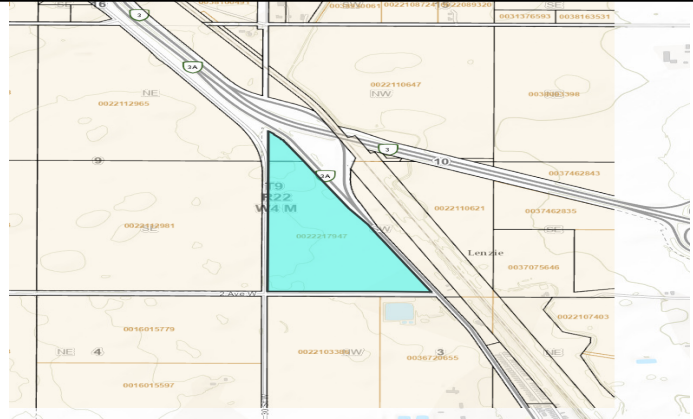


Construction and Maintenance Division  
 Southern Region  
 909 - 3 Avenue N. Administration Building  
 Lethbridge, AB  
 T1H 0H5

Permit Number: 2022-0002520  
 File Number: RPATH0002520

2022-05-19 08:51:19  
 Northern DC Solar Inc. c/o NU-E Corp - pamela@nu-ecorp.com  
 Calgary Alberta T2H 2B7

**Subject: Alberta Transportation Development Permit**

Description	General Location
Develop a 9MW solar farm in the SW 10-9-22-W4M in proximity to Highway 3	

Alberta Transportation Permit No. **2022-0002520** is issued to the above named Permittee under authority of Section 14 of the *Highways Development and Protection Act* (the Act) authorizing the development(s) listed herein.

**Alberta Transportation has the following additional comments and/or requirements with respect to this proposal:**

1. A report outlining the potential for reflection and glare from the proposed solar facility and resultant impact on adjacent highway traffic shall be completed by a qualified engineering professional, and identify a mitigation strategy to eliminate the visual impact of potential glare to adjacent highway traffic. This mitigation strategy may include earth berm, fencing, landscaping or other measures deemed necessary. The mitigation strategy shall be implemented and maintained by the permittee at no cost to Alberta Transportation. Alberta Transportation reserves the right to request additional mitigation features be installed to address post-construction issues once the facility has been constructed and is in operation.
2. Following installation, the site will be monitored to confirm whether snow drifting is occurring. Should it be, it shall be rectified to Alberta Transportation's satisfaction.
3. The proposed development shall be set back from the highway right of way as shown on the submitted plans.
4. No new direct highway access will be permitted. Access shall be via the local municipal road or existing access.
5. This permit is subject to the provisions of Section 11-19 inclusive of the Highways Development and Protection Act (Chapter H-8.5 2004), amendments thereto, and Highways Development and Protection Regulation (Alberta Regulation 326/2009) and amendments thereto.
6. Alberta Transportation accepts no responsibility for the noise impacts or other impacts of highway traffic upon any development or occupants thereof. Please be advised that noise mitigation, visual screening, or other features required to ensure compatibility of the proposed development in proximity of a provincial highway is the responsibility of the owner.
7. Any yard lights, area lighting or other lights that are considered distracting to the motoring public and/or create a traffic hazard, are not permitted.
8. Pursuant to Section 11(2) of the Highways Development and Protection Regulation, a permit for a sign is not required for a business identification sign for this development provided that the sign is located no closer to the highway than the proposed building or is no more than 30m from either side of the building. If a proposed sign does not meet these requirements the landowner shall submit a separate sign application.
9. Alberta Transportation is under no obligation to reissue a permit if the development is not commenced before expiry of this permit
10. This permit approves only the development contained herein, and a further application is required for any changes or additions
11. The permittee expressly waives any right to claim damages or compensation (including injurious affection) for development, signs or other encumbrances that are located in the area designated as required for future widening of the right of way for highway improvement purposes as shown on an attached plan, or within 40 metres of the existing highway right of way and within 70 metres of the centreline of the nearest highway driving lanes.
12. This permit is issued subject to any other municipal, provincial, or federal approvals that may be required. Issuance of a permit by Alberta Transportation does not guarantee the permittee will be able to obtain other required approvals.

Failure to comply with the terms and conditions of this permit is an offense pursuant to Section 35 of the Highways Development and Protection Regulation (the Regulation), and may result in enforcement or penalties as described in Section 55 of the Act and Section 35-36 of the Regulation.



In consideration of the permit issued in respect to this development, the Permittee shall indemnify and hold harmless Alberta Transportation, its employees and agents from any and all claims, demands, actions and costs whatsoever that may arise, directly or indirectly from anything done or omitted to be done in the construction, maintenance, alteration or operation of the works authorized.

All works authorized by this permit shall be constructed, altered, maintained or operated at the sole expense of the Permittee. The Permittee consents to a person designated by Alberta Transportation to enter upon land during construction and again upon completion of construction for the purpose of inspection to ensure the terms and conditions of this permit are met.

**This permit is valid for a period of two years from the date of issuance.** If the work authorized by this permit has not commenced within this timeframe, the permit expires and the Permittee must submit a request for an extension, or reapply for a new permit, if they wish to proceed.

Issuance of this permit does not excuse violation of any regulation, bylaw, or act that may affect the proposed project.

If you have any questions about the permit or any of the conditions, please contact the undersigned.

Yours truly,

Chris Poirier  
Chris.P.Poirier@gov.ab.ca

Applicant's Name \_\_\_\_\_

Mailing Address \_\_\_\_\_

City \_\_\_\_\_ Province \_\_\_\_\_ Postal Code \_\_\_\_\_  
Phone # \_\_\_\_\_ Fax # \_\_\_\_\_ Email \_\_\_\_\_

Landowner's Name (if different from above) \_\_\_\_\_

Mailing Address \_\_\_\_\_

City \_\_\_\_\_ Province \_\_\_\_\_ Postal Code \_\_\_\_\_  
Phone # \_\_\_\_\_ Fax # \_\_\_\_\_ Email \_\_\_\_\_

**APPLICATION IS HEREBY MADE TO:** (Please provide a description of the proposed development including all proposed above and below ground installations. Attach a written report if necessary.)

