

ATTACHMENT W-1 FACILITIES REMOVAL AND SITE RESTORATION COST ESTIMATE

[As amended by Council, September 2022: See 3. Concrete Wrecking, sub(4) Transmission Structure Foundation. Clarified that the below ground depth of foundation removal would be 3' in EFU zoned land, and 1' in all other zones. Changes presented in red-line]

APPLICATION FOR SITE CERTIFICATE

B2H Exhibit W Errata Sheet

Dear Reader:

Exhibit W demonstrates the Boardman to Hemingway Transmission Line Project (Project) site, taking into account mitigation, can be restored adequately to a useful, non-hazardous condition. High-voltage transmission lines, including the Project, are designed and maintained to remain in service in perpetuity. For this reason, it is highly unlikely the Project would ever be retired. Nevertheless, Exhibit W describes the actions necessary to restore the Project site in the unlikely event the Project is retired. Further, Exhibit W provides a financial analysis of the costs associated with such site restoration.

The Applicant submitted its final Application for Site Certification on October 3, 2018. Subsequently, the Oregon Department of Energy requested certain additional information about the Project pursuant to Oregon Administrative Rule (OAR) 345-015-0190(9). This errata sheet provides the requested information—which may include corrections to the exhibit text, tables, figures, and/or proposed conditions—as it relates to Exhibit W.

As you read this exhibit, please keep in mind that any corrections identified in this errata sheet shall prevail over the contents of the exhibit document itself.

Summary of Additional Information Provided for Exhibit W and Its Attachments

Page #	Section #	Request for Additional Information
W-6	Section 3.3	Date of current dollar estimate revised to third quarter 2016.
Attachment W-1	Grid Enhancing Electric Transmission Lines Table	Footnote added to table to explain use of 4% contingency.

Specific Additional Information Provided for Exhibit W and Its Attachments

Page W-6, Section 3.3

Description of Additional Information: Date of current dollar estimate revised.

Text Edits Shown in Red:

IPC estimates that the total cost of restoring the site to a useful, non-hazardous condition is \$140,902,000 in **third quarter 2016 dollars**. A copy of the analysis supporting this calculation is attached as Attachment W-1.

Attachment W-1 Grid Enhancing Electric Transmission Lines Table

Description of Additional Information: Footnote added to table to explain use of 4% contingency.

Text Edits Shown in Red :

A project the size of B2H, that covers such a large area is expected to realize an economy of scale that would justify a 4% contingency for Site Restoration. Also, the B2H project in operation will not result in any hazardous conditions that would be difficult or unusually expensive to restore (i.e. everything to be removed are inert materials) thus the lower restoration contingency is appropriate. The Project Owner Engineer (HDR) has extensive experience restoring transmission line projects that have demonstrated a 4% contingency is appropriate.

