

**BEFORE THE OHIO POWER SITING BOARD**

<b>In the Matter of the Application of</b>	)	
<b>Alamo Solar I, LLC</b>	)	
<b>for a Certificate of Environmental</b>	)	<b>Case No. 18-1578-EL-BGN</b>
<b>Compatibility and Public Need</b>	)	

---

**SUPPLEMENTAL DIRECT TESTIMONY OF MARK J. BONIFAS**

---

**Q.1. Please state your name, title and business address.**

**A.1.** My name is Mark J. Bonifas. I am a Civil Engineering Practice Leader/Principal at Hull & Associates, Inc. My business address is 6397 Emerald Parkway, Suite 200, Dublin, OH 43016.

**Q.2. On whose behalf are you offering testimony?**

**A.2.** I am testifying on behalf of the Applicant, Alamo Solar I, LLC.

**Q.3. Did you previously provide testimony on behalf of the Applicant?**

**A.3.** Yes, on July 17, 2019.

**Q.4. What is the purpose of your supplemental testimony?**

**A.4.** To address the revisions and updates to Conditions 18, 25, and 28 in the Amended and Restated Joint Stipulation and Recommendation filed on July 30, 2020 (“Amended Joint Stipulation”).

**Q.5. Have you reviewed the Amended Joint Stipulation?**

**A.5.** Yes.

**Q.6. Do you support the changes to Condition 18, Condition 25, and Condition 28 in the Amended Joint Stipulation?**

1       **A.6.**   Yes. Condition 18 has been revised to clarify that the vegetation management  
2       plan must describe implementing and maintaining vegetative groundcover and screening  
3       for the Project. A copy of the Vegetation Management Plan, dated August 2020, is  
4       attached to my testimony as Attachment 1 and includes how vegetative ground-cover and  
5       screening will be implemented and maintained.

6       Condition 25 has been revised to require that the Applicant provide to Staff, at least 30  
7       days prior to the preconstruction conference, the Road Use and Maintenance Agreement  
8       for Solar Projects and Infrastructure, dated January 15, 2020 entered into by the  
9       Applicant and Preble County Board of County Commissioners, the Preble County  
10      Engineer, Gasper Township and Washington Township (“Road Use and Maintenance  
11      Agreement”), which includes the terms and conditions contemplated by the original  
12      stipulation as well as additional terms and conditions for road maintenance and repair. A  
13      copy of the Road Use and Maintenance Agreement is attached to my testimony as  
14      Attachment 2.

15      Condition 28 has been revised to require that the comprehensive decommissioning plan  
16      be prepared by a professional engineer registered with the State Board of Registration for  
17      Professional Engineers and Surveyors, provide for the specific nature of the financial  
18      security that the Applicant will provide, if necessary, and grant the Board the opportunity  
19      for greater oversight and control in the selection of the engineer responsible for  
20      estimating decommissioning costs.

21      **Q.7. Do you believe the Vegetation Management Plan attached to your testimony satisfies**  
22      **the requirements in Condition 18 including the requirements added by the Joint**  
23      **Amended Stipulation?**

1       **A.7.** Yes. The Vegetation Management Plan details appropriate steps for minimizing  
2       removal of woody vegetation, protect existing trees and shrubs during construction, use  
3       of native and pollinator-friendly plant species, control of noxious weeds and invasive  
4       species, preservation of topsoil, and steps to return the land to agricultural use, if selected  
5       by the landowner, following decommissioning of the Project. The primary goal of the  
6       Vegetation Management Plan is to maintain, to the extent practicable, the existing  
7       physical and chemical integrity of the soil through the life of the Project such that  
8       agricultural activities, if selected by the landowner, can resume after the solar facility is  
9       decommissioned.

10       Further, as now required by the Amended Joint Stipulation, the Vegetation Management  
11       Plan describes the implementation and maintenance of vegetative ground cover and  
12       vegetative screening for the solar facility.

13       **Q.8. How will the revisions to Condition 25 in the Amended Joint Stipulation affect the**  
14       **impact of the Project on roads and traffic?**

15       **A.8.** The Road Use and Maintenance Agreement contains specific provisions to ensure  
16       that roads used for constructing or decommissioning the Project will be returned to the  
17       same or better condition than they were in prior to construction or decommissioning.  
18       Specifically, sections 3 and 5 of the Road Use and Maintenance Agreement and its  
19       Appendix A require Applicant to provide a pre-project engineering report detailing the  
20       condition of the roads prior to the beginning of construction on the Project and require  
21       that any damage to roads resulting from Applicant's activities be repaired at Applicant's  
22       sole cost. Further, the engineering report is required to provide a clear, objective  
23       standard for any repairs the Applicant is obligated to make pursuant to section 5 of the

1 Road Use and Maintenance Agreement, and will ensure the affected roads are restored to  
2 the same or better condition that they were in prior to construction. In addition, to ensure  
3 that the required repairs are adequately funded, section 10 requires the Applicant to post a  
4 bond in a form acceptable to both parties prior to the use or transport of heavy equipment  
5 on public roads or bridges.

6 In short, the Amended Joint Stipulation will further ensure that the Project will not have a  
7 negative impact on local roads after Project construction and after Project  
8 decommissioning. Road use and maintenance agreements, such as the one entered into in  
9 this matter and attached as Attachment 2, are a common practice for large construction  
10 projects, and in my experience are effective at minimizing damage to local roads and  
11 ensuring repairs are made in a timely manner.

12 **Q.9. How will Condition 28 in the Amended Joint Stipulation affect the decommissioning**  
13 **of the Project?**

14 **A.9.** Solar farms have a relatively low impact compared to other forms of electricity  
15 generation and decommissioning of the Project should not be a significant impediment to  
16 future uses of the Project Area. With that said, Condition 28 has been revised to require  
17 that the Decommissioning Plan, which must be submitted at least 60 days prior to  
18 construction, be prepared by a professional engineer registered with the State Board of  
19 Registration for Professional Engineers and Surveyors. It has been further revised to  
20 require the Applicant to post a performance bond, if necessary, that names the Board as  
21 the obligee to ensure that all decommissioning costs are covered. Finally, although  
22 Condition 28 originally required that the net decommissioning costs be determined by an  
23 independent and registered professional engineer chosen by the Applicant, Condition 28

1 has been revised to grant the Board the opportunity to accept or reject the engineer  
2 chosen by the Applicant. These changes will operate to ensure that the Board has greater  
3 oversight and control over the decommissioning plan and that the plan will be adequately  
4 and appropriately funded as necessary. A copy of the current version of the  
5 Decommissioning Plan prepared by an Ohio licensed professional engineer at and under  
6 my direction is attached to my testimony as Attachment 3 and shows how the plan  
7 requirements of Condition 28 will be met.

8 **Q.10. Are Conditions 18, 25 and 28 in the Amended Joint Stipulation in the public**  
9 **interest?**

10 **A.10.** Yes. I previously testified that Conditions 25 and 28 in the Joint Stipulation were  
11 in the public interest. That testimony remains unchanged by the revisions to the Joint  
12 Stipulation made by the Amended Joint Stipulation. The changes to Condition 25 benefit  
13 the public interest by showing that the Road Use and Maintenance Agreement has been  
14 executed and by illustrating how that agreement will protect the roads and existing traffic  
15 in the Project Area. The changes to Condition 28 are also in the public interest because  
16 they will ensure that the final Decommissioning Plan is prepared by a properly registered,  
17 professional engineer and grant the Board the opportunity to exercise greater oversight  
18 and control in the determination of decommissioning costs. Condition 18 as presented in  
19 the Amended Joint Stipulation is also in the public interest because not only does it  
20 address removal of woody vegetation, protects existing trees and shrubs during  
21 construction, requires the use of native and pollinator-friendly plant species, requires  
22 control of noxious weeds and invasive species, implements steps for the preservation of  
23 topsoil, it now provides for the implementation and maintenance of ground cover

1           vegetation and vegetative screening. Conditions 18, 25, and 28 as amended by the Joint  
2           Amended Stipulation are in the public interest.

3   **Q.11. Does this conclude your supplemental direct testimony?**

4           **A.11.** Yes, it does.

## **CERTIFICATE OF SERVICE**

The Ohio Power Siting Board's e-filing system will electronically serve notice of the filing of this document on the parties referenced in the service list of the docket card who have electronically subscribed to this case. In addition, the undersigned certifies that a courtesy copy of the foregoing document is also being served upon the persons below via electronic mail this 9th day of October 2020.

