

Project/Environmental/Regulatory Manager

[illegible]



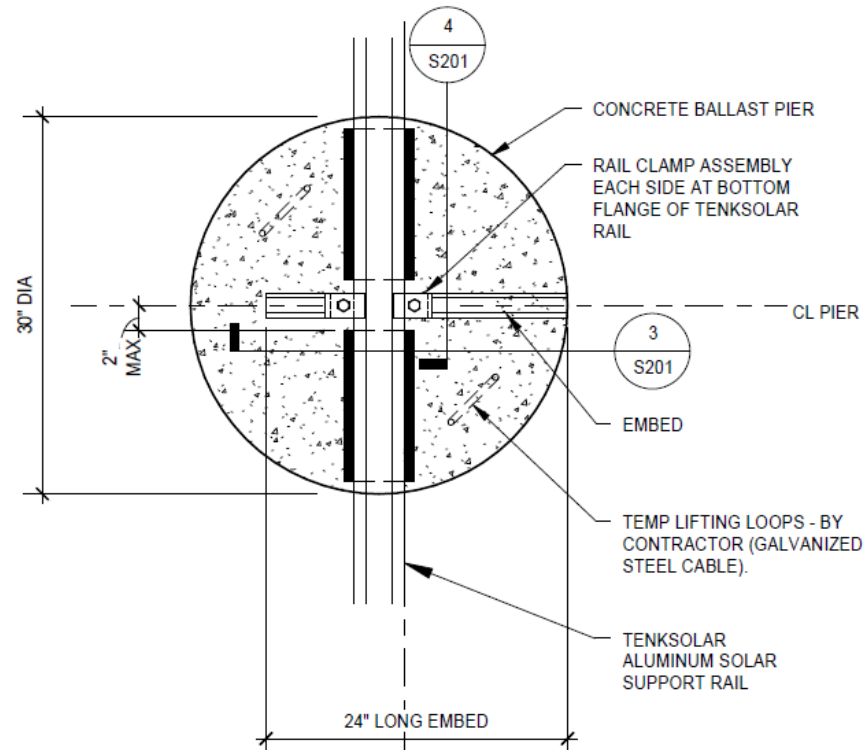
Site Preparation Panoramic



Site Preparation Aerial



Ballast Piers 18"H x 30"D - 410 total



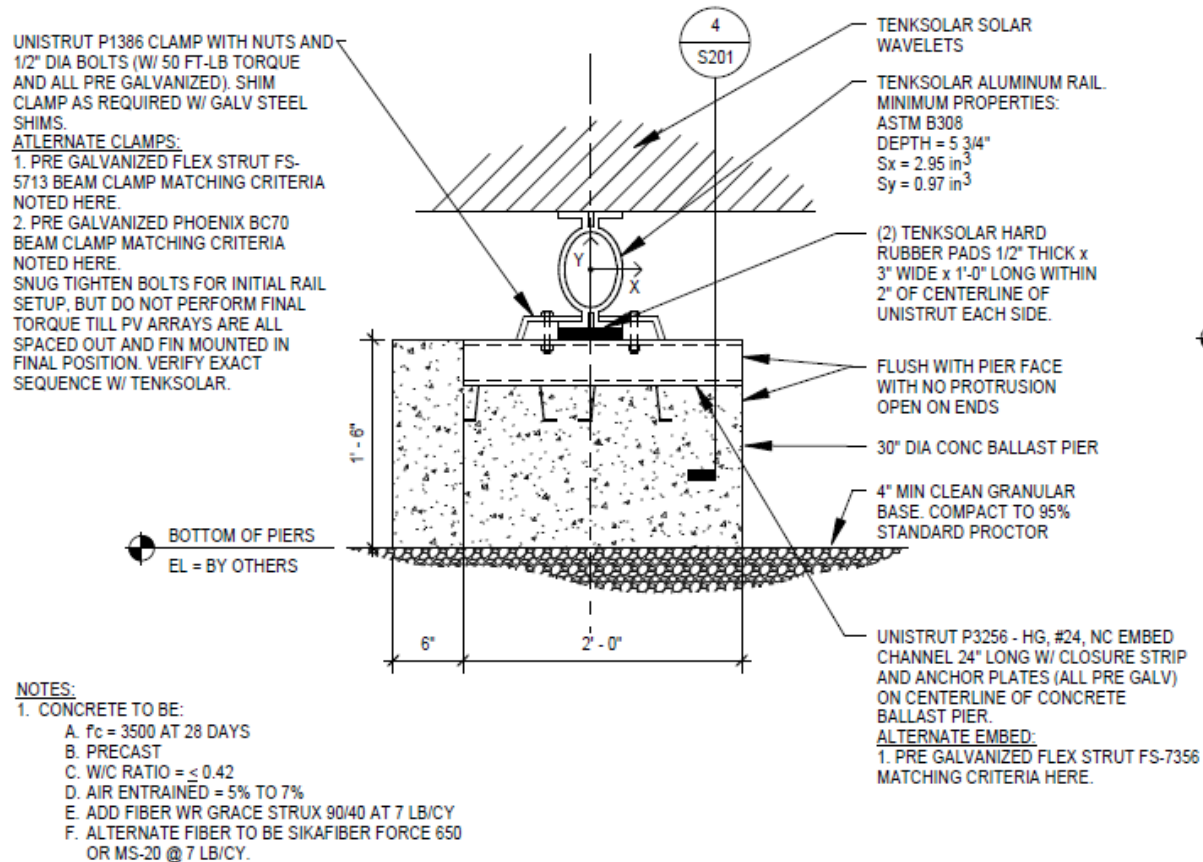
NOTES:

