

**Exhibit K**  
**Drain Tile Mitigation Plan**

**Cardno**

**January 2021**

# Drain Tile Mitigation Plan

## Pleasant Prairie Solar Energy Project

January 2021, Draft





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## Document Information

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# 1 Introduction

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Pleasant Prairie Solar Energy, LLC (Pleasant Prairie) is developing the Pleasant Prairie Solar Energy Project (Project), a 250 megawatt (MW) solar energy facility located in Franklin County, Ohio (Figure 1). As part of the planning for this site, Cardno, Inc. has developed this Drain Tile Mitigation Plan to ensure the continued operation of the existing drainage tiles within and adjacent to the Project.

The Facility lies entirely within the drainage of Big Darby Creek Watershed which flows south into the Scioto River and then to the Ohio River. More specifically, the site drains predominantly east to the Hellbranch Run drainage before flowing south into Big Darby Creek (Figure 2).

The Project will manage the existing and proposed surface and subsurface water management system to maintain or improve the overall drainage of the Project Area and limit point source discharge by abiding by licensed civil engineering principals and pursuing the applicable project permit approvals. The project will not substantially change the existing drainage patterns to maintain hydraulic function of the properties. The Project will obtain the Ohio Environmental Protection Agency (OEPA) NPDES Construction General Permit #OHC00005 which includes appendix A for the Big Darby Creek Watershed. Under this required permit, there are provisions for both during construction stormwater management to address erosion and transportation of sediments as well as post construction water quality treatment for disturbed earth areas. Both of the requirements within this general permit are required to be followed for a project of this size and type. The Project will also utilize information in the OEPA guidance document on 'Post-Construction Storm Water Controls for Solar Panel Arrays'. This document assists in the interpretation of the General Permit as the specialties of solar farms are not clearly outlined within the general permit. Final Civil plans that dictate stormwater management, will be prepared by a licensed civil engineer and approved prior to construction.

This report has been prepared for the purpose of demonstrating that Pleasant Prairie has provided consideration for all potential impacts and the subsequent mitigation of field drainage tiles.



