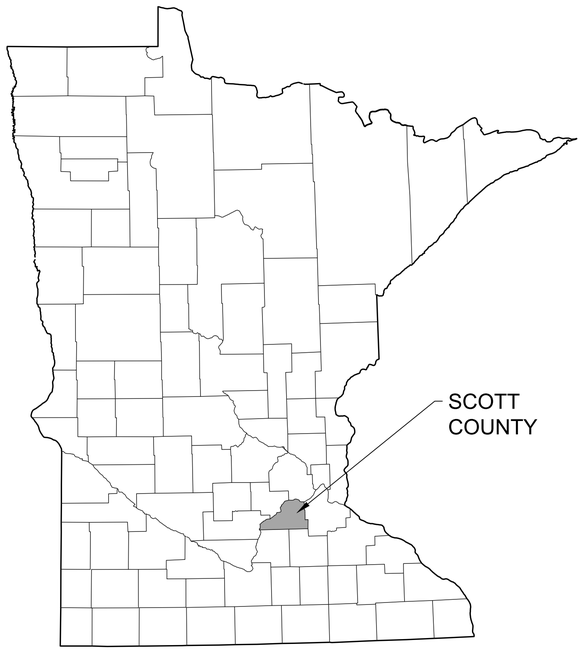
DEVINE JOHNSON SOLAR PROJECT

SCOTT COUNTY, MN

SOLAR SYSTEM PROJECT - 5.0 MW AC

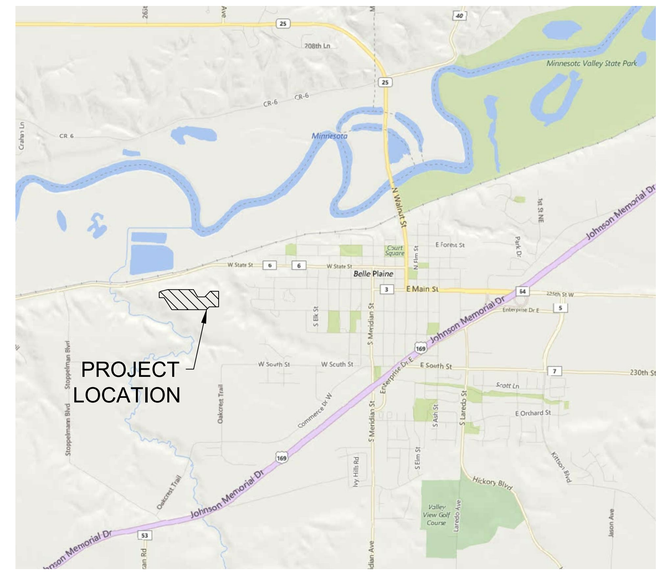
INTERIM USE PERMIT SUBMITTAL

COUNTY MAP



1 G001 MINNESOTA COUNTY MAP
NOT TO SCALE

VICINITY MAP



2 G001 VICINITY MAP
1" = 1/2 MILE

SYSTEM SUMMARY	
MODULE	HAMWHA Q.PLUS L-G4.2
MODULE STC RATING	330W
DC/AC RATIO	1.368
STRING SIZE	28
TOTAL NO. OF MODULES	20,720
TOTAL DC SYSTEM SIZE	6.84MW
TOTAL AC SYSTEM SIZE	5.00MVA
DC SYSTEM VOLTAGE	1500V
NO. OF INVERTER	5
INVERTER TYPES	POWER ELECTRONICS FS1050CU15
INVERTER MAX VOLTAGE	1500V
RACKING	FIXED
CONFIGURATION	2 - PORTRAIT

SHEET INDEX

G001	COVER SHEET
V001	OVERALL EXISTING CONDITIONS PLAN
V101	EXISTING CONDITIONS & REMOVALS PLAN
V102	EXISTING CONDITIONS & REMOVALS PLAN
C101	CIVIL SITE PLAN
C102	CIVIL SITE PLAN
C201	GRADING, DRAINAGE, & EROSION PLAN
C202	GRADING, DRAINAGE, & EROSION PLAN
C401	ROAD PROFILES
C601	SITE DETAILS
C602	SITE DETAILS
E-101-01	PV SITE LAYOUT
E-101-02	PV SITE LAYOUT
E-201-01	ONE LINE & CABLE LIST

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CLIENT

NEXTera ENERGY RESOURCES

SCALE

PROJECT
DEVINE JOHNSON
SCOTT COUNTY

LOCATION
100 WEST SOUTH ST
BELLE PLAINE, MN

SHEET
COVER SHEET

SUBMITTAL
IUP SUBMITTAL

#	DATE	REVISION

PROFESSIONAL CERTIFICATION

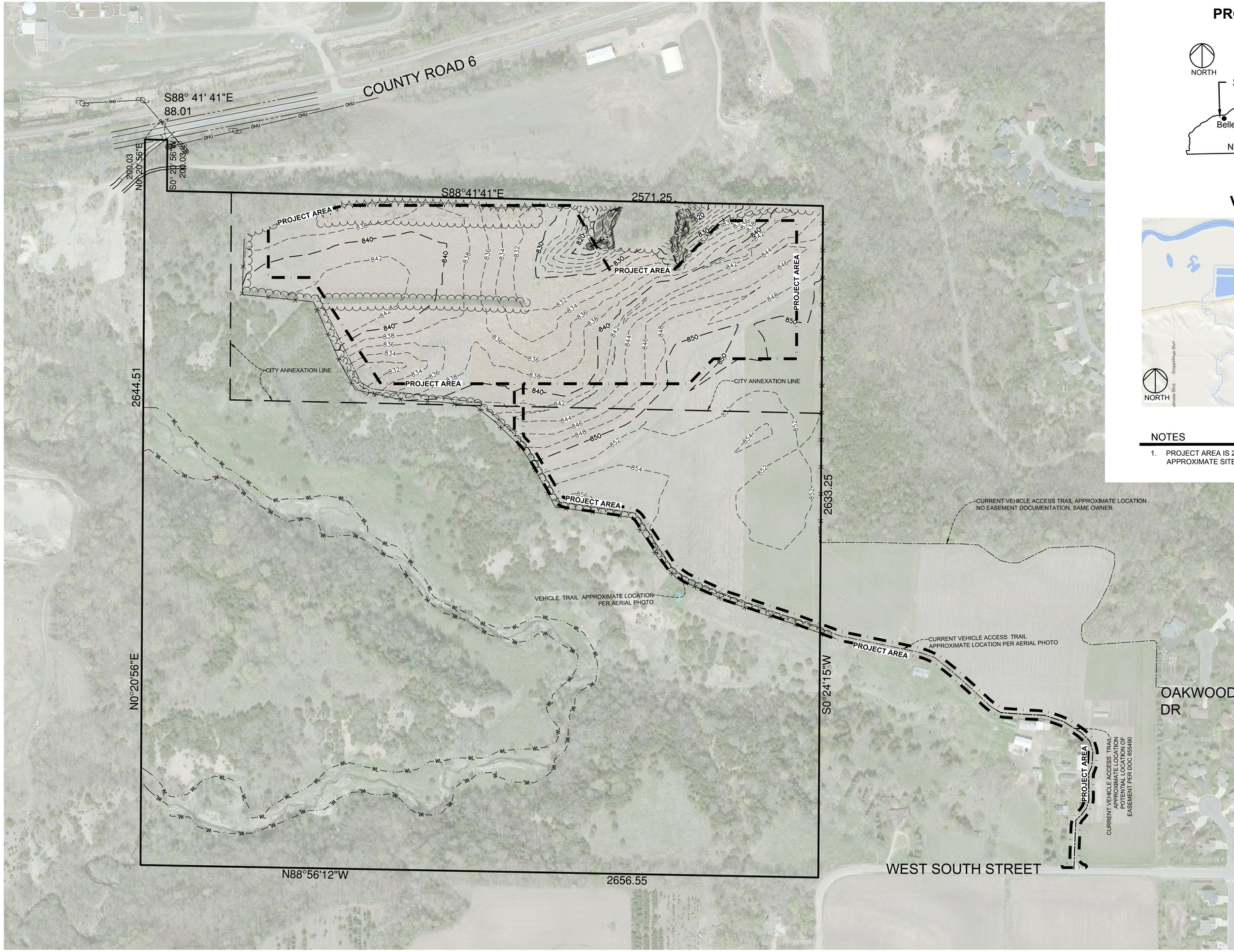
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Noah Waterhouse, PE
DATE 24/06/2016
REGISTRATION NUMBER 46720

DRAWN BY	CHECKED BY
KB	NW
DATE	PROJECT #
07.07.2016	2016-027

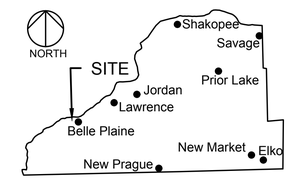
CALL 811 BEFORE YOU DIG
GOPHER STATE ONE CALL
1-800-252-1166

SHEET NUMBER
G001



PROJECT LOCATION

SCOTT COUNTY



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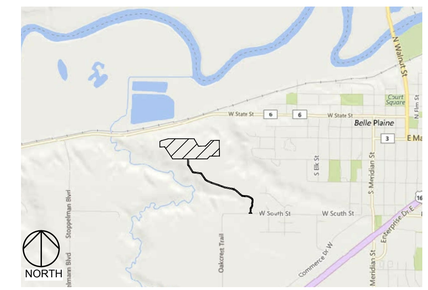

