exe.	86-68312	1,450	LS yd <sup>3</sup>	\$110,000.00 Included in lump sum above.	\$110,000.00
		Furnish and install 40 mil PVC membrane as the sand bags are being erected. (1st half of river excavation)	86-68312	810	yd <sup>2</sup>	Included in F&I sandbags item above.	
		Install and maintain 2 sump pumps for 1.5 months 2 pumps pumping at 20 gpm	86-68312	1	LS	\$35,000.00	\$35,000.00
		Remove and relocate 1,450 sandbags to the other side of river	86-68312	1	LS	\$75,000.00	\$75,000.00
		Furnish and install 40 mil PVC membrane as the sand bags are being erected. (2nd half of river excavation) - assuming 1st half membrane will not be reusable	86-68312	810	yd <sup>2</sup>	Included in remove and relocate sandbags item above.	
<b>SUBTOTAL THIS SHEET</b>							<b>\$250,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Paul Craig	CHECKED Ryan Davidson	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shannon</i> 4/22/11
DATE PREPARED 01/21/11	PEER REVIEW Allen Kiene	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>DD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Alternative 4 Summary Sheet	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 4 Summary Worksheet revised 5-11-12 - removed escalation.xls\EW_SUM_Construction Cost		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Reach 1</b>					<b>\$3,541,055</b>
		Reach 1 Pipeline					\$531,115
		Pueblo Dam Booster Plant					\$1,100,000
		Pueblo Dam Booster Plant (WTP Clearwell)					\$940,000
		Pueblo PP1 (Before WTP) Air Chamber (Sum of Civil Sheet and Hydraulic Sheet)					\$86,800
		Pueblo PP2 (After WTP) Air Chamber (Sum of Civil Sheet and Hydraulic Sheet)					\$86,800
		Pueblo Valve Vault (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$296,350
		Pueblo Meter PP1 (Before WTP) Vault (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$302,995
		Pueblo Meter PP2 (After WTP) Vault (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$196,995
		<b>Reach 2</b>					<b>\$63,008,600</b>
		Reach 2 Pipeline					\$58,003,240
		St. Charles Spur Pipeline					\$2,228,000
		Avondale Spur Pipeline					\$807,860
		Fowler Spur Pipeline					\$635,720
		Central Pueblo Regulating Tank (Sum of Civil Sheet and Hydraulic Sheet)					\$1,061,580
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$272,200
		<b>Reach 3</b>					<b>\$46,939,525</b>
		Reach 3 Pipeline					\$23,679,425
		N&W Holbrook Spur Pipeline					\$640,940
		LaJunta Water Storage Tank (Sum of Civil Sheet + Hydraulic Sheet)					\$12,794,035
		Fowler Water Storage Tank (Sum of Civil Sheet + Hydraulic Sheet)					\$8,790,525
		Fowler Tank Access Road					\$693,100
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$341,500
		<b>Reach 4</b>					<b>\$38,688,011</b>
		Reach 4 Pipeline					\$35,347,700
		Hasty Spur Pipeline					\$76,666
		McClave Spur Pipeline					\$460,805
		Wiley Spur					\$1,361,140
		Las Animas Spur Pipeline					\$821,000
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$620,700

QUANTITIES		PRICES	
BY TSC Design Team	CHECKED TSC Design Team	BY <i>[Signature]</i> TSC Estimating Team 5/14/12	CHECKED <i>[Signature]</i> 5/14/12
DATE PREPARED Feb-Apr 2011	PEER REVIEW / DATE TSC Design Team	DATE PREPARED Feb-May 2011; Revised May 2012	PEER REVIEW / DATE <i>[Signature]</i> 5/14/12



<b>FEATURE:</b>  Arkansas Valley Conduit Alternative 4 Summary Sheet	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Commo\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 4 Summary Worksheet revised 5-11-12 - removed escalation.xls\EW SUM_Construction Cost

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Highway 96 Spur</b>					<b>\$8,138,090</b>
		Hwy 96 Pipeline					\$7,571,700
		96 Pipeline Co. Spur Pipeline					\$155,590
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$410,800
		<b>Eads Spur (Includes May Valley)</b>					<b>\$9,566,440</b>
		Eads Spur Pipeline					\$4,546,600
		Eads and May Valley Spur Pipeline					\$2,895,200
		May Valley Spur Pipeline					\$1,272,000
		Eads and May Valley Booster Plant					\$410,000
		Eads and May Valley Air Chamber (Sum of Civil Sheet and Hydraulic Sheet)					\$91,600
		Eads and May Valley Meter Vault (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$215,440
		Participant Tie-In Vaults*					\$135,600
		* Costs for 2 Tie-In Vaults were removed from the Total Costs of the Participant Tie-In Vaults for the Loop (below)					
		<b>Loop</b>					<b>\$24,560,705</b>
		Bent's Fort Spur Pipeline					\$97,050
		South Loop Spur Pipeline					\$19,579,800
		Valley Water Spur Pipeline					\$1,148,750
		Newdale/Grand Valley Spur					\$931,400
		Manzanola Spur Pipeline					\$104,930
		Rocky Ford Spur Pipeline					\$80,865
		S. Swink Spur Pipeline					\$874,120
		Homestead Spur Pipeline					\$228,090
		LaJunta Spur Pipeline					\$566,500
		Participant Tie-In Vaults*					\$949,200
		** Costs = Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet Minus the Costs for 2 Tie-In Vaults for the Eads Spur (Includes May Valley)					
		<b>Crossings</b>					<b>\$26,105,000</b>
		<b>Dewatering</b>					<b>\$4,515,000</b>
		<b>Dust Abatement</b>					<b>\$4,000,000</b>
		<b>Interconnect (Sum of Pipe &amp; Valve Sheets + Civil Sheets + Cofferdam Sheet)</b>					<b>\$3,701,082</b>
		<b>Water Treatment Plant**</b>					<b>\$25,924,061</b>
		** Costs include updated February 16, 2012 costs from sub-consultant B&V (Estimate sheets dated 12-01-2011).					

<b>QUANTITIES</b>		<b>PRICES</b>	
BY TSC Design Team	CHECKED TSC Design Team	BY <i>[Signature]</i> TSC Estimating Team 5/14/12	CHECKED <i>[Signature]</i> 5/14/12
DATE PREPARED Feb-Apr 2011	PEER REVIEW / DATE TSC Design Team	DATE PREPARED Feb-May 2011; Revised May 2012	PEER REVIEW / DATE <i>[Signature]</i> 5/14/12



<b>FEATURE:</b> Arkansas Valley Conduit Alternative 4 Summary Sheet		<b>PROJECT:</b> Fryingpan-Arkansas Project	
<b>WOID:</b> AF523		<b>ESTIMATE LEVEL:</b> Appraisal	
<b>REGION:</b> GP		<b>UNIT PRICE LEVEL:</b> Jan-11	
<b>FILE:</b> H:\D8170\Commom\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 4 Summary Worksheet revised 5-11-12 - removed escalation.xls]EW SUM_Construction Cost			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Subtotal 1					\$258,687,569.00
		Mobilization	5%	+/-			\$13,000,000.00
		<b>Subtotal 1 with Mobilization</b>					<b>\$271,687,569.00</b>
		Design Contingencies	12%	+/-			\$28,312,431.00
		Allowance for Procurement Strategies (APS)	0.0%	+/-			\$0.00
		Type of solicitation assumed is: Full and open sealed bid competition					
		<b>CONTRACT COST</b>					<b>\$300,000,000.00</b>
		Construction Contingencies	25%	+/-			\$80,000,000.00
		<b>FIELD COST</b>					<b>\$380,000,000.00</b>
		Non-Contract Costs*					\$125,000,000.00
		<b>CONSTRUCTION COST</b>					<b>\$505,000,000.00</b>

\* Non-Contract Costs were produced and supplied by a joint effort of Eastern Colorado Area Office and Great Plains Region with input from the Technical Service Center.

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
<b>BY</b> TSC Design Team	<b>CHECKED</b> TSC Design Team	<b>BY</b> <i>[Signature]</i> TSC Estimating Team 5/14/12	<b>CHECKED</b> <i>[Signature]</i> 5/14/12
<b>DATE PREPARED</b> Feb-Apr 2011	<b>PEER REVIEW / DATE</b> TSC Design Team	<b>DATE PREPARED</b> Feb-May 2011; Revised May 2012	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 5/14/12

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Reach 1: Pueblo Res. to WTP  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Sitework Items:</u>						
		Clearing (3 times trench width)	8140	4	acre	\$1,000.00	\$4,000.00	
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00	
		Stripping (6" thick)	8140	3200	cy	\$4.00	\$12,800.00	
		Seeding	8140	4	acre	\$1,500.00	\$6,000.00	
		<u>Earthwork Items:</u>						
		Soil Excavation (1.5:1) outside urban area	8140	8,100	cy	\$9.00	\$72,900.00	
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume drill and blast	8140	510	cy	\$45.00	\$22,950.00	
		Pipe Bedding (Select material, 4" thick)	8140	155	cy	\$50.00	\$7,750.00	
		Embedment & Cover Backfill (does not include shrink/swell)	8140	8,100	cy	\$7.00	\$56,700.00	
		Compacting Embedment Backfill	8140	890	cy	\$16.00	\$14,240.00	
		All earthwork quantities above are for the actual sloped trench.						
<b>SUBTOTAL THIS SHEET</b>							<b>\$199,840.00</b>	

QUANTITIES		PRICES	
BY Michael Shepherd	CHECKED Nathan Lehman	BY Jeff Morris	CHECKED <i>Jeff Morris</i> 4/27/11
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>Doc</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Reach 1: Pueblo Res. to WTP  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		30" dia. steel, 0.1345" thick (45#/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 99,000 lbs total steel	8140	2,200	lin ft	\$125.00	\$275,000.00
		<u>Isolation Valves (Manual operation):</u>					
		30" class 150B (psig) butterfly valve with operator	8140	1	ea	\$14,500.00	\$14,500.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$296,500.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED <i>Justin</i> 4/27/11
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>JCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Reach 1: Pueblo Res. to WTP  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$12,000.00	\$12,000.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4-inch gravel filter (4cy)		4	ea		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 6" Combination Air Valve (1 ea)	8140	1	ea		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$14,475.00	\$14,475.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$34,775.00</b>
		<b>SUBTOTAL REACH 1</b>					<b>\$531,115.00</b>

QUANTITIES		PRICES	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED <i>J. Morris</i>
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>SCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pueblo Dam Booster Plant Alternative 4 Pueblo Dam to WTP (New Pueblo Dam)	<b>PROJECT:</b> Fryington-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Qty Est Pueblo Dam Booster Plant Alt 4_8420 Appraisal-Level.xlsx\Pump Ilz		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Civil/Structural/Electrical/Mechanical:						
	1	Booster P.P. (Total Q = 32.20 cfs w/o wf)	86-68420	1	LS	\$1,100,000.00	\$1,100,000.00	
		<b>Using "Appraisal Estimate of Pumping Plants and Switchyards" pumping plant program</b>						
		Booster P.P. - 8.310 cfs each; 55 feet TDH;						
		Unit Brake HP: 64.3 hp; Motors: 75 hp each @ 480 volts						
		4 pumps; vertical; supply voltage (69 kV)						
		Structures And Improvements						
		Waterways						
		Pumps and Motors						
		Accessory Electrical						
		Miscellaneous Equipment						
		Switchyards						
	2	WTP Clearwell P.P. (Total Q = 30.67 cfs w/o wf)	86-68420	1	LS	\$940,000.00	\$940,000.00	
		<b>Using "Appraisal Estimate of Pumping Plants and Switchyards" pumping plant program</b>						
		Clearwell P.P. - 7.687 cfs each; 40 feet TDH;						
		Unit Brake HP: 43.5 hp; Motors: 50 hp each @ 480 volts						
		4 pumps; vertical; supply voltage (69 kV)						
		Structures And Improvements						
		Waterways						
		Pumps and Motors						
		Accessory Electrical						
		Miscellaneous Equipment						
		Switchyards						
		Switchyards						
		<b>SUBTOTAL PUEBLO DAM BOOSTER PLANT</b>						<b>\$2,040,000.00</b>

<b>QUANTITIES</b>			<b>PRICES</b>		
BY R. Zelenka	REVIEWED Toby Turnage	BY Jeff Morris	CHECKED [Signature]	4/6/11	
DATE PREPARED 3/2/2011	PEER REVIEW / DATE Toby Turnage 3.9.11	DATE PREPARED 03/15/11	PEER REVIEW / DATE [Signature]	3/31/11	

<b>FEATURE:</b>  Arkansas Valley Conduit Pueblo Air Chamber (PP1 before WTP) Alternative 4 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryington-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: Jan-11
	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Pueblo Plant 1 Air Chamber Alt 4 Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Reinforced Concrete for Foundation (slab-on-grade foundation type) (Assume: $f_c=4,500$ psi) Source: Pueblo, CO 20 miles Concrete: 2.5 yd3 Reinforcement (Assume 135 lb/yd3): 310 lbs Cement (Assume: 0.282 ton/yd3): 0.6 tons	86-68120	1	ls	\$2,800.00	\$2,800.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$2,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>Shama</i> 4/22/11
DATE PREPARED 04/04/11	PEER REVIEW / DATE Paul Ruchti 4/5/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>Dec</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pueblo Air Chamber (PP1 before WTP) Alternative 4 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WIOD:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> 11-Jan
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Pueblo Plant 1 Air Chamber Alt 4 Appraisal Quant Est 8420.xlsx\CivilStructural	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Air Chamber</b>	86-68420	1	ls	\$84,000.00	\$84,000.00
		1,861-gallon (249 cubic feet) steel air chamber cylinder height 11 feet cylinder diameter 5 feet air chamber weight 8,400 pounds mounted air compressor 3/4 horsepower					
<b>SUBTOTAL THIS SHEET</b>							<b>\$84,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Ken Smith	<b>REVIEWED</b> Dan Drake	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/22/11
<b>DATE PREPARED</b> 4/4/2011	<b>PEER REVIEW / DATE</b> Nathan Nakamoto 4/14/11	<b>DATE PREPARED</b> 04/18/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pueblo Air Chamber (PP2 after WTP) Alternative 4 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryington-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Pueblo Plant 1 Air Chamber Alt 4 Appraisal Quant Est 8120.xlsx\CivilStructural				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Foundation</b> (slab-on-grade foundation type) (Assume: $f_c=4,500$ psi) Source: Pueblo, CO 20 miles Concrete: 2.5 yd3 Reinforcement (Assume 135 lb/yd3): 310 lbs Cement (Assume: 0.282 ton/yd3): 0.6 tons	86-68120	1	ls	\$2,800.00	\$2,800.00
		<b>SUBTOTAL THIS SHEET</b>					\$2,800.00

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul Ruchti	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>Shamatha</i> 4/22/11
<b>DATE PREPARED</b> 04/04/11	<b>PEER REVIEW / DATE</b> Paul Ruchti 4/5/11	<b>DATE PREPARED</b> 04/12/11	<b>PEER REVIEW / DATE</b> <i>DD</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pueblo Air Chamber (PP2 after WTP) Alternative 4 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: 11-Jan
	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Pueblo Plant 2 Air Chamber Alt 4 Appraisal Quant Est 8420.xlsx\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Air Chamber</b>	86-68420	1	ls	\$84,000.00	\$84,000.00
		1,861-gallon (249 cubic feet)					
		steel air chamber					
		cylinder height 11 feet					
		cylinder diameter 5 feet					
		air chamber weight 8,400 pounds					
		mounted air compressor 1/2 horsepower					
		SUBTOTAL THIS SHEET					\$84,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>Sharon Mayhew 4/22/11</i>
DATE PREPARED 4/4/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>Doc 4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pueblo Valve Vault (PP1 before WTP) Alternative 4 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryngpan-Arkansas Project
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>FILE:</b> H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Pueblo PP1 Valve Vault Alt 4 Appraisal Quant Est 8120.xlsx\CivilStructural	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Vaults</b> (Assumed: 14' W x 23' L x 20' D) (Assume: $f_c=4,500$ psi) Source: Pueblo, CO 20 miles Concrete: 110 yd3 Reinforcement (Assume 135 lb/yd3): 14,780 lbs Cement (Assume: 0.282 ton/yd3): 31 tons	86-68120	1	ls	\$100,000.00	\$100,000.00
		<b>Access &amp; Service Hatches</b> Access hatch two 3' x3' (The Bilco Co Type Q single leaf) Service hatch two 5' x 10' (The Bilco Co Type JD special sizes)	86-68120	1	ls	\$36,000.00	\$36,000.00
		<b>Miscellaneous Metalwork</b> (40-D-6601, Ladder Type 2)	86-68120	350	lbs	\$13.00	\$4,550.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$140,550.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shanna</i> 4/22/11
DATE PREPARED 04/06/11	PEER REVIEW / DATE Paul Ruchti 4/8/11	DATE PREPARED 04/20/11	PEER REVIEW / DATE <i>Doc</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pueblo Valve Vault (PP1 before WTP) Alternative 4 Reach 1: Pueblo Reservoir to WTP Mechanical Equipment	<b>PROJECT:</b> Fryngpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: Jan-11
	FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume valve vault size=19.5'x19.5'x16.75'd					
		assume 1 vault @ Pueblo PP 1					
	1	Valve vault ventilation equipment	86-68410	1	ls	\$8,700.00	\$8,700.00
		list of equipment per vault:					
		(1)-steel centrifugal fan, 1000 cfm @ 0.25" w.g.s.p., 1/2 Hp					
		(16 ft)-12" diam, 16 ga., galv. steel duct					
		(2)-12" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-12"x16" reducer, sch 20, galv. steel pipe					
		(4)-16" diam, stainless steel bird screens					
		(2)-12"x16" reducer, 16 ga, galv. steel duct					
		(2)-12" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/2 Hp					
		(1)-fan wall switch and box					
	2	Valve vault heater	86-68410	2	ea	\$800.00	\$1,600.00
		3 kW unit heater					
		thermostatically controlled					
	3	In-line plate strainer	86-68410	1	ea	\$25,000.00	\$25,000.00
		Bolted cover design					
		Stainless steel, w/ 1/2" holes					
		flanged for 30" pipe					
		Subtotal - This Sheet					\$35,300.00
		<del>Total - Sheets 1 thru 3</del>					<del>\$244,900.00</del>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>GR</i>	CHECKED <i>Shanahan 5/3/11</i>
DATE PREPARED 4/7/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>Jeff Hulse for DCO 5/1/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pueblo <del>Meter</del> & Valve Vaults (PP1 before WTP) Alternative 4 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Valve and Meter Vaults\8420 - Valves\AVC - Pueblo Plant 1 Meter & Valve Vaults Alt 4 Appraisal Quant Est 8420.xlsx\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Meter and Valve Vaults</b>	86-68420				
		24-inch pressure reducing valve 1 valve that includes reducers from 42" pipe. Cla-Val 150-pound		1	ea	\$54,000.00	\$54,000.00
		42-inch manually-operated butterfly valve 2 valves AWWA Class 150-B		2	ea	\$26,000.00	\$52,000.00
		30-inch manually-operated butterfly valve 1 valve AWWA Class 150-B		1	ea	\$14,500.00	\$14,500.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$120,500.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>JA</i>
DATE PREPARED 4/4/2011	PEER REVIEW / DATE 04/14/11	DATE PREPARED 04/27/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pueblo Meter Vault (PP1 before WTP) Alternative 4 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\DB170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Pueblo PP1 Meter Vault Alt 4 Appraisal Quant Est 8120.xlsx\CivilStructural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Vaults</b> (Assumed: 14' W x 17' L x 18' D) (Assume: $f_c=4,500$ psi) Source: Pueblo, CO 20 miles Concrete: 80 yd3 Reinforcement (Assume 135 lb/yd3): 10,900 lbs Cement (Assume: 0.282 ton/yd3): 23 tons	86-68120	1	ls	\$70,000.00	\$70,000.00
		<b>Access &amp; Service Hatches</b> Access hatch two 3' x3' (The Bilco Co Type Q single leaf) Service hatch two 5' x 10' (The Bilco Co Type JD special sizes)	86-68120	1	ls	\$36,000.00	\$36,000.00
		<b>Miscellaneous Metalwork</b> (40-D-6601, Ladder Type 2)	86-68120	315	lbs	\$13.00	\$4,095.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$110,095.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shannon K...</i> 4/22/11
DATE PREPARED 04/06/11	PEER REVIEW / DATE Paul Ruchti 4/8/11	DATE PREPARED 04/20/11	PEER REVIEW / DATE <i>DCD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pueblo Meter Vaults Alternative 4 Reach 1: Pueblo Reservoir to WTP Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume meter vault size=11.25'x11.25'x16.7'd					
		assume 1 vault @ Pueblo PP 1					
		assume 1 vault @ Pueblo PP 2					
	1	Meter vault ventilation equipment	86-68410	<del>2</del>	ls	\$6,600.00	<del>-\$13,200.00</del>
		list of equipment per vault:		1			\$6,600.00
		(1)-steel centrifugal fan, 450 cfm @ 0.25" w.g.s.p., 1/6 Hp					
		(16 ft)-8" diam, 16 ga., galv. steel duct					
		(2)-8" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-8"x12" reducer, sch 20, galv. steel pipe					
		(4)-12" diam, stainless steel bird screens					
		(2)-8"x12" reducer, 16 ga, galv. steel duct					
		(2)-8" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/6 Hp					
		(1)-fan wall switch and box					
	2	Meter vault heater	86-68410	<del>2</del>	ea	\$800.00	<del>-\$1,600.00</del>
		3 kW unit heater		1			\$800.00
		thermostatically controlled					
	3	Flowmeter	86-68410	<del>2</del>	ea	\$65,000.00	<del>-\$130,000.00</del>
		8-path ultrasonic, 30" diam		1			\$65,000.00
		16 transducers with cables and 1 transmitter console					
Subtotal - This Sheet							\$72,400.00
Subtotal - This Sheet							<del>-\$144,800.00</del>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawn Meyer</i> 5/3/11
DATE PREPARED 4/7/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD</i> 5/3/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pueblo Meter & Valve Vaults (PP1 before WTP) Alternative 4 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Valve and Meter Vaults\8420 - Valves\AVC - Pueblo Plant 1 Meter & Valve Vaults Alt 4 Appraisal Quant Est 8420.xlsx\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Meter and Valve Vaults</b>	86-68420				
		24-inch pressure reducing valve 1 valve that includes reducers from 42" pipe. Cla-Val 150-pound		1	ea	\$54,000.00	\$54,000.00
		42-inch manually-operated butterfly valve 2 valves AWWA Class 150-B		2	ea	\$26,000.00	\$52,000.00
		30-inch manually-operated butterfly valve 1 valve AWWA Class 150-B		1	ea	\$14,500.00	\$14,500.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$120,500.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>JA</i>
DATE PREPARED 4/4/2011	PEER REVIEW / DATE 04/14/11	DATE PREPARED 04/27/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pueblo Meter Vault (PP2 after WTP) Alternative4 Reach 1: Pueblo Reservoir to WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project												
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b></td> <td style="width:20%;">AF523</td> <td style="width:30%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> <tr> <td><b>FILE:</b></td> <td colspan="3">H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Pueblo PP2 Meter Vault Alt 4 Appraisal Quant Est 8120.xlsx\CivilStructural</td> </tr> </table>	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11	<b>FILE:</b>	H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Pueblo PP2 Meter Vault Alt 4 Appraisal Quant Est 8120.xlsx\CivilStructural		
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Vaults</b> (Assumed: 14' W x 17' L x 18' D) (Assume: f <sub>c</sub> =4,500 psi) Source: Pueblo, CO 20 miles Concrete: 80 yd3 Reinforcement (Assume 135 lb/yd3): 10,900 lbs Cement (Assume: 0.282 ton/yd3): 23 tons	86-68120	1	ls	\$70,000.00	\$70,000.00
		<b>Access &amp; Service Hatches</b> Access hatch two 3' x3' (The Bilco Co Type Q single leaf) Service hatch two 5' x 10' (The Bilco Co Type JD special sizes)	86-68120	1	ls	\$36,000.00	\$36,000.00
		<b>Miscellaneous Metalwork</b> (40-D-6601, Ladder Type 2)	86-68120	315	lbs	\$13.00	\$4,095.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$110,095.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Sham Mathias</i> 4/22/11
DATE PREPARED 04/06/11	PEER REVIEW / DATE Paul Ruchti 4/8/11	DATE PREPARED 04/20/11	PEER REVIEW / DATE <i>DCD</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pueblo Meter Vaults Alternative 4 Reach 1: Pueblo Reservoir to WTP Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume meter vault size=11.25'x11.25'x16.7'd					
		assume 1 vault @ Pueblo PP 1					
		assume 1 vault @ Pueblo PP 2					
	1	Meter vault ventilation equipment	86-68410	<del>-2</del>	ls	\$6,600.00	<del>-\$13,200.00</del>
		list of equipment per vault:		<b>1</b>			<b>\$6,600.00</b>
		(1)-steel centrifugal fan, 450 cfm @ 0.25" w.g.s.p., 1/6 Hp					
		(16 ft)-8" diam, 16 ga., galv. steel duct					
		(2)-8" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-8"x12" reducer, sch 20, galv. steel pipe					
		(4)-12" diam, stainless steel bird screens					
		(2)-8"x12" reducer, 16 ga, galv. steel duct					
		(2)-8" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/6 Hp					
		(1)-fan wall switch and box					
	2	Meter vault heater	86-68410	<del>-2</del>	ea	\$800.00	<del>-\$1,600.00</del>
		3 kW unit heater		<b>1</b>			<b>\$800.00</b>
		thermostatically controlled					
	3	Flowmeter	86-68410	<del>-2</del>	ea	\$65,000.00	<del>-\$130,000.00</del>
		8-path ultrasonic, 30" diam		<b>1</b>			<b>\$65,000.00</b>
		16 transducers with cables and 1 transmitter console					
<b>Subtotal - This Sheet</b>							<b>\$72,400.00</b>
<del>-\$144,800.00</del>							