/s/ Michael J. Settineri

Werner Margard  
[werner.margard@ohioattorneygeneral.gov](mailto:werner.margard@ohioattorneygeneral.gov)

Dylan Borchers  
[dborchers@bricker.com](mailto:dborchers@bricker.com)

Kathryn West  
[kwest@prebco.org](mailto:kwest@prebco.org)

W. Joseph Scholler  
[jscholler@fbtlaw.com](mailto:jscholler@fbtlaw.com)

Thaddeus Boggs  
[tboggs@fbtlaw.com](mailto:tboggs@fbtlaw.com)

Chad Endsley  
[cendsley@ofbf.org](mailto:cendsley@ofbf.org)

Leah Curtis  
[lcurtis@ofbf.org](mailto:lcurtis@ofbf.org)

Amy Milam  
[amilam@ofbf.org](mailto:amilam@ofbf.org)

Jack Van Kley  
[jvankley@vankleywalker.com](mailto:jvankley@vankleywalker.com)

Chris Walker  
[cwalker@vankleywalker.com](mailto:cwalker@vankleywalker.com)

# **VEGETATION MANAGEMENT PLAN**

**FOR THE:  
ALAMO SOLAR PROJECT  
GASPER AND WASHINGTON TOWNSHIPS  
PREBLE COUNTY, OHIO**

**OPSB CASE NO. 18-1578-EL-BGN**

**PREPARED FOR:  
ALAMO SOLAR I, LLC  
1105 NAVASOTA STREET  
AUSTIN, TX 78702**

**PREPARED BY:  
HULL & ASSOCIATES, LLC  
219 S ERIE STREET  
TOLEDO, OHIO 43604**

**AUGUST 2020**

# **HULL**

**Environment / Energy / Infrastructure**



## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	Overview .....	1
1.2	Purpose and Intent.....	1
<b>2.0</b>	<b>EXISTING CONDITIONS.....</b>	<b>2</b>
2.1	Existing Land Use, Characteristics, and Features .....	2
<b>3.0</b>	<b>PLANTING AND REVEGETATION.....</b>	<b>4</b>
3.1	Temporary Vegetation.....	4
3.2	Long-Term Vegetation .....	4
	3.2.1 Solar Array Area.....	5
	3.2.2 Landscaped Area .....	5
3.3	Inspection and Maintenance of Vegetation and Topsoil .....	6
<b>4.0</b>	<b>VEGETATION, HABITAT, AND MAINTENANCE.....</b>	<b>7</b>
4.1	Maintenance of Vegetation, Wildlife, and Topsoil .....	7
4.2	Woody Vegetation .....	7
4.3	Invasive Weed Control, Monitoring, and Management .....	8
<b>5.0</b>	<b>REFERENCES.....</b>	<b>9</b>

## LIST OF FIGURES

Figure 1: Site Location Map  
Figure 2: Existing Land Use  
Figure 3: National Resource Conservation Service Soils Map

## APPENDICES

Appendix A: Ohio Administrative Code 901:5-37 Noxious Weeds and Photographs of Common Noxious Weeds

## **1.0 INTRODUCTION**

### **1.1 Overview**

On behalf of Alamo Solar I, LLC (Alamo Solar), Hull & Associates, LLC has prepared this Vegetation Management Plan (Plan) for the proposed Alamo Solar Project (Project). The Project will have an electric generation capacity of 70 megawatts (MW) and the solar panels, along with associated infrastructure such as access roads, electrical collection lines and a switchyard, will be located on approximately 1,000 acres (Project Area). The Project is located in Gasper and Washington Townships in Preble County, Ohio (Figure 1). The Project Area is located approximately 1,000 feet north of Antioch Road just east of its intersection with Call Road (Figure 1). It is located south of State Route 732, west of U.S. Route 127, north of Mann Road, and east of Paint Creek Road. The Project will occupy up to 919 acres of private land.

### **1.2 Purpose and Intent**

This Plan addresses proposed vegetation clearing and revegetation within the fenced area of the Project. The fenced area is defined as the location of solar panels, along with associated infrastructure such as access roads, electrical collection lines and a switchyard. The fenced area will be located within the Potential Solar Array area shown on Figure 2. This Plan includes the appropriate steps for preserving existing trees, using native and pollinator-friendly plant species, control of noxious weeds and invasive species, preservation of topsoil, and returning the land to potential agricultural use following decommissioning of the solar facility. The primary goal of this plan is to maintain, to the extent practicable, the existing physical and chemical integrity of the soil through the life of the Project such that agricultural activities can resume after the solar facility is decommissioned. This Plan may be updated as needed based on changing conditions, new methods, and/or project needs.

## 2.0 EXISTING CONDITIONS

### 2.1 Existing Land Use, Characteristics, and Features

The land within the Project Area has been mostly cleared to accommodate the predominant industry, agriculture, and is characterized by flat terrain. The Project Area is rural and is largely characterized by medium- to large-sized farms with interspersed pockets of trees. Undeveloped land includes actively cultivated fields, small blocks and rows of trees and other vegetation, and old fields. Existing features in the Project Area include electric transmission lines, a communications tower, public roads, single family homes and farm buildings. The Project Area does not include any population centers, major industries, or notable landmarks.

In November 2018, Cardno completed an ecological assessment for the Project and surrounding area totaling 1,786 acres. The characterization included a desktop review of online databases, reports, and publicly available GIS data for environmental resources. Cardno also completed a surface water delineation and habitat assessments during field visits and through consultations with agencies and landowners.

Land use was determined through a review of the 2016 National Land Cover Database provided by the U.S. Geological Survey. Based on the review of these data, cultivated crops (83%), hay/pasture (2%), forests (5%), and developed open space (3%) are the land cover types in the Project Area (Figure 2). Primary crops planted in the agricultural areas include soybeans and corn. Forested areas primarily include windbreaks and woodlots between agricultural fields. The dominant mature trees include oaks (*Quercus* spp.), black walnut (*Juglans nigra*), cherry (*Prunus* sp.), American beech (*Fagus grandifolia*), pawpaw (*Asimina triloba*), and shagbark hickories (*Carya ovata*). Weedy vegetation dominates the understory. Successional vegetation communities (e.g., old fields and shrubland) do not comprise a significant portion of the Project area.

Topography in the Project area is generally flat with minor topographical changes near streams (see Figure 1). Table 1 below shows the soil types within the Project Area. The majority of the soils are typical of farmland and either hydric or non-hydric with hydric inclusions. Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation. Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

According to the National Resource Conservation Service (NRCS), Corwin silt loam (CeB) and Crosby-Celina silt loam (CtB) each comprise approximately 18% of the Project Area. Corwin silt loam consists of deep, fairly well-drained soils while Crosby-Celina silt loam consists of deep, somewhat poorly drained soils. (Natural Resource Conservation Service, 2004).

**Table 1. Summary of Soil Types within the Project Area**

<b>Soil Type</b>	<b>Hydric Presence (0-100)</b>	<b>Area (Acres)</b>	<b>Portion of Project Area</b>
CeB	10	184.76	18%
CtB	8	175.04	18%
KnA	90	144.94	15%
CtA	10	101.53	10%
CeB2	4	96.04	10%
MfB2	5	68.2	7%
KoA	90	56.3	6%
MhC3	0	45.45	5%
MfB	5	34.13	3%
MhD3	0	33.78	3%
MeC2	0	19.24	2%
CeA	5	12.86	1%
RpA	5	9.02	1%
MaA	5	6.4	1%
MeD2	0	5.89	1%
<b>Total</b>		<b>998.91</b>	<b>100.00%</b>

Surface waters were delineated to determine the extent and jurisdiction of streams and wetlands in the Project Area. Thirty streams (natural channels) and ditches (modified channels) were delineated, totaling 25,521 linear feet of waterways. These waterbodies include Beasley Run and several of its tributaries. Thirteen wetlands, mostly palustrine emergent (PEM) wetlands, were delineated totaling 4.71 acres. Delineated wetlands will not be impacted by the construction, operation, or maintenance of the Project.

The Project will seek certain water protection-related permits. First, it is expected to utilize a limited number of nationwide permits issued by the U.S. Army Corps of Engineers under Section 404 of the federal Clean Water Act. Second, in connection with those nationwide permits, the Project will seek a water quality certification from Ohio EPA pursuant to Section 401 of the federal Clean Water Act. Finally, the Project will seek coverage under an Ohio EPA construction stormwater general NPDES permit.

## **3.0 PLANTING AND REVEGETATION**

### **3.1 Temporary Vegetation**

During construction and subsequent maintenance activities, temporary stabilization (e.g., seeding and mulching) will be implemented to minimize soil erosion. Best management practices (BMPs) that include temporary vegetation will be outlined in the Project's Storm Water Pollution Prevention Plan (SWPPP) that is required as part of Ohio EPA's General Permit for Discharges of Storm Water Associated with Construction Activity (OHC000005).

### **3.2 Long-Term Vegetation**

With the increased popularity of habitat conservation and solar arrays, many companies supply seed mixes adequate for use under the solar array and within other fenced areas. If pollinator habitat mixes are desired, grass species should not exceed 30% of the seed mix as they can outcompete native perennials. Any live plants, seed mixes, and other materials used will be acquired in quantities sufficient to complete any revegetation work necessary following construction. Ideally, seeding will occur in the fall before first frost or early spring just before the last frost. The average frost-free growing season for the Project Area is mid-April through the end of October. Sources of guidance for seeding and mulching, including watering, mowing, and repairing include the Ohio Rainwater and Land Development Manual (Ohio Department of Natural Resources, 2006) and the Ohio Department of Transportation. (Ohio Department of Transportation , 2020).

Prior to preparing for seeding, any areas where the soil has been compacted by construction activities shall be decompacted prior to placing topsoil and preparing the seed bed. Decomaction can be performed with a disk for shallow compaction or a winged subsoiler or straight ripper shank for areas compacted to greater depths.

Where necessary, topsoil will be placed to a minimum depth of four inches to establish ideal planting conditions. If deemed necessary, soil samples will be taken to aid the selection of seeds as well as potential soil amendments to ensure establishment of strong, healthy vegetation. Typical sample analyses include pH, organic content, nutrient content and soil composition. No phosphorous shall be used at the time of planting unless soil testing indicates a phosphorous deficiency that is harmful or will prevent new vegetation from proper establishment. If tests indicate a phosphorous deficiency that will impact establishment of vegetation, then phosphorous will be applied at the minimum recommended level prescribed in the soil test following all applicable standards, requirements, and regulations.

