



## APPENDIX A

### CONCEPTUAL COST ESTIMATE SUMMARIES



### APPENDIX A.1

### MILVON TO WEST RIVER (MWR) COST ESTIMATE SUMMARY



### APPENDIX A.1.1

### MWR ALTERNATIVE 1 COST ESTIMATE SUMMARY

COST ESTIMATE SUMMARY

WORK CODE	ACCOUNTS	EQUIP AND MATERIAL COST	TAX	LABOR COST	TOTAL
	<b>MATERIALS</b>				
T03	SURVEYING	\$0	\$0	\$41,000	\$41,000
T04	SOIL BORINGS	\$321,000	\$20,384	\$0	\$341,384
T05	RIGHT-OF-WAY	\$0	\$0	\$0	\$0
T06	CLEARING	\$5,265	\$335	\$704,927	\$710,527
T07	ACCESS	\$1,455,144	\$92,402	\$2,731,017	\$4,278,563
T08	TREE RESTORATION ALLOWANCE	\$0	\$0	\$100,000	\$100,000
T09	69 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	115 KV STRUCTURES	\$2,753,259	\$174,832	\$1,582,721	\$4,510,812
T09	138 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	161 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	230 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	345 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	500 KV STRUCTURES	\$0	\$0	\$0	\$0
T10	FOUNDATIONS	\$781,390	\$49,618	\$5,538,307	\$6,369,315
T11	CONDUCTOR	\$386,100	\$24,517	\$665,054	\$1,075,671
T12	SHIELD WIRES (OPGW)	\$81,069	\$5,148	\$202,982	\$289,199
T13	SPECIAL MATERIAL 1	\$0	\$0	\$0	\$0
T14	SUBSTATION FIBER CONDUIT	\$0	\$0	\$50,000	\$50,000
T15	DISTRIBUTION	\$0	\$0	\$0	\$0
T16	REMOVALS	\$0	\$0	\$3,000,000	\$3,000,000
T17	BORING	\$0	\$0	\$0	\$0
T18	RISER & TERMINATION STRUCTURES	\$0	\$0	\$0	\$0
T19	TRENCHING	\$0	\$0	\$0	\$0
T20	XLPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T21	PIPE TYPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T22	FIBER SYSTEM	\$0	\$0	\$0	\$0
T23	STREAM DIVERSION	\$0	\$0	\$0	\$0
	INSURANCE	\$0	\$0	\$300,000.00	\$300,000
	RAILROAD PROTECTIVE LIABILITY INSURANCE	\$0	\$0	\$250,000.00	\$250,000
	FLAGMEN	\$0	\$0	\$3,000,000	\$3,000,000
	SIGNALMAN/GROUNDMEN	\$0	\$0	\$1,000,000	\$1,000,000
	LAYDOWN/SECURITY	\$0	\$0	\$100,000	\$100,000
	SITE DEV. SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$40,000	\$40,000
	FOUNDATION SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$120,000	\$120,000
	GENERAL SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$100,000	\$100,000
	MOBILIZATION/DEMOBILIZATION	\$0	\$0	\$40,000	\$40,000
	TRAFFIC PERMITS & CONTROL	\$5,000	\$0	\$40,000	\$45,000
	<b>SUBTOTAL</b>	<b>\$5,788,227</b>	<b>\$367,236</b>	<b>\$19,606,008</b>	<b>\$25,761,471</b>
	CONTINGENCY - MISC EQUIP/MAT/LABOR (25%)	\$1,365,557	\$86,713	\$4,151,502	\$5,603,772
	CONTRACTOR'S OH/PROFIT (10%)	\$0	\$0	\$2,375,751	\$2,375,751
	<b>ENGINEERING</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3,200,000</b>	<b>\$3,200,000</b>
	<b>CONSTRUCTION MANAGEMENT</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3,200,000</b>	<b>\$3,200,000</b>
	<b>ESCALATION @1.75% PER YEAR FOR 8.5 YEARS</b>	<b>\$1,136,671</b>	<b>\$72,128</b>	<b>\$5,169,239</b>	<b>\$6,378,038</b>
	<b>TOTAL</b>	<b>\$8,290,455</b>	<b>\$526,077</b>	<b>\$37,702,499</b>	<b>\$46,519,032</b>
	<b>INITIAL CONTRACT PRICE - TARGET COST OF WORK</b>				<b>\$46,519,032</b>
	<b>UI COSTS</b>				
	PRE-2018				\$681,266
	PERMITTING (CSC)/LEGAL				\$1,251,612
	LAND ACQUISITION				\$2,938,381
	UI PROJECT MANAGEMENT & ADMINISTRATION				\$631,395
	UI ENGINEERING				\$727,270
	UI CONSTRUCTION INSPECTION				\$266,164
	UI T&S LABOR				\$51,370
	UI OVERHEADS/ALLOCATIONS				\$3,893,768
	ENVIRONMENTAL HOURS				\$83,864
	REAL ESTATE HOURS				\$23,862
	ENVIRONMENTAL PERMITTING				\$249,575
	OTHER CONSULTANTS				\$431,579
	ENVIRONMENTAL REMEDIATION				\$792,774
	REMOTE END MODIFICATIONS				\$50,000
	AFUDC				\$12,463,047
	CONTINGENCY				\$8,631,579
	UI TAXES				\$562,990
	<b>UI TOTAL</b>				<b>\$33,730,496</b>
	<b>PROJECT TOTAL</b>	<b>\$8,290,455</b>	<b>\$526,077</b>	<b>\$37,702,499</b>	<b>\$80,249,528</b>

PARAMETERS			
Accuracy	Order of Magnitude: +50%/-25%	Engineering	- MH
Contingency	25%	Const Mgmt	- MH
Minimum	\$60,187,146		
Maximum	\$120,374,292		
B&V Project No	195880		

  

APPROVALS			
Kisa Bandyopadhyay Estimator		6/29/18	Date
Kimberly D. Waggoner B&V Project Manager		7/2/18	Date
Arron Lewis B&V Project Director		7/2/2018	Date
Jim Yeske UI Project Manager		7/26/18	Date

  

HISTORY	STAGES	ACCURACY	CONTRACTED		
			CONTINGENCY	PRICE	TOTAL
Sept. 29, 2017	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - INCLUDE ADDTL UI COSTS	+50%/-25%	25%	\$42,285,490	\$62,158,814*
Feb. 16, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - INCLUDE ADDTL UI COSTS	+50%/-25%	25%	\$46,519,032	\$64,967,356*
March 30, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE REAL ESTATE COST	+50%/-25%	25%	\$46,519,032	\$67,905,737*
April 25, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - ADDED CSC	+50%/-25%	25%	\$46,519,032	\$69,114,191*
June 30, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - ADDED AFUDC COST; UPDATED UI COSTS	+50%/-25%	25%	\$46,519,032	\$80,249,528