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawn Meyer</i> 5/3/11
DATE PREPARED 4/7/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD</i> 5/3/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Reach 2: S. Rd & 21st WTP to Fowler S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b></td> <td style="width:20%;">AF523</td> <td style="width:30%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.mxd\Ssummary Sheet	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	380	acre	\$800.00	\$304,000.00
		Grubbing	8140	38	acre	\$2,500.00	\$95,000.00
		Stripping (6" thick)	8140	310,000	cy	\$2.00	\$620,000.00
		Seeding	8140	380	acre	\$800.00	\$304,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	860,000	cy	\$4.00	\$3,440,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	58,000	cy	\$25.00	\$1,450,000.00
		Pipe Bedding (Select material, 4" thick)	8140	15,500	cy	\$30.00	\$465,000.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	850,000	cy	\$3.00	\$2,550,000.00
		Compacting Embedment Backfill	8140	110,000	cy	\$8.00	\$880,000.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	69,000	cy	\$9.00	\$621,000.00
		Pipe Bedding (Select material, 4" thick)	8140	2,900	cy	\$40.00	\$116,000.00
		Embedment & Cover Backfill	8140	56,000	cy	\$5.00	\$280,000.00
		Compacting Embedment Backfill (Urban trench will require traffic control, signage, and detours for duration of work) (Urban Trench Length: 39,511 ft of 42" pipe)	8140	10,500	cy	\$10.00	\$105,000.00
		Traffic Control/Detours Urban Excavation		9	mo	\$15,000.00	\$135,000.00
		Pavement & Base/Remove & Replace Urban Excavation		39,511	lin ft	\$60.00	\$2,370,660.00
		Utility Relocation & Repair Urban Excavation		39,511	lin ft	\$30.00	\$1,185,330.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$14,920,990.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED Nathan Lehman	BY Jeff Morris	CHECKED <i>J. Morris</i> 4/27/11
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>Doc</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Reach 2: S. Rd & 21st WTP to Fowler S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b></td> <td style="width:20%;">AF523</td> <td style="width:30%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		30" dia. steel, 0.2500" thick (84 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=500 1,008,000 lbs total steel	8140	12,000	lin ft	\$145.00	✓ \$1,740,000.00
		36" dia. steel, 0.1707" thick (68 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=375 2,992,000 lbs total steel	8140	44,000	lin ft	\$145.00	✓ \$6,380,000.00
		36" dia. steel, 0.2500" thick (100 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=500 4,700,000 lbs total steel	8140	47,000	lin ft	\$155.00	✓ \$7,285,000.00
		36" dia. steel, 0.3125" thick (125 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 8,000,000 lbs total steel	8140	64,000	lin ft	\$175.00	✓ \$11,200,000.00
		42" dia. steel, 0.1750" thick (81 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=125 1,215,000 lbs total steel	8140	15,000	lin ft	\$190.00	✓ \$2,850,000.00
		42" dia. steel, 0.1750" thick (81 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 4,050,000 lbs total steel	8140	50,000	lin ft	\$190.00	✓ \$9,500,000.00
		<u>Isolation Valves (Manual operation):</u>					
		36" class 150B (psig) butterfly valve with operator	8140	2	ea	\$17,000.00	\$34,000.00
		36" class 250 (psig) butterfly valve with operator	8140	2	ea	\$29,000.00	\$58,000.00
		36" class 300 (psig) butterfly valve with operator	8140	2	ea	\$43,000.00	\$86,000.00
		42" class 150B (psig) butterfly valve with operator	8140	2	ea	\$26,000.00	\$52,000.00
		42" class 150B (psig) butterfly valve with operator	8140	1	ea	\$26,000.00	\$26,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	9	ea	\$7,000.00	\$63,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$39,274,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. Morris</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCO 4/21/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Reach 2: S. Rd & 21st WTP to Fowler S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b></td> <td style="width:20%;">AF523</td> <td style="width:30%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		44	ea	\$12,000.00	\$528,000.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	440	lin ft		
		- 3/4- inch gravel filter (4cy)	8140	176	ea		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	4,200	lbs		
		- 6" Combination Air Valve (1 ea)	8140	44	ea		
		- 6" Butterfly Valve (1 ea)	8140	44	ea		
		<u>Blowoff Structures (to include):</u>		44	ea	\$8,300.00	\$365,200.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	352	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	52	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	15	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	6,200	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	88	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	44	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	440	lin ft		
		- 6" Tee (1 ea)	8140	44	ea		
		- 6" Blind Flange (1 ea)	8140	44	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	4,200	lbs		
		<u>Manholes-Buried (to include):</u>		83	ea	\$11,500.00	\$954,500.00
		- 36" Pipe outlet (1 ea)	8140	83	ea		
		- 36" blind flange (1 ea)	8140	83	ea		
		<u>Cathodic Protection</u>	8140	1	ls	\$1,960,550.00	\$1,960,550.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$3,808,250.00</b>
		<b>SUBTOTAL REACH 2</b>					<b>\$58,003,240.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. Morris</i> <i>4/27/11</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition St. Charles Mesa Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		20" DR25 (CIOD) C905 PVC pipe	8140	4,600	lin ft	\$48.00	\$220,800.00
		20" DR25 (CIOD) C905 PVC pipe	8140	18,000	lin ft	\$48.00	\$864,000.00
		<u>Isolation Valves (Manual operation):</u>					
		20" class 150B (psig) butterfly valve with operator	8140	1	ea	\$6,700.00	\$6,700.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$1,098,500.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. Morris</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition St. Charles Mesa Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		5	ea	\$6,800.00	\$34,000.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	50	lin ft		
		- 3/4 inch gravel filter	8140	20	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	475	lbs		
		- 2" Combination Air Valve (1 ea)	8140	5	ea		
		- 2" Ball Valve (1 ea)	8140	5	ea		
		<u>Blowoff Structures (to include):</u>		5	ea	\$8,300.00	\$41,500.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	40	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	6	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	700	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	10	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	5	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	50	lin ft		
		- 6" Tee (1 ea)	8140	5	ea		
		- 6" Blind Flange (1 ea)	8140	5	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	475	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation					
		No. 09SP101729 dated August 2009. Soils are assumed to be similar to those					
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$75,500.00</b>
		<b>SUBTOTAL ST. CHARLES SPUR</b>					<b>\$2,228,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. Morris</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Avondale Spur  Civil				<b>PROJECT:</b> Fryingpan-Arkansas Project			
<b>WOID:</b> AF523		<b>ESTIMATE LEVEL:</b> Appraisal					
<b>REGION:</b> GP		<b>UNIT PRICE LEVEL:</b> Jan-11					
<b>FILE:</b>		H:\D8170\COMMON\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\SUmmary Sheet					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	10	acre	\$1,000.00	\$10,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	8,300	cy	\$4.00	\$33,200.00
		Seeding	8140	10	acre	\$1,500.00	\$15,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	15,000	cy	\$6.00	\$90,000.00
		Rock Excavation (0.25:1) outside urban area	8140	590	cy	\$45.00	\$26,550.00
		(20% of length is assumed partial rock exc.) assume rippable material					
		Pipe Bedding (Select material, 4" thick)	8140	300	cy	\$50.00	\$15,000.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	15,200	cy	\$5.00	\$76,000.00
		Compacting Embedment Backfill	8140	1,600	cy	\$14.00	\$22,400.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	1,600	cy	\$11.00	\$17,600.00
		Pipe Bedding (Select material, 4" thick)	8140	96	cy	\$50.00	\$4,800.00
		Embedment & Cover Backfill	8140	1,500	cy	\$7.00	\$10,500.00
		Compacting Embedment Backfill	8140	300	cy	\$18.00	\$5,400.00
		(Urban trench will require traffic control, signage, and detours for duration of work) (Urban Trench Length:2,909 ft of 8" pipe)					
		Traffic Control/Detours Urban Excavation		1	mo	\$15,000.00	\$15,000.00
		Pavement & Base/Remove & Replace Urban Excavation		2,909	lin ft	\$60.00	\$174,540.00
		Utility Relocation & Repair Urban Excavation		2,909	lin ft	\$30.00	\$87,270.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					
							<b>\$605,760.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. Morris</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Avondale Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		3	ea	\$6,800.00	\$20,400.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	12	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	285	lbs		
		- 2" Air Valve (1 ea)	8140	3	ea		
		- 2" Ball Valve (1 ea)	8140	3	ea		
		<u>Blowoff Structures (to include):</u>		3	ea	\$8,300.00	\$24,900.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	24	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	4	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	425	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	6	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	3	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 6" Tee (1 ea)	8140	3	ea		
		- 6" Blind Flange (1 ea)	8140	3	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	285	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$45,300.00</b>
		<b>SUBTOTAL AVONDALE SPUR</b>					<b>\$807,860.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>Jeff Morris</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>SD</i> 4/29/11

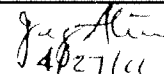
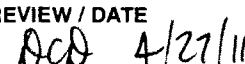
<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Fowler Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx Summary Sheet		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	10	acre	\$1,000.00	\$10,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	8000	cy	\$4.00	\$32,000.00
		Seeding	8140	10	acre	\$1,500.00	\$15,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	14,000	cy	\$6.00	\$84,000.00
		Rock Excavation (0.25:1) outside urban area	8140	520	cy	\$45.00	\$23,400.00
		(20% of length is assumed partial rock exc.) assume rippable material					
		Pipe Bedding (Select material, 4" thick)	8140	280	cy	\$50.00	\$14,000.00
		Embedment & Cover Backfill	8140	14,000	cy	\$5.00	\$70,000.00
		(does not include shrink/swell)					
		Compacting Embedment Backfill	8140	1,250	cy	\$14.00	\$17,500.00
		All earthwork quantities above are for the actual sloped trench.					
<b>SUBTOTAL THIS SHEET</b>							<b>\$268,400.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. Morris</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Fowler Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" dia. steel, 0.1345" thick (10 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=875 77,650 lbs total steel	8140	7,800	lin ft	\$40.00	\$312,000.00
		<u>Isolation Valves (Manual operation):</u>					
		6" class 300 (psig) butterfly valve with operator	8140	1	ea	\$2,400.00	\$2,400.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$321,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Fowler Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		2	ea	\$6,800.00	\$13,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 3/4 inch gravel filter	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	190	lbs		
		- 2" Combination Air Valve (1 ea)	8140	2	ea		
		- 2" Ball Valve (1 ea)	8140	2	ea		
		<u>Blowoff Structures (to include):</u>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	16	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	3	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	280	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	4	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1 ea)	8140	2	ea		
		- 6" Blind Flange (1 ea)	8140	2	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	190	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$15,720.00	\$15,720.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation					
		No. 09SP101729 dated August 2009. Soils are assumed to be similar to those					
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$45,920.00</b>
		<b>SUBTOTAL FOWLER SPUR</b>					<b>\$635,720.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED <i>Jeff Morris</i> 4/27/11
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>Doc</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Central Pueblo Regulating Tank Alternative 4 Reach 2: S. Rd & 21st WTP to Fowler S. Tank	<b>PROJECT:</b> Fryington-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Whitlock Reg Tank Alt 4 Appraisal Quant Est 8120.xlsx\CivilStructural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	265	yd <sup>3</sup>	\$6.00	\$1,590.00
		Access Roads	86-68120	40	yd <sup>3</sup>	\$6.00	\$240.00
		Excavation (tank foundation)	86-68120	105	yd <sup>3</sup>	\$25.00	\$2,625.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	85	yd <sup>3</sup>	\$25.00	\$2,125.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	230	yd <sup>3</sup>	\$40.00	\$9,200.00
		Access Roads	86-68120	40	yd <sup>3</sup>	\$40.00	\$1,600.00
		Chain Link Fence	86-68120	480	lin ft	\$40.00	\$19,200.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. One 20' wide double swing gate					
		Reinforced Concrete for Pad & Stem Foundation	86-68120	1	ls	\$25,000.00	\$25,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 20 miles					
		Concrete: 27 yd <sup>3</sup>					
		Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 3535 lbs					
		Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 7.5 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$61,580.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Steve Max</i> 4/27/11
DATE PREPARED 03/30/11	PEER REVIEW / DATE Paul Ruchti 3/31/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>DD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Central Pueblo Regulating Tank Alternative 4 Reach 2: S. Rd & 21st WTP to Fowler S. Tank	<b>PROJECT:</b> Fryngpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: 11-Jan
	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Central Pueblo Reg Tank Alt 4 Appraisal Quant Est 8420.xlsx\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		<u>Steel regulating tank</u>					
		1 - 810,000-gallon steel regulating tank AWWA D100 compliance tank height 55 feet inside diameter 50 feet	86-68420	1	ls	\$1,000,000.00	\$1,000,000.00
		SUBTOTAL THIS SHEET					\$1,000,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shirley MacFarlane</i> 4/25/11
DATE PREPARED 3/30/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE <i>DD</i> 4/25/11



<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 Reach 2: S. Rd & 21st WTP to Fowler S. Tank	<b>PROJECT:</b> Fryngpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 4 R2 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	4	ea	\$35,000.00	\$140,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$140,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> DCA 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 Reach 2: S. Rd & 21st WTP to Fowler S. Tank Mechanical Equipment	<b>PROJECT:</b> Fryngpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	4	ls	\$5,600.00	\$22,400.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	4	ea	\$800.00	\$3,200.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	4	ea	\$13,000.00	\$52,000.00
<b>Subtotal - This Sheet</b>							<b>\$77,600.00</b>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>gruff</i>	CHECKED <i>Scott Ruff</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 Reach 2: S. Rd & 21st WTP to Fowler S. Tank	<b>PROJECT:</b> Fryngpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 4 R2 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		Participant Tie-In Vaults (4 vaults)	86-68420				
		6-inch pressure reducing valve 4 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		4	ea	\$7,800.00	\$31,200.00
		6-inch manually-operated butterfly valve 1 valve, 90 lbs each AWWA Class 150-B		1	ea	\$1,300.00	\$1,300.00
		2 valves, 130 lbs each AWWA Class 250-B		2	ea	\$2,300.00	\$4,600.00
		1 valve, 170 lbs each Henry Pratt Class 350		1	ea	\$2,800.00	\$2,800.00
		6-inch buried square-nut operated butterfly valve with valve box 1 valve, 245 lbs each AWWA Class 150-B		1	ea	\$1,800.00	\$1,800.00
		2 valves, 285 lbs each AWWA Class 250-B		2	ea	\$2,800.00	\$5,600.00
		1 valve, 325 lbs each Henry Pratt Class 350		1	ea	\$3,300.00	\$3,300.00
		1-inch air valve combination air valve 4 air valves, 35 lbs each		4	ea	\$1,000.00	\$4,000.00
<b>Total</b>							<b>\$54,600.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawn Mal...</i> 5/4/11
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>DCD</i> 5/4/11

<b>FEATURE:</b> Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Reach 3: Fowler S. Tank to La Junta S. Tank				<b>PROJECT:</b> Fryingpan-Arkansas Project			
<b>Civil</b>				<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal
				<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
				<b>FILE:</b>	H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	260	acre	\$800.00	\$208,000.00
		Grubbing	8140	26	acre	\$2,500.00	\$65,000.00
		Stripping (6" thick)	8140	210,000	cy	\$2.00	\$420,000.00
		Seeding	8140	260	acre	\$800.00	\$208,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	510,000	cy	\$4.00	\$2,040,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	30,000	cy	\$25.00	\$750,000.00
		Pipe Bedding (Select material, 4" thick)	8140	9,200	cy	\$40.00	\$368,000.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	510,000	cy	\$3.00	\$1,530,000.00
		Compacting Embedment Backfill	8140	50,000	cy	\$8.00	\$400,000.00
		All earthwork quantities above are for the actual sloped trench.					
<b>SUBTOTAL THIS SHEET</b>							<b>\$5,989,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED Nathan Lehman	BY Jeff Morris	CHECKED <i>[Signature]</i>
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Reach 3: Fowler S. Tank to La Junta S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx]Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		24" DR25 (CIOD) C905 PVC pipe	8140	19,000	lin ft	\$68.00	\$1,292,000.00
		24" DR18 (CIOD) C905 PVC pipe	8140	55,000	lin ft	\$90.00	\$4,950,000.00
		24" dia. steel, 0.2500" thick (68 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 2,312,000 lbs total steel	8140	34,000	lin ft	\$120.00	\$4,080,000.00
		36" dia. steel, 0.1501" thick (60 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 492,000 lbs total steel	8140	8,200	lin ft	\$140.00	\$1,148,000.00
		36" dia. steel, 0.1707" thick (68 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=375 2,312,000 lbs total steel	8140	34,000	lin ft	\$145.00	\$4,930,000.00
		<u>Isolation Valves (Manual operation):</u>					
		24" class 150B (psig) butterfly valve with operator	8140	1	ea	\$9,000.00	\$9,000.00
		24" class 250 (psig) butterfly valve with operator	8140	2	ea	\$15,000.00	\$30,000.00
		24" class 300 (psig) butterfly valve with operator	8140	1	ea	\$22,500.00	\$22,500.00
		36" class 150B (psig) butterfly valve with operator	8140	2	ea	\$17,000.00	\$34,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	6	ea	\$7,000.00	\$42,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$16,537,500.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>JCS</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>JCS</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Reach 3: Fowler S. Tank to La Junta S. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Reach 3	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		29	ea	\$7,500.00	\$217,500.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	290	lin ft		
		- 3/4" gravel filter (4cy)	8140	116	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	2,750	lbs		
		- 3" Combination Air Valve (1 ea)	8140	29	ea		
		- 3" Butterfly Valve (1 ea)	8140	29	ea		
		<u>Blowoff Structures (to include):</u>		29	ea	\$8,300.00	\$240,700.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	230	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	34	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	10	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	4,100	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	58	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	29	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	290	lin ft		
		- 6" Tee (1 ea)	8140	29	ea		
		- 6" Blind Flange (1 ea)	8140	29	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	2,750	lbs		
		<u>Manholes-Buried (to include):</u>		16	ea	\$11,500.00	\$184,000.00
		-36" Pipe outlet (1 ea)	8140	16	ea		
		-36" blind flange (1 ea)	8140	16	ea		
		<u>Cathodic Protection</u>	8140	1	ls	\$510,725.00	\$510,725.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,152,925.00</b>
		<b>SUBTOTAL REACH 3</b>					<b>\$23,679,425.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/23/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/23/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition North and West Holbrook Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\COMMON\JMORRIS\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	19	acre	\$1,000.00	\$19,000.00
		Grubbing	8140	2	acre	\$2,500.00	\$5,000.00
		Stripping (6" thick)	8140	15,500	cy	\$2.00	\$31,000.00
		Seeding	8140	19	acre	\$1,500.00	\$28,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	26,000	cy	\$6.00	\$156,000.00
		Rock Excavation (0.25:1) outside urban area	8140	920	cy	\$45.00	\$41,400.00
		(20% of length is assumed partial rock exc.) assume rippable material					
		Pipe Bedding (Select material, 4" thick)	8140	530	cy	\$50.00	\$26,500.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	26,000	cy	\$5.00	\$130,000.00
		Compacting Embedment Backfill	8140	1,950	cy	\$14.00	\$27,300.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$464,700.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>gjm</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>dec</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition North and West Holbrook Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR14 (CIOD) C900 PVC pipe	8140	10,200	lin ft	\$7.50	\$76,500.00
		4" DR18 (CIOD) C900 PVC pipe	8140	5,300	lin ft	\$6.80	\$36,040.00
		<u>Isolation Valves (Manual operation):</u>					
		4" class 300 (psig) butterfly valve with operator	8140	1	ea	\$2,300.00	\$2,300.00
		4" class 250 (psig) butterfly valve with operator	8140	1	ea	\$2,100.00	\$2,100.00
		<u>Isolation Valve Manholes (to include):</u>	8140	2	ea	\$7,000.00	\$14,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$130,940.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. Morris</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition North and West Holbrook Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		3	ea	\$6,800.00	\$20,400.00	
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft			
		- 3/4 inch gravel filter	8140	12	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	285	lbs			
		- 2" Combination Air Valve (1 ea)	8140	3	ea			
		- 2" Ball Valve (1 ea)	8140	3	ea			
		<u>Blowoff Structures (to include):</u>		3	ea	\$8,300.00	\$24,900.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	24	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	4	cy			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	425	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	6	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	3	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft			
		- 6" Tee (1 ea)	8140	3	ea			
		- 6" Blind Flange (1 ea)	8140	3	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	285	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00	
		*Assume 5% of cost for all steel items above						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>					\$45,300.00	
		<b>SUBTOTAL N&amp;W HOLBROOK SPUR</b>					\$640,940.00	

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. G. Allen</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCO 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit La Junta North Water Storage Tank Alternative 4 Reach 3: Fowler S. Tank to La Junta S. Tank	<b>PROJECT:</b> Fryington-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - LaJunta North Water Tank Alt 4 Appraisal Quant Est 8120.xlsx\CivilStructural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	1,315	yd <sup>3</sup>	\$4.00	\$5,260.00
		Access Roads	86-68120	35	yd <sup>3</sup>	\$6.00	\$210.00
		Excavation (tank foundation)	86-68120	2,845	yd <sup>3</sup>	\$15.00	\$42,675.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	2,015	yd <sup>3</sup>	\$16.00	\$32,240.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	1,110	yd <sup>3</sup>	\$35.00	\$38,850.00
		Access Roads	86-68120	35	yd <sup>3</sup>	\$40.00	\$1,400.00
		Chain Link Fence	86-68120	1,335	lin ft	\$40.00	\$53,400.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. Three 20' wide double swing gate					
		Reinforced Concrete for Pad & Stem Foundation	86-68120	1	ls	\$620,000.00	\$620,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 70 miles					
		Concrete: 876 yd3					
		Reinforcement (Assume 135 lb/yd3): 118,265 lbs					
		Cement (Assume: 0.282 ton/yd3): 247 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$794,035.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i>
DATE PREPARED 03/22/11	PEER REVIEW / DATE Paul Ruchti 3/30/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE Dec 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit La Junta North Water Storage Tank Alternative 4 Reach 3: Fowler S. Tank to La Junta S. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D81701\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Water Storage Tanks\La Junta Water Storage Tank\8420 Mechanical (Tank)\(AVC - LaJunta North Water Tank Alt 4 8420.xlsx)\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		Steel water storage tanks					
		5 - 1,000,000-gallon steel water storage tanks (5,000,000 gallons combined capacity)	86-68420	1	ls	\$12,000,000.00	\$12,000,000.00
		AWWA D100 compliance					
		minimum water surface 200 feet (above foundation)					
		maximum water surface 248.58 feet (above foundation)					
		diameter 74 feet					
		SUBTOTAL THIS SHEET					\$12,000,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shannon M. Young</i> 4/26/11
DATE PREPARED 3/31/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE <i>DCD</i> 4/26/11

<b>FEATURE:</b>  Arkansas Valley Conduit Fowler North Water Storage Tank Alternative 4 Reach 3: Fowler S. Tank to La Junta S. Tank	<b>PROJECT:</b> Fryington-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\DB170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC -Fowler North Water Tank Alt 4 Appraisal Quant Est 8120.xlsx\Civil\Structural	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	2,145	yd <sup>3</sup>	\$4.00	\$8,580.00
		Access Roads	86-68120	75	yd <sup>3</sup>	\$6.00	\$450.00
		Excavation (tank foundation)	86-68120	1,530	yd <sup>3</sup>	\$15.00	\$22,950.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	1,120	yd <sup>3</sup>	\$16.00	\$17,920.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	1,235	yd <sup>3</sup>	\$35.00	\$43,225.00
		Access Roads	86-68120	75	yd <sup>3</sup>	\$40.00	\$3,000.00
		Chain Link Fence	86-68120	1,360	lin ft	\$40.00	\$54,400.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. Two 20' wide double swing gate					
		<b>Reinforced Concrete for Pad &amp; Stem Foundation</b>	86-68120	1	ls	\$340,000.00	\$340,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 40 miles					
		Concrete: 465 yd <sup>3</sup>					
		Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 62,835 lbs					
		Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 131 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$490,525.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris	CHECKED <i>Shannon</i>
DATE PREPARED 03/22/11	PEER REVIEW / DATE Paul Ruchti 3/30/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE DCD 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Fowler North Water Storage Tank Alternative 4 Reach 3: Fowler S. Tank to La Junta S. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D81701\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Water Storage Tanks\Fowler Water Storage Tank\8420 Mechanical\AVC -Fowler North Water Tank Alt 4 Appraisal Quant Est

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		Steel water storage tanks					
		4 - 2,295,000-gallon steel water storage tank (9,180,000 gallons combined capacity)	86-68420	1	ls	\$8,300,000.00	\$8,300,000.00
		AWWA D100 compliance minimum water surface 0 feet (above foundation) maximum water surface 25 feet (above foundation) diameter 120 feet					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$8,300,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shawnal Moore</i> 4/26/11
DATE PREPARED 3/31/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE DCO 4/26/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Fowler N Tank Access Road  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Fowler N Tank Road.xlsx\Alt 4	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Road Access (to include):					
		Stripping (6" thick)	86-68140	3,100.0	cy	\$4.00	\$12,400.00
		gravel (6" thick)	86-68140	3,100	cy	\$35.00	\$108,500.00
		(20' wide access, 8,300' long)					
		Concrete bridge(70' Double Span) to include:		1	bridge	Included in Items below.	
		Abutment excavation (2200 ea)	86-68140	2,200	cy	\$25.00	\$55,000.00
		Backfill - abutments (2100 ea)	86-68140	2,100	cy	\$30.00	\$63,000.00
		Compacting backfill (2100 ea)	86-68140	2,100	cy	\$30.00	\$63,000.00
		Comp. approach ramp embankment (85 ea)	86-68140	85	cy	\$40.00	\$3,400.00
		Concrete - bridge abutment (85 ea)	86-68140	85	cy	\$1,300.00	\$110,500.00
		Concrete - bridge deck & girders (90 ea)	86-68140	90	cy	\$1,700.00	\$153,000.00
		Concrete - pier & footing (35 ea)	86-68140	35	cy	\$1,500.00	\$52,500.00
		Reinforcement (140 #/cy) (30,000 ea)	86-68140	30,000	lbs	\$1.70	\$51,000.00
		Cementitious Materials (6 sack mix) (60 ea)	86-68140	60	tons	Included in Concrete Items above.	
		Beam-type guardrail (180 ea)	86-68140	180	lin. ft.	\$60.00	\$10,800.00
		Detour barricades & signage	86-68140	1	ls	\$10,000.00	\$10,000.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$693,100.00</b>

QUANTITIES		PRICES	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/31/11	PEER REVIEW / DATE Dave Edwards	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 Reach 3: Fowler S. Tank to La Junta S. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 4 R3 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	5	ea	\$35,000.00	\$175,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$175,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 Reach 3: Fowler S. Tank to La Junta S. Tank Mechanical Equipment	<b>PROJECT:</b> Fryingspan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size= 12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	5	ls	\$5,600.00	\$28,000.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	5	ea	\$800.00	\$4,000.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	5	ea	\$13,000.00	\$65,000.00
<b>Subtotal - This Sheet</b>							<b>\$97,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>[Signature]</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>[Signature]</i> 4/30/11



<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 Reach 3: Fowler S. Tank to La Junta S. Tank	<b>PROJECT:</b> Fryngpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 4 R3 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (5 vaults)</b>	86-68420				
		6-inch pressure reducing valve 5 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		5	ea	\$7,800.00	\$39,000.00
		6-inch manually-operated butterfly valve 5 valves, 130 lbs each AWWA Class 250-B		5	ea	\$2,300.00	\$11,500.00
		6-inch buried square-nut operated butterfly valve with valve box 5 valves, 285 lbs each AWWA Class 250-B		5	ea	\$2,800.00	\$14,000.00
		1-inch air valve combination air valve 5 air valves, 35 lbs each		5	ea	\$1,000.00	\$5,000.00
		<b>Total</b>					<b>\$69,500.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shawna Regan 5/4/11</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>DRD 5/4/11</i>



<b>FEATURE:</b>  Fryingpan-Arkansas Project Arkansas Valley Conduit Pipeline Reach 4: La Junta S. Tank to Lamar  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		18" dia. steel, 0.2500" thick (52 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=875 1,872,000 lbs total steel	8140	36,000	lin ft	\$95.00	\$3,420,000.00
		18" dia. steel, 0.1730" thick (36 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 3,384,000 lbs total steel	8140	94,000	lin ft	\$80.00	\$7,520,000.00
		18" dia. steel, 0.1442" thick (30 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 2,340,000 lbs total steel	8140	78,000	lin ft	\$75.00	\$5,850,000.00
		24" DR18 (CIOD) C905 PVC pipe	8140	72,000	lin ft	\$90.00	\$6,480,000.00
		24" DR25 (CIOD) C905 PVC pipe	8140	14,300	lin ft	\$68.00	\$972,400.00
		<u>Isolation Valves (Manual operation):</u>					
		18" class 300 (psig) butterfly valve with operator	8140	3	ea	\$15,500.00	\$46,500.00
		18" class 300 (psig) butterfly valve with operator	8140	4	ea	\$15,500.00	\$62,000.00
		18" class 300 (psig) butterfly valve with operator	8140	1	ea	\$15,500.00	\$15,500.00
		24" class 150B (psig) butterfly valve with operator	8140	1	ea	\$9,000.00	\$9,000.00
		24" class 250 (psig) butterfly valve with operator	8140	3	ea	\$15,000.00	\$45,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	12	ea	\$7,000.00	\$84,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					\$24,504,400.00

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>[Signature]</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11


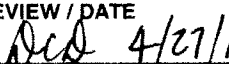
<b>FEATURE:</b>  Fryingpan-Arkansas Project Arkansas Valley Conduit Pipeline Reach 4: La Junta S. Tank to Lamar  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		56	ea	\$6,800.00	\$380,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	560	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	224	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	5,300	lbs		
		- 2" Combination Air Valve (1 ea)	8140	56	ea		
		- 2" Ball Valve (1 ea)	8140	56	ea		
		<u>Blowoff Structures (to include):</u>		56	ea	\$8,300.00	\$464,800.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	450	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	66	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	19	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	7,900	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	112	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	66	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	560	lin ft		
		- 6" Tee (1 ea)	8140	56	ea		
		- 6" Blind Flange (1 ea)	8140	56	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	5,300	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$845,700.00	\$845,700.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,691,300.00</b>
		<b>SUBTOTAL REACH 4</b>					<b>\$35,347,700.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. Morris</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>SCD</i> 4/27/11

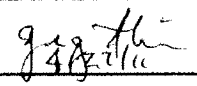
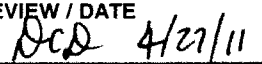
<p><b>FEATURE:</b></p> <p style="text-align: center;"><b>Arkansas Valley Conduit</b>  <b>Pipeline</b>  <b>Alternative 4 Max Day Condition</b>  <b>Hasty Spur</b></p> <p><b>Civil</b></p>	<p><b>PROJECT:</b></p> <p style="text-align: center;">Fryingpan-Arkansas Project</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b></td> <td style="width:20%;">AF523</td> <td style="width:30%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> </table> <p><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet</p>	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	1	acre	\$1,000.00	\$1,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	630	cy	\$6.00	\$3,780.00
		Seeding	8140	1	acre	\$1,500.00	\$1,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	1,050	cy	\$9.00	\$9,450.00
		Rock Excavation (0.25:1) outside urban area	8140	40	cy	\$45.00	\$1,800.00
		(20% of length is assumed partial rock exc.)					
		assume rippable material					
		Pipe Bedding (Select material, 4" thick)	8140	20	cy	\$50.00	\$1,000.00
		Embedment & Cover Backfill	8140	1,050	cy	\$7.00	\$7,350.00
		(does not include shrink/swell)					
		Compacting Embedment Backfill	8140	80	cy	\$16.00	\$1,280.00
		All earthwork quantities above are for the actual sloped trench.					
<b>SUBTOTAL THIS SHEET</b>							<b>\$29,660.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b>  4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Hasty Spur  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 5,040 lbs total steel	8140	630	lin ft	\$34.00	\$21,420.00
		<u>Isolation Valves (Manual operation):</u>					
		4" class 300 (psig) butterfly valve with operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$30,720.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Hasty Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$1,186.00	\$1,186.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$16,286.00</b>
		<b>SUBTOTAL HASTY SPUR</b>					<b>\$76,666.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>Jeff Morris</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD 4/27/11</i>