Weed control is critical to ensure native seedlings establish roots. If herbicides are applied for weed control, then application shall occur at least two weeks prior to seeding. One application likely will be sufficient as the land was previously used for agriculture. Alternatively, tilling to a depth of 3 to 6 inches typically kills existing weeds. A broadcast seeder can be used to spread seed on top of recently tilled topsoil. Following seed application, a roller will be used to ensure the seed has good contact with the soil. A mulch will be applied to help the soil retain moisture to promote seed germination. Once seeded, spot treatment of weeds will be completed manually or using herbicide.

### **3.2.1 Solar Array Area**

Recommended examples of grass species for the solar array panels include creeping red fescue (*Festuca rubra*), sheep fescue (*Festuca ovina*), hard fescue (*Festuca brevipila*), blue fescue (*Festuca ovina* var. *glauca*), Kentucky bluegrass (*Poa pratensis*), and prairie dropseed (*Sporobolus heterolepis*) (Ohio Department of Transportation, 2020). The ODOT roadside mix includes 30% Kentucky Bluegrass, 40% Tall Fescue, and 30% Perennial Ryegrass. These species typically do not exceed a height of two feet and should not raise concerns about solar panel shading. This mix will be spread throughout the fenced area to stabilize the soil during the duration of the Project. The Project will consult with the Ohio Seed Improvement Association, prior to purchase of seed stock, regarding the names of reputable vendors of seed stock and will purchase seed stock used on this project from such recommended sources to the extent practicable and to the extent seed stock is available from the recommended sources.

### **3.2.2 Landscaped Area**

Outside of the fenced area, a separate landscaping plan will be developed that addresses aesthetic components of the Project Area. The landscaping plan includes use of native species and intentionally mimics the character of the adjacent landscape in order to minimize and mitigate the project's visual impact. These strategies have been developed to provide solutions that appropriately fit both the scale of the Project and the visual character of the specific setting. On-site observations, combined with information from The Ohio State University's Department of Plant Pathology website, the USDA PLANTS website, the Selected Ohio Native Plants for Landscape and Restoration Use guides provided by the Ohio Department of Natural Resources (DNR), the Ohio Department of Transportation's Statewide Roadside Pollinator Habitat Program Restoration Guidelines and Best Management Practices, and the Ohio Department of Agriculture's Prohibited Invasive Plant list provided the basis for the plant material to be included in the Project's landscaping.

The Project will maintain vegetative screening for the life of the facility and will replace any failed plantings so that, after five years following planting, at least 90 percent of the vegetation will have survived. Long-term landscaping maintenance methods and schedules will follow industry best management practices will depend upon the planting schedule described in the landscaping plan at the time of construction.

### **3.3 Inspection and Maintenance of Vegetation and Topsoil**

Newly seeded areas will be inspected within six months following application. Areas with less than 70% coverage will be repaired or reseeded. Overseeding to repair bare spots will be completed annually between March 15 and May 15 or between September 1 and October 15 (Ohio Department of Transportation , 2020).

To maintain access to the solar infrastructure, mowing will be completed at any point prior to seeding or after vegetation has been established in newly seeded areas. Grass clippings will be left in place to maintain nutrients and incorporate organic matter into the topsoil.

Following construction, establishment of vegetation will help ensure that the nutrient content and soil characteristics are maintained to the maximum extent practical. Areas of bare soil will be addressed within six months to minimize soil erosion and loss of nutrients. Temporary seeding and/or mulching will be completed prior to final seeding, if necessary.

## **4.0 VEGETATION, HABITAT, AND MAINTENANCE**

### **4.1 Maintenance of Vegetation, Wildlife, and Topsoil**

Based on preliminary survey data and habitat evaluations, the Project is proposed to be primarily built on land that has been cleared and is actively maintained for agriculture. The conversion from cropland to solar infrastructure (and future return to agricultural use following decommissioning) is not likely to have a significant adverse impact on the wildlife currently utilizing the area, and a significant shift in the wildlife community is not anticipated. Species noted in the Ecological Assessment included white-tailed deer and gray squirrels – both common, generalist species that adapt well to changing environments.

During construction, the majority of the Project Area will not require excavation of soils. In the limited areas where excavation is necessary, the topsoil will be stockpiled separately and placed back onto the top of the final contour, where possible. The goal will be to retain soil characteristics and nutrient content to the maximum extent practicable. The presence of cover vegetation will also minimize hardpan development.

Current agricultural practices include application of lime, fertilizer, and/or nutrients to maintain fertility. While these applications will not continue during the project, the long-term maintenance of on-site vegetation will help maintain topsoil quality. Organic matter from mowing will be left in place to add organic matter to the topsoil.

### **4.2 Woody Vegetation**

Tree protection best management practices (BMPs) will be utilized where appropriate to protect crowns and root zones from damage during construction or maintenance activities. The simplest form of a tree protection BMP is fencing around the perimeter of a tree or stand of several trees to protect the root zone from compaction and the trunk/crown from damage. High visibility fencing will be used to avoid direct damage to trees that will remain in the Project Area.

Tree clearing will follow seasonal clearing guidelines established by the U.S. Fish and Wildlife Service (USFWS). To avoid impacts to protected bat species, clearing trees greater than three inches in diameter at breast height will be avoided between April 1 and September 30. If this period cannot be avoided, then further coordination with USFWS and the Ohio Department of Natural Resources (ODNR) will take place. Based on preliminary survey data and habitat evaluations conducted by Cardno and preliminary design of the project, larger isolated forest stands will be avoided during construction, however, the construction of the Project infrastructure will require tree clearing of select windrows and woodlot edges (up to 1.37 acres total) to reduce shading and provide acreage for continuous strings of modules. All of the proposed tree clearing is located in upland areas; no forested wetlands will be cleared. The tree clearing will be done primarily



by hand clearing, however a skid-steer stump grinder (or equivalent equipment) will be used to grind stumps to ground level or just below. Timber and other vegetative debris may be chipped for use as erosion control mulch or otherwise disposed of in accordance with applicable local regulations and landowner preferences. Locations and extents of tree clearing activities will not exceed the 1.37 identified in Figure 1 of the Ecological Assessment (Cardno, Inc., 2018) and will be included on final design drawings for the Project.

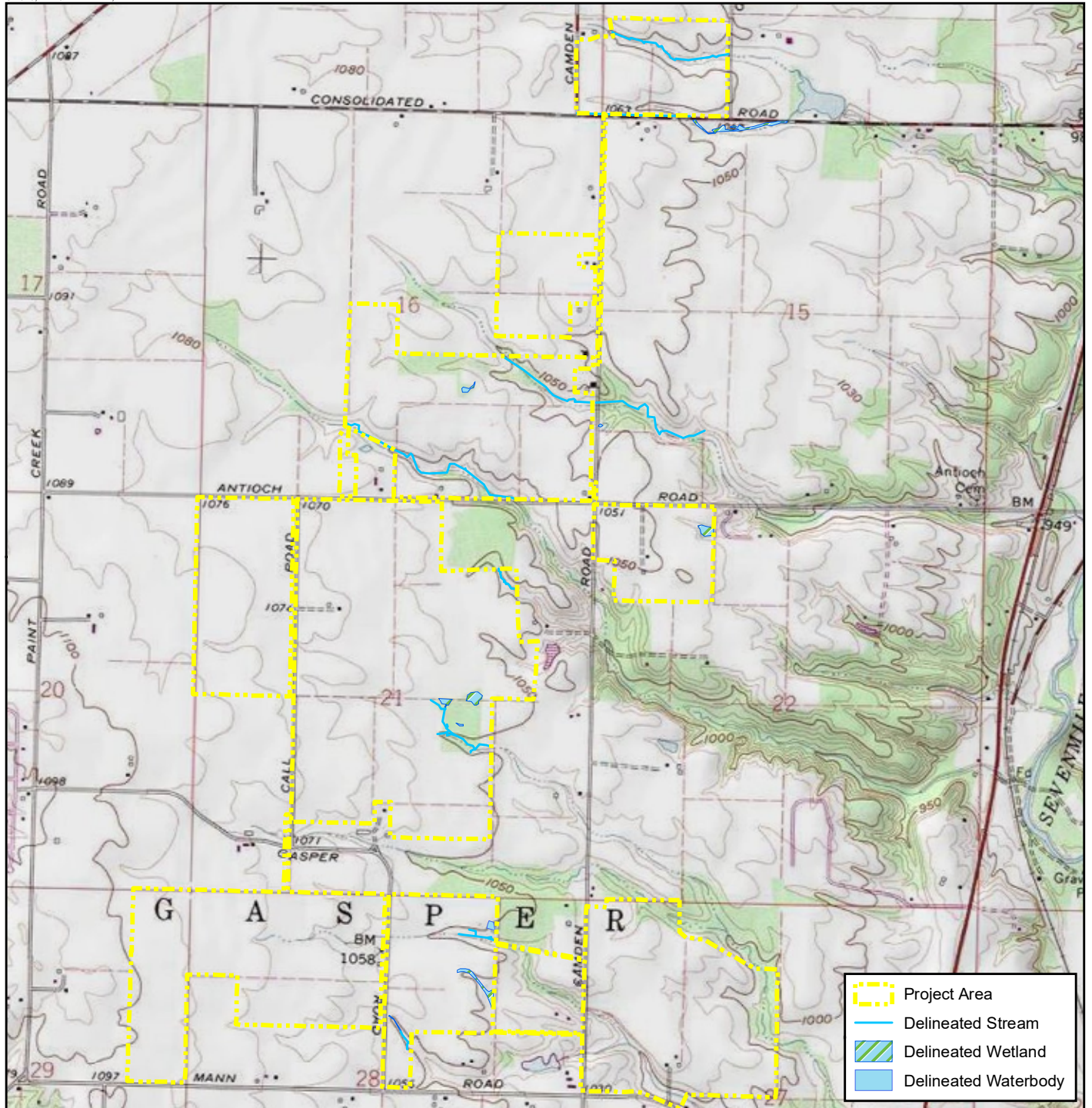
#### **4.3 Invasive Weed Control, Monitoring, and Management**

The Project Area will be monitored after construction, when the site is most vulnerable to colonization by invasive vegetation and noxious weeds, as defined in Ohio Administrative Code 901:5-37. The list of Prohibited Noxious Weeds and photographs of some of the most common noxious weeds are included in Appendix A. Invasive species and weeds will be controlled using methods deemed appropriate for maintenance of the solar array and soil integrity (e.g., herbicide, manual removal). Herbicide application will only occur when necessary and will be discontinued at least one year prior to decommissioning to ensure breakdown of residual herbicides prior to return to agricultural production (Cleveland & Sarkisian, 2019).