Grid-Enhancing Electric Transmission Lines

Tab 01 - Summary Estimating Template

Task Description	Unit	Quantity	Unit Cost	Total	Comments	Methods/Assumptions
1. GENERAL COSTS						
A. PERMITS						
1. DEMOLITION	EA	0	\$0.00	\$0	All permits included in line item cost below	
2. STREET USE	EA	0	\$0.00	\$0	All permits included in line item cost below	
3. UTILITIES	EA	1	\$25,000.00	\$25,000	Pipe line, Rail, crossing and disturbance during decommissioning.	Allocation estimate - \$25K
4. EPA ASBESTOS NOTICE	EA	0	\$0.00	\$0	N/A	
5. PERMITS (Temporary de-construct)	LS	1	\$24,183.12	\$24,183	Miscellaneous permits	Estimated cost to obtain necessary permits.
Task Subtotal				\$49,183		
B. MOBILIZATION & DEMOBILIZATION						
1. LABOR	LS	1	\$2,613,111.57	\$2,613,112	A project of this size is expected to have multiple mobilization costs approximately 5% of the overall Project Cost. Mobilization split 50% Labor and 50% equipment	Assumes ~2.5% of total construction cost before contingency; Taxes
2. EQUIPMENT	LS	1	\$2,613,111.57	\$2,613,112	See above	Assumes ~2.5% of total construction cost before contingency; taxes
Task Subtotal				\$5,226,223		
C. ENGINEERING						
1. ENGINEERING	HR	1300	\$145.23	\$188,799	Engineering subcontracted by Owner to develop SOW, removal specifications and support Owner during decommissioning.	Assumes 1300 hours of engineering time at average rate of \$145.23/hr.
2. LAYOUT / TESTING	LS	0	\$0.00	\$0	N/A	
3. CUSTOM TOOLS & EQUIP	LS	0	\$0.00	\$0	N/A	
Task Subtotal				\$188,799		
D. PROJECT OVERHEAD						
1. SUPERVISION	WK	78	\$2,475.00	\$193,050	Owner's on-site supervision and inspection during decommissioning.	Assumes weekly burdened rate of \$2475
2. FOREMAN	WK	78	\$2,200.00	\$171,600	Site Engineering	Assumes weekly burdened rate of \$2200
3. GUARD SERVICE (site security)	WK	234	\$4,624.00	\$1,082,016	Third party guard service for equipment and materials at project salvage yards.	Assumes 3 guarded sites for 78 weeks. Night and weekend service at \$4624/wk.
4. CLERICAL	WK	78	\$2,130.00	\$166,140	Office staff assistant. One per Owner supervisor.	Assumes 3 clerical (\$710/wk) for 78 week duration
5. JOBSITE OFFICE	WK	78	\$1,054.00	\$82,212	Jobsite office to house temporary demolition services personnel.	Assumes rental cost of \$1054/Week.3 trailers for 78 mo duration with hook ups.
6. TEMP. UTILITIES	WK	234	\$192.00	\$44,928	Jobsite temporary utilities during decommissioning.	Jobsite temporary utilities during decommissioning. Assumes cost of \$192/wk for each of 3 project areas for 78 week duration.
7. SPECIAL INSURANCE	LS	0	\$0.00	\$0	Included in Contractor Overheads	
8. SUBSISTENCE	WK	0	\$0.00	\$0	Included in burdened labor costs	
Task Subtotal				\$1,739,946		
E. HAZARDOUS MATERIALS / SPILL MITIGATION						
1. ASBESTOS ABATEMENT	EA	0	\$0.00	\$0	No hazardous materials expected	
2. Spill Mitigation	EA	4	\$15,000.00	\$60,000	Minor spills with petroleum products	Not expected but anticipate \$15,000 / per incident
Task Subtotal				\$60,000		
F. PROTECTION						
1. SIGNS	LS	1	\$25,000.00	\$25,000	Nominal Amount for Signage	
2. FENCES	LS	3	\$30,720.00	\$92,160	Chain link fencing around material storage/salvage yards.	Assumes \$30.72 K in fencing per storage yard for 3 yards based on Crew and materials
3. PEDESTRIAN WALKWAY	LF	0	\$0.00	\$0	N/A	
4. SCAFFOLDING	SF	0	\$0.00	\$0	N/A	
5. SHORING	SF	0	\$0.00	\$0	N/A	
6. FLAGGING	LS	1	\$56,160.00	\$56,160	Nominal Amount for Traffic Control	Assumes crew of 2x1 day per week \$720/day. Guard structures included in conductor removal.
7. TOOLS AND CONSUMABLES	LS	0	\$0.00	\$0	Included in burdened labor costs	
Task Subtotal				\$173,320		
2. SITE CONSTRUCTION						
A. UTILITY DISCONNECTS						
1. POWER	EA	12	\$5,391.00	\$64,692	Disconnect costs from local utility.	Assumes \$5391 disconnect cost from local distribution utility for each of 9 communication stations and 3 storage / staging areas.
Task Subtotal				\$64,692		
B. PRELIMINARY WORK						
1. Communication Station Fence & Gate removal	EA	9	\$5,925.00	\$53,325	Removal of existing facility fencing and gates.	Assumes removal of fencing around 9 communication stations. Approximately \$5,925 Each
2. Storage yard Fence & Gate removal	EA	3	\$5,925.00	\$17,775	Removal of storage yard fence on completion of material removal	Assumes removal of fencing around 3 storage yards. Approximately \$5,925 Each
3. SAW CUTTING, ETC.	LF	0	\$0.00	\$0	N/A	
Task Subtotal				\$71,100		

