



SECTION 06, TWP. 030, RGE. 21
WASHINGTON COUNTY, MINNESOTA
LOCATION MAP
NO SCALE

- LEGEND**
- Denotes iron pipe
 - Denotes service
 - Denotes television box
 - Denotes electric box
 - Denotes telephone box
 - Denotes proposed elevation
 - Denotes drainage flow direction
 - ▲ Denotes spike
 - △ Denotes flared end section
 - Denotes manhole other than sanitary or storm
 - Denotes sign
 - Denotes mailbox
 - Denotes transformer box
 - Denotes tree Conifer
 - Denotes tree Deciduous

Existing legal description per title commitment and property report:
Lot 7, Block 3, NORTHBRIDGE ACRES, Washington County, Minnesota.
Lot 4, Block 3, NORTHBRIDGE ACRES, Washington County, Minnesota.

Proposed legal description Parcel A:
Lot 7, Block 3, NORTHBRIDGE ACRES, Washington County, Minnesota
and

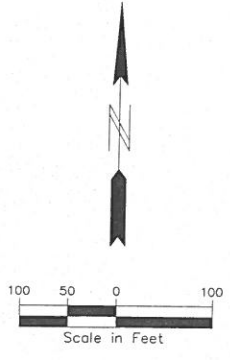
All that part of Lot 4, Block 3 said NORTHBRIDGE ACRES lying Southerly and Westerly of the following described line and its Southerly and Westerly extensions. Commencing at the Southeast corner of said Lot 4; thence on an assumed azimuth 271°40'25" along the South line of said Lot 4, 854.20 feet, to the point of beginning of the line to be described; thence on an azimuth 0°00'00", 1146.14 feet; thence 237.71 feet along a tangential curve concave to the Southwest, central angle 62°28'35", radius of 218.00 feet; thence on an azimuth 297°31'25", tangent to said curve, 329.90 feet, to the Easterly extension of the North line of Lot 6, Block 3, said NORTHBRIDGE ACRES; thence on an azimuth 269°24'47" along said Easterly extension, 47.76 feet to the Northeast corner of said Lot 6.

Proposed legal description Parcel B:
Lot 4, Block 3, NORTHBRIDGE ACRES, Washington County, Minnesota.
Except

All that part of Lot 4, Block 3 said NORTHBRIDGE ACRES lying Southerly and Westerly of the following described line and its Southerly and Westerly extensions. Commencing at the Southeast corner of said Lot 4; thence on an assumed azimuth 271°40'25" along the South line of said Lot 4, 854.20 feet, to the point of beginning of the line to be described; thence on an azimuth 0°00'00", 1146.14 feet; thence 237.71 feet along a tangential curve concave to the Southwest, central angle 62°28'35", radius of 218.00 feet; thence on an azimuth 297°31'25", tangent to said curve, 329.90 feet, to the Easterly extension of the North line of Lot 6, Block 3, said NORTHBRIDGE ACRES; thence on an azimuth 269°24'47" along said Easterly extension, 47.76 feet to the Northeast corner of said Lot 6.

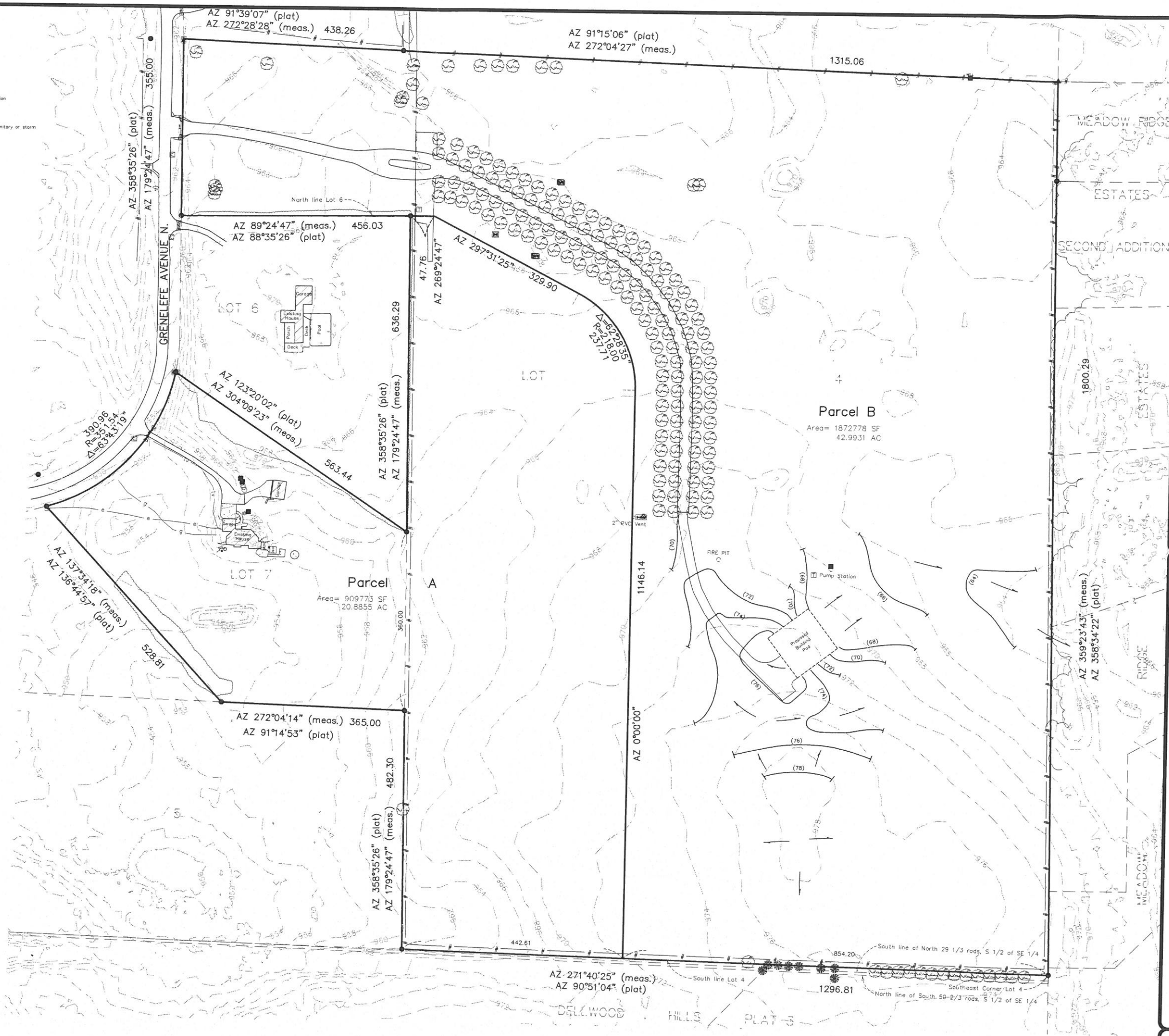
NOTES:

- Bearings are based on the South line of Lot 4, Block 3, NORTHBRIDGE ACRES, Washington County, Minnesota, which is assumed to have a bearing of Az 271° 40' 25".
- This survey does not purport to show the existence or non-existence of any encroachments from or onto the hereon described land, easements of record or unrecorded easements which affect said land or any improvements to said land.
- Evidence of easements, encroachments, improvements and or occupation may not have been visible at the time this survey was performed due to snow cover and therefore not located or shown.
- No search for recorded or unrecorded easements was made by this surveyor as a part of this survey.
- Underground gas, telephone, electric and cable TV utilities were not located as a part of this survey. For information concerning these underground utilities please contact Gopher State One Call (612) 454-0002.
- No zoning report or letter was provided to the surveyor.
- Boundary corner monuments were not set as a part of this survey.
- Only easements which appear in Schedule B of the Commitment for Title Insurance issued by Title Resource Guaranty Company issued by its Agent, Edina Realty Title, Inc. file no. 1247647 dated June 4, 2017 at 7:00 a.m., and in Property Report issued by Ancona Title and Escrow dated January 23, 2018 are shown. No other search for recorded or unrecorded easements was made by the surveyor as part of this survey.
- No wetland delineation report was supplied to the surveyor.



We hereby certify to Steven R. and Barbara A. Cossack that this survey, plan or report was prepared by me, or under my direct supervision, and that I am a duly licensed land surveyor under the laws of the state of Minnesota, dated this 23rd day of January, 2018.

SIGNED: *[Signature]* Pioneer Engineering, P.A.
BY: Peter J. Hawkinson, Professional Land Surveyor
Minnesota License No. 42299
email-phawkinson@pioneereng.com



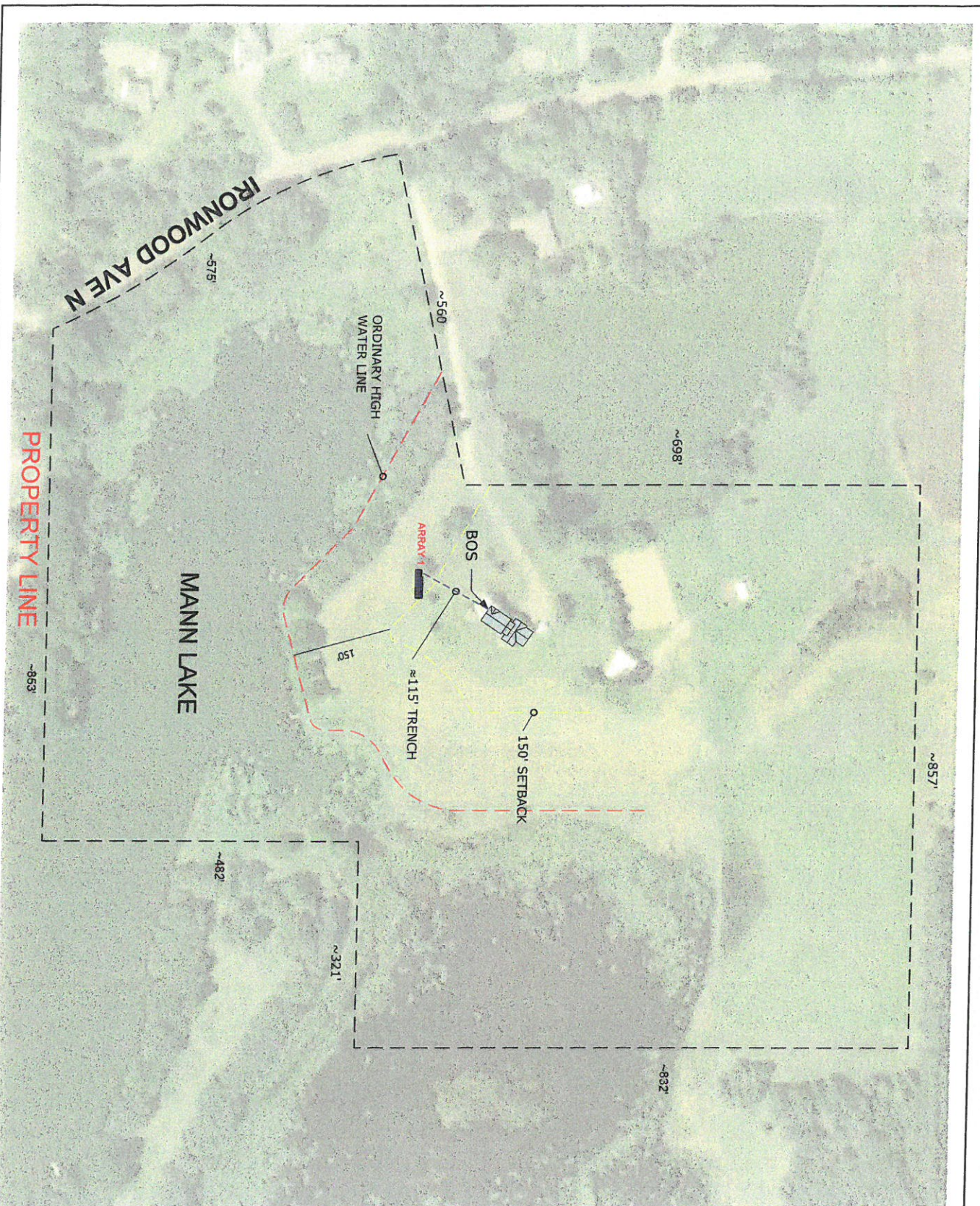
Site Plan/Description Sketch for:
Steven R. and Barbara A. Cossack

Cad File: PXSURV-117289-BASE
Folder #: 8179
Drawn by: MTW

2422 Enterprise Drive
Mendota Heights, MN 55120
P: 651.681.1914
F: 651.681.1914
www.pioneereng.com

PIONEER engineering
CIVIL ENGINEERS LAND PLANNERS LAND SURVEYORS LANDSCAPE ARCHITECTS

Sheet
1 of 1



COMPANY INFORMATION
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 (800) 620-3370
 INFO@ALLENERGY/SOLAR.COM

CLIENT INFORMATION
 ANNA M FIRSHMAN
 11541 IRONWOOD AVE N
 STILLWATER, MN 55062
 PO 16515

SYSTEM DETAILS
 NOTES:
 1. (1) SOLAREEDGE SET7600A-US
 INVERTER(S)
 2. ARRAY 1:
 180° AZIMUTH, 35° TILT
 (50) TTK 295W = 8.95kW