\_\_\_\_\_  
\_\_\_\_\_

**NOTE: 1: Attach a plan showing in detail the location of all existing and proposed development.**  
**2: Include the GPS Coordinates for any access installation proposals. (Decimal degrees, WGS-1984)**

**Property Information**

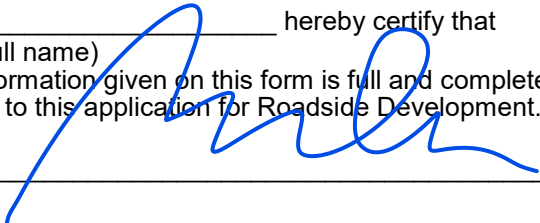
(NE, NW, SE, SW ¼)	Section	Township	Range	West of Meridian
Lot	Block	Plan Number	Parcel size (acres or hectares)	

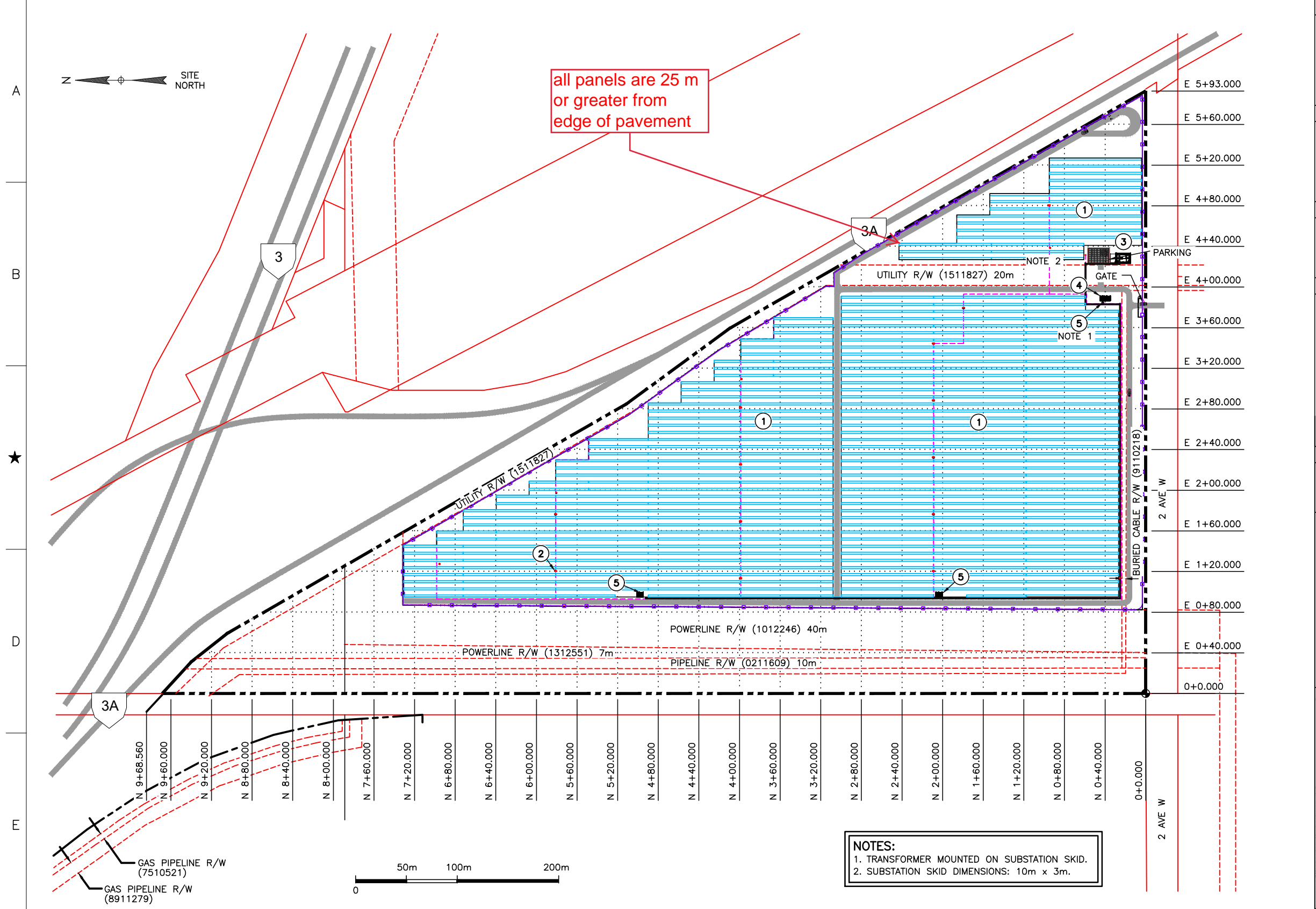
Highway No.	Distance of the proposed development to the highway right of way boundary.	General property location in relation to an urban municipality or other highway. (ie: 2 km east of ...)

Name of Municipality	Existing / Proposed Land Use	Estimated cost of proposed development

**It is understood that all works will be constructed, altered, maintained or operated at the sole expense of the undersigned, and that any work must not begin before a permit has been issued by Alberta Transportation.** In consideration of any permit issued in respect to this application, the Applicant shall indemnify and hold harmless Alberta Transportation, its employees and agents from any and all claims, demands, actions and costs whatsoever that may arise, directly or indirectly from anything done or omitted to be done in the construction, maintenance, alteration or operation of the works authorized. The Applicant also consents to a person designated by Alberta Transportation to enter upon land for the purpose of inspection during the processing of this application.

I \_\_\_\_\_ hereby certify that \_\_\_\_\_ I am the registered owner  
(print full name) \_\_\_\_\_ I am authorized to act on the owner's behalf  
and that the information given on this form is full and complete and is, to the best of my knowledge, a true statement of facts relating to this application for Roadside Development.