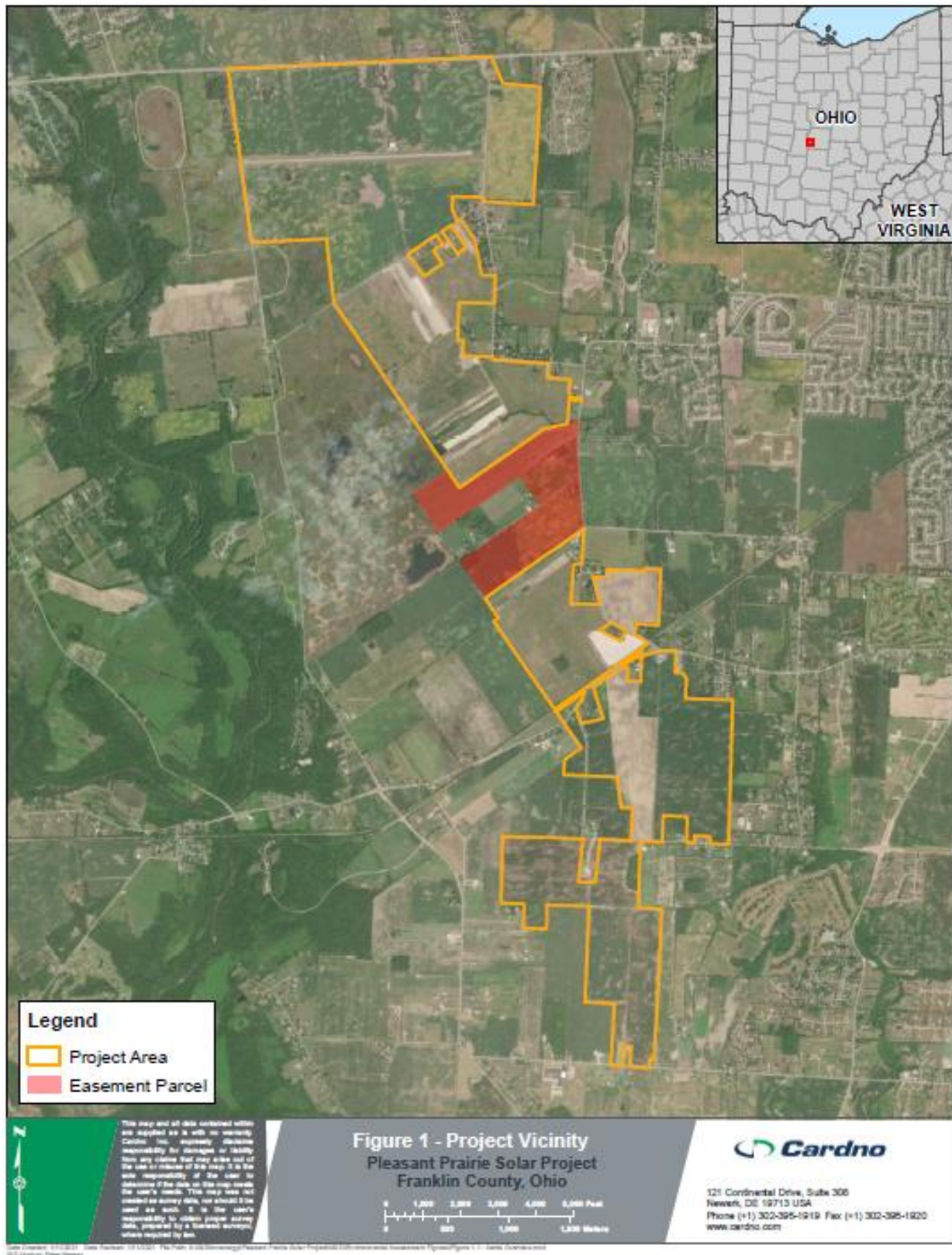


Figure 1. Pleasant Prairie Solar Project Vicinity Map in Central Ohio



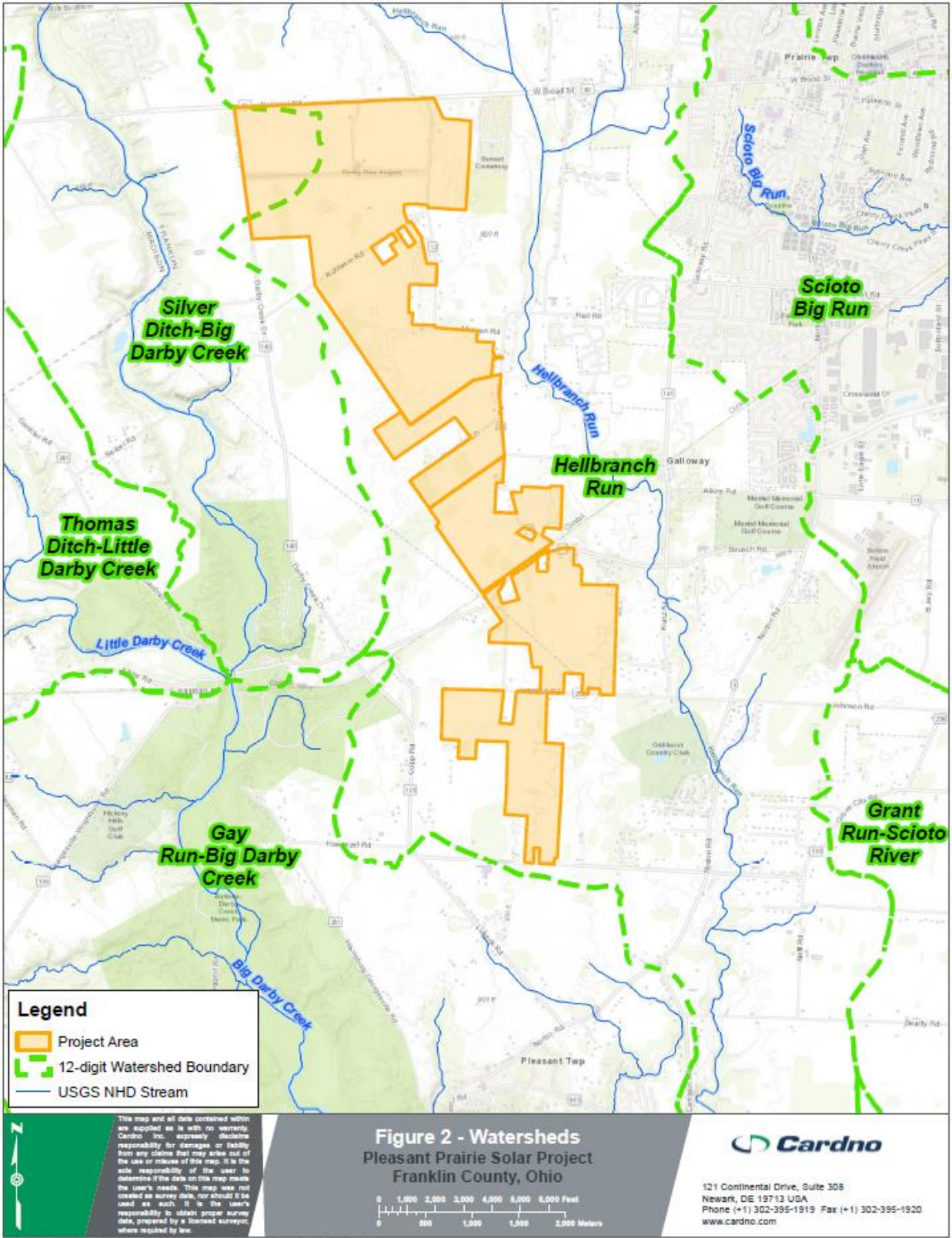


Figure 2. Pleasant Prairie Solar Project Watersheds in Franklin County, Ohio

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## 2 Drainage Tile Identification

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Prior to beginning any excavation work on the Project Pleasant Prairie solicited records from landowners on known drain tile their respective property, contacted Franklin County Soil Conservation District for county maintained tile, and reviewed aerial photographs available on Google Earth, and studied the Project for evidence of drainage tiles.

The drainage tiles appear to be limited to natural drainages or non-existent on the majority of the parcels within the Project with the exception of the eastern parcels south of Alkire Rd and north of Johnson Road as well as the southern portion parcel just north of Kropp Rd (Figure 3: Drain Tile Evaluation). When a lateral tile is discovered during excavation work, other tiles should be assumed present and contractors shall be vigilant in identifying lines that have been intercepted by construction work.

Drainage tiles were likely laid during various years and by different property owners. The lateral lines may be parallel with or perpendicular to ditches and streams and eventually connected to ditches or streams. Generally, drain tiles will run down gradient from perched depressions toward ditches and streams. However, drainage tile is frequently run through high areas in the field if required to connect multiple depressions to a single drainage tile line.

Lateral drainage tiles usually have a four inch inside diameter. If a tile is greater than four inches in diameter it likely indicates a drain line that includes additional lateral drains. Tiles that are greater than four inches in diameter shall receive higher priority for repairs.