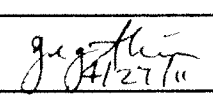
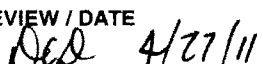
<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition McClave Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 44,000 lbs total steel	8140	5,500	lin ft	\$34.00	\$187,000.00
		<u>Isolation Valves (Manual operation):</u>					
		4" class 300 (psig) butterfly valve with operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$196,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED <i>J. Morris</i> 4/27/11
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>DCO</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition McClave Spur  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\UMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		2	ea	\$6,800.00	\$13,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	190	lbs		
		- 2" Combination Air Valve (1ea)	8140	2	ea		
		- 2" Ball Valve (1 ea)	8140	2	ea		
		<u>Blowoff Structures (to include):</u>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	16	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	3	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	280	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	4	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1 ea)	8140	2	ea		
		- 6" Blind Flange (1 ea)	8140	2	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	190	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$9,465.00	\$9,465.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation					
		No. 09SP101729 dated August 2009. Soils are assumed to be similar to those					
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$39,665.00</b>
		<b>SUBTOTAL McCLAVE SPUR</b>					<b>\$460,805.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Wiley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=1,000 158,000 lbs total steel	8140	19,750	lin ft	\$34.00	\$671,500.00
		<u>Isolation Valves (Manual operation):</u>					
		4" class 300 (psig) butterfly valve with operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$680,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Wiley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		4	ea	\$6,800.00	\$27,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	40	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	16	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	380	lbs		
		- 2" Combination Air Valve (1ea)	8140	4	ea		
		- 2" Ball Valve (1 ea)	8140	4	ea		
		<u>Blowoff Structures (to include):</u>		4	ea	\$8,300.00	\$33,200.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	32	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	5	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	560	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	8	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	4	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	40	lin ft		
		- 6" Tee (1 ea)	8140	4	ea		
		- 6" Blind Flange (1 ea)	8140	4	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	380	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$33,690.00	\$33,690.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$94,090.00</b>
		<b>SUBTOTAL WILEY SPUR</b>					<b>\$1,361,140.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. Morris</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/27/11

<b>FEATURE:</b>				<b>PROJECT:</b>			
Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Las Animas				Fryingpan-Arkansas Project			
<b>WOID:</b> AF523		<b>ESTIMATE LEVEL:</b> Appraisal		<b>REGION:</b> GP		<b>UNIT PRICE LEVEL:</b> Jan-11	
<b>Civil</b>				<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\SuSummary Sheet			

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Sitework Items:</u>						
		Clearing (3 times trench width)	8140	12	acre	\$1,000.00	\$12,000.00	
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00	
		Stripping (6" thick)	8140	9,600	cy	\$6.00	\$57,600.00	
		Seeding	8140	12	acre	\$1,500.00	\$18,000.00	
		<u>Earthwork Items:</u>						
		Soil Excavation (1.5:1) outside urban area	8140	17,500	cy	\$6.00	\$105,000.00	
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	680	cy	\$45.00	\$30,600.00	
		Pipe Bedding (Select material, 4" thick)	8140	340	cy	\$50.00	\$17,000.00	
		Embedment & Cover Backfill (does not include shrink/swell)	8140	17,500	cy	\$5.00	\$87,500.00	
		Compacting Embedment Backfill	8140	1,800	cy	\$14.00	\$25,200.00	
		All earthwork quantities above are for the actual sloped trench.						
		<b>SUBTOTAL THIS SHEET</b>						<b>\$355,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> ACW 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Las Animas  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\DB170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		8" dia. steel, 0.1345" thick (13 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 117,000 lbs total steel	8140	9,000	lin ft	\$45.00	\$405,000.00
		<u>Isolation Valves (Manual operation):</u>					
		8" class 300 (psig) butterfly valve with operator	8140	1	ea	\$3,000.00	\$3,000.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$415,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED <i>J. Morris</i> 4/27/11
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>DCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Las Animas  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b></td> <td style="width:20%;">AF523</td> <td style="width:30%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\Morris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		2	ea	\$6,800.00	\$13,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	190	lbs		
		- 2" Combination Air Valve (1ea)	8140	2	ea		
		- 2" Ball Valve (1 ea)	8140	2	ea		
		<u>Blowoff Structures (to include):</u>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	16	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	3	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	280	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	4	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1 ea)	8140	2	ea		
		- 6" Blind Flange (1 ea)	8140	2	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	190	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$20,400.00	\$20,400.00
		* Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$50,600.00</b>
		<b>SUBTOTAL LAS ANIMAS SPUR</b>					<b>\$821,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 Reach 4: La Junta S. Tank to Lamar	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 4 R4 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	9	ea	\$35,000.00	\$315,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$315,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul M Ruchti	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>J. Morris</i> 4/30/11
DATE PREPARED 04/15/11	PEER REVIEW / DATE 04/19/11	DATE PREPARED 04/26/11	PEER REVIEW / DATE <i>Scw</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 Reach 4: La Junta S. Tank to Lamar Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	9	ls	\$5,600.00	\$50,400.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	9	ea	\$800.00	\$7,200.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	9	ea	\$13,000.00	\$117,000.00
Subtotal - This Sheet							\$174,600.00
<del>Total - Sheets 1 thru 5</del>							<del>\$776,000.00</del>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G.Ruff</i>	CHECKED <i>Dec 1/2011</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>RCD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 Reach 4: La Junta S. Tank to Lamar	<b>PROJECT:</b> Fryngpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
	<b>FILE:</b> H:\D81701\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 4 R4 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (9 vaults)</b>	86-68420				
		6-inch pressure reducing valve					
		7 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		7	ea	\$7,800.00	\$54,600.00
		2 valves, 160 lbs each Cla-Val ANSI class 300 steel (400 psi rated)		2	ea	\$8,300.00	\$16,600.00
		6-inch manually-operated butterfly valve					
		1 valves, 90 lbs each AWWA Class 150-B		1	ea	\$1,300.00	\$1,300.00
		4 valve, 130 lbs each AWWA Class 250-B		4	ea	\$2,300.00	\$9,200.00
		4 valve, 170 lbs each Henry Pratt Class 350		4	ea	\$2,800.00	\$11,200.00
		6-inch buried square-nut operated butterfly valve with valve box					
		1 valve, 245 lbs each AWWA Class 150-B		1	ea	\$1,800.00	\$1,800.00
		4 valve, 285 lbs each AWWA Class 250-B		4	ea	\$2,800.00	\$11,200.00
		4 valve, 325 lbs each Henry Pratt Class 350		4	ea	\$3,300.00	\$13,200.00
		1-inch air valve					
		combination 300 psi air valve					
		7 air valves, 35 lbs each		7	ea	\$1,000.00	\$7,000.00
		high-pressure 600 psi combination air valve					
		2 air valves, 140 lbs each		2	ea	\$2,500.00	\$5,000.00
		<b>Total</b>					<b>\$131,100.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Ken Smith	<b>REVIEWED</b> N. Nakamoto	<b>BY</b> G. Ruff <i>G. Ruff</i>	<b>CHECKED</b> <i>James May 5/4/11</i>
<b>DATE PREPARED</b> 4/22/2011	<b>PEER REVIEW / DATE</b> D. Drake / 4/25/11	<b>DATE PREPARED</b> 05/03/11	<b>PEER REVIEW / DATE</b> <i>Doc 5/4/11</i>



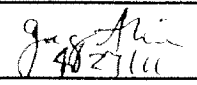
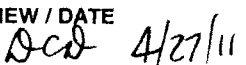
<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Highway 96 Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		10" DR25 (CIOD) C900 PVC pipe	8140	25,000	lin ft	\$16.00	\$400,000.00
		16" DR25 (CIOD) C905 PVC pipe	8140	3,400	lin ft	\$32.00	\$108,800.00
		18" DR25 (CIOD) C905 PVC pipe	8140	29,000	lin ft	\$40.00	\$1,160,000.00
		24" DR25 (CIOD) C905 PVC pipe	8140	38,000	lin ft	\$68.00	\$2,584,000.00
		<u>Isolation Valves (Manual operation):</u>					
		10" class 150B (psig) butterfly valve with operator	8140	1	ea	\$2,000.00	\$2,000.00
		18" class 150B (psig) butterfly valve with operator	8140	2	ea	\$5,500.00	\$11,000.00
		24" class 150B (psig) butterfly valve with operator	8140	2	ea	\$9,000.00	\$18,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	5	ea	\$7,000.00	\$35,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$4,318,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. Morris</i> 3/12/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Highway 96 Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		19	ea	\$6,800.00	\$129,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	190	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	76	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	1,800	lbs		
		- 2" Combination Air Valve (1 ea)	8140	19	ea		
		- 2" Ball Valve (1 ea)	8140	19	ea		
		<u>Blowoff Structures (to include):</u>		19	ea	\$8,300.00	\$157,700.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	150	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	22	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	.6	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	2,700	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	38	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	19	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	190	lin ft		
		- 6" Tee (1 ea)	8140	19	ea		
		- 6" Blind Flange (1 ea)	8140	19	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	1,800	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation					
		No. 09SP101729 dated August 2009. Soils are assumed to be similar to those					
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$286,900.00</b>
		<b>SUBTOTAL HWY 96 SPUR</b>					<b>\$7,571,700.00</b>

QUANTITIES		PRICES	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition 96 Pipeline Co. Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx]Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" DR18 (CIOD) C900 PVC pipe	8140	2,400	lin ft	\$10.00	\$24,000.00
		<u>Isolation Valves (Manual operation):</u>					
		6" class 250 (psig) butterfly valve with operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$33,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED 
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE DCD 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition 96 Pipeline Co. Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1 ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation					
		No. 09SP101729 dated August 2009. Soils are assumed to be similar to those					
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL 96 PIPELINE CO SPUR</b>					<b>\$155,590.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 8/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 HWY 96 Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 4 96 Spur Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	6	ea	\$35,000.00	\$210,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$210,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Rucht	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>g... 4/30/11</i>
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>DCD 4/30/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 HWY 96 Spur Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment	86-68410	6	ls	\$5,600.00	\$33,600.00
		list of equipment per vault:					
		(1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp					
		(12 ft)-6" diam, 16 ga., galv. steel duct					
		(2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-6"x8" reducer, sch 20, galv. steel pipe					
		(4)-8" diam, stainless steel bird screens					
		(2)-6"x8" reducer, 16 ga, galv. steel duct					
		(2)-6" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/6 Hp					
		(1)-fan wall switch and box					
	2	Meter vault heater	86-68410	6	ea	\$800.00	\$4,800.00
		3 kW unit heater					
		thermostatically controlled					
	3	Flowmeter system	86-68410	6	ea	\$13,000.00	\$78,000.00
		6" diameter, microprocessor-based,					
		flanged electro-magnetic flowmeter with					
		remote wall-mounted transmitter					
		weight= approx 85 lbs					
		120 Volt AC					
<b>Subtotal - This Sheet</b>							<b>\$116,400.00</b>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>Gurk</i>	CHECKED <i>Sharon Magro</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11

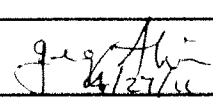
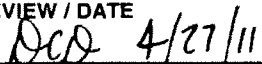
<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 HWY 96 Spur (Reach 2A)	<b>PROJECT:</b> Fryngpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 4 96 Spur Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (6 vaults)</b>	86-68420				
		6-inch pressure reducing valve 6 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		6	ea	\$7,800.00	\$46,800.00
		6-inch manually-operated butterfly valve 5 valves, 130 lbs each AWWA Class 250-B 1 valve, 170 lbs each Henry Pratt Class 350		5	ea	\$2,300.00	\$11,500.00
		6-inch buried square-nut operated butterfly valve with valve box 5 valves, 285 lbs each AWWA Class 250-B 1 valve, 325 lbs each Henry Pratt Class 350		5	ea	\$2,800.00	\$14,000.00
		1-inch air valve combination air valve 6 air valves, 35 lbs each		6	ea	\$1,000.00	\$6,000.00
		<b>Total</b>					<b>\$84,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>GRuff</i>	CHECKED <i>Shawn MacLean 5/9/11</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>DCB 5/4/11</i>

<p><b>FEATURE:</b></p> <p style="text-align: center;">Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Eads Spur</p> <p><b>Civil</b></p>	<p><b>PROJECT:</b> Fryingpan-Arkansas Project</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <p><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet</p>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	145	acre	\$800.00	\$116,000.00
		Grubbing	8140	15	acre	\$2,500.00	\$37,500.00
		Stripping (6" thick)	8140	115,000	cy	\$2.00	\$230,000.00
		Seeding	8140	145	acre	\$800.00	\$116,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	210,000	cy	\$4.00	\$840,000.00
		Rock Excavation (0.25:1) outside urban area	8140	8,200	cy	\$35.00	\$287,000.00
		(20% of length is assumed partial rock exc.) assume rippable material					
		Pipe Bedding (Select material, 4" thick)	8140	4,100	cy	\$40.00	\$164,000.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	210,000	cy	\$3.00	\$630,000.00
		Compacting Embedment Backfill	8140	22,000	cy	\$10.00	\$220,000.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					\$2,640,500.00

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b>  4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Eads Spur  <b>Civil</b>		<b>PROJECT:</b> Fryngpan-Arkansas Project	
		<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
		<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
		<b>FILE:</b> H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		8" DR18 (CIOD) C900 PVC pipe	8140	110,000	lin ft	\$14.00	\$1,540,000.00
		<u>Isolation Valves (Manual operation):</u>					
		8" class 250 (psig) butterfly valve with operator	8140	5	ea	\$2,800.00	\$14,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	5	ea	\$7,000.00	\$35,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,589,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b>  4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b>  4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Eads Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		21	ea	\$6,800.00	\$142,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	210	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	84	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	2,000	lbs		
		- 2" Combination Air Valve (1ea)	8140	21	ea		
		- 2" Ball Valve (1 ea)	8140	21	ea		
		<u>Blowoff Structures (to include):</u>		21	ea	\$8,300.00	\$174,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	170	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	25	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	7	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	3,000	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	42	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	21	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	210	lin ft		
		- 6" Tee (1 ea)	8140	21	ea		
		- 6" Blind Flange (1 ea)	8140	21	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	2,000	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$317,100.00</b>
		<b>SUBTOTAL EADS SPUR</b>					<b>\$4,546,600.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Eads & May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
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<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

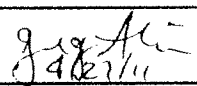
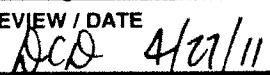
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	45	acre	\$1,000.00	\$45,000.00
		Grubbing	8140	5	acre	\$2,500.00	\$12,500.00
		Stripping (6" thick)	8140	35,000	cy	\$2.00	\$70,000.00
		Seeding	8140	45	acre	\$1,500.00	\$67,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	65,000	cy	\$6.00	\$390,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	2,700	cy	\$35.00	\$94,500.00
		Pipe Bedding (Select material, 4" thick)	8140	1,250	cy	\$40.00	\$50,000.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	66,000	cy	\$5.00	\$330,000.00
		Compacting Embedment Backfill	8140	7,700	cy	\$14.00	\$107,800.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,167,300.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. Morris 4/27/11</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD 4/27/11</i>





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Eads & May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> <tr> <td colspan="2"><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		10" dia. steel, 0.1345" thick (16 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=875 512,000 lbs total steel	8140	32,000	lin ft	\$48.00	\$1,536,000.00
		<u>Isolation Valves (Manual operation):</u>					
		10" class 300 (psig) butterfly valve with operator	8140	2	ea	\$5,000.00	\$10,000.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	2	ea	\$7,000.00	\$14,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$1,560,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Eads & May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		6	ea	\$6,800.00	\$40,800.00	
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft			
		- 3/4 inch gravel filter (4cy)	8140	24	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	570	lbs			
		- 2" Combination Air Valve (1ea)	8140	6	ea			
		- 2" Ball Valve (1 ea)	8140	6	ea			
		<u>Blowoff Structures (to include):</u>		6	ea	\$8,300.00	\$49,800.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	48	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	7	cy			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	850	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	12	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	6	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft			
		- 6" Tee (1 ea)	8140	6	ea			
		- 6" Blind Flange (1 ea)	8140	6	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	570	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$77,300.00	\$77,300.00	
		*Assume 5% of cost for all steel items above						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation						
		No. 09SP101729 dated August 2009. Soils are assumed to be similar to those						
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>					\$167,900.00	
		<b>SUBTOTAL EADS &amp; MAY VALLEY SPUR</b>					\$2,895,200.00	

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project  <table border="1"> <tr> <td><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" DR14 (CIOD) C900 PVC pipe	8140	27,000	lin ft	\$11.00	\$297,000.00
		<u>Isolation Valves (Manual operation):</u>					
		6" class 300 (psig) butterfly valve with operator	8140	2	ea	\$2,400.00	\$4,800.00
		<u>Isolation Valve Manholes (to include):</u>	8140	2	ea	\$7,000.00	\$14,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$315,800.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>jeff morris 4/27/11</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> <tr> <td colspan="2"><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		6	ea	\$6,800.00	\$40,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	24	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	570	lbs		
		- 2" Combination Air Valve (1ea)	8140	6	ea		
		- 2" Ball Valve (1 ea)	8140	6	ea		
		<u>Blowoff Structures (to include):</u>		6	ea	\$8,300.00	\$49,800.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	48	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	7	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	850	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	12	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	6	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 6" Tee (1 ea)	8140	6	ea		
		- 6" Blind Flange (1 ea)	8140	6	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	570	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$90,600.00</b>
		<b>SUBTOTAL MAY VALLEY SPUR</b>					<b>\$1,272,000.00</b>

QUANTITIES		PRICES	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED <i>Jeff Morris</i> 4/27/11
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>DCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Eads/May Valley Booster Plant - 8-inch Spur Alternative 4 Eads Spur	<b>PROJECT:</b> Fryington-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Qty Est Eads Booster Plant Alt 4_B420 Appraisal-Level.xls\JPump Ilz	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural/Electrical/Mechanical:					
		Booster Plant	86-68420	1	LS	\$410,000.00	\$410,000.00
		<b>Using "Appraisal Estimate of Pumping Plants and Switchyards" pumping plant program</b>					
		Booster Plant - 1.125 cfs each, 405 feet TDH;					
		Unit Brake HP: 64.0 hp; Motors: 75 hp each @ 480 volts					
		Booster Plant - (1 + 1 installed spare)					
		2 pumps; vertical can; supply voltage (69 kV)					
		Structures And Improvements					
		Waterways					
		Pumps and Motors					
		Accessory Electrical					
		Miscellaneous Equipment					
		Switchyards					
<b>SUBTOTAL EADS/MAY VALLEY BOOSTER PLANT</b>							<b>\$410,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. Zelenka REVIEWED Toby Turnage	BY Jeff Morris <i>Jeff Morris</i> CHECKED <i>[Signature]</i> 4/6/11		
DATE PREPARED 3/3/2011 PEER REVIEW / DATE Toby Turnage 3.10.11	DATE PREPARED 03/15/11 PEER REVIEW / DATE <i>[Signature]</i> 3/31/11		

<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Air Chamber Alternative 4 Eads & May Valley Spur	<b>PROJECT:</b> Fryington-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:67%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> <tr> <td colspan="2"><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads &amp; May Valley Air Chamber Alt 3 Appraisal Quant Est 8120.xlsx\CivilStructural</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Air Chamber Alt 3 Appraisal Quant Est 8120.xlsx\CivilStructural	
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal						
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11						
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Air Chamber Alt 3 Appraisal Quant Est 8120.xlsx\CivilStructural							

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Foundation</b> (slab-on-grade foundation type) (Assume: $f_c=4,500$ psi) Source: Pueblo, CO 85 miles Concrete: 2.3 yd3 Reinforcement (Assume 135 lb/yd3): 310 lbs Cement (Assume: 0.282 ton/yd3): 0.6 tons	86-68120	1	ls	\$2,600.00	\$2,600.00
		<b>SUBTOTAL THIS SHEET</b>					\$2,600.00

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul Ruchti	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 04/04/11	<b>PEER REVIEW / DATE</b> Paul Ruchti 4/5/11	<b>DATE PREPARED</b> 04/12/11	<b>PEER REVIEW / DATE</b> DCD 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Air Chamber Alternative 4 Eads & May Valley Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> 11-Jan
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Air Chamber Alt 4 Appraisal Quant Est 8420.xlsx\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Air Chamber</b>	86-68420	1	ls	\$89,000.00	\$89,000.00
		1,200-gallon (160 cubic feet) steel air chamber cylinder height 6 feet 6 inches cylinder diameter 5 feet air chamber weight 8,900 pounds mounted air compressor 7.5 horsepower					
<b>SUBTOTAL THIS SHEET</b>							<b>\$89,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris	CHECKED <i>[Signature]</i>
DATE PREPARED 4/4/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Meter Vault Alternative 4 Eads & May Valley Spur	<b>PROJECT:</b> Fryngpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Meter Vaults Alt 4 Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Vaults</b> (Assumed: two 12' W x 14' L x 16' D) (Assume: f <sub>c</sub> =4,500 psi) Source: Pueblo, CO 85 miles Concrete: 115 yd3 Reinforcement (Assume 135 lb/yd3): 15,650 lbs Cement (Assume: 0.282 ton/yd3): 33 tons	86-68120	1	ls	\$100,000.00	\$100,000.00
		<b>Access &amp; Service Hatches</b> Access hatch four 3' x3' (The Bilco Co Type Q single leaf) Service hatch two 5' x 10' (The Bilco Co Type JD special sizes)	86-68120	1	ls	\$41,000.00	\$41,000.00
		<b>Miscellaneous Metalwork</b> (40-D-6601, Ladder Type 2)	86-68120	280	lbs	\$13.00	\$3,640.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$144,640.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>J. Morris</i>	CHECKED <i>Shannon Moore</i> 4/22/11
DATE PREPARED 04/06/11	PEER REVIEW / DATE Paul Ruchti 4/8/11	DATE PREPARED 04/20/11	PEER REVIEW / DATE <i>DCD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Eads and May Valley Meter Vaults Alternative 4 Eads and May Valley Spur Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume meter vault size=11.25'x11.25'x16.7'd					
		assume 2 vaults @ Eads					
	1	Meter vault ventilation equipment	86-68410	2	ls	\$6,600.00	\$13,200.00
		list of equipment per vault:					
		(1)-steel centrifugal fan, 450 cfm @ 0.25" w.g.s.p., 1/6 Hp					
		(16 ft)-8" diam, 16 ga., galv. steel duct					
		(2)-8" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-8"x12" reducer, sch 20, galv. steel pipe					
		(4)-12" diam, stainless steel bird screens					
		(2)-8"x12" reducer, 16 ga, galv. steel duct					
		(2)-8" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/6 Hp					
		(1)-fan wall switch and box					
	2	Meter vault heater	86-68410	2	ea	\$800.00	\$1,600.00
		3 kW unit heater					
		thermostatically controlled					
	3	Flowmeter	86-68410	2	ea	\$25,000.00	\$50,000.00
		Single-path ultrasonic, 12" diam					
		2 transducers with cables and 1 transmitter console					
Subtotal - This Sheet							\$64,800.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>[Signature]</i>	CHECKED <i>[Signature]</i> 5/3/11
DATE PREPARED 4/7/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>[Signature]</i> 5/4/11

<p><b>FEATURE:</b></p> <p><b>Arkansas Valley Conduit Eads &amp; May Valley Meter Vaults Alternative 4 Eads &amp; May Valley Spur</b></p>	<p><b>PROJECT:</b></p> <p><b>Fryingpan-Arkansas Project</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">WOID: AF523</td> <td>ESTIMATE LEVEL: Appraisal</td> </tr> <tr> <td>REGION: GP</td> <td>UNIT PRICE LEVEL: Jan-11</td> </tr> </table> <p><b>FILE:</b> H:\D8170\COMMON\Morris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Valve and Meter Vaults\8420 - Valves\AVC - Eads &amp; May Valley Meter Vaults Alt 4 Appraisal Quant Est 8420.xlsx\Hydraulic equip</p>	WOID: AF523	ESTIMATE LEVEL: Appraisal	REGION: GP	UNIT PRICE LEVEL: Jan-11
WOID: AF523	ESTIMATE LEVEL: Appraisal				
REGION: GP	UNIT PRICE LEVEL: Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Meter Vaults</b>	86-68420				
		10-inch manually-operated butterfly valves 2 valves, 225 lbs each AWWA Class 250-B		2	ea	\$3,000.00	\$6,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$6,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris	CHECKED
DATE PREPARED 4/4/2011	PEER REVIEW / DATE 04/14/11	DATE PREPARED 04/27/11	PEER REVIEW / DATE 4/30/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Bent's Fort Spur  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\SSummary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 5,716 lbs total steel	8140	715	lin ft	\$34.00	\$24,310.00
		<u>Isolation Valves (Manual operation):</u>					
		4" class 300 (psig) butterfly valve with operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$33,610.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED <i>gug Alt</i> 4/27/11
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>DCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Bent's Fort Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
<b>Civil</b>	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Bent's Fort Spur

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$1,330.00	\$1,330.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation					
		No. 09SP101729 dated August 2009. Soils are assumed to be similar to those					
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$16,430.00</b>
		<b>SUBTOTAL BENT'S FORT SPUR</b>					<b>\$97,050.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition South Loop  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	250	acre	\$800.00	\$200,000.00
		Grubbing	8140	25	acre	\$2,500.00	\$62,500.00
		Stripping (6" thick)	8140	200,000	cy	\$2.00	\$400,000.00
		Seeding	8140	250	acre	\$800.00	\$200,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	440,000	cy	\$4.00	\$1,760,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	22,000	cy	\$25.00	\$550,000.00
		Pipe Bedding (Select material, 4" thick)	8140	8,000	cy	\$40.00	\$320,000.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	410,000	cy	\$3.00	\$1,230,000.00
		Compacting Embedment Backfill	8140	32,000	cy	\$10.00	\$320,000.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	13,500	cy	\$9.00	\$121,500.00
		Pipe Bedding (Select material, 4" thick)	8140	720	cy	\$50.00	\$36,000.00
		Embedment & Cover Backfill	8140	1,200	cy	\$7.00	\$8,400.00
		Compacting Embedment Backfill	8140	1,450	cy	\$14.00	\$20,300.00
		(Urban trench will require traffic control, signage, and detours for duration of work)					
		(Urban Trench Length: 16,540 ft of 18" pipe)					
		Traffic Control/Detours Urban Excavation		4	mo	\$15,000.00	\$60,000.00
		Pavement & Base/Remove & Replace Urban Excavation		16,540	lin ft	\$60.00	\$992,400.00
		Utility Relocation & Repair Urban Excavation		16,540	lin ft	\$30.00	\$496,200.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$6,777,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition South Loop  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

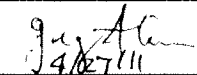
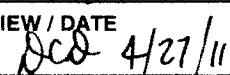
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		18" DR18 (CIOD) C905 PVC pipe	8140	22,000	lin ft	\$50.00	\$1,100,000.00
		18" dia. steel, 0.1442" thick (30 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 2,160,000lbs total steel	8140	72,000	lin ft	\$75.00	\$5,400,000.00
		18" dia. steel, 0.1730" thick (36 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 316,800 lbs total steel	8140	8,800	lin ft	\$80.00	\$704,000.00
		20" DR25 (CIOD) C905 PVC pipe	8140	11,000	lin ft	\$48.00	\$528,000.00
		20" DR18 (CIOD) C905 PVC pipe	8140	17,000	lin ft	\$60.00	\$1,020,000.00
		24" DR25 (CIOD) C905 PVC pipe	8140	45,000	lin ft	\$68.00	\$3,060,000.00
		<u>Isolation Valves (Manual operation):</u>					
		18" class 250 (psig) butterfly valve with operator	8140	1	ea	\$8,600.00	\$8,600.00
		18" class 300 (psig) butterfly valve with operator	8140	3	ea	\$15,500.00	\$46,500.00
		18" class 300 (psig) butterfly valve with operator	8140	1	ea	\$15,500.00	\$15,500.00
		20" class 150B (psig) butterfly valve with operator	8140	1	ea	\$6,700.00	\$6,700.00
		20" class 250 (psig) butterfly valve with operator	8140	1	ea	\$10,500.00	\$10,500.00
		24" class 150B (psig) butterfly valve with operator	8140	2	ea	\$9,000.00	\$18,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	9	ea	\$7,000.00	\$63,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$11,980,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/03/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition South Loop  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\SSummary Sheet	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		34	ea	\$6,800.00	\$231,200.00	
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	340	lin ft			
		- 3/4 inch gravel filter (4cy)	8140	135	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	3,200	lbs			
		- 2" Combination Air Valve (1 ea)	8140	34	ea			
		- 2" Ball Valve (1 ea)	8140	34	ea			
		<u>Blowoff Structures (to include):</u>		34	ea	\$8,300.00	\$282,200.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	270	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	40	cy			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	11	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	4,800	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	68	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	34	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	340	lin ft			
		- 6" Tee (1 ea)	8140	34	ea			
		- 6" Blind Flange (1 ea)	8140	34	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	3,200	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$308,300.00	\$308,300.00	
		*Assume 5% of cost for all steel items above						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$821,700.00</b>	
		<b>SUBTOTAL SOUTH LOOP</b>					<b>\$19,579,800.00</b>	

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 



<p><b>FEATURE:</b></p> <p><b>Arkansas Valley Conduit</b>  <b>Pipeline</b>  <b>Alternative 4 Max Day Condition</b>  <b>Valley Spur</b></p> <p><b>Civil</b></p>	<p><b>PROJECT:</b>  <b>Fryingpan-Arkansas Project</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <p><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Ssummary Sheet</p>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR18 (CIOD) C900 PVC pipe	8140	30,000	lin ft	\$6.80	\$204,000.00
		<u>Isolation Valves (Manual operation):</u>					
		4" class 250 (psig) butterfly valve with operator	8140	2	ea	\$2,100.00	\$4,200.00
		<u>Isolation Valve Manholes (to include):</u>	8140	2	ea	\$7,000.00	\$14,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$222,200.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>Jug Alt</i> J 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		6	ea	\$6,800.00	\$40,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	24	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	570	lbs		
		- 2" Combination Air Valve (1ea)	8140	6	ea		
		- 2" Ball Valve (1 ea)	8140	6	ea		
		<u>Blowoff Structures (to include):</u>		6	ea	\$8,300.00	\$49,800.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	48	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	7	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	850	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	12	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	6	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 6" Tee (1 ea)	8140	6	ea		
		- 6" Blind Flange (1 ea)	8140	6	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	570	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$90,600.00</b>
		<b>SUBTOTAL VALLEY SPUR</b>					<b>\$1,148,750.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>Justin Duke</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD 4/27/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Newdale/Grand Valley/W. Grand Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\COMMON\JMORRIS\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	27	acre	\$1,000.00	\$27,000.00
		Grubbing	8140	3	acre	\$2,500.00	\$7,500.00
		Stripping (6" thick)	8140	22,000	cy	\$2.00	\$44,000.00
		Seeding	8140	27	acre	\$1,500.00	\$40,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	37,000	cy	\$6.00	\$222,000.00
		Rock Excavation (0.25:1) outside urban area	8140	1,350	cy	\$35.00	\$47,250.00
		(20% of length is assumed partial rock exc.)					
		assume rippable material					
		Pipe Bedding (Select material, 4" thick)	8140	750	cy	\$50.00	\$37,500.00
		Embedment & Cover Backfill	8140	38,000	cy	\$5.00	\$190,000.00
		(does not include shrink/swell)					
		Compacting Embedment Backfill	8140	3,200	cy	\$14.00	\$44,800.00
		All earthwork quantities above are for the actual sloped trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$660,550.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED Nathan Lehman	BY Jeff Morris	CHECKED <i>Jeff Morris 4/27/11</i>
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>DED 4/27/11</i>