OID2963186
 AZIMUTH

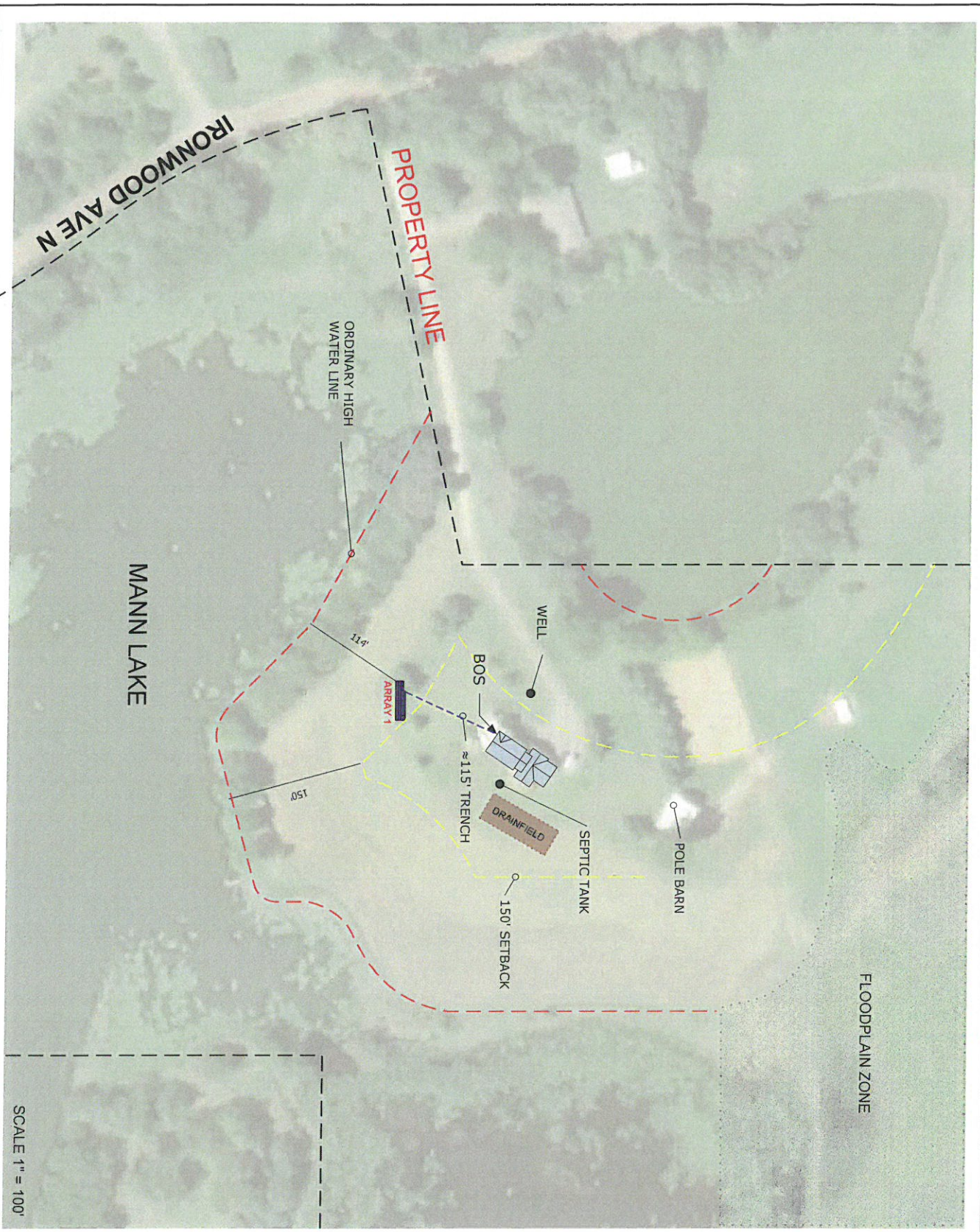


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 LAST: 08/31/17 MG

PROJECT PAGE TITLE

PROPERTY MAP

PAGE NUMBER
 A1



SCALE 1" = 100'



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 PO 16515

SYSTEM DETAILS
 NOTES:
 1. (1) SOLAREEDGE SE7600A-US INVERTER(S)
 2. ARRAY 1:
 180° AZIMUTH, 36° TILT
 (90) TIER 295W = 8.85kW

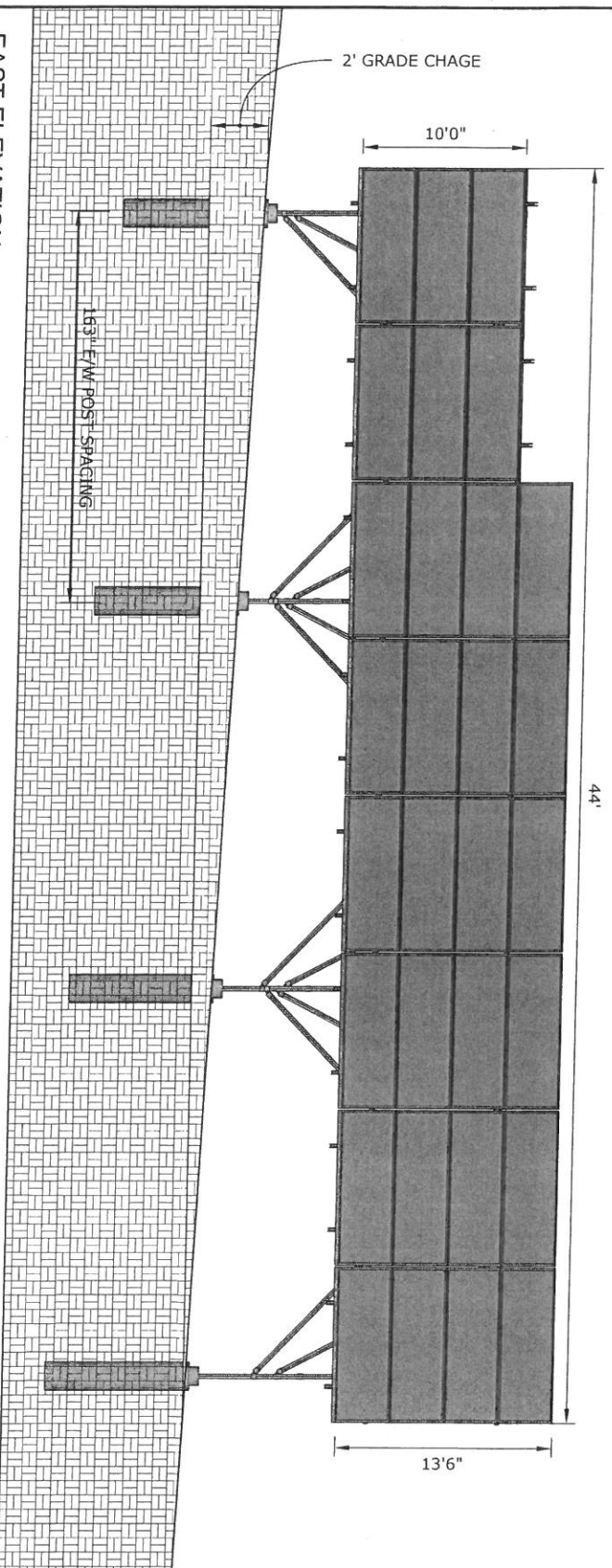
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 AZIMUTH