## 5.0 REFERENCES

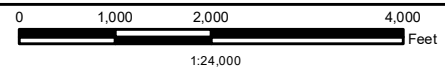
- Cardno, Inc. (2018). *Ecological Assessment Report Alamo Solar Project*.
- Cleveland, T., & Sarkisian, D. (2019). *Balancing Agricultural Productivity with Ground-Based Solar Photovoltaic (PV) Development*. Raleigh, NC: NC State University.
- Hull & Associates, LLC. (2020). *Decommissioning Plan*. Dublin, Ohio.
- Natural Resource Conservation Service. (2004). *Soil Survey of Preble County, Ohio*. Washington, DC: United States Department of Agriculture .
- Ohio Department of Natural Resources. (2006). *Ohio Rainwater and Land Development Manual* . Columbus: Division of Soil and Water Conservation.
- Ohio Department of Transportation . (2020, April 6). *Item 659 Seeding and Mulching*. Retrieved from Construction Management:  
[http://www.dot.state.oh.us/Divisions/ConstructionMgt/OnlineDocs/Specifications/2008CMS/600/659.htm#a\\_659\\_02](http://www.dot.state.oh.us/Divisions/ConstructionMgt/OnlineDocs/Specifications/2008CMS/600/659.htm#a_659_02)

## FIGURES



**DISCLAIMER**

Hull & Associates, Inc. (Hull) has furnished this map to the company identified in the title block (Client) for its sole and exclusive use as a preliminary planning and screening tool and field verification is necessary to confirm these data. This map is reproduced from geospatial information compiled from third-party sources which may change over time. Areas depicted by the map are approximate and may not be accurate to mapping, surveying or engineering standards. Hull makes no representation or guarantee as to the content, accuracy, timeliness or completeness of any information or spatial location depicted on this map. This map is provided without warranty of any kind, including but not limited to, the implied warranties of merchantability or fitness for a particular purpose. In no event will Hull, its owners, officers, employees or agents, be liable for damages of any kind arising out of the use of this map by Client or any other party.



**Quad: Eaton South**

Source: The topographic map was acquired through the USGS Topographic Map web service.

The aerial photo in the inset was acquired through the Esri Imagery web service. Aerial photography dated 2015.

**HULL**  
Environment / Energy / Infrastructure

219 S. Erie Street  
Toledo, Ohio 43604

Phone: (419) 385-2018  
Fax: (419) 243-1881  
www.hullinc.com

Alamo Solar Project  
Open Road Renewables, LLC

**Site Location Map**

Gasper and Washington Townships  
Preble County, Ohio

Date:

April 2020

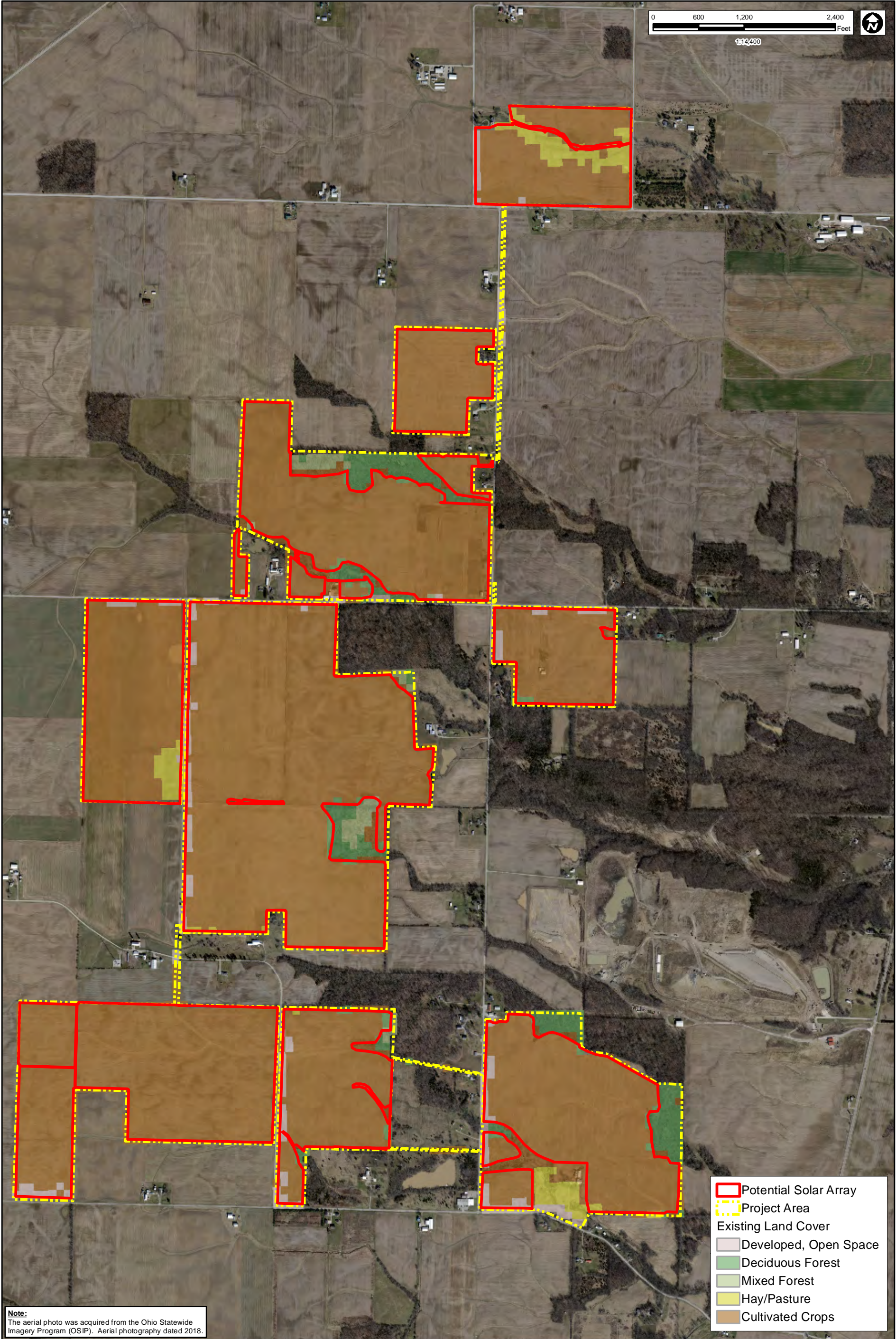
File Name:  
ORR022\_01\_Fig01\_SLM.mxd

Edited: 4/17/2020 By: rkaip

Figure

1





**HULL**  
Environment / Energy / Infrastructure

219 S. Erie Street  
Toledo, Ohio 43604

Phone: (419) 385-2018  
Fax: (419) 243-1881  
www.hullinc.com

**DISCLAIMER**

Hull & Associates, Inc. (Hull) has furnished this map to the company identified in the title block (Client) for its sole and exclusive use as a preliminary planning and screening tool and field verification is necessary to confirm these data. This map is reproduced from geospatial information compiled from third-party sources which may change over time. Areas depicted by the map are approximate and may not be accurate to mapping, surveying or engineering standards. Hull makes no representation or guarantee as to the content, accuracy, timeliness or completeness of any information or spatial location depicted on this map. This map is provided without warranty of any kind, including but not limited to, the implied warranties of merchantability or fitness for a particular purpose. In no event will Hull, its owners, officers, employees or agents, be liable for damages of any kind arising out of the use of this map by Client or any other party.