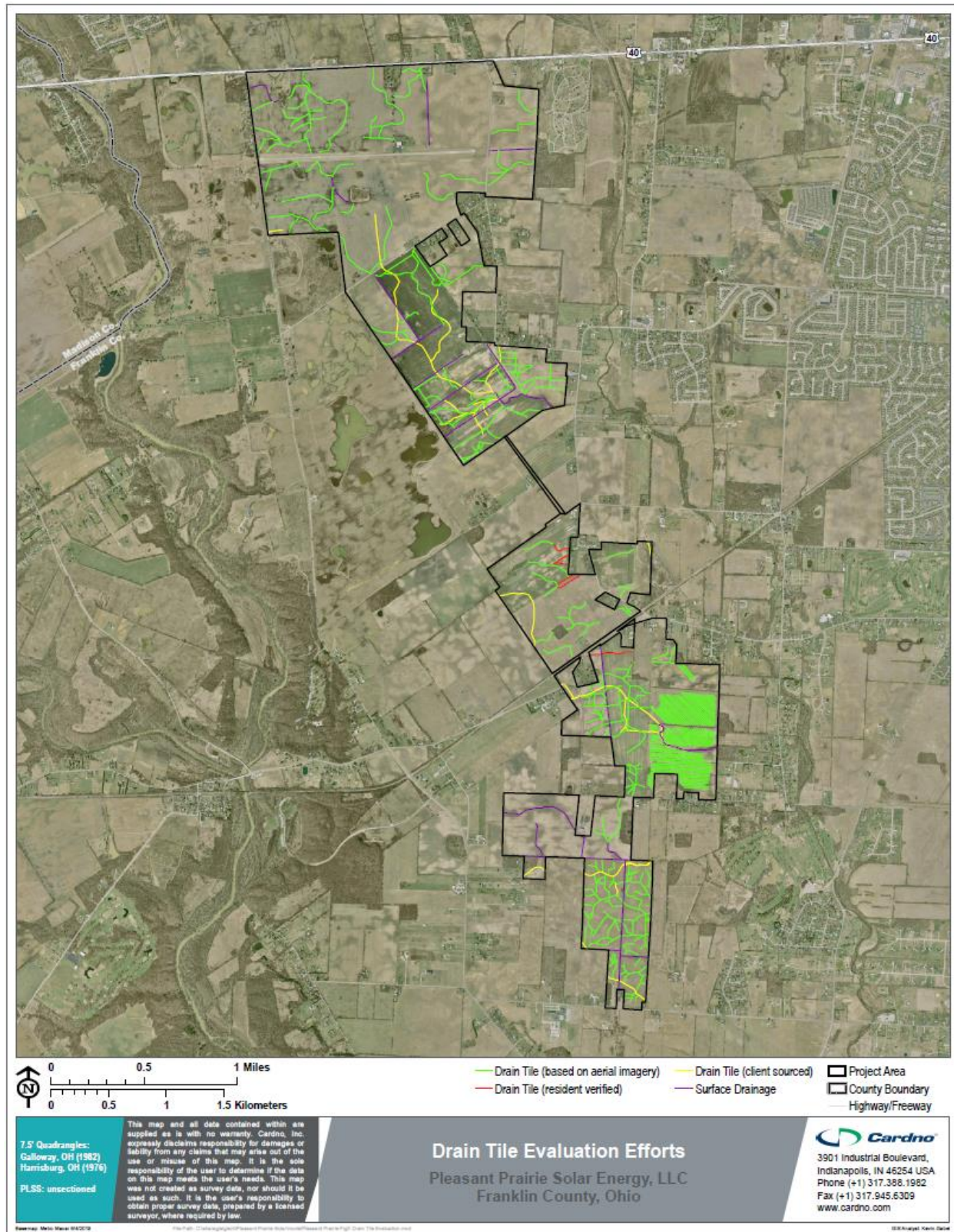


Figure 3. Drain Tile Evaluation

### 3 Drainage Tile Avoidance

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Pleasant Prairie will implement the following drain tile avoidance measures prior to construction:

1. Main line tiles as identified by adjacent and Project landowners will be mapped and considered in the site layout of the Project and avoided wherever practical;
2. Lateral tiles laterals if known, will be shown on at least one sheet of the final construction plans, with an estimated number of impact sites and avoided where practical with the layout of the Project;
3. Known main and lateral tile lines will be marked in the field prior to construction to facilitate avoidance.

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## 4 Drainage Tile Damage Identification

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Due to the unmapped nature of many private drainage tile systems, some damage to drain tiles is likely unavoidable. Damage indicators include the following:

1. Broken pipe (clay, concrete, or plastic pieces with a smooth or corrugated rounded surface) excavated from the ground, or discovered on the surface after excavating or grading;
2. Differential resistance during pile driving;
3. Unexpected flow of ground water to the surface;
4. Ponding in areas (especially uphill) otherwise not previously observed as being wet;
5. Sinkholes or voids in the surface especially after precipitation or snow melt.



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## 5 Drainage Tile Repair Approach

Pleasant Prairie contractors will implement the following protocols if broken drain tile is identified:

1. Unless otherwise agreed to by the landowner or adjacent landowner, underground drain tile main lines within the Project that are severed or damaged from construction activity will be repaired by a qualified contractor within 30 days of the discovery of damage, weather and soil conditions permitting.
  - a) Damaged lateral drain tiles fully contained within the proposed Project will be repaired on a case by case basis and only if the repair is necessary to prevent the intended use of adjacent property or the Project;
  - b) Regardless of landowner agreements, drain tile lines that are known, or suspected to extend outside of the Project boundaries, will be repaired.
2. Drainage tile repair or replacement will be completed by a qualified contractor and will adhere to the following standards:
  - a) Repairs to drain tile lines shall follow the typical drawing below (Figure 5);
  - b) All subsurface drainage tile main lines shall be repaired;
  - c) Alternatively, new drainage tile lines of comparable or improved materials and similar or greater diameter, will be installed at the appropriate depth and slope to maintain the drainage that was present prior to construction activities on the property;
  - d) Subsurface drain tile repair or replacement shall maintain the original alignment, gradient, and water flow to the greatest extent practical.