SCALE: 1" = 1/2 MILE

NOTES

1. PROJECT AREA IS 28.8 ACRES AND IS DEFINED AS THE APPROXIMATE SITE AREA, NOT THE FINAL LEASE BOUNDARY.

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NEXTera ENERGY RESOURCES

SCALE

NORTH

0 200 400

SCALE IN FEET

PROJECT

DEVINE JOHNSON SCOTT COUNTY

LOCATION

100 WEST SOUTH ST BELLE PLAINE, MN

SHEET

OVERALL EXISTING CONDITIONS PLAN

SUBMITTAL

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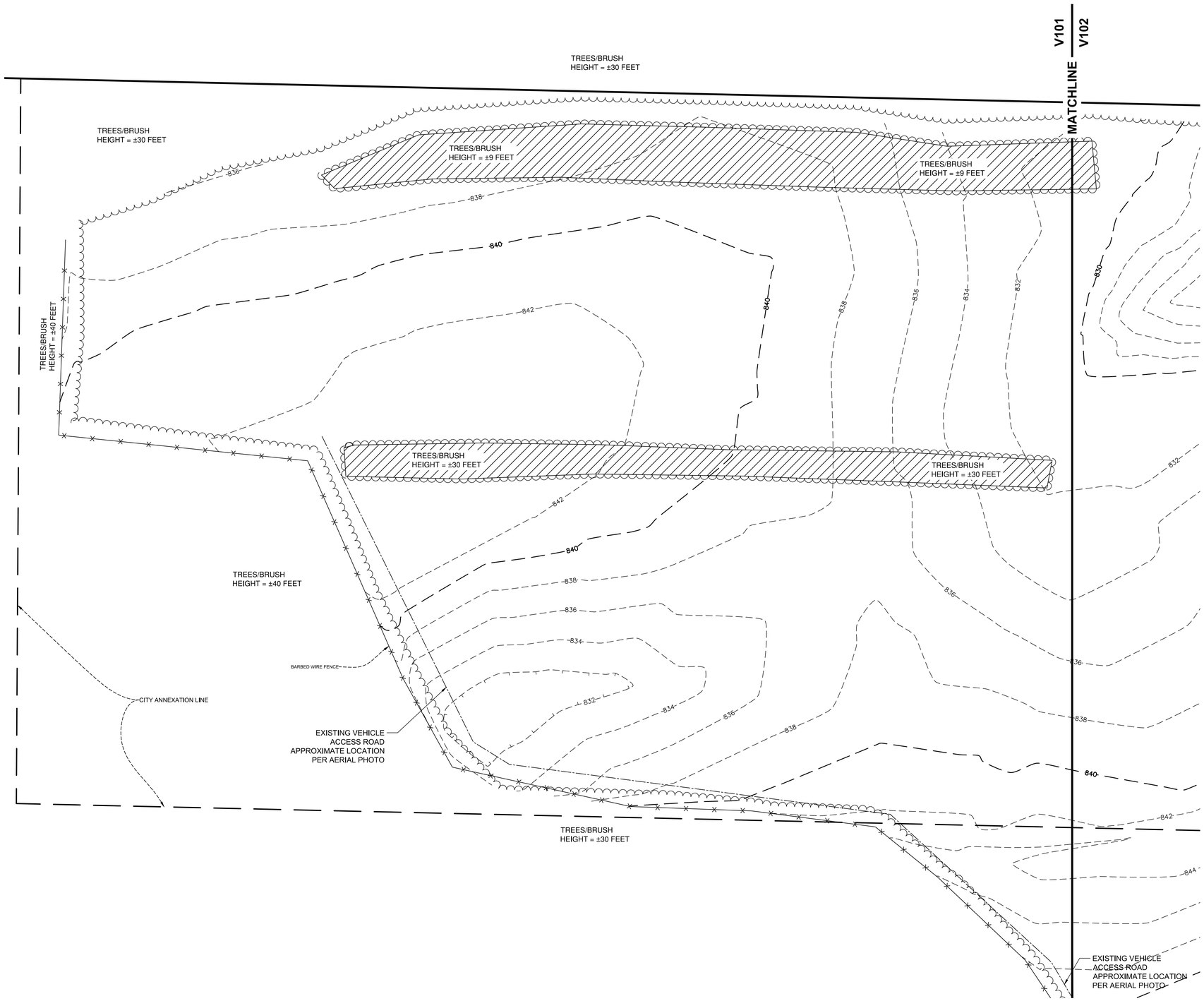

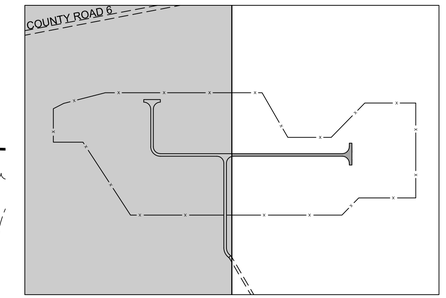

KEY PLAN

LEGEND

EXISTING FEATURES

- PROPERTY LINE
- EASEMENT LINE
- EDGE OF GRAVEL ROAD
- CENTERLINE OF VEHICLE ACCESS TRAIL
- FENCE
- WETLANDS
- CMP CULVERT
- OVERHEAD POWER
- MAJOR CONTOUR
- MINOR CONTOUR

REMOVALS

- TREE/BRUSH REMOVAL

PROPOSED FEATURES

- GRAVEL ROAD
- CHAIN LINK FENCE
- PROPERTY SETBACK
- POWER POLE
- MAJOR CONTOUR
- MINOR CONTOUR

EROSION CONTROL FEATURES

- SILT FENCE
- ROCK CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET
- FIBER LOG

NOTES

1. THIS PLAN IS BASED ON AN ALTA SURVEY PERFORMED BY EVS, DATED APRIL 12, 2016.
2. TOTAL AREA OF TREE AND BRUSH REMOVAL IS APPROXIMATELY 1.70 ACRES.

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NEXTera ENERGY RESOURCES

SCALE

NORTH

0 60 120
SCALE IN FEET

PROJECT
DEVINE JOHNSON
SCOTT COUNTY

LOCATION
100 WEST SOUTH ST
BELLE PLAINE, MN

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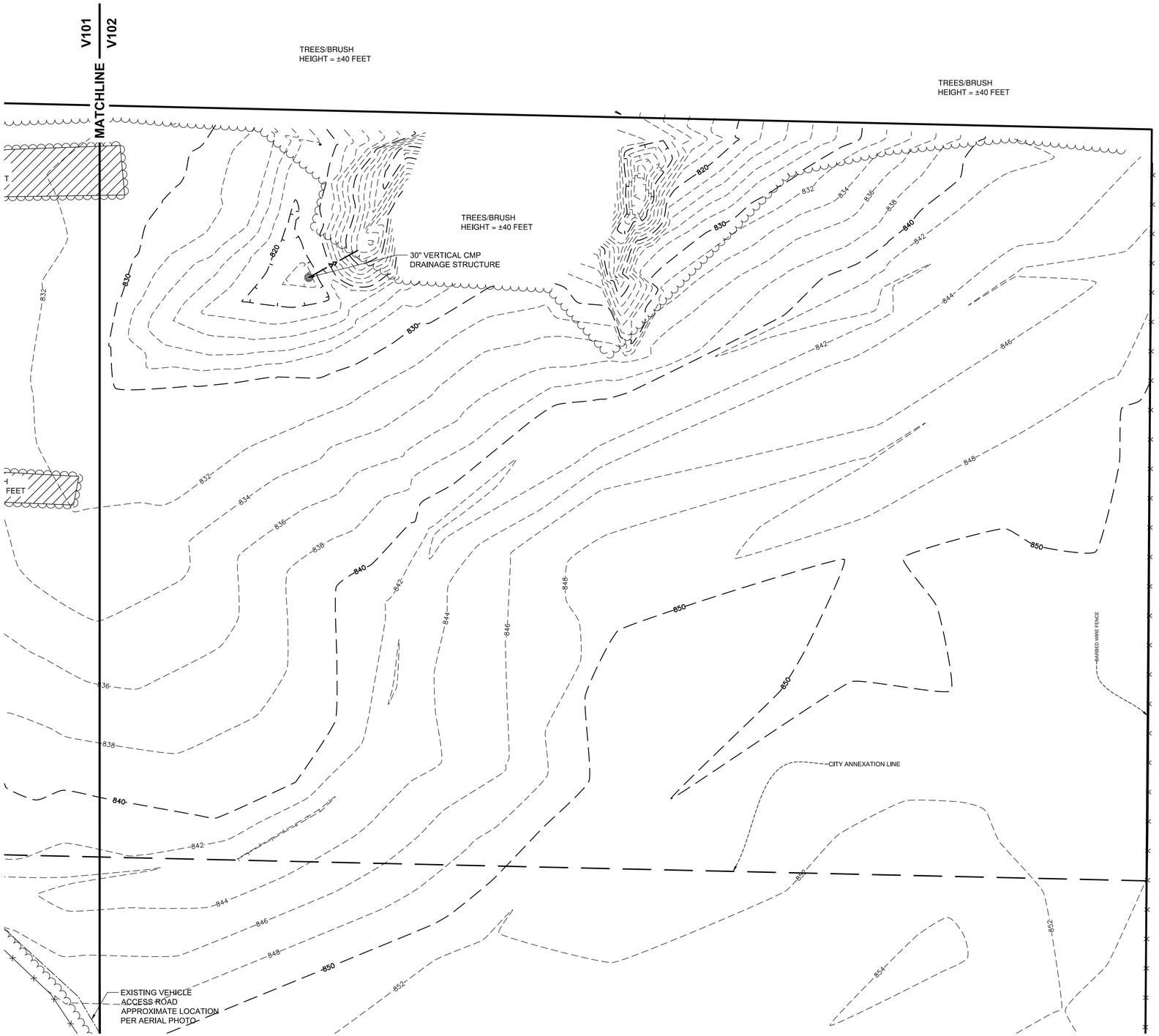
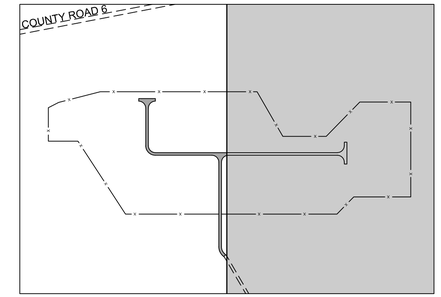
V101





