

Arche Solar Project

Case No. 20-0979-EL-BGN



Exhibit P

Vegetation Management Plan

Vegetation Protection and Management Plan

Arche Solar

Gorham Township,
Fulton County, Ohio

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Project Introduction

Arche Energy Project, LLC (Arche) proposes to develop Arche Solar (the Facility), a solar energy Facility within an area of approximately 1,000 acres of private land, located in Gorham Township of Fulton County, Ohio. The proposed Facility has an approximate footprint of approximately 650 acres (Project Area). US Route 20, County Road 21-2, and County Road 22 divide the Project Area into its constituent parcels.

The purpose of this Vegetation Management Plan is to clearly identify areas of proposed vegetation clearing, and the measures taken by Arche to minimize the removal of vegetation. Arche has endeavored to protect the woody vegetation near the Facility to the greatest extent feasible. Arche has minimized impacts to wetlands, streams, waterbodies, and drainage features identified through on-site investigation into the site design. At the same time, Arche plans to add vegetation in and around the Project Area to enhance the visual appeal of the Facility, provide ecological benefits through native species, and provide visual buffers for adjacent residents.

Project Surveys

A preliminary site and environmental permitting evaluation was performed for the Project Area by Environmental Design and Research (EDR). This evaluation focused on the identification of possible environmental and permitting constraints associated with the development of the Facility. Following that, a wetland and waterbody delineation was conducted by Cardno, Inc. Concurrently, a Preliminary Ecological Assessment was conducted by Cardno, Inc. Both assessments utilized Geographic Information Systems (GIS) and site surveys to screen and classify potential environmental resources at the Project Area.

Arche has ensured to adhere to the Ohio Administrative Code (OAC) for the preparation of this plan. OAC 4906-4-08(B)(2) requires an analysis of potential impacts to identified land uses resulting from construction and operation of the Facility. The Project Area has cultivated crop areas, with isolated wood lots or buffer strips between agricultural areas. Deciduous forests account for approximately 3 percent of the acreage, woody wetlands account for 1 percent of the site area and emergent herbaceous wetlands (identified as areas with perennial herbaceous vegetation and the soil is periodically saturated with water) accounts for less than 1 percent of the Project Area. The croplands occupy 925.3 acres of land and the total woodland area adds up to approximately 40.31 acres. Apart from these, there are developed spaces such as houses and barns within the Project Area.

Vegetation/Tree Clearing

A small portion of the study area exists as deciduous forest and mostly occurs as isolated woodlots between crop areas and along roads. Forested areas will be preserved where possible; however, Arche anticipates the need to clear select windrows and edges of woodlots in order to construct and operate the Facility. Arche is committed to minimizing the tree clearing where possible and observing seasonal restrictions on tree clearing to protect sensitive bat species (e.g., cutting trees only between November and March), or as conditions specify.

Vegetation Protection

Permanent vegetative impacts associated with the Facility would be limited to the area surrounding the Facility footprint. The Facility footprint is estimated to be approximately 650 acres out of the approximately 1,000 acres of the total Project Area. These permanent impacts would occur primarily within agricultural fields. Protection of vegetation will be achieved by careful site planning, indicating limits of clearing on construction drawings, and clearly staking/flagging those limits in the field prior to the initiation of construction activities. Arche has committed to minimizing any tree clearing within the Project Area to the greatest extent possible.

Approximate preliminary areas of vegetation to remain are shown on Figure 1. Direct impacts to streams and wetlands will be avoided through the use of overhead collection lines and HDD installation of underground collection lines, eliminating damage to wetland vegetation.

Examples of methods that could be utilized for the protection of vegetation in sensitive areas and outside the designated clearing limits include preconstruction documentation of tree and planting condition, protection zone fencing, prohibitions on excavation or heat sources within relevant protection zones and erosion and sedimentation control. Final methods for vegetation management will be included in construction documents. In addition, means of limiting tree removal and protecting remaining vegetation will be reviewed with the contractor at a pre-construction environmental training session and monitored by an on-site Environmental Monitor throughout the duration of construction.