\* DOES NOT INCLUDE ALL UI COSTS

COST ESTIMATE SUMMARY

WORK CODE	ACCOUNTS	EQUIP AND MATERIAL COST	TAX	LABOR COST	TOTAL
<b>MATERIALS</b>					
T03	SURVEYING	\$0	\$0	\$29,000	\$29,000
T04	SOIL BORINGS	\$275,200	\$17,475	\$0	\$292,675
T05	RIGHT-OF-WAY	\$0	\$0	\$0	\$0
T06	CLEARING	\$3,789	\$241	\$531,305	\$535,335
T07	ACCESS	\$1,006,948	\$63,941	\$1,934,790	\$3,005,679
T08	TREE RESTORATION ALLOWANCE	\$0	\$0	\$100,000	\$100,000
T09	69 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	115 KV STRUCTURES	\$2,046,806	\$129,972	\$1,271,392	\$3,448,170
T09	138 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	161 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	230 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	345 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	500 KV STRUCTURES	\$0	\$0	\$0	\$0
T10	FOUNDATIONS	\$613,949	\$38,986	\$4,367,171	\$5,020,106
T11	CONDUCTOR	\$280,800	\$17,831	\$508,108	\$806,739
T12	SHIELD WIRES (OPGW)	\$56,778	\$3,605	\$152,176	\$212,559
T13	SPECIAL MATERIAL 1	\$0	\$0	\$0	\$0
T14	SUBSTATION FIBER CONDUIT	\$0	\$0	\$50,000	\$50,000
T15	DISTRIBUTION	\$0	\$0	\$0	\$0
T16	REMOVALS	\$0	\$0	\$3,000,000	\$3,000,000
T17	BORING	\$0	\$0	\$0	\$0
T18	RISER & TERMINATION STRUCTURES	\$0	\$0	\$0	\$0
T19	TRENCHING	\$0	\$0	\$0	\$0
T20	XLPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T21	PIPE TYPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T22	FIBER SYSTEM	\$0	\$0	\$0	\$0
T23	STREAM DIVERSION	\$0	\$0	\$0	\$0
	INSURANCE	\$0	\$0	\$300,000	\$300,000
	RAILROAD PROTECTIVE LIABILITY INSURANCE	\$0	\$0	\$250,000	\$250,000
	FLAGMEN	\$0	\$0	\$2,121,951	\$2,121,951
	SIGNALMAN/GROUNDMEN	\$0	\$0	\$707,317	\$707,317
	LAYDOWN/SECURITY	\$0	\$0	\$100,000	\$100,000
	SITE DEV. SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$40,000	\$40,000
	FOUNDATION SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$120,000	\$120,000
	GENERAL SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$100,000	\$100,000
	MOBILIZATION/DEMOBILIZATION	\$0	\$0	\$40,000	\$40,000
	TRAFFIC PERMITS & CONTROL	\$5,000	\$0	\$40,000	\$45,000
	<b>SUBTOTAL</b>	<b>\$4,289,270</b>	<b>\$272,052</b>	<b>\$15,763,210</b>	<b>\$20,324,532</b>
	CONTINGENCY - MISC EQUIP/MAT/LABOR (25%)	\$1,002,267	\$63,644	\$3,190,802	\$4,256,714
	CONTRACTOR'S OH/PROFIT (10%)	\$0	\$0	\$1,895,401	\$1,895,401
	<b>ENGINEERING</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,263,415</b>	<b>\$2,263,415</b>
	<b>CONSTRUCTION MANAGEMENT</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,263,415</b>	<b>\$2,263,415</b>
	<b>ESCALATION @1.75% PER YEAR FOR 6.5 YEARS</b>	<b>\$631,652</b>	<b>\$40,072</b>	<b>\$3,029,166</b>	<b>\$3,700,889</b>
	<b>TOTAL</b>	<b>\$5,923,189</b>	<b>\$375,768</b>	<b>\$28,405,408</b>	<b>\$34,704,365</b>
	<b>INITIAL CONTRACT PRICE - TARGET COST OF WORK</b>				
					<b>\$34,704,365</b>
	UI COSTS				
	PRE-2018				\$481,871
	PERMITTING (CSC)/LEGAL				\$1,481,121
	LAND ACQUISITION				\$684,655
	UI PROJECT MANAGEMENT & ADMINISTRATION				\$446,596
	UI ENGINEERING				\$514,411
	UI CONSTRUCTION INSPECTION				\$188,282
	UI T&S LABOR				\$36,335
	UI OVERHEADS/ALLOCATIONS				\$2,754,128
	ENVIRONMENTAL HOURS				\$59,318
	REAL ESTATE HOURS				\$16,878
	ENVIRONMENTAL PERMITTING				\$200,808
	OTHER CONSULTANTS				\$305,263
	ENVIRONMENTAL REMEDIATION				\$637,864
	REMOTE END MODIFICATIONS				\$50,000
	AFUDC				\$8,815,326
	CONTINGENCY				\$6,105,263
	UI TAXES				\$398,213
	<b>UI TOTAL</b>				<b>\$23,176,312</b>
	<b>PROJECT TOTAL</b>	<b>\$5,923,189</b>	<b>\$375,768</b>	<b>\$28,405,408</b>	<b>\$57,880,677</b>

## PARAMETERS

Accuracy	Order of Magnitude: +50%/-25%	Engineering	- MH
Contingency	25%	Const Mgmt	- MH
Minimum	\$43,410,508		
Maximum	\$86,821,016		
B&V Project No	195880		

## APPROVALS

Kisa Bandyopadhyay

Estimator



6/29/18

Signature

Date

Kimberly D. Waggoner

B&amp;V Project Manager



7/2/18

Signature

Date

Arron Lewis

B&amp;V Project Director



7/2/2018

Signature

Date

Jim Yeske

UI Project Manager



7/26/18

Signature

Date

HISTORY	STAGES	ACCURACY	CONTINGENCY	CONTRACTED PRICE	TOTAL
Sept. 29, 2017	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - INCLUDE ADDTl UI COSTS	+50%/-25%	25%	\$34,307,267	\$47,907,482*
Oct. 25, 2017	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE ESCALATION COSTS	+50%/-25%	25%	\$33,231,356	\$46,737,527*
Feb. 16, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE ESCALATION COSTS	+50%/-25%	25%	\$34,704,365	\$47,854,580*
March 30, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE REAL ESTATE COSTS	+50%/-25%	25%	\$34,704,365	\$48,539,235*
April 25, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - ADDED CSC	+50%/-25%	25%	\$34,704,365	\$40,989,830*
June 30, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - ADDED AFUDC COST; UPDATED UI COSTS	+50%/-25%	25%	\$34,704,365	\$57,880,677