April 2020

Alamo Solar Project  
Open Road Renewables, LLC

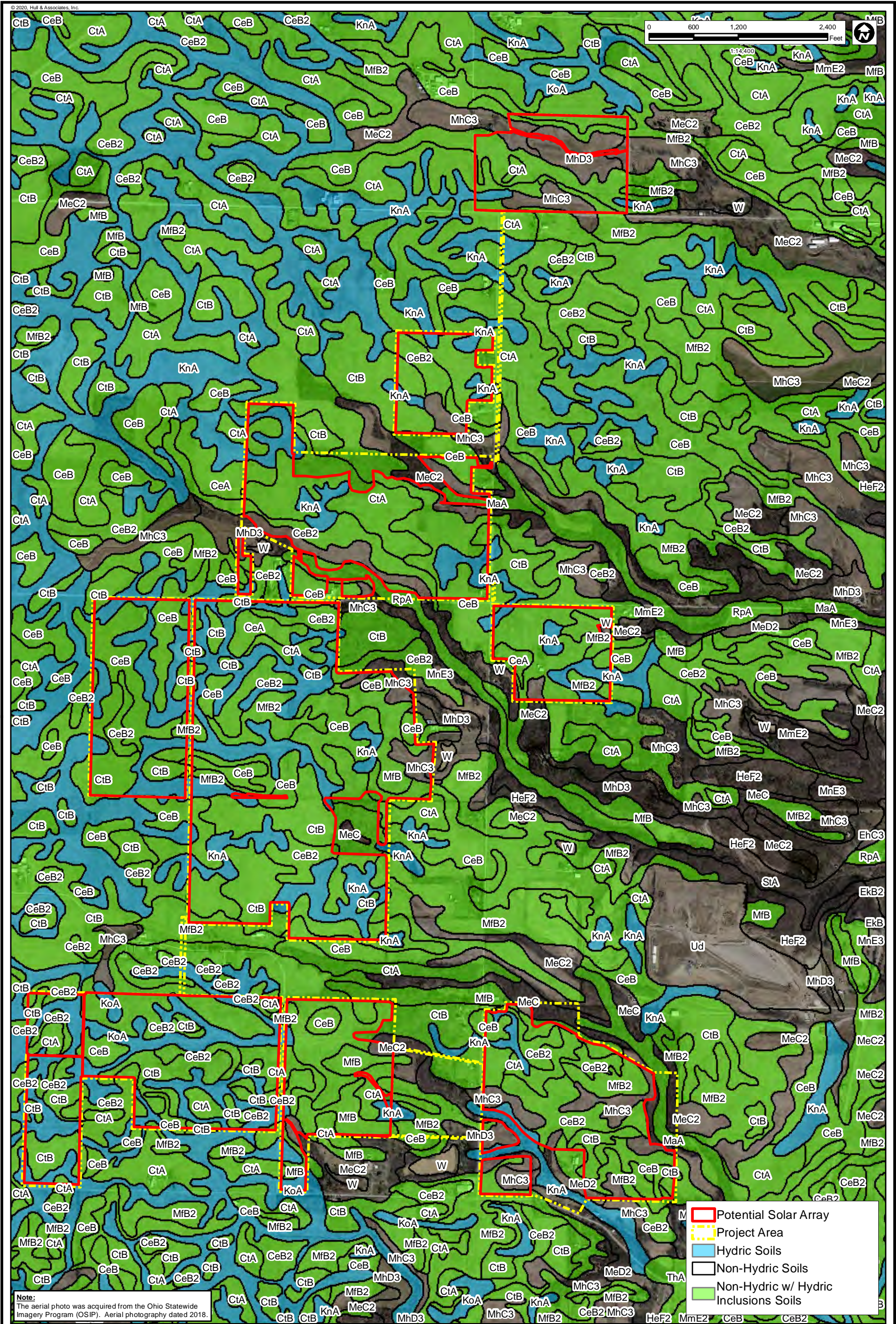
**Existing  
Land Cover**

Gasper and Washington Townships  
Preble County, Ohio

Figure

**2**







**Environment / Energy / Infrastructure**

219 S. Erie Street  
Toledo, Ohio 43604

Phone: (419) 385-2018  
Fax: (419) 243-1881  
www.hullinc.com

**DISCLAIMER**  
Hull & Associates, Inc. (Hull) has furnished this map to the company identified in the title block (Client) for its sole and exclusive use as a preliminary planning and screening tool and field verification is necessary to confirm these data. This map is reproduced from geospatial information compiled from third-party sources which may change over time. Areas depicted by the map are approximate and may not be accurate to mapping, surveying or engineering standards. Hull makes no representation or guarantee as to the content, accuracy, timeliness or completeness of any information or spatial location depicted on this map. This map is provided without warranty of any kind, including but not limited to, the implied warranties of merchantability or fitness for a particular purpose. In no event will Hull, its owners, officers, employees or agents, be liable for damages of any kind arising out of the use of this map by Client or any other party.

April 2020

Alamo Solar Project  
Open Road Renewables, LLC

**Soils Map**

Gaspar and Washington Townships  
Preble County, Ohio

Figure

**3**



## **APPENDIX A**

Ohio Administrative Code 901:5-37 Noxious Weeds  
and Photographs of Common Noxious Weeds

## **Chapter 901:5-37 Noxious Weeds**

### **901:5-37-01 Prohibited noxious weeds.**

The following plants are hereby designated "prohibited noxious weeds":

- (A) Shatter cane (*Sorghum bicolor*).
- (B) Russian thistle (*Salsola Kali* var. *tenuifolia*).
- (C) Johnsongrass (*Sorghum halepense* ).
- (D) Wild parsnip (*Pastinaca sativa*).
- (E) Grapevines(*Vitis* spp.), when growing in groups of one hundred or more and not pruned, sprayed, cultivated, or otherwise maintained for two consecutive years.
- (F) Canada thistle (*Cirsium arvense* ).
- (G) Poison hemlock (*Conium maculatum*).
- (H) Cressleaf groundsel (*Senecio glabellus*).
- (I) Musk thistle (*Carduus nutans*).
- (J) Purple loosestrife (*Lythrum salicaria*).
- (K) Mile-A-Minute Weed (*Polygonum perfoliatum*).
- (L) Giant Hogweed (*Heracleum mantegazzianum*).
- (M) Apple of Peru (*Nicandra physalodes*).
- (N) Maretail (*Conyza canadensis*)
- (O) Kochia (*Bassia scoparia*).
- (P) Palmer amaranth (*Amaranthus palmeri*).
- (Q) Kudzu (*Pueraria montana* var. *lobata*).
- (R) Japanese knotweed (*Polygonum cuspidatum*).
- (S) Yellow Groove Bamboo (*Phyllostachys aureasculata*), when the plant has spread from its original premise of planting and is not being maintained.
- (T) Field bindweed (*Convolvulus arvensis*).
- (U) Heart-podded hoary cress (*Lepidium draba* sub. *draba*).
- (V) Hairy whitetop or ballcress *Lepidium appelianum*).
- (W) Perennial sowthistle (*Sonchus arvensis*).
- (X) Russian knapweed (*Acroptilon repens*).
- (Y) Leafy spurge (*Euphorbia esula*).
- (Z) Hedge bindweed (*Calystegia sepium*).
- (AA) Serrated tussock (*Nassella trichotoma*).



(BB) Columbus grass (*Sorghum x alnum*).

(CC) Musk thistle (*Carduus nutans*).

(DD) Forage Kochia (*Bassia prostrata*).

(EE) Water Hemp (*Amaranthus tuberculatus*).

Effective: 9/14/2018

Five Year Review (FYR) Dates: 6/29/2018 and 09/14/2023

Promulgated Under: [119.03](#)

Statutory Authority: [901.10](#), [5579.04](#)

Rule Amplifies: [5579.05](#), [5579.08](#)

Prior Effective Dates: 10/15/1987, 02/05/1988, 06/30/1992, 11/21/1994, 01/25/2005, 03/26/2007, 11/12/2010



PHOTO 1: Canada thistle



PHOTO 2: Purple loostripe

<b>HULL</b> Environment / Energy / Infrastructure	Angelina Solar Project Vegetation Management Plan  Ohio Noxious Weed Photographs  Source: Ohio Perennial and Biennial Weed Guide <a href="http://www.oardc.ohio-state.edu/weedguide/index.php">www.oardc.ohio-state.edu/weedguide/index.php</a>	May-20
		Project Number: ORR021 File Name: ORR021.0001.XLSX





PHOTO 3: Wild parsnip



PHOTO 4: Japanese knotweed


 <b>Environment / Energy / Infrastructure</b>	<p>Angelina Solar Project Vegetation Management Plan</p> <p>Ohio Noxious Weed Photographs</p> <p>Source: Ohio Perennial and Biennial Weed Guide <a href="http://www.oardc.ohio-state.edu/weedguide/index.php">www.oardc.ohio-state.edu/weedguide/index.php</a></p>	<p>May-20</p>
		<p>Project Number: ORR021</p> <p>File Name: ORR021.0001.XLSX</p>





PHOTO 5: Poison hemlock


	Angelina Solar Project Vegetation Management Plan		Date Taken:
	Ohio Noxious Weed Photographs  Source: Ohio Perennial and Biennial Weed Guide <a href="http://www.oardc.ohio-state.edu/weedguide/index.php">www.oardc.ohio-state.edu/weedguide/index.php</a>		May-20  Project Number: ORR021 File Name: ORR021.0001.XLSX





PHOTO 6: Giant hogweed (Source: invasives.org)



PHOTO 7: Leafy spurge (Source: invasives.org)

<div> <div>HULL</div> <div>Environment / Energy / Infrastructure</div> </div>	<div> <div>Angelina Solar Project</div> <div>Vegetation Management Plan</div> <div>Ohio Noxious Weed Photographs</div> <div>Source: Ohio Perennial and Biennial Weed Guide</div> <div>www.oardc.ohio-state.edu/weedguide/index.php</div> </div>	<div>Date Taken:</div> <div>May-20</div>
		<div>Project Number: ORR021</div> <div>File Name:</div> <div>ORR021.0001.XLSX</div>

**ROAD USE AND MAINTENANCE AGREEMENT  
FOR SOLAR PROJECTS AND INFRASTRUCTURE**

THIS ROAD USE AND MAINTENANCE AGREEMENT FOR SOLAR PROJECTS AND INFRASTRUCTURE (this "Agreement") is entered into on January 15, 2020 by and between Preble County Board of County Commissioners, Preble County, Ohio/ Gasper Township Trustees, Preble County, Ohio/ Washington Township Trustees, Preble County, Ohio, political subdivisions, whose mailing addresses are 101 E. Main Street, Eaton, OH 45320, 2295 Camden Rd., Eaton, OH 45320, and 1800 Eaton-Gettysburg Rd., Eaton, OH 45320, respectively, (hereafter, collectively, "Authority"), and Alamo Solar I, LLC, whose address is 1105 Navasota St., Austin, Texas 78702 (hereafter "Operator") (Authority and Operator, each a "Party" and collectively, the "Parties"), and shall be as follows:

**RECITALS**

**WHEREAS**, Authority has control of the several county/township roads within Gasper and Washington Township, in Preble County, Ohio and is required by law to keep such roads in good repair; and

**WHEREAS**, Operator intends to develop and operate the Alamo Solar Project, including the equipment, facilities, and underground and above-ground wires and cables necessary for the construction and operation of the Alamo Solar Project (hereafter collectively referred to as the "Project") located in Gasper and Washington Township, in Preble County, Ohio; and

**WHEREAS**, Operator intends to use certain portions of Consolidated Road, Antioch Road, Mann Road, Paint Creek Road, Call Road, Gasper Road, Camden Road, and Kincaid Road, including associated culverts and bridges, as depicted in the attached Appendix B (hereinafter "Impacted Roads") for the purpose of ingress to and egress from the Project, for traffic and heavy-load traffic necessary for the purpose of construction, operation, and maintenance of, and possible re-powering or decommissioning of, the Project (hereinafter referred to collectively as the "Activity"); and

**WHEREAS**, Operator intends to qualify for the payment in lieu of taxes available pursuant to Section 5727.75 of the Ohio Revised Code (the "PILOT"), and the PILOT requires Operator to enter into an agreement providing for the repair and maintenance of said roads and bridges thereon as a result of such Activity; and

**WHEREAS**, Authority and Operator desire to enter into this Agreement; and

**WHEREAS**, if any county or township roads contemplated herein contain any railroad crossings, Section 8 below shall apply;

**NOW THEREFORE**, in consideration of the good faith performance by each party of the mutual covenants hereinafter set forth, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Operator agrees to the maintenance and repair of said roads and bridges as described in this Agreement.

**BOTH PARTIES FURTHER AGREE** to the following additional terms and conditions herein and those contained in Appendix A:

1. Preliminary Map. The Impacted Roads are identified in the preliminary map attached as Appendix B (the "Preliminary Map"). It is understood and agreed that the Preliminary Map represents Operator's current estimate of road use necessary for the Project.
2. Final Map. Following completion of final engineering and design work for the Project, Operator shall prepare a final map (the "Final Map") that shall, with the Authority's consent, be attached to this Agreement as an amended Appendix B, such consent not to be unreasonably withheld. It is understood and agreed that the Final Map shall set forth the exclusive portion of Authority Roads that Operator will use for the Activity and that Operator shall not utilize any of the remainder of County Roads or Township Roads for any of its Activities hereunder.
3. Pre-Project Road Improvements and Modifications. Operator may, following consultation with the County Engineer, modify or upgrade portions of the Impacted Roads to ensure safe passage. Following such consultation, those portions of the Impacted Roads deemed to require strengthening or other improvements shall be strengthened or otherwise improved to a condition sufficient and adequate to sustain the anticipated activity by Operator, at Operator's sole expense, and in a manner substantially consistent with existing road maintenance performed by the Authority. Such improvements may be temporary or permanent and may include road widening or strengthening, or the spanning of existing culverts and bridges, and other improvements and modifications reasonably necessary to accommodate the transport of heavy equipment, materials, and/or multiple heavy loads on the roads. All such improvements shall be performed in compliance with the applicable regulations of Ohio Department of Transportation. Following completion of construction of the Project, Operator shall consult with the County Engineer to determine whether any road improvement installed by Operator should be restored to its original condition by Operator or retained and accepted permanently by the Authority.
4. Prevailing Wage. Operator or any subcontractor hired by Operator will pay prevailing wages for road improvements, modifications, and repairs to the extent such practice is required pursuant to Ohio Revised Code Chapter 4115 or other Ohio statute.
5. Repairs. All portions of the Impacted Roads that are damaged by Operator's Activity shall be repaired by Operator, at Operator's sole expense, throughout the term of this Agreement, to a level consistent with the condition of such roads at the commencement of its use by the Operator as documented by the engineering report described in Appendix A. If the County Engineer reasonably determines that Operator has caused damage to roads or bridges and has not repaired such damage in a reasonable time, then the County Engineer shall issue a written notice of default to Operator. Following

Operator's receipt of such notice, Operator shall consult with the County Engineer and have ninety (90) days to cure such default. If the default remains uncured after the expiration of such time period, or the County Engineer reasonably determines that the repairs are not completed to a level consistent with the condition of such roads at the commencement of its use by Operator, the Parties may pursue dispute resolution pursuant to Section 9.

6. Emergency Damages and Repairs. In the event Operator is reasonably believed by Authority to have caused damage to any road(s) of a magnitude sufficiently great to create a hazard to the travelling public, which in the good faith opinion of County Engineer warrants an immediate repair or road closing, Authority shall notify Operator of the damage. If the Operator has failed to begin such repair work within twenty-four (24) hours of the notice from Authority, Authority may unilaterally make or authorize repair to the road(s), and the costs incurred by Authority may be drawn against the performance bond as set forth below. Authority shall photograph, videotape and otherwise document the conditions and make all such documentation available to Operator.

7. Temporary Access. Operator shall promptly notify the County Engineer if it shall be necessary to construct or partially construct any temporary access on the Impacted Roads in order to construct the Project, and the Authority shall cooperate in providing such permit or other documentation reasonably requested by Project to evidence the Authority's approval of such access. With regard to new driveways, Operator shall utilize the Access Management application found in the Office of the County Engineer and obtain an Access Management permit.

8. Railroads. The Operator shall give notice to the railroad at least thirty (30) days prior to any known Activity utilizing a railroad crossing so that a joint inspection can determine the condition of the crossing. Additionally, the Operator shall coordinate all work needing to be performed at a railroad crossing with the railroad company at least thirty (30) days prior to starting work on a railroad crossing. The Authority shall not be liable for any incidents arising out of or related to work performed at any railroad crossing pursuant to this Agreement or any separate agreement between the Operator and the Railroad Company, or lack of notification by Operator.

9. Dispute Resolution. In the event of any dispute arising out of or relating to the execution, delivery or performance of this Agreement, either Party may provide notice to the other of such dispute. Upon a Party's receipt of such notice, each Party shall attempt to resolve such dispute. If the Parties are unable to resolve such dispute within fifteen (15) Business Days of receipt of notice of such dispute, each Party shall have the right to pursue all remedies available to it at law or in equity pursuant to this Agreement.

10. Bond. With regard to the requirements of the PILOT and Section 5727.75(F)(4) of the Ohio Revised Code, Operator shall deliver a bond in a form acceptable to both Parties, before beginning any on-site construction work on the Project and before beginning any on-site decommissioning work on the Project, as further described below:

- a. No later than thirty (30) days prior to the start of construction of the Project, Operator shall deliver and maintain a bond or other surety in the amount of One Million Dollars (\$1,000,000.00), which



shall endure throughout the construction of the Project and extend for twelve (12) months following the date on which Owner gives Authority written notice that Owner has completed all repairs of roads, bridges, and culverts affected during the construction of the Project.

- b. No later than thirty (30) days prior to the start of final decommissioning of the Project, Operator shall deliver and maintain a bond or other surety in an amount equal to One Million Dollars (\$1,000,000.00) escalated at a compounded rate of 2% per annum from the year of Project construction to the year of decommissioning, which bond shall endure throughout the decommissioning of the Project and extend for twelve (12) months following the date on which Owner gives Authority written notice that Owner has completed all repairs of roads, bridges, and culverts affected during the decommissioning.
- c. Authority hereby acknowledges and agrees that the provisions of this Section 10 when implemented constitute a sufficient bond or surety, mutually accepted by the Authority and Operator, in favor of the Authority for road usage by the Operator within the Authority's oversight.

11. ODOT Permits. Operator shall provide the Authority with a copy of all permits obtained by Operator for oversized or overweight vehicles issued by the Ohio Department of Transportation in connection with Operator's activities on the Project, before any hauling activities associated with the permits take place.

12. Emergency Contact. Operator shall furnish the Authority with a written Letter of Authority, setting forth all necessary contact information, including a twenty-four (24) hour emergency contact number, for the authorized local representative of the Operator, and such information shall be maintained and kept current at all times concerned hereunder.

13. Signage. If Authority determines that any additional traffic signage is needed, or desired, as a result of this Agreement and in the interests of safety, then Operator shall provide for such signage at Operator's sole expense. In the event that any other safety concerns should arise during the course of this Agreement, Operator and Authority agree that they will mutually discuss such concerns and reach a resolution satisfactory to all concerned.

14. Indemnification. Operator agrees to indemnify and hold harmless the Authority and its commissioners, administrators, employees and representatives (collectively the "Indemnified Party") against any and all losses, damages and claims, expenses and liabilities for physical damage to the property of the Authority and for physical injury to any person, including, without limitation reasonable attorney fees, to the extent directly resulting from (i) any operations or activities of Operator on the property of the Authority; (ii) the negligence or willful misconduct of Operator during the Activity; or (iii) any breach of this Agreement by Operator. Furthermore, Operator agrees to defend, indemnify and hold harmless the Indemnified Party from any third party claims arising out of the terms and conditions of this Agreement. Notwithstanding the foregoing, Operator's obligations under this Section 14 shall not apply to the extent any such losses, damages, claims or injuries arise out of the negligence or willful misconduct of the Indemnified Party. This indemnification obligation shall survive the termination of this Agreement.