1. TEMP LIFT LOOPS TO BE GALVANIZED CABLE RATED FOR LIFT LOADS WITH SAFTY FACTOR = 5.

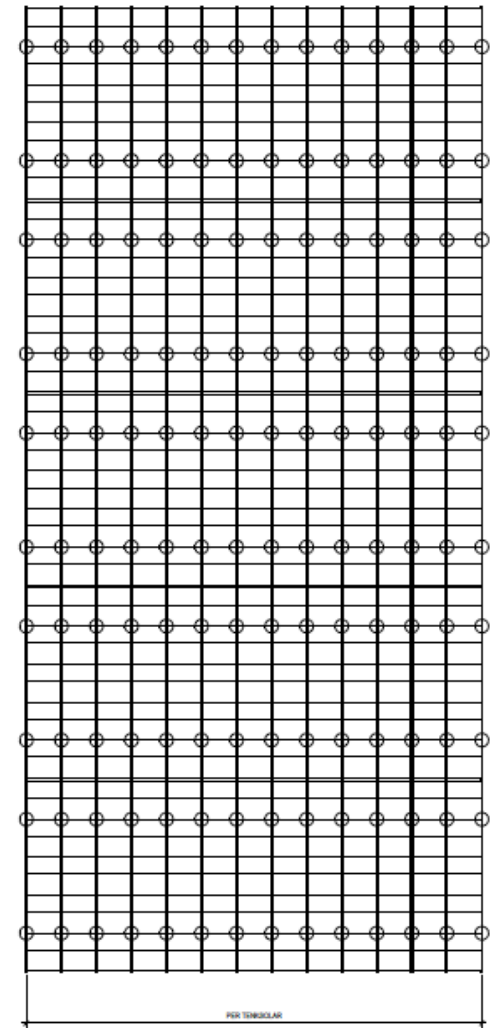
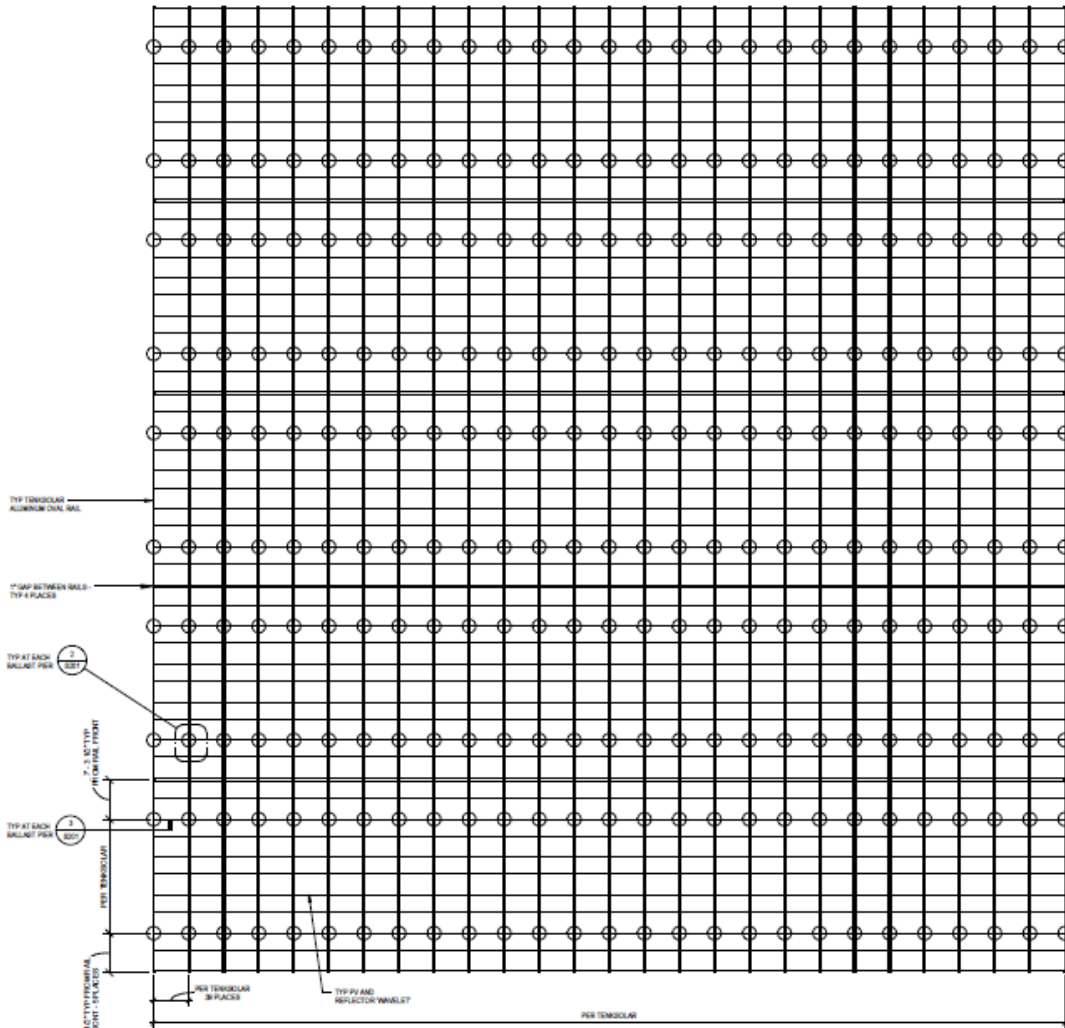
**PLAN AT TOP OF BALLAST PIER (BOTTOM FLANGE
OF TENKSOLAR RAIL)**

2
S201

1" = 1'-0"



3 SECTION AT BALLAST PIER
S201 1" = 1'-0"



PLAN NOTES (UNLESS NOTED OTHERWISE):