(Signed)  \_\_\_\_\_ (Date) \_\_\_\_\_



all panels are 25 m or greater from edge of pavement

**NOTES:**  
 1. TRANSFORMER MOUNTED ON SUBSTATION SKID.  
 2. SUBSTATION SKID DIMENSIONS: 10m x 3m.

**GENERAL NOTES**  
 COORDINATES: LSD 1/4-10-9-22 W4M  
 ADDRESS: 2910 WESTSIDE DRIVE W, LETHBRIDGE, ALBERTA  
 SUN ANGLE/DATE: 16.65°/21.12.2021 12:22  
 NOMINAL DC-POWER: 10.7 MW DC  
 NOMINAL AC-POWER: 8.75MW AC  
 MODULE: LONGI LR5-72HBD 540-565M  
 INVERTER: SUNGROW 250KW CSA

**CONSTRUCTION**  
 TABLE: SINGLE AXIS TRACKING SYSTEM  
 TABLE TYPE: 1-P X 2 OR 3 STRING TRACKER  
 AMOUNT: 280 PCS  
 AXIS/TILT: EAST/WEST/-60° TO 60°  
 DIST. BETWEEN MODULES ON A TABLE: 12.5mm  
 DIST. BETWEEN TABLES IN A ROW: 7m  
 DIST. BETWEEN ROW IN A FIELD: 2m

**ELECTRICAL CONCEPT**  
 MAXIMUM SYSTEM VOLTAGE DC: 1500V  
 TOTAL NUMBER OF MODULES: 19825  
 STRING LENGTH: 25 MODULES  
 STRING PER INVERTER: 21-24  
 DC/AC RATIO TOTAL: 1.22

**LEGEND**

- MODULE TABLE
- ROAD
- NEW FENCE
- DEVELOPMENT AREA
- NEW DEVELOPMENT AREA
- SUBSTATION AREA
- OVERHEAD POSTS/LINE
- NEW EXCLUSION ZONE
- INTERCONNECTION LINE
- BURIED ELECTRICAL

**TOTAL AREA DEVELOPMENT**  
 TOTAL AREA: 297,568m<sup>2</sup>  
 USED AREA: 161,186m<sup>2</sup>  
 PARKING SPACES: 4

EQUIPMENT LIST	
ITEM#	DESCRIPTION
1	PV ARRAY
2	STRING INVERTER
3	OPERATIONS AND SCADA BUILDING
4	SUBSTATION
5	TRANSFORMER



DRAWING #	REFERENCE DRAWING TITLE	REV.	DATE	REVISION DESCRIPTION	PRJ#	DWN	CHKD	QC	ENG
		A	2021.09.21	ISSUED FOR REVIEW	217201	EB			
		B	2022.01.21	RE-ISSUED FOR REVIEW	217201	ZRD	NGZ		NGZ
		C	2022.03.25	RE-ISSUED FOR REVIEW	217201	EB			