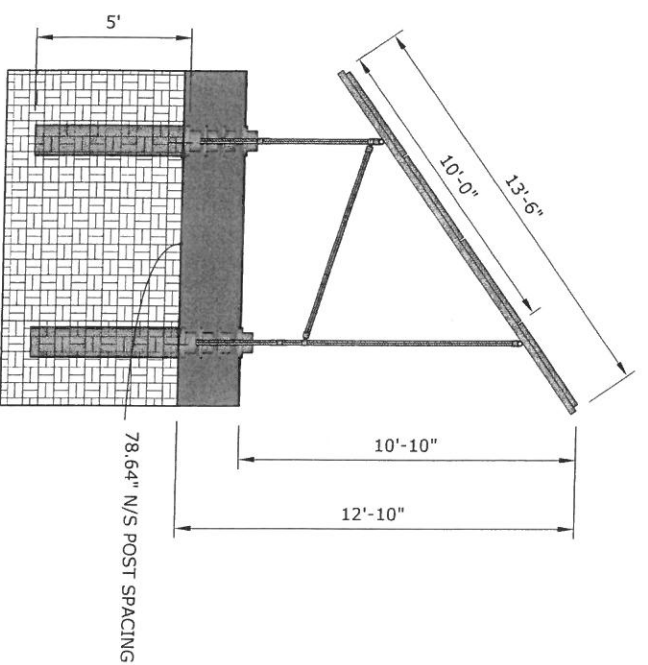
REVISIONS
 LAST: 02/21/8 MG

PROJECT-PAGE TITLE
 PROPERTY MAP
PAGE NUMBER
 A2

SOUTH ELEVATION



EAST ELEVATION



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 PO 16915

SYSTEM DETAILS

- NOTES:**
1. ELEVATIONS MAY VARY DEPENDING ON GROUND ELEVATION BUT ARE DRAWN TO THE BEST OF OUR ABILITY
 2. SQFT OF ARRAY: 445 SQFT
 3. SCALE 1/4" = 10"

REVISIONS

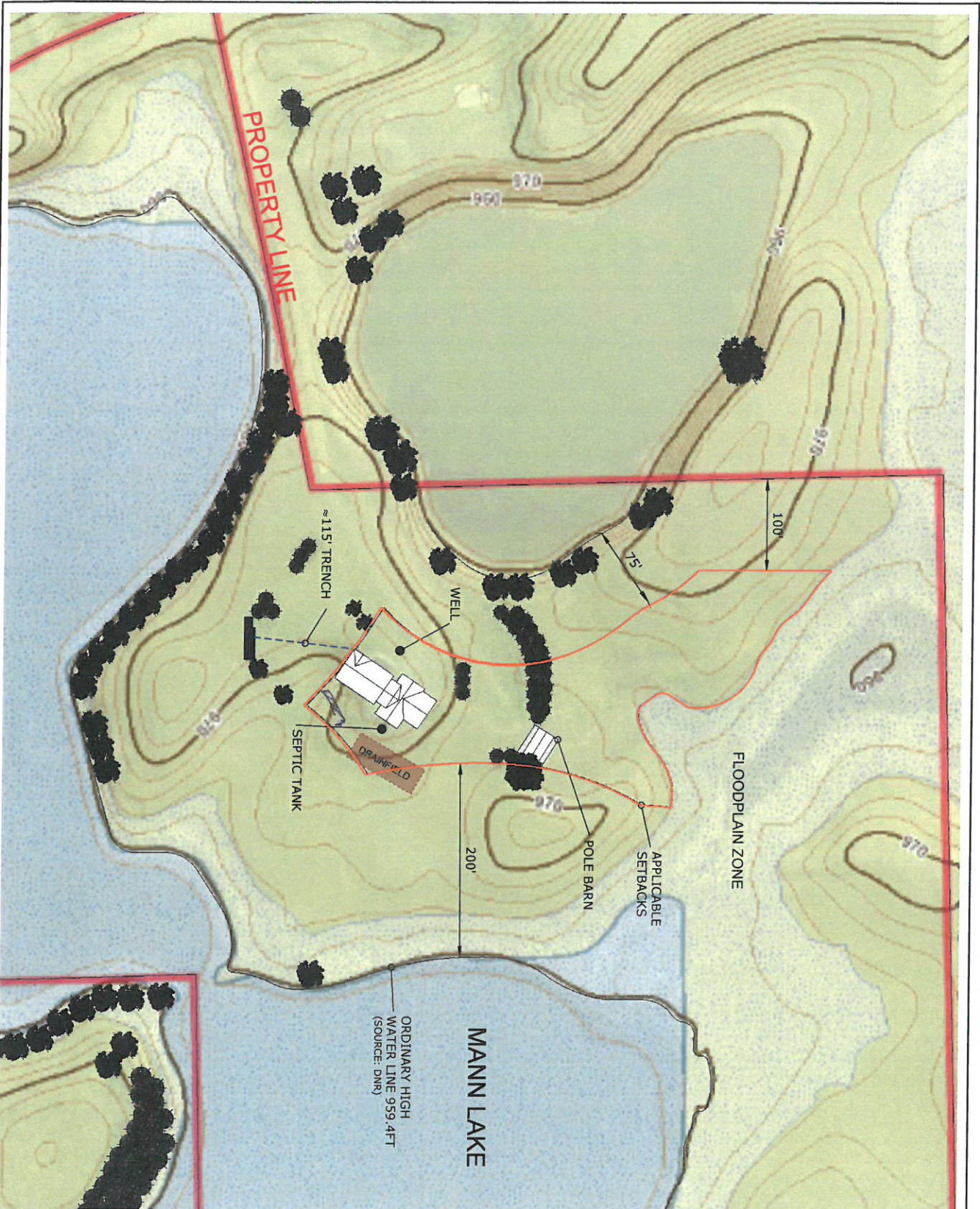
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PROJECT-PAGE TITLE