1. NO GEOTECHNICAL RECOMMENDATIONS HAVE BEEN PROVIDED FOR THIS PROJECT SITE. WEI CANNOT TAKE ANY LIABILITY RELATED TO GROUND MOVEMENTS OR SETTLEMENTS OF HEAVY DRAINAGE WALLS. SPECIALTY GEOTECHNICAL CONSULTANT IS REQUIRED TO VERIFY THE NEW WEIR SHOWN ON THESE DOCUMENTS WILL NOT BE EXISTENTIALLY IMPACTED BY SUBGRADE INSTABILIZATION/GEOTECHNICAL CONDITIONS OVER THE SERVICE LIFE OF THIS SYSTEM AND INSTALLATION SHALL MAKE PLANS FOR REGULAR ADJUSTMENTS OF CONCRETE PILING ANCHOR WALLS AT BEARING POINTS TO MAINTAIN PROPERLY HEAVING SYSTEM.



FOUNDATION PLAN
 100' = 1" = 10'





Pier Layout



First rows being installed



Ballasted Fence Installation





Ballasted Fence Completed



All Panels Installed

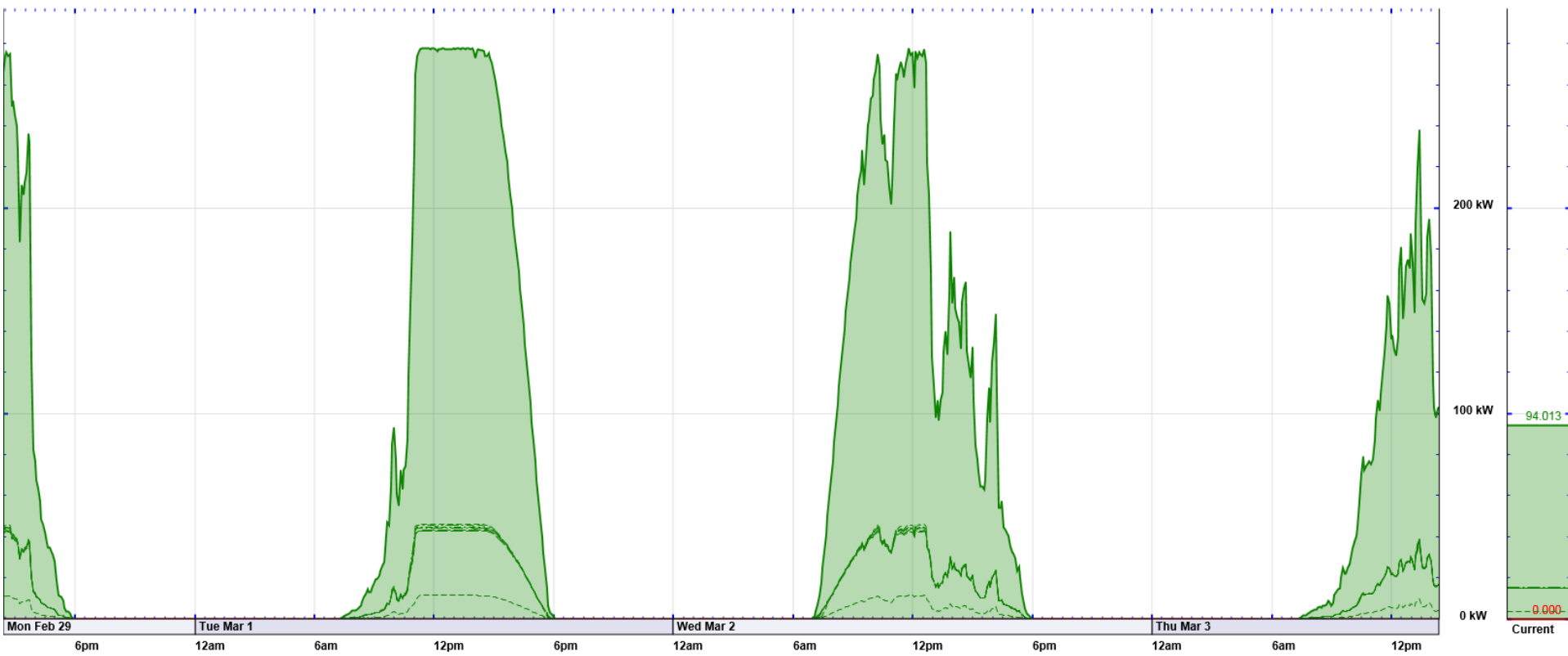


Reflective Panels





Independent Support Rails



e-Gauge Monitoring System

<http://www.ci.hutchinson.mn.us/departmentsfacilities/public-works/park-garage/greenstep-cities/>