ENGINEER STAMP / PERMIT

**ISSUED FOR REVIEW**  
 MARCH 25, 2022

CLIENT

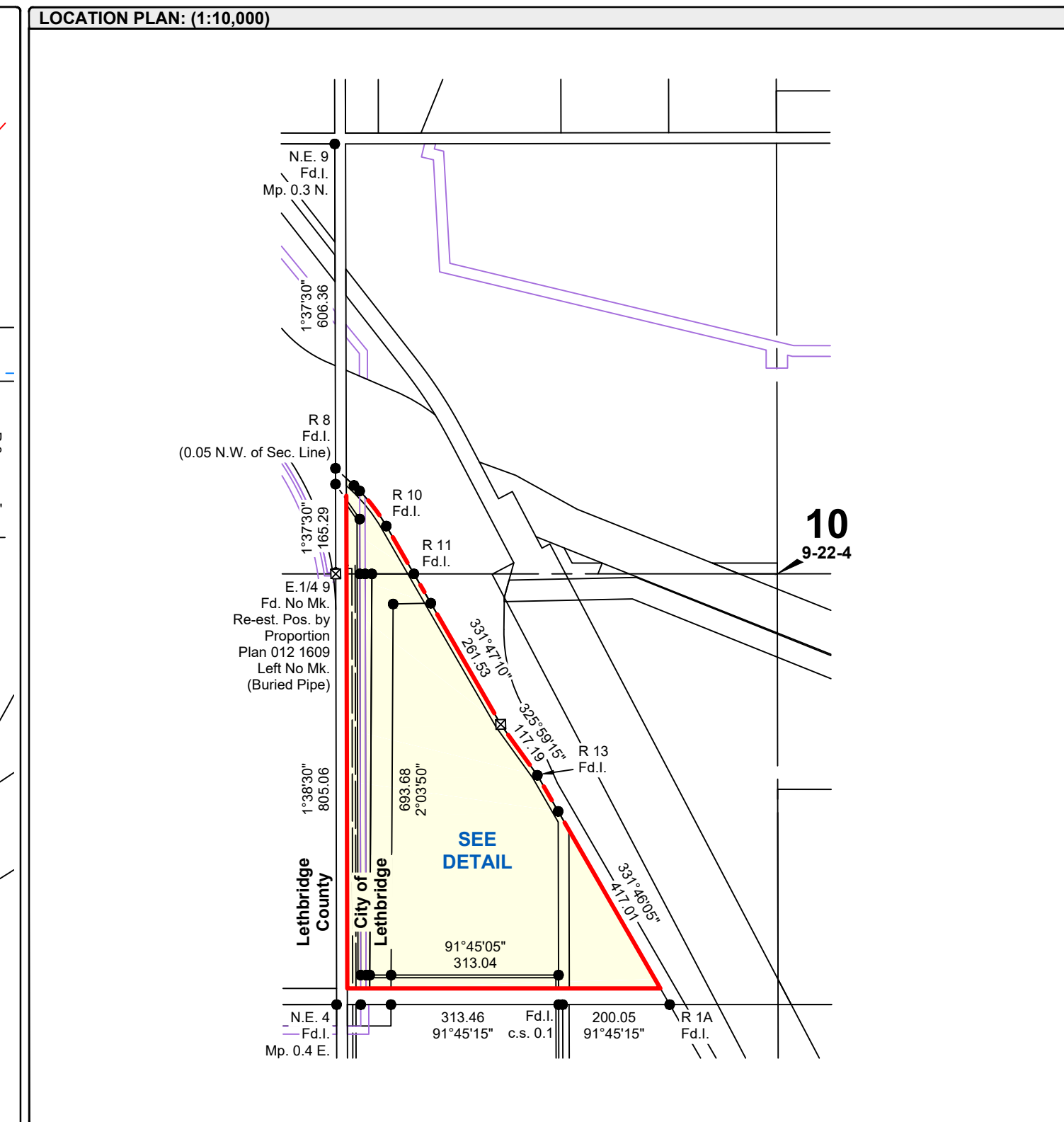
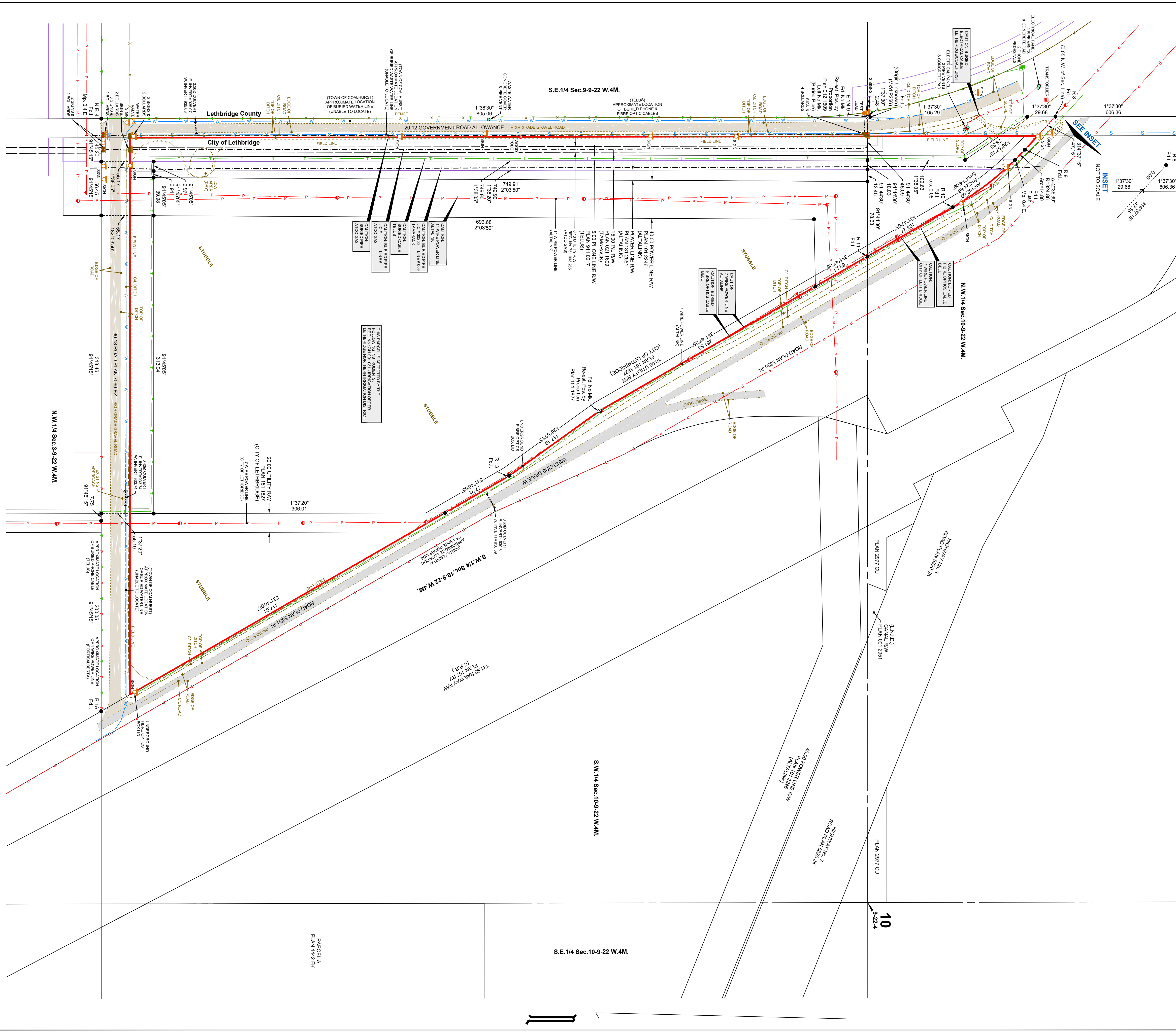
**BLUESTAR ENGINEERING LTD.**

NU-E LETHBRIDGE ONE  
 LSD 1/4-10-9-22 W4M  
 SOLAR FACILITY  
 SITE PLAN

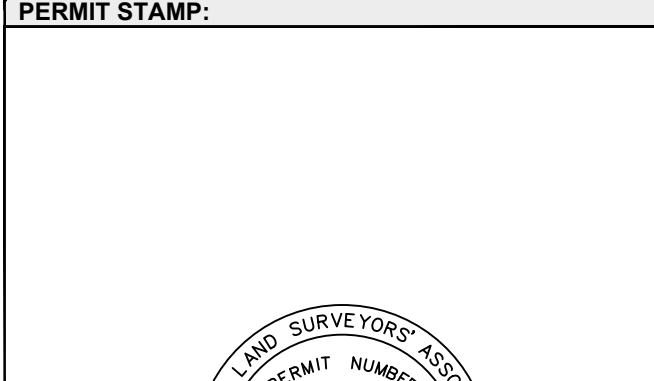
SCALE: 1:2000 SIZE: D PROJ.No. 217201  
 DWG.No. 217201-DG-SP-0010-01 REV C

\*PERMIT AND PROFESSIONAL STAMP AFFIXED APPLIES TO LATEST REVISION AS INDICATED IN TITLEBLOCK AND BY CLOUDED AREAS IF SHOWN.\*