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NEXTera ENERGY RESOURCES

SCALE

NORTH

0 60 120
SCALE IN FEET

PROJECT
DEVINE JOHNSON SCOTT COUNTY

LOCATION
100 WEST SOUTH ST BELLE PLAINE, MN

SHEET
EXISTING CONDITIONS & REMOVALS PLAN

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IUP SUBMITTAL

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V102

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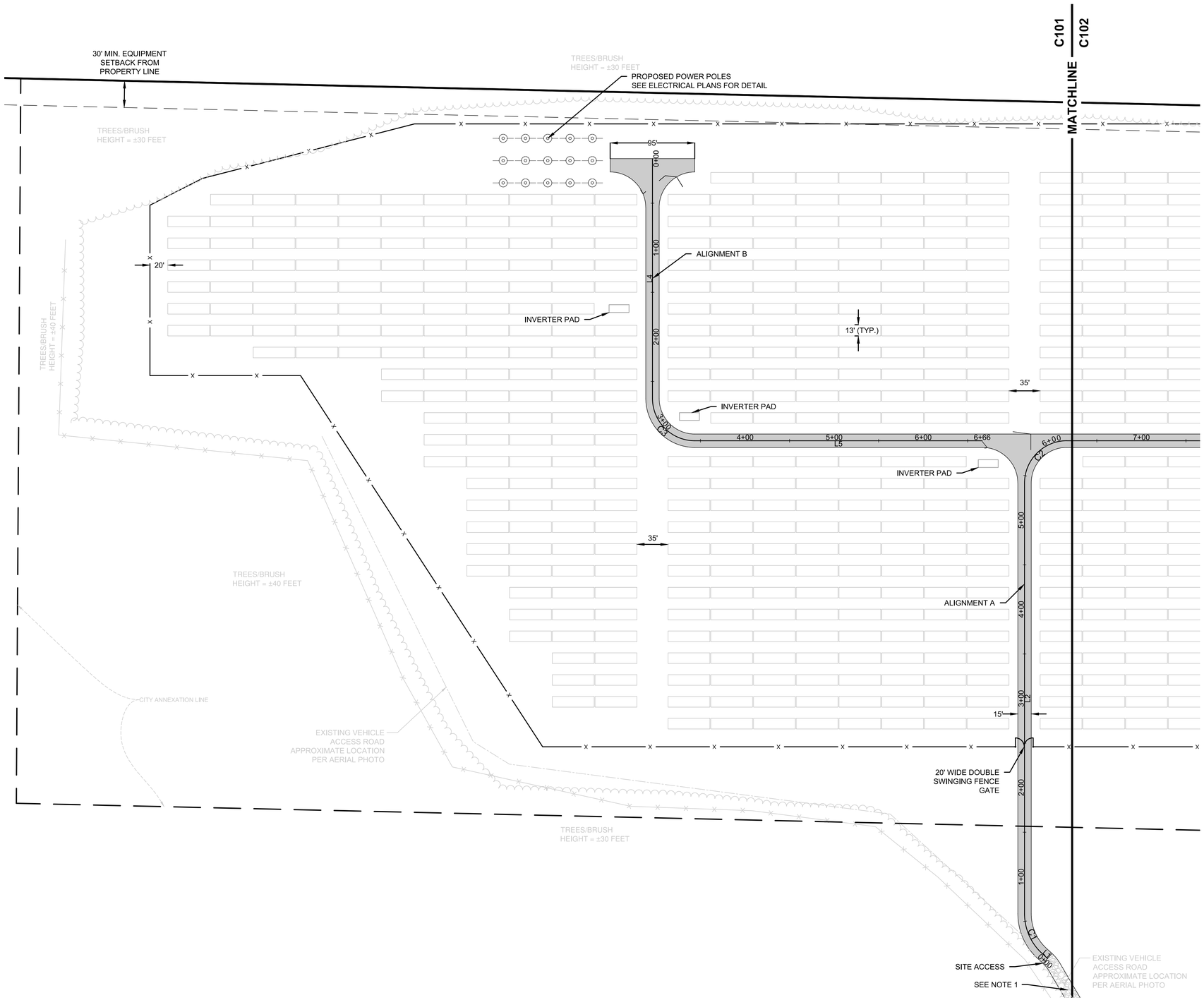

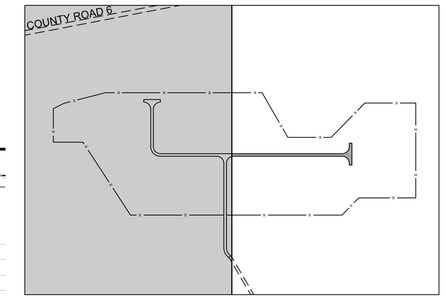

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NOTES

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NEXTera ENERGY RESOURCES

SCALE

NORTH

0 60 120
SCALE IN FEET

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CIVIL SITE PLAN

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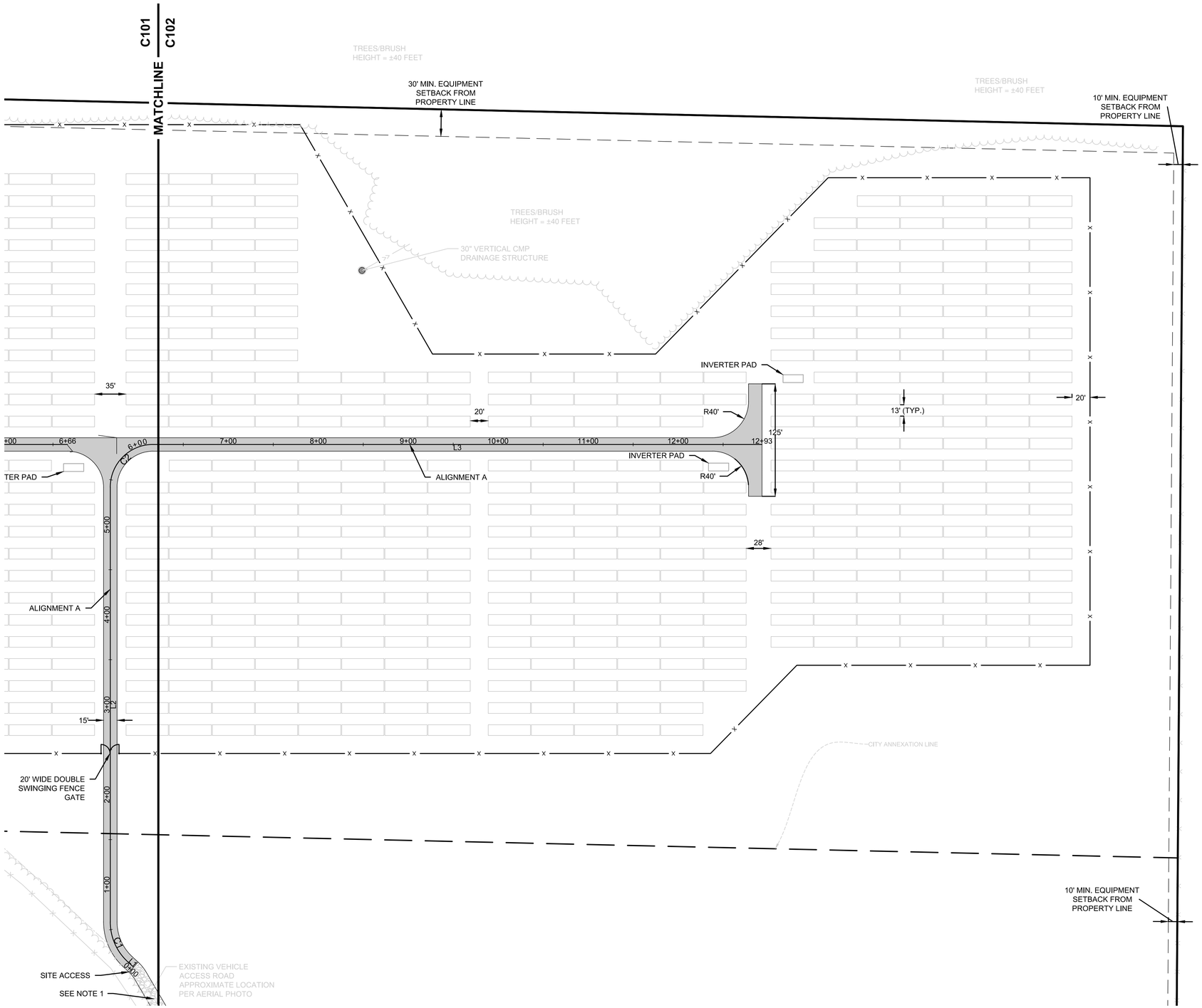