Tab 01 - Summary Estimating Template

Task Description	Unit	Quantity	Unit Cost	Total	Comments	Methods/Assumptions
C. SITE GRADING						
1A. ACCESS ROAD RESTORATION - PRIMITIVE ROADS AND TOWER PADS	AC	374	\$2,000.00	\$748,000	Restoration includes scarifying road bed, minimal re-grading, re-seeding.	Assumes 106 miles of overland travel roads restored @ 15' width; 65 miles of bladed roads on <10% sideslopes restored @ 23' width
1B. ACCESS ROAD RESTORATION - BUILT UP ALL-WEATHER ROADS.	AC	207	\$5,700.00	\$1,181,455	Restoration includes full restoration of built-up all-weather road. Removal of gravel, re-grading as necessary for restoration of natural contours, re-seeding.	Assumes all communication station roads are included, 57 miles of new bladed roads on 10-30% side slopes @ 30' wide.
1C. ROADWAY REMOVAL (GRAVEL)	AC	0	\$0.00	\$0	Included in 0A.	
2. TOWER PADS AND COMMUNICATION STATIONS	AC	586	\$5,700.00	\$3,340,200	Restoration includes full restoration of site. Removal of gravel, re-grading as necessary for restoration of natural contours, re-seeding.	1166 structures at 150'x150' (0.5 acres) each and 9 communication stations at .3 acres ea
2. SITE PREPARATION (TOPSOIL)	AC	583	\$4,747.00	\$2,767,500	Topsoil restoration (grading&prep) for tower area after de-construct	Anticipate acreage similar to area disturbed by construction. ~0.5 A per site (1166 sites)
3. SEEDING	AC	0	\$0.00	\$0	Included in 1A, 1B and 2.	
4. MASS EXCAVATION ONSITE	CY	0	\$0.00	\$0	N/A	
4A. MASS EXCAVATION OFFSITE	CY	0	\$0.00	\$0	N/A	
5. MASS BACKFILL ONSITE	CY	0	\$0.00	\$0	N/A	
5A. MASS BACKFILL IMPORT	CY	332662	\$8.00	\$2,661,296	Backfill required to restore tower benched areas to natural contours.	Assumes 50% of bench cut had been disposed of at local landfills or elsewhere and must be imported. 50% remained on site and will be recycled.
Task Subtotal				\$10,698,454		
D. UNDERGROUND UTILITY REMOVAL						
1. ELECTRICAL DUCT BANK	EA	9	\$4,579.14	\$41,212	Remove and backfill underground ducts at communication sites.	Assumes 50' of ug duct at 9 comm stations. 4 person crew will complete 1 day on site
2. MH/CB/VAULT REMOVAL	EA	0	\$0.00	\$0	N/A	
Task Subtotal				\$41,212		
3. CONCRETE WRECKING [Imported from Tab 3]						
Enter data on tab "03 Concrete Wrecking."						
A. REINFORCED CONCRETE						
1. SLAB ON GRADE	EA	9	\$8,100.00	\$72,900	Each communication station will have 2 slabs (building & Propane) for removal. Includes removal, haul and disposal.	Assumes 6 person crew. Loaded crew rate is \$540/hour includes equipment. Estimate 1 1/2 day per site (15 hrs)
2. MINOR FOOTINGS	CY	0	\$0.00	\$0	N/A	
3. MASS FOUNDATIONS	CY	0	\$0.00	\$0	N/A	
4. TRANSMISSION STRUCTURE FOUNDATIONS	CY	12380	\$300.36	\$3,718,402	Foundation removal 10 cy per 500 kV structure (4' diameter, 5' of removed length per leg, 4 legs - 2' above ground, 3' below ground in Exclusive Farm Use zoned land; 1' below ground in all other zones), includes haul and disposal.	Assumes 6 person crew can remove foundations at 1.5 structures per day (~18 cy/day). Loaded crew rate is \$540.64/hour.
Task Subtotal				\$3,791,302		
B. NON-REINFORCED CONCRETE/OTHER						
1. DEAD MEN	CY	0	\$0.00	\$0	N/A	
2. SECURITY RAILS	LF	0	\$0.00	\$0	N/A	
3. CONCRETE RECYCLE	CY	0	\$0.00	\$0	N/A	
4. PILING	EA	0	\$0.00	\$0	N/A	
Task Subtotal				\$0		
4. BUILDING WRECKING (Assumes container construction for ease of construction (factory built) and removal)						
1. Communication Control Building	EA	9	\$10,593.00	\$95,337	Removal of control building at communication stations. Includes removal of equipment inside building, hauling and disposal.	Assumes 4-person crew will remove salvageable equipment from building in three days. Building remove, load and haul - 3 days. Loaded crew daily rate is \$3531 including equipment.
2. ELECTRICAL/MCC	SF	0	\$0.00	\$0	Included above	
Task Subtotal				\$95,337		
5. STEEL WRECKING (All steel wrecking assumes material is knocked down and put into stockpile for sorting.) [Imported from Tab 5]						
Enter data on tab "05 Steel Wrecking."						
1. 500-kV LATTICE TOWERS	EA	1,076	\$53,650.00	\$57,727,400	Removal of hardware and disassembly of 500 kV lattice towers.	Assumes 9 man crew to remove 1 tower in 5 days. Loaded crew rate is \$1073/hour including equipment.
2. 500-kV H-FRAME STRUCTURES	EA	90	\$21,460.00	\$1,931,400	Removal of hardware and disassembly of 500 Kv H-Frames	Assumes 9 man crew to remove 1 h-frame in 2 days. Loaded crew rate is \$1073/hour including equipment.
3. SORT/CLEAN/HAUL	EA	0	\$0.00	\$0	Included in Section 17	
4. LABOR	EA	0	\$0.00	\$0	Included above	
5. EQUIPMENT	EA	0	\$0.00	\$0	Included above	
Task Subtotal				\$59,658,800		