ELEVATION DRAWINGS

PAGE NUMBER

A4



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 PO# 00016515

SYSTEM DETAILS

REVISIONS

LAST: 03/20/18 DM

AZIMUTH



PROJECT PAGE TITLE

SITE MAP

PAGE NUMBER

A0



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SYSTEM DETAILS

REVISIONS

LAST: 02/20/18 DM

AZIMUTH

N



PROJECT-PAGE TITLE

AERIAL MAP

PAGE NUMBER

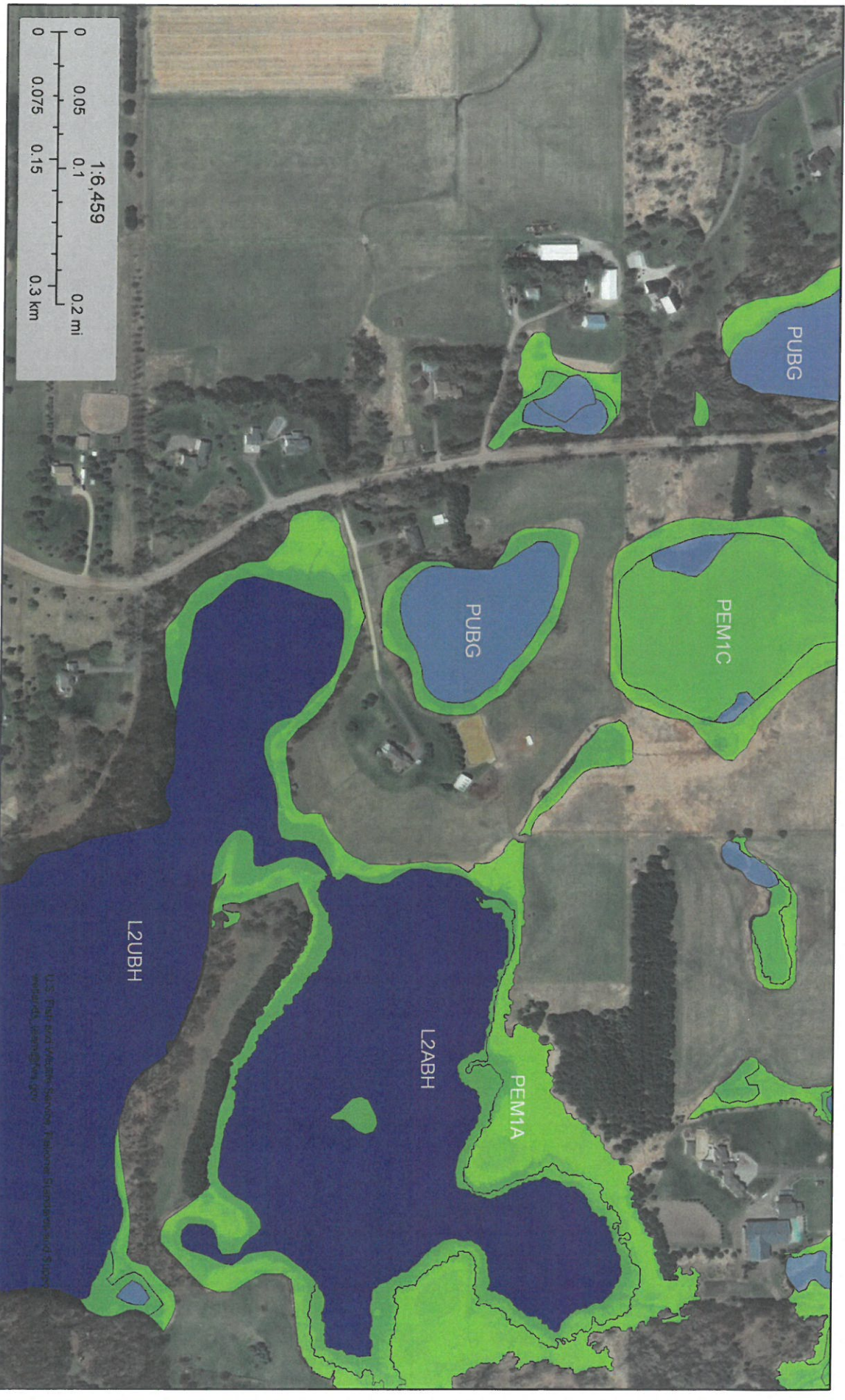
A1



U.S. Fish and Wildlife Service

National Wetlands Inventory

All Energy Solar Variance - NWI Wetland:



February 21, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

U.S. Fish and Wildlife Service, National Wetlands Inventory
 www.fws.gov/nwi, www.dfw.state.tx.us/nwi



















National Flood Hazard Layer FIRMeTte



FEMA

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

	Without Base Flood Elevation (BFE) Zone A1, A99
	With BFE or Depth Regulatory Floodway Zone AE, AO, AH, VE, AF
	0.2% Annual Chance Flood Hazard, Area of 1% annual chance flood with average depth less than one foot or with draining areas of less than one square mile (Zone X)
	Future Conditions 1% Annual Chance Flood Hazard (Zone X)
	Area with Reduced Flood Risk due to Levee. See Notes, Zone X
	Area with Flood Risk due to Levee (Zone D)
	NO SCREEN Area of Minimal Flood Hazard Zone X Effective LOMRs
	Area of Undetermined Flood Hazard Zone X
	Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
	20.2 Cross Sections with 1% Annual Chance 17.5 Water Surface Elevation
	Coastal Transect Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary
	Coastal Transect Baseline Profile Baseline
	Hydrographic Feature
	Digital Data Available
	No Digital Data Available
	Unmapped



This map complies with FEMA's standards for the use of digital flood maps. If it is not void as described below, the base map shown complies with FEMA's base map accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **2/21/2018 at 4:09:41 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



92°55'49.03\"/>

Norman Scheel Structural Engineer

5022 Sunrise Blvd.
Fair Oaks, CA 95628
(916) 536-9585
(916) 536-0260 (fax)
1989-2013
24 years of excellence

Norman Scheel, S.E.

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LEED AP Homes
Fellow - SEAOC
Fellow-ASCE
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Steven Cooksey
CAD Supervisor
E-mail: steve@nssc.com

Jackie Winslow
Office Manager
E-mail: jackie@nssc.com

Friday, January 31, 2014

SnapNrack
775 Fiero Lane, Suite 200
San Luis Obispo, CA 93401

Series 200 Ground Mount Summary Letter

To Whom It May Concern,

We have performed calculations for the 200 series ground mount PV system based on the information provided by SnapNrack. The report and calculations are also included with this letter. We did the calculations in accordance with the 2012 IBC, the ASCE 7-10, and the guidelines stated in the Solar America Board for Codes and Standards.

We performed calculations for the following wind, seismic, and snow load combinations and building parameters:

- ASCE 7-10 wind speeds from 100 to 170 mph for exposure C category
- ASCE 7-10 Seismic Design Category D
- ASCE 7-10 Snow Loads up to 120 psf ground snow

The calculations have also been completed in accordance with the 2006 IBC, 2009 IBC, and ASCE 7-05. To use the data contained in this packet for projects that are being evaluated to the older ASCE 7-05 wind speeds, refer to Appendix A for a wind speed conversion chart. Find the ASCE 7-05 (IBC 2006/2009) wind speed in the Chart in Appendix A, identify the corresponding ASCE 7-10 (IBC 2012) wind speed value, and proceed with using the charts contained in this packet with the adjusted wind speed value.

In our opinion, the mounting system, outlined in the SnapNrack Series 200 PV Mounting System Code Compliant Installation Manual, is acceptable and meets the loading requirements stated above. See the report and calculations included with this letter for more information.