15. Assignment. Operator may wholly or partially assign its rights and obligations under this Agreement, including without limitation an assignment to a lender or tax credit investor, without the consent of the Authority, in which event Operator shall deliver written notice of such assignment to the Authority. The Authority may not wholly or partially assign its rights and obligations under this Agreement without the prior written consent of Operator. This Agreement shall be binding upon Operator and Authority, and their respective successors and permitted assigns.

16. Severability. In any event that any clause, provision or remedy in this Agreement shall, for any reason, be deemed invalid or unenforceable, the remaining clauses and provisions shall not be affected, impaired or invalidated and shall remain in full force and effect.

17. Governing Law. This Agreement shall be governed by the laws of the State of Ohio.

18. Insurance. Operator shall at all times during construction and operation of the Project carry: (i) worker's compensation coverage in accordance with the laws of the State of Ohio; (ii) commercial general liability insurance with minimum limits of \$3,000,000 per occurrence; and (iii) automobile liability insurance with minimum limits of \$2,000,000 per occurrence. Operator shall provide proof of such insurance to the Authority prior to commencement of construction of the Project and thereafter upon request. The Preble County Board of County Commissioners shall be named as an additional insured to the commercial general liability policy.

19. Relationship of the Parties. The duties, obligations and liabilities of the Parties are intended to be several and not joint or collective. This Agreement shall be not interpreted or construed to create an association, joint venture, fiduciary relationship or partnership between the Parties or to impose any partnership obligation or liability or any trust or agency obligation or relationship upon either party. Neither party shall have any right, power, or authority to enter into any agreement or undertaking for, or act on behalf of, or to act or be an agent or representative of, or to otherwise bind, the other party.

20. Notice. Any notice required or permitted under this Agreement will be in writing and mailed by registered or certified mail, return receipt requested, or by Federal Express, USPS Priority Mail or other comparable delivery service to the Parties at the following addresses:

Authority: Preble County Board of County Commissioners  
101 E. Main Street  
Eaton, OH 45320  
Attn: \_\_\_\_\_

Operator: Alamo Solar I, LLC  
1105 Navasota St.  
Austin, TX 78702  
Attn: Rebecca Maag

Notices shall be deemed delivered and received on the first to occur of (i) three (3) days after deposit with Federal Express, USPS Priority Mail or other comparable delivery service, addressed to such address or (ii) on written acceptance of delivery by the recipient. Either Party may change its address for receipt of notices by sending notice hereunder of such change to the other Party.

21. Counterparts. This Agreement may be executed in two or more counterparts and by different parties on separate counterparts, all of which shall be considered one and the same agreement and each of which shall be deemed an original.

22. Term and Termination. This Agreement shall be in effect as of the date first written above, and will terminate upon the expiration of the ninetieth (90th) day following the final decommissioning of the Project unless earlier terminated by mutual written agreement of the Parties.

Executed on the dates set forth below.


(the rest of this page intentionally left blank)

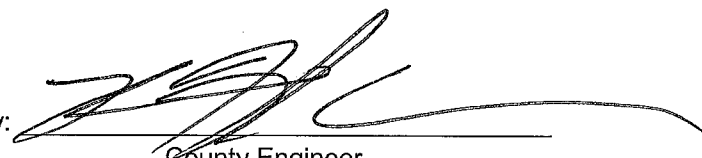
**Authority**

**Preble County Board of County Commissioners, Preble County, Ohio**

By: \_\_\_\_\_  
Commissioner


By: \_\_\_\_\_  
Commissioner

By: \_\_\_\_\_  
Commissioner

By: \_\_\_\_\_  
County Engineer

Dated: 1/15/2020

Approved as to Form  
Martin P. Votel  
Prosecutor, Preble County, Ohio

\_\_\_\_\_  
By: Kathryn M. West  
Preble County Assistant Prosecutor

Washington Township, Preble County, Ohio

Washington Township Trustees

By: James A. Jewell


By: \_\_\_\_\_

By: Rodger B. Clark

(the rest of this page intentionally left blank)

Gasper Township, Preble County, Ohio

Gasper Township Trustees

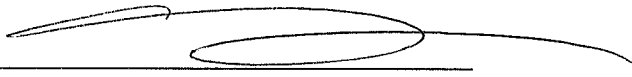
By:  \_\_\_\_\_

By:  \_\_\_\_\_

By:  \_\_\_\_\_

(the rest of this page intentionally left blank)

Operator

By: 

Printed Name: CYRUS TASHAKKORI

Company Name: ALAMO SOLAR I, LLC

Title: PRESIDENT

Dated: 11 / 12 / 2019

(the rest of this page intentionally left blank)

## **Appendix A**

Operator shall:

- 1) Provide for videotaping of the road prior to the Activity. This videotaping cannot occur during the months of February, March, or April.
- 2) Provide an engineering report detailing road conditions existing prior to the Activity. The Report must detail the road conditions in months other than February, March, and April. Engineering report to also provide an analysis of conditions along with a recommendation, if mutually agreed to be necessary, for upgrading specific roadway areas to handle anticipated Activity.
- 3) Make the upgrades or repairs required under this Agreement using substantially similar materials as those existing prior to the Activity and in accordance with the most current material standards as published by the Ohio Department of Transportation.
- 4) Repair Impacted Roads during Activities for those damages caused by said Activities, as described in Section 3 of this Agreement.
- 5) Be responsible for all repairs to the pavement structure as described herein for the duration of this project – Notice of Commencement through Decommissioning.
- 6) Comply with any setbacks required by the Certificate of Environmental Compatibility and Public Need issued to Operator by the Ohio Power Siting Board.
- 7) Reimburse Authority up to \$15,000 for (i) the cost incurred by Authority, including any purchases of equipment, to complete the high resolution LiDAR mapping activity described as item 3, below, and (ii) documented costs incurred by Authority from the time of Application through final decommissioning of the Project to reimburse the costs of consultant fees found needed by the County Engineer if it is suspected that the Operator caused undue damage leading up to but not including failure of a road or bridge. This amount is in addition to, and is not a limitation upon any other financial obligations of Operator under this Road Use Maintenance Agreement. Authority shall provide Operator with receipts of purchases related thereto at the address and means stated in Section 20 entitled "Notice" of this Road Use Maintenance Agreement. Operator shall make a timely reimbursement within 60 days of receipt of the provided receipts. Operator shall make the reimbursement payments to Authority at the address and by means provided in Section 20.

Authority shall:

- 1) Provide repairs to the Impacted Roads during the Activity for damages not caused by said Activity, at the Authority's cost and expense.
- 2) Provide for routine and customary maintenance of the Impacted Roads to ensure safe passage during the Activity, at the Authority's cost and expense, including snow/ice control, mowing, etc.
- 3) Use high resolution LiDAR mapping technology on the roadways to document their integrity prior to any construction and after construction is completed, and prior to decommissioning and after the project has been decommissioned.



## **Appendix B**

Preliminary Map follows on subsequent page, to be replaced by Final Map



# **DECOMMISSIONING PLAN AND COST EVALUATION**

**FOR THE:  
ALAMO SOLAR PROJECT  
GASPER AND WASHINGTON TOWNSHIPS  
PREBLE COUNTY, OHIO**

**OSPB CASE NUMBER 18-1578-EL-BGN**

**PREPARED FOR:  
ALAMO SOLAR I LLC  
1105 NAVASOTA STREET  
AUSTIN, TX 78702**

**JULY 2020**

## TABLE OF CONTENTS

	PAGE
<b>1.0 EXECUTIVE SUMMARY .....</b>	<b>1</b>
<u>1.1</u> Introduction.....	1
<u>1.2</u> Results.....	1
<b>2.0 PROJECT DESCRIPTION.....</b>	<b>3</b>
<u>2.1</u> Project Introduction.....	3
<u>2.2</u> Solar Module Units.....	3
<u>2.3</u> Underground Electric Collection Cables, Inverters and Transformers.....	3
<u>2.4</u> Substation and Interconnection Transmission Line.....	3
<u>2.5</u> Access Roads .....	4
<u>2.6</u> Solar Meteorological Stations.....	4
<b>3.0 DECOMMISSIONING PLAN .....</b>	<b>5</b>
<u>3.1</u> Solar Module Units.....	5
<u>3.2</u> Underground Electric Collection Cables, Inverters and Transformers.....	6
<u>3.3</u> Substation and Interconnection Transmission Line.....	6
<u>3.4</u> Access Roads .....	6
<u>3.5</u> Solar Meteorological Stations.....	7
<b>4.0 SITE RECLAMATION .....</b>	<b>8</b>
<b>5.0 DECOMMISSIONING COSTS.....</b>	<b>9</b>
<b>6.0 DECOMMISSIONING SCHEDULE AND PERMITS .....</b>	<b>10</b>
<b>7.0 DECOMMISSIONING ASSUMPTIONS .....</b>	<b>11</b>
<b>8.0 STANDARD OF CARE AND LIMITATIONS.....</b>	<b>12</b>

## APPENDICES

Appendix A	Decommissioning Cost Evaluation
Appendix B	Project Schedule

## **1.0 EXECUTIVE SUMMARY**

### **1.1 Introduction**

Hull & Associates, LLC (Hull) was retained by Alamo Solar I LLC to conduct the Alamo Solar Project Decommissioning Study. The Alamo Solar Project is a solar-powered electric generation facility planned to consist of large arrays of ground mounted solar panel modules, metal racking system and support piles, underground electric collection cables, inverters, transformers, the Substation, solar meteorological stations, electrical interconnect transmission line, and associated access roads (collectively, the “Facility”). The Facility is located in Gasper and Washington Townships in Preble County, south of State Route 732, west of U.S. Route 127, north of Mann Road and east of the Paint Creek Road.

