

August 22, 2025

VIA E-FILING

Mike Bull
Acting Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101

Re: In the Matter of the Application of North Star Energy Storage, LLC for an up to 80-megawatt Battery Energy Storage System Site Permit for the North Star Storage Project in Chisago County, Minnesota
MPUC Docket No. IP-7155/ESS-25-123
OAH Docket No. 5-2500-40938

Dear Mr. Bull:

North Star Energy Storage LLC (North Star Storage or Applicant) respectfully submits this amendment (Amendment) to the February 28, 2025 Site Permit Application (Application)¹ to provide the Minnesota Public Utilities Commission (Commission) with an updated nameplate capacity and a revised site plan for the proposed up to 80-megawatt (MW; now 100 MW), 320 megawatt-hour (MWh; now 400 MWh) battery energy storage system (BESS) and associated facilities adjacent to the existing North Star Solar Facility within the municipal boundary of North Branch in Township 35N, Range 21W, Section 36, Chisago County, Minnesota (the Project).

I. Nameplate Capacity

North Star Storage initially applied for a Site Permit for an up to 80 MW facility because that was the BESS size that North Star Storage bid into in Xcel Energy's 2023 Request for Proposals (RFP) solicitation.² At that time, North Star Storage planned to site the entire 80 MW facility on land owned by North Star Storage's affiliate, North Star Solar PV, LLC (North Star PV). Since bidding into the RFP, North Star Storage entered into a lease agreement for land adjacent to the land owned by North Star PV (as presented in the Site Permit Application³) and both Xcel Energy and North Star Storage have agreed that increasing the Project size to 100 MW,

¹ North Star BESS Project Site Permit Application (Feb. 28, 2025) (eDocket No. [20252-215915-02](#)) (Application).

² See *In the Matter of Xcel Energy's Competitive Resource Acquisition Process for up to 800 Megawatts of Firm Dispatchable Generation*, MPUC Docket No. E-002/CN-23-212, Sherco West BESS Proposal at 4, 10 (Jan. 22, 2024).

³ See Application at 10.

which is also the available capacity at the Point of Interconnection (POI; i.e., the Chisago County Substation), would fully leverage the available resource.

A 100 MW nameplate capacity will benefit North Star Storage, Xcel Energy and energy customers in the region. Building a larger Project will allow North Star Storage to realize cost efficiencies in permitting, construction, equipment procurement, and interconnection costs thereby reducing the overall build cost/MW of the Project. The 100 MW capacity will also help Xcel Energy manage its increasingly renewable energy-generation driven system and to help it meet its power delivery requirements. Increasing the capacity of the Project now will help to meet long-term electricity demand increases anticipated in the region.

It's important to note that an increase in nameplate capacity will not pose a net increase in the acreage originally estimated to host the Project's facilities. In fact, based on the current design, the Project is expected to occupy less land than originally proposed. Since the submission of the Application, there have been rapid advancements in BESS manufacturing and technology such that top-tier suppliers are now able to produce more efficient and more energy-dense products. Accordingly, North Star Storage has narrowed the potential BESS suppliers and technology to be utilized in construction of the Project. North Star Storage has confirmed that products from these suppliers will allow a 100 MW Project to fit in a smaller Preliminary Development Area than what was described in the Application for an 80 MW facility.⁴

II. Site Plan

While the Project's footprint has not increased in size, North Star Storage has shifted certain Project features in direct response to public comments received during the Project's environmental scoping comment period as well as refinements to avoid potential aquatic resource impacts. North Star Storage believes that these changes result in a decrease in the overall anticipated impacts from the Project. The modifications to the site layout are described in further detail below.