If there are any further questions, please contact Norm Scheel.

Norman Scheel PE, SE
LEED-AP BD+C, LEED-AP Homes
Fellow SEAOC
Fellow A.S.C.E.



itek ENERGY SE SOLAR MODULES

Design & Engineering Data

GENERAL DATA

- Cell type
- 60 high-efficiency monocrystalline p-type cells
- 6x10 cell matrix

- Solar Glass
- Ultra-clear anti-reflective treatment
- Tempered, with low iron content
- Anti-glare prismatic subsurface texture
- Multi-layered
- Engineered adhesion for maximum weather protection

- Frame
- High-strength corrosion-resistant anodized aluminum
- Compatible with standard racking, accommodating both top-down clamps and bottom-flange mounting

- Cable
- 42" 90C 12 AWG PV wire
- 3 bypass diodes
- 1000 VDC MC4 connectors

QUALIFICATIONS

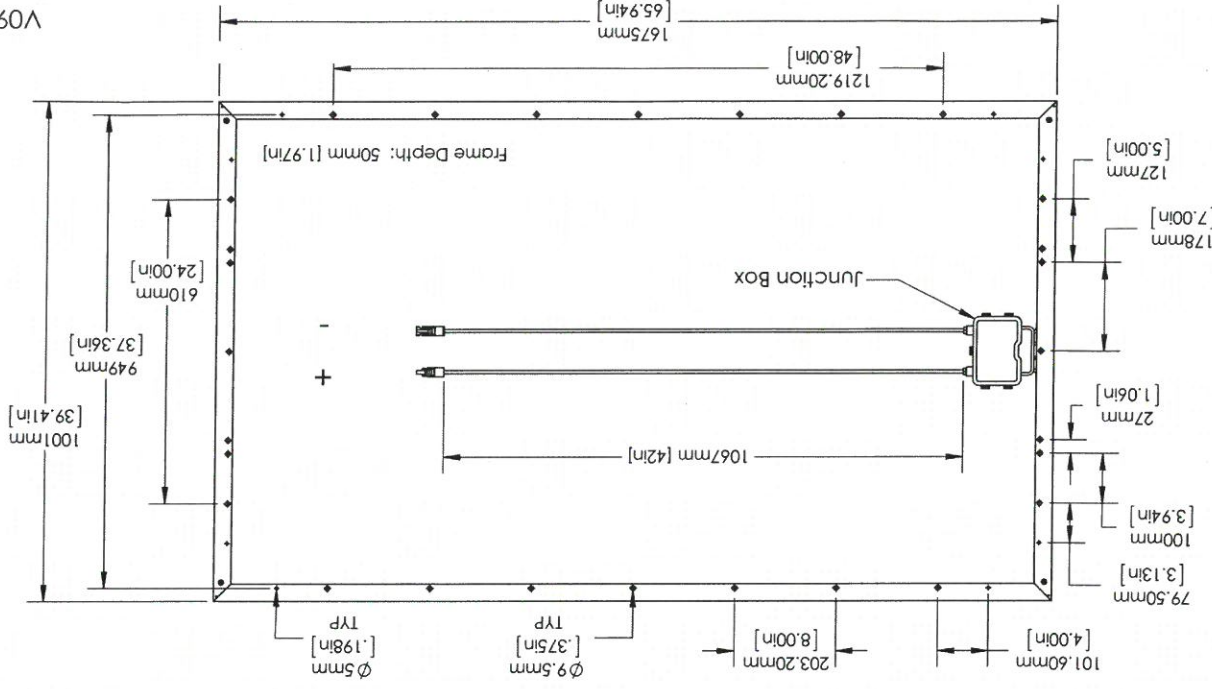
- UL Listing
- UL 1703
- Fire Rating
- Type 2
- PID Free
- 96+ hours



ELECTRICAL DATA*

Maximum Power - P _{max} (Wp)	280	285 SE	290 SE	295 SE	300 SE
Maximum Power Voltage - V _{mp} (V)	32.3	32.4	32.6	32.8	32.9
Maximum Power Current - I _{mp} (A)	8.6	8.7	8.8	8.9	9.0
Open Circuit Voltage - V _{oc} (V)	39.2	39.3	39.5	39.7	39.8
Short Circuit Current - I _{sc} (A)	9.3	9.4	9.5	9.6	9.7
Module Efficiency	16.70%	16.99%	17.29%	17.59%	17.89%

NOTE: SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



V09.22.16

2746 S 31st Avenue | Minneapolis, MN 55406 | 612.318.6364 | email:flm@itekenergy.com | www.itekenergy.com



Building Solar | Powering The Future

MECHANICAL DATA

Dimensions 1001mm X 1675mm X 50mm
Weight 43 lbs

MAXIMUM RATINGS

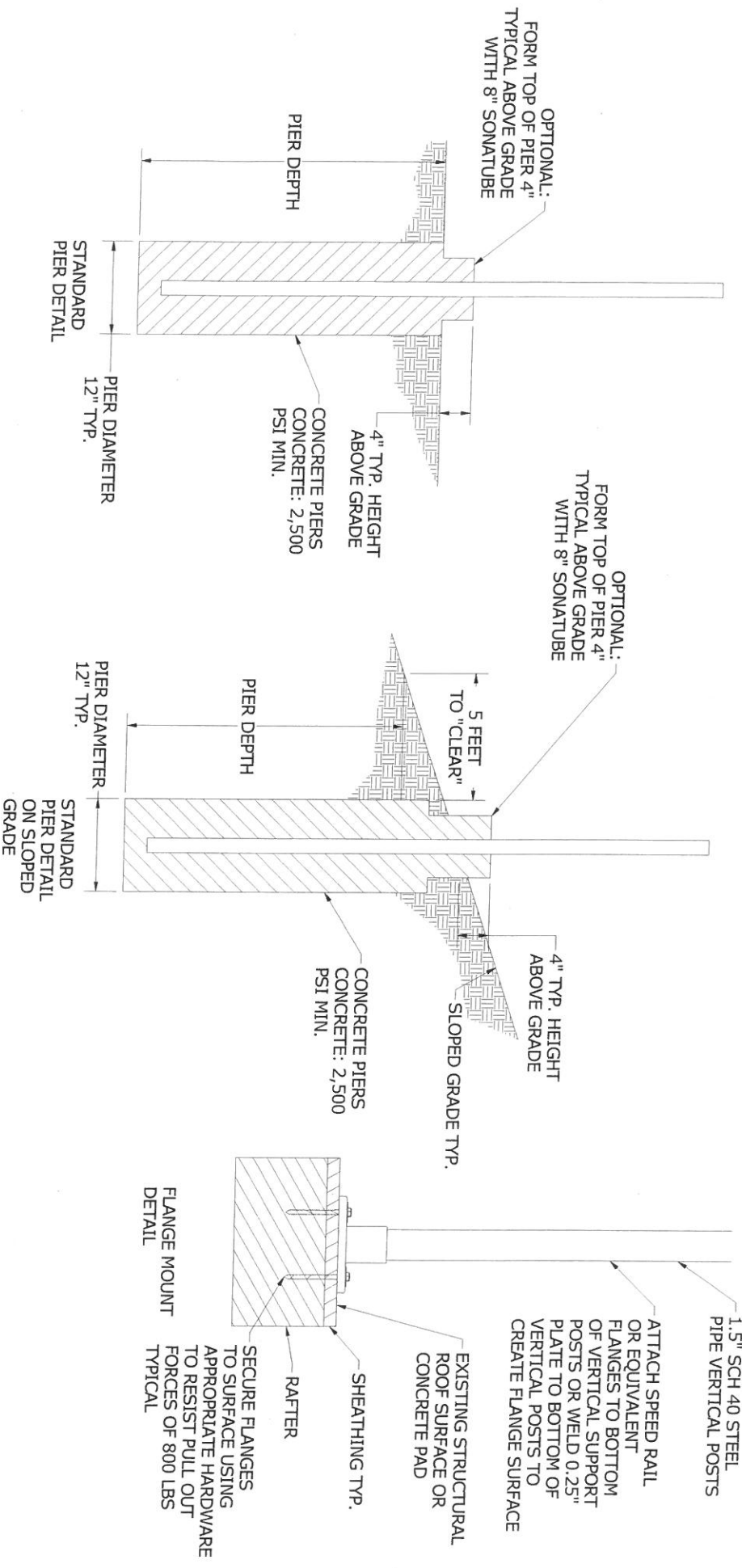
Operational Temperature -40...+ 90°C
Maximum System Voltage 1000 VDC
Design Load (UL 1703) up to 113 lbs/ft²
Maximum Load (UL 1703) 551 kg/m² (5400 Pa)
Maximum Wind Load 113 lbs/ft²
Max Series Fuse Rating 15A
Max Reverse Current 15A