**LANDOWNER:**  
 W.1/2 Sec.10-9-22 W.4M.  
 (Lying South and West of Plan 5820 JK)  
 Owner(s):  
 Northern DC Solar Inc.  
 Cert. of Title No.: 221 034 644



**AREAS:**

hectares	acres
28.906	71.43

**NOTES:**  
 AER information provided by IHS Energy  
 Distances are ground and in metres and decimals thereof.  
 Bearings are UTM Grid, NAD 83 (CSRS) Reference Meridian 111° (Zone 12N),  
 and are derived by GNSS observations.  
 Combined Scale Factor: 0.999690

**GEODETIC DATUM:** NAD 83 (CSRS) Epoch 2002  
 CGVD25 HTV2 Hybrid Geoid Model  
 SCALE 1:2000

**LEGEND:**

Statutory Iron Post Found:	●	Gravel Surface:	▨	Sign:	⚠
Non-Monumented Point:	⊠	Asphalt Surface:	▩		
Area referred to:	▭	Transformer:	⊞		
New Area:	▭	Power Pole:	⊞		
Power Line:	— P —	Electrical Panel:	⊞		
Buried Electrical Cable:	— E —	Phone Pedestal:	⊞		
Buried Phone Cable:	— T —	Bollard:	⊞		
Buried Fibre Optics Cable:	— F —	Culvert:	⊞		
Buried Pipe:	— B —	Test Lead:	⊞		
Low Pressure Gas Utility:	— G —	Valve:	⊞		
Buried Waste Water Line:	— W —	Pipe Vent:	⊞		
Buried Water Line:	— W —				
Fence Line:	— X —				
Field Line / Vegetation Change:	— V —				
Toe of Slope:	— T —				
Top of Slope:	— T —				
Top of Ditch:	— T —				
C/L Road:	— R —				

NOTE: Positions of buried facilities shown are derived from interpretations of signals from electronic devices. Reception of electronic signals is subject to interference and has limitations. Therefore it should not be assumed that all buried facilities are shown, and facilities which are shown should not be construed as "located" until physically exposed. All underground installations should be marked by the respective authorities prior to excavation or construction.  
 Alberta One Call: 1-800-242-3447

**OPERATOR:**  

# NU-E Corp.

**PLAN SHOWING:**  
**Topographic Site Plan**  
 part of  
**W.1/2 Sec.10**  
**Twp.9 Rge.22 W.4M.**

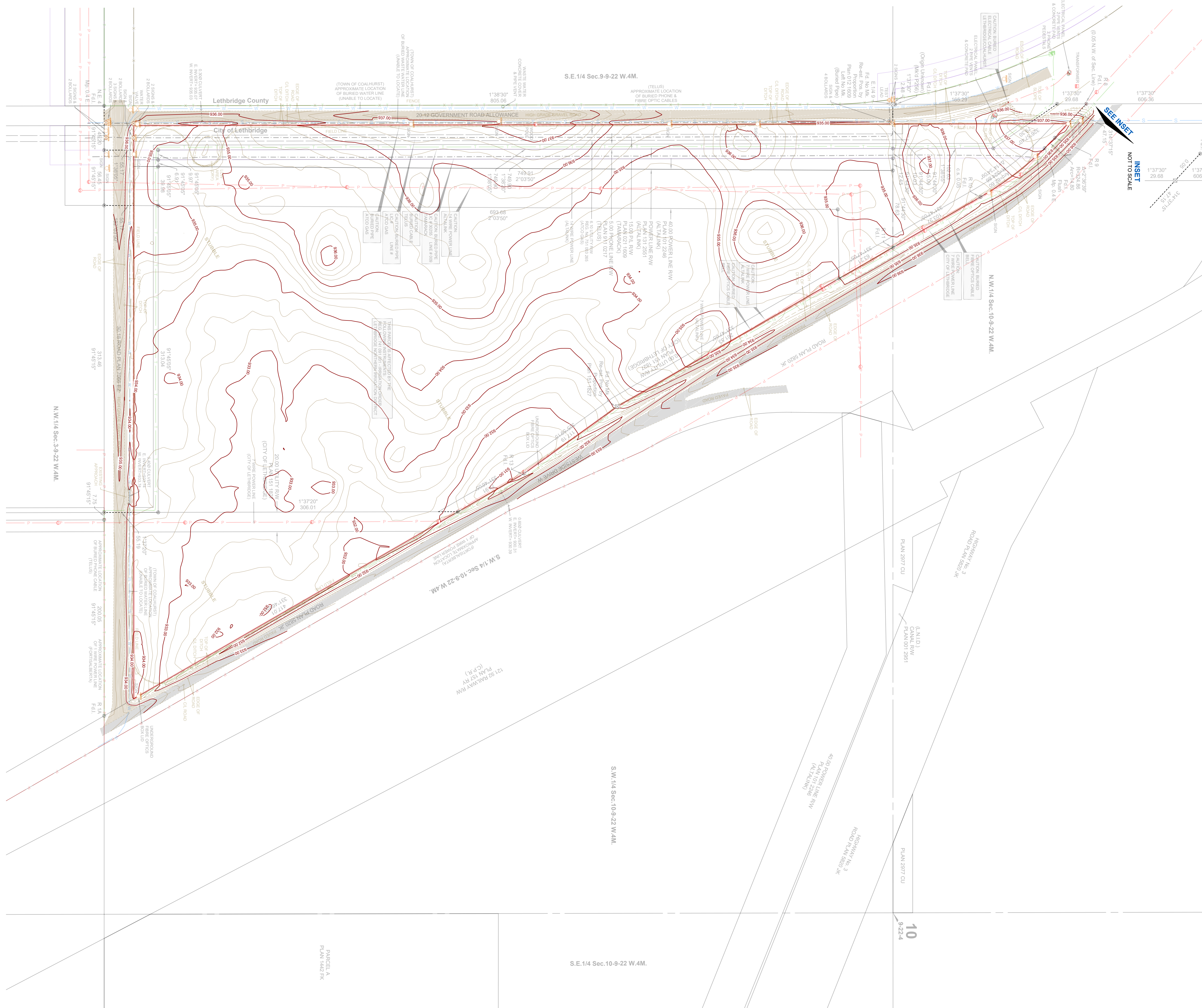
**City of Lethbridge**

No.	DATE	REVISION / ISSUED	JOB No.	PAGE 1 OF 2
1	MAR 4, 2022	PLAN ISSUED	MH-0070-22	<b>1</b>
	MAR 10, 2022	UPDATED LANDOWNER INFORMATION	MH-0070-22	
P.O. No.: 21-00005		MSI Ref. No.: MH-0316-21-J1	REVISION	
Proj. No.: Lethbridge One		SURVEYED BY: WWRB	CALC'D BY: BS	DRAWN BY: DM