A. Aesthetics/Noise Impact Mitigation

North Star Storage revised the site plan to reduce potential impacts to a neighbor that lives north of the Project, Ms. Debra Hermel. Ms. Hermel provided comments at the in-person public meeting questioning potential sound and aesthetic impacts from the Project and asked for more information on North Star Storage's efforts to address aesthetic impacts through a barrier or other aesthetic mitigation.⁵ In response to Ms. Hermel's concerns, North Star Storage revised the site plan to reduce potential aesthetic and noise impacts to Ms. Hermel's residence. Specifically, North Star Storage shifted the Project layout south, approximately 180 feet, to create a larger distance between the Project and Ms. Hermel's home. North Star Storage also added an area along the

⁴ The Preliminary Development Area is used for the assessment of Project impacts. The Preliminary Development Area that was originally required for construction Project was 26.6 acres. See Application at vi. The Preliminary Development Area has now decreased to 18.8 acres. See **Attachment 1**.

⁵ See Stacy 6:00 p.m. Public Information and EA Scoping Meeting Transcript (Stacy 6:00 p.m. Tr.) at 42-43 (May 28, 2025).

northern property boundary (Ms. Hermel's southern property boundary) where vegetative screening can be planted by North Star Storage to mitigate aesthetic impacts from the Project. Moreover, North Star Storage is evaluating whether a physical barrier or a mechanical solution can be utilized on the Project to reduce potential noise and aesthetic impacts to homes north and southwest of the Project.

As stated in the Application, the Project is consistent with the aesthetics presented by the existing North Star Solar Facility, which dominates the landscape in this area and has structures of similar height.⁶ However, after the reviewing Ms. Hermel's comments on aesthetics, North Star Storage commits to developing a landscaping plan along the property line to the north of the Project and file the plan with the pre-filed direct testimony for the Project.

Concerning noise, the upsizing of the BESS will result in the need for additional transformers and BESS containers that will slightly increase sound levels as compared to an 80 MW project. As an initial matter, the shifting of the Project to the south will aid in reducing potential noise impacts from the Project to Ms. Hermel's home. As noted in the Application, the Project's final design noise impacts will be re-evaluated, and sound mitigation measures will be implemented as necessary to accommodate state requirements for sound.⁷ North Star Storage is in the process of updating its noise study based on the revised Project layout and will file the updated study prior to the Project's public hearing. Based on the results of the noise study, mitigation may be necessary in one of two forms, still under evaluation by the Applicant:

- 1) North Star Storage is exploring the use of mufflers that can be affixed to the Heating, Ventilation, and Air Conditioning (HVAC) system on each BESS. The results of these mufflers are still under evaluation for efficacy and will be further vetted through the final design of the Project.
- 2) If the final design determines that sound mitigation is required and the mufflers prove infeasible, then North Star Storage may utilize a sound barrier. Based on current modelling, a sound barrier is likely to be installed on the northern and western boundaries of the Preliminary Development Area. A sample concept of what the barrier may look like is provided in **Attachment 2**. In this conceptual barrier design, a sound deadening or reflecting material would be attached directly to the Project fence. Initial analyses of these sound barriers have shown the ability to successfully reduce sound levels beyond the barrier. More traditional wood or concrete barrier walls are also under consideration and may be utilized in the same locations as the barrier shown in Attachment 2.

The final noise mitigation use for the Project, if any are necessary, will be determined by North Star Storage and provided in the final site plan filed prior to construction.

⁶ See Application at 35.

⁷ See Application at 43-44.

B. Access Road

North Star Storage shifted the location of the western access road proposed in the Application in response to comments from Mr. Steven Benson⁸ and Mr. Dennis Anderson during the EA scoping period. Specifically, Mr. Anderson submitted written comments requesting North Star Storage have additional discussions with highway maintenance officials to discuss the proposed access road to the Project site.⁹ Following conversations with Chisago County and Mr. Anderson regarding the access road, North Star Storage shifted the western access road to the southern portions of Mr. Anderson's property. The western access road will now utilize an existing driveway from County Highway 14/Lincoln Trail and will skirt the southern boundaries of the property to the extent practicable. The access road will still be approximately 0.4 mile (2, 270 feet) long by 25 feet wide. The changes to the western access road are visible on the revised site plan provided in **Attachment 1**.