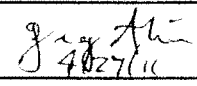

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Newdale/Grand Valley/W. Grand Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR14 (CIOD) C900 PVC pipe	8140	7,500	lin ft	\$7.50	\$56,250.00
		6" DR25 (CIOD) C900 PVC pipe	8140	13,500	lin ft	\$9.00	\$121,500.00
		<u>Isolation Valves (Manual operation):</u>					
		4" class 300 (psig) butterfly valve with operator	8140	1	ea	\$2,300.00	\$2,300.00
		6" class 150B (psig) butterfly valve with operator	8140	1	ea	\$1,300.00	\$1,300.00
		<u>Isolation Valve Manholes (to include):</u>	8140	2	ea	\$7,000.00	\$14,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$195,350.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED <i>grog</i> 4/27/11
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>DCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Newdale/Grand Valley/W. Grand Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		5	ea	\$6,800.00	\$34,000.00	
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	50	lin ft			
		- 3/4 inch gravel filter (4cy)	8140	20	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	475	lbs			
		- 2" Combination Air Valve (1ea)	8140	5	ea			
		- 2" Ball Valve (1 ea)	8140	5	ea			
		<u>Blowoff Structures (to include):</u>		5	ea	\$8,300.00	\$41,500.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	40	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	6	cy			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	700	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	10	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	5	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	50	lin ft			
		- 6" Tee (1 ea)	8140	5	ea			
		- 6" Blind Flange (1 ea)	8140	5	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	475	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00	
		*Assume 5% of cost for all steel items above						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation						
		No. 09SP101729 dated August 2009. Soils are assumed to be similar to those						
		encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>						<b>\$75,500.00</b>
		<b>SUBTOTAL NEWDALE SPUR</b>						<b>\$931,400.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Manzanola Spur  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%"> <tr> <td><b>WOID:</b></td> <td>AF523</td> <td><b>ESTIMATE LEVEL:</b></td> <td>Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>Jan-11</td> </tr> </table> <p><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet</p>	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" DR18 (CIOD) C900 PVC pipe	8140	1,650	lin ft	\$6.80	\$11,220.00
		<u>Isolation Valves (Manual operation):</u>					
		4" class 250 (psig) butterfly valve with operator	8140	1	ea	\$2,100.00	\$2,100.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$20,320.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b>  4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b>  4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Manzanola Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00	
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft			
		- 3/4 inch gravel filter (4cy)	8140	4	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs			
		- 2" Combination Air Valve (1ea)	8140	1	ea			
		- 2" Ball Valve (1 ea)	8140	1	ea			
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	1	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft			
		- 6" Tee (1 ea)	8140	1	ea			
		- 6" Blind Flange (1 ea)	8140	1	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00	
		*Assume 5% of cost for all steel items above						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>					\$15,100.00	
		<b>SUBTOTAL MANZANOLA SPUR</b>					\$104,930.00	

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. A. ...</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11

<p><b>FEATURE:</b></p> <p><b>Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Rocky Ford Spur</b></p> <p><b>Civil</b></p>	<p><b>PROJECT:</b> Fryingpan-Arkansas Project</p> <table border="1" style="width: 100%;"> <tr> <td><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <p><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx Summary Sheet</p>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	1	acre	\$1,000.00	\$1,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	990	cy	\$6.00	\$5,940.00
		Seeding	8140	1	acre	\$1,500.00	\$1,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	1,730	cy	\$9.00	\$15,570.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	65	cy	\$45.00	\$2,925.00
		Pipe Bedding (Select material, 4" thick)	8140	35	cy	\$50.00	\$1,750.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	1,750	cy	\$7.00	\$12,250.00
		Compacting Embedment Backfill	8140	155	cy	\$16.00	\$2,480.00
All earthwork quantities above are for the actual sloped trench.							
<b>SUBTOTAL THIS SHEET</b>							<b>\$45,915.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>Jeff Morris</i>
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>Dec 4/27/11</i>

**FEATURE:**  
 Arkansas Valley Conduit  
 Pipeline  
 Alternative 4 Max Day Condition  
 Rocky Ford Spur  
 Civil

**PROJECT:**  
 Fryingpan-Arkansas Project  
 WOID: AF523 ESTIMATE LEVEL: Appraisal  
 REGION: GP UNIT PRICE LEVEL: Jan-11  
 FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" DR14 (CIOD) C900 PVC pipe	8140	950	lin ft	\$11.00	\$10,450.00
		<u>Isolation Valves (Manual operation):</u>					
		6" class 300 (psig) butterfly valve with operator	8140	1	ea	\$2,400.00	\$2,400.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$19,850.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>[Signature]</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Rocky Ford Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL ROCKY FORD SPUR</b>					<b>\$80,865.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>J. Robertson</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition South Swink Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" dia. steel, 0.1345" thick (10 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 110,000 lbs total steel	8140	11,000	lin ft	\$40.00	\$440,000.00
		<u>Isolation Valves (Manual operation):</u>					
		6" class 300 (psig) butterfly valve with operator	8140	1	ea	\$2,400.00	\$2,400.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$449,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition South Swink Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		3	ea	\$6,800.00	\$20,400.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	12	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	285	lbs		
		- 2" Combination Air Valve (1ea)	8140	3	ea		
		- 2" Ball Valve (1 ea)	8140	3	ea		
		<u>Blowoff Structures (to include):</u>		3	ea	\$8,300.00	\$24,900.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	24	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	4	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	425	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	6	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	3	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 6" Tee (1 ea)	8140	3	ea		
		- 6" Blind Flange (1 ea)	8140	3	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	285	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$22,120.00	\$22,120.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$67,420.00</b>
		<b>SUBTOTAL S. SWINK SPUR</b>					<b>\$874,120.00</b>

QUANTITIES		PRICES	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED <i>Greg Hill</i> 4/27/11
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>DCD</i> 4/27/11





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Homestead Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Ssummary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 20,800 lbs total steel	8140	2,600	lin ft	\$34.00	\$88,400.00
		<u>Isolation Valves (Manual operation):</u>					
		4" class 300 (psig) butterfly valve with operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$97,700.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Homestead Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1ea)	8140	1	ea		
		- 2" Ball Valve (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$4,535.00	\$4,535.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$19,635.00</b>
		<b>SUBTOTAL HOMESTEAD SPIR</b>					<b>\$228,090.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> 
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> 

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	1	acre	\$1,000.00	\$1,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	525	cy	\$6.00	\$3,150.00
		Seeding	8140	1	acre	\$1,500.00	\$1,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	0	cy	\$0.00	\$0.00
		Rock Excavation (0.25:1) outside urban area	8140	0	cy	\$0.00	\$0.00
		(20% of length is assumed partial rock exc.) assume rippable material					
		Pipe Bedding (Select material, 4" thick)	8140	0	cy	\$0.00	\$0.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	0	cy	\$0.00	\$0.00
		Compacting Embedment Backfill	8140	0	cy	\$0.00	\$0.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items (Vertical Trench):</u>					
		Soil Excavation (box w/ supports, ~10' deep)	8140	2,000	cy	\$11.00	\$22,000.00
		Pipe Bedding (Select material, 4" thick)	8140	120	cy	\$50.00	\$6,000.00
		Embedment & Cover Backfill	8140	2,000	cy	\$7.00	\$14,000.00
		Compacting Embedment Backfill	8140	180	cy	\$18.00	\$3,240.00
		(Urban trench will require traffic control, signage, and detours for duration of work)					
		(Urban Trench Length: 3,154 ft of 12" pipe)					
		Traffic Control/Detours Urban Excavation		1	mo	\$15,000.00	\$15,000.00
		Pavement & Base/Remove & Replace Urban Excavation		3,154	lin ft	\$60.00	\$189,240.00
		Utility Relocation & Repair Urban Excavation		3,154	lin ft	\$30.00	\$94,620.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$352,250.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED Nathan Lehman	BY Jeff Morris	CHECKED <i>Jay H</i> 4/27/11
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>DCO</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Ssummary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		12" dia. steel, 0.1345" thick (19 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 60,800 lbs total steel	8140	3,200	lin ft	\$55.00	\$176,000.00
		<u>Isolation Valves (Manual operation):</u>					
		12" class 300 (psig) butterfly valve with operator	8140	1	ea	\$7,000.00	\$7,000.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$190,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris	CHECKED <i>[Signature]</i>
DATE PREPARED 03/09/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 4 Max Day Estimators Version REV2.xlsx\Summary Sheet	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00	
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft			
		- 3/4 inch gravel filter (4cy)	8140	4	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs			
		- 2" Combination Air Valve (1ea)	8140	1	ea			
		- 2" Ball Valve (1 ea)	8140	1	ea			
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	1	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft			
		- 6" Tee (1 ea)	8140	1	ea			
		- 6" Blind Flange (1 ea)	8140	1	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$9,150.00	\$9,150.00	
		*Assume 5% of cost for all steel items above						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$24,250.00</b>	
		<b>SUBTOTAL La JUNTA SPUR</b>					<b>\$566,500.00</b>	

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> <i>Jeff Morris</i> 4/27/11
<b>DATE PREPARED</b> 03/09/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 Loop	<b>PROJECT:</b> Fryngpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Commo\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 4 Loop Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	16	ea	\$35,000.00	\$560,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
<b>SUBTOTAL THIS SHEET</b>							<b>\$560,000.00</b>

QUANTITIES		PRICES	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 Loop Mechanical Equipment	<b>PROJECT:</b> Fryingspan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: Jan-11
	FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	16	ls	\$5,600.00	\$89,600.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	16	ea	\$800.00	\$12,800.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	16	ea	\$13,000.00	\$208,000.00
Subtotal - This Sheet							\$310,400.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>GR</i>	CHECKED <i>Steve [Signature]</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11



<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 4 Loop (Reach 3A)	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVG - Alt 4 Loop Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (16 vaults)</b>	86-68420				
		6-inch pressure reducing valve 16 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		16	ea	\$7,800.00	\$124,800.00
		6-inch manually-operated butterfly valve 4 valves, 90 lbs each AWWA Class 150-B		4	ea	\$1,300.00	\$5,200.00
		12 valves, 130 lbs each AWWA Class 250-B		12	ea	\$2,300.00	\$27,600.00
		6-inch buried square-nut operated butterfly valve with valve box 4 valves, 245 lbs each AWWA Class 150-B		4	ea	\$1,800.00	\$7,200.00
		12 valves, 285 lbs each AWWA Class 250-B		12	ea	\$2,800.00	\$33,600.00
		1-inch air valve combination air valve 16 air valves, 35 lbs each		16	ea	\$1,000.00	\$16,000.00
		<b>Total</b>					<b>\$214,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>GR</i>	CHECKED <i>Shawna M. G... 5/4/11</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>DCD 5/4/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Crossings Alternative 4, Max Day Condition Crossings  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 5 crossings.xlsx\Sheet1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Gravel Road Crossings (to include):</u>		10	ea	\$10,000.00	\$100,000.00
		Compacting backfill for road base (192 cy each)	8140	1,900	cy		
		Aggregate Base Course (6" thick) (22 cy each)	8140	220	cy		
		Gravel surfacing (6" thick) (23 cy each)	8140	230	cy		
		Temporary barricades & signage (1 each) (assume req'd for 2 days per crossing)	8140	10	ls		
		<u>Paved Road Crossings, 2 lane (to include):</u>		237	ea	\$25,000.00	\$5,925,000.00
		Compacting backfill for road base (194 cy each)	8140	46,000	cy		
		Asphalt base course (6" thick) (23 cy each)	8140	5,500	cy		
		Asphalt surfacing (6" thick) (23 cy each)	8140	5,500	cy		
		Temporary barricades & signage ( 1 each) (assume paved and req'd for 5 days ea)	8140	237	ls		
		<u>Major Road Crossings, 4 lanes (to include):</u>		35	ea	\$60,000.00	\$2,100,000.00
		Compacting backfill for road base (341 cy each)	8140	12,000	cy		
		Asphalt base course (6" thick) (39 cy each)	8140	1,400	cy		
		Asphalt surfacing (6" thick) (40 cy each)	8140	1,400	cy		
		Temp. detour, barricades, & signage (1000') (assume paved and req'd for 10 days ea)	8140	35	ls		
		<u>Interstate and Highway Crossings (to include):</u>		31	ea	\$300,000.00	\$9,300,000.00
		Horizontal Directional Drilling, 36" dia carrier pipe, min. cover depth is 20 ft, 500 lin. ft. each	8140	15,500	lin. ft.		
		48" dia casing pipe, welded steel 1/4" thick	8140	15,500	lin. ft.		
		Grout between borehole and casing pipe	8140	9,000	cy		
		<u>Railroad Crossing (to include):</u>		14	ea	\$120,000.00	\$1,680,000.00
		Horizontal Directional Drilling, 36" dia carrier pipe, min. cover depth is 20 ft, 150 lin. ft. each	8140	2,100	lin. ft.		
		48" dia casing pipe, welded steel 1/4" thick	8140	2,100	lin. ft.		
		Grout between borehole and casing pipe	8140	1,200	cy		
<b>SUBTOTAL THIS SHEET</b>							<b>\$19,105,000.00</b>

QUANTITIES		PRICES	
BY Michael Shepherd	CHECKED W. Chris Duke	BY <i>Jeff Morris and Michael Kramer</i>	CHECKED <i>me [signature]</i> <i>4/6/11</i>
DATE PREPARED 02/07/11	PEER REVIEW / DATE Dave Edwards	DATE PREPARED 04/06/11	PEER REVIEW / DATE <i>[signature]</i> 4/6/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Crossings Alternative 4, Max Day Condition Crossings  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 5 crossings.xlsx\Sheet1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Major River Crossing (to include):</u>		7	ea	\$1,000,000.00	\$7,000,000.00
		Horizontal Directional Drilling, 36" dia. Pipe, 48" (1000 lin. ft ea)	8140	7,000	lin ft		
		48" dia. Casing pipe, 1/4" thick (1000 lin. ft ea) average cover depth is 20 ft	8140	7,000	lin ft		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$7,000,000.00</b>
		<b>SUBTOTAL CROSSINGS ALTERNATIVE 4 THIS SHEET</b>					<b>\$26,105,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> <i>Jeff Morris and Michael Kramer</i> Jeff Morris and Michael Kramer	<b>CHECKED</b> <i>W. Chris Duke</i> W. Chris Duke
<b>DATE PREPARED</b> 02/07/11	<b>PEER REVIEW / DATE</b> Dave Edwards	<b>DATE PREPARED</b> 04/06/11	<b>PEER REVIEW / DATE</b> <i>W. Chris Duke 4/6/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 4 Max Day Condition Dewatering  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Dewaterings All Alts 031011.xlsx\Alt 5	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Well Set Up (to include):</u>			ea		
		Mobilization/Demobilization					
		Unwatering System- Power for dewatering system shall be sufficient to handle power for unwatering system at the same time					
		Installation of 15' deep wells, Pump 100 gpm					
		8 inch dia. 5 ft long slotted well screens					
		8 inch dia. well casing					
		Install 2 inch dia. monitoring well					
		Well Development					
		Well completion pumping test 4 hr					
		Discharge Piping if no settling pond needed					
		check valves					
		flow meters					
		sampling ports					
		Power					
		All necessary generators, wiring, connections fuel, maintenance, rentals, etc. to provide power to dewatering system					
		Well Removal and Decommissioning					
		<u>Well Set Ups per Reach/Spur:</u>					
		Duration of operation is approximately 2 months operating time per well					
		Reaches 1 through 4	8140	850	ea	\$3,500.00	\$2,975,000.00
		16.07 miles in saturated areas requiring 1 well per 100' of pipe trench					
		Spurs	8140	440	ea	\$3,500.00	\$1,540,000.00
		8.30 miles in saturated areas requiring 1 well per 100' of pipe trench					
<b>SUBTOTAL THIS SHEET</b>							<b>\$4,515,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Nathan Lehman	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>DCD</i> 04-08-11
<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Dave Edwards	<b>DATE PREPARED</b> 04/08/11	<b>PEER REVIEW / DATE</b> <i>DCD</i> 4/8/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Crossings Alternative 4 Max Day Condition Dust Abatement  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 2 dust abatement.xlsx\Sheet2		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Dust Abatement (to include):					
		Four Water Wagons, 4 drivers 6-8 passes per day ea., (0.06" water application/pass, 20' to 75' width) (duration estimated 3 years)	8140	400,000	MGal	\$10.00	\$4,000,000.00
		SUBTOTAL THIS SHEET					\$4,000,000.00

<b>QUANTITIES</b>				<b>PRICES</b>			
BY Michael Shepherd		CHECKED W. Chris Duke		BY Jeff Morris <i>[Signature]</i>		CHECKED MC <i>[Signature]</i> 9/24/11	
DATE PREPARED 02/24/11		PEER REVIEW / DATE Dave Edwards		DATE PREPARED 04/06/11		PEER REVIEW / DATE <i>[Signature]</i> 4/6/11	

<b>FEATURE:</b>  Arkansas Valley Conduit Interconnect (Alternatives 1, 3, 4) Option B Piping, Appurtenances <b>Mechanical</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Steel Pipe and Valves:</u>					
		<u>Steel Pipe:</u>					
		8" Sch. 20 steel pipe (23 lb/ft)	8420	35	lin ft	\$180.00	\$6,300.00
		4" Std. wall steel pipe (11 lb/ft)	8420	56	lin ft	\$90.00	\$5,040.00
		<u>Flanges</u>					
		90-inch pipe Dia: 8 AWWA class D flanges 1,872 pounds each	8420	14,976	pounds	\$4.00	\$59,904.00
		84-inch pipe Dia: 2 AWWA class D flanges 1,646 pounds each	8420	3,292	pounds	\$4.00	\$13,168.00
		48-inch pipe Dia: 2 AWWA class D flanges 460 pounds each	8420	920	pounds	\$5.00	\$4,600.00
		42-inch pipe Dia: 4 AWWA class D flanges 364 pounds each	8420	1,456	pounds	\$5.00	\$7,280.00
		36-inch pipe Dia: 6 AWWA class D flanges 261 pounds each	8420	1,566	pounds	\$5.00	\$7,830.00
		30-inch pipe Dia: 4 AWWA class D flanges 164 pounds each	8420	656	pounds	\$5.00	\$3,280.00
		8-inch pipe Dia: 10 AWWA class D flanges 15 pounds each	8420	150	pounds	\$5.00	\$750.00
		4-inch pipe Dia: 16 AWWA class D flanges 8 pounds each	8420	128	pounds	\$5.00	\$640.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$108,792.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	CHECKED Jeremy Lorberau	BY Jeff Morris	CHECKED <i>Shamuel Newberry 4/22/11</i>
DATE PREPARED 3/30/2011	PEER REVIEW / DATE Nathan Nakamoto 3/30/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>DCD 4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Interconnect (Alternatives 1, 3, 4) Option B Valves <b>Mechanical</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF641</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> <tr> <td colspan="2"><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1</td> </tr> </table>	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1	
<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal						
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11						
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1							

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Valves</u>					
		90" Dia.: AWWA class 150B 4 butterfly valves manually-operated 19,700 pounds each	8420	4	ea	\$150,000.00	\$600,000.00
		84" Dia: AWWA class 150B 1 butterfly valves manually-operated 16,400 pounds each	8420	1	ea	\$130,000.00	\$130,000.00
		48" Dia. AWWA class 150B 1 butterfly valves manually-operated 6,925 pounds each	8420	1	ea	\$36,000.00	\$36,000.00
		42" Dia. AWWA class 150B 2 butterfly valves manually-operated 4,544 pounds each	8420	2	ea	\$26,000.00	\$52,000.00
		36" Dia. AWWA class 150B 3 butterfly valve manually-operated 3,425 pounds each	8420	3	ea	\$17,000.00	\$51,000.00
		30" Dia. AWWA class 150B 2 butterfly valves manually-operated 2,435 pounds each	8420	2	ea	\$14,500.00	\$29,000.00
		8" Dia. AWWA class 150B 5 butterfly valves manually-operated 125 pounds each	8420	5	ea	\$1,900.00	\$9,500.00
		4" Dia. AWWA class 150B 8 butterfly valves manually-operated 71 pounds each	8420	8	ea	\$1,100.00	\$8,800.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$916,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	CHECKED Jeremy Lorberau	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Jeremy Lorberau</i> 4/22/11
DATE PREPARED 3/30/2011	PEER REVIEW / DATE Nathan Nakamoto 3/30/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>DCD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Dam N/S Interconnect Option B (Alternatives 1, 3, 4) Piping  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Sitework Items:</b>					
		Clearing (3 times trench width)	8140	6.1	acre	\$1,000.00	\$6,080.00
		Grubbing (10% of clearing area)	8140	0.61	acre	\$2,500.00	\$1,525.00
		Unwatering trench (Soil to avg. depth of 6', rock from 6' to 15.5', sandstone w/ minor fractures, groundwater el varies from surface to over 15')	8140	1	ls	Included in Cofferdam Worksheets	
		Water for dust abatement	8140	310	Mgal	\$20.00	\$6,200.00
		Stripping (3 times width, 6" thick)	8140	1650	cy	\$4.00	\$6,600.00
		Seeding	8140	6.1	acre	\$1,500.00	\$9,120.00
		<b>Earthwork Items:</b>					
		Soil excavation (1.5:1 slopes, avg. 6' deep)	8140	15500	cy	\$6.00	\$93,000.00
		Rock excavation (sandstone, 0.25:1 slopes, 4.4' to 13' deep, groundwater varies in depth, blast & excavator removal)	8140	5200	cy	\$35.00	\$182,000.00
		Pipe Bedding 4" < 54" dia., 6" > 54" dia.)	8140	450	cy	\$50.00	\$22,500.00
		Backfill	8140	17000	cy	\$5.00	\$85,000.00
		Compacted Backfill (Embedment)	8140	2600	cy	\$14.00	\$36,400.00
		<b>Pipe Items:</b>					
		90" ID Steel pipe, 0.375" thick, mortar lined & epoxy coated, Class 250 ft, (L=2109.6 ft)	8140	770000	lbs	\$1.90	\$1,463,000.00
		48" ID Steel pipe, 0.25" thick, mortar lined & epoxy coated, Class 125 ft, (L=117.6 ft)	8140	15500	lbs	\$2.30	\$35,650.00
		42" ID Steel pipe, 0.175" thick, mortar lined & epoxy coated, Class 125 ft, (L=90.3 ft)	8140	7300	lbs	\$2.35	\$17,155.00
		36" ID Steel pipe, 0.1501" thick, mortar lined & epoxy coated, Class 125 ft, (L=215.99 ft)	8140	13000	lbs	\$2.40	\$31,200.00
		30" ID Steel pipe, 0.1345" thick, mortar lined & epoxy coated, Class 125 ft, (L=60 ft)	8140	2700	lbs	\$2.80	\$7,560.00
		Cathodic Protection (5% of steel pipe cost)	8140	1	ls	\$78,000.00	\$78,000.00
		<b>Cofferdam: See Estimate done by 8312</b>	8312				
<b>SUBTOTAL THIS SHEET</b>							<b>\$2,080,990.00</b>

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED Steve Robertson	BY Jeff Morris	CHECKED [Signature]
DATE PREPARED 03/24/11	PEER REVIEW / DATE David Edwards 3/24/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE [Signature] 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit Dam N/S Interconnect Option B (Alternatives 1, 3, 4) Pipe Appurtenances  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF641</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Interconnect Estimate Worksheet steel pipe and valves Appraisal Quant Est 8420.xlsx\Template Sheet 1	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Pipe Appurtenances:</b>					
		90 x 30 x 90 Tee	8140	1	ea	\$9,300.00	\$9,300.00
		90 x 36 x 90 Tee	8140	1	ea	\$10,500.00	\$10,500.00
		30 x 30 x 30 Tee	8140	1	ea	\$9,000.00	\$9,000.00
		90 x 90 x 90 Tee	8140	1	ea	\$52,500.00	\$52,500.00
		90 x 90 x 42 Tee	8140	1	ea	\$15,750.00	\$15,750.00
		42 x 42 x 42 Tee	8140	1	ea	\$15,000.00	\$15,000.00
		48 x 36 x 42 Tee	8140	1	ea	\$28,500.00	\$28,500.00
		36 x 36 x 36 Tee	8140	1	ea	\$10,950.00	\$10,950.00
		84 x 90 x 84 x 42 Cross	8140	1	ea	\$135,000.00	\$135,000.00
		<b>Isolation Valve Manholes (to include):</b>					
		48" ID x 6" wall precast flat top with concentric ring, 36" access	8140	13	ea	\$4,500.00	\$58,500.00
		48" ID x 6" wall precast 36" riser					
		48" ID precast 72" base shell					
		36" dia. cast iron manhole cover and ring set					
		Cathodic Protection (5% of steel cost)	8140	1	ls	\$7,600.00	\$7,600.00
		<b>SUBTOTAL SHEET 1</b>					\$2,080,990.00
		<b>SUBTOTAL THIS SHEET</b>					\$345,000.00
		<b>SUBTOTAL INTERCONNECT PIPING AND APPURTENANCES</b>					\$2,425,990.00

QUANTITIES		PRICES	
BY Jeremy Lorberau	CHECKED Steve Robertson	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/24/11	PEER REVIEW / DATE David Edwards 3/24/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE DCD 4/22/11

<b>FEATURE:</b> Arkansas Valley Conduit Dam N/S Interconnect Option B (Alternatives 1, 3, 4) Sandbag Cofferdam	<b>PROJECT:</b> Fryingpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF641</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF641	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Sandbag Cofferdam Estimate.xls\Sandbag Cofferdam				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Foundation Preperation remove ~330 yds of river bottom sediment	86-68312	1	LS	\$30,000.00	\$30,000.00
		Furnish and install 914 - 3.5x3.5x3.5 ft Sandbags Fill sandbags with common excavation soils. Sand is available in the common exe.	86-68312	1,450	LS yd <sup>3</sup>	\$110,000.00 Included in lump sum above.	\$110,000.00
		Furnish and install 40 mil PVC membrane as the sand bags are being erected. (1st half of river excavation)	86-68312	810	yd <sup>2</sup>	Included in F&I sandbags item above.	
		Install and maintain 2 sump pumps for 1.5 months 2 pumps pumping at 20 gpm	86-68312	1	LS	\$35,000.00	\$35,000.00
		Remove and relocate 1,450 sandbags to the other side of river	86-68312	1	LS	\$75,000.00	\$75,000.00
		Furnish and install 40 mil PVC membrane as the sand bags are being erected. (2nd half of river excavation) - assuming 1st half membrane will not be reusable	86-68312	810	yd <sup>2</sup>	Included in remove and relocate sandbags item above.	
<b>SUBTOTAL THIS SHEET</b>							<b>\$250,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Paul Craig	CHECKED Ryan Davidson	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shannon</i> 4/22/11
DATE PREPARED 01/21/11	PEER REVIEW Allen Kiene	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>DD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Alternative 5 Summary Sheet	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 5 Summary Worksheet revised 5-11-12 - removed escalation.xls\EW SUM_Construction Cost		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Reach 1</b>					<b>\$18,600,770</b>
		Reach 1 Pipeline					\$11,401,800
		Arkansas River Pumping Plant					\$2,000,000
		Arkansas River Pumping Plant (WTP Clearwell)					\$1,200,000
		River Diversion Structure					\$1,763,800
		River Intake Regulating Tank (Sum of Civil Sheet and Hydraulic Sheet)					\$1,561,580
		River Diversion (Before WTP) Air Chamber (Sum of Civil Sheet and Hydraulic Sheet)					\$124,200
		St Charles Mesa (After WTP) Air Chamber (Sum of Civil Sheet and Hydraulic Sheet)					\$86,600
		River Diversion (Before WTP) Meter Vault (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$196,995
		St Charles Mesa (After WTP) Meter Vault (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$199,495
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$66,300
		<b>Reach 2</b>					<b>\$36,857,700</b>
		Reach 2 Pipeline					\$34,941,820
		Boone Spur Pipeline					\$451,400
		St. Charles Regulating Tank (Sum of Civil Sheet and Hydraulic Sheet)					\$1,261,580
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$202,900
		<b>Reach 3</b>					<b>\$51,977,581</b>
		Reach 3 Pipeline					\$31,033,225
		Manzanola Spur Pipeline					\$104,505
		Rocky Ford Spur Pipeline					\$111,991
		LaJunta Water Storage Tank (Sum of Civil Sheet + Hydraulic Sheet)					\$10,294,035
		Fowler Water Storage Tank (Sum of Civil Sheet + Hydraulic Sheet)					\$8,790,525
		Fowler Tank Access Road					\$693,100
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$950,200
		<b>Reach 4</b>					<b>\$35,581,930</b>
		Reach 4 Pipeline					\$32,404,900
		Hasty Spur Pipeline					\$69,390
		McClave Spur Pipeline					\$320,500
		Wiley Spur					\$1,329,640
		Las Animas Spur Pipeline					\$843,800
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$613,700