\* DOES NOT INCLUDE ALL UI COSTS

COST ESTIMATE SUMMARY

WORK CODE	ACCOUNTS	EQUIP AND MATERIAL COST	TAX	LABOR COST	TOTAL
	<b>MATERIALS</b>				
T03	SURVEYING	\$0	\$0	\$13,000	\$13,000
T04	SOIL BORINGS	\$102,500	\$6,509	\$0	\$109,009
T05	RIGHT-OF-WAY	\$0	\$0	\$0	\$0
T06	CLEARING	\$928	\$80	\$194,800	\$195,788
T07	ACCESS	\$427,331	\$27,135	\$940,761	\$1,395,227
T08	TREE RESTORATION ALLOWANCE	\$0	\$0	\$100,000	\$100,000
T09	69 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	115 KV STRUCTURES	\$1,234,309	\$78,379	\$872,772	\$2,185,459
T09	138 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	161 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	230 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	345 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	500 KV STRUCTURES	\$0	\$0	\$0	\$0
T10	FOUNDATIONS	\$241,859	\$15,358	\$1,732,257	\$1,989,474
T11	CONDUCTOR	\$122,850	\$7,801	\$272,690	\$403,341
T12	SHIELD WIRES (OPGW)	\$24,840	\$1,577	\$80,243	\$106,660
T13	SPECIAL MATERIAL 1	\$0	\$0	\$0	\$0
T14	SUBSTATION FIBER CONDUIT	\$0	\$0	\$50,000	\$50,000
T15	DISTRIBUTION	\$0	\$0	\$0	\$0
T16	REMOVALS	\$0	\$0	\$3,000,000	\$3,000,000
T17	BORING	\$0	\$0	\$0	\$0
T18	RISER & TERMINATION STRUCTURES	\$0	\$0	\$0	\$0
T19	TRENCHING	\$0	\$0	\$0	\$0
T20	XLPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T21	PIPE TYPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T22	FIBER SYSTEM	\$0	\$0	\$0	\$0
T23	STREAM DIVERSION	\$0	\$0	\$0	\$0
	INSURANCE	\$0	\$0	\$300,000	\$300,000
	RAILROAD PROTECTIVE LIABILITY INSURANCE	\$0	\$0	\$250,000	\$250,000
	FLAGMEN	\$0	\$0	\$951,220	\$951,220
	SIGNALMAN/GROUNDMEN	\$0	\$0	\$317,073	\$317,073
	LAYDOWN/SECURITY	\$0	\$0	\$100,000	\$100,000
	SITE DEV. SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$40,000	\$40,000
	FOUNDATION SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$120,000	\$120,000
	GENERAL SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$100,000	\$100,000
	MOBILIZATION/DEMOBILIZATION	\$0	\$0	\$40,000	\$40,000
	TRAFFIC PERMITS & CONTROL	\$5,000	\$0	\$40,000	\$45,000
	<b>SUBTOTAL</b>	<b>\$2,159,617</b>	<b>\$136,819</b>	<b>\$9,514,815</b>	<b>\$11,811,250</b>
	CONTINGENCY - MISC EQUIP/MAT/LABOR (25%)	\$513,029	\$32,578	\$1,628,704	\$2,174,310
	CONTRACTOR'S OH/PROFIT (10%)	\$0	\$0	\$1,114,352	\$1,114,352
	<b>ENGINEERING</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1,014,634</b>	<b>\$1,014,634</b>
	<b>CONSTRUCTION MANAGEMENT</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1,014,634</b>	<b>\$1,014,634</b>
	<b>ESCALATION @1.75% PER YEAR FOR 4.5 YEARS</b>	<b>\$217,011</b>	<b>\$13,755</b>	<b>\$1,160,075</b>	<b>\$1,390,840</b>
	<b>TOTAL</b>	<b>\$2,889,657</b>	<b>\$183,151</b>	<b>\$15,447,213</b>	<b>\$18,520,021</b>
	<b>INITIAL CONTRACT PRICE - TARGET COST OF WORK</b>				<b>\$18,520,021</b>
	<b>UI COSTS</b>				
	PRE-2018				\$216,011
	PERMITTING (CSC)/LEGAL				\$577,947
	LAND ACQUISITION				\$921,444
	UI PROJECT MANAGEMENT & ADMINISTRATION				\$200,198
	UI ENGINEERING				\$230,598
	UI CONSTRUCTION INSPECTION				\$84,393
	UI T&S LABOR				\$16,288
	UI OVERHEADS/ALLOCATIONS				\$1,234,609
	ENVIRONMENTAL HOURS				\$26,591
	REAL ESTATE HOURS				\$7,566
	ENVIRONMENTAL PERMITTING				\$74,586
	OTHER CONSULTANTS				\$136,842
	ENVIRONMENTAL REMEDIATION				\$236,921
	REMOTE END MODIFICATIONS				\$50,000
	AFUDC				\$3,951,698
	CONTINGENCY				\$2,736,842
	UI TAXES				\$178,509
	<b>UI TOTAL</b>				<b>\$10,881,043</b>
	<b>PROJECT TOTAL</b>	<b>\$2,889,657</b>	<b>\$183,151</b>	<b>\$15,447,213</b>	<b>\$29,401,064</b>

PARAMETERS					
Accuracy	Order of Magnitude: +50%/-25%	Engineering	- MH		
Contingency					
25%		Const Mgmt	- MH		
Minimum	\$22,050,798				
Maximum	\$44,101,596				
B&V Project No	195880				
APPROVALS					
Kisa Bandyopadhyay			6/29/18		
Estimator	Signature		Date		
Kimberly D. Waggoner			7/2/18		
B&V Project Manager	Signature		Date		
Arron Lewis			7/2/2018		
B&V Project Director	Signature		Date		
Jim Yeske			7/26/18		
UI Project Manager	Signature		Date		
HISTORY					
STAGES		ACCURACY	CONTINGENCY	CONTRACTED PRICE	TOTAL
UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - INCLUDE ADDTL UI COSTS		+50%/-25%	25%	\$19,635,112	\$25,935,587*
Sept. 29, 2017					
UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE ESCALATION COSTS		+50%/-25%	25%	\$18,478,339	\$24,778,814*
Oct. 25, 2017					
UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE REAL ESTATE COSTS		+50%/-25%	25%	\$18,520,021	\$25,271,940*
March 30, 2018					
UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - ADDED CSC		+50%/-25%	25%	\$18,520,021	\$25,836,203*
April 25, 2018					
UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - ADDED AFUDC COST; UPDATED UI COSTS		+50%/-25%	25%	\$18,520,021	\$29,401,064
June 30, 2018					
* DOES NOT INCLUDE ALL UI COSTS					