C. Wetlands

As part of its due diligence, North Star Storage updated the wetland delineation that was originally completed in 2014 for the existing North Star Solar facility¹⁰. In its review of the original wetland report and from additional land survey work, North Star Storage discovered additional incidental, likely non-jurisdictional wetlands in the Land Control Area¹¹ of the Project. North Star Storage depicts the non-jurisdictional (and likely jurisdictional) wetlands it believes are present in the Preliminary Development Area in **Attachment 1**. The updated design avoids impacts to all delineated jurisdictional and non-jurisdictional wetlands.

III. Summary

North Star Storage respectfully requests evaluation and approval of the up to 100 MW Project based on the site design presented in this Application update. This updated design addresses comments and concerns raised by local residents during the environmental scoping comment period and provides appropriate and reasonable mitigation for potential noise and aesthetic impacts. The increase in nameplate capacity will also ensure the Project maximizes its benefits to the electrical grid and electricity customers in the region.

North Star Storage also respectfully requests that the above captioned docket name be updated to reflect the increase in nameplate capacity for the Project such that it reads as follows:

⁸ See Stacy 6:00 p.m. Tr. at 46-47.

⁹ Comments Concerning DESRI North Star 80 MW 320 MWh BESS (March 20, 2025) (eDocket No. [20253-216630-01](#)); and Comments Access Road Concerns over DESRI North Star BESS Site (March 20, 2025) (eDocket No. [20253-216630-02](#)).

¹⁰ See *In the Matter of the Combined Application of North Star Solar PV LLC for a Site Permit and Route Permit for the North Star Solar Electric Power Generating Plant and Associated 115 kV High-Voltage Transmission Line in Chisago County*, MPUC Docket No. IP-6943/GS-15-33 at Joint Site and Route Permit Application Appendix A-9 (Feb. 11, 2015).

¹¹ The Land Control Area is the 77.5-acre area where North Star Energy Storage, LLC has site control. The Land Control Area is used to describe the existing environment. See Application at v.

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Page 5

*In the Matter of the Application of North Star Energy Storage, LLC
for an up to 100-megawatt Battery Energy Storage System Site
Permit for the North Star Storage Project in Chisago County,
Minnesota.*

This Amendment to the Application has been e-filed through www.edocket.state.mn.us. A copy of this filing is also being served upon the persons on the Official Service List of record. Please let me know if you have any questions regarding this filing.

Sincerely,

FREDRIKSON & BYRON, P.A.

