

**TABLE 1
ROW REQUIREMENTS**

Project Component	Length (miles)	Structure Type	Average Structure Height (feet)	Average Span Length (feet)	ROW (feet)
Southern CTF Single Circuit Tap – Shared ROW	0.30	Horizontal line post	85	400-500	40
Northern CTF Single Circuit Tap – Shared ROW	0.74	Horizontal line post	85	400-500	40
Northern CTF Single Circuit Tap – Cross Country	0.26	Horizontal line post	85	400-500	75
CTF Double Circuit – Shared ROW	0.73	Davit arm	95	400-500	40
CTF Double Circuit – Cross Country	0.25	Davit arm	95	400-500	75

**TABLE 2
STRUCTURE DESIGN SUMMARY**

Project Component	Line Voltage	Structure Type	Pole Type	Conductor	Foundation	Double Circuit / Single Circuit	Average Height (feet)
Single Circuit: Line to Empire Substation	115 kV	Horizontal post	Steel	477 kcmil 26/7 ACSS	Direct Imbed	Single	85
Single Circuit: Line to CTF Substation	115 kV	Horizontal post	Steel	477 kcmil 26/7 ACSR	Direct Imbed	Single	85
Double Circuit Line to Empire Substation	115 kV/ 115 kV	Davit Arm	Steel	477 kcmil 26/7 ACSS	Concrete	Double	95
Double Circuit Line to CTF Substation	115 kV/ 115 kV	Davit Arm	Steel	477 kcmil ACSR	Concrete	Double	95

**TABLE 3
PROJECT LOCATION**

Sections	Township	Township Name	Range
35, 36	113	Hampton	18
1	112	Stanton	18
6	112	Cannon Falls	17

TABLE 4
Summary of HVTL Alternatives

Alternative	Length of Southern Tap (ft)*	Removal Length (ft)	Distance to Home (ft)	Double Circuit Length (ft)	Double Circuit Length (mi)	Tree Removal (acres)	Permanent Agricultural Impacts (sq. ft)**	Temporary Agricultural Impacts (acres)**
Original	1,731	3,169	173	5,143	0.97	0.46	1,500	7.0
Alternative 1	2,210	3,018	378	5,143	0.97	0.00	1,600	7.3
Alternative 2	2,675	2,580	878	5,143	0.97	0.00	1,650	7.5

Estimated Cost								
Alternative	Cost	Distance (Mi.)	Alternative	Cost	Distance (Mi.)	Alternative	Cost	Distance (Mi.)
Initial Proposal			Alternate 1			Alternate 2		
Single Circuit	\$466,000	1.31	Single Circuit	\$587,000	1.41	Single Circuit	\$604,000	1.50
Double Circuit	\$810,000	0.98	Double Circuit	\$810,000	0.98	Double Circuit	\$810,000	0.98
Removal (9 Strs.)	\$5,000	1.07	Removal (9 Strs.)	\$5,000	1.07	Removal (8 Strs.)	\$4,000	0.95
Total:	\$1,281,000		Total :	\$1,402,000		Total :	\$1,418,000	
			Cost Above Original Estimate:			Cost Above Original Estimate:		
						\$137,000		

* Represents length between the existing 115 kV line and the proposed line following CR85 for the southern tap.

** Represents impacts for the entire route proposal

TABLE 5**POPULATION AND ECONOMIC CHARACTERISTICS**

Location	Population	Minority Population (Percent)	Caucasian Population (Percent)	Per Capita Income	Percentage of Population Below Poverty Level
State of Minnesota	4,919,479	11.8%	88.2%	\$23,198	7.9%
Goodhue County	44,127	3.9%	96.1%	\$21,934	5.7%
<i>Cannon Falls Township</i>	1,236	0.6%	99.4%	\$29,568	1.5%
<i>Stanton Township</i>	1,080	2.0%	98.0%	\$23,473	2.8%
Dakota County	355,904	10.0%	90.0%	\$27,008	3.6%
<i>Hampton Township</i>	986	1.2%	98.8%	\$25,576	2.2%

Source: 2000 U.S. Census: General Demographic Characteristics

TABLE 6
NOISE STANDARDS BY NOISE AREA CLASSIFICATION

Noise Area Classification	Daytime		Nighttime	
	L ₅₀	L ₁₀	L ₅₀	L ₁₀
1	60	65	50	55
2	65	70	65	70
3	75	80	75	80

**TABLE 7
RARE AND UNIQUE RESOURCES**

Common Name	Number of Occurrences	Scientific Name	Federal Status ¹	MN Status ¹	State Rank ²
Kitten-tails	2	Besseyia bullii	None	THR	S2
Paddlefish	2	Polyodon spathula	None	THR	S2
Eastern Racer	1	Coluber constrictor	None	SPC	S3
Eastern Fox Snake	1	Elaphe vulpina	None	Non	S4
Long-bearded Hawkweed	1	Hieracium longipilum	None	Non	SU
Dry hill prairie (southern) type	1	Dry hill prairie (southern) type	None	NA	S2
Native Plant Community, Undetermined Class	2	Native Plant Community, Undetermined Class	None	NA	SU
White pine - oak woodland (sand) type	2	White pine - oak woodland (sand) type	None	NA	S1

1) THR: Threatened; SPC: Special Concern; NA: natural communities do not have state status; Non: no legal status

2) State Rank: A rank is assigned to the natural community type, which reflects the known extent and condition of that community in Minnesota. Ranks range from S1 (in greatest need of conservation action in the state) to S5 (secure under present conditions). SU: Undetermined, more information is needed.

