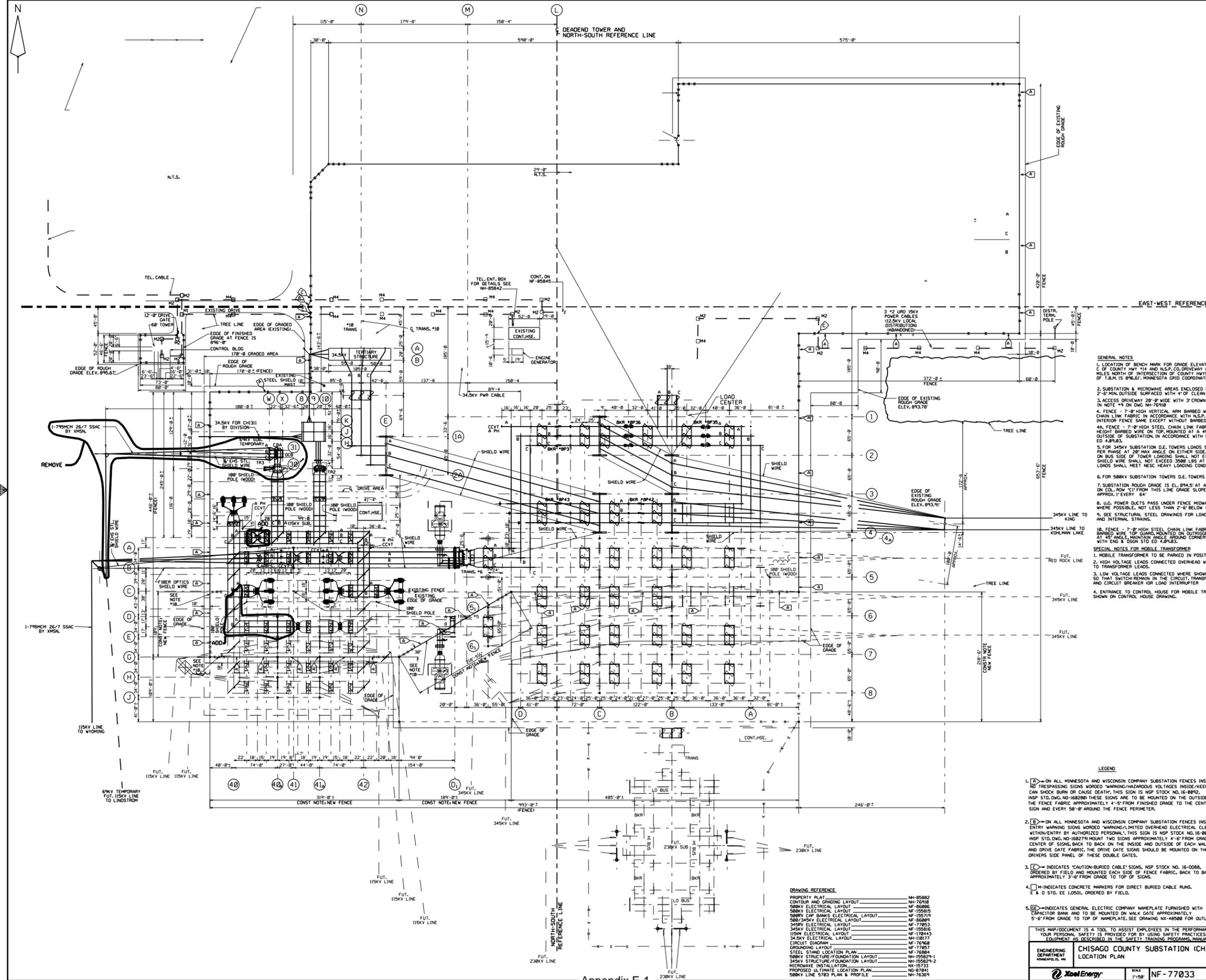


REVISIONS	
P	W.O.-10175640 E-01CH01 1. HENRY CENTER, THIS PLAN, SPECIFICATION OF WORK AND PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA ADD CAP BANKS #1,2,3,4 WITH ASSOC BKRS AND SWITCHES. ADD CCVT'S TO MAIN BUS #18. 2. EXPAND 118,465' OF GRADED AREA TO THE SOUTH. ADD 647' OF NEW FENCE AS OUTLINED SUPERCEDE SHEET 2. DATE 9-18-02 APP'D AND CERT: JRS/AB ANDY BECKEL (ENGINEER) REG. NO. 245802 PH NO. 612-338-6263 APP'D: JRS/AB S.J. MCNELLY (ENGINEER) PH NO. 612-338-6394 d-mullivan (DESIGNER) PH NO. 612-338-6448 CHK'D