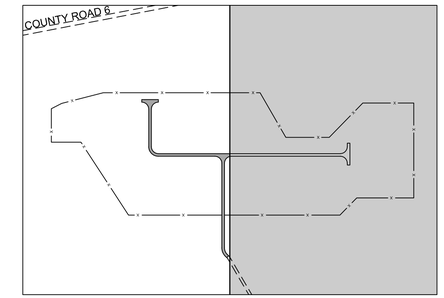

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SCALE

NORTH

0 60 120
SCALE IN FEET

PROJECT
DEVINE JOHNSON
SCOTT COUNTY

LOCATION
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BELLE PLAINE, MN

SHEET
CIVIL SITE PLAN

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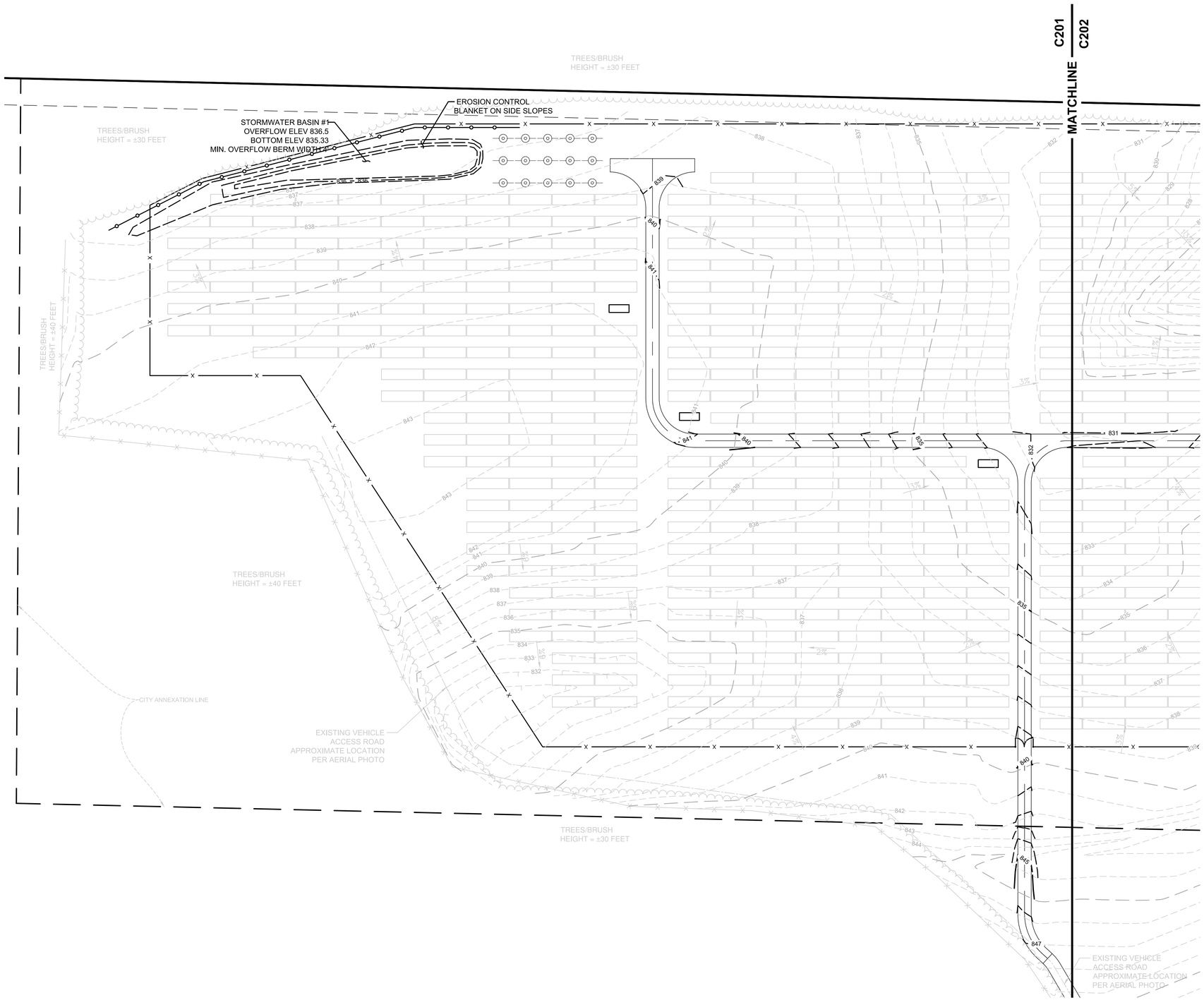
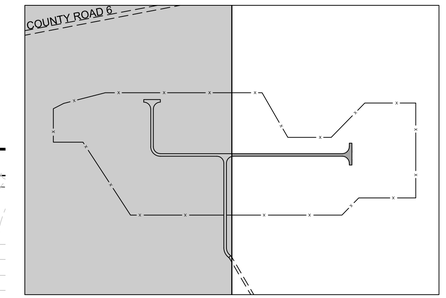
SHEET NUMBER
C102





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NOTES

1. SITE DISTURBING ACTIVITY CONSISTS OF ELECTRICAL TRENCHING, AGGREGATE ROAD CONSTRUCTION AND, MINOR CUT/FILL GRADING AS REQUIRED FOR STORMWATER MANAGEMENT AND ROAD CONSTRUCTION.
2. MASS GRADING IS NOT REQUIRED FOR THIS PROJECT.
3. INSTALLATION OF SOLAR MODULES IS DONE BY DRIVING PILE DIRECTLY INTO THE SUBGRADE AND DOES NOT REQUIRE DISTURBANCE TO THE GROUND SURFACE OTHER THAN THOSE SELECT AREAS MENTIONED ABOVE.
4. ALL DISTURBED AREAS OF THE SITE WILL BE PERMANENTLY STABILIZED BY PLANTING LOW-GROWTH VEGETATION THROUGHOUT THE SITE.
5. DURING CONSTRUCTION, EROSION WILL BE CONTROLLED THROUGH THE USE OF BEST MANAGEMENT PRACTICES INCLUDING SILT FENCE, EROSION CONTROL BLANKETS, TEMPORARY SEEDING, PHASED CONSTRUCTION, ETC.
6. STORMWATER RUNOFF IS TREATED THROUGH USE OF SHALLOW SURFACE TRENCHES LOCATED THROUGHOUT THE SITE AND INFILTRATION BASINS.
7. TOPSOIL WILL BE STRIPPED FROM GRADED AREAS, STOCKPILED DURING CONSTRUCTION, AND RESPREAD AT THE COMPLETION OF GRADING OPERATIONS. NO TOPSOIL WILL BE PERMANENTLY BURIED OR LOST DUE TO THIS PROJECT.