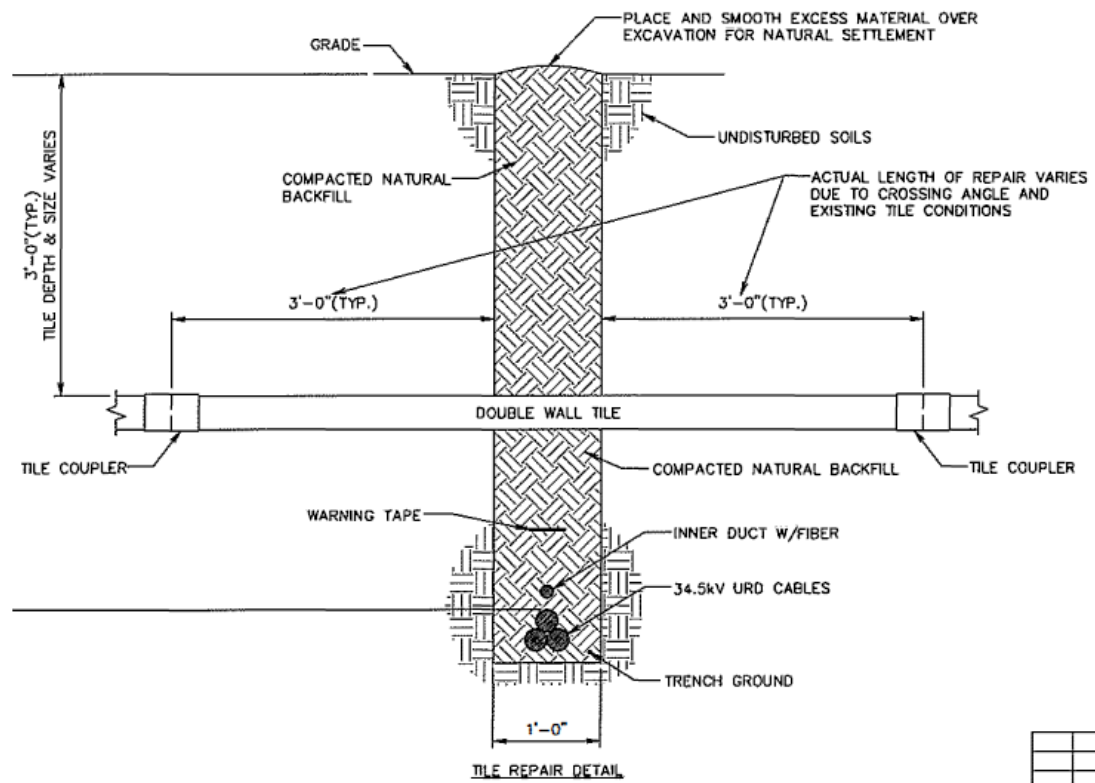


Figure 4. Drainage Tile Repair Schematic



## 6 Complaint Resolution

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Pleasant Prairie is committed to being a good land steward by repairing or replacing any drainage tile necessary for the continued existing agricultural or residential use of properties adjacent to their proposed Project. As described above, known drainage tiles damaged during the construction of the Project will be repaired or replaced within 30 days of breakage, weather and soil conditions permitting. Situations may occur in which drainage tiles are inadvertently damaged by equipment or operations without the awareness of the operator or Pleasant Prairie personnel. Neighbors or regulatory personnel should contact the Pleasant Prairie land agent to make them aware of new drainage issues that develop and the land agent will contact the appropriate personnel at Pleasant Prairie to direct the required repair of damaged tile within 30 days of notification, weather and soil conditions permitting.

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## About Cardno

Cardno is an ASX-200 professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage, and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD].

## Cardno Zero Harm

**Cardno**  
**ZERO**  
**HARM**  
EVERY JOB. EVERY DAY.

At Cardno, our primary concern is to develop and maintain safe and healthy conditions for anyone involved at our project worksites. We require full compliance with our Health and Safety Policy Manual and established work procedures and expect the same protocol from our subcontractors. We are committed to achieving our Zero Harm goal by continually improving our safety systems, education, and vigilance at the workplace and in the field. Safety is a Cardno core value and through strong leadership and active employee participation, we seek to implement and reinforce these leading actions on every job, every day.

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

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**Case No(s). 20-1679-EL-BGN**

Summary: Application - 14 of 25 (Exhibit K - Drain Tile Mitigation Plan) electronically filed by Christine M.T. Pirik on behalf of Pleasant Prairie Solar Energy LLC