**GENERAL NOTES**

- LOCATION OF BENCH MARK FOR GRADE ELEVATION IS P.R. SPIKE IN C OF COUNTY HWY #14 AND N.S.P. CO. DRIVEWAY APPROXIMATELY 8.4 MILES NORTH OF INTERSECTION OF COUNTY HWYS #14 & 18 ELEVATION OF T.S.M. IS 896.81'. MINNESOTA GRID COORDINATES: N: 234,444.44 E: 2,341,747.91
- SUBSTATION & MICROWAVE AREAS ENCLOSED BY FENCE AND EXTENDING 2'-0" MIN. OUTSIDE SURFACED WITH 4" OF CLEAN 3/4" ROCK
- ACCESS DRIVEWAY 28'-0" WIDE WITH 3" CROWN AND SURFACED AS SPECIFIED IN NOTE #9 ON DWG NH-77810
- FENCE - 7'-0" HIGH VERTICAL ARM BARBED WIRE TOP AND 6'-0" HIGH STEEL CHAIN LINK FABRIC IN ACCORDANCE WITH N.S.P. ENG. & DES. STDS. EEL3781. INTERIOR FENCE SAME EXCEPT WITHOUT BARBED WIRE TOP
- 4A. FENCE - 7'-0" HIGH STEEL CHAIN LINK FABRIC AND 1'-0" HIGH VERTICAL HEIGHT BARBED WIRE ON TOP, MOUNTED AT A 45° ANGLE POINTED OUTSIDE OF SUBSTATION, IN ACCORDANCE WITH ENG. & DSON STD ED 4.8P.8.3.
- FOR 34.5KV SUBSTATION D.E. TOWERS LOADS SHALL NOT EXCEED 10,000 LBS PER PHASE AT 20° MAX ANGLE ON EITHER SIDE. IF 30° MAX ANGLE IS REQUIRED ON BUS SIDE OF TOWER LOADING SHALL NOT EXCEED 5000 LBS PER PHASE. SHIELD WIRE SHALL NOT EXCEED 3500 LBS AT 30° MAX ANGLE ON EITHER SIDE. LOADS SHALL MEET NESC HEAVY LOADING CONDITIONS
- FOR 580KV SUBSTATION TOWERS D.E. TOWERS LOAD SEE NH-77879
- SUBSTATION ROUGH GRADE IS EL. 894.5' AT A LINE EXTENDING NORTH-SOUTH ON COL. ROW "C" FROM THIS LINE GRADE SLOPES EAST-WEST AT A RATE OF APPROX. 1" EVERY 64'
- U.G. POWER DUCTS PASS UNDER FENCE MIDWAY BETWEEN FENCE POSTS AND, WHERE POSSIBLE, NOT LESS THAN 2'-0" BELOW GRADE.
- SEE STRUCTURAL STEEL DRAWINGS FOR LOAD REQUIREMENTS OF EXTERNAL AND INTERNAL STRAINS.
- FENCE - 7'-0" HIGH STEEL CHAIN LINK FABRIC AND ADDITIONAL 1'-0" BARBED WIRE TOP GUARD MOUNTED ON OUTRIGGER DIRECTED OUTWARD AT AN ANGLE MAINTAIN ANGLE GROUND CORNERS. INSTALL IN ACCORDANCE WITH ENG. & DSON STD ED 4.8P.8.3.