TEMPERATURE RATINGS

Nominal Operating Cell Temperature (NOCT) 45.01°C
Temperature Coefficient of P_{max} -0.39%/°C
Temperature Coefficient of V_{oc} -0.29%/°C
Temperature Coefficient of I_{sc} +0.04%/°C
Temperature Coefficient of V_{mp} -0.38%/°C

*Electrical characteristics may vary within ±2% of the indicated values at Standard Test Conditions (STC): irradiance of 1,000W/m², AM 1.5 spectrum, cell temperature at 25°C.

NOTE:
 FLANGE MOUNTS ARE A VIABLE OPTION FOR INSTALLATION OF GROUND MOUNT SYSTEMS ON CONCRETE PADS OR VARIOUS TYPES OF ROOF TOP STRUCTURES, BUT ARE NOT SPECIFIED IN DETAIL IN THE STANDARD ENGINEERING REVIEW FOR 2013.



REVISION

SnappRack™
 PV Mounting Systems

MAINSTREAM ENERGY CORP.
 779 IRVING LANE, SUITE 200, IRVING, CA 94015 USA
 PHONE: (925) 252-0374 FAX: (925) 252-1311
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DESIGNER: G. McPheders
 DRAFTER: D. Ryan
 APPROVED BY: _____

SCALE: DNS
 DATE: 120113

PART NUMBER: S200 D06

DESCRIPTION: SERIES 200 PIER DETAILS

REV: **G**



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CLIENT INFORMATION

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PO 16515

SYSTEM DETAILS

- NOTES:
- (1) SOLAREGE SE7600A-US INVERTER(S)
 - ARRAY 1:
180° AZIMUTH, 35° TILT
(30) ITEK 295W = 8.85kW

OID2963186

AZIMUTH



REVISIONS

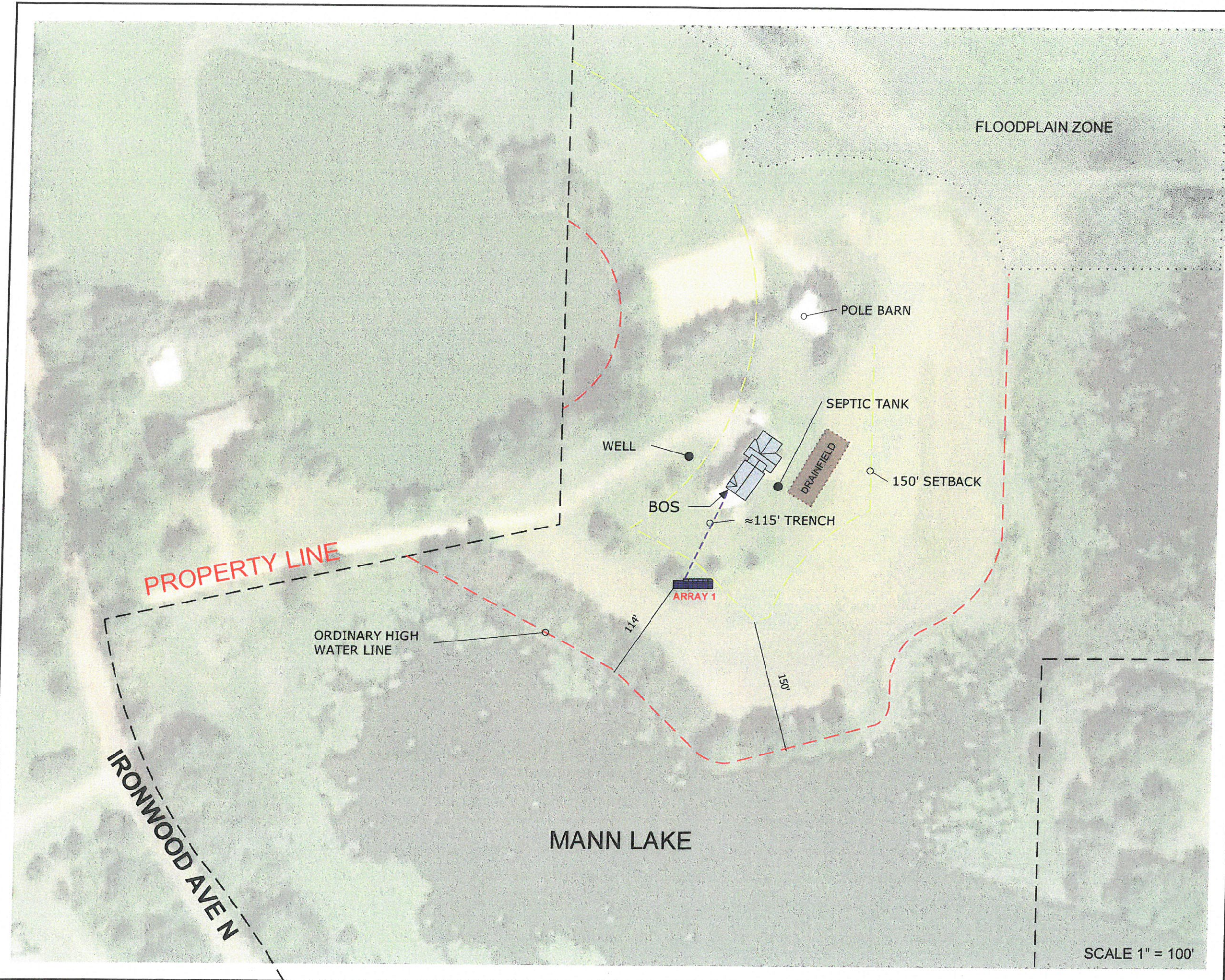
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PROJECT-PAGE TITLE