1-800-252-1166

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CLIENT

NEXTera ENERGY RESOURCES

SCALE

NORTH

0 60 120
SCALE IN FEET

PROJECT
DEVINE JOHNSON SCOTT COUNTY

LOCATION
100 WEST SOUTH ST BELLE PLAINE, MN

SHEET
GRADING, DRAINAGE, & EROSION PLAN

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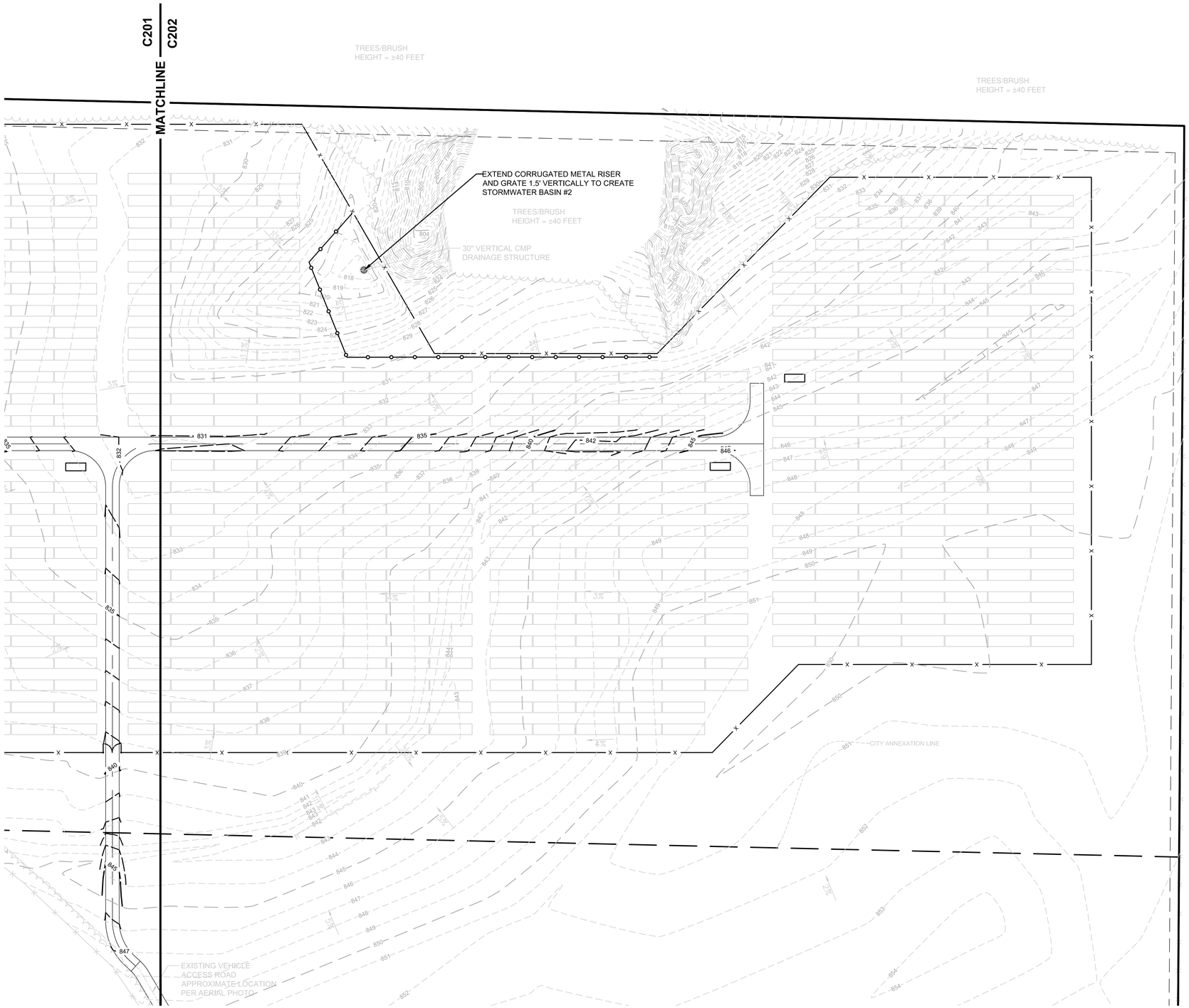
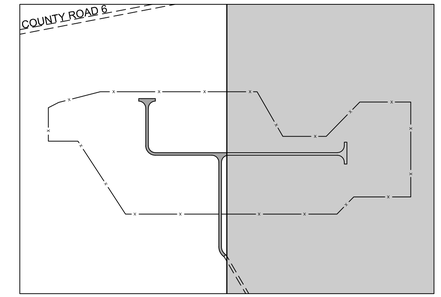
C201





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NEXTera ENERGY RESOURCES

SCALE

NORTH

0 60 120
SCALE IN FEET

PROJECT
DEVINE JOHNSON SCOTT COUNTY

LOCATION
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SHEET
GRADING, DRAINAGE, & EROSION PLAN

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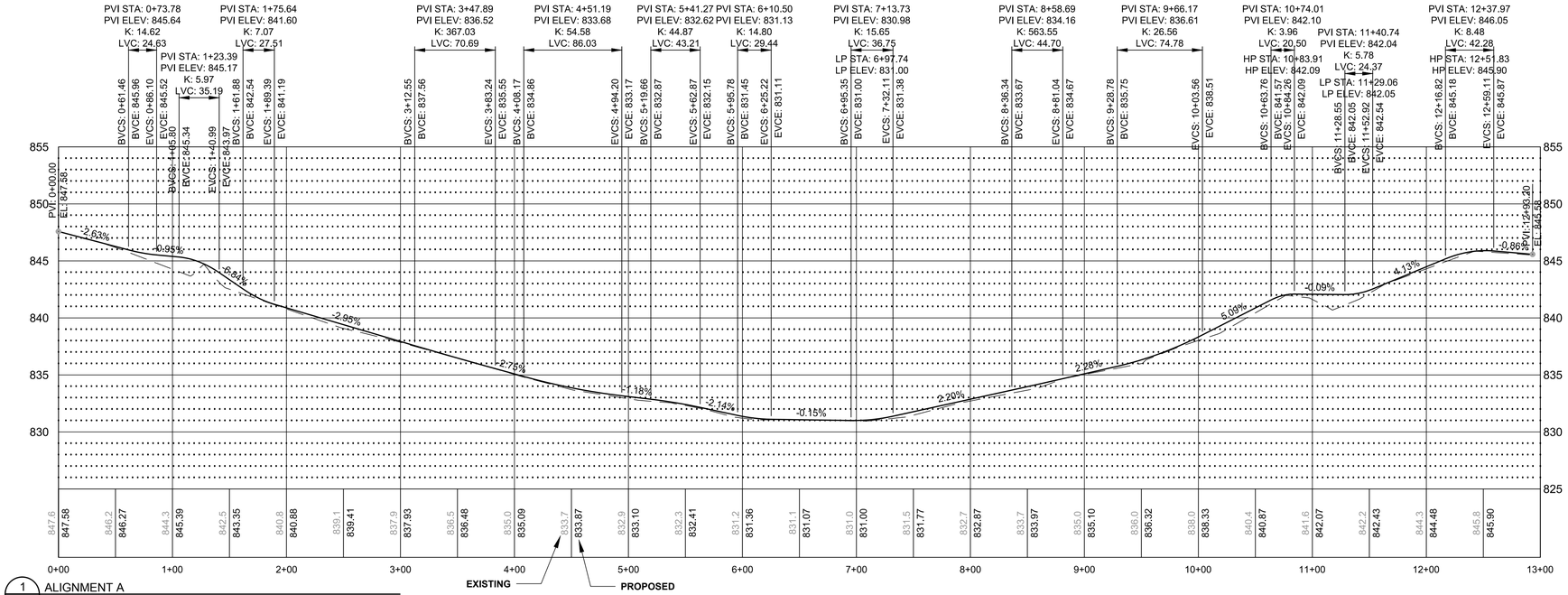
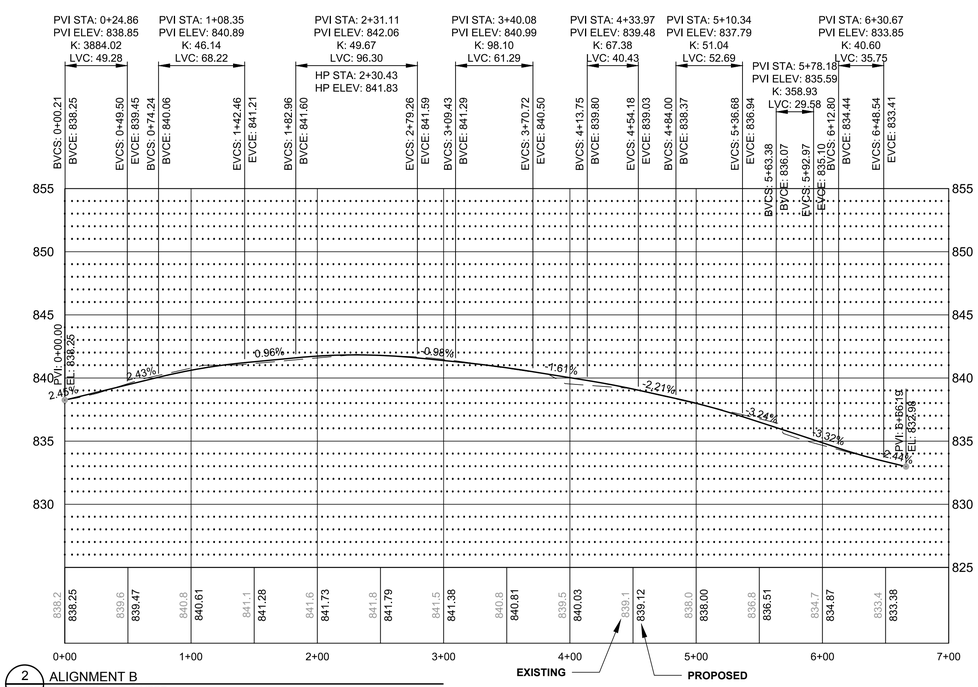
C202



1 ALIGNMENT A
C401 1"=60' HORIZ.; 1"=6' VERT.



2 ALIGNMENT B
C401 1"=60' HORIZ.; 1"=6' VERT.

Alignment A							
Number	Line/Chord Direction	Length	Radius	Δ	PC (STA N E)	PT (STA N E)	PI (N E)
L1	N47° 26' 43.93"W	8.73			0+00.00	0+08.73	
C1		49.68	60.00	47.4455	0+08.73 154459.36 375977.69	0+58.41 154503.56 375958.26	154477.1911 375958.2637
L2	N0° 00' 00.00"E	483.34			0+58.41	5+41.76	
C2		74.61	47.50	90.0000	5+41.76 154986.90 375958.26	6+16.37 155034.40 376005.76	155034.4020 375958.2637
L3	N90° 00' 00.00"E	676.83			6+16.37	12+93.20	