Tab 01 - Summary Estimating Template

Task Description	Unit	Quantity	Unit Cost	Total	Comments	Methods/Assumptions
6. TIMBER WRECKING (All timber wrecking assumes material is knocked down and put into stockpile for sorting).					[Imported from Tab 6]	
Enter data on tab "06 Timber Wrecking."						
1. 230-kV TIMBER TOWER	EA	0	\$4,604.13	\$0		
2. 138-kV TIMBER TOWER	EA	0	\$4,604.13	\$0		
Task Subtotal				\$0		
16. ELECTRICAL WRECKING					[Imported from Tab 16]	
Enter data on tab "16 Electrical Wrecking."						
1. TRANSFORMERS	EA	0	\$0.00	\$0	N/A	
2. MOTOR CONTROL CENTER	EA	0	\$0.00	\$0	N/A	
3. WIRING	LF	0	\$0.00	\$0	N/A	
4. SWITCH YARD	SF	0	\$0.00	\$0	N/A	
5. SWITCH YARD TOWERS	EA	0	\$0.00	\$0	N/A	
6. Grounding	LF	111,200	\$0.03	\$3,336	Removal , handling & loading	Estimates 2 x laborers and vehicle approximately 2 hours per tower to retrieve and load. Worked in conjunction with foundation removal.
7. Transmission Conductor - 500 kV	MI	286	\$76,743.60	\$21,917,972	Removal, loading and hauling of 3-1519 ACSR Conductor, Dampers, OHGW and OPGW. Includes guard structures. Unit is circuit-mile.	Estimates 16 person crew to remove one mile in 6 days. Loaded crew rate is \$1279/hour.
8. Transmission Line (s) 230/138	MI	4	\$9,699.00	\$40,833	Includes Shield wire	Retrieve and load
9. Insulator Strings	EA	3,498	\$10.50	\$36,729	Removal Included in tower removal costs	Retrieve and load-anticipate landfill disposal at ~\$60/ton
10. Communication Stations	Ea	9	\$ 7,050.00	\$63,450	Removal of Propane and restoration (fill and grade) of the sites	Control building remove under section 4.
Task Subtotal				\$22,062,320		
17. LOAD & HAUL						
1. LOAD & HAUL - STRUCTURAL STEEL	LD	1,166	\$5,000.00	\$5,830,000	Loading and hauling of tower steel and H-Frames to laydown/salvage yard.	Assumes 5 man crew to load/haul one structure per day. Loaded crew rate is \$500/hour.
2. DISPOSAL - DEBRIS	LD	0	\$0.00	\$0	N/A	Assume steel will be salvaged w/o disposal fee.
3. LOAD & HAUL CONC.	LD	0	\$0.00	\$0	Included in Concrete Wrecking	
4. DISPOSAL - CONCRETE	LD	0	\$0.00	\$0	Included in Concrete Wrecking	
5. SCRAP STEEL	LD	0	\$0.00	\$0	N/A	
Task Subtotal				\$5,830,000		
SUBTOTAL				\$109,750,686	Sum of all task subtotals.	
OVERHEAD @	0.0%			\$0	Contractor overhead built into loaded labor costs	
COSTS + OVERHEAD				\$109,750,686		
PROFIT @	0.0%			\$0	Contractor profit built into loaded labor costs	
COSTS + OVERHEAD + PROFIT				\$109,750,686		
INSURANCE @	0.0%			\$0	Contractor insurance built into overhead costs	
COSTS + OVERHEAD + PROFIT + INSURANCE				\$109,750,686		
18. SCRAP CREDIT (Currently not allowed by EFSC.)				\$18,026,428	[Imported from Tab 18]	
SUBTOTAL (if scrap credit given)				\$109,750,686	Scrap credit is excluded	
19. SEPARATE SPECIALTY CONTRACTS				\$485,400	[Imported from Tab 19]	
SUBTOTAL (including specialty contracts)				\$110,236,086		
GROSS COST				\$110,236,086		
ADDERS						
PERFORMANCE BOND	@	1%		\$1,102,361		
GROSS COST (ADJUSTED)				\$111,338,447		
ADMINISTRATION AND PROJECT MANAGEMENT	@	4%		\$4,453,538		
CONTINGENCY -	@	20%		\$22,267,689		
HAZARDOUS MATERIALS MANAGEMENT CONTINGENCY						
	LS			\$0	Included in spill mitigation Line E.2.	
TOTAL SITE RESTORATION COST (not adjusted)				\$138,059,674		