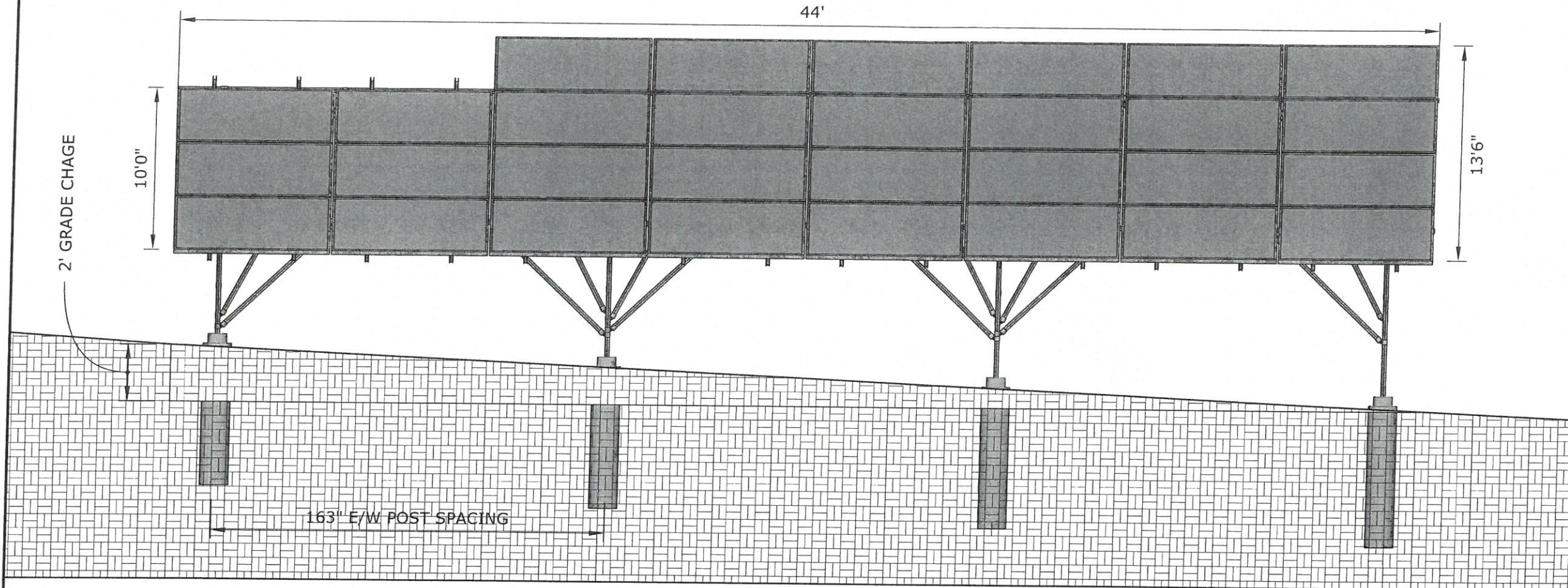
PROPERTY MAP

PAGE NUMBER

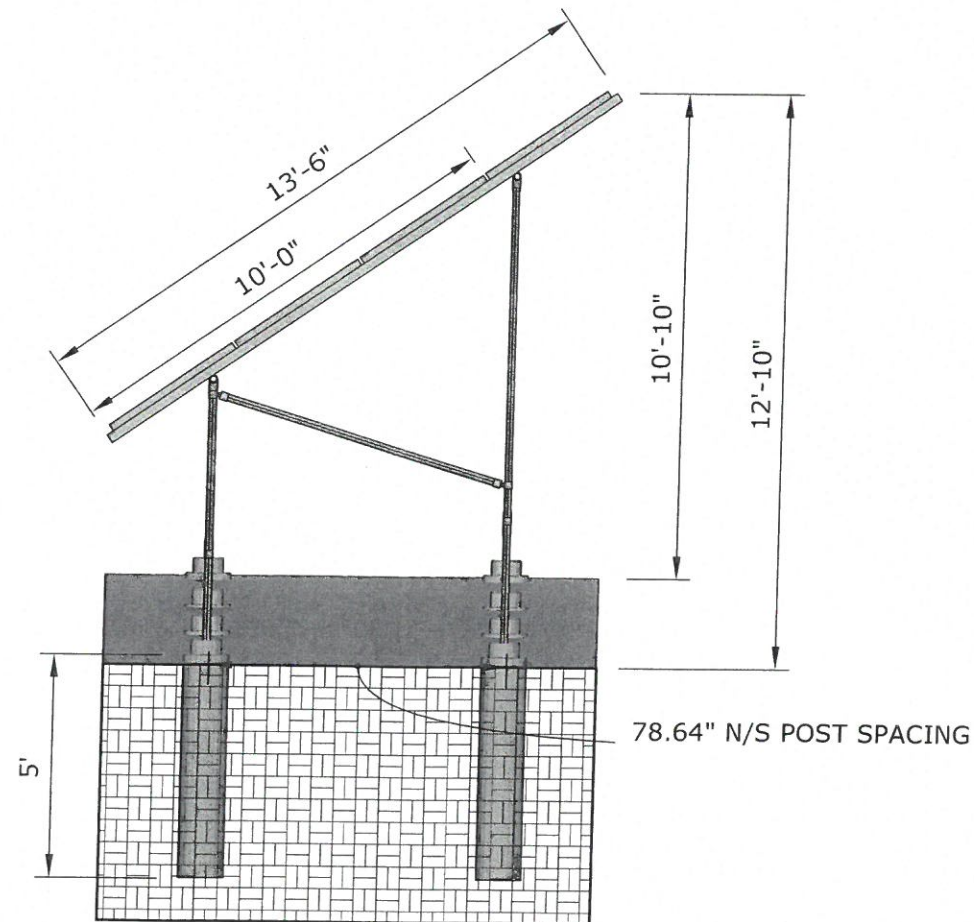
A2



SOUTH ELEVATION



EAST ELEVATION



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REVISIONS

LAST: 02/5/18 MG

PROJECT-PAGE TITLE

ELEVATION DRAWINGS

PAGE NUMBER

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