Alignment B							
Number	Line/Chord Direction	Length	Radius	Δ	PC (STA N E)	PT (STA N E)	PI (N E)
L4	S0° 00' 00.00"E	269.04			0+00.00	2+69.04	
C3		74.61	47.50	90.0000	2+69.04 155081.90 375540.73	3+43.65 155034.40 375588.23	155034.4020 375540.7311
L5	N90° 00' 00.00"E	322.53			3+43.65	6+66.19	

3 ALIGNMENT TABLES
C401 NOT TO SCALE

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CLIENT
NEXTera ENERGY RESOURCES

SCALE
NORTH
0 60 120
SCALE IN FEET

PROJECT
DEVINE JOHNSON SCOTT COUNTY

LOCATION
100 WEST SOUTH ST BELLE PLAINE, MN

SHEET
ROAD PROFILES

SUBMITTAL
IUP SUBMITTAL

#	DATE	REVISION

PROFESSIONAL CERTIFICATION

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Noah Waterhouse, PE
DATE 24/06/2016
REGISTRATION NUMBER 46720

DRAWN BY	CHECKED BY
MA	NW
DATE	PROJECT #
07.07.2016	2016-027

SHEET NUMBER
C401

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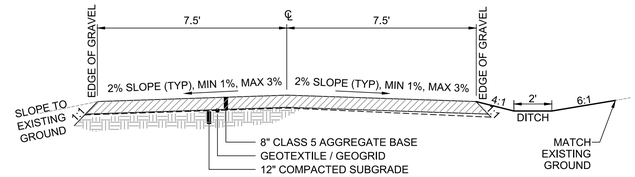
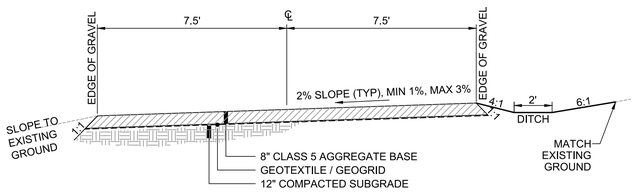
1-800-252-1166



ROAD WITH CROWN

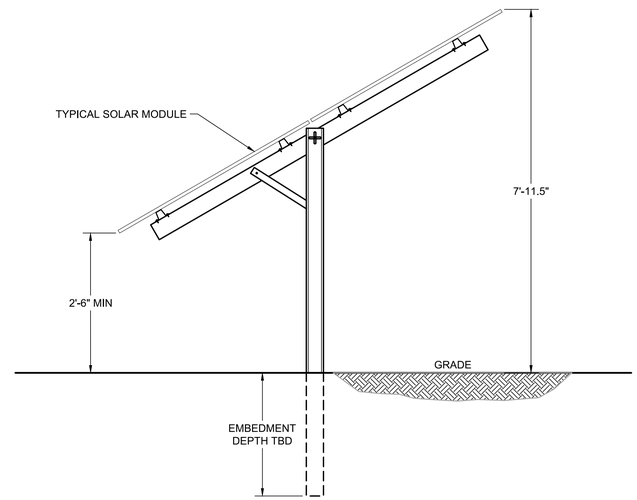


ROAD WITH SUPERELEVATION

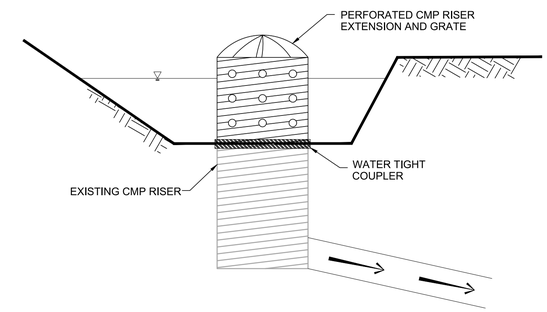
NOTES:

1. CONSTRUCT DITCH AS SHOWN ABOVE ONLY WHERE INDICATED BY CONTOURS ON THE GRADING PLAN.
2. IN THE ABSENCE OF A ROADSIDE DITCH, SLOPE FROM EDGE OF GRAVEL TO EXISTING GROUND @3:1.
3. 2% CROSS SLOPE IS TYPICAL, BUT CAN BE ADJUSTED TO MATCH EXISTING GROUND SLOPE IN ORDER TO PROMOTE CONTINUED SHEET DRAINAGE ACROSS ROAD. CROSS SLOPE SHALL NOT BE LESS THAN 1% OR GREATER THAN 3%.
4. ROAD GRADES ARE TYPICALLY INTENDED TO MATCH ADJACENT GRADE ALLOWING DRAINAGE TO SHEET ON AND OFF OF ROADS EVENLY. CARE SHOULD BE TAKEN TO FIELD ADJUST ROAD GRADES OR DITCH LOCATIONS AS NECESSARY TO PREVENT RUNOFF FROM CONCENTRATING ALONG ROAD EDGES CAUSING EROSION.

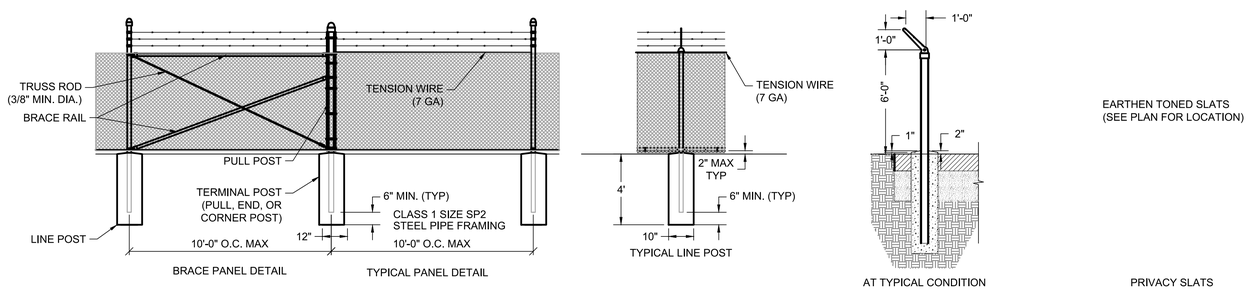
1 C601 TYPICAL SOLAR ACCESS ROAD
NOT TO SCALE



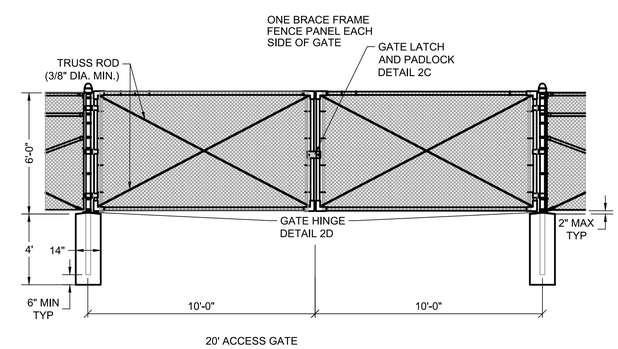
2 C601 MODULE RACKING ELEVATION
NOT TO SCALE



3 C601 CMP RISER EXTENSION
NOT TO SCALE



4 C601 CHAIN LINK SECURITY FENCE
NOT TO SCALE



5 C601 20 FOOT SWINGING ACCESS GATE
NOT TO SCALE

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NEXTera ENERGY RESOURCES

SCALE

PROJECT
DEVINE JOHNSON SCOTT COUNTY

LOCATION
100 WEST SOUTH ST BELLE PLAINE, MN

SHEET
SITE DETAILS

SUBMITTAL
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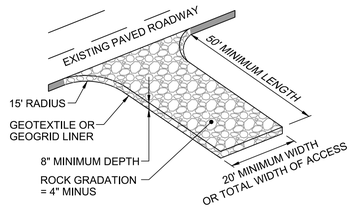
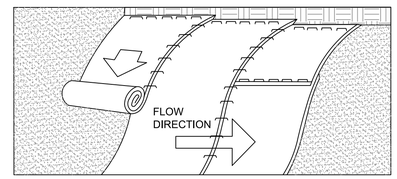
C601



NOTE:

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE.

1 / C602 STABILIZED ROCK CONSTRUCTION ENTRANCE
NOT TO SCALE

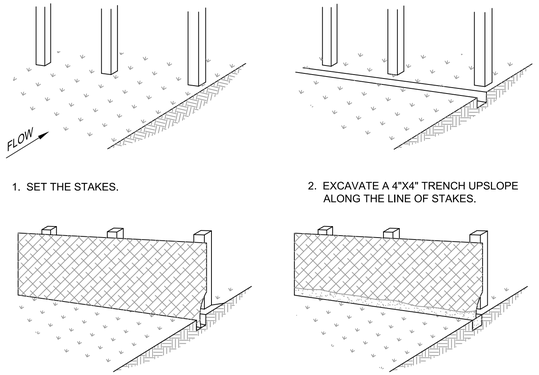


SLOPE INSTALLATION

NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS. INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE (OR CHANNEL) BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKET DOWN (STARTING AT DOWNSTREAM PROCEEDING UPSTREAM) HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH AN APPROXIMATE (MIN) 4" OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY A (MIN) 6" OVERLAP. USE A DOUBLE ROW OF STAGGERED STAPLES 4" APART TO SECURE BLANKETS.
6. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A ROW OF STAPLES 4" APART OVER ENTIRE WIDTH OF THE CHANNEL. PLACE A SECOND ROW 4" BELOW THE FIRST ROW IN A STAGGERED PATTERN.
7. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

2 / C602 EROSION CONTROL BLANKET
NOT TO SCALE



1. SET THE STAKES.
2. EXCAVATE A 4"X4" TRENCH UPSLOPE ALONG THE LINE OF STAKES.
3. STAPLE FILTER MATERIAL TO STAKES AND EXTEND IT TO THE TRENCH.
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.