**TABLE 8
PREVIOUSLY IDENTIFIED ARCHITECTURAL PROPERTIES WITHIN 1
MILE**

County	Township	Range	Section	Site Number	Site Type	NRHP Status
Dakota	112	18	1	DK-RDT-001	Barn	Unknown
Dakota	112	18	2	DK-RDT-002	Barn	Unknown
Dakota	112	18	14	DK-RDT-004	Dam (Same as GD-STN-001)	Unknown
Goodhue	112	17	7	GD-CFC-007	Grain Company	Unknown
Goodhue	112	17	7	GD-CFC-022	Malting Company	Unknown
Goodhue	112	17	7	GD-CFC-051	Fair Ground	Unknown
Goodhue	112	17	7	GD-CFC-063	Feed Company	Unknown
Goodhue	112	17	7	GD-CFC-065	Feed Store	Unknown
Goodhue	112	17	6	GD-CFT-004	Mill	Unknown
Goodhue	112	17	6	GD-CFT-005	Farmstead	Unknown
Goodhue	112	17	7	GD-CFT-006	Railroad Boxcar	Unknown
Goodhue	112	18	14	GD-STN-001	Dam (Same as DK-RDT-004)	Unknown

**TABLE 9
PREVIOUSLY IDENTIFIED CULTURAL RESOURCES WITHIN 1 MILE**

County	Township	Range	Section	Site Number	Site Type	NRHP Status
Dakota	112	18	11	21DK0032	Lithic Scatter	Unknown
Dakota	112	18	14	21DK0033	Lithic Scatter	Unknown
Dakota	112	18	14	21DK0071	Lithic Scatter	Unknown
Goodhue	112	18	13	21GD0140	Lithic Scatter	Unknown
Goodhue	112	18	13	21GD0141	Lithic Scatter	Unknown
Goodhue	112	18	14	21GD0175	Lithic Scatter	Unknown
Goodhue	112	18	14	21GD0179	Lithic Scatter	Unknown

TABLE 10
CALCULATED ELECTRIC FIELDS (KV/M) FOR PROPOSED 115 KV
TRANSMISSION LINE DESIGNS
(3.28 FEET ABOVE GROUND)

Type	Voltage	Distance to Proposed Centerline								
		300'	200'	100'	50'	0'	50'	100'	200'	300'
Single Circuit 115 kV Single Steel Pole Horizontal Arm	121 kV	0.01	0.01	0.05	0.20	1.05	0.18	0.05	0.01	0.01
Double Circuit 115 kV/115 kV Single Steel Pole Davit Arm	121/121 kV	0.01	0.01	0.02	0.07	0.74	0.07	0.02	0.01	0.01

**TABLE 11
CALCULATED MAGNETIC FLUX DENSITY (MILLIGAUSS) FOR PROPOSED
115 KV TRANSMISSION LINE DESIGNS (3.28 FEET ABOVE GROUND)**

Structure Type		Condition	Amps	Distance to Proposed Centerline								
				-300'	-200'	-100'	-50'	0'	50'	100'	200'	300'
Single Circuit Single Steel Pole Horizontal Arm	115 kV	Normal	736	0.54	1.18	4.30	14.0	76.9	17.9	5.12	1.34	0.64
		Normal	340	0.25	0.55	1.99	6.48	35.5	8.28	2.37	0.62	0.30
		Contingency	742	0.54	1.19	4.34	14.1	77.5	18.1	5.16	1.35	0.65
		Contingency	891	0.65	1.43	5.21	17.0	93.0	21.7	6.20	1.62	0.78
Double Circuit Single Steel Pole Davit Arm	115/115 kV	Normal	736/340	0.68	1.59	6.73	24.4	81.8	8.88	3.16	1.07	0.52
		Contingency	742/0	1.17	2.65	10.4	34.5	98.2	22.6	7.94	2.29	1.06

TABLE 12
POTENTIAL REQUIRED PERMITS

Permit	Jurisdiction
Road Crossing Permits	County, Township, City
Lands Permits	County, Township, City
Building Permits	County, Township, City
Over-width Loads Permits	County, Township, City
Driveway/Access Permits	County, Township, City
Route Permit Application (Alternative Process)	PUC
NPDES Permit	MPCA