**SPECIAL NOTES FOR MOBILE TRANSFORMER**

- MOBILE TRANSFORMER TO BE PARKED IN POSITION AS SHOWN.
- HIGH VOLTAGE LEADS CONNECTED OVERHEAD WITH HOT LINE CLAMPS TO TRANSFORMER LEADS.
- LOW VOLTAGE LEADS CONNECTED WHERE SHOWN ON ELECTRICAL LAYOUT SO THAT SWITCH REMAIN IN THE CIRCUIT. TRANSFORMER CURRENT TRANSFORMERS AND CIRCUIT BREAKER OR LOAD INTERRUPTER
- ENTRANCE TO CONTROL HOUSE FOR MOBILE TRANSFORMER CONTROL CABLE SHOWN ON CONTROL HOUSE DRAWING.

**LEGEND**

- ⊠ ON ALL MINNESOTA AND WISCONSIN COMPANY SUBSTATION FENCES INSTALL ENTRY WARNING SIGNS WORDED "WARNING/LIMITED OVERHEAD ELECTRICAL CLEARANCES WITHIN/ENTRY BY AUTHORIZED PERSONAL". THIS SIGN IS NSP STOCK NO. 16-0894. NSP STD. DWG. NO. 168279. MOUNT TWO SIGNS APPROXIMATELY 4'-6" FROM GRADE TO CENTER OF SIGNS, BACK TO BACK ON THE INSIDE AND OUTSIDE OF EACH WALK GATE AND DRIVE GATE FABRIC. THE DRIVE GATE SIGNS SHOULD BE MOUNTED ON THE DRIVERS SIDE PANEL OF THESE DOUBLE GATES.
- ⊠ ON ALL MINNESOTA AND WISCONSIN COMPANY SUBSTATION FENCES INSTALL ENTRY WARNING SIGNS WORDED "WARNING/LIMITED OVERHEAD ELECTRICAL CLEARANCES WITHIN/ENTRY BY AUTHORIZED PERSONAL". THIS SIGN IS NSP STOCK NO. 16-0894. NSP STD. DWG. NO. 168279. MOUNT TWO SIGNS APPROXIMATELY 4'-6" FROM GRADE TO CENTER OF SIGNS, BACK TO BACK ON THE INSIDE AND OUTSIDE OF EACH WALK GATE AND DRIVE GATE FABRIC. THE DRIVE GATE SIGNS SHOULD BE MOUNTED ON THE DRIVERS SIDE PANEL OF THESE DOUBLE GATES.
- ⊠ INDICATES "CAUTION-BURIED CABLE" SIGNS, NSP STOCK NO. 16-0088. ORDERED BY FIELD AND MOUNTED EACH SIDE OF FENCE FABRIC, BACK TO BACK, APPROXIMATELY 3'-6" FROM GRADE TO TOP OF SIGNS.
- ⊠ M-INDICATES CONCRETE MARKERS FOR DIRECT BURIED CABLE RUNS. E & D STD. EE 1.0501, ORDERED BY FIELD.
- ⊠ INDICATES GENERAL ELECTRIC COMPANY NAMEPLATE FURNISHED WITH CAPACITOR BANK AND TO BE MOUNTED ON WALK GATE APPROXIMATELY 5'-6" FROM GRADE TO TOP OF NAMEPLATE. SEE DRAWING NX-48500 FOR OUTLINE

**DRAWING REFERENCE**

PROPERTY PLAT	NH-85882
CONTOUR AND GRADING LAYOUT	NH-76910
580KV ELECTRICAL LAYOUT	NF-65806
580KV ELECTRICAL LAYOUT	NF-195915
580KV CAP BANKS ELECTRICAL LAYOUT	NF-195714
580V/34.5KV ELECTRICAL LAYOUT	NF-86889
34.5KV ELECTRICAL LAYOUT	NF-77853
34.5KV ELECTRICAL LAYOUT	NF-152616
115KV ELECTRICAL LAYOUT	NF-178443
34.5KV ELECTRICAL LAYOUT	NH-18017
CIRCUIT DIAGRAM	NF-76968
GROUNDING LAYOUT	NF-77857
STEEL STAND LOCATION PLAN	NF-76884
580KV STRUCTURE/FOUNDATION LAYOUT	NH-195929-1
34.5KV STRUCTURE/FOUNDATION LAYOUT	NH-195929-2
CIRCUIT DIAGRAM	NF-76968
PROPOSED ULTIMATE LOCATION PLAN	NH-15723
580KV LINE 5783 PLAN & PROFILE	NH-76369