Grid-Enhancing Electric Transmission Lines
COST ESTIMATE FOR FACILITY SITE RESTORATION
(3rd Quarter 2016 Dollars)

Adjustment Factor: 1.02

GDP Index 2nd Quarter 2016:

111.7

<http://www.oregon.gov/DAS/OEA/econo>

Est. GDP Index 2017:

113.9

Historical Quarterly Tables, Other indicators, Quarterly Data

General Costs			
A. PERMITS			\$49,183
B. MOBILIZATION			\$5,226,223
C. ENGINEERING			\$188,799
D. PROJECT OVERHEAD			\$1,739,946
E. HAZARDOUS MATERIALS INSPECTIONS			\$60,000
F. PROTECTION			\$173,320
General Costs Subtotal			\$7,437,471
Site Construction			
A. UTILITY DISCONNECTS			\$64,692
B. PRELIMINARY WORK			\$71,100
C. SITE GRADING			\$10,698,452
D. UNDERGROUND UTILITY REMOVAL			\$41,212
Site Construction Subtotal			\$10,875,456
Concrete Wrecking			
A. REINFORCED CONCRETE			\$3,791,302
B. NON-REINFORCED CONCRETE			\$0
Concrete Wrecking Subtotal			\$3,791,302
Building Wrecking			
			\$95,337
Steel Wrecking			
			\$59,658,800
Timber Wrecking			
			\$0
Electrical Wrecking			
			\$22,062,320
Load & Haul			
			\$5,830,000
Costs Subtotal			\$109,750,686
Overhead @	0%		\$0
Profit @	0%		\$0
Insurance @	0%		\$0
Specialty Contracts (subcontracted work)			\$485,400
Subtotal			\$110,236,086
Subtotal Adjusted to Current Dollars			\$112,407,253
Performance Bond @	1%		\$1,124,073
Gross Cost (Adjusted)			\$113,531,326
Administration and Project Management @	4%		\$4,541,253
Contingency @	20%		\$22,706,265
Hazardous Materials Management Contingency			\$0
Total Site Restoration Cost (current dollars)			\$140,778,844
Total Site Restoration Cost (rounded to nearest \$1,000)			\$140,779,000