NOTES:
FABRIC AS PER MNDOT SPEC. 3886
8 FOOT NOMINAL SPACING BETWEEN WOOD STAKES.
1.5 FEET MINIMUM EMBEDMENT.
6 TO 8 INCHES OF FABRIC EXTEND INTO TRENCH.
2"X2"X4' MINIMUM DIMENSIONS PER WOOD STAKE.
PREASSEMBLED SILT FENCE IS ACCEPTABLE PER MN-DOT SPEC. 3886.

3 / C602 SILT FENCE WOOD POST CONSTRUCTION
NOT TO SCALE

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CLIENT

SCALE

PROJECT
DEVINE JOHNSON SCOTT COUNTY

LOCATION
100 WEST SOUTH ST BELLE PLAINE, MN

SHEET
SITE DETAILS

SUBMITTAL
IUP SUBMITTAL

#	DATE	REVISION

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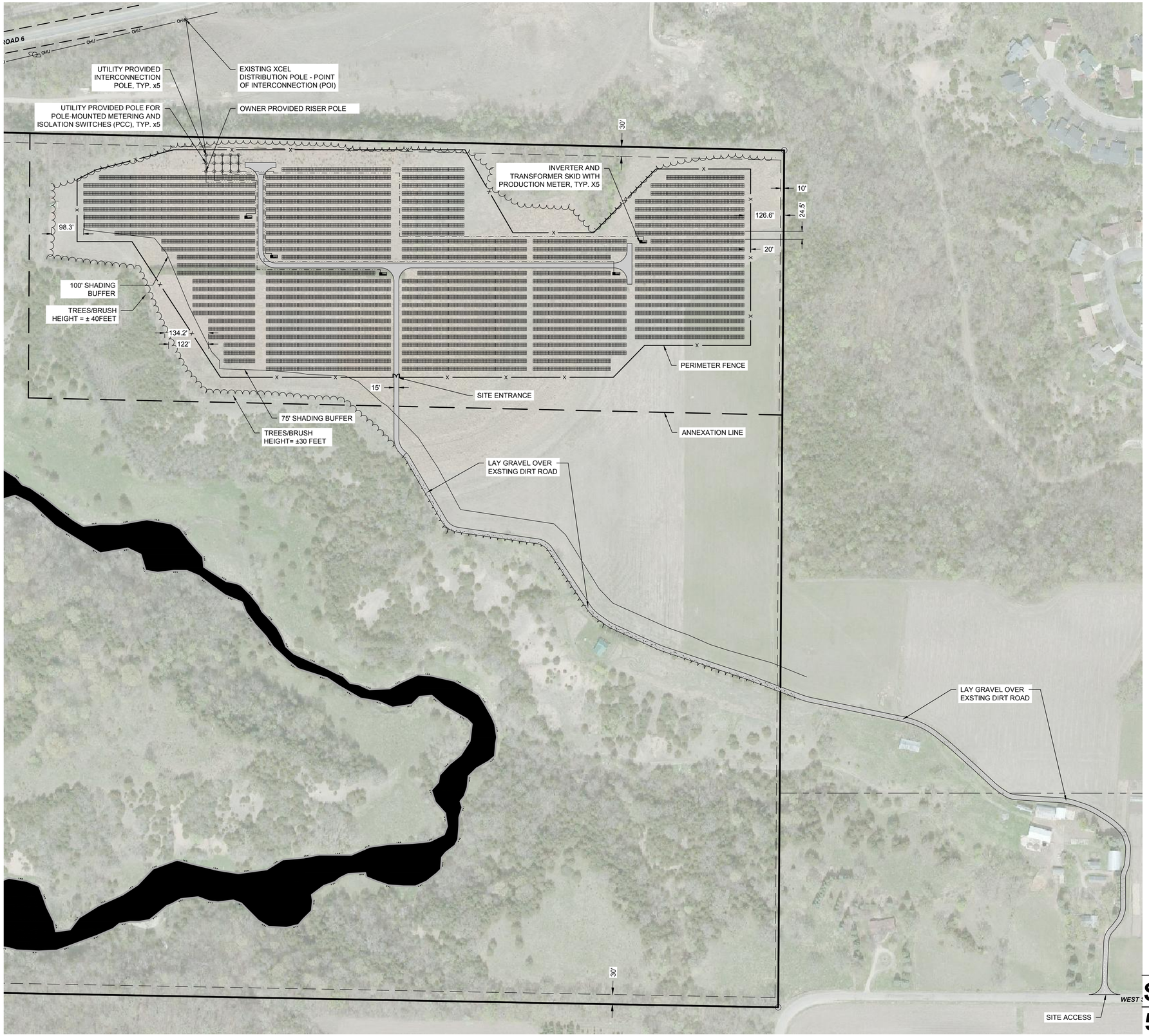

NOTES:

1. THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY!

PV SYSTEM:

AZIMUTH: 180°

TILT ANGLE: 25°

PITCH (ROW SPACING): 24.5'

PV MODULES: HANWHA Q CELLS USA
Q.PLUS L-G4.2 330W, 72 CELL POLYCRYSTALLINE 330W

MODULES PER STRING: 28

RACK CONFIGURATION:

EACH RACK CONSISTS OF (14) ROWS OF 2 MODULES IN PORTRAIT

INVERTER INFORMATION:

POWER ELECTRONICS 1500V FS1050CU15 INVERTER

LEGEND:

- SITE BOUNDARY
- OHU — TRANSMISSION LINES
- SOLAR MODULE (20,720)
- SITE SETBACKS
- x — PERIMETER FENCE
- INVERTER / XFMR SKID (5)
- SITE ROAD
- RIGHT-OF-WAY
- WL — WETLAND
- NEW UTILITY POLE
- MV FEEDER
- TREE LINE
- ANNEXATION LINE

NOT FOR CONSTRUCTION

SYSTEM SIZE
5.00 MW AC/ 6.84 MW DC

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NEXTera ENERGY RESOURCES

SCALE

NORTH

0 150 300
SCALE IN FEET

PROJECT
DEVINE JOHNSON SCOTT COUNTY

LOCATION
100 WEST SOUTH ST BELLE PLAINE, MN

SHEET
PV SITE LAYOUT

SUBMITTAL
IUP SUBMITTAL

#	DATE	REVISION

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07.07.2016	2016-027

SHEET NUMBER
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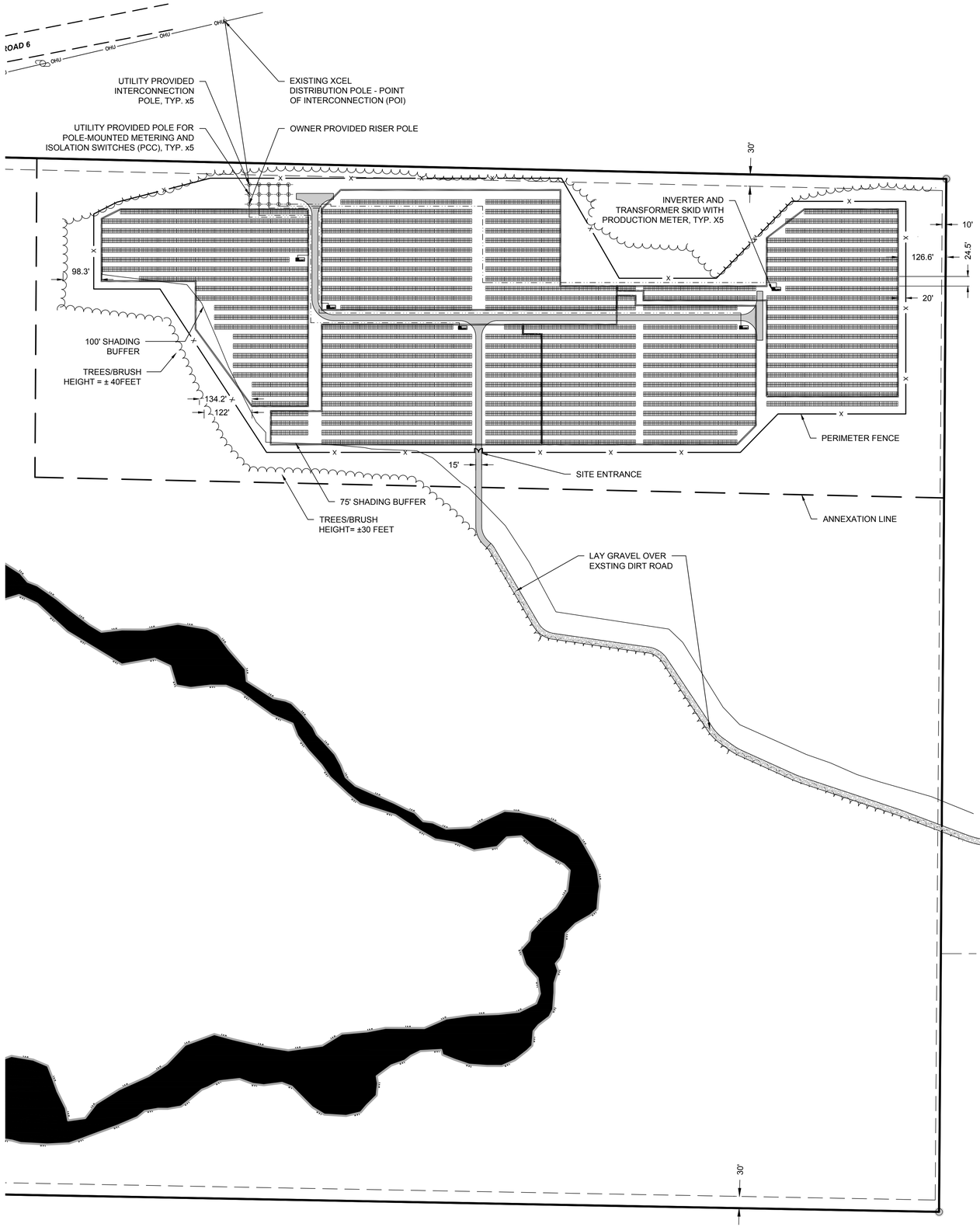