QUANTITIES		PRICES	
<b>BY</b> TSC Design Team	<b>CHECKED</b> TSC Design Team	<b>BY</b> TSC Estimating Team <i>S/1/12</i>	<b>CHECKED</b> <i>Mc g... 5/14/12</i>
<b>DATE PREPARED</b> Feb-Apr 2011	<b>PEER REVIEW / DATE</b> TSC Design Team	<b>DATE PREPARED</b> Feb-May 2011; Revised May 2012	<b>PEER REVIEW / DATE</b> <i>DCD 5/14/12</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Alternative 5 Summary Sheet		<b>PROJECT:</b> Fryingpan-Arkansas Project	
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	Jan-11
<b>FILE:</b>	H:\D8170\Comm\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 5 Summary Worksheet revised 5-11-12 - removed escalation.xls\EW SUM_Construction Cost		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Highway 96 Spur</b>					<b>\$5,960,670</b>
		Hwy 96 Pipeline					\$5,409,900
		96 Pipeline Co. Spur Pipeline					\$139,970
		Participant Tie-In Vaults (Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet)					\$410,800
		<b>Eads Spur (Includes May Valley)</b>					<b>\$9,393,369</b>
		Eads Spur Pipeline					\$4,968,800
		Eads and May Valley Spur Pipeline					\$2,272,900
		May Valley Spur Pipeline					\$1,272,000
		Eads and May Valley Booster Plant					\$430,000
		Eads and May Valley Air Chamber					\$95,600
		Eads and May Valley Meter and Vault					\$218,240
		Participant Tie-In Vaults*					\$136,029
		* Costs for 2 Tie-In Vaults were removed from the Total Costs of the Participant Tie-In Vaults for the Loop (below)					
		<b>Loop</b>					<b>\$20,979,393</b>
		Bent's Fort Spur Pipeline					\$83,107
		South Loop Spur Pipeline					\$18,781,050
		Swink Spur Pipeline					\$983,515
		Homestead Spur Pipeline					\$226,540
		LaJunta Spur Pipeline					\$565,110
		Participant Tie-In Vaults**					\$340,071
		** Costs = Sum of Civil Sheet + Mechanical Sheet + Hydraulic Sheet Minus the Costs for 2 Tie-In Vaults for the Eads Spur (Includes May Valley)					

<b>QUANTITIES</b>		<b>PRICES</b>	
BY TSC Design Team	CHECKED TSC Design Team	BY <i>J. M. [Signature]</i> TSC Estimating Team 5/14/12	CHECKED <i>Mc [Signature]</i> 5/14/12
DATE PREPARED Feb-Apr 2011	PEER REVIEW / DATE TSC Design Team	DATE PREPARED Feb-May 2011; Revised May 2012	PEER REVIEW / DATE <i>ACD 5/14/12</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Alternative 5 Summary Sheet	<b>PROJECT:</b> Fryingpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Alternative 5 Summary Worksheet revised 5-11-12 - removed escalation.xls]EW SUM_Construction Cost					

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<b>Crossings</b>					\$23,860,000
		<b>Dewatering</b>					\$3,570,000
		<b>Dust Abatement</b>					\$4,000,000
		<b>Water Treatment Plant**</b>					\$27,851,216
** Costs include updated February 16, 2012 costs from sub-consultant B&V (Estimate sheets dated 12-01-2011).							
		<b>Subtotal 1</b>					\$238,632,629.00
		Mobilization	5%	+/-			\$12,000,000.00
		<b>Subtotal 1 with Mobilization</b>					\$250,632,629.00
		Design Contingencies	12%	+/-			\$29,367,371.00
		Allowance for Procurement Strategies (APS)	0.0%	+/-			\$0.00
Type of solicitation assumed is: Full and open sealed bid competition							
		<b>CONTRACT COST</b>					\$280,000,000.00
		Construction Contingencies	25%	+/-			\$70,000,000.00
		<b>FIELD COST</b>					\$350,000,000.00
		Non-Contract Costs*					\$125,000,000.00
		<b>CONSTRUCTION COST</b>					\$475,000,000.00

\* Non-Contract Costs were produced and supplied by a joint effort of Eastern Colorado Area Office and Great Plains Region with input from the Technical Service Center.

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
<b>BY</b> TSC Design Team	<b>CHECKED</b> TSC Design Team	<b>BY</b> <i>[Signature]</i> TSC Estimating Team 5/14/12	<b>CHECKED</b> <i>[Signature]</i> 5/14/12
<b>DATE PREPARED</b> Feb-Apr 2011	<b>PEER REVIEW / DATE</b> TSC Design Team	<b>DATE PREPARED</b> Feb-May 2011; Revised May 2012	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 5/14/12

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Reach 1 from Intake to St. Charles Mesa WTP  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\DB170\Commo\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Reach 1	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	52	acre	\$1,000.00	\$52,000.00
		Grubbing	8140	6	acre	\$2,500.00	\$15,000.00
		Stripping (6" thick)	8140	42,000	cy	\$2.00	\$84,000.00
		Seeding	8140	52	acre	\$1,500.00	\$78,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	125,000	cy	\$4.00	\$500,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	8,600	cy	\$35.00	\$301,000.00
		Pipe Bedding (Select material, 4" thick)	8140	2,100	cy	\$40.00	\$84,000.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	105,000	cy	\$3.00	\$315,000.00
		Compacting Embedment Backfill	8140	17,000	cy	\$10.00	\$170,000.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items: (Vertical Trench)</u>					
		Soil Excavation (box w/supports, ~10'deep)	8140	27,000	cy	\$9.00	\$243,000.00
		Pipe Bedding (Select material, 4" thick)	8140	1,100	cy	\$40.00	\$44,000.00
		Embedment & Cover Backfill	8140	21,000	cy	\$5.00	\$105,000.00
		Compacting Embedment Backfill (urban trench length of 13,555 ft of 42" pipe)	8140	4,400	cy	\$14.00	\$61,600.00
		Traffic Control/Detours Urban Excavation		3	mo	\$15,000.00	\$45,000.00
		Pavement & Base/Remove & Replace Urban Excavation		13,555	lin ft	\$60.00	\$813,300.00
		Utility Relocation & Repair Urban Excavation		13,555	lin ft	\$30.00	\$406,650.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
<b>SUBTOTAL THIS SHEET</b>							<b>\$3,317,550.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris	<b>CHECKED</b> [Signature] 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> [Signature] 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Reach 1 from Intake to St. Charles Mesa WTP  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Reach 1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		42" dia. steel, 0.1750" thick (81 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=125 1,255,500 lbs total steel	8140	15,500	lin ft	\$190.00	\$2,945,000.00
		42" dia. steel, 0.1750" thick (81 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 1,863,000 lbs total steel	8140	23,000	lin ft	\$190.00	\$4,370,000.00
		<u>Isolation Valves (Manual operation):</u>					
		42" class 150B (psig) butterfly valve with operator	8140	2	ea	\$26,000.00	\$52,000.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	2	ea	\$7,000.00	\$14,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$7,381,000.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> JCR 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Reach 1 from Intake to St. Charles Mesa WTP  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Reach 1	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		8	ea	\$12,000.00	\$96,000.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	80	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	32	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	760	lbs		
		- 6" Combination Air Valve (1ea)	8140	8	ea		
		- 6" Butterfly Valves (1 ea)	8140	8	ea		
		<u>Blowoff Structures (to include):</u>		8	ea	\$8,300.00	\$66,400.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	64	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	10	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	3	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	1,150	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	16	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	8	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	80	lin ft		
		- 6" Tee (1 ea)	8140	8	ea		
		- 6" Blind Flange (1 ea)	8140	8	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	760	lbs		
		<u>Manholes-Burried: (to include)</u>					
		-36" pipe outlet (1 ea)	8140	15	ea	\$11,500.00	\$172,500.00
		-36" blind flange (1 ea)	8140	15	ea		
		<u>Cathodic Protection</u>	8140	1	ls	\$368,350.00	\$368,350.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					
		<b>SUBTOTAL REACH 1</b>					
							<b>\$703,250.00</b>
							<b>\$11,401,800.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Arkansas River Pumping Plant Alternative 5 Arkansas River to WTP (New St. Charles Mesa)	<b>PROJECT:</b> Fryington-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Commo\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Qty Est Arkansas River Pump Plant Alt 5_8420 Appraisal-Level.xlsx\Pump Itz		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural/Electrical/Mechanical:					
	1	Booster P.P. (Total Q = 31.76 cfs w/o wf)	86-68420	1	LS	\$2,000,000.00	\$2,000,000.00
		<b>Using "Appraisal Estimate of Pumping Plants and Switchyards" pumping plant program</b>					
		Booster P.P. - 8.199 cfs each; 205 feet TDH;					
		Unit Brake HP: 231.2 hp; Motors: 250 hp each @ 480 volts					
		4 pumps; vertical; supply voltage (69 kV)					
		Structures And Improvements					
		Waterways					
		Pumps and Motors					
		Accessory Electrical					
		Miscellaneous Equipment					
		Switchyards					
	1	WTP Clearwell P.P. (Total Q = 22.81 cfs w/o wf)	86-68420	1		\$1,200,000.00	\$1,200,000.00
		<b>Using "Appraisal Estimate of Pumping Plants and Switchyards" pumping plant program</b>					
		Clearwell P.P. - 5.704 cfs each; 130 feet TDH;					
		Unit Brake HP: 102.5 hp; Motors: 125 hp each @ 480 volts					
		4 pumps; vertical; supply voltage (69 kV)					
		Structures And Improvements					
		Waterways					
		Pumps and Motors					
		Accessory Electrical					
		Miscellaneous Equipment					
		Switchyards					
<b>SUBTOTAL ARKANSAS RIVER PUMPING PLANT</b>							<b>\$3,200,000.00</b>

QUANTITIES			PRICES		
BY	R. Zelenka	REVIEWED	BY	Jeff Morris	CHECKED
		Toby Turnage		<i>Jeff Morris</i>	<i>[Signature]</i> 4/6/11
DATE PREPARED	3/2/2011	PEER REVIEW / DATE	DATE PREPARED	03/15/11	PEER REVIEW / DATE
		Toby Turnage 3.9.11			<i>[Signature]</i> 3/31/11

<b>FEATURE:</b>  Arkansas Valley Conduit AVC River Diversion Structure Alternative 5, Max Day Condition  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> <tr> <td colspan="2"><b>FILE:</b> C:\Documents and Settings\jmorris\Desktop\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC River Diversion Structure.xlsx\Sheet1</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	<b>FILE:</b> C:\Documents and Settings\jmorris\Desktop\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC River Diversion Structure.xlsx\Sheet1	
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal						
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11						
<b>FILE:</b> C:\Documents and Settings\jmorris\Desktop\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC River Diversion Structure.xlsx\Sheet1							

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>work includes:</u>					
		Diversion, sheet piling, and dewatering system for care and maintenance of construction site.					
		A cast in place concrete trashrack/fishscreen/pipe inlet structure is to be built to divert water for the AVC project from the Arkansas River. For appraised level estimates similar quantities have been taken from solicitation number SP200016, Chiloquin Dam Removal and Pumping Plant. That project was on the Williamson River in Oregon diverting 60 cfs. Since the project is diverting 31.76 cfs applicable bid items from the Chiloquin diversion structure have been adjusted by applying a factor of 4/7. Estimators have applied a similar factor to items where appropriate to account for the smaller structure. Hydrology of the Williamson River, OR and the Arkansas River, Co are similar given the USGS flow data from measurement stations near both construction sites.					
		Mobilization and preparatory work	8140	1	ls		
						Included in summary sheet	
		Extended warranty for pipelines	8140	4	ls	\$0.00	\$0.00
		stripping	8140	1	ls	\$20,000.00	\$20,000.00
		Water removal & control at AVC pumping plant site	8140	1	ls	\$145,000.00	\$145,000.00
		Diversion & care of Arkansas River	8140	1	ls	\$90,000.00	\$90,000.00
		Pipe trench excavation	8140	4	ls	\$0.00	\$0.00
		Excavation for structures	8140	1,500	cy	\$18.00	\$27,000.00
		Compacted backfill & compacted embankment for structures	8140	4,000	cy	\$27.00	\$108,000.00
		pipe trench backfill	8140	4	ls	\$0.00	\$0.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$390,000.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 04-08-11
<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Dave Edwards	<b>DATE PREPARED</b> 04/08/11	<b>PEER REVIEW / DATE</b> NCA 4/8/11

<b>FEATURE:</b>  Arkansas Valley Conduit AVC River Diversion Structure Alternative 5, Max Day Condition  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> C:\Documents and Settings\jmorris\Desktop\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC River Diversion Structure.xlsx\Sheet1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Excavation for access road	8140	1	ls	\$18,000.00	\$18,000.00
		Compacted fill & compacted embankment for access road	8140	1	ls	\$23,000.00	\$23,000.00
		Riprap	8140	1	ls	\$30,000.00	\$30,000.00
		coarse gravel protection	8140	1	ls	\$5,000.00	\$5,000.00
		Steel sheet pile cofferdam for MPID pumping plant construction	8140	1	ls	\$320,000.00	\$320,000.00
		42-inch diameter PVC pressure pipe	8140	4	ls	\$0.00	\$0.00
		Drain system	8140	1	ls	\$11,000.00	\$11,000.00
		Gravel surfacing	8140	1	ls	\$36,000.00	\$36,000.00
		Chain link fence	8140	1	ls	\$18,000.00	\$18,000.00
		W-beam guardrails	8140	1	ls	\$68,000.00	\$68,000.00
		Placing topsoil & seeding	8140	1	ls	\$32,000.00	\$32,000.00
		cast in place concrete in structures	8140	570	cy	\$810.00	\$461,700.00
		concrete reinforcement	8140	74,000	lb	\$1.20	\$88,800.00
		trashrack	8140	1	ls	\$5,600.00	\$5,600.00
		stoplog seats & guides	8140	1	ls	\$14,500.00	\$14,500.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$1,131,600.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>WCD</i> 04-08-11
<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Dave Edwards	<b>DATE PREPARED</b> 04/08/11	<b>PEER REVIEW / DATE</b> <i>WCD</i> 4/8/11

<b>FEATURE:</b>  Arkansas Valley Conduit AVC River Diversion Structure Alternative 5, Max Day Condition  Civil	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> <tr> <td colspan="2"><b>FILE:</b> C:\Documents and Settings\jmorris\Desktop\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC River Diversion Structure.xlsx\Sheet1</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	<b>FILE:</b> C:\Documents and Settings\jmorris\Desktop\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC River Diversion Structure.xlsx\Sheet1	
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal						
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11						
<b>FILE:</b> C:\Documents and Settings\jmorris\Desktop\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC River Diversion Structure.xlsx\Sheet1							

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Fishscreens	8140	1	ls	\$82,000.00	\$82,000.00
		Airburst cleaning system	8140	1	ls	\$130,000.00	\$130,000.00
		Water-level measuring devices	8140	1	ls	\$27,000.00	\$27,000.00
		Fence grounding	8140	1	ls	\$3,200.00	\$3,200.00
<b>SUBTOTAL THIS SHEET</b>							\$242,200.00
<b>SUBTOTAL AVC RIVER DIVERSION STRUCTURE</b>							<b>\$1,763,800.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 09-08-11
<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> Dave Edwards	<b>DATE PREPARED</b> 04/08/11	<b>PEER REVIEW / DATE</b> DCQ 4/8/11

<b>FEATURE:</b>  Arkansas Valley Conduit River Intake Regulating Tank Alternative 5 Reach 1: From Intake to St. Charles Mesa WTP	<b>PROJECT:</b> Fryington-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC -River Intake Reg Tank Alt 5 Appraisal Quant Est 8120.xlsx\CivilStructural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	265	yd <sup>3</sup>	\$6.00	\$1,590.00
		Access Roads	86-68120	40	yd <sup>3</sup>	\$6.00	\$240.00
		Excavation (tank foundation)	86-68120	105	yd <sup>3</sup>	\$25.00	\$2,625.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	85	yd <sup>3</sup>	\$25.00	\$2,125.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	230	yd <sup>3</sup>	\$40.00	\$9,200.00
		Access Roads	86-68120	40	yd <sup>3</sup>	\$40.00	\$1,600.00
		Chain Link Fence	86-68120	480	lin ft	\$40.00	\$19,200.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. One 20' wide double swing gate					
		Reinforced Concrete for Pad & Stem Foundation	86-68120	1	ls	\$25,000.00	\$25,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 20 miles					
		Concrete: 27 yd <sup>3</sup>					
		Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 3535 lbs					
		Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 7.5 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$61,580.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Stewart Mackay 4/22/11</i>
DATE PREPARED 03/30/11	PEER REVIEW / DATE Paul Ruchti 3/31/11	DATE PREPARED 04/11/11	PEER REVIEW / DATE <i>DD 4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit River Intake Regulating Tank Alternative 5 Reach 1: From Intake to St. Charles Mesa WTP	<b>PROJECT:</b> Fryngpan-Arkansas Project								
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">WOID:</td> <td style="width:20%;">AF523</td> <td style="width:30%;">ESTIMATE LEVEL:</td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td>REGION:</td> <td>GP</td> <td>UNIT PRICE LEVEL:</td> <td>11-Jan</td> </tr> </table>	WOID:	AF523	ESTIMATE LEVEL:	Appraisal	REGION:	GP	UNIT PRICE LEVEL:	11-Jan
WOID:	AF523	ESTIMATE LEVEL:	Appraisal						
REGION:	GP	UNIT PRICE LEVEL:	11-Jan						
	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC -River Intake Reg Tank Alt 5 Appraisal Quant Est 8420.xlsx\Hydraulic equip								

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		<b>Steel regulating tank</b>					
		1 - 1,250,000-gallon steel regulating tank AWWA D100 compliance tank height 85 feet inside diameter 50 feet	86-68420	1	ls	\$1,500,000.00	\$1,500,000.00
		SUBTOTAL THIS SHEET					\$1,500,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Sharon McLean</i> 4/25/11
DATE PREPARED 3/30/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE <i>DCD</i> 4/25/11



<b>FEATURE:</b>  Arkansas Valley Conduit River Diversion Air Chamber (PP before WTP) Alternative 5 Reach 1: From Intake to St. Charles Mesa WTP	<b>PROJECT:</b> Fryngpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: 11-Jan
	FILE: H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - River Diversion Air Chamber Alt 5 Appraisal Quant Est 8420.xlsx\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		<b>Air Chamber</b>	86-68420	1	ls	\$120,000.00	\$120,000.00
		4,702-gallon (629 cubic feet)					
		steel air chamber					
		cylinder height 14 feet					
		cylinder diameter 7 feet					
		air chamber weight 11,700 pounds					
		mounted air compressor 12 horsepower					
		SUBTOTAL THIS SHEET					\$120,000.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shanna New York</i> 4/23/11
DATE PREPARED 4/4/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>Doc</i> 4/22/11



<p><b>FEATURE:</b></p> <p>Arkansas Valley Conduit                  St. Charles Mesa Air Chamber (PP after WTP)                  Alternative 5                  Reach 1: From Intake to St. Charles Mesa WTP</p>	<p><b>PROJECT:</b></p> <p>Fryington-Arkansas Project</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 30%;">WOID:</td> <td style="width: 30%;">AF523</td> <td style="width: 20%;">ESTIMATE LEVEL:</td> <td style="width: 20%;">Appraisal</td> </tr> <tr> <td>REGION:</td> <td>GP</td> <td>UNIT PRICE LEVEL:</td> <td>Jan-11</td> </tr> </table> <p>FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC -St Charles Mesa Air Chamber Alt 5 Appraisal Quant Est 8120.xlsx\CivilStructural</p>	WOID:	AF523	ESTIMATE LEVEL:	Appraisal	REGION:	GP	UNIT PRICE LEVEL:	Jan-11
WOID:	AF523	ESTIMATE LEVEL:	Appraisal						
REGION:	GP	UNIT PRICE LEVEL:	Jan-11						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Foundation</b> (slab-on-grade foundation type) (Assume: $f_c=4,500$ psi) Source: Pueblo, CO 20 miles Concrete: 2.3 yd3 Reinforcement (Assume 135 lb/yd3): 310 lbs Cement (Assume: 0.282 ton/yd3): 0.6 tons	86-68120	1	ls	\$2,600.00	\$2,600.00
		<b>SUBTOTAL THIS SHEET</b>					<b>\$2,600.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris	CHECKED <i>Sharon MacGregor</i> 4/22/11
DATE PREPARED 04/04/11	PEER REVIEW / DATE Paul Ruchti 4/5/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>Red</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit St. Charles Mesa Air Chamber (PP after WTP) Alternative 5 Reach 1: From Intake to St. Charles Mesa WTP	<b>PROJECT:</b> Fryngpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b></td> <td style="width:20%;">AF523</td> <td style="width:30%;"><b>ESTIMATE LEVEL:</b></td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td><b>REGION:</b></td> <td>GP</td> <td><b>UNIT PRICE LEVEL:</b></td> <td>11-Jan</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC -St Charles Mesa Air Chamber Alt 5 Appraisal Quant Est 8420.xlsx\Civil\Structural	<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal	<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	11-Jan
<b>WOID:</b>	AF523	<b>ESTIMATE LEVEL:</b>	Appraisal						
<b>REGION:</b>	GP	<b>UNIT PRICE LEVEL:</b>	11-Jan						

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Air Chamber</b>	86-68420	1	ls	\$84,000.00	\$84,000.00
		1,861-gallon (249 cubic feet) steel air chamber cylinder height 11 feet cylinder diameter 5 feet air chamber weight 8,400 pounds mounted air compressor 2.5 horsepower					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$84,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 4/4/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit River Diversion Meter Vault (PP before WTP) Alternative 5 Reach 1: From Intake to St. Charles Mesa WTP	<b>PROJECT:</b> Fryngpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: Jan-11
	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - River Diversion Meter Vault Alt 5 Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Vaults</b> (Assumed: 14' W x 17' L x 18' D) (Assume: f <sub>c</sub> =4,500 psi) Source: Pueblo, CO 20 miles Concrete: 80 yd3 Reinforcement (Assume 135 lb/yd3): 10,900 lbs Cement (Assume: 0.282 ton/yd3): 23 tons	86-68120	1	ls	\$70,000.00	\$70,000.00
		<b>Access &amp; Service Hatches</b> Access hatch two 3' x3' (The Bilco Co Type Q single leaf) Service hatch two 5' x 10' (The Bilco Co Type JD special sizes)	86-68120	1	ls	\$36,000.00	\$36,000.00
		<b>Miscellaneous Metalwork</b> (40-D-6601, Ladder Type 2)	86-68120	315	lbs	\$13.00	\$4,095.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$110,095.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Sharon Mayhew</i> 4/22/11
DATE PREPARED 04/06/11	PEER REVIEW / DATE Paul Ruchti 4/8/11	DATE PREPARED 04/20/11	PEER REVIEW / DATE <i>DCD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit River Div. <del>and St. Charles Mesa</del> Meter Vaults Alternative 5 Reach 1: From intake to St Charles Mesa WTP Mechanical Equipment	<b>PROJECT:</b> Fryirpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume meter vault size=11.25'x11.25'x16.7'd					
		assume 1 vault @ River PP					
		assume 1 vault @ St Charles Mesa PP					
	1	Meter vault ventilation equipment	86-68410	1 <del>-2</del>	ls	\$6,600.00	<del>-\$13,200.00</del>
		list of equipment per vault:					<b>\$6,600.00</b>
		(1)-steel centrifugal fan, 450 cfm @ 0.25" w.g.s.p., 1/6 Hp					
		(16 ft)-8" diam, 16 ga., galv. steel duct					
		(2)-8" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-8"x12" reducer, sch 20, galv. steel pipe					
		(4)-12" diam, stainless steel bird screens					
		(2)-8"x12" reducer, 16 ga, galv. steel duct					
		(2)-8" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/6 Hp					
		(1)-fan wall switch and box					
	2	Meter vault heater	86-68410	<del>-2</del>	ea	\$800.00	<del>-\$1,600.00</del>
		3 kW unit heater		1			<b>\$800.00</b>
		thermostatically controlled					
	3	Flowmeter	86-68410	1	ea	\$65,000.00	\$65,000.00
		8-path ultrasonic, 42" diam					
		16 transducers with cables and 1 transmitter console					
	4	Flowmeter	86-68410	<del>1</del>	<del>ea</del>	<del>\$65,000.00</del>	<del>-\$65,000.00</del>
		8-path ultrasonic, 36" diam					
		16 transducers with cables and 1 transmitter console					
Subtotal - This Sheet							<b>\$72,400.00</b>
<del>-\$144,800.00</del>							

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Scott</i> 5/3/11
DATE PREPARED 4/7/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>NCD</i> 5/3/11



<b>FEATURE:</b>  Arkansas Valley Conduit St. Charles Mesa Meter Vault (PP after WTP) Alternative 5 Reach 1: From Intake to St. Charles Mesa WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: Jan-11
	FILE: H:\D8170\Commom\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - St. Charles Mesa Meter Vault Alt 5 Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Vaults</b> (Assumed: 14' W x 17' L x 18' D) (Assume: f <sub>c</sub> =4,500 psi) Source: Pueblo, CO 20 miles Concrete: 80 yd <sup>3</sup> Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 10,900 lbs Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 23 tons	86-68120	1	ls	\$70,000.00	\$70,000.00
		<b>Access &amp; Service Hatches</b> Access hatch two 3' x3' (The Bilco Co Type Q single leaf) Service hatch two 5' x 10' (The Bilco Co Type JD special sizes)	86-68120	1	ls	\$36,000.00	\$36,000.00
		<b>Miscellaneous Metalwork</b> (40-D-6601, Ladder Type 2)	86-68120	315	lbs	\$13.00	\$4,095.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$110,095.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shawn K... 4/22/11</i>
DATE PREPARED 04/06/11	PEER REVIEW / DATE Paul Ruchti 4/8/11	DATE PREPARED 04/20/11	PEER REVIEW / DATE <i>DEP 4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit <del>River Div. and St. Charles Mesa Meter Vaults</del> Alternative 5 Reach 1: From intake to St Charles Mesa WTP Mechanical Equipment	<b>PROJECT:</b> Fryngpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume meter vault size=11.25'x11.25'x16.7'd					
		assume 1 vault @ River PP					
		assume 1 vault @ St Charles Mesa PP					
	1	Meter vault ventilation equipment	86-68410	<span style="border: 1px solid red; padding: 2px;">1</span> <del>2</del>	ls	\$6,600.00	<del>-\$13,200.00</del>
		list of equipment per vault:					<span style="border: 1px solid red; padding: 2px;">\$6,600.00</span>
		(1)-steel centrifugal fan, 450 cfm @ 0.25" w.g.s.p., 1/6 Hp					
		(16 ft)-8" diam, 16 ga., galv. steel duct					
		(2)-8" diam, sch 20, galv., L.R. 180 deg. steel pipe returns					
		(2)-8"x12" reducer, sch 20, galv. steel pipe					
		(4)-12" diam, stainless steel bird screens					
		(2)-8"x12" reducer, 16 ga, galv. steel duct					
		(2)-8" diam galv steel motor-operated damper					
		(1)-fan motor starter for 1/6 Hp					
		(1)-fan wall switch and box					
	2	Meter vault heater	86-68410	<del>2</del>	ea	\$800.00	<del>-\$1,600.00</del>
		3 kW unit heater		<span style="border: 1px solid red; padding: 2px;">1</span>			<span style="border: 1px solid red; padding: 2px;">\$800.00</span>
		thermostatically controlled					
	3	Flowmeter	86-68410	<del>1</del>	ea	<del>\$65,000.00</del>	<del>-\$65,000.00</del>
		8-path ultrasonic, 42" diam					
		16 transducers with cables and 1 transmitter console					
	4	Flowmeter	86-68410	1	ea	\$65,000.00	\$65,000.00
		8-path ultrasonic, 36" diam					
		16 transducers with cables and 1 transmitter console					
Subtotal - This Sheet							<span style="border: 1px solid red; padding: 2px;">\$72,400.00</span>
<del>-\$144,800.00</del>							

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Scott M. Jones</i> 5/3/11
DATE PREPARED 4/7/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD</i> 5/3/11

<b>FEATURE:</b>  Arkansas Valley Conduit St Charles Mesa Meter Vault (PP after WTP) Alternative 5 Reach 1: From Intake to St. Charles Mesa WTP	<b>PROJECT:</b> Fryngpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Commo\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Valve and Meter Vaults\8420 - Valves\AVC - St Charles Mesa Meter Vault Alt 5 Appraisal Quant Est 8420.xls\Hydraulic equip	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	Hydraulic equipment/Mechanical					
	<b>Meter Vault</b>	86-68420				
	36-inch manually-operated butterfly valve		1	ea	\$17,000.00	\$17,000.00
	1 valve					
	AWWA Class 150-B					
<b>SUBTOTAL THIS SHEET</b>						<b>\$17,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>JD</i>
DATE PREPARED 4/27/11	PEER REVIEW / DATE 04/14/11	DATE PREPARED 04/27/11	PEER REVIEW / DATE <i>DCD</i> 4/30/11