Grid-Enhancing Electric Transmission Lines
Tab 03 - Concrete Wrecking

A. Reinforced Concrete

1 Slab on Grade (CY)		
	Work Item	Quantity
1	Communication Station Pads	250
2		
3		
4		
5		
	Total	250

2 Minor Footings (CY)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

3 Mass Footings (CY)		
	Work Item	Quantity
1	See below	
2		
3		
4		
5		
	Total	0

4 Transmission Foundations (CY)		
	Work Item	Quantity
1	Remove 500 kV Tower Fdns	12,380
2	230 kV Rebuild	N/A
3	138/69kV Rebuild	N/A
4		
5	Total	12380

Tab 03 - Concrete Wrecking

B. Non-Reinforced Concrete

Dead Men (CY)		
1	Work Item	Quantity
	N/A	
1		
2		
3		
4		
5	Total	0

Security Rails (LF)		
2	Work Item	Quantity
	N/A	
1		
2		
3		
4		
5	Total	0

Concrete Recycle (CY)		
3	Work Item	Quantity
	N/A	
1		
2		
3		
4		
5	Total	0

Piling (EA)		
4	Work Item	Quantity
	N/A	
1		
2		
3		
4		
5	Total	0

Grid-Enhancing Electric Transmission Lines

Tab 05 - Steel Wrecking

1 500-kV Towers (EA)		
	Work Item	Quantity
1	500 kV Steel Lattice Towers	1076
2	500 kV Steel H-Frame Structures	90
3		
4		
5		
Total		1166

2 138/69-kV Monopole Structures (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

3		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

4 Sort/Clean (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

5 Labor (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

6 Equipment (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

Grid-Enhancing Electric Transmission Lines

Tab 06 - Timber Wrecking

1 230-kV Towers (EA)		
	Work Item	Quantity
1		
2		
3		
4		
5		
	Total	0

2 138-kV Towers (EA)		
	Work Item	Quantity
	Work Item	Quantity
1		
2		
3		
4		
5		
	Total	0

Grid-Enhancing Electric Transmission Lines
Tab 16 - Electrical Wrecking

1 Transformers (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

2 Motor Control Center (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

3 Wiring (LF)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

4 Switch Yard (SF)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
	Total	0

Grid-Enhancing Electric Transmission Lines

Tab 16 - Electrical Wrecking

5 Switch Yard \Towers (EA)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

6 Grounding (LF)		
	Work Item	Quantity
1	Copper ground wire (incl. all str's)	111,200
2		
3		
4		
5		
Total		111,200

7 Transmission Line Wiring (MI)		
	Work Item	Quantity
1	3-1519 ACSR "Deschutes" (500 kV)	285.6
2	1/2" Steel Overhead Shield Wire	285.6
3	48-strand Optical Ground Wire	285.6
4	795 kcm ACSR "Drake" (230 kV)	0.95
5	397 kcm 26/7 ACSR "Ibis" (138 kV)	1.16
6	4/0 6/1 ACSR "Penguin" (69 kV)	N/A
7	20 ACSR "Quail" (12.5 kV)	N/A
8	3/8" Overhead Shield Wire (138 and 230 kV)	2.1
Total		859

8 Breaker/Insulator/Misc (EA)		
	Work Item	Quantity
1	Transmission Insulator Strings (500 kV)	3,498
2		
3		
4		
5		
Total		3,498

9 Transmission Line Wiring Equipment (MI)		
	Work Item	Quantity
1	N/A	
2		
3		
4		
5		
Total		0

Grid-Enhancing Electric Transmission Lines**Tab 18 - Scrap Value (NOT USED)**

Scrap Item	Quantity	Unit	Unit Rate	Value
Structure Steel	31,366	TN	171	5,374,373
Conductor Steel	1,281	TN	171	219,492
Shield Wire Steel	370	TN	171	63,397
OPGW Steel	0	TN	171	0
Hardware Steel	2,040	TN	175	358,007
Conductor Aluminum	8,066	TN	1,440	11,614,320
OPGW Aluminum	324	TN	1,160	375,840
Grounding Copper	7	TN	3,000	21,000
Equip Scrap Value				0
Total				\$ 18,026,428

Grid-Enhancing Electric Transmission Lines**Tab 19 - Separate Specialty Contracts**

Subcontractor	Quantity	Unit	Unit Rate	Value
Lot Rentals	1	LS	60,000	60,000
Port-a-John Rentals	1	LS	91,200	91,200
Dumpster Rentals	1	LS	34,200	34,200
LIDAR Survey	300	MI	1,000	300,000
				0
Total				485,400