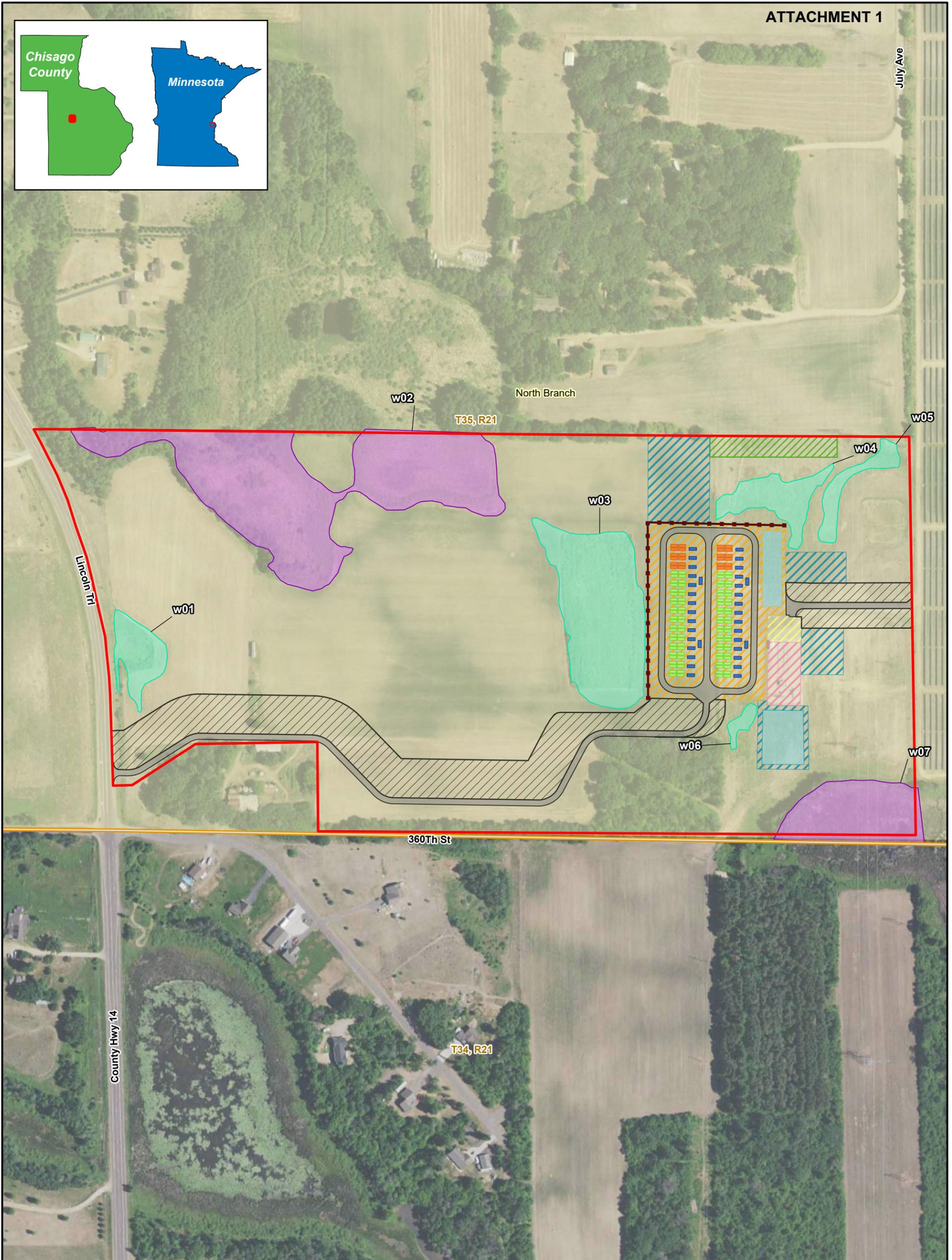
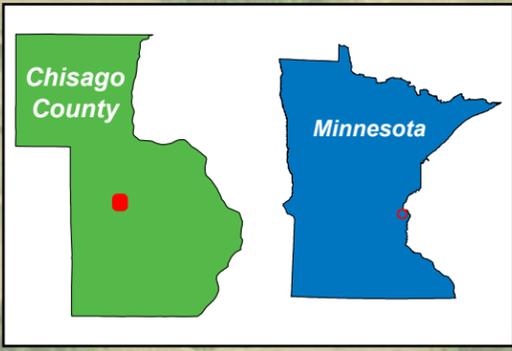
/s/ Jeremy P. Duehr

Jeremy P. Duehr

Direct Dial: 612.492.7413

Email: jduehr@fredlaw.com

Enclosures



0 150 300 Feet

1:3,600

Map 3 Overview of Preliminary Project Layout North Star BESS Project Chisago County, MN

- | | | |
|-------------------------|-------------------------|-------------------------------------|
| BESS Container | Existing Substation | Land Control Area |
| BESS Container - Future | Gravel Pad Area | Proposed Jurisdictional Wetland |
| Augmentation Unit | Solar Facility | Proposed Non-jurisdictional Wetland |
| Inverter | Substation Expansion | City/Town |
| Access Road | Vegetative Screening | Township |
| Access Road | Potential | |
| Temporary Workspace | Stormwater Basin | |
| Additional | Potential Noise Barrier | |
| Temporary Workspace | | |

Imagery: MNGeo 2021 Color FSA
Sources: DESRI, MN Geospatial Commons, MDNR, ESRI

PROJECT TEAM

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 ENGINEER OF RECORD: JON MANNING, P.E.