<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Reach 1: from Intake to St. Charles Mesa WTP	<b>PROJECT:</b> Fryngpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 5 R1 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	1	ea	\$35,000.00	\$35,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$35,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul M Ruchti	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/30/11
DATE PREPARED 04/15/11	PEER REVIEW / DATE 04/19/11	DATE PREPARED 04/26/11	PEER REVIEW / DATE <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Reach 1: from Intake to St. Charles Mesa WTP Mechanical Equipment	<b>PROJECT:</b> Fryngpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: Jan-11
	FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	1	ls	\$5,600.00	\$5,600.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	1	ea	\$800.00	\$800.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	1	ea	\$13,000.00	\$13,000.00
Subtotal - This Sheet							\$19,400.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Dec 4/30/11</i>
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>Dec 4/30/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Reach 1: from Intake to St. Charles Mesa WTP	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 5 R1 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		Participant Tie-In Vaults (1 vault)	86-68420				
		6-inch pressure reducing valve 1 valve, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		1	ea	\$7,800.00	\$7,800.00
		6-inch manually-operated butterfly valve 1 valve, 90 lbs each AWWA Class 150-B		1	ea	\$1,300.00	\$1,300.00
		6-inch buried square-nut operated butterfly valve with valve box 1 valves, 245 lbs each AWWA Class 150-B		1	ea	\$1,800.00	\$1,800.00
		1-inch air valve combination air valve 1 air valve, 35 lbs each		1	ea	\$1,000.00	\$1,000.00
		<b>Total</b>					<b>\$11,900.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shamala</i> 5/4/11
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE DED 5/4/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Reach 2 from WTP to Fowler N. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Reach 2	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Sitework Items:</u>						
		Clearing (3 times trench width)	8140	310	acre	\$800.00	\$248,000.00	
		Grubbing	8140	31	acre	\$2,500.00	\$77,500.00	
		Stripping (6" thick)	8140	250,000	cy	\$2.00	\$500,000.00	
		Seeding	8140	310	acre	\$800.00	\$248,000.00	
		<u>Earthwork Items:</u>						
		Soil Excavation (1.5:1) outside urban area	8140	680,000	cy	\$4.00	\$2,720,000.00	
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	45,000	cy	\$25.00	\$1,125,000.00	
		Pipe Bedding (Select material, 4" thick)	8140	12,500	cy	\$30.00	\$375,000.00	
		Embedment & Cover Backfill (does not include shrink/swell)	8140	670,000	cy	\$3.00	\$2,010,000.00	
		Compacting Embedment Backfill	8140	83,000	cy	\$8.00	\$664,000.00	
		All earthwork quantities above are for the actual sloped trench.						
		<u>Urban Earthwork Items: (Vertical Trench)</u>						
		Soil Excavation (box w/supports, ~10'deep)	8140	7,200	cy	\$11.00	\$79,200.00	
		Pipe Bedding (Select material, 4" thick)	8140	310	cy	\$50.00	\$15,500.00	
		Embedment & Cover Backfill	8140	5,800	cy	\$7.00	\$40,600.00	
		Compacting Embedment Backfill	8140	1,100	cy	\$14.00	\$15,400.00	
		(urban trench length of 4,123ft of 36" pipe)						
		Traffic Control/Detours Urban Excavation		1	mo	\$15,000.00	\$15,000.00	
		Pavement & Base/Remove & Replace Urban Excavation		4,123	lin ft	\$60.00	\$247,380.00	
		Utility Relocation & Repair Urban Excavation		4,123	lin ft	\$30.00	\$123,690.00	
		All urban earthwork quantities above are for a straight wall "vertical" trench.						
		<b>SUBTOTAL THIS SHEET</b>						<b>\$8,504,270.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> SCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Reach 2 from WTP to Fowler N. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Reach 2	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		36" dia. steel, 0.2500" thick (100 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=500 8,800,000 lbs total steel	8140	88,000	lin ft	\$155.00	\$13,640,000.00
		36" dia. steel, 0.1707" thick (68 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=375 149,600 lbs total steel	8140	2,200	lin ft	\$145.00	\$319,000.00
		36" dia. steel, 0.1501" thick (60 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 2,580,000 lbs total steel	8140	43,000	lin ft	\$140.00	\$6,020,000.00
		36" dia. steel, 0.1501" thick (60 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=125 306,000 lbs total steel	8140	5,100	lin ft	\$140.00	\$714,000.00
		30" dia. steel, 0.1428" thick (48 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=375 840,000 lbs total steel	8140	17,500	lin ft	\$125.00	\$2,187,500.00
		30" dia. steel, 0.1345" thick (45 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 364,500 lbs total steel	8140	8,100	lin ft	\$125.00	\$1,012,500.00
		<u>Isolation Valves (Manual operation):</u>					
		36" class 300 (psig) butterfly valve with operator	8140	3	ea	\$43,000.00	\$129,000.00
		36" class 250 (psig) butterfly valve with operator	8140	0	ea	\$29,000.00	\$0.00
		36" class 150B (psig) butterfly valve with operator	8140	2	ea	\$17,000.00	\$34,000.00
		30" class 250 (psig) butterfly valve with operator	8140	0	ea	\$23,000.00	\$0.00
		30" class 150B (psig) butterfly valve with operator	8140	2	ea	\$14,500.00	\$29,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	7	ea	\$7,000.00	\$49,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$24,134,000.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>3/30/11</i>
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Reach 2 from WTP to Fowler N. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Reach 2	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		31	ea	\$7,500.00	\$232,500.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	310	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	125	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	3,000	lbs		
		- 3" Combination Air Valve (1ea)	8140	31	ea		
		- 3" Ball Valves (1 ea)	8140	31	ea		
		<u>Blowoff Structures (to include):</u>		31	ea	\$8,300.00	\$257,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	250	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	37	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	10	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	4,400	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	62	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	31	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	310	lin ft		
		- 6" Tee (1 ea)	8140	31	ea		
		- 6" Blind Flange (1 ea)	8140	31	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	3,000	lbs		
		<u>Manholes-Burried: (to include)</u>					
		-36" pipe outlet (1 ea)	8140	53	ea	\$11,500.00	\$609,500.00
		-36" blind flange (1 ea)	8140	53	ea		
		<u>Cathodic Protection</u>	8140	1	ls	\$1,204,250.00	\$1,204,250.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					
		<b>SUBTOTAL REACH 2</b>					
							<b>\$2,303,550.00</b>
							<b>\$34,941,820.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Boone Spur		<b>PROJECT:</b> Fryingpan-Arkansas Project	
<b>Civil</b>		<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
		<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
		<b>FILE:</b> H:\D8170\Common\JMorriss\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Boone Spur	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		6" DR18 (CIOD) C900 PVC pipe	8140	9,200	lin ft	\$10.00	\$92,000.00
		<u>Isolation Valves (Manual operation):</u>					
		6" class 250 (psig) butterfly valve with operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$101,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Boone Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Boone Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		2	ea	\$6,800.00	\$13,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	190	lbs		
		- 2" Combination Air Valve (1ea)	8140	2	ea		
		- 2" Ball Valves (1 ea)	8140	2	ea		
		<u>Blowoff Structures (to include):</u>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	16	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	3	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	280	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	4	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1 ea)	8140	2	ea		
		- 6" Blind Flange (1 ea)	8140	2	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	190	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$30,200.00</b>
		<b>SUBTOTAL BOONE SPUR</b>					<b>\$451,400.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit St. Charles Mesa Regulating Tank Alternative 5 Reach 2: From WTP to Fowler N. Tank	<b>PROJECT:</b> Fryington-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - River Intake Reg Tank Alt 5 Appraisal Quant Est 8120.xlsx\CivilStructural	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	265	yd <sup>3</sup>	\$6.00	\$1,590.00
		Access Roads	86-68120	40	yd <sup>3</sup>	\$6.00	\$240.00
		Excavation (tank foundation)	86-68120	105	yd <sup>3</sup>	\$25.00	\$2,625.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	85	yd <sup>3</sup>	\$25.00	\$2,125.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	230	yd <sup>3</sup>	\$40.00	\$9,200.00
		Access Roads	86-68120	40	yd <sup>3</sup>	\$40.00	\$1,600.00
		Chain Link Fence	86-68120	480	lin ft	\$40.00	\$19,200.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. One 20' wide double swing gate					
		Reinforced Concrete for Pad & Stem Foundation	86-68120	1	ls	\$25,000.00	\$25,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 20 miles					
		Concrete: 27 yd <sup>3</sup>					
		Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 3535 lbs					
		Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 7.5 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$61,580.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i>
DATE PREPARED 03/30/11	PEER REVIEW / DATE Paul Ruchti 3/31/11	DATE PREPARED 04/11/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit St. Charles Mesa Regulating Tank Alternative 5 Reach 2: From WTP to Fowler N. Tank	<b>PROJECT:</b> Fryinpaon-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> 11-Jan	
	<b>FILE:</b> H:\DB170\Commo\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - St Charles Mesa Reg Tank Alt 5 Appraisal Quant Est 8420.xlsx\Hydraulic equip		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		<b>Steel regulating tank</b>					
		1 - 960,000-gallon steel regulating tank AWWA D100 compliance tank height 65 feet inside diameter 50 feet	86-68420	1	ls	\$1,200,000.00	\$1,200,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$1,200,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shawn [Signature]</i> 4/25/11
DATE PREPARED 3/30/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE <i>Dec</i> 4/25/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Reach 2: from WTP to Fowler N. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Commom\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 5 R2 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	3	ea	\$35,000.00	\$105,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$105,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Rucht	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Reach 2: from WTP to Fowler N. Tank Mechanical Equipment	<b>PROJECT:</b> Fryngpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	3	ls	\$5,600.00	\$16,800.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	3	ea	\$800.00	\$2,400.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	3	ea	\$13,000.00	\$39,000.00
Subtotal - This Sheet							\$58,200.00

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>Gur</i>	CHECKED <i>Shirley Mac</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DRD</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Reach 2: from WTP to Fowler N. Tank	<b>PROJECT:</b> Fryngpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 5 R2 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (3 vaults)</b>	86-68420				
		6-inch pressure reducing valve 3 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		3	ea	\$7,800.00	\$23,400.00
		6-inch manually-operated butterfly valve 1 valve, 90 lbs each AWWA Class 150-B		1	ea	\$1,300.00	\$1,300.00
		2 valves, 130 lbs each AWWA Class 250-B		2	ea	\$2,300.00	\$4,600.00
		6-inch buried square-nut operated butterfly valve with valve box 1 valve, 245 lbs each AWWA Class 150-B		1	ea	\$1,800.00	\$1,800.00
		2 valves, 285 lbs each AWWA Class 250-B		2	ea	\$2,800.00	\$5,600.00
		1-inch air valve combination air valve 3 air valves, 35 lbs each		3	ea	\$1,000.00	\$3,000.00
		<b>Total</b>					<b>\$39,700.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shannon May 5/4/11</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>Dec 5/4/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Reach 3 from Fowler N. tank to La Junta N. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Reach 3	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		36" dia. steel, 0.1707" thick (68 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=375 2,652,000 lbs total steel	8140	39,000	lin ft	\$145.00	\$5,655,000.00
		36" dia. steel, 0.1501" thick (60 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=250 1,080,000 lbs total steel	8140	18,000	lin ft	\$140.00	\$2,520,000.00
		30" dia. steel, 0.1428" thick (48 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=375 2,736,000 lbs total steel	8140	57,000	lin ft	\$125.00	\$7,125,000.00
		24" dia. steel, 0.2500" thick (68 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 1,258,000 lbs total steel	8140	18,500	lin ft	\$120.00	\$2,220,000.00
		24" DR18 (CIOD) C905 PVC pipe	8140	58,000	lin ft	\$90.00	\$5,220,000.00
		<u>Isolation Valves (Manual operation):</u>					
		36" class 150B (psig) butterfly valve with operator	8140	3	ea	\$17,000.00	\$51,000.00
		30" class 150B (psig) butterfly valve with operator	8140	2	ea	\$14,500.00	\$29,000.00
		24" class 300 (psig) butterfly valve with operator	8140	1	ea	\$22,500.00	\$22,500.00
		24" class 250 (psig) butterfly valve with operator	8140	2	ea	\$15,000.00	\$30,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	8	ea	\$7,000.00	\$56,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$22,928,500.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Reach 3 from Fowler N. tank to La Junta N. Tank  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Reach 3	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		37	ea	\$7,500.00	\$277,500.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	370	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	148	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	3,500	lbs		
		- 3" Combination Air Valve (1ea)	8140	37	ea		
		- 3" Ball Valves (2 ea)	8140	37	ea		
		<u>Blowoff Structures (to include):</u>		37	ea	\$8,300.00	\$307,100.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	300	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	43	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	12	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	5,200	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	74	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	37	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	370	lin ft		
		- 6" Tee (1 ea)	8140	37	ea		
		- 6" Blind Flange (1 ea)	8140	37	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	3,500	lbs		
		<u>Manholes-Burried: (to include)</u>					
		-36" pipe outlet (1 ea)	8140	22	ea	\$11,500.00	\$253,000.00
		-36" blind flange (1 ea)	8140	22	ea		
		<u>Cathodic Protection</u>	8140	1	ls	\$881,125.00	\$881,125.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					\$1,718,725.00
		<b>SUBTOTAL REACH 3</b>					\$31,033,225.00

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> [Signature] 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> [Signature] 4/27/11





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Manzanola Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Manzanola Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00	
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft			
		- 3/4 inch gravel filter (4cy)	8140	4	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs			
		- 2" Combination Air Valve (1ea)	8140	1	ea			
		- 2" Ball Valves (1 ea)	8140	1	ea			
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	1	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft			
		- 6" Tee (1 ea)	8140	1	ea			
		- 6" Blind Flange (1 ea)	8140	1	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00	
		*Assume 5% of cost for all steel items above						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>	
		<b>SUBTOTAL MANZANOLA SPUR</b>					<b>\$104,505.00</b>	

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 3/31/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> NCD 4/27/11





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Rocky Ford Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingspan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Rocky Ford Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1ea)	8140	1	ea		
		- 2" Ball Valves (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL ROCKY FORD SPUR</b>					<b>\$111,991.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> [Signature] 4/27/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> [Signature] 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit La Junta North Water Storage Tank Alternative 5 Reach 3: From Fowler N. Tank to La Junta N. Tank	<b>PROJECT:</b> Fryington-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - La Junta North Water Tank Alt 5 Appraisal Quant Est 8120.xlsx\Civil\Structural	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	1,315	yd <sup>3</sup>	\$4.00	\$5,260.00
		Access Roads	86-68120	35	yd <sup>3</sup>	\$6.00	\$210.00
		Excavation (tank foundation)	86-68120	2,845	yd <sup>3</sup>	\$15.00	\$42,675.00
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill (tank foundation)	86-68120	2,015	yd <sup>3</sup>	\$16.00	\$32,240.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	1,110	yd <sup>3</sup>	\$35.00	\$38,850.00
		Access Roads	86-68120	35	yd <sup>3</sup>	\$40.00	\$1,400.00
		Chain Link Fence	86-68120	1,335	lin ft	\$40.00	\$53,400.00
		8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. Three 20' wide double swing gate					
		Reinforced Concrete for Pad & Stem Foundation	86-68120	1	ls	\$620,000.00	\$620,000.00
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: Pueblo, CO 70 miles					
		Concrete: 876 yd <sup>3</sup>					
		Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 118,265 lbs					
		Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 247 tons					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$794,035.00</b>

QUANTITIES		PRICES	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Stewart M. ...</i>
DATE PREPARED 03/22/11	PEER REVIEW / DATE Paul Ruchti 3/30/11	DATE PREPARED 04/11/11	PEER REVIEW / DATE DCD 4/22/11



<b>FEATURE:</b>  Arkansas Valley Conduit La Junta North Water Storage Tank Alternative 5 Reach 3: From Fowler N. Tank to La Junta N. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
	<b>FILE:</b> H:\DB170\Common\UMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Water Storage Tanks\La Junta Water Storage Tank\8420 Mechanical (Tank)\(AVC - LaJunta North Water Tank Alt 5 8420.xlsx)\Hydraulic equip				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		Steel water storage tanks					
		5 - 1,000,000-gallon steel water storage tanks (5,000,000 gallons combined capacity)	86-68420	1	ls	\$9,500,000.00	\$9,500,000.00
		AWWA D100 compliance					
		minimum water surface 50 feet (above foundation)					
		maximum water surface 90.58 feet (above foundation)					
		diameter 74 feet					
<b>SUBTOTAL THIS SHEET</b>							<b>\$9,500,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Thomas M. Gray</i> 4/26/11
DATE PREPARED 3/31/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE <i>DCD</i> 4/26/11

<b>FEATURE:</b>  Arkansas Valley Conduit Fowler North Water Storage Tank Alternative 5 Reach 3: From Fowler N. Tank to La Junta N. Tank	<b>PROJECT:</b> Fryington-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC -Fowler North Water Tank Alt 5 Appraisal Quant Est 8120.xlsx\CivilStructural	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Sitework					
		Stripping (6 inch thick layer of soil)					
		Service Yard	86-68120	2,145	yd <sup>3</sup>	\$4.00	\$8,580.00
		Access Roads	86-68120	75	yd <sup>3</sup>	\$6.00	\$450.00
		Excavation (tank foundation) (Assume: Common, 1-1/2:1 slope)	86-68120	1,530	yd <sup>3</sup>	\$15.00	\$22,950.00
		Compacted engineered backfill (tank foundation)	86-68120	1,120	yd <sup>3</sup>	\$16.00	\$17,920.00
		Gravel Surfacing (6 inches thick)					
		Service Yard	86-68120	1,235	yd <sup>3</sup>	\$35.00	\$43,225.00
		Access Roads	86-68120	75	yd <sup>3</sup>	\$40.00	\$3,000.00
		Chain Link Fence 8.0' High fence - 7.0' fabric with 3 strands of barbed wire on top. Two 20' wide double swing gate	86-68120	1,360	lin ft	\$40.00	\$54,400.00
		Reinforced Concrete for Pad & Stem Foundation (Assume: f <sub>c</sub> =4,500 psi) Source: Pueblo, CO 40 miles Concrete: 465 yd <sup>3</sup> Reinforcement (Assume 135 lb/yd <sup>3</sup> ): 62,835 lbs Cement (Assume: 0.282 ton/yd <sup>3</sup> ): 131 tons	86-68120	1	ls	\$340,000.00	\$340,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$490,525.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Sharon Ruchti 4/22/11</i>
DATE PREPARED 03/22/11	PEER REVIEW / DATE Paul Ruchti 3/30/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>Doc 4/22/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Fowler North Water Storage Tank Alternative 5 Reach 3: From Fowler N. Tank to La Junta N. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Water Storage Tanks\Fowler Water Storage Tank\8420 Mechanical\AVC -Fowler North Water Tank Alt 5 Appraisal Quant Est				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Equipment/Mechanical					
		Steel water storage tanks					
		4 - 2,295,000-gallon steel water storage tank (9,180,000 gallons combined capacity)	86-68420	1	ls	\$8,300,000.00	\$8,300,000.00
		AWWA D100 compliance minimum water surface 0 feet (above foundation) maximum water surface 25 feet (above foundation) diameter 120 feet					
<b>SUBTOTAL THIS SHEET</b>							<b>\$8,300,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>[Signature]</i>	CHECKED Shawn <i>[Signature]</i> 4/26/11
DATE PREPARED 3/31/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/21/11	PEER REVIEW / DATE DCD 4/26/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Fowler N Tank Access Road  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Fowler N Tank Road.xls\All 5	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Road Access (to include):					
		Stripping (6" thick)	86-68140	3,100.0	cy	\$4.00	\$12,400.00
		gravel (6" thick) (20' wide access, 8,300' long)	86-68140	3,100	cy	\$35.00	\$108,500.00
		Concrete bridge(70' Double Span) to include:		1	bridge	Included in Items below.	
		Abutment excavation (2200 ea)	86-68140	2,200	cy	\$25.00	\$55,000.00
		Backfill - abutments (2100 ea)	86-68140	2,100	cy	\$30.00	\$63,000.00
		Compacting backfill (2100 ea)	86-68140	2,100	cy	\$30.00	\$63,000.00
		Comp. approach ramp embankment (85 ea)	86-68140	85	cy	\$40.00	\$3,400.00
		Concrete - bridge abutment (85 ea)	86-68140	85	cy	\$1,300.00	\$110,500.00
		Concrete - bridge deck & girders (90 ea)	86-68140	90	cy	\$1,700.00	\$153,000.00
		Concrete - pier & footing (35 ea)	86-68140	35	cy	\$1,500.00	\$52,500.00
		Reinforcement (140 #/cy) (30,000 ea)	86-68140	30,000	lbs	\$1.70	\$51,000.00
		Cementitious Materials (6 sack mix) (60 ea)	86-68140	60	tons	Included in Concrete Items above.	
		Beam-type guardrail (180 ea)	86-68140	180	lin. ft.	\$60.00	\$10,800.00
		Detour barricades & signage	86-68140	1	ls	\$10,000.00	\$10,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$693,100.00</b>

QUANTITIES		PRICES	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 03/31/11	PEER REVIEW / DATE Dave Edwards	DATE PREPARED 04/18/11	PEER REVIEW / DATE DCE 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Reach 3: from Fowler N. tank to La Junta N. Tank	<b>PROJECT:</b> Fryngpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 5 R3 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	14	ea	\$35,000.00	\$490,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$490,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Reach 3: from Fowler N. tank to La Junta N. Tank Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION: GP      UNIT PRICE LEVEL: Jan-11
	FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	14	ls	\$5,600.00	\$78,400.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	14	ea	\$800.00	\$11,200.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	14	ea	\$13,000.00	\$182,000.00
<b>Subtotal - This Sheet</b>							<b>\$271,600.00</b>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>[Signature]</i> 4/30/11
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Reach 3: from Fowler N. tank to La Junta N. Tank	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Commo\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 5 R3 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (14 vaults)</b>	86-68420				
		6-inch pressure reducing valve 14 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		14	ea	\$7,800.00	\$109,200.00
		6-inch manually-operated butterfly valve 3 valves, 90 lbs each AWWA Class 150-B		3	ea	\$1,300.00	\$3,900.00
		11 valves, 130 lbs each AWWA Class 250-B		11	ea	\$2,300.00	\$25,300.00
		6-inch buried square-nut operated butterfly valve with valve box 3 valves, 245 lbs each AWWA Class 150-B		3	ea	\$1,800.00	\$5,400.00
		11 valves, 285 lbs each AWWA Class 250-B		11	ea	\$2,800.00	\$30,800.00
		1-inch air valve combination air valve 14 air valves, 35 lbs each		14	ea	\$1,000.00	\$14,000.00
		<b>Total</b>					<b>\$188,600.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>Smith</i>	CHECKED <i>Shannon McHugh</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>Shannon McHugh</i> 5/4/11





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Reach 4 from La Junta N. Tank to Lamar  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Reach 4	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		24" DR25 (CIOD) C905 PVC pipe	8140	14,500	lin ft	\$68.00	\$986,000.00
		24" DR18 (CIOD) C905 PVC pipe	8140	38,000	lin ft	\$90.00	\$3,420,000.00
		24" DR25 (CIOD) C905 PVC pipe	8140	73,000	lin ft	\$68.00	\$4,964,000.00
		24" DR25 (CIOD) C905 PVC pipe	8140	42,000	lin ft	\$68.00	\$2,856,000.00
		18" dia. steel, 0.1442" thick (30 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 1,560,000 lbs total steel	8140	52,000	lin ft	\$75.00	\$3,900,000.00
		16" dia. steel, 0.1345" thick (25 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 1,950,000 lbs total steel	8140	78,000	lin ft	\$70.00	\$5,460,000.00
		<u>Isolation Valves (Manual operation):</u>					
		24" class 150B (psig) butterfly valve with operator	8140	1	ea	\$9,000.00	\$9,000.00
		24" class 250 (psig) butterfly valve with operator	8140	1	ea	\$15,000.00	\$15,000.00
		24" class 150B (psig) butterfly valve with operator	8140	5	ea	\$9,000.00	\$45,000.00
		18" class 300 (psig) butterfly valve with operator	8140	2	ea	\$15,500.00	\$31,000.00
		16" class 300 (psig) butterfly valve with operator	8140	3	ea	\$11,000.00	\$33,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	12	ea	\$7,000.00	\$84,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$21,803,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/21/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Reach 4 from La Junta N. Tank to Lamar  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Reach 4	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		57	ea	\$6,800.00	\$387,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	570	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	230	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	5,400	lbs		
		- 2" Combination Air Valve (1ea)	8140	57	ea		
		- 2" Ball Valves (1 ea)	8140	57	ea		
		<u>Blowoff Structures (to include):</u>		57	ea	\$8,300.00	\$473,100.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	460	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	67	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	19	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	8,050	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	115	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	57	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	570	lin ft		
		- 6" Tee (1 ea)	8140	57	ea		
		- 6" Blind Flange (1 ea)	8140	57	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	5,400	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$471,200.00	\$471,200.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$1,331,900.00</b>
		<b>SUBTOTAL REACH 4</b>					<b>\$32,404,900.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCB 4/27/11





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Hasty Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Hasty Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1ea)	8140	1	ea		
		- 2" Ball Valves (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$15,100.00</b>
		<b>SUBTOTAL HASTY SPUR</b>					<b>\$69,390.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition McClave Spur  <b>Civil</b>	<b>PROJECT:</b> Frylingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\McClave Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		2	ea	\$6,800.00	\$13,600.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	8	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	190	lbs		
		- 2" Combination Air Valve (1ea)	8140	2	ea		
		- 2" Ball Valves (1 ea)	8140	2	ea		
		<u>Blowoff Structures (to include):</u>		2	ea	\$8,300.00	\$16,600.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	16	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	2	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	280	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	4	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	2	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1 ea)	8140	2	ea		
		- 6" Blind Flange (1 ea)	8140	2	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	190	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$30,200.00</b>
		<b>SUBTOTAL McCLAVE SPUR</b>					<b>\$320,500.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Wiley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryngpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Wiley Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 158,000 lbs total steel	8140	19,750	lin ft	\$34.00	\$671,500.00
		<u>Isolation Valves (Manual operation):</u>					
		4" class 300 (psig) butterfly valve with operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$680,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> JCO 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Wiley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Wiley Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		4	ea	\$6,800.00	\$27,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	40	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	16	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	380	lbs		
		- 2" Combination Air Valve (1ea)	8140	4	ea		
		- 2" Ball Valves (1 ea)	8140	4	ea		
		<u>Blowoff Structures (to include):</u>		4	ea	\$8,300.00	\$33,200.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	32	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	5	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	560	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	8	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	4	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	40	lin ft		
		- 6" Tee (1 ea)	8140	4	ea		
		- 6" Blind Flange (1 ea)	8140	4	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	380	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$33,690.00	\$33,690.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$94,090.00</b>
		<b>SUBTOTAL WILEY SPUR</b>					<b>\$1,329,640.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/22/11



**FEATURE:**  
 Arkansas Valley Conduit  
 Pipeline  
 Alternative 5 Max Day Condition  
 Las Animas Spur  
**Civil**

**PROJECT:**  
 Fryingpan-Arkansas Project

<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11

**FILE:** H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Las Animas Spur

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		12" DR18 (CIOD) C900 PVC pipe	8140	9,000	lin ft	\$27.00	\$243,000.00
		12" DR25 (CIOD) C900 PVC pipe	8140	3,500	lin ft	\$22.00	\$77,000.00
		<u>Isolation Valves (Manual operation):</u>					
		12" class 150B (psig) butterfly valve with operator	8140	1	ea	\$2,500.00	\$2,500.00
		12" class 250 (psig) butterfly valve with operator	8140	0	ea	\$4,400.00	\$0.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$329,500.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Las Animas Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Las Animas Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		3	ea	\$6,800.00	\$20,400.00	
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft			
		- 3/4 inch gravel filter (4cy)	8140	12	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	290	lbs			
		- 2" Combination Air Valve (1ea)	8140	3	ea			
		- 2" Ball Valves (1 ea)	8140	3	ea			
		<u>Blowoff Structures (to include):</u>		3	ea	\$8,300.00	\$24,900.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	24	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	4	cy			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	420	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	6	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	3	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft			
		- 6" Tee (1 ea)	8140	3	ea			
		- 6" Blind Flange (1 ea)	8140	3	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	290	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00	
		*Assume 5% of cost for all steel items above						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$45,300.00</b>	
		<b>SUBTOTAL LAS ANIMAS SPUR</b>					<b>\$843,800.00</b>	

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCO 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Reach 4: from La Junta N. Tank to Lamar	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 5 R4 Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT.	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	9	ea	\$35,000.00	\$315,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$315,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Reach 4: from La Junta N. Tank to Lamar Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	9	ls	\$5,600.00	\$50,400.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	9	ea	\$800.00	\$7,200.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	9	ea	\$13,000.00	\$117,000.00
Subtotal - This Sheet							\$174,600.00
<del>Total - Sheets 1 thru 6</del>							<del>\$776,000.00</del>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>Junk</i>	CHECKED <i>Sienna MacFarland/30/11</i>
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD 4/30/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Reach 4: from La Junta N. Tank to Lamar	<b>PROJECT:</b> Fryngpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 5 R4 Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (9 vaults)</b>	86-68420				
		6-inch pressure reducing valve 9 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		9	ea	\$7,800.00	\$70,200.00
		6-inch manually-operated butterfly valve 1 valve, 90 lbs each AWWA Class 150-B		1	ea	\$1,300.00	\$1,300.00
		7 valves, 130 lbs each AWWA Class 250-B		7	ea	\$2,300.00	\$16,100.00
		1 valve, 170 lbs each Henry Pratt Class 350		1	ea	\$2,800.00	\$2,800.00
		6-inch buried square-nut operated butterfly valve with valve box 1 valve, 245 lbs each AWWA Class 150-B		1	ea	\$1,800.00	\$1,800.00
		7 valves, 285 lbs each AWWA Class 250-B		7	ea	\$2,800.00	\$19,600.00
		1 valve, 325 lbs each Henry Pratt Class 350		1	ea	\$3,300.00	\$3,300.00
		1-inch air valve combination air valve 9 air valves, 35 lbs each		9	ea	\$1,000.00	\$9,000.00
		<b>Total</b>					<b>\$124,100.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>Guric</i>	CHECKED <i>Shawna McGray 5/14/11</i>
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>Doc 5/4/11</i>