Timing Constraints

According to the findings of the ecological assessment, Indiana bats and northern long-eared bats are identified to be potentially occurring within the Project Area. Should any tree clearing be necessary, Arche will schedule tree clearing activities to avoid any conflict with State implemented timing constraints. Arche understands the current tree clearing constraints to be:

- No tree cutting April 1 through September 31 for trees three inches or greater in diameter to avoid impacts to the Indiana bats (state and federal endangered species) and the northern long-eared bat (Federal threatened species).
- Adhere to Seasonal Tree Cutting dates of October 1 through March 31.

While the ecological assessment findings do not identify any migratory and protected birds' occurrence in the vicinity of the Project Area, Arche will follow directions from ODNR to mitigate impacts to preferred nesting habitats during construction.

Restoration Methods

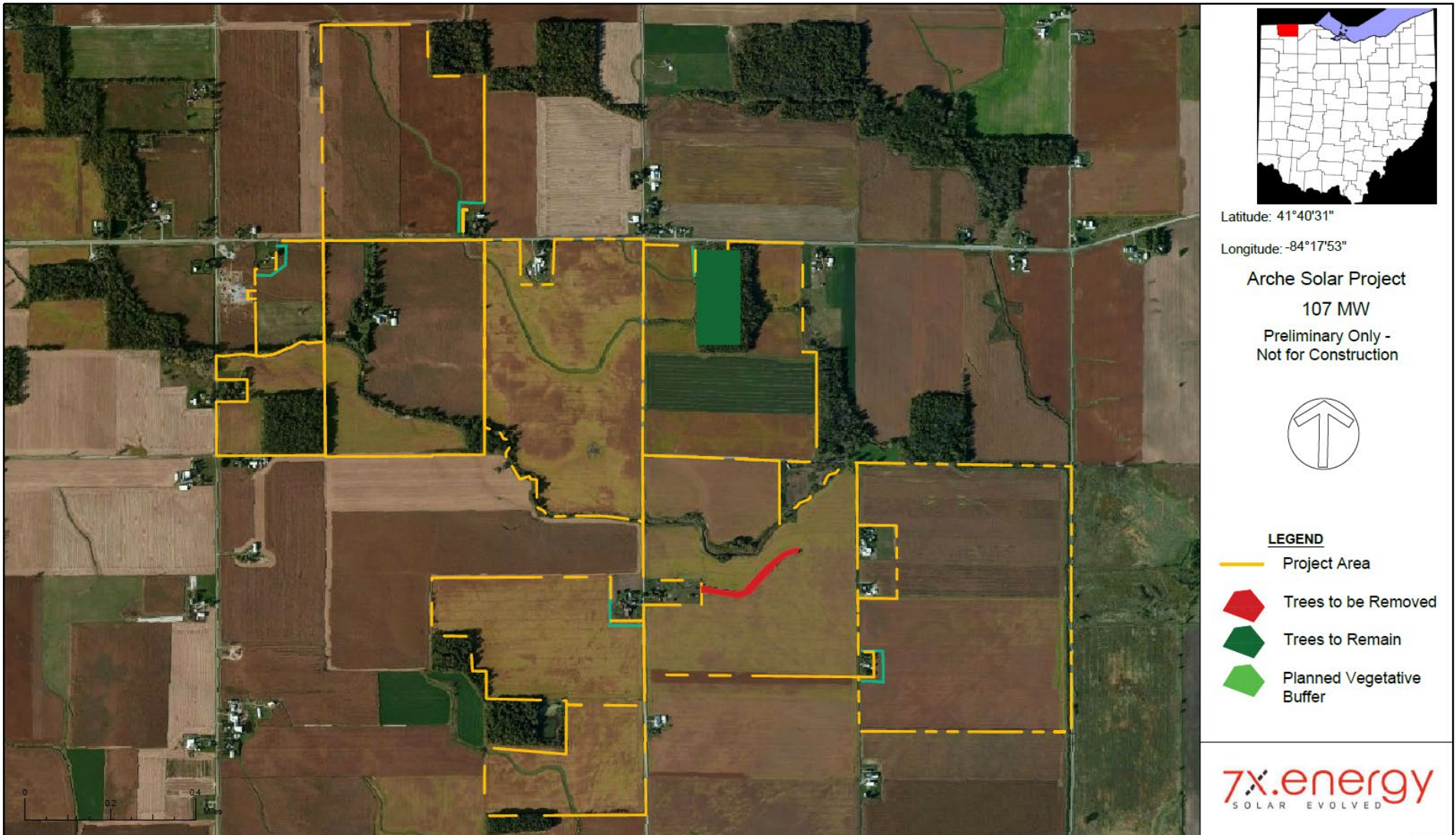
Facility construction will last approximately 9 to 12 months and will generally include clearing and grading; installation of stormwater retention features and laydown yard; access roads and foundation construction; installation of Facility