SHEET INDEX	
SHEET NO.	SHEET NAME
S-100	COVER SHEET
S-200	GENERAL STRUCTURAL NOTES
S-300	12' SOUND WALL FOUNDATION DETAILS

SOUND WALL STRUCTURAL PLANS

FOR

NORTH STAR BESS

LOCATED AT

NORTH BRANCH, MN



KHA PROJECT 161255001	DATE 07/25/2025	SCALE AS SHOWN	DESIGNED BY JP	DRAWN BY JKE	CHECKED BY JTM
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COVER SHEET

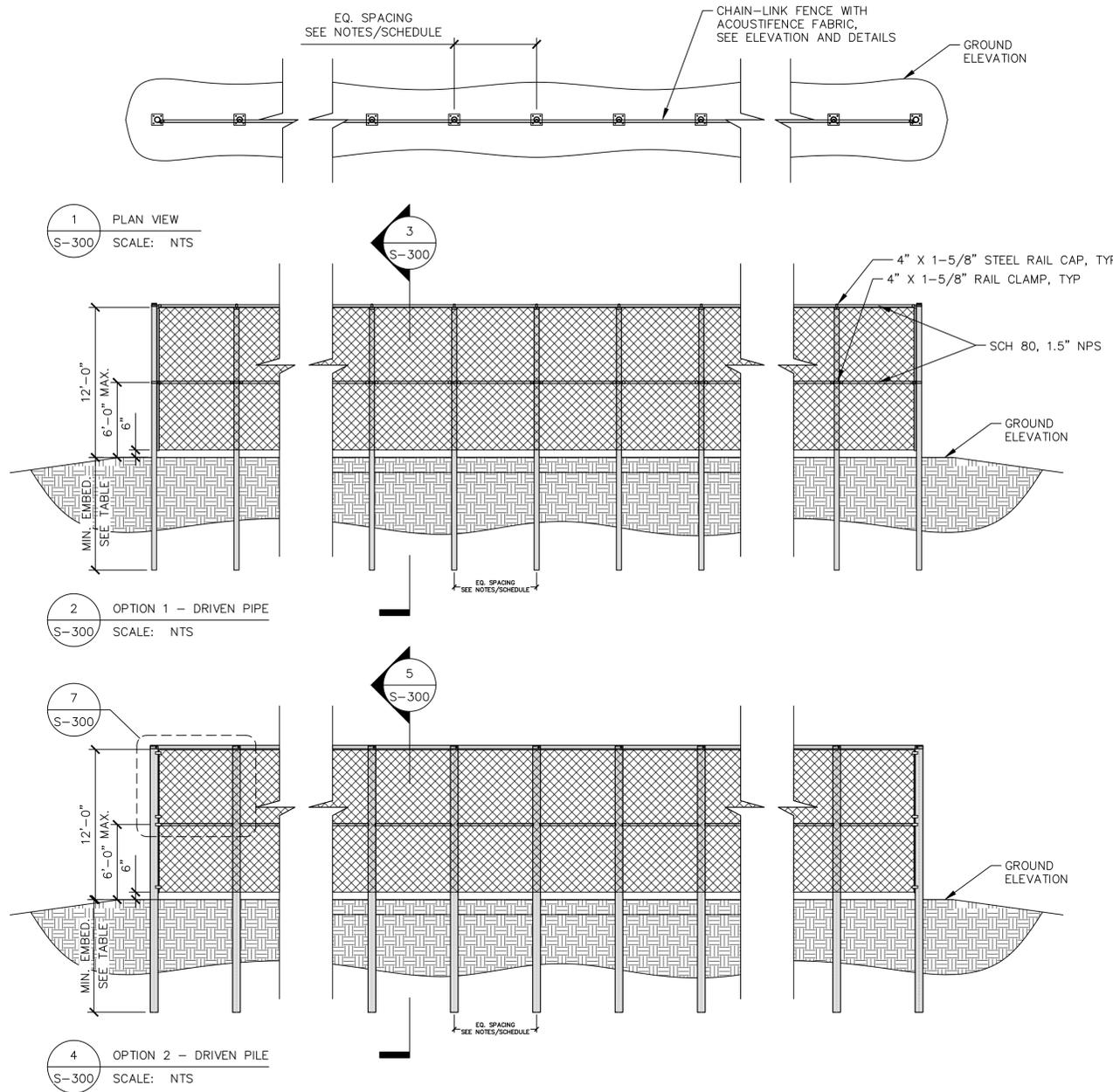
**NORTH STAR
 BESS**
 NORTH BRANCH, MN

SHEET NUMBER
S-100

No.	REVISIONS	DATE
1	PRELIMINARY DESIGN	07/25/2025

Picked By: Pandey, Yubraj | Sheet: S-100 | July 24, 2025 04:51:18pm | K:\TWC_DEV\Structures_Misc\Star Projects\DESRI\05_North Star BESS Sound Fence\Structural DWG\DESRI - North Star - Sound Wall DWG.dwg