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AZIMUTH: 180°

TILT ANGLE: 25°

PITCH (ROW SPACING): 24.5'

PV MODULES: HANWHA Q CELLS USA Q.PLUS L-G4.2 330W, 72 CELL POLYCRYSTALLINE 330W

MODULES PER STRING: 28

RACK CONFIGURATION:

EACH RACK CONSISTS OF (14) ROWS OF 2 MODULES IN PORTRAIT

INVERTER INFORMATION:

POWER ELECTRONICS 1500V FS1050CU15 INVERTER

LEGEND:

- SITE BOUNDARY
- TRANSMISSION LINES
- SOLAR MODULE (20,720)
- SITE SETBACKS
- PERIMETER FENCE
- INVERTER / XFMR SKID (5)
- SITE ROAD
- RIGHT-OF-WAY
- WETLAND
- NEW UTILITY POLE
- MV FEEDER
- TREE LINE
- 1MVA BLOCK OUTLINE

NOT FOR CONSTRUCTION

SYSTEM SIZE

5.00 MW AC/ 6.84 MW DC

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NEXTera ENERGY RESOURCES

SCALE

NORTH

0 150 300

SCALE IN FEET

PROJECT

DEVINE JOHNSON SCOTT COUNTY

LOCATION

100 WEST SOUTH ST BELLE PLAINE, MN

SHEET

PV SITE LAYOUT

SUBMITTAL

IUP SUBMITTAL

#	DATE	REVISION
Rev1	06.20.2016	Revised Site Layout
Rev2	06.24.2016	Revised Site Layout

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DATE	PROJECT #
07.07.2016	2016-027

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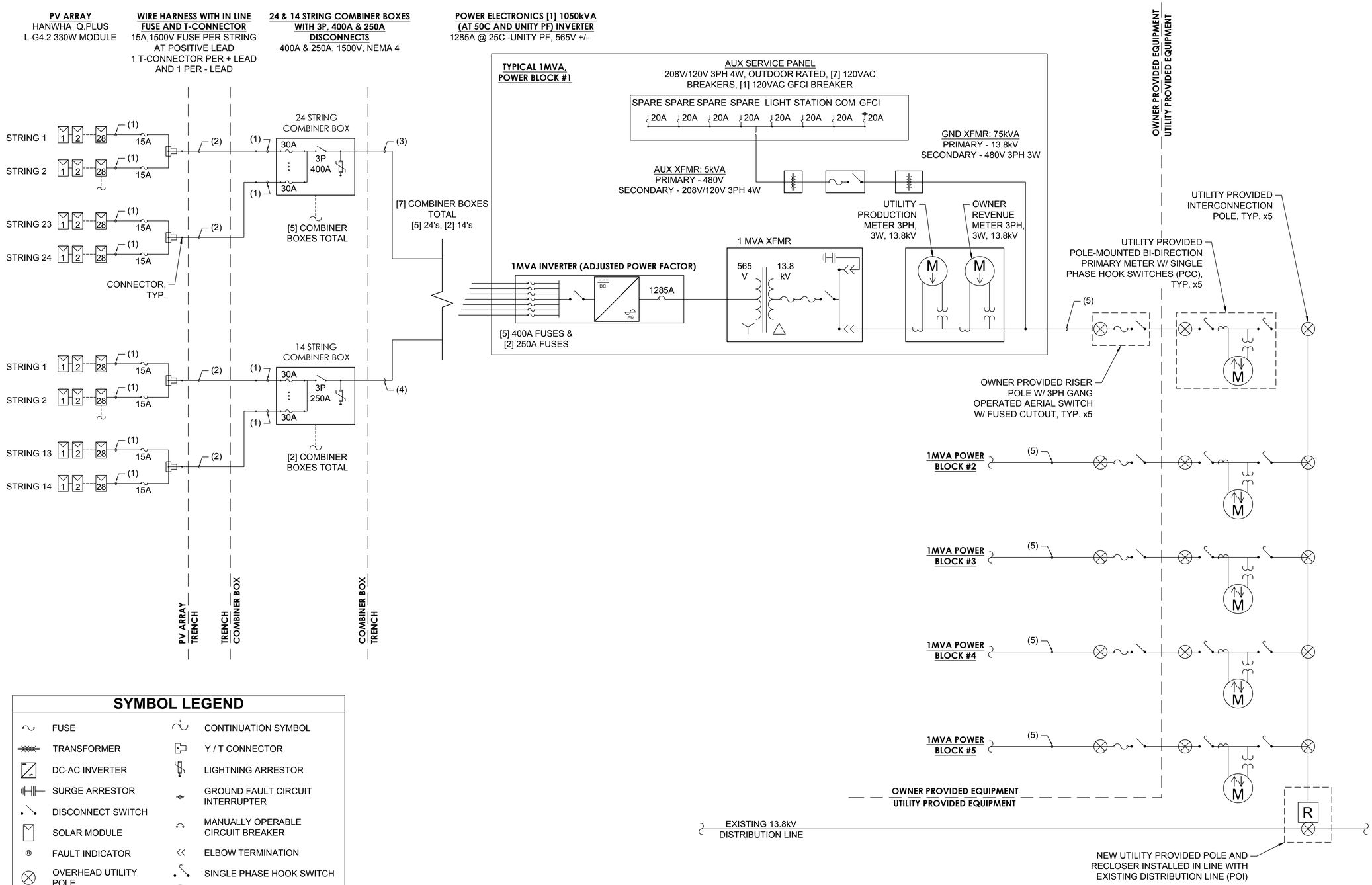

SYMBOL LEGEND

FUSE	CONTINUATION SYMBOL
TRANSFORMER	Y / T CONNECTOR
DC-AC INVERTER	LIGHTNING ARRESTOR
SURGE ARRESTOR	GROUND FAULT CIRCUIT INTERRUPTER
DISCONNECT SWITCH	MANUALLY OPERABLE CIRCUIT BREAKER
SOLAR MODULE	ELBOW TERMINATION
FAULT INDICATOR	SINGLE PHASE HOOK SWITCH
OVERHEAD UTILITY POLE	BILLING METER
WYE	CURRENT TRANSFORMER
DELTA	POTENTIAL TRANSFORMER
RECLOSER	

CABLE LIST

ID	WIRE SIZE	CONDUCTOR MATERIAL	WIRE QTY.	INSULATION	SIZE / TYPE OF GROUND
(1)	#10 AWG	CU	2	PV 2kV SUNLIGHT RESISTANT DC WIRE FOR DIRECT BURY	MODULE/RACK/POST INTEGRATED GROUNDING TO #6 BARE CU
(2)	#8 AWG	CU	2	PV 2kV SUNLIGHT RESISTANT DC WIRE FOR DIRECT BURY	MODULE/RACK/POST INTEGRATED GROUNDING TO #6 BARE CU
(3)	500 MCM	AL	2	PV 2kV SUNLIGHT RESISTANT DC WIRE FOR DIRECT BURY	#2 BARE CU TRENCH GROUND
(4)	4/0 AWG	AL	2	PV 2kV SUNLIGHT RESISTANT DC WIRE FOR DIRECT BURY	#2 BARE CU TRENCH GROUND
(5)	1/0 AWG	AL	3	15kV TRXLPE WITH 13/16 AWG CU NEUTRAL, 90C	COPPER CLAD STEEL, 7#8 40% DSA

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NEXTera ENERGY RESOURCES

SCALE

PROJECT
DEVINE JOHNSON SCOTT COUNTY

LOCATION
100 WEST SOUTH ST BELLE PLAINE, MN

SHEET
ONE LINE & CABLE LIST

SUBMITTAL
IUP SUBMITTAL

#	DATE	REVISION

DRAWN BY: B NEWSTEAD
CHECKED BY: S DAS
DATE: 07.07.2016
PROJECT #: 2016-027

SHEET NUMBER
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