THIS MAP/DRAWING IS A TOOL TO ASSIST EMPLOYEES IN THE PERFORMANCE OF THEIR JOBS. YOUR PERSONAL SAFETY IS PROVIDED FOR BY USING SAFETY PRACTICES, PROCEDURES AND EQUIPMENT AS DESCRIBED IN THE SAFETY TRAINING PROGRAMS, MANUALS AND SPREADSHEETS.

**CHISAGO COUNTY SUBSTATION (CHI) LOCATION PLAN**

Scale: 1"=50'

Project: NF-77033

Engineering Department: Xcel Energy

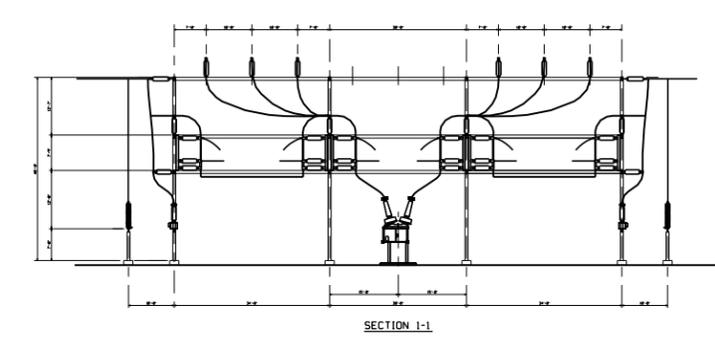
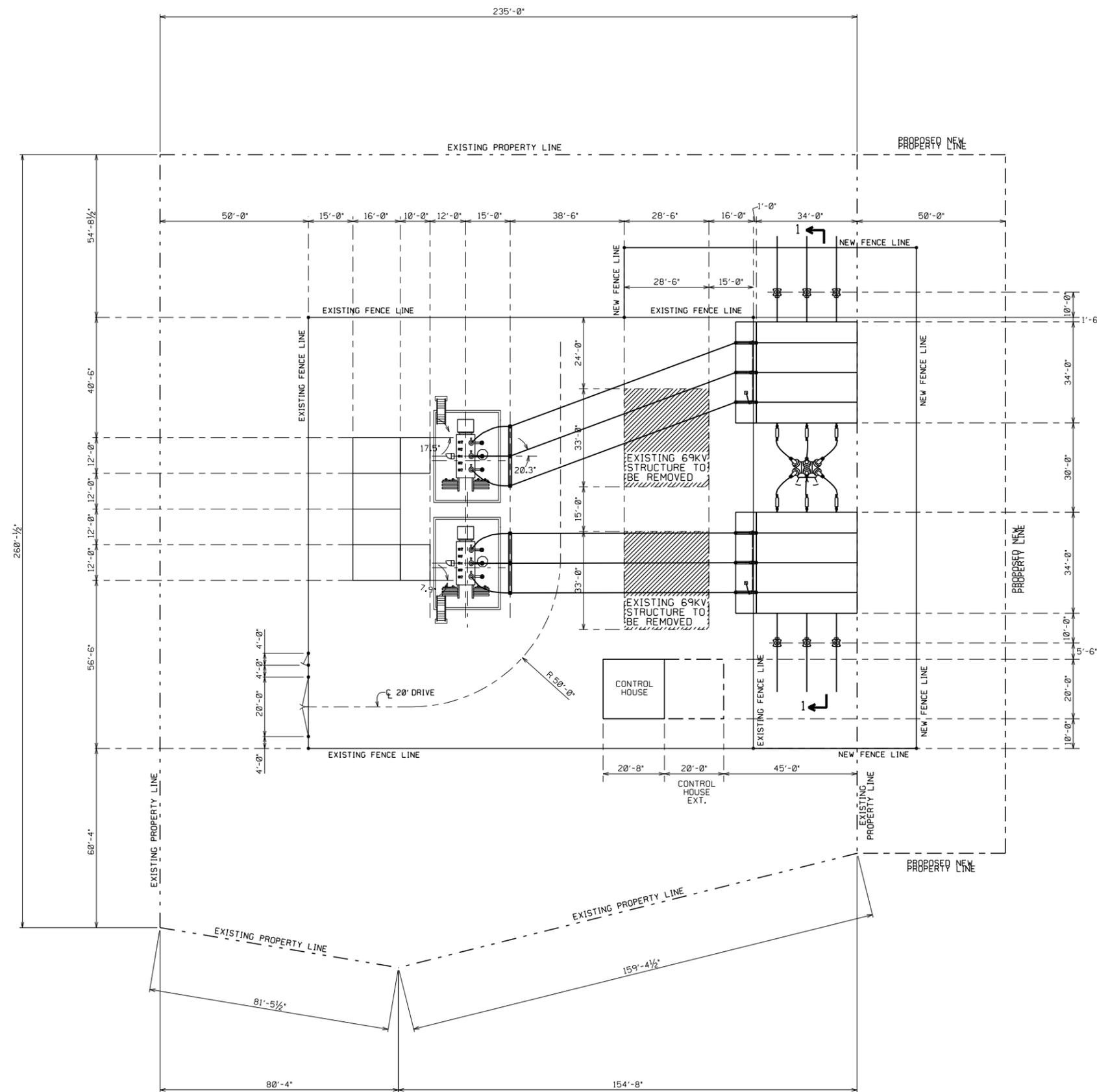
Minnesota, MN