Work Zone Cam w/Time Lapse Video

<http://www.ci.hutchinson.mn.us/departmentsfacilities/public-works/park-garage/greenstep-cities/>

City of Hutchinson Solar PV Project History

- **October, 2011: Westwood:** Renewable Energy Suitability Study
- **June – Sept, 2012:** Staff and Council discussions regarding Solar PV project
- **October, 2012:** Signed “***Agreement Letter***” to Develop a Solar PV System
- **March 2013:** Xcel Energy RDF Proposal Submitted
- **March 12, 2014:** [Xcel Award Letter received by the City](#)
- **April 23, 2014:** Planning meeting to move forward
- **May – September:** Updated Xcel Award requirements
 - Further developments per the Term Sheet and site requirements
- **October 14, 2014:** Term Sheet executed with AMERESCO
- **December 23, 2014:** Energy Service Agreement w/AMERESCO
- **June 19, 2015:** Xcel Grant Contract approved
- **October – November 2015:** Construction of System ***11/25/15 Commissioned***



Solar PV Project Specifics

- Solar PV size = 400 KW = 470,070 kwh/year guaranteed (80% derated from actual) (Actual = 587,587 kwh/year) ~15% of the WWTP Annual Load
- Utility costs = 0.737/kwh and annual increases = 1.5%
- Solar System Payback = 18 years (~14 years using higher than guaranteed system output)
- At year 30, system has generated \$370,000 – after paying for itself
- Pricing = \$1,467,000
 - Xcel Grant = \$958,360

Solar PV Site Land Use Challenges

- **Emergency Services Training Site (Police & Fire)**
- **Stockpiling Public Works Materials**
- **State Bonding \$ used for improvements 1999**
 - Office of M&B approval to proceed
- **City Dump Site 1950-1980**
 - Phase I Assessment 1999
 - VIC Program April 2002
 - Phase II Assessment June 2002
 - Additional Assessment September 2002
 - Restrictive Covenant July 2007
 - *No disturbance without MPCA approval*
 - RAP November 2007



