

CLIENT: City of Columbia Water & Light Department
 PROJECT: Option E
 PREPARED BY: Burns & McDonnell
 DOCUMENT: Engineering Opinion of Cost
 DATE: 6-Jul-2018
 REVISION: 1

REV. NOTES:
 No cost included for moving overhead dist lines underground
 Rev1 updated cost of acquisitions per CWL

Option E								
Item No.	Item	Foundations	Material - Pole	Material - Assemblies	Construction T&D	Quantity	Subtotal per Structure	Notes
Structures								
1	Steel, 161kV Delta Tangent	\$6,025	\$21,000	\$1,375	\$9,525	61	\$2,313,425	
2	Steel, 161kV Vertical Dead End	\$157,065	\$38,000	\$4,080	\$9,740	4	\$835,540	
3	Steel, Double Circuit, Vertical, 161kV / 69kV Dead End	\$198,715	\$54,000	\$7,470	\$15,755	4	\$1,103,760	
4	Steel, Triple Circuit, 161kV / 69kV / 69 kV Dead End	\$294,860	\$120,000	\$10,860	\$21,485	2	\$894,410	
5	Steel, Triple Circuit, 161kV / 69kV / 69 kV Tangent	\$96,345	\$60,000	\$3,475	\$16,115	12	\$2,111,220	
6	Steel, Triple Circuit, 161kV / 69kV / 69 kV Running Angle	\$172,540	\$90,000	\$3,775	\$13,535	1	\$279,850	
7	Steel, Double Circuit, Vertical, 161kV / 345kV Tangent	\$108,120	\$80,000	\$3,175	\$13,965	4	\$821,040	
8	Steel, Double Circuit, Vertical, 161kV / 345kV Dead End	\$459,125	\$160,000	\$9,180	\$18,910	1	\$647,215	
9	Steel, 161kV Running Angle	\$83,695	\$28,000	\$1,525	\$8,235	1	\$121,455	
10	Steel, Double Circuit, Vertical, 161kV / 161kV Dead End	\$326,585	\$80,000	\$7,470	\$15,755	2	\$859,620	
11	Steel, Double Circuit, Vertical, 161kV / 161kV Tangent	\$8,505	\$34,000	\$2,425	\$12,100	6	\$342,180	
12	Removal of 161kV Deadend				\$9,390	1	\$9,390	
13	Removal of 161kV H-Frame				\$3,715	5	\$18,575	
14	Removal of 345kV H-Frame				\$6,365	4	\$25,460	
15	Removal of 69kV H-Frame				\$4,850	22	\$106,700	
16	Removal of 69kV Running Angle				\$3,030	1	\$3,030	
	Subtotals -->	\$5,388,545	\$3,571,000	\$250,165	\$1,283,160	131	\$10,492,870	
Conductor & Shield Wire								
17	Conductor, 795 kcmil ACSR "Drake", 222,500-ft	-	\$356,000		\$1,309,090	1	\$1,665,090.00	
18	Conductor Removal, 795 kcmil ACSR "Drake", 93,140-ft	-	\$0		\$344,555	1	\$344,555.00	
19	Shield Wire, 0.506" 24-Fiber OPGW, 77,700 ft	-	\$128,205		\$609,535	1	\$737,740.00	assume 6 splice locations
20	Shield Wire Removal, 3/8" Steel OHGW, 62,095 ft	-	\$0		\$61,735	1	\$61,735.00	
21	Splice Boxes at Substations and Junction Points	-	\$8,000		\$2,865	8	\$86,920.00	
22	Misc.: Stringing Setups, Xings, Etc.		\$35,000		\$131,510	1	\$166,510.00	
	Subtotals -->		\$583,205		\$2,479,345		\$3,062,550	
Other Construction-Related Costs								
23	Mobilization / De-Mobilization						\$36,100	
24	Construction Yard Setup, Security, Material Storage						\$208,430	
25	ROW Access, SWPPP						\$366,040	
26	ROW Restoration						\$171,935	
	Subtotals -->						\$782,505	
Summary of Material & Construction Costs Only =							13,555,420	
20% Material Contingency =							1,958,583	Also is intended to account for any markup costs (~10%)
30% Construction Contingency =							1,128,752	Contingency on Structure & Wire labor only; Construction costs may vary significantly based on market conditions, contractor availability, & overall schedule requirements
Subtotal with Contingencies =							16,642,755	
Per Mile Base Cost =							1,300,393	
Cost for 13.4 Mile OH Line, Base Cost =							17,425,760	
Client-Mgmt Costs & Consultants (Eng, Public Involvement, Real Estate Assessment and Acquisition)								
27	Complete Engineering (Line Design, Fdtns, Constr Docs & Dwg)				% of Base Cost =	10%	\$1,742,526	
28	Surveying				Survey Lump Sum Cost =		\$45,000	Staking
29	Stakeholder Engagement & Public Relations				% of Base Cost =	8%	\$1,394,021	
30	Real Estate				% of Base Cost =	10%	\$1,742,526	
31	Proj Mgmt, Field Coordination & Inspection, Etc.				% of Base Cost =	8%	\$1,394,021	Assumes 12-week construction schedule w/ NO full-time on-site safety coordinator
32	EPC Construction Contract Adder				% of Construction Cost =	10.0%	\$567,376	Assume based on construction-labor, other-, & contingency cost only;
33	Engin & Proj Mgmt				% of Base Cost =	2.5%	\$435,631	Adder may +/- based on overall amount
	Subtotals -->						\$7,321,101	
ROW (Acquisitions & Permits)								
34	Title Searches				Estimated Lump Sum Cost =		\$50,000	
35	Acquisitions				Estimated Lump Sum Cost =		\$3,099,546	
36	Crossing Permits				Estimated Lump Sum Cost =		\$30,000	
37	Environmental Permits, SWPPP Preparation, Monitoring				Estimated Lump Sum Cost =		\$112,000	
	Subtotals -->						\$3,291,546	
Summary of PM, Engr, Surveying, & Geotech; and ROW, Permitting, Etc. Costs Only =							\$10,612,647	
10% Contingency =							\$1,061,265	
Cost for 13.4 OH Line, Total Project =							\$29,099,171	
Per Mile Cost =							\$2,171,580	