Revision: 1

Drawn: [ ]

Checked: [ ]

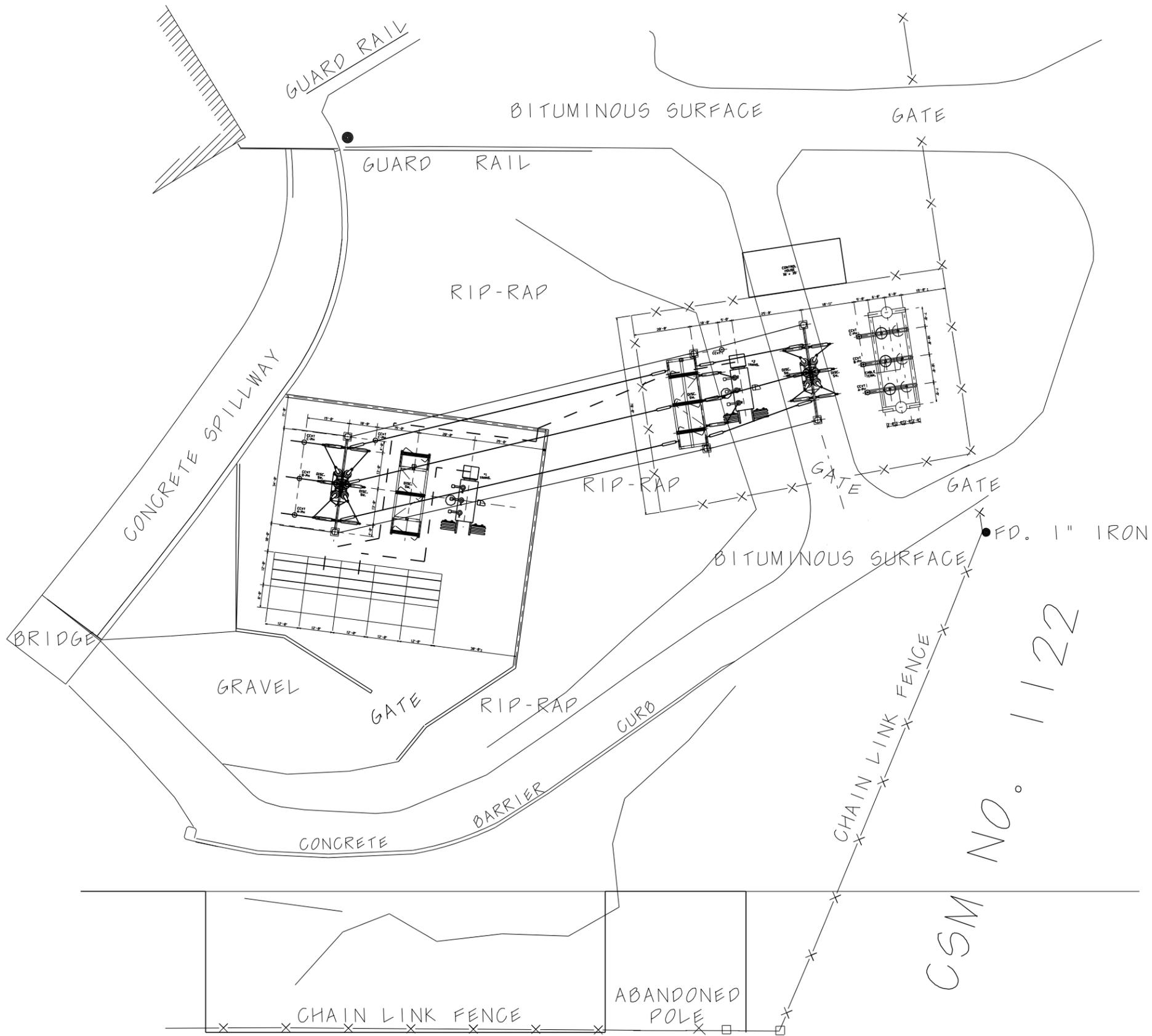
Approved: [ ]