COST ESTIMATE SUMMARY

WORK CODE	ACCOUNTS	EQUIP AND MATERIAL COST	TAX	LABOR COST	TOTAL
	<b>MATERIALS</b>				
T03	SURVEYING	\$0	\$0	\$12,000	\$12,000
T04	SOIL BORINGS	\$111,400	\$7,074	\$0	\$118,474
T05	RIGHT-OF-WAY	\$0	\$0	\$0	\$0
T06	CLEARING	\$943	\$61	\$196,590	\$197,594
T07	ACCESS	\$418,045	\$26,546	\$919,704	\$1,364,295
T08	TREE RESTORATION ALLOWANCE	\$0	\$0	\$100,000	\$100,000
T09	69 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	115 KV STRUCTURES	\$1,052,584	\$66,839	\$806,698	\$1,926,122
T09	138 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	161 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	230 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	345 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	500 KV STRUCTURES	\$0	\$0	\$0	\$0
T10	FOUNDATIONS	\$279,068	\$17,721	\$2,004,795	\$2,301,584
T11	CONDUCTOR	\$122,850	\$7,801	\$272,690	\$403,341
T12	SHIELD WIRES (OPGW)	\$24,840	\$1,577	\$80,243	\$106,660
T13	SPECIAL MATERIAL 1	\$0	\$0	\$0	\$0
T14	SUBSTATION TIE FIBER CONDUIT	\$0	\$0	\$50,000	\$50,000
T15	DISTRIBUTION	\$0	\$0	\$0	\$0
T16	REMOVALS	\$0	\$0	\$3,000,000	\$3,000,000
T17	BORING	\$0	\$0	\$0	\$0
T18	RISER & TERMINATION STRUCTURES	\$0	\$0	\$0	\$0
T19	TRENCHING	\$0	\$0	\$0	\$0
T20	XLPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T21	PIPE TYPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T22	FIBER SYSTEM	\$0	\$0	\$0	\$0
T23	STREAM DIVERSION	\$0	\$0	\$0	\$0
	INSURANCE	\$0	\$0	\$300,000	\$300,000
	RAILROAD PROTECTIVE LIABILITY INSURANCE	\$0	\$0	\$250,000	\$250,000
	FLAGMEN	\$0	\$0	\$878,049	\$878,049
	SIGNALMAN/GROUNDMEN	\$0	\$0	\$292,683	\$292,683
	LAYDOWN/SECURITY	\$0	\$0	\$100,000	\$100,000
	SITE DEV. SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$40,000	\$40,000
	FOUNDATION SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$120,000	\$120,000
	GENERAL SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$100,000	\$100,000
	MOBILIZATION/DEMOBILIZATION	\$0	\$0	\$40,000	\$40,000
	TRAFFIC PERMITS & CONTROL	\$5,000	\$0	\$40,000	\$45,000
	<b>SUBTOTAL</b>	<b>\$2,014,731</b>	<b>\$127,619</b>	<b>\$9,603,451</b>	<b>\$11,745,801</b>
	CONTINGENCY - MISC EQUIP/MAT/LABOR (25%)	\$474,583	\$30,136	\$1,650,863	\$2,155,582
	CONTRACTOR'S OH/PROFIT (10%)	\$0	\$0	\$1,125,431	\$1,125,431
	<b>ENGINEERING</b>	<b>\$0</b>	<b>\$0</b>	<b>\$936,585</b>	<b>\$936,585</b>
	<b>CONSTRUCTION MANAGEMENT</b>	<b>\$0</b>	<b>\$0</b>	<b>\$936,585</b>	<b>\$936,585</b>
	<b>ESCALATION @1.75% PER YEAR FOR 5 YEARS</b>	<b>\$225,573</b>	<b>\$14,295</b>	<b>\$1,291,550</b>	<b>\$1,531,419</b>
	<b>TOTAL</b>	<b>\$2,714,887</b>	<b>\$172,050</b>	<b>\$15,544,466</b>	<b>\$18,431,403</b>
	<b>INITIAL CONTRACT PRICE - TARGET COST OF WORK</b>				<b>\$18,431,403</b>
	<b>UI COSTS</b>				
	PRE-2018				\$199,395
	PERMITTING (CSC)/LEGAL				\$574,739
	LAND ACQUISITION				\$1,370,448
	UI PROJECT MANAGEMENT & ADMINISTRATION				\$184,798
	UI ENGINEERING				\$212,860
	UI CONSTRUCTION INSPECTION				\$77,902
	UI T&S LABOR				\$15,035
	UI OVERHEADS/ALLOCATIONS				\$1,139,639
	ENVIRONMENTAL HOURS				\$24,546
	REAL ESTATE HOURS				\$6,984
	ENVIRONMENTAL PERMITTING				\$80,323
	OTHER CONSULTANTS				\$126,316
	ENVIRONMENTAL REMEDIATION				\$255,146
	REMOTE END MODIFICATIONS				\$50,000
	AFUDC				\$3,647,721
	CONTINGENCY				\$2,526,316
	UI TAXES				\$164,778
	<b>UI TOTAL</b>				<b>\$10,656,946</b>
	<b>PROJECT TOTAL</b>	<b>\$2,714,887</b>	<b>\$172,050</b>	<b>\$15,544,466</b>	<b>\$29,088,349</b>

PARAMETERS					
Accuracy	Order of Magnitude: +50%/-25%	Engineering	- MH		
Contingency	25%	Const Mgmt	- MH		
Minimum	\$21,816,262				
Maximum	\$43,632,524				
B&V Project No	195880				
APPROVALS					
Kisa Bandyopadhyay Estimator		Signature	6/29/18	Date	
Kimberly D. Waggoner B&V Project Manager		Signature	7/2/18	Date	
Arron Lewis B&V Project Director		Signature	7/2/2018	Date	
Jim Yeske UI Project Manager		Signature	7/26/18	Date	
HISTORY					
HISTORY		STAGES	ACCURACY	CONTINGENCY	CONTRACTED PRICE
Sept. 29, 2017		UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - INCLUDE ADD'L UI COSTS	+50%/-25%	25%	\$20,054,157
Oct. 25, 2017		UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE ESCALATION COSTS	+50%/-25%	25%	\$18,387,908
Feb. 16, 2018		UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE ESCALATION COSTS	+50%/-25%	25%	\$18,431,403
March 30, 2018		UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE REAL ESTATE COSTS	+50%/-25%	25%	\$18,431,403
April 25, 2018		UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - ADDED CSC UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - ADDED AFUDC COST;	+50%/-25%	25%	\$18,431,403
June 30, 2018		UPDATED UI COSTS	+50%/-25%	25%	\$18,431,403
* DOES NOT INCLUDE ALL UI COSTS					