Solar PV Site Land Use Challenges

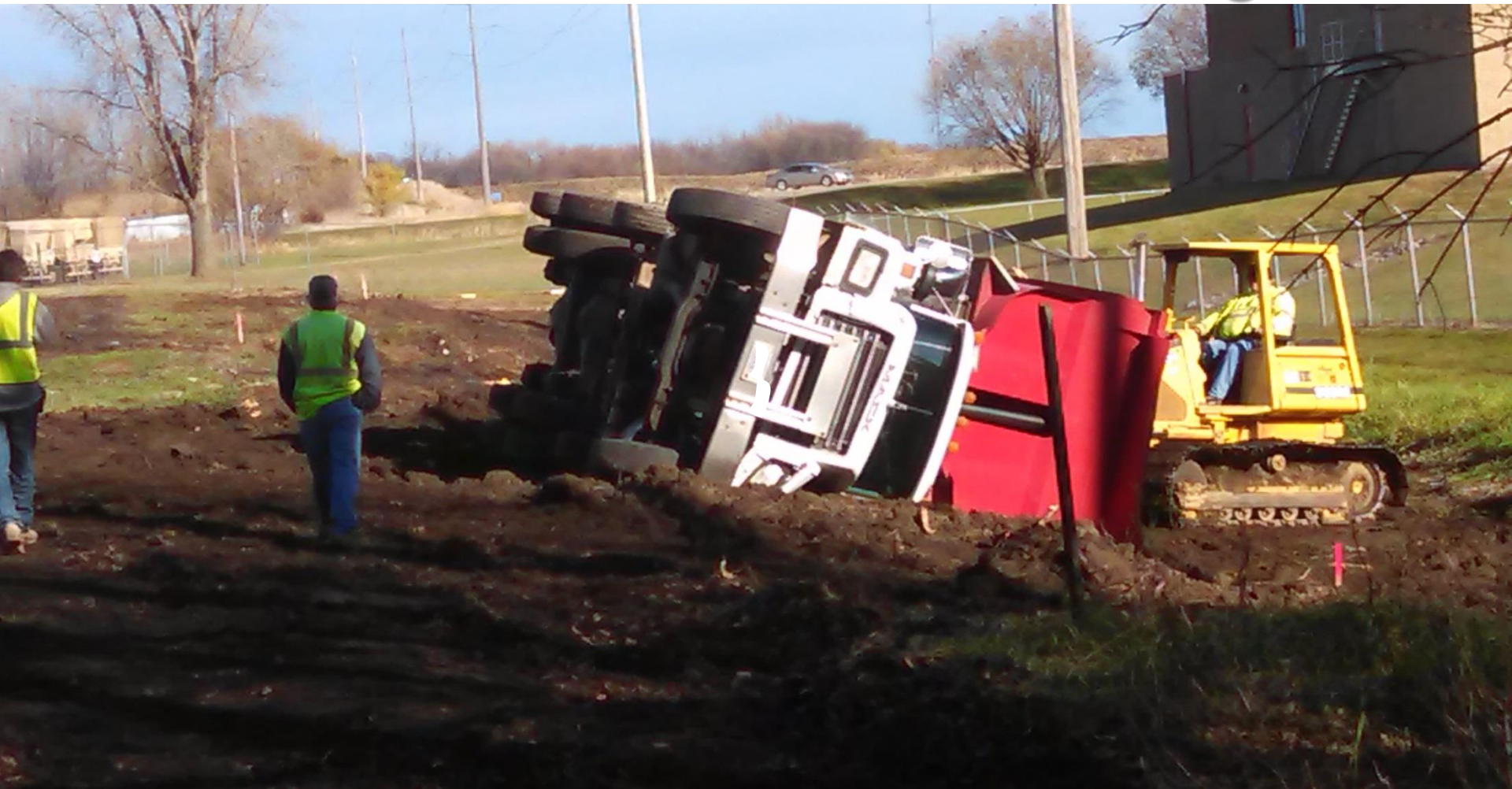
- **RAP and Covenant Requirements**
 - Construction Contingency Plan
 - Site Health and Safety Plan
 - Routine inspections of site and LEL monitoring
 - **NO PENETRATIONS!**
- **Design Considerations**
 - Compacted clay fill over existing cover
 - Geotextile
 - Clean granular over Geotextile
 - **DIFFERENTIAL SETTLEMENT**
 - *Undisturbed 10 years (Manufacturer White Paper)*
 - Density Testing

Project Outreach and Awareness

- **Minnesota Brownfields Presentation**
 - Wide variety of brownfields professionals coming together to discuss solar PV development on brownfields
 - Excellent feedback and inquiries
 - Lee Gabler, Xcel Energy's Senior Director of Customer Strategy and Solutions also presented
- **Hutchinson Leader Newspaper** Multiple articles about the project
- **Clean Energy Research Teams** Highlighted project in newsletter
- **LinkedIn Project Post** Over 100 views
- **MPR Interview** Interview 3/29/16, has not aired yet
- **Mn Wastewater Operators Association Central Section Meeting**
 - Presentation this morning 4/12/16 to 30+ Wastewater Professionals
- **Hutchinson City Website with e-Gauge and Workzone Cam**



Solar PV Construction Offsite Challenges



Different Project Adjacent to Solar PV Project



Questions and Comments