Appendix E-2

THIS MAP/DOCUMENT IS A TOOL TO ASSIST EMPLOYEES IN THE PERFORMANCE OF THEIR JOBS. YOUR PERSONAL SAFETY IS PROVIDED FOR BY USING SAFETY PRACTICES, PROCEDURES AND EQUIPMENT AS DESCRIBED IN THE SAFETY TRAINING PROGRAMS, MANUALS AND SPARS.		<table border="1"> <tr> <th>REV</th> <th>DESCRIPTION</th> <th>SIGNIFICANT NUMBER</th> </tr> <tr> <td>1</td> <td></td> <td>2221</td> </tr> <tr> <td>2</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> </tr> <tr> <td>5A</td> <td></td> <td></td> </tr> <tr> <td>5B</td> <td></td> <td>6210</td> </tr> <tr> <td>6</td> <td></td> <td></td> </tr> <tr> <td>CL</td> <td></td> <td></td> </tr> </table>	REV	DESCRIPTION	SIGNIFICANT NUMBER	1		2221	2			3			4			5A			5B		6210	6			CL		
REV	DESCRIPTION	SIGNIFICANT NUMBER																											
1		2221																											
2																													
3																													
4																													
5A																													
5B		6210																											
6																													
CL																													
ENGINEERING DEPARTMENT MINNEAPOLIS, MN	LINDSTROM SUBSTATION LOCATION PLAN	LIN																											
Xcel Energy	SCALE 1"=20'-0"	NH-10176261-S8																											
		REV NONE																											