### APPENDIX A.1.2

### MWR ALTERNATIVE 2 COST ESTIMATE SUMMARIES

COST ESTIMATE SUMMARY

WORK CODE	ACCOUNTS	EQUIP AND MATERIAL COST	TAX	LABOR COST	TOTAL
	<b>MATERIALS</b>				
T03	SURVEYING	\$0	\$0	\$82,000	\$82,000
T04	SOIL BORINGS	\$678,600	\$43,091	\$0	\$721,691
T05	RIGHT-OF-WAY	\$0	\$0	\$0	\$0
T06	CLEARING	\$4,367	\$278	\$599,322	\$603,967
T07	ACCESS	\$2,772,609	\$176,061	\$5,095,375	\$8,044,044
T08	TREE RESTORATION ALLOWANCE	\$0	\$0	\$200,000	\$200,000
T09	69 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	115 KV STRUCTURES	\$3,342,128	\$212,225	\$2,318,874	\$5,873,227
T09	138 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	161 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	230 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	345 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	500 KV STRUCTURES	\$0	\$0	\$0	\$0
T10	FOUNDATIONS	\$1,171,662	\$74,401	\$8,280,464	\$9,526,527
T11	CONDUCTOR	\$386,100	\$24,517	\$665,054	\$1,075,671
T12	SHIELD WIRES (OPGW)	\$84,069	\$5,338	\$205,832	\$295,240
T13	SPECIAL MATERIAL 1	\$0	\$0	\$0	\$0
T14	SUBSTATION FIBER CONDUIT	\$0	\$0	\$50,000	\$50,000
T15	DISTRIBUTION	\$0	\$0	\$0	\$0
T16	REMOVALS	\$0	\$0	\$3,000,000	\$3,000,000
T17	BORING	\$0	\$0	\$0	\$0
T18	RISER & TERMINATION STRUCTURES	\$0	\$0	\$0	\$0
T19	TRENCHING	\$0	\$0	\$0	\$0
T20	XLPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T21	PIPE TYPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T22	FIBER SYSTEM	\$0	\$0	\$0	\$0
T23	STREAM DIVERSION	\$0	\$0	\$0	\$0
	INSURANCE	\$0	\$0	\$300,000	\$300,000
	RAILROAD PROTECTIVE LIABILITY INSURANCE	\$0	\$0	\$250,000	\$250,000
	FLAGMEN	\$0	\$0	\$3,250,000	\$3,250,000
	SIGNALMAN/GROUNDMEN	\$0	\$0	\$1,250,000	\$1,250,000
	LAYDOWN/SECURITY	\$0	\$0	\$100,000	\$100,000
	SITE DEV. SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$40,000	\$40,000
	FOUNDATION SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$120,000	\$120,000
	GENERAL SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$100,000	\$100,000
	MOBILIZATION/DEMOBILIZATION	\$0	\$0	\$40,000	\$40,000
	TRAFFIC PERMITS & CONTROL	\$5,000	\$0	\$40,000	\$45,000
	<b>SUBTOTAL</b>	<b>\$8,444,535</b>	<b>\$535,911</b>	<b>\$25,986,921</b>	<b>\$34,967,367</b>
	CONTINGENCY - MISC EQUIP/MAT/LABOR (25%)	\$1,940,234	\$123,205	\$5,746,730	\$7,810,169
	CONTRACTOR'S OH/PROFIT (10%)	\$0	\$0	\$3,173,365	\$3,173,365
	<b>ENGINEERING</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3,000,000</b>	<b>\$3,000,000</b>
	<b>CONSTRUCTION MANAGEMENT</b>	<b>\$0</b>	<b>\$0</b>	<b>\$3,000,000</b>	<b>\$3,000,000</b>
	<b>ESCALATION @1.75% PER YEAR FOR 11.5 YEARS</b>	<b>\$2,292,994</b>	<b>\$145,535</b>	<b>\$9,032,417</b>	<b>\$11,470,947</b>
	<b>TOTAL</b>	<b>\$12,677,763</b>	<b>\$804,652</b>	<b>\$49,939,433</b>	<b>\$63,421,847</b>
	<b>INITIAL CONTRACT PRICE - TARGET COST OF WORK</b>				<b>\$63,421,847</b>
	<b>UI COSTS</b>				
	PRE-2018				\$681,266
	PERMITTING (CSC)/LEGAL				\$1,683,543
	LAND ACQUISITION				\$5,987,482
	UI PROJECT MANAGEMENT & ADMINISTRATION				\$631,395
	UI ENGINEERING				\$727,270
	UI CONSTRUCTION INSPECTION				\$266,164
	UI T&S LABOR				\$51,370
	UI OVERHEADS/ALLOCATIONS				\$4,919,700
	ENVIRONMENTAL HOURS				\$83,864
	REAL ESTATE HOURS				\$23,862
	ENVIRONMENTAL PERMITTING				\$499,149
	OTHER CONSULTANTS				\$431,579
	ENVIRONMENTAL REMEDIATION				\$1,585,547
	REMOTE END MODIFICATIONS				\$50,000
	AFUDC				\$10,671,911
	CONTINGENCY				\$8,631,579
	UI TAXES				\$724,814
	<b>UI TOTAL</b>				<b>\$37,650,495</b>
	<b>PROJECT TOTAL</b>	<b>\$12,677,763</b>	<b>\$804,652</b>	<b>\$49,939,433</b>	<b>\$101,072,342</b>

## PARAMETERS

Accuracy Order of Magnitude: +50%/-25%  
 Contingency 25%  
 Minimum \$75,804,257  
 Maximum \$151,608,514  
 B&V Project No 195880

Engineering  
Const Mgmt  
- MH  
- MH

## APPROVALS

Kisa Bandyopadhyay

Estimator

6/29/18

Date

Kimberly D. Waggoner

B&V Project Manager

7/2/18

Date

Arron Lewis

B&V Project Director

7/2/2018

Date

Jim Yeske

UI Project Manager

7/26/18

Date

HISTORY	STAGES	ACCURACY	CONTINGENCY	CONTRACTED PRICE	TOTAL
Sept. 29, 2017	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - INCLUDE ADDTL UI COSTS	+50%/-25%	25%	\$55,684,042	\$80,832,744*
Feb. 16, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - INCLUDE ADDTL UI COSTS	+50%/-25%	25%	\$63,421,847	\$83,020,549*
March 30, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE REAL ESTATE UI COSTS	+50%/-25%	25%	\$63,421,847	\$89,008,031*
April 25, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - ADDED CSC COST	+50%/-25%	25%	\$63,421,847	\$90,648,416*
June 30, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - ADDED AFUDC COST; UPDATED UI COSTS	+50%/-25%	25%	\$63,421,847	\$101,072,342