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Highway 96 Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Hwy 96 Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		16" DR25 (CIOD) C905 PVC pipe	8140	38,000	lin ft	\$32.00	\$1,216,000.00
		14" DR25 (CIOD) C905 PVC pipe	8140	33,000	lin ft	\$26.00	\$858,000.00
		10" DR25 (CIOD) C900 PVC pipe	8140	25,000	lin ft	\$16.00	\$400,000.00
		<u>Isolation Valves (Manual operation):</u>					
		16" class 150B (psig) butterfly valve with operator	8140	2	ea	\$3,900.00	\$7,800.00
		14" class 150B (psig) butterfly valve with operator	8140	2	ea	\$3,600.00	\$7,200.00
		10" class 150B (psig) butterfly valve with operator	8140	1	ea	\$2,000.00	\$2,000.00
		<u>Isolation Valve Manholes (to include):</u>	8140	5	ea	\$7,000.00	\$35,000.00
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access					
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$2,526,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Highway 96 Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Hwy 96 Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		19	ea	\$6,800.00	\$129,200.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	190	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	76	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	1,800	lbs		
		- 2" Combination Air Valve (1ea)	8140	19	ea		
		- 2" Ball Valves (1 ea)	8140	19	ea		
		<u>Blowoff Structures (to include):</u>		19	ea	\$8,300.00	\$157,700.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	150	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	22	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	6	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	2,700	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	38	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	19	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	190	lin ft		
		- 6" Tee (1 ea)	8140	19	ea		
		- 6" Blind Flange (1 ea)	8140	19	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	1,800	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$286,900.00</b>
		<b>SUBTOTAL HWY 96 SPUR</b>					<b>\$5,409,900.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Highway 96 Pipeline Co. Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Hwy 96 Pipeline Co. Spur	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00	
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft			
		- 3/4 inch gravel filter (4cy)	8140	4	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs			
		- 2" Combination Air Valve (1ea)	8140	1	ea			
		- 2" Ball Valves (1 ea)	8140	1	ea			
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	140	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	1	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft			
		- 6" Tee (1 ea)	8140	1	ea			
		- 6" Blind Flange (1 ea)	8140	1	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00	
		*Assume 5% of cost for all steel items above						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>						\$15,100.00
		<b>SUBTOTAL HWY 96 PIPELINE CO SPUR</b>						\$139,970.00

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 HWY 96 Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 5 96 Spur Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\Civil\Structural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	6	ea	\$35,000.00	\$210,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$210,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>J. Morris</i> 04/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>Doc</i> 4/30/11



<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 HWY 96 Spur Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b>		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	6	ls	\$5,600.00	\$33,600.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	6	ea	\$800.00	\$4,800.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	6	ea	\$13,000.00	\$78,000.00
<b>Subtotal - This Sheet</b>							<b>\$116,400.00</b>

QUANTITIES		PRICES	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Sean Nelson 4/30/11</i>
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCD 4/30/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 HWY 96 Spur (Reach 2A)	<b>PROJECT:</b> Fryingspan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-In\8420 - Valves\AVC - Alt 5 96 Spur Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (6 vaults)</b>	86-68420				
		6-inch pressure reducing valve 6 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		6	ea	\$7,800.00	\$46,800.00
		6-inch manually-operated butterfly valve 5 valves, 130 lbs each AWWA Class 250-B		5	ea	\$2,300.00	\$11,500.00
		1 valve, 170 lbs each Henry Pratt Class 350		1	ea	\$2,800.00	\$2,800.00
		6-inch buried square-nut operated butterfly valve with valve box 5 valves, 285 lbs each AWWA Class 250-B		5	ea	\$2,800.00	\$14,000.00
		1 valve, 325 lbs each Henry Pratt Class 350		1	ea	\$3,300.00	\$3,300.00
		1-inch air valve combination air valve 6 air valves, 35 lbs each		6	ea	\$1,000.00	\$6,000.00
		<b>Total</b>					<b>\$84,400.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>GRuff</i>	CHECKED <i>Shanda Mc...</i> 5/4/11
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>D.D.</i> 5/4/11





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Eads Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Eads Spur	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		21	ea	\$6,800.00	\$142,800.00	
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	210	lin ft			
		- 3/4 inch gravel filter (4cy)	8140	84	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	2,000	lbs			
		- 2" Combination Air Valve (1ea)	8140	21	ea			
		- 2" Ball Valves (1 ea)	8140	21	ea			
		<u>Blowoff Structures (to include):</u>		21	ea	\$8,300.00	\$174,300.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	170	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	25	cy			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	7	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	3,000	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	42	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	21	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	210	lin ft			
		- 6" Tee (1 ea)	8140	21	ea			
		- 6" Blind Flange (1 ea)	8140	21	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	2,000	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00	
		*Assume 5% of cost for all steel items above						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>						\$317,100.00
		<b>SUBTOTAL EADS SPUR</b>						\$4,968,600.00

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/29/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11





<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Eads and May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Eads & May Valley Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		6	ea	\$6,800.00	\$40,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	24	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	570	lbs		
		- 2" Combination Air Valve (1ea)	8140	6	ea		
		- 2" Ball Valves (1 ea)	8140	6	ea		
		<u>Blowoff Structures (to include):</u>		6	ea	\$8,300.00	\$49,800.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	48	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	7	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	850	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	12	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	6	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 6" Tee (1 ea)	8140	6	ea		
		- 6" Blind Flange (1 ea)	8140	6	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	570	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$90,600.00</b>
		<b>SUBTOTAL EADS &amp; MAY VALLEY SPUR</b>					<b>\$2,272,900.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11







<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition May Valley Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\May Valley Spur	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		6	ea	\$6,800.00	\$40,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	24	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	570	lbs		
		- 2" Combination Air Valve (1ea)	8140	6	ea		
		- 2" Ball Valves (1 ea)	8140	6	ea		
		<u>Blowoff Structures (to include):</u>		6	ea	\$8,300.00	\$49,800.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	48	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	7	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	850	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	12	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	6	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 6" Tee (1 ea)	8140	6	ea		
		- 6" Blind Flange (1 ea)	8140	6	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	570	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$0.00	\$0.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					
		<b>SUBTOTAL MAY VALLEY SPUR</b>					
							<b>\$90,600.00</b>
							<b>\$1,272,000.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris	<b>CHECKED</b> [Signature] 3/4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> [Signature] 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Air Chamber Alternative 5 Eads & May Valley Spur	<b>PROJECT:</b> Fryington-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Air Chamber Alt 3 Appraisal Quant Est 8120.xlsx\CivilStructural		

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		Reinforced Concrete for Foundation (slab-on-grade foundation type) (Assume: $f_c=4,500$ psi) Source: Pueblo, CO 85 miles Concrete: 2.3 yd3 Reinforcement (Assume 135 lb/yd3): 310 lbs Cement (Assume: 0.282 ton/yd3): 0.6 tons	86-68120	1	ls	\$2,600.00	\$2,600.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$2,600.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 4/22/11
DATE PREPARED 04/04/11	PEER REVIEW / DATE Paul Ruchti 4/5/11	DATE PREPARED 04/12/11	PEER REVIEW / DATE <i>[Signature]</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Air Chamber Alternative 5 Eads & May Valley Spur	<b>PROJECT:</b> Fryngpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> 11-Jan
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Air Chamber Alt 5 Appraisal Quant Est 8420.xlsx\Hydraulic equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equipment/Mechanical					
		<b>Air Chamber</b>	86-68420	1	ls	\$93,000.00	\$93,000.00
		1,200-gallon (160 cubic feet) steel air chamber cylinder height 6 feet 6 inches cylinder diameter 5 feet air chamber weight 9,300 pounds mounted air compressor 9 horsepower					
<b>SUBTOTAL THIS SHEET</b>							<b>\$93,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED Dan Drake	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>Shannon</i> 4/22/11
DATE PREPARED 4/4/2011	PEER REVIEW / DATE Nathan Nakamoto 4/14/11	DATE PREPARED 04/18/11	PEER REVIEW / DATE <i>Doc</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Eads & May Valley Meter Vault Alternative 5 Eads & May Valley Spur	<b>PROJECT:</b> Fryngpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC - Eads & May Valley Meter Vaults Alt 4 Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Reinforced Concrete for Vaults</b> (Assumed: two 12' W x 14' L x 16' D) (Assume: $f_c=4,500$ psi) Source: Pueblo, CO 85 miles Concrete: 115 yd3 Reinforcement (Assume 135 lb/yd3): 15,650 lbs Cement (Assume: 0.282 ton/yd3): 33 tons	86-68120	1	ls	\$100,000.00	\$100,000.00
		<b>Access &amp; Service Hatches</b> Access hatch four 3' x3' (The Bilco Co Type Q single leaf) Service hatch two 5' x 10' (The Bilco Co Type JD special sizes)	86-68120	1	ls	\$41,000.00	\$41,000.00
		<b>Miscellaneous Metalwork</b> (40-D-6601, Ladder Type 2)	86-68120	280	lbs	\$13.00	\$3,640.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$144,640.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY R. J. Barthel	REVIEWED Paul Ruchti	BY Jeff Morris	CHECKED <i>Shannon</i> 4/22/11
DATE PREPARED 04/06/11	PEER REVIEW / DATE Paul Ruchti 4/8/11	DATE PREPARED 04/20/11	PEER REVIEW / DATE <i>DCD</i> 4/22/11

<b>FEATURE:</b>  Arkansas Valley Conduit Eads and May Valley Metering Vaults Alternative 5 Eads and May Valley Spur Mechanical Equipment	<b>PROJECT:</b> Fryngpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">WOID:</td> <td style="width:20%;">AF523</td> <td style="width:30%;">ESTIMATE LEVEL:</td> <td style="width:20%;">Appraisal</td> </tr> <tr> <td>REGION:</td> <td>GP</td> <td>UNIT PRICE LEVEL:</td> <td>Jan-11</td> </tr> <tr> <td colspan="4">FILE:</td> </tr> </table>	WOID:	AF523	ESTIMATE LEVEL:	Appraisal	REGION:	GP	UNIT PRICE LEVEL:	Jan-11	FILE:			
WOID:	AF523	ESTIMATE LEVEL:	Appraisal										
REGION:	GP	UNIT PRICE LEVEL:	Jan-11										
FILE:													

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume meter vault size=11.25'x11.25'x16.7'd assume 2 vaults @ Eads					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 450 cfm @ 0.25" w.g.s.p., 1/6 Hp (16 ft)-8" diam, 16 ga., galv. steel duct (2)-8" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-8"x12" reducer, sch 20, galv. steel pipe (4)-12" diam, stainless steel bird screens (2)-8"x12" reducer, 16 ga, galv. steel duct (2)-8" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	2	ls	\$6,600.00	\$13,200.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	2	ea	\$800.00	\$1,600.00
	3	Flowmeter single-path ultrasonic, 12" diam 2 transducers with cables and 1 transmitter console	86-68410	2	ea	\$25,000.00	\$50,000.00
Subtotal - This Sheet							\$64,800.00
<del>Total - Sheets 1 thru 2</del>							<del>\$209,600.00</del>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>GR</i>	CHECKED <i>Stromberg</i> 5/3/11
DATE PREPARED 4/7/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>GR</i> 5/3/11









<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Bents Fort Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGIO</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Bent's Fort Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGIO</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGIO</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1ea)	8140	1	ea		
		- 2" Ball Valves (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$1,330.50	\$1,330.50
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$16,430.50</b>
		<b>SUBTOTAL BENT'S FORT SPUR</b>					<b>\$83,106.50</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 9/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition S. Loop  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\S. Loop Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	160	acre	\$800.00	\$128,000.00
		Grubbing	8140	16	acre	\$2,500.00	\$40,000.00
		Stripping (6" thick)	8140	130,000	cy	\$2.00	\$260,000.00
		Seeding	8140	160	acre	\$800.00	\$128,000.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	300,000	cy	\$4.00	\$1,200,000.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	16,000	cy	\$25.00	\$400,000.00
		Pipe Bedding (Select material, 4" thick)	8140	5,300	cy	\$40.00	\$212,000.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	300,000	cy	\$3.00	\$900,000.00
		Compacting Embedment Backfill	8140	25,000	cy	\$10.00	\$250,000.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items: (Vertical Trench)</u>					
		Soil Excavation (box w/supports, ~10'deep)	8140	17,000	cy	\$9.00	\$153,000.00
		Pipe Bedding (Select material, 4" thick)	8140	820	cy	\$50.00	\$41,000.00
		Embedment & Cover Backfill	8140	14,000	cy	\$5.00	\$70,000.00
		Compacting Embedment Backfill	8140	2,000	cy	\$14.00	\$28,000.00
		(urban trench length of 16,540ft of 24" pipe)					
		Traffic Control/Detours Urban Excavation		4	mo	\$15,000.00	\$60,000.00
		Pavement & Base/Remove & Replace Urban Excavation		16,540	lin ft	\$60.00	\$992,400.00
		Utility Relocation & Repair Urban Excavation		16,540	lin ft	\$30.00	\$496,200.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$5,358,600.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris <i>JM</i>	<b>CHECKED</b> <i>LM</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>SCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition S. Loop  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost , Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\S. Loop Spur	

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		24" dia. steel, 0.2500" thick (68 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 2,448,000 lbs total steel	8140	36,000	lin ft	\$120.00	\$4,320,000.00
		24" dia. steel, 0.2500" thick (68 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=625 3,060,000 lbs total steel	8140	45,000	lin ft	\$120.00	\$5,400,000.00
		24" DR18 (CIOD) C905 PVC pipe	8140	19,500	lin ft	\$90.00	\$1,755,000.00
		24" DR25 (CIOD) C905 PVC pipe	8140	14,000	lin ft	\$68.00	\$952,000.00
		<u>Isolation Valves (Manual operation):</u>					
		24" class 300 (psig) butterfly valve with operator	8140	4	ea	\$22,500.00	\$90,000.00
		24" class 250 (psig) butterfly valve with operator	8140	1	ea	\$15,000.00	\$15,000.00
		24" class 150B (psig) butterfly valve with operator	8140	2	ea	\$9,000.00	\$18,000.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	7	ea	\$7,000.00	\$49,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
<b>SUBTOTAL THIS SHEET</b>							<b>\$12,599,000.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition S. Loop  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\S. Loop Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		<u>Air Valve Structures (to include):</u>		22	ea	\$6,800.00	\$149,600.00	
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	220	lin ft			
		- 3/4 inch gravel filter (4cy)	8140	88	cy			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	2,100	lbs			
		- 2" Combination Air Valve (1ea)	8140	22	ea			
		- 2" Ball Valves (1 ea)	8140	22	ea			
		<u>Blowoff Structures (to include):</u>		22	ea	\$8,300.00	\$182,600.00	
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	175	lin ft			
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	26	cy			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	7	tons			
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	3,100	lbs			
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	44	lin ft			
		- 6" Butterfly Valve (1 ea)	8140	22	ea			
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	220	lin ft			
		- 6" Tee (1 ea)	8140	22	ea			
		- 6" Blind Flange (1 ea)	8140	22	ea			
		- 48" diam Alum hatch cover (95 lbs ea)	8140	2,100	lbs			
		<u>Cathodic Protection</u>	8140	1	ls	\$491,250.00	\$491,250.00	
		*Assume 5% of cost for all steel items above						
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.						
		<b>SUBTOTAL THIS SHEET</b>					<b>\$823,450.00</b>	
		<b>SUBTOTAL S. LOOP SPUR</b>					<b>\$18,781,050.00</b>	

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i>
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11





<p><b>FEATURE:</b></p> <p>Arkansas Valley Conduit                  Pipeline                  Alternative 5 Max Day Condition                  Swink Spur</p> <p><b>Civil</b></p>	<p><b>PROJECT:</b>                  Fryingpan-Arkansas Project</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <p><b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xls\Summary Sheet</p>	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=750 112,872 lbs total steel	8140	14,000	lin ft	\$34.00	\$476,000.00
		<u>Isolation Valves (Manual operation):</u>					
		4" class 300 (psig) butterfly valve with operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$485,300.00</b>

QUANTITIES		PRICES	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris <i>[Signature]</i>	CHECKED <i>[Signature]</i> 5/2/11
DATE PREPARED 03/08/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 5/3/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Swink Spur	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal
	REGION GP      UNIT PRICE LEVEL: Jan-11
<b>Civil</b>	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Swink Spur

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		3	ea	\$6,800.00	\$20,400.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	12	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	288	lbs		
		- 2" Combination Air Valve (1ea)	8140	3	ea		
		- 2" Ball Valves (1 ea)	8140	3	ea		
		<u>Blowoff Structures (to include):</u>		3	ea	\$8,300.00	\$24,900.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	24	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	4	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	425	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	6	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	3	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 6" Tee (1 ea)	8140	3	ea		
		- 6" Blind Flange (1 ea)	8140	3	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	288	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$23,915.00	\$23,915.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$69,215.00</b>
		<b>SUBTOTAL SWINK SPUR</b>					<b>\$983,515.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Michael Shepherd	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>[Signature]</i> 5/3/11
DATE PREPARED 03/08/11	PEER REVIEW / DATE Steven J. Robertson	DATE PREPARED 03/15/11	PEER REVIEW / DATE <i>[Signature]</i> 5/3/11



<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Homestead Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Homestead Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		4" dia. steel, 0.1345" thick (8 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=875 20,800 lbs total steel	8140	2,600	lin ft	\$34.00	\$88,400.00
		<u>Isolation Valves (Manual operation):</u>					
		4" class 300 (psig) butterfly valve with operator	8140	1	ea	\$2,300.00	\$2,300.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access 60" I.D. x 6" wall precast 36" riser 60" I.D. precast 72" base shell 36" dia. Cast iron manhole cover and ring set	8140	1	ea	\$7,000.00	\$7,000.00
<b>SUBTOTAL THIS SHEET</b>							<b>\$97,700.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> JCD 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Homestead Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\Homestead Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1ea)	8140	1	ea		
		- 2" Ball Valves (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$4,535.00	\$4,535.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$19,635.00</b>
		<b>SUBTOTAL HOMESTEAD SPUR</b>					<b>\$226,540.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\La Junta Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Sitework Items:</u>					
		Clearing (3 times trench width)	8140	1	acre	\$1,000.00	\$1,000.00
		Grubbing	8140	1	acre	\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	525	cy	\$6.00	\$3,150.00
		Seeding	8140	1	acre	\$1,500.00	\$1,500.00
		<u>Earthwork Items:</u>					
		Soil Excavation (1.5:1) outside urban area	8140	0	cy	\$0.00	\$0.00
		Rock Excavation (0.25:1) outside urban area (20% of length is assumed partial rock exc.) assume rippable material	8140	0	cy	\$0.00	\$0.00
		Pipe Bedding (Select material, 4" thick)	8140	0	cy	\$0.00	\$0.00
		Embedment & Cover Backfill (does not include shrink/swell)	8140	0	cy	\$0.00	\$0.00
		Compacting Embedment Backfill	8140	0	cy	\$0.00	\$0.00
		All earthwork quantities above are for the actual sloped trench.					
		<u>Urban Earthwork Items: (Vertical Trench)</u>					
		Soil Excavation (box w/supports, ~10'deep)	8140	2,000	cy	\$11.00	\$22,000.00
		Pipe Bedding (Select material, 4" thick)	8140	115	cy	\$50.00	\$5,750.00
		Embedment & Cover Backfill	8140	1,850	cy	\$7.00	\$12,950.00
		Compacting Embedment Backfill (urban trench length of 3,154ft of 12" pipe)	8140	175	cy	\$18.00	\$3,150.00
		Traffic Control/Detours Urban Excavation		1	mo	\$15,000.00	\$15,000.00
		Pavement & Base/Remove & Replace Urban Excavation		3,154	lin ft	\$60.00	\$189,240.00
		Utility Relocation & Repair Urban Excavation		3,154	lin ft	\$30.00	\$94,620.00
		All urban earthwork quantities above are for a straight wall "vertical" trench.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$350,860.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> Nathan Lehman	<b>BY</b> Jeff Morris <i>Jeff Morris</i>	<b>CHECKED</b> <i>LS</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>DCO</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\La Junta Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Pipe Items:</u>					
		12" dia. steel, 0.1368" thick (19 #/ft)-mortar lined epoxy tape coated, rubber gaskets, HC=875	8140	3,200	lin ft	\$55.00	\$176,000.00
		60,800 lbs total steel					
		<u>Isolation Valves (Manual operation):</u>					
		12" class 300 (psig) butterfly valve with operator	8140	1	ea	\$7,000.00	\$7,000.00
		<u>Isolation Valve Manholes (to include):</u>					
		60" I.D. x 6" wall precast flat top with concentric ring, 36" access	8140	1	ea	\$7,000.00	\$7,000.00
		60" I.D. x 6" wall precast 36" riser					
		60" I.D. precast 72" base shell					
		36" dia. Cast iron manhole cover and ring set					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$190,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>LLS</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> <i>JCD</i> 4/27/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition La Junta Spur  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Pipeline Sheets\AVC Estimate Worksheet Alt 5 Max Day Estimators Version.xlsx\La Junta Spur	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Air Valve Structures (to include):</u>		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4 inch gravel filter (4cy)	8140	4	cy		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combination Air Valve (1ea)	8140	1	ea		
		- 2" Ball Valves (1 ea)	8140	1	ea		
		<u>Blowoff Structures (to include):</u>		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Steel pipe, vertical (8 ft ea)	8140	8	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	1	cy		
		- Cementitious Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinforcement (1 layer, #5 @ 12" oc, ew)	8140	141	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	2	lin ft		
		- 6" Butterfly Valve (1 ea)	8140	1	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 ea)	8140	1	ea		
		- 6" Blind Flange (1 ea)	8140	1	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	95	lbs		
		<u>Cathodic Protection</u>	8140	1	ls	\$9,150.00	\$9,150.00
		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost estimates prepared for Solicitation No. 09SP101729 dated August 2009. Soils are assumed to be similar to those encountered at the Weber Siphons and are assumed to have similar corrosion potential.					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$24,250.00</b>
		<b>SUBTOTAL LA JUNTA SPUR</b>					<b>\$565,110.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> Jeff Morris <i>J. Morris</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 03/08/11	<b>PEER REVIEW / DATE</b> Steven J. Robertson	<b>DATE PREPARED</b> 03/15/11	<b>PEER REVIEW / DATE</b> DCD 4/27/11



<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Loop	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8120 - Site Work\AVC - Alt 5 Loop Participant Tie-In Vaults Appraisal Quant Est 8120.xlsx\CivilStructural

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural:					
		<b>Participant Tie-In Vaults</b>	86-68120	7	ea	\$35,000.00	\$245,000.00
		<u>Reinforced Concrete for Vaults</u>					
		(Assumed: 12' W x 9' L x 10'-8" D)					
		(Assume: f <sub>c</sub> =4,500 psi)					
		Source: 50 miles					
		Concrete: 17.5 yd3					
		Reinforcement (Assume 135 lb/yd3): 2,360 lbs					
		Cement (Assume: 0.282 ton/yd3): 5 tons					
		<u>Access &amp; Service Hatches</u>					
		Access hatch 3' x3': 2 ea					
		(The Bilco Co Type Q single leaf)					
		Service hatch 3' x 5': 1 ea					
		(The Bilco Co Type JD special sizes)					
		<u>Miscellaneous Metalwork</u>					
		Steel (ASTM A36): 150 lbs					
		(Ref. 40-D-6601, Ladder Type 2)					
		<u>Sitework</u>					
		Stripping (6 inch thick layer of soil)					
		Service Yard: 12 yd3					
		Excavation: 195 yd3					
		(Assume: Common, 1-1/2:1 slope)					
		Compacted engineered backfill: 155 yd3					
		Gravel Surfacing (6 inches thick)					
		Service Yard: 10 yd3					
		<b>SUBTOTAL THIS SHEET</b>					<b>\$245,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> R. J. Barthel	<b>REVIEWED</b> Paul M Ruchti	<b>BY</b> Jeff Morris <i>[Signature]</i>	<b>CHECKED</b> <i>[Signature]</i> 4/30/11
<b>DATE PREPARED</b> 04/15/11	<b>PEER REVIEW / DATE</b> 04/19/11	<b>DATE PREPARED</b> 04/26/11	<b>PEER REVIEW / DATE</b> <i>[Signature]</i> 4/30/11

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Loop Mechanical Equipment	<b>PROJECT:</b> Fryingpan-Arkansas Project
	WOID: AF523      ESTIMATE LEVEL: Appraisal REGION: GP      UNIT PRICE LEVEL: Jan-11 FILE:

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume participant tie-in vault size=12' W x 9' L x 10'-8" D					
	1	Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 200 cfm @ 0.25" w.g.s.p., 1/6 Hp (12 ft)-6" diam, 16 ga., galv. steel duct (2)-6" diam, sch 20, galv., L.R. 180 deg. steel pipe returns (2)-6"x8" reducer, sch 20, galv. steel pipe (4)-8" diam, stainless steel bird screens (2)-6"x8" reducer, 16 ga, galv. steel duct (2)-6" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box	86-68410	7	ls	\$5,600.00	\$39,200.00
	2	Meter vault heater 3 kW unit heater thermostatically controlled	86-68410	7	ea	\$800.00	\$5,600.00
	3	Flowmeter system 6" diameter, microprocessor-based, flanged electro-magnetic flowmeter with remote wall-mounted transmitter weight= approx 85 lbs 120 Volt AC	86-68410	7	ea	\$13,000.00	\$91,000.00
<b>Subtotal - This Sheet</b>							<b>\$135,800.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY AM Ritt	REVIEWED R. Christensen	BY G. Ruff <i>GMR</i>	CHECKED <i>Scott Macdonald 4/30/11</i>
DATE PREPARED 4/20/2011	PEER REVIEW / DATE D. Hulse - 4/14/11	DATE PREPARED 04/28/11	PEER REVIEW / DATE <i>DCO 4/30/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Participant Tie-In Vaults Alternative 5 Loop (Reach 3A)	<b>PROJECT:</b> Fryingpan-Arkansas Project
	<b>WOID:</b> AF523 <b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP <b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\Participant Tie-Ins\8420 - Valves\AVC - Alt 5 Loop Participant Tie-In Vaults Appraisal Quant Est 8420.xlsx\Hydraulic Equip

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/Hydraulic equipment					
		<b>Participant Tie-In Vaults (7 vaults)</b>	86-68420				
		6-inch pressure reducing valve 7 valves, 160 lbs each Cla-Val ANSI class 150 steel (285 psi rated)		7	ea	\$7,800.00	\$54,600.00
		6-inch manually-operated butterfly valve 1 valve, 90 lbs each AWWA Class 150-B		1	ea	\$1,300.00	\$1,300.00
		6 valves, 130 lbs each AWWA Class 250-B		6	ea	\$2,300.00	\$13,800.00
		6-inch buried square-nut operated butterfly valve with valve box 1 valve, 245 lbs each AWWA Class 150-B		1	ea	\$1,800.00	\$1,800.00
		6 valves, 285 lbs each AWWA Class 250-B		6	ea	\$2,800.00	\$16,800.00
		1-inch air valve combination air valve 7 air valves, 35 lbs each		7	ea	\$1,000.00	\$7,000.00
		<b>Total</b>					<b>\$95,300.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Ken Smith	REVIEWED N. Nakamoto	BY G. Ruff <i>G. Ruff</i>	CHECKED <i>Shane New Gray</i> 5/4/11
DATE PREPARED 4/22/2011	PEER REVIEW / DATE D. Drake / 4/25/11	DATE PREPARED 05/03/11	PEER REVIEW / DATE <i>Doc</i> 5/4/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Crossings Alternative 5, Max Day Condition Crossings  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><b>WOID:</b> AF523</td> <td style="width:33%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Commo\UMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 5 crossings.xlsx\Sheet1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Gravel Road Crossings (to include):</u>		14	ea	\$10,000.00	\$140,000.00
		Compacting backfill for road base (192 cy each)	8140	2,700	cy		
		Aggregate Base Course (6" thick) (22 cy each)	8140	310	cy		
		Gravel surfacing (6" thick) (23 cy each)	8140	320	cy		
		Temporary barricades & signage (1 each) (assume req'd for 2 days per crossing)	8140	14	ls		
		<u>Paved Road Crossings, 2 lane (to include):</u>		240	ea	\$25,000.00	\$6,000,000.00
		Compacting backfill for road base (194 cy each)	8140	47,000	cy		
		Asphalt base course (6" thick) (23 cy each)	8140	5,500	cy		
		Asphalt surfacing (6" thick) (23 cy each)	8140	5,500	cy		
		Temporary barricades & signage ( 1 each) (assume paved and req'd for 5 days ea)	8140	240	ls		
		<u>Major Road Crossings, 4 lanes (to include):</u>		23	ea	\$60,000.00	\$1,380,000.00
		Compacting backfill for road base (341 cy each)	8140	7,900	cy		
		Asphalt base course (6" thick) (39 cy each)	8140	900	cy		
		Asphalt surfacing (6" thick) (40 cy each)	8140	920	cy		
		Temp. detour, barricades, & signage (1000') (assume paved and req'd for 10 days ea)	8140	23	ls		
		<u>Interstate and Highway Crossings (to include):</u>		23	ea	\$300,000.00	\$6,900,000.00
		Horizontal Directional Drilling, 36" dia carrier pipe, min. cover depth is 20 ft, 500 lin. ft. each	8140	11,500	lin. ft.		
		48" dia casing pipe, welded steel 1/4" thick	8140	11,500	lin. ft.		
		Grout between borehole and casing pipe	8140	6,700	cy		
		<u>Railroad Crossing (to include):</u>		12	ea	\$120,000.00	\$1,440,000.00
		Horizontal Directional Drilling, 36" dia carrier pipe, min. cover depth is 20 ft, 150 lin. ft. each	8140	1,800	lin. ft.		
		48" dia casing pipe, welded steel 1/4" thick	8140	1,800	lin. ft.		
		Grout between borehole and casing pipe	8140	1,050	cy		
<b>SUBTOTAL THIS SHEET</b>							<b>\$15,860,000.00</b>