 This document, together with the concepts and designs presented herein, is intended only for the specific purpose and client for which it was prepared. No use of this document without written authorization and approval by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

Picked By: Pandey, Yubraj | Sheet: S-300 | July 24, 2025 04:51:25pm | K:\TWC_DEVELOPMENT\Structures\Misc\Sound Fence\DESIGN\05_North Star BESS Sound Fence\Structural DWG\DESIGN - North Star - Sound Wall DWG.dwg
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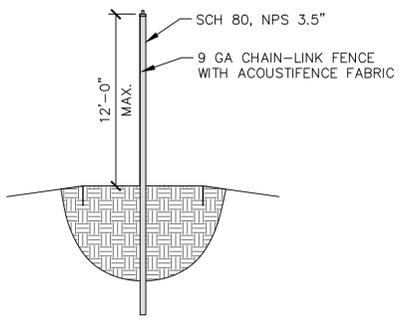


1 PLAN VIEW
S-300 SCALE: NTS

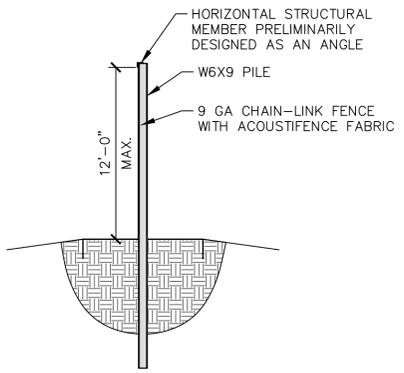
2 OPTION 1 - DRIVEN PIPE
S-300 SCALE: NTS

7 S-300

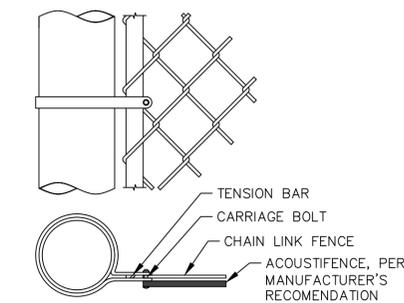
4 OPTION 2 - DRIVEN PILE
S-300 SCALE: NTS



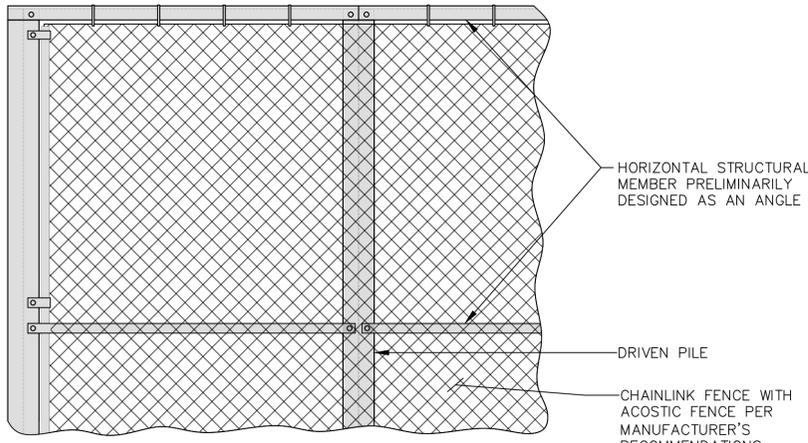
3 OPTION 1 - DRIVEN PIPE - SECTION VIEW
S-300 SCALE: NTS