\* DOES NOT INCLUDE ALL UI COSTS

COST ESTIMATE SUMMARY

WORK CODE	ACCOUNTS	EQUIP AND MATERIAL COST	TAX	LABOR COST	TOTAL
	<b>MATERIALS</b>				
T03	SURVEYING	\$0	\$0	\$58,000	\$58,000
T04	SOIL BORINGS	\$546,000	\$34,671	\$0	\$580,671
T05	RIGHT-OF-WAY	\$0	\$0	\$0	\$0
T06	CLEARING	\$3,446	\$220	\$491,032	\$494,698
T07	ACCESS	\$2,099,528	\$133,320	\$3,849,465	\$6,082,313
T08	TREE RESTORATION ALLOWANCE	\$0	\$0	\$200,000	\$200,000
T09	69 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	115 KV STRUCTURES	\$2,582,491	\$163,988	\$1,930,851	\$4,677,331
T09	138 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	161 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	230 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	345 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	500 KV STRUCTURES	\$0	\$0	\$0	\$0
T10	FOUNDATIONS	\$970,395	\$61,620	\$6,876,187	\$7,908,202
T11	CONDUCTOR	\$280,800	\$17,831	\$508,108	\$806,739
T12	SHIELD WIRES (OPGW)	\$57,778	\$3,669	\$157,876	\$219,323
T13	SPECIAL MATERIAL 1	\$0	\$0	\$0	\$0
T14	SUBSTATION FIBER CONDUIT	\$0	\$0	\$50,000	\$50,000
T15	DISTRIBUTION	\$0	\$0	\$0	\$0
T16	REMOVALS	\$0	\$0	\$3,000,000	\$3,000,000
T17	BORING	\$0	\$0	\$0	\$0
T18	RISER & TERMINATION STRUCTURES	\$0	\$0	\$0	\$0
T19	TRENCHING	\$0	\$0	\$0	\$0
T20	XLPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T21	PIPE TYPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T22	FIBER SYSTEM	\$0	\$0	\$0	\$0
T23	STREAM DIVERSION	\$0	\$0	\$0	\$0
	INSURANCE	\$0	\$0	\$300,000	\$300,000
	RAILROAD PROTECTIVE LIABILITY INSURANCE	\$0	\$0	\$250,000	\$250,000
	FLAGMEN	\$0	\$0	\$2,298,780	\$2,298,780
	SIGNALMAN/GROUNDMEN	\$0	\$0	\$884,146	\$884,146
	LAYDOWN/SECURITY	\$0	\$0	\$100,000	\$100,000
	SITE DEV. SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$40,000	\$40,000
	FOUNDATION SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$120,000	\$120,000
	GENERAL SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$100,000	\$100,000
	MOBILIZATION/DEMOBILIZATION	\$0	\$0	\$40,000	\$40,000
	TRAFFIC PERMITS & CONTROL	\$5,000	\$0	\$40,000	\$45,000
	<b>SUBTOTAL</b>	<b>\$6,545,438</b>	<b>\$415,319</b>	<b>\$21,294,446</b>	<b>\$28,255,203</b>
	CONTINGENCY - MISC EQUIP/MAT/LABOR (25%)	\$1,498,610	\$95,162	\$4,573,611	\$6,167,383
	CONTRACTOR'S OH/PROFIT (10%)	\$0	\$0	\$2,586,806	\$2,586,806
	<b>ENGINEERING</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,121,951</b>	<b>\$2,121,951</b>
	<b>CONSTRUCTION MANAGEMENT</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,121,951</b>	<b>\$2,121,951</b>
	<b>ESCALATION @1.75% PER YEAR FOR 8.5 YEARS</b>	<b>\$1,278,126</b>	<b>\$81,111</b>	<b>\$5,195,536</b>	<b>\$6,554,773</b>
	<b>TOTAL</b>	<b>\$9,322,174</b>	<b>\$591,591</b>	<b>\$37,894,301</b>	<b>\$47,808,067</b>
	<b>INITIAL CONTRACT PRICE - TARGET COST OF WORK</b>				<b>\$47,808,067</b>
	<b>UI COSTS</b>				
	PRE-2018				\$481,871
	PERMITTING (CSC)/LEGAL				\$2,042,691
	LAND ACQUISITION				\$1,083,278
	UI PROJECT MANAGEMENT & ADMINISTRATION				\$446,596
	UI ENGINEERING				\$514,411
	UI CONSTRUCTION INSPECTION				\$188,262
	UI T&S LABOR				\$36,335
	UI OVERHEADS/ALLOCATIONS				\$3,479,788
	ENVIRONMENTAL HOURS				\$59,318
	REAL ESTATE HOURS				\$16,878
	ENVIRONMENTAL PERMITTING				\$401,615
	OTHER CONSULTANTS				\$305,263
	ENVIRONMENTAL REMEDIATION				\$1,275,727
	REMOTE END MODIFICATIONS				\$50,000
	AFUDC				\$7,548,425
	CONTINGENCY				\$6,105,263
	UI TAXES				\$512,673
	<b>UI TOTAL</b>				<b>\$24,548,394</b>
	<b>PROJECT TOTAL</b>	<b>\$9,322,174</b>	<b>\$591,591</b>	<b>\$37,894,301</b>	<b>\$72,356,461</b>

PARAMETERS					
Accuracy	Order of Magnitude: +50%/-25%	Engineering	- MH		
Contingency	25%	Const Mgmt	- MH		
Minimum	\$54,267,345				
Maximum	\$108,534,691				
B&V Project No	195880				

  

APPROVALS					
Kisa Bandyopadhyay Estimator		Signature	6/29/18		Date
Kimberly D. Waggoner B&V Project Manager		Signature	7/2/18		Date
Arron Lewis B&V Project Director		Signature	7/2/2018		Date
Jim Yeske UI Project Manager		Signature	7/26/18		Date

  

HISTORY	STAGES	CONTRACTED			TOTAL
		ACCURACY	CONTINGENCY	PRICE	
Sept. 29, 2017	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - INCLUDE ADDTL UI COSTS	+50%/-25%	25%	\$47,011,969	\$63,847,266*
Oct. 25, 2017	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE ESCALATION COSTS	+50%/-25%	25%	\$45,408,756	\$62,244,053*
Feb. 16, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE ESCALATION COSTS	+50%/-25%	25%	\$47,808,067	\$61,873,364*
March 30, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE REAL ESTATE COSTS	+50%/-25%	25%	\$47,808,067	\$62,956,642*
April 25, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - ADDED CSC COSTS	+50%/-25%	25%	\$47,808,067	\$64,968,807*
June 30, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - ADDED AFUDC COSTS; UPDATED UI COSTS	+50%/-25%	25%	\$47,808,067	\$72,356,461