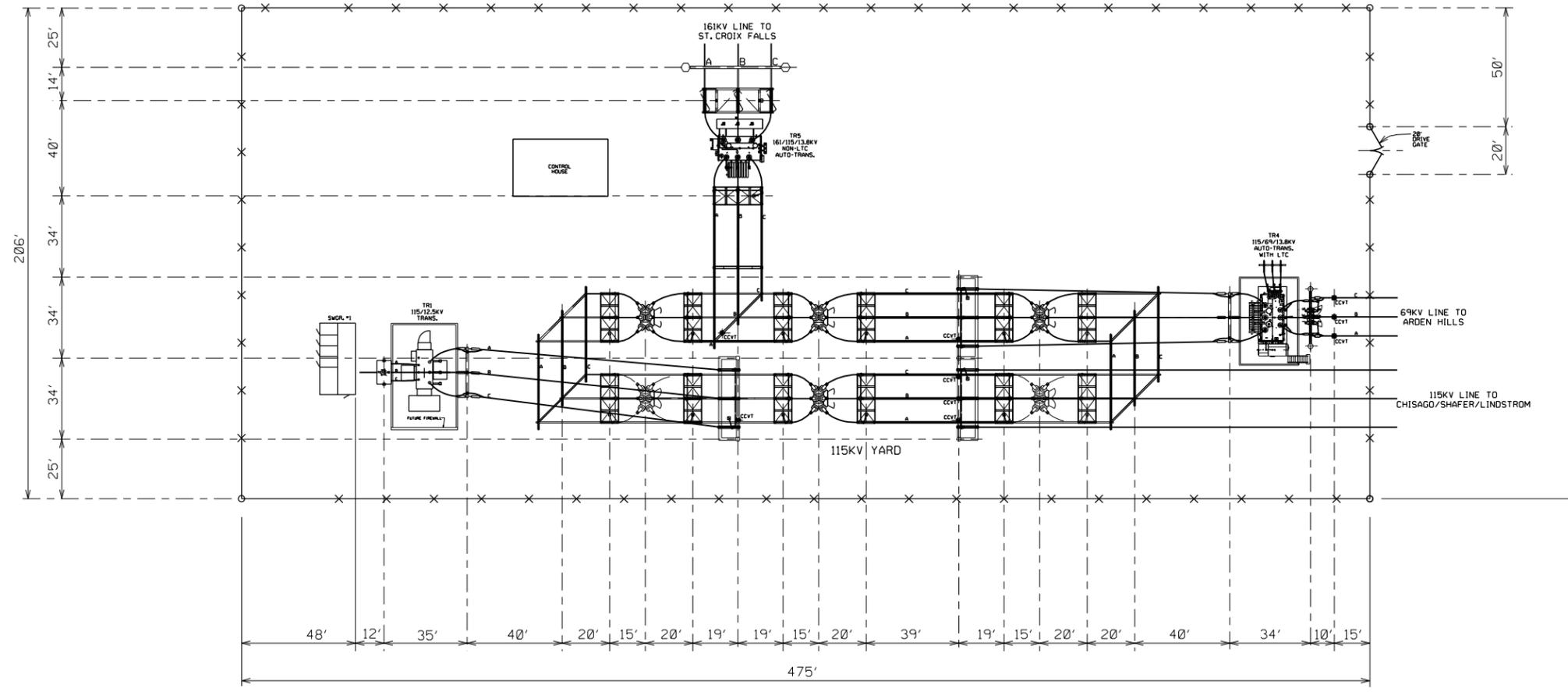
08/15/2006 10176261-S8.dgn



Appendix E-3

THIS MAP/DOCUMENT IS A TOOL TO ASSIST EMPLOYEES IN THE PERFORMANCE OF THEIR JOBS. YOUR PERSONAL SAFETY IS PROVIDED FOR BY USING SAFETY PRACTICES, PROCEDURES AND EQUIPMENT AS DESCRIBED IN THE SAFETY TRAINING PROGRAMS, MANUALS AND SPARS.		SIGNIFICANT NUMBER W2770
ENGINEERING DEPARTMENT MINNEAPOLIS, MN	ST. CROIX FALLS SUBSTATION ELECTRICAL LAYOUT - 161KV PLAN #2	SCF SCF SCF SCF SCF SCF SCF
	SCALE 1"=20'-0"	NH-10176261-P11
	REV NONE	2200 CL

08/15/2006 10176261-P11.DGN



PRELIMINARY

Appendix E-4

THIS MAP/DOCUMENT IS A TOOL TO ASSIST EMPLOYEES IN THE PERFORMANCE OF THEIR JOBS. YOUR PERSONAL SAFETY IS PROVIDED FOR BY USING SAFETY PRACTICES, PROCEDURES AND EQUIPMENT AS DESCRIBED IN THE SAFETY TRAINING PROGRAMS, MANUALS AND SPARS.		GROUP NUMBER
ENGINEERING DEPARTMENT MINNEAPOLIS, MN	LAWRENCE CREEK SUBSTATION	LCR
	LOCATION PLAN	
Xcel Energy	SCALE 1"=30'-0"	NH-10176261-S7
	REV NONE	CL

08/15/2006 LCR-LDCPLAN.dgn