equipment (racking posts, racking system, photovoltaic solar modules, inverters, collection systems, substation and generation tie line); and installation fencing. Minimal grading and clearing are anticipated. The underground collection system will be installed through open-cut trenching and boring, as well as HDD methods. Activities that may impact vegetation include cutting and clearing of vegetation, removal of stumps and root systems, and increase exposure of soils. However, to minimize adverse environmental impacts, vegetation clearing will be confined to Project Area work areas. Trees cleared from the work area will be cut as close to the ground as possible, cut into logs, and either left for the landowner or removed. The associated tree limbs and bush will be buried, chipped, or otherwise disposed of as directed by the landowner and as allowed under federal, state, and local regulations.

Arche will reestablish the topsoil for areas where grading is necessary. Reseeding will be done with a low-growth, native grass seed mix under the solar array and a pollinator-friendly seed mix in select areas outside of the array and within the Facility perimeter fence line. Native species that have germinated naturally will be retained. The seeded areas will be uniform, free of ruts, erosion, and/or bare and dead spots. Prior to any area being seeded, Arche will require seed mix approval. Arche will perform a visual inspection to ensure that the disturbed soil has been properly reestablished.

During the Facility operation phase, Arche will manage the site vegetation. The frequency of mowing, spraying, pruning, fertilizing or and other management methods will vary depending on the time of year and rainfall. The primary objective of mowing is to keep the vegetation below one and one half feet in height to avoid panel shading. Onsite vegetation will be monitored for the establishment of noxious weeds. If noxious weeds are identified within the Facility's fenceline during operation, herbicide may be used. Herbicide use will be conducted by a licensed professional and will be applied in accordance to manufacturer instructions. Project Area vegetation maintenance will be conducted by an experienced contractor with all required certifications to perform the work described above. Regular vegetation maintenance will ensure that the Facility functions well and has pleasing aesthetics. All required permits for construction and operation of the Facility will be acquired prior to construction, and Arche will abide by all state standards and laws applicable to the Facility.

Figure 1. Identified Vegetation in Project Area



Appendix A.

Example of Temporary Tree and Plant Protection Methods

TEMPORARY TREE AND PLANT PROTECTION

EXAMPLE OF TEMPORARY TREE AND PLANT PROTECTION METHODS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions, may apply to this Section.

1.2 SUMMARY

Section includes general protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.

1.3 DEFINITIONS

- A. Caliper: Diameter of a trunk measured by a diameter tape a height 6 inches above the ground for trees up to and including 4-inch size at this height and as measured at a height of 12 inches above the ground for trees larger than 4-inch size.
- B. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction.
- C. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated.
- D. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:

- a. Coordination of Work and equipment movement with the locations of protection zones.
- b. Trenching by hand or with air spade within protection zones.
- c. Field quality control.

1.5 INFORMATIONAL SUBMITTALS

Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.

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1. Use sufficiently detailed photographs or video recordings.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

1.6 QUALITY ASSURANCE

Quality-Control Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work without damaging trees and plantings. Include dimensioned diagrams for placement of protection zone fencing and instructions given to workers on the use and care of protection zones, and enforcement of requirements for protection zones.