\* DOES NOT INCLUDE ALL UI COSTS

COST ESTIMATE SUMMARY

WORK CODE	ACCOUNTS	EQUIP AND MATERIAL COST	TAX	LABOR COST	TOTAL
	<b>MATERIALS</b>				
T03	SURVEYING	\$0	\$0	\$26,000	\$26,000
T04	SOIL BORINGS	\$202,800	\$12,878	\$0	\$215,678
T05	RIGHT-OF-WAY	\$0	\$0	\$0	\$0
T06	CLEARING	\$1,187	\$76	\$225,229	\$226,492
T07	ACCESS	\$832,201	\$52,845	\$1,699,194	\$2,584,240
T08	TREE RESTORATION ALLOWANCE	\$0	\$0	\$200,000	\$200,000
T09	69 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	115 KV STRUCTURES	\$1,517,099	\$96,336	\$1,105,280	\$2,718,715
T09	138 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	161 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	230 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	345 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	500 KV STRUCTURES	\$0	\$0	\$0	\$0
T10	FOUNDATIONS	\$395,346	\$25,104	\$2,804,047	\$3,224,498
T11	CONDUCTOR	\$122,850	\$7,801	\$272,690	\$403,341
T12	SHIELD WIRES (OPGW)	\$24,840	\$1,577	\$80,243	\$106,660
T13	SPECIAL MATERIAL 1	\$0	\$0	\$0	\$0
T14	SUBSTATION FIBER CONDUIT	\$0	\$0	\$50,000	\$50,000
T15	DISTRIBUTION	\$0	\$0	\$0	\$0
T16	REMOVALS	\$0	\$0	\$3,000,000	\$3,000,000
T17	BORING	\$0	\$0	\$0	\$0
T18	RISER & TERMINATION STRUCTURES	\$0	\$0	\$0	\$0
T19	TRENCHING	\$0	\$0	\$0	\$0
T20	XLPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T21	PIPE TYPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T22	FIBER SYSTEM	\$0	\$0	\$0	\$0
T23	STREAM DIVERSION	\$0	\$0	\$0	\$0
	INSURANCE	\$0	\$0	\$300,000	\$300,000
	RAILROAD PROTECTIVE LIABILITY INSURANCE	\$0	\$0	\$250,000	\$250,000
	FLAGMEN	\$0	\$0	\$1,030,488	\$1,030,488
	SIGNALMAN/GROUNDMEN	\$0	\$0	\$396,341	\$396,341
	LAYDOWN/SECURITY	\$0	\$0	\$100,000	\$100,000
	SITE DEV/ SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$40,000	\$40,000
	FOUNDATION SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$120,000	\$120,000
	GENERAL SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$100,000	\$100,000
	MOBILIZATION/DEMOBILIZATION	\$0	\$0	\$40,000	\$40,000
	TRAFFIC PERMITS & CONTROL	\$5,000	\$0	\$40,000	\$45,000
	<b>SUBTOTAL</b>	<b>\$3,101,323</b>	<b>\$196,617</b>	<b>\$11,879,512</b>	<b>\$15,177,453</b>
	CONTINGENCY - MISC EQUIP/MAT/LABOR (25%)	\$723,381	\$45,935	\$2,219,878	\$2,989,194
	CONTRACTOR'S OH/PROFIT (10%)	\$0	\$0	\$1,409,939	\$1,409,939
	<b>ENGINEERING</b>	<b>\$0</b>	<b>\$0</b>	<b>\$951,220</b>	<b>\$951,220</b>
	<b>CONSTRUCTION MANAGEMENT</b>	<b>\$0</b>	<b>\$0</b>	<b>\$951,220</b>	<b>\$951,220</b>
	<b>ESCALATION @1.75% PER YEAR FOR 6 YEARS</b>	<b>\$419,579</b>	<b>\$26,609</b>	<b>\$1,910,112</b>	<b>\$2,356,300</b>
	<b>TOTAL</b>	<b>\$4,244,283</b>	<b>\$269,161</b>	<b>\$19,321,880</b>	<b>\$23,835,324</b>
	<b>INITIAL CONTRACT PRICE - TARGET COST OF WORK</b>				<b>\$23,835,324</b>
	<b>UI COSTS</b>				
	PRE-2018				\$216,011
	PERMITTING (CSC)/LEGAL				\$737,602
	LAND ACQUISITION				\$753,153
	UI PROJECT MANAGEMENT & ADMINISTRATION				\$200,198
	UI ENGINEERING				\$230,598
	UI CONSTRUCTION INSPECTION				\$84,393
	UI T&S LABOR				\$16,288
	UI OVERHEADS/ALLOCATIONS				\$1,559,905
	ENVIRONMENTAL HOURS				\$26,591
	REAL ESTATE HOURS				\$7,566
	ENVIRONMENTAL PERMITTING				\$149,171
	OTHER CONSULTANTS				\$136,842
	ENVIRONMENTAL REMEDIATION				\$473,842
	REMOTE END MODIFICATIONS				\$50,000
	AFUDC				\$3,383,777
	CONTINGENCY				\$2,736,842
	UI TAXES				\$229,819
	<b>UI TOTAL</b>				<b>\$10,992,598</b>
	<b>PROJECT TOTAL</b>	<b>\$4,244,283</b>	<b>\$269,161</b>	<b>\$19,321,880</b>	<b>\$34,827,922</b>

PARAMETERS					
Accuracy	Order of Magnitude: +50%/-25%		Engineering	- MH	
Contingency	25%		Const Mgmt	- MH	
Minimum	\$26,120,941				
Maximum	\$52,241,883				
B&V Project No	195880				
APPROVALS					
Kisa Bandyopadhyay Estimator				6/29/18	Date
Kimberly D. Waggoner B&V Project Manager				7/2/18	Date
Aron Lewis B&V Project Director				7/2/2018	Date
Jim Yeske UI Project Manager				7/26/18	Date
HISTORY					
STAGES		ACCURACY	CONTINGENCY	CONTRACTED PRICE	TOTAL
UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE					
Sept. 29, 2017	ESTIMATE - INCLUDE ADDTL UI COSTS	+50%/-25%	25%	\$25,249,487	\$33,554,222*
UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE					
Oct. 25, 2017	ESTIMATE - UPDATE ESCALATION COSTS	+50%/-25%	25%	\$23,968,966	\$32,273,701*
UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE					
Feb. 16, 2018	ESTIMATE - UPDATE ESCALATION COSTS	+50%/-25%	25%	\$23,835,324	\$30,011,559*
UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE					
March 30, 2018	ESTIMATE - UPDATE REAL ESTATE COSTS	+50%/-25%	25%	\$23,835,324	\$30,764,712*
UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE					
April 25, 2018	ESTIMATE - ADDED CSC COSTS	+50%/-25%	25%	\$23,835,324	\$31,488,630*
UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE					
June 30, 2018	ESTIMATE - ADDED AFUDC COSTS; UPDATED UI COSTS	+50%/-25%	25%	\$23,835,324	\$34,827,922