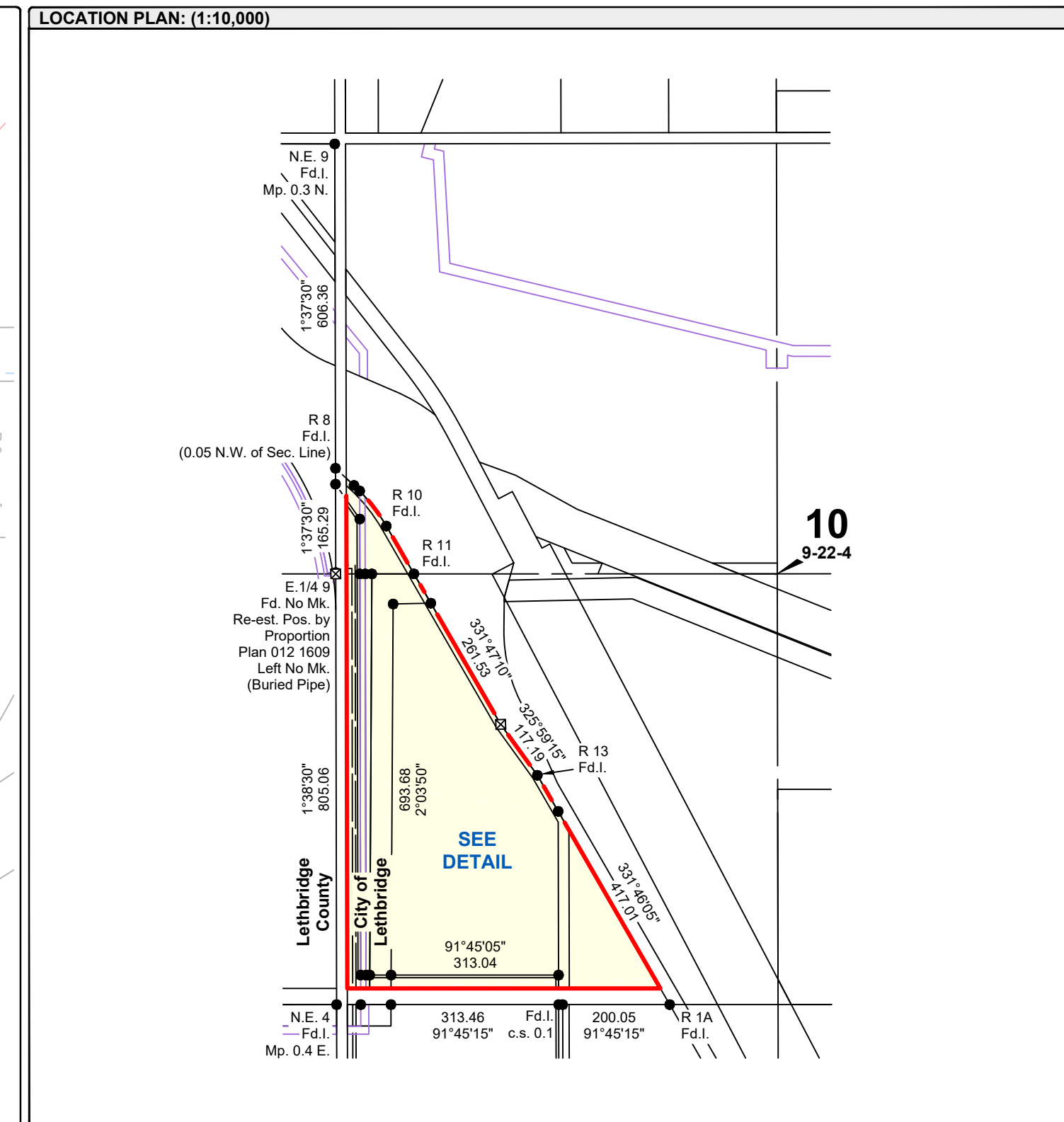
MIDWEST SURVEYS INC.  
 100 - 1825 BOMFORD CRES SW  
 MEDICINE HAT, AB  
 T1A 5E8  
 TEL: 403-527-2944

DETAIL  
 SCALE - 1:2000





DETAIL  
SCALE - 1:2000



**LANDOWNER:**  
W.1/2 Sec.10-9-22 W.4M.  
(Lying South and West of Plan 5820 JK)  
Owner(s):  
Northern DC Solar Inc.  
Cert. of Title No.: 221 034 644

**PERMIT STAMP:**



**AREAS:**

hectares	acres
28.906	71.43

**NOTES:**  
AER information provided by IHS Energy  
Distances are ground and in metres and decimals thereof.  
Bearings are UTM Grid, NAD 83 (CSRS) Reference Meridian 111° (Zone 12N),  
and are derived by GNSS observations.  
Combined Scale Factor: 0.999990