5 OPTION 2 - DRIVEN PILE - SECTION VIEW
S-300 SCALE: NTS



6 OPTION 1 - FENCE DETAIL
S-300 SCALE: NTS



7 OPTION 2 - FENCE DETAIL
S-300 SCALE: NTS

GENERAL NOTES

- SEE CIVIL AND ELECTRICAL FOR ADDITIONAL DETAIL ASSOCIATED WITH THE SITE PLAN.
- CONTRACTOR SHALL VERIFY FINAL LAYOUT WITH CIVIL ENGINEER.
- CONTRACTOR SHALL RELY ON THIS PLAN IN CONJUNCTION WITH FIELD VERIFICATION AND ALL OTHER PROJECT DOCUMENTS TO DETERMINE SLAB LOCATIONS AND ELEVATIONS. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO ANY INSTALLATION.
- VERIFY WITH OWNER ALL REQUIREMENTS FOR DRAINAGE AND CLEARANCES AND MAINTAIN EXISTING SITE DRAINAGE AND CLEARANCE REQUIREMENTS AROUND STRUCTURAL ELEMENTS.
- CURRENT DESIGN USES THE FOLLOWING VALUES:

- DRIVEN POST:
- 5.1. ULTIMATE WIND PRESSURE: 19.22 PSF
 - 5.2. WIND LOAD PER POST: 807 LBS
 - 5.3. SERVICE WIND LOAD (0.6WL) PER POST: 484 LBS
- DRIVEN PILE:
- 5.4. ULTIMATE WIND PRESSURE: 19.22 PSF
 - 5.5. WIND LOAD PER POST: 1269 LBS
 - 5.6. SERVICE WIND LOAD (0.6WL) PER POST: 761 LBS

NPS (NOMINAL PIPE SIZE)	OUTSIDE DIAMETER	PIPE WALL THICKNESS
		SCHEDULE 80 (ASTM F1083) FY=30 KSI
P3.5	4.000"	0.318"
P1.5	1.875"	0.200"

WITHOUT FROST RESISTANCE:

THIS OPTION IS DESIGNED WITHOUT CONSIDERING THE ADFREEZE RECOMMENDATIONS FROM THE GEOTECHNICAL ENGINEER. THE EMBEDMENTS ARE SHORTER. HOWEVER, THERE IS INCREASED RISK ASSOCIATED WITH THE DISPLACEMENTS DUE TO FROST.

DESIGN OPTION	TYPE	SIZE	TOTAL LENGTH (FT)	REVEAL HT (FT)	EMBED DEPTH (FT)	SPACING (FT)
1	DRIVEN POST	3.5" NPS	19.5	12.0	7.5	3.5
2	DRIVEN PILE	W6X9	19.5	12.0	7.5	5.5

WITH FROST RESISTANT:

THIS OPTION IS DESIGNED CONSIDERING FROST HEAVE PER THE GEOTECHNICAL ENGINEER WHICH REQUIRES 3.5' OF ADFREEZE AT 1500 PSF ADFREEZE PRESSURE. THIS REQUIRES DEEPER EMBEDMENT TO PREVENT DISPLACEMENT FROM HEAVE.