\* DOES NOT INCLUDE ALL UI COSTS

COST ESTIMATE SUMMARY

WORK CODE	ACCOUNTS	EQUIP AND MATERIAL COST	TAX	LABOR COST	TOTAL
	<b>MATERIALS</b>				
T03	SURVEYING	\$0	\$0	\$24,000	\$24,000
T04	SOIL BORINGS	\$218,400	\$13,868	\$0	\$232,268
T05	RIGHT-OF-WAY	\$0	\$0	\$0	\$0
T06	CLEARING	\$806	\$52	\$180,481	\$181,339
T07	ACCESS	\$825,170	\$52,398	\$1,692,633	\$2,570,201
T08	TREE RESTORATION ALLOWANCE	\$0	\$0	\$200,000	\$200,000
T09	69 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	115 KV STRUCTURES	\$1,315,110	\$83,509	\$1,088,078	\$2,486,697
T09	138 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	161 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	230 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	345 KV STRUCTURES	\$0	\$0	\$0	\$0
T09	500 KV STRUCTURES	\$0	\$0	\$0	\$0
T10	FOUNDATIONS	\$431,287	\$27,387	\$3,073,119	\$3,531,793
T11	CONDUCTOR	\$122,850	\$7,801	\$272,690	\$403,341
T12	SHIELD WIRES (OPGW)	\$24,840	\$1,577	\$80,243	\$106,660
T13	SPECIAL MATERIAL 1	\$0	\$0	\$0	\$0
T14	SUBSTATION FIBER CONDUIT	\$0	\$0	\$50,000	\$50,000
T15	DISTRIBUTION	\$0	\$0	\$0	\$0
T16	REMOVALS	\$0	\$0	\$3,000,000	\$3,000,000
T17	BORING	\$0	\$0	\$0	\$0
T18	RISER & TERMINATION STRUCTURES	\$0	\$0	\$0	\$0
T19	TRENCHING	\$0	\$0	\$0	\$0
T20	XLPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T21	PIPE TYPE CABLE SYSTEM	\$0	\$0	\$0	\$0
T22	FIBER SYSTEM	\$0	\$0	\$0	\$0
T23	STREAM DIVERSION	\$0	\$0	\$0	\$0
	INSURANCE	\$0	\$0	\$300,000	\$300,000
	RAILROAD PROTECTIVE LIABILITY INSURANCE	\$0	\$0	\$250,000	\$250,000
	FLAGMEN	\$0	\$0	\$951,220	\$951,220
	SIGNALMAN/GROUNDMEN	\$0	\$0	\$365,854	\$365,854
	LAYDOWN/SECURITY	\$0	\$0	\$100,000	\$100,000
	SITE DEV. SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$40,000	\$40,000
	FOUNDATION SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$120,000	\$120,000
	GENERAL SUBCONTRACTOR STANDBY TIME	\$0	\$0	\$100,000	\$100,000
	MOBILIZATION/DEMOBILIZATION	\$0	\$0	\$40,000	\$40,000
	TRAFFIC PERMITS & CONTROL	\$5,000	\$0	\$40,000	\$45,000
	<b>SUBTOTAL</b>	<b>\$2,943,464</b>	<b>\$186,593</b>	<b>\$11,968,316</b>	<b>\$15,098,373</b>
	CONTINGENCY - MISC EQUIP/MAT/LABOR (25%)	\$680,016	\$43,181	\$2,242,079	\$2,965,276
	CONTRACTOR'S OH/PROFIT (10%)	\$0	\$0	\$1,421,040	\$1,421,040
	<b>ENGINEERING</b>	<b>\$0</b>	<b>\$0</b>	<b>\$878,049</b>	<b>\$878,049</b>
	<b>CONSTRUCTION MANAGEMENT</b>	<b>\$0</b>	<b>\$0</b>	<b>\$878,049</b>	<b>\$878,049</b>
	<b>ESCALATION @1.75% PER YEAR FOR 7 YEARS</b>	<b>\$467,871</b>	<b>\$29,669</b>	<b>\$2,245,115</b>	<b>\$2,742,656</b>
	<b>TOTAL</b>	<b>\$4,091,351</b>	<b>\$259,444</b>	<b>\$19,632,648</b>	<b>\$23,983,443</b>
	<b>INITIAL CONTRACT PRICE - TARGET COST OF WORK</b>				<b>\$23,983,443</b>
	<b>UI COSTS</b>				
	PRE-2018				\$199,395
	PERMITTING (CSC)/LEGAL				\$733,469
	LAND ACQUISITION				\$3,716,090
	UI PROJECT MANAGEMENT & ADMINISTRATION				\$184,798
	UI ENGINEERING				\$212,860
	UI CONSTRUCTION INSPECTION				\$77,902
	UI T&S LABOR				\$15,035
	UI OVERHEADS/ALLOCATIONS				\$1,439,912
	ENVIRONMENTAL HOURS				\$24,546
	REAL ESTATE HOURS				\$6,984
	ENVIRONMENTAL PERMITTING				\$180,646
	OTHER CONSULTANTS				\$126,316
	ENVIRONMENTAL REMEDIATION				\$510,291
	REMOTE END MODIFICATIONS				\$50,000
	AFUDC				\$3,123,486
	CONTINGENCY				\$2,526,316
	UI TAXES				\$212,141
	<b>UI TOTAL</b>				<b>\$13,320,187</b>
	<b>PROJECT TOTAL</b>	<b>\$4,091,351</b>	<b>\$259,444</b>	<b>\$19,632,648</b>	<b>\$37,303,630</b>

PARAMETERS					
Accuracy	Order of Magnitude: +50%/-25%				
Contingency	25%	Engineering	- MH		
Minimum	\$27,977,722	Const Mgmt	- MH		
Maximum	\$55,955,444				
B&V Project No	195880				
APPROVALS					
Kisa Bandyopadhyay Estimator		Signature	6/29/18	Date	
Kimberly D. Waggoner B&V Project Manager		Signature	7/2/18	Date	
Arron Lewis B&V Project Director		Signature	7/2/2018	Date	
Jim Yeske UI Project Manager		Signature	7/26/18	Date	
HISTORY	STAGES	ACCURACY	CONTINGENCY	CONTRACTED PRICE	TOTAL
Sept. 29, 2017	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - INCLUDE ADDTL. UI COSTS	+50%/-25%	25%	\$26,220,467	\$34,392,455*
Oct. 25, 2017	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE ESCALATION COSTS	+50%/-25%	25%	\$24,041,875	\$32,213,863*
Feb. 16, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE ESCALATION COSTS	+50%/-25%	25%	\$23,983,443	\$29,780,431*
March 30, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - UPDATE REAL ESTATE COSTS	+50%/-25%	25%	\$23,983,443	\$33,496,521*
April 25, 2018	UPDATED PROPOSED PROJECT/ORDER OF MAGNITUDE ESTIMATE - ADDED CSC COSTS	+50%/-25%	25%	\$23,983,443	\$34,217,358*
June 30, 2018	ESTIMATE - ADDED AFUDC COSTS; UPDATED UI COSTS	+50%/-25%	25%	\$23,983,443	\$37,303,630

\* DOES NOT INCLUDE ALL UI COSTS