1.7 FIELD CONDITIONS

- A. The following practices are prohibited within protection zones:
1. Storage of construction materials, debris, or excavated material.
 2. Foot traffic.
 3. Erection of sheds or structures.
 4. Impoundment of water.
 5. Excavation or other digging unless otherwise indicated.
 6. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- B. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 2 - PRODUCTS

2.1 MATERIALS

Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch maximum opening in pattern and weighing a minimum of 0.4 lb/ft.; remaining flexible from minus 60 to plus 200 deg F; inert to most chemicals and acids; minimum tensile yield strength of 2000 psi and ultimate tensile strength of 2680 psi; secured with plastic bands or galvanized-steel or stainless-steel wire ties; and supported by tubular or T-shape galvanized-steel posts spaced not more than 96 inches apart.

- a. Height: 48 inches.
- b. Color: High-visibility orange, nonfading.

TEMPORARY TREE AND PLANT PROTECTION

PART 3 - EXECUTION

3.1 EXAMINATION

Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

3.2 PREPARATION

- A. Locate and clearly identify trees, shrubs, and other vegetation to remain. Tie a 1-inch blue vinyl tape around each tree trunk at 54 inches above the ground.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

3.3 PROTECTION ZONES

- A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located in close proximity to drives or other vehicular circulation.
- B. Maintain protection zones free of weeds and trash.
- C. Maintain protection-zone fencing and signage in good condition as acceptable to Architect and remove when construction operations are complete, and equipment has been removed from the site.
- D. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.

3.4 EXCAVATION

- A. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots.
- B. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction and as required for root pruning.

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- C. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.5 ROOT PRUNING

- A. Prune tree roots that are affected by temporary and permanent construction. Prune roots as follows:
 - 1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
 - 2. Cut Ends: Do not paint cut root ends.
 - 3. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 - 4. Cover exposed roots with burlap and water regularly.
 - 5. Backfill as soon as possible.
- B. Root Pruning at Edge of Protection Zone: Prune tree roots 12 inches outside of the protection zone by cleanly cutting all roots to the depth of the required excavation.
- C. Root Pruning within Protection Zone: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow-tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.

3.6 CROWN PRUNING

- A. Prune branches that are affected by temporary and permanent construction. Prune branches as directed by Owner's Representative.
 - 1. Prune to remove only injured, broken, dying, or dead branches. Do not prune for shape.
 - 2. Do not remove or reduce living branches to compensate for root loss caused by damaging or cutting root system.
 - 3. Pruning Standards: Prune trees according to ANSI A300 (Part 1).
- B. Cut branches with sharp pruning instruments; do not break or chop.
- C. Do not paint or apply sealants to wounds.
- D. Chip removed branches and spread over areas identified by Owner's representative.

3.7 REGRADING

- A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- B. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees.

TEMPORARY TREE AND PLANT PROTECTION

Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.

- C. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- D. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with backfill soil. Place backfill soil in a single uncompacted layer and hand grade to required finish elevations.

3.8 FIELD QUALITY CONTROL

Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.9 REPAIR AND REPLACEMENT

- A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Architect.
 - 1. Submit details of proposed pruning and repairs.
 - 2. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.
 - 3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Architect.
- B. Trees: Remove and replace trees indicated to remain that are more than 66 percent dead or in an unhealthy condition or are damaged during construction operations that Owner's Representative determines are incapable of restoring to normal growth pattern.
 - 1. Small Trees: Provide new trees of same size and species as those being replaced for each tree that measures 4 inches or smaller in caliper size.
 - 2. Large Trees: Provide one new tree of 4-inch caliper size for each tree being replaced that measures more than 6 inches in caliper size.

Species: As selected by Owner's representative.

- C. Soil Aeration: Where directed by Owner's representative, aerate surface soil compacted during construction. Aerate 10 feet beyond drip line and no closer than 36 inches to tree trunk. Drill 2-inch holes a minimum of 12 inches deep at 24 inches o.c. Backfill holes with an equal mix of augered soil and sand.

3.10 DISPOSAL OF SURPLUS AND WASTE MATERIALS

Disposal: Remove excess excavated material, displaced trees, trash, and debris and legally dispose of them off Owner's property.