DESIGN OPTION	TYPE	SIZE	TOTAL LENGTH (FT)	REVEAL HT (FT)	EMBED DEPTH (FT)	SPACING (FT)
1	DRIVEN POST	3.5" NPS	37.0	12.0	25.0	3.5
2	DRIVEN PILE	W6X9	38.5	12.0	26.5	5.5



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 WWW.KIMLEY-HORN.COM

KHA PROJECT	161255001
DATE	07/25/2025
SCALE	AS SHOWN
DESIGNED BY	JP
DRAWN BY	JKE
CHECKED BY	JTM

10' SOUND WALL FOUNDATION DETAILS

NORTH STAR BESS
 NORTH BRANCH, MN

SHEET NUMBER
S-300

No.	REVISIONS	DATE
1	PRELIMINARY DESIGN	07/25/2025

**In the Matter of the Application of North Star
Energy Storage, LLC for an up to 80-
megawatt Battery Energy Storage System Site
Permit for the North Star Storage Project in
Chisago County, Minnesota**

CERTIFICATE OF SERVICE

**OAH Docket No. 5-2500-40938
MPUC Docket No. IP-7155/ESS-25-123**

Maia Martinez certifies that on the 22nd day of August, 2025 she e-filed on behalf of North Star Energy Storage, LLC, a true and correct copy of the following documents with the Minnesota Public Utilities Commission via eDockets (www.edockets.state.mn.us).

1. North Star Storage Site Plan Amendment;
2. Attachment 1 –Project Overview Layout Map;
3. Attachment 2 – Sound Wall Preliminary Exhibit; and
4. Certificate of Service

Said documents were also served as designated on the Official Service List on file with the Minnesota Public Utilities Commission and as attached hereto.

Executed on: August 22, 2025

Signed: /s/ Maia Martinez

Fredrikson & Byron, P.A.
60 South Sixth Street
Suite 1500
Minneapolis, MN 55402

#	First Name	Last Name	Email	Organization	Agency	Address	Delivery Method	Alternate Delivery Method	View Trade Secret	Service List Name
1	Generic	Commerce Attorneys	commerce.attorneys@ag.state.mn.us		Office of the Attorney General - Department of Commerce	445 Minnesota Street Suite 1400 St. Paul MN, 55101 United States	Electronic Service		No	25-123 Official CC Service List
2	Ryan	Cox	rcox@fredlaw.com	Fredrikson & Byron, P.A.		60 S Sixth St Ste 1500 Minneapolis MN, 55402-4400 United States	Electronic Service		No	25-123 Official CC Service List
3	Monika	Davis	monika.davis@merjent.com			1 Main Street Suite 300 Minneapolis MN, 55414 United States	Electronic Service		No	25-123 Official CC Service List
4	Martin	Donovan	martin.donovan@state.mn.us		Department of Natural Resources	500 Lafayette Road St Paul MN, 55155 United States	Electronic Service		No	25-123 Official CC Service List
5	Jeremy	Duehr	jduehr@fredlaw.com	Fredrikson & Byron, P.A.		60 S Sixth St Ste 1500 Minneapolis MN, 55402-4400 United States	Electronic Service		No	25-123 Official CC Service List
6	Sharon	Ferguson	sharon.ferguson@state.mn.us		Department of Commerce	85 7th Place E Ste 280 Saint Paul MN, 55101-2198 United States	Electronic Service		No	25-123 Official CC Service List
7	Breann	Jurek	bjurek@fredlaw.com	Fredrikson & Byron PA		60 S Sixth St Ste 1500 Minneapolis MN, 55402 United States	Electronic Service		No	25-123 Official CC Service List
8	James	Mortenson	james.mortenson@state.mn.us		Office of Administrative Hearings	PO BOX 64620 St. Paul MN, 55164-0620 United States	Electronic Service		Yes	25-123 Official CC Service List
9	Generic Notice	Residential Utilities Division	residential.utilities@ag.state.mn.us		Office of the Attorney General - Residential Utilities Division	1400 BRM Tower 445 Minnesota St St. Paul MN, 55101-2131 United States	Electronic Service		No	25-123 Official CC Service List
10	Nathaniel	Runke	nrunke@local49.org			611 28th St. NW Rochester MN, 55901 United States	Electronic Service		No	25-123 Official CC Service List
11	Janet	Shaddix Elling	jshaddix@janetshaddix.com	Shaddix & Associates		7400 Lyndale Avenue South Suite 190 Richfield MN, 55423 United States	Electronic Service		Yes	25-123 Official CC Service List