**GEODETIC DATUM:** NAD 83 (CSRS) Epoch 2002  
CGVD25 HTV2 Hybrid Geoid Model  
SCALE 1:2000

**LEGEND:**

Statutory Iron Post Found: ●	Gravel Surface: [Symbol]	Sign: [Symbol]
Non-Monumented Point: [Symbol]	Asphalt Surface: [Symbol]	
Area referred to: [Symbol]	Transformer: [Symbol]	
New Area: [Symbol]	Power Pole: [Symbol]	
Power Line: [Symbol]	Electrical Panel: [Symbol]	
Buried Electrical Cable: [Symbol]	Phone Pedestal: [Symbol]	
Buried Phone Cable: [Symbol]	Bollard: [Symbol]	
Buried Fibre Optics Cable: [Symbol]	Culvert: [Symbol]	
Buried Pipe: [Symbol]	Test Lead: [Symbol]	
Low Pressure Gas Utility: [Symbol]	Valve: [Symbol]	
Buried Waste Water Line: [Symbol]	Pipe Vent: [Symbol]	
Buried Water Line: [Symbol]		
Fence Line: [Symbol]		
Field Line / Vegetation Change: [Symbol]		
Toe of Slope: [Symbol]		
Top of Slope: [Symbol]		
Top of Ditch: [Symbol]		
C/L Road: [Symbol]		

NOTE: Positions of buried facilities shown are derived from interpretations of signals from electronic devices. Reception of electronic signals is subject to interference and has limitations. Therefore it should not be assumed that all buried facilities are shown, and facilities which are shown should not be construed as "located" until physically exposed. All underground installations should be marked by the respective authorities prior to excavation or construction. Alberta One Call: 1-800-242-3447

**OPERATOR:**

NU-E Corp.

**PLAN SHOWING:**  
**Topographic Site Plan**  
part of  
**W.1/2 Sec.10**  
**Twp.9 Rge.22 W.4M.**

**City of Lethbridge**

No.	DATE	REVISION / ISSUED	JOB No.	PAGE 2 OF 2
1	MAR 4, 2022	PLAN ISSUED	MH-0070-22	1
	MAR 10, 2022	UPDATED LANDOWNER INFORMATION	MH-0070-22	
P.O. No.: 21-00005		MSI Ref. No.: MH-0316-21-J1	REVISION	
Proj. No.: Lethbridge One		SURVEYED BY: WWRB	CALC'D BY: BS	DRAWN BY: DM

MIDWEST SURVEYS INC.  
100 - 1825 BOMFORD CRES SW  
MEDICINE HAT, AB  
T1A 5E8  
TEL: 403-527-2944



## Chris P Poirier

---

**From:** pamel@nu-ecorp.com  
**Sent:** May 18, 2022 1:40 PM  
**To:** Chris P Poirier  
**Subject:** FW: Hwy 3A Solar Panels  
**Attachments:** solar-arrays.pdf; shelterbelts.pdf

**CAUTION: This email has been sent from an external source. Treat hyperlinks and attachments in this email with care.**

Good afternoon Chris,

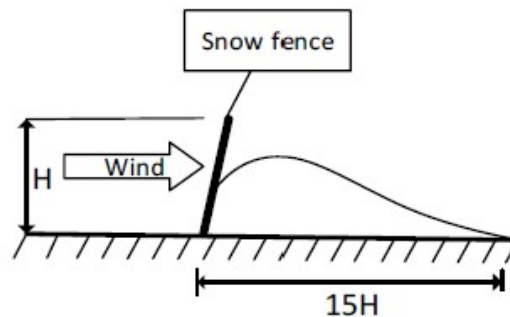
Reference: Colorado Department of Transportation- Potential Impacts of Solar Arrays on Highway Environment, Safety and Operations- Report No. CDOT-2015-058 (dated October 2015)  
PDF Page 31 5.4.2 Snow Drifting Analysis

A model for snow drifting and the potential of snow accumulation on the highway is proposed by Tabler (Tabler, 1994b). In Colorado (eastern plains) wider diurnal temperatures melt snow away and reduces the probability of snow accumulation from one storm to the next. The following equation could be used to locate setback distance (distance of the fence from the edge of the road) based on the height of the snow fence to stop the snow drifting to the road.

$$S = 15H \quad \text{Equation 1}$$

As shown in equation 1, H is the height of the snow fence and S is the setback distance for snow accumulation (fetch distance) from the fence. A schematic of snow deposition pattern in a snow fence is shown in Figure 19.

**Figure 19. First Stage of Snow Drifting**



As shown in Figure 19, most of the snow accumulates within a few feet of the fence and slowly trails off. Depending upon the height of the fence and its distance from the road, the amount of snow that reaches the road could be determined. For example, if a solar panel support structure has a height of 10 feet the fetch distance (S) is 150 feet assuming the panel will act as a snow fence (having a porosity of 0.5). For Site-1 as described previously with a ROW width of 328 ft., there is enough space to install the panels away from the required fetch distance of 150 ft. to settle down the snow. This suggests that if a PV array is installed at this site, it will not contribute to highway snow drifting. However, snow modeling of each potential site is necessary to understand the snow drifting behavior of that location.



Lethbridge One:

Fence: The perimeter fence is 20m or greater from the hwy3A road edge

S=15(8ft fence)

S=120ft (36.576m)

**S=36.576m/2 (adjust for the porosity difference between snow fence and chain link fence)**

**S= 18.288m**

Note S=15H methodology is calculating a snow fence, a snow fence has a porosity of 40-50%

**Note Lethbridge One design is using an 8ft chain link fence, a chain link fence has a porosity of 13.8%**

Panels: The solar panels are 25m or greater from the hwy3A road edge

S=15(4.9ft/1.5m)

S=73.5ft/22.4028m

In conclusion, the proposed layout has sufficient fetch distance for both the fence and panels, the project is not expected to contribute to snow drifting on hwy3A. The panels are tilted due-south, track east to west. During heavy snow fall/winter storm conditions the panels safety controls put the panels in a stow position. T - the panel is in a flat position. It is of NU-E's opinion a shelterbelt is not required.