QUANTITIES		PRICES	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> <i>Jeff Morris and Michael Kramer</i> Jeff Morris and Michael Kramer	<b>CHECKED</b> <i>me gus</i> 4/26/11
<b>DATE PREPARED</b> 02/07/11	<b>PEER REVIEW / DATE</b> Dave Edwards	<b>DATE PREPARED</b> 04/06/11	<b>PEER REVIEW / DATE</b> <i>me gus</i> 4/26/11

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Crossings Alternative 5, Max Day Condition Crossings  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;"><b>WOID:</b> AF523</td> <td style="width:70%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC option 5 crossings.xlsx\Sheet1	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Major River Crossing (to include):</u>		8	ea	\$1,000,000.00	\$8,000,000.00
		Horizontal Directional Drilling, 36" dia. Pipe, 48" (1000 lin. ft ea)	8140	8,000	lin ft		
		48" dia. Casing pipe, 1/4" thick (1000 lin. ft ea) average cover depth is 20 ft	8140	8,000	lin ft		
		<b>SUBTOTAL THIS SHEET</b>					<b>\$8,000,000.00</b>
		<b>SUBTOTAL CROSSINGS ALTERNATIVE 5 THIS SHEET</b>					<b>\$23,860,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
<b>BY</b> Michael Shepherd	<b>CHECKED</b> W. Chris Duke	<b>BY</b> <i>Jeff Morris and Michael Kramer</i>	<b>CHECKED</b> <i>Mary Ann</i>
<b>DATE PREPARED</b> 02/07/11	<b>PEER REVIEW / DATE</b> Dave Edwards	<b>DATE PREPARED</b> 04/06/11	<b>PEER REVIEW / DATE</b> <i>9/16/11</i>

<b>FEATURE:</b>  Arkansas Valley Conduit Pipeline Alternative 5 Max Day Condition Dewatering  <b>Civil</b>	<b>PROJECT:</b> Fryingpan-Arkansas Project  <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%;"><b>WOID:</b> AF523</td> <td style="width:50%;"><b>ESTIMATE LEVEL:</b> Appraisal</td> </tr> <tr> <td><b>REGION:</b> GP</td> <td><b>UNIT PRICE LEVEL:</b> Jan-11</td> </tr> </table> <b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Cost Estimate Worksheets from Designers\AVC Estimate Worksheet Dewaterings All Alts 031011.xlsx\Alt 5	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal				
<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11				

PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		<u>Well Set Up (to include):</u>			ea		
		Mobilization/Demobilization					
		Unwatering System- Power for dewatering system shall be sufficient to handle power for unwatering system at the same time					
		Installation of 15' deep wells, Pump 100 gpm					
		8 inch dia. 5 ft long slotted well screens					
		8 inch dia. well casing					
		Install 2 inch dia. monitoring well					
		Well Development					
		Well completion pumping test 4 hr					
		Discharge Piping if no settling pond needed					
		check valves					
		flow meters					
		sampling ports					
		Power					
		All necessary generators, wiring, connections fuel, maintenance, rentals, etc. to provide power to dewatering system					
		Well Removal and Decommissioning					
		<u>Well Set Ups per Reach/Spur:</u>					
		Duration of operation is approximately 2 months operating time per well					
		Reaches 1 through 4	8140	925	ea	\$3,500.00	\$3,237,500.00
		17.48 miles in saturated areas requiring 1 well per 100' of pipe trench					
		Spurs	8140	95	ea	\$3,500.00	\$332,500.00
		1.75 miles in saturated areas requiring 1 well per 100' of pipe trench					
<b>SUBTOTAL THIS SHEET</b>							<b>\$3,570,000.00</b>

<b>QUANTITIES</b>		<b>PRICES</b>	
BY Nathan Lehman	CHECKED W. Chris Duke	BY Jeff Morris <i>Jeff Morris</i>	CHECKED <i>DC</i> 04-08-11
DATE PREPARED 03/15/11	PEER REVIEW / DATE Dave Edwards	DATE PREPARED 04/08/11	PEER REVIEW / DATE <i>DC</i> 4/8/11





<b>FEATURE:</b> Arkansas Valley Conduit Alternative 1 OM&R Costs Summary Sheet (Present Worth Without Escalation to NTP)	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Comm\JM\Arkansas Valley Conduit Appraisal Estimate\Life Cycle Costs\Alt 1\OM&R Calcs-Alt 1-without escalation Revised 6-21-2012.xlsx\Periodic Costs	

Periodic (Replacement) Costs				P/F Factor	Estimated Periodic Costs	Present Worth Costs (Jan 2011)
Year 5			PW Factor	0.81701	\$370,000	\$302,294
Year 10			PW Factor	0.66750	\$370,000	\$246,975
Year 15			PW Factor	0.54535	\$1,000,000	\$545,350
Year 20			PW Factor	0.44555	\$8,500,000	\$3,787,175
Year 25			PW Factor	0.36402	\$2,000,000	\$728,040
Year 30			PW Factor	0.29741	\$6,600,000	\$1,962,906
Year 35			PW Factor	0.24298	\$370,000	\$89,903
Year 40			PW Factor	0.19852	\$8,500,000	\$1,687,420
Year 45			PW Factor	0.16219	\$1,000,000	\$162,190
Year 50			PW Factor	0.13251	\$2,400,000	\$318,024
<b>Subtotal Periodic (Replacement) Costs</b>						<b>\$9,830,276</b>
Mobilization (+/- 5%)						\$490,000
Subtotal 1 with Mobilization						\$10,320,276
Escalation to NTP						\$0
Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP						\$10,320,276
Design Contingencies (+/- 15%)						\$1,679,724
<b>Contract Cost</b>						\$12,000,000
Construction Contingencies (+/- 25%)						\$3,000,000
<b>Field Cost</b>						\$15,000,000
Non-Contract Costs (+/- 25%)						\$4,000,000
<b>Total Periodic (Replacement) Present Worth Costs Rounded (Jan-2011)</b>						<b>\$19,000,000</b>
<b>Annual Periodic (Replacement) Costs Rounded (Jan-2011)</b>						<b>\$900,000</b>

Annual (Operations and Maintenance) Costs				P/A Factor	Estimated Annual Costs	Present Worth Costs (Jan 2011)
Maintenance Costs			PWA Factor	21.03006	\$140,000	\$2,944,208
Operations Costs			PWA Factor	21.03006	\$370,000	\$7,781,122
Energy Costs for Pumping			PWA Factor	21.03006	\$700,000	\$14,721,042
<b>Subtotal Annual (Operation and Maintenance) Costs</b>						<b>\$25,446,373</b>
Escalation to NTP						\$0
Subtotal 1 with Escalation to NTP						\$25,446,373
Design Contingencies (+/- 10%)						\$2,553,627
Subtotal 3 = Subtotal 2 + Design Contingencies						\$28,000,000
Non-Contract Costs (+/- 10%)						\$3,000,000
<b>Total (Annual Operation and Maintenance) Present Worth Costs Rounded (Jan-2011)</b>						<b>\$31,000,000</b>
<b>Annual (Operation and Maintenance) Costs Rounded (Jan-2011)</b>						<b>\$1,500,000</b>

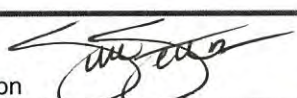

- FY2011 planning interest rate 4.125% per year for 50 years.
- PWA Factor =  $P/A = (((1+i)^n) - 1) / (i * ((1+i)^n))$  = Uniform Series Present Worth Factor (P/A, 4.125%, 50)
- PW Factor =  $P/F = 1 / (1+i)^n$  = Single Payment Present Worth (P/F, 4.125%)

**Notes:**

These life cycle costs do not include OM&R of the water treatment plant or overhead expenses (office space, administration, etc.) incurred by the managing authority.

These life cycle costs assume that the pipeline operators are based in the WTP building.

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
<b>BY</b> Jeff Morris	<b>CHECKED</b> TSC Design Team	<b>BY</b> Jim Jetton	<b>CHECKED</b> 
<b>DATE PREPARED</b> 08/04/11	<b>PEER REVIEW / DATE</b> TSC Design Team 7/11	<b>DATE PREPARED</b> 06/21/12	<b>PEER REVIEW / DATE</b>  7/2/12





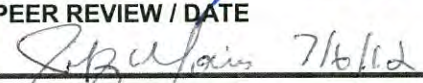
<b>FEATURE:</b> Arkansas Valley Conduit Alternative 2 OM&R Costs Summary Sheet (Present Worth Without Escalation to NTP)	<b>PROJECT:</b> Fryngpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Commo\JM\Arkansas Valley Conduit Appraisal Estimate\Life Cycle Costs\Alt 2\OM&R Calcs-Alt 2-without escalation revised 06-25-2012.xlsx\Periodic Costs	

Periodic (Replacement) Costs				P/F Factor	Estimated Periodic Costs	Present Worth Costs (Jan 2011)
Year 5			PW Factor	0.81701	\$330,000	\$269,613
Year 10			PW Factor	0.66750	\$330,000	\$220,275
Year 15			PW Factor	0.54535	\$980,000	\$534,443
Year 20			PW Factor	0.44555	\$7,800,000	\$3,475,290
Year 25			PW Factor	0.36402	\$1,800,000	\$655,236
Year 30			PW Factor	0.29741	\$6,100,000	\$1,814,201
Year 35			PW Factor	0.24298	\$330,000	\$80,183
Year 40			PW Factor	0.19852	\$7,800,000	\$1,548,456
Year 45			PW Factor	0.16219	\$980,000	\$158,946
Year 50			PW Factor	0.13251	\$1,950,000	\$258,395
<b>Subtotal Periodic (Replacement) Costs</b>						<b>\$9,015,038</b>
Mobilization (+/- 5%)						\$450,000
Subtotal 1 with Mobilization						\$9,465,038
Escalation to NTP						\$0
Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP						\$9,465,038
Design Contingencies (+/- 15%)						\$1,534,962
<b>Contract Cost</b>						<b>\$11,000,000</b>
Construction Contingencies (+/- 25%)						\$2,500,000
<b>Field Cost</b>						<b>\$13,500,000</b>
Non-Contract Costs (+/- 25%)						\$3,500,000
<b>Total Periodic (Replacement) Present Worth Costs Rounded (Jan-2011)</b>						<b>\$17,000,000</b>
<b>Annual Periodic (Replacement) Costs Rounded (Jan-2011)</b>						<b>\$810,000</b>

Annual (Operations and Maintenance) Costs				P/A Factor	Estimated Annual Costs	Present Worth Costs (Jan 2011)
Maintenance Costs			PWA Factor	21.03006	\$87,000	\$1,829,615
Operations Costs			PWA Factor	21.03006	\$360,000	\$7,570,822
Energy Costs for Pumping			PWA Factor	21.03006	\$13,500	\$283,906
<b>Subtotal Annual (Operation and Maintenance) Costs</b>						<b>\$9,684,343</b>
Escalation to NTP						\$0
Subtotal 1 with Escalation to NTP						\$9,684,343
Design Contingencies (+/- 10%)						\$815,657
Subtotal 3 = Subtotal 2 + Design Contingencies						\$10,500,000
Non-Contract Costs (+/- 10%)						\$1,000,000
<b>Total (Annual Operation and Maintenance) Present Worth Costs Rounded (Jan-2011)</b>						<b>\$11,500,000</b>
<b>Annual (Operation and Maintenance) Costs Rounded (Jan-2011)</b>						<b>\$550,000</b>

- FY2011 planning interest rate 4.125% per year for 50 years.  
 - PWA Factor =  $P/A = (((1+i)^n) - 1) / (i * ((1+i)^n))$  = Uniform Series Present Worth Factor (P/A, 4.125%, 50)  
 - PW Factor =  $P/F = 1 / (1+i)^n$  = Single Payment Present Worth (P/F, 4.125%)

**Notes:**  
 These life cycle costs do not include OM&R of the water treatment plant or overhead expenses (office space, administration, etc.) incurred by the managing authority.  
 These life cycle costs assume that the pipeline operators are based in the WTP building.  
 Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
<b>BY</b> Jeff Morris	<b>CHECKED</b> TSC Design Team	<b>BY</b>  Jim Jetton	<b>CHECKED</b>  7/2/12
<b>DATE PREPARED</b> 06/22/12	<b>PEER REVIEW / DATE</b> TSC Design Team 6/12	<b>DATE PREPARED</b> 06/22/12	<b>PEER REVIEW / DATE</b>  7/6/12




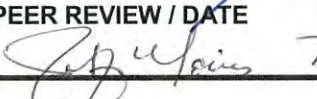
<b>FEATURE:</b> Arkansas Valley Conduit Alternative 3 OM&R Costs Summary Sheet (Present Worth Without Escalation to NTP)	<b>PROJECT:</b> Fryirpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Commo\JM\Arkansas Valley Conduit Appraisal Estimate\Life Cycle Costs\Alt 3\OM&R Calcs-Alt 3-without escalation - revised 06-25-2012.xlsx\Periodic Costs	

Periodic (Replacement) Costs				P/F Factor	Estimated Periodic Costs	Present Worth Costs (Jan 2011)
Year 5			PW Factor	0.81701	\$420,000	\$343,144
Year 10			PW Factor	0.66750	\$420,000	\$280,350
Year 15			PW Factor	0.54535	\$1,050,000	\$572,618
Year 20			PW Factor	0.44555	\$9,200,000	\$4,099,060
Year 25			PW Factor	0.36402	\$1,900,000	\$691,638
Year 30			PW Factor	0.29741	\$7,100,000	\$2,111,611
Year 35			PW Factor	0.24298	\$420,000	\$102,052
Year 40			PW Factor	0.19852	\$9,200,000	\$1,826,384
Year 45			PW Factor	0.16219	\$1,050,000	\$170,300
Year 50			PW Factor	0.13251	\$2,200,000	\$291,522
<b>Subtotal Periodic (Replacement) Costs</b>						<b>\$10,488,678</b>
Mobilization (+/- 5%)						\$520,000
Subtotal 1 with Mobilization						\$11,008,678
Escalation to NTP						\$0
Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP						\$11,008,678
Design Contingencies (+/- 15%)						\$1,491,322
<b>Contract Cost</b>						<b>\$12,500,000</b>
Construction Contingencies (+/- 25%)						\$3,500,000
<b>Field Cost</b>						<b>\$16,000,000</b>
Non-Contract Costs (+/- 25%)						\$4,000,000
<b>Total Periodic (Replacement) Present Worth Costs Rounded (Jan-2011)</b>						<b>\$20,000,000</b>
<b>Annual Periodic (Replacement) Costs Rounded (Jan-2011)</b>						<b>\$950,000</b>

Annual (Operations and Maintenance) Costs				P/A Factor	Estimated Annual Costs	Present Worth Costs (Jan 2011)
Maintenance Costs			PWA Factor	21.03006	\$120,000	\$2,523,607
Operations Costs			PWA Factor	21.03006	\$370,000	\$7,781,122
Energy Costs for Pumping			PWA Factor	21.03006	\$250,000	\$5,257,515
<b>Subtotal Annual (Operation and Maintenance) Costs</b>						<b>\$15,562,244</b>
Escalation to NTP						\$0
Subtotal 1 with Escalation to NTP						\$15,562,244
Design Contingencies (+/- 10%)						\$1,437,756
Subtotal 3 = Subtotal 2 + Design Contingencies						\$17,000,000
Non-Contract Costs (+/- 10%)						\$1,500,000
<b>Total (Annual Operation and Maintenance) Present Worth Costs Rounded (Jan-2011)</b>						<b>\$18,500,000</b>
<b>Annual (Operation and Maintenance) Costs Rounded (Jan-2011)</b>						<b>\$880,000</b>

- FY2011 planning interest rate 4.125% per year for 50 years.  
- PWA Factor =  $P/A = (((1+i)^n) - 1) / (i * ((1+i)^n))$  = Uniform Series Present Worth Factor (P/A, 4.125%, 50)  
- PW Factor =  $P/F = 1 / (1+i)^n$  = Single Payment Present Worth (P/F, 4.125%)

**Notes:**  
These life cycle costs do not include OM&R of the water treatment plant or overhead expenses (office space, administration, etc.) incurred by the managing authority.  
These life cycle costs assume that the pipeline operators are based in the WTP building.  
Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Jeff Morris	CHECKED TSC Design Team	BY Jim Jetton	CHECKED  7/2/12
DATE PREPARED 06/22/12	PEER REVIEW / DATE TSC Design Team 7/11	DATE PREPARED 06/22/12	PEER REVIEW / DATE  7/6/12



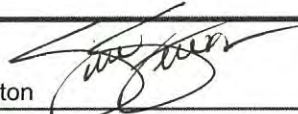


<b>FEATURE:</b> Arkansas Valley Conduit Alternative 4 OM&R Costs Summary Sheet (Present Worth Without Escalation to NTP)	<b>PROJECT:</b> Fryingpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Life Cycle Costs\Alt 4\OM&R Calcs-Alt 4-without escalation - revisions 06-25-2012.xlsx\Periodic Costs	

Periodic (Replacement) Costs				P/F Factor	Estimated Periodic Costs	Present Worth Costs (Jan 2011)
Year 5			PW Factor	0.81701	\$430,000	\$351,314
Year 10			PW Factor	0.66750	\$430,000	\$287,025
Year 15			PW Factor	0.54535	\$1,100,000	\$599,885
Year 20			PW Factor	0.44555	\$9,400,000	\$4,188,170
Year 25			PW Factor	0.36402	\$1,950,000	\$709,839
Year 30			PW Factor	0.29741	\$7,100,000	\$2,111,611
Year 35			PW Factor	0.24298	\$430,000	\$104,481
Year 40			PW Factor	0.19852	\$9,400,000	\$1,866,088
Year 45			PW Factor	0.16219	\$1,100,000	\$178,409
Year 50			PW Factor	0.13251	\$2,300,000	\$304,773
<b>Subtotal Periodic (Replacement) Costs</b>						<b>\$10,701,596</b>
Mobilization (+/- 5%)						\$540,000
Subtotal 1 with Mobilization						\$11,241,596
Escalation to NTP						\$0
Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP						\$11,241,596
Design Contingencies (+/- 15%)						\$1,758,404
<b>Contract Cost</b>						<b>\$13,000,000</b>
Construction Contingencies (+/- 25%)						\$3,000,000
<b>Field Cost</b>						<b>\$16,000,000</b>
Non-Contract Costs (+/- 25%)						\$4,000,000
<b>Total Periodic (Replacement) Present Worth Costs Rounded (Jan-2011)</b>						<b>\$20,000,000</b>
<b>Annual Periodic (Replacement) Costs Rounded (Jan-2011)</b>						<b>\$950,000</b>

Annual (Operations and Maintenance) Costs				P/A Factor	Estimated Annual Costs	Present Worth Costs (Jan 2011)
Maintenance Costs			PWA Factor	21.03006	\$125,000	\$2,628,758
Operations Costs			PWA Factor	21.03006	\$370,000	\$7,781,122
Energy Costs for Pumping			PWA Factor	21.03006	\$165,000	\$3,469,960
<b>Subtotal Annual (Operation and Maintenance) Costs</b>						<b>\$13,879,840</b>
Escalation to NTP						\$0
Subtotal 1 with Escalation to NTP						\$13,879,840
Design Contingencies (+/- 10%)						\$1,620,160
Subtotal 3 = Subtotal 2 + Design Contingencies						\$15,500,000
Non-Contract Costs (+/- 10%)						\$1,500,000
<b>Total (Annual Operation and Maintenance) Present Worth Costs Rounded (Jan-2011)</b>						<b>\$17,000,000</b>
<b>Annual (Operation and Maintenance) Costs Rounded (Jan-2011)</b>						<b>\$810,000</b>

- FY2011 planning interest rate 4.125% per year for 50 years.  
- PWA Factor =  $P/A = (((1+i)^n) - 1) / (i * ((1+i)^n)) =$  Uniform Series Present Worth Factor (P/A, 4.125%, 50)  
- PW Factor =  $P/F = 1 / (1+i)^n =$  Single Payment Present Worth (P/F, 4.125%)

**Notes:**  
These life cycle costs do not include OM&R of the water treatment plant or overhead expenses (office space, administration, etc.) incurred by the managing authority.  
These life cycle costs assume that the pipeline operators are based in the WTP building.  
Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Jeff Morris	CHECKED TSC Design Team	BY Jim Jetton	CHECKED 
DATE PREPARED 06/22/12	PEER REVIEW / DATE TSC Design Team 6/12	DATE PREPARED 06/22/12	PEER REVIEW / DATE  7/2/12
			 7/6/12



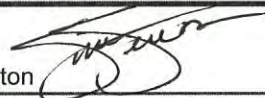

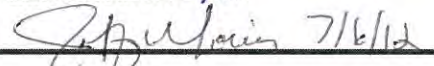
<b>FEATURE:</b> Arkansas Valley Conduit Alternative 5 OM&R Costs Summary Sheet (Present Worth Without Escalation to NTP)	<b>PROJECT:</b> Fryngpan-Arkansas Project	
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11
	<b>FILE:</b> H:\D8170\Common\JM\Arkansas Valley Conduit Appraisal Estimate\Life Cycle Costs\Alt 5\OM&R Calcs-Alt 5-without escalation - revisions 06-25-2012.xlsx\Periodic Costs	

Periodic (Replacement) Costs				P/F Factor	Estimated Periodic Costs	Present Worth Costs (Jan 2011)
Year 5			PW Factor	0.81701	\$470,000	\$383,995
Year 10			PW Factor	0.66750	\$470,000	\$313,725
Year 15			PW Factor	0.54535	\$1,100,000	\$599,885
Year 20			PW Factor	0.44555	\$10,000,000	\$4,455,500
Year 25			PW Factor	0.36402	\$1,750,000	\$637,035
Year 30			PW Factor	0.29741	\$7,700,000	\$2,290,057
Year 35			PW Factor	0.24298	\$470,000	\$114,201
Year 40			PW Factor	0.19852	\$10,000,000	\$1,985,200
Year 45			PW Factor	0.16219	\$1,100,000	\$178,409
Year 50			PW Factor	0.13251	\$1,900,000	\$251,769
<b>Subtotal Periodic (Replacement) Costs</b>						<b>\$11,209,775</b>
Mobilization (+/- 5%)						\$560,000
Subtotal 1 with Mobilization						\$11,769,775
Escalation to NTP						\$0
Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP						\$11,769,775
Design Contingencies (+/- 15%)						\$1,730,225
<b>Contract Cost</b>						<b>\$13,500,000</b>
Construction Contingencies (+/- 25%)						\$3,500,000
<b>Field Cost</b>						<b>\$17,000,000</b>
Non-Contract Costs (+/- 25%)						\$4,000,000
<b>Total Periodic (Replacement) Present Worth Costs Rounded (Jan-2011)</b>						<b>\$21,000,000</b>
<b>Annual Periodic (Replacement) Costs Rounded (Jan-2011)</b>						<b>\$1,000,000</b>

Annual (Operations and Maintenance) Costs				P/A Factor	Estimated Annual Costs	Present Worth Costs (Jan 2011)
Maintenance Costs			PWA Factor	21.03006	\$150,000	\$3,154,509
Operations Costs			PWA Factor	21.03006	\$370,000	\$7,781,122
Energy Costs for Pumping			PWA Factor	21.03006	\$490,000	\$10,304,729
<b>Subtotal Annual (Operation and Maintenance) Costs</b>						<b>\$21,240,361</b>
Escalation to NTP						\$0
Subtotal 1 with Escalation to NTP						\$21,240,361
Design Contingencies (+/- 10%)						\$1,759,639
Subtotal 3 = Subtotal 2 + Design Contingencies						\$23,000,000
Non-Contract Costs (+/- 10%)						\$2,000,000
<b>Total (Annual Operation and Maintenance) Present Worth Costs Rounded (Jan-2011)</b>						<b>\$25,000,000</b>
<b>Annual (Operation and Maintenance) Costs Rounded (Jan-2011)</b>						<b>\$1,200,000</b>

- FY2011 planning interest rate 4.125% per year for 50 years.  
- PWA Factor =  $P/A = \frac{((1+i)^n - 1)}{i \cdot ((1+i)^n)}$  = Uniform Series Present Worth Factor (P/A, 4.125%, 50)  
- PW Factor =  $P/F = \frac{1}{(1+i)^n}$  = Single Payment Present Worth (P/F, 4.125%)

**Notes:**  
These life cycle costs do not include OM&R of the water treatment plant or overhead expenses (office space, administration, etc.) incurred by the managing authority.  
These life cycle costs assume that the pipeline operators are based in the WTP building.  
Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Jeff Morris	CHECKED TSC Design Team	BY Jim Jetton 	CHECKED  7/2/12
DATE PREPARED 06/22/12	PEER REVIEW / DATE TSC Design Team 6/12	DATE PREPARED 06/22/12	PEER REVIEW / DATE  7/6/12



<b>FEATURE:</b> Arkansas Valley Conduit Water Treatment Plant OM&R Costs Summary Sheet (Present Worth) Costs Provided by Black & Veatch	<b>PROJECT:</b> Fryingpan-Arkansas Project		
	<b>WOID:</b> AF523	<b>ESTIMATE LEVEL:</b> Appraisal	
	<b>REGION:</b> GP	<b>UNIT PRICE LEVEL:</b> Jan-11	
	<b>FILE:</b> H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Life Cycle Costs\WTP\OM&R Calcs-WTP-with escalation.xlsx\Periodic Costs		

Periodic (Replacement) Costs	P/F Factor	Estimated Periodic Costs	Present Worth Costs
Year 5	PW Factor 0.81701	\$0	\$0
Year 10	PW Factor 0.66750	\$0	\$0
Year 15	PW Factor 0.54535	\$0	\$0
Year 20	PW Factor 0.44555	\$0	\$0
Year 25	PW Factor 0.36402	\$0	\$0
Year 30	PW Factor 0.29741	\$0	\$0
Year 35	PW Factor 0.24298	\$0	\$0
Year 40	PW Factor 0.19852	\$0	\$0
Year 45	PW Factor 0.16219	\$0	\$0
Year 50	PW Factor 0.13251	\$0	\$0

<b>Subtotal Periodic (Replacement) Costs</b>			<b>\$0</b>
Mobilization (+/- 5%)			\$0
Subtotal 1 with Mobilization			\$0
Escalation to NTP			\$0
Subtotal 2 = Subtotal 1 with Mobilization + Escalation to NTP			\$0
Design Contingencies (+/- 15%)			\$0
<b>Contract Cost</b>			\$0
Construction Contingencies (+/- 25%)			\$0
<b>Field Cost</b>			\$0
Non-Contract Costs (+/- 25%)			\$0
<b>Total Periodic (Replacement) Present Worth Costs Rounded (Jan-2011)</b>			<b>\$0</b>
<b>Annual Periodic (Replacement) Costs Rounded (Jan-2011)</b>			<b>\$0</b>

Annual (Operation and Maintenance) Costs	P/A Factor	Estimated Annual Costs	Present Worth Costs
Maintenance	PWA Factor 21.03006	\$63,480	\$1,334,988
Operations Costs	PWA Factor 21.03006	\$840,000	\$17,665,250
Chemical Costs	PWA Factor 21.03006	\$535,000	\$11,251,082
Residuals Costs	PWA Factor 21.03006	\$130,000	\$2,733,908
Energy Costs for Pumping	PWA Factor 21.03006	\$99,300	\$2,088,285
<b>Subtotal Annual (Operation and Maintenance) Costs</b>			<b>\$35,073,513</b>
Escalation to NTP			\$0
Subtotal 1 with Escalation to NTP			\$35,073,512
Design Contingencies (+/- 10%)			\$3,926,488
Subtotal 3 = Subtotal 2 + Design Contingencies			\$39,000,000
Non-Contract Costs (+/- 10%)			\$4,000,000
<b>Total Annual (Operation and Maintenance) Present Worth Costs Rounded (Jan-2011)</b>			<b>\$43,000,000</b>
<b>Annual (Operation and Maintenance) Costs Rounded (Jan-2011)</b>			<b>\$2,000,000</b>

- FY2011 planning interest rate 4.125% per year for 50 years.
- PWA Factor =  $P/A = ((1+i)^n - 1) / (i * (1+i)^n)$  = Uniform Series Present Worth Factor (P/A, 4.125%, 50)
- PW Factor =  $P/F = 1 / (1+i)^n$  = Single Payment Present Worth (P/F, 4.125%)

**Notes:**  
 Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

QUANTITIES		PRICES	
BY Black & Veatch	CHECKED	BY Black & Veatch; TSC added design contingency and non-contract costs	CHECKED <i>[Signature]</i> 6/22/12
DATE PREPARED 11/18/11	PEER REVIEW / DATE	DATE PREPARED 11/18/2011; TSC removed escalation on 6/20/12	PEER REVIEW / DATE <i>[Signature]</i> 6/22/12