Feel free to call to discuss

Thanks

Pamela

**Pamela M. Pelletier**  
**Development Manager**  
**403-860-5685**



**6404 6A Street SE**  
**Calgary, AB T2H 2B7**

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**From:** Chris P Poirier <Chris.P.Poirier@gov.ab.ca>

**Sent:** May 17, 2022 4:53 PM

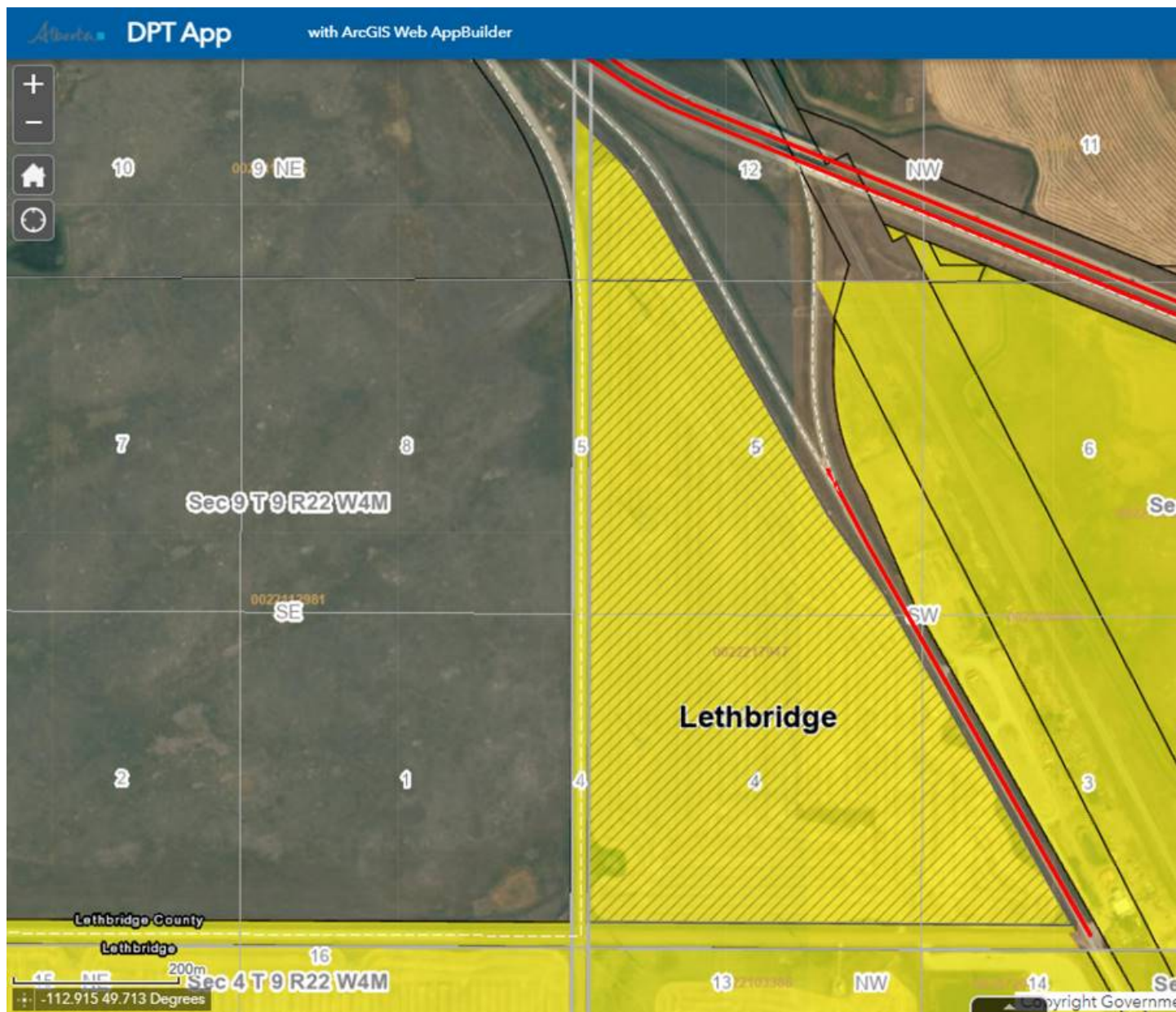
**To:** pamela@nu-ecorp.com

**Subject:** Hwy 3A Solar Panels

Hi Pamela.

I was able to quickly confirm that the segment of road we were discussing is in fact provincial Highway 3A (3A:09).

Below is the screenshot we were looking at. Yellow is City of Lethbridge.



I found the guideline I mentioned regarding placement of shelterbelts with respect to snow drifting in case it's of any value. See attached. The distances quoted may be higher than what would be required as solar panels have a very different cross-sectional shape than trees / shrubs / bushes.

Also found a paper on snow drifting as it relates to snow drifting and highways. I would suspect there is some good information in there. Also attached.

As mentioned, I'd be looking for some analysis, citing a methodology, indicating that snow drifting potential has been considered and either (a) was found to be a problem so adjustments were made (likely by increasing the setback) or (b) no snow drifting should be expected. Either way, in the terms and conditions of the roadside development permit there will be content on drifting indicating that if it is found to be created by the development and negatively impacting the highway, we'd reserve the right to have it addressed to our satisfaction.

Feel free to call back if you still have questions.



Regards,

**Chris Poirier**, P.L.(Eng.), RSP1  
Development and Planning Technologist  
Construction and Maintenance Division, Southern Region  
Alberta Transportation  
Government of Alberta

Tel 403-388-3174  
Cell 587-220-5397  
[chris.p.poirier@gov.ab.ca](mailto:chris.p.poirier@gov.ab.ca)



Classification: Protected A

## TRANS Development Lethbridge

---

**From:** pamelanu-ecorp.com  
**Sent:** May 4, 2022 2:46 PM  
**To:** TRANS Development Lethbridge  
**Subject:** Roadside development application  
**Attachments:** tr-roadside-development-application\_NU-E 05042022.pdf; NU-E CORP. SITE PLAN - W 10-9-22-W4M (MH-0070-22-J1-STE\_REV0)-FINAL.PDF; Lethbridge One Site Layout.pdf

**CAUTION: This email has been sent from an external source. Treat hyperlinks and attachments in this email with care.**

Good afternoon,

On behalf of NU-E Corp and the Lethbridge One Solar Energy Project please find attached Roadside Development Application. Included is the site survey and site layout.

Should you require anything further, please get in touch.

Thanks

Pamela

**Pamela M. Pelletier**  
**Development Manager**  
**403-860-5685**



**6404 6A Street SE**  
**Calgary, AB T2H 2B7**

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