The Alamo Solar Project plans to utilize Tier 1 modules with a total nominal rating of 69.9 Megawatts (MW) Alternating Current (AC). For the purpose of this decommissioning cost evaluation, Hull has evaluated the Facility as described in the Alamo’s Solar Project’s Application for a Certificate of Public Need and Necessity, including assuming that 213,812 Tier 1 425W modules will be used for a total nominal rating of approximately 90.8 megawatts (MW) Direct Current (DC) and 69.9 MW AC. Any changes to the specific number of modules utilized or other minor changes as the Facility reaches final design will not change the overall conclusions of, or decommissioning methods described in, this Decommissioning Study. There may be minor changes to the cost estimate included as Appendix A, which will be updated before the financial assurance described in Section 5.0 is implemented. The purpose of the decommissioning cost evaluation was to review the Facility and to make a recommendation to Alamo Solar I LLC regarding the total cost to retire the Facility at the end of its useful life.

This Decommissioning Study will be updated every five years from the commencement of construction.

### **1.2 Results**

Hull estimates that the Facility should have an expected useful life of approximately 40+ years. When the project owner determines that the Facility should be retired, this plan will be used for the decommissioning effort. The decommissioning costs include the costs to return the site to a condition compatible with the surrounding land, similar to the conditions that existed before development of the Facility. Included are the costs to retire the power generating equipment as well as the costs to retire the balance of plant (BOP) facilities. All equipment, structures and supporting components will be removed off-site, with the exception of the underground improvements (i.e. cabling and foundations) which will only be removed to three feet below grade.

The access roads and the Facility substation surface will be restored to conditions similar to those prior to construction of the Facility. If a landowner prefers to retain an access road for future use, it will not be decommissioned.

Surface water drainage will be restored to conditions prior to construction of the Facility. When the equipment, access roads and foundations (to three feet below grade) are removed and the ground surface restored, final grading will be consistent with contours existing prior to construction. Stream crossings will be restored to pre-construction conditions. Ground water resources in this area are generally found at a depth well below any foundations for this project. Construction and decommissioning activities are planned to be well above any groundwater resources. During construction, all wetlands will be avoided, and decommissioning activities will also avoid all wetlands. Therefore, there are no anticipated impacts to surface or groundwater resources and wetlands. If information becomes available at a later date that would suggest that these resources would be affected, it will be addressed in the five-year update to this plan.

All decommissioning work will be conducted under applicable permits and approval as generally outlined within Section 6.0 below.

This document establishes the costs to decommission the Facility without consideration of salvage values; however, the solar panel modules, metal racking system and support piles are assumed to have significant scrap value to a salvage contractor. For this reason, the salvage values have also been separately estimated.

The schedule for completing the decommissioning is estimated to take 5.25 months which consists of 1.5 months of permitting activities and 3.75 months of demolition and restoration activities.

Based on the results of this evaluation, the estimated decommissioning obligation cost for the Alamo Solar Project are as represented within Appendix A.

## **2.0 PROJECT DESCRIPTION**

### **2.1 Project Introduction**

The Alamo Solar Project is planned to consist of large arrays of ground mounted solar panel modules, metal racking system and support piles, underground electric collection cables, inverters, transformers, the Substation, solar meteorological stations, electrical interconnect transmission line, and associated access roads (collectively, the “Facility”). The Facility is located in Gasper and Washington Townships in Preble County, south of State Route 732, west of U.S. Route 127, north of Mann Road and east of the Paint Creek Road.

### **2.2 Solar Module Units**

The cost evaluation attached as Appendix A is based on the Facility as described in the Alamo Solar Project’s Application for a Certificate of Public Need and Necessity, including 213,812 Tier 1 425W modules for a total nominal rating of approximately 90.8 MW DC and 69.9 MW AC. The solar panels will be mounted to a metal racking system with piles that will be driven or rotated into the ground in long rows or “arrays”. At the beginning and ending positions of each day, the low end of the solar panels will be one (1) to three (3) feet above the ground surface, and the high end of the panels at eight (8) to fourteen (14) feet above ground surface.

### **2.3 Underground Electric Collection Cables, Inverters and Transformers**

The Facility will include approximately 20.5 miles of buried collection lines and 38 inverters. Solar panels will be grouped into a series of circuits routing through cable trays on the racking to combiner boxes. Power from those combiner boxes will then be transmitted to DC-to-AC inverters, step up transformers and cabinets containing power control electronics. Some of these cables can be located underground or aboveground. This equipment will be mounted on a prefabricated foundation, such as a metal skid and helical piers, or field fabricated foundations. AC power will be delivered through these collection lines to the Substation.

### **2.4 Substation and Interconnection Transmission Line**

As stated in Section 2.3, the electrical power from the solar panels will be routed to a central electrical substation (the Collector Substation). The major components of the Collector Substation will be collection line feeders and breakers, 34.5 kV bus, main power transformer, high voltage breaker, metering/relaying transformers, disconnect switches, enclosure containing power control electronics and a lightning mast. The Substation will be constructed on a concrete foundation, surrounded by a perimeter fence.

The electrical interconnect transmission line 69 kV circuit will connect the Collector Substation to the Point of Interconnect (POI) Camden-to-Crystal I, which is owned and operated by Dayton Power and Light, Inc. (DPL).

## **2.5 Access Roads**

Each solar field will have an access road to support construction and allow for vehicle access to facilitate operations, maintenance, repair and replacement of equipment in addition to providing access for emergency response. The project will include up to 11.7 miles of access roads for construction, operation and maintenance of the solar farm. The access roads would be up to 25 feet wide during construction and then reduced to 16 feet wide during operation. Main access roads that serve the inverters and substation equipment will likely be surfaced with gravel.

## **2.6 Solar Meteorological Stations**

The project will include up to five (5) meteorological stations, which include pyranometers, anemometer, wind vane, barometer, rain bucket, temperature probe and the associated communications equipment. All equipment will be installed on prefabricated foundations and will be up to fifteen (15) feet in height and will be fenced and gated.



### **3.0 DECOMMISSIONING PLAN**

Hull estimates the Facility should have an expected useful life of approximately 40+ years. Upon the retirement of the Facility, decommissioning and restoration of the entire Facility will be performed and managed by qualified contractors who have demonstrated relevant experience. The selected contractor will secure all the required permits, schedule the planned activities, and work with waste management firms to segregate materials that can be reused and recycled from those that must be properly disposed of at licensed disposal facilities that operate in accordance with current applicable federal, state and local laws, rules, regulations and ordinances. Advance notification of decommissioning to all stakeholders, including landowners, and other relevant agencies will occur prior to any scheduling of said activities.

During decommissioning and restoration activities, necessary environmental protection measures will be implemented. Activities during decommissioning will be comparable to the construction phase, including the use of heavy equipment onsite, preparing staging areas, and restoring areas that were disturbed during work activities. With that being said, best management practices regarding erosion and sedimentation controls will be implemented, as well as dust and noise mitigation controls. Additionally, contingency plans will be in place for unforeseen conditions and spills. A project specific Health & Safety Plan (HASP) will be prepared by the respective contractors and be available onsite. All assigned personnel will have participated in the contractor defined safety training programs associated with this type of work. This HASP will address employee health and safety during planned activities, personal protective equipment, identify safety procedures and protocols and include a section describing emergency response and communication plans. Daily jobsite safety analysis (JSAs) will be conducted each morning identifying planned activities, potential hazards and the associated engineering controls/ hazard mitigation measures.

Additionally, contractors shall be obligated to maximize the salvage value for the overall project and all recyclable materials, salvaged and non-salvaged, shall be recycled to the furthest extent possible.

See below for a description of the individual Facility components and the proposed plan for decommissioning these components. The Facility will be deenergized and isolated from all external electrical lines in coordination with the appropriate utility prior to commencing removal and recycling activities.

#### **3.1 Solar Module Units**

All modules will be disconnected, removed from the racking, carefully packaged and transported to a designated location for resale, recycling or disposal. The connecting cables and combiner boxes will be disconnected and removed. The steel racking system supporting the solar modules will be unbolted and disassembled by laborers using standard hand tools and possibly assisted by mechanical equipment. All

steel support structures will be completely removed by mechanical equipment and transported offsite for salvage or reuse. Any demolition debris that is not salvageable will be transported offsite to licensed disposal facilities, operating in accordance with current applicable federal, state and local laws, rules, regulations and ordinances. Vehicles used for transport will be legal weight and dimensions. All piles shall be completely removed from the site.

### **3.2 Underground Electric Collection Cables, Inverters and Transformers**

Decommissioning will require dismantling and removal of electrical equipment, including above ground cables, inverters and transformers. Buried collection cables more than 3 feet below grade will not be removed. All electrical equipment will be removed from the Project property and transported offsite. Concrete foundations and support pads will be broken up by mechanical equipment, loaded onto dump trucks and removed from the site. Vehicles used for transport will be legal weight and dimensions, with the exception of some larger electrical equipment that may require special hauling permits. Prior to removal of the transformers, any oil will be pumped out into a separate industry approved disposal container and sealed to prevent any spillage during storage and/or transportation. It is expected that any oils will be recycled and reused. Equipment and materials are expected to be salvaged for resale or scrap value depending upon market conditions.

### **3.3 Substation and Interconnection Transmission Line**

The equipment in the Collector Substation and surrounding fencing will be removed and the demolition contractor will take ownership of the equipment with all salvage value to be retained by the demolition contractor. It is assumed that the salvage value of this electrical equipment will be used to offset the demolition costs. All substation fencing will be removed, loaded into a dump truck or trailer, and recycled or reused. The underground cabling for the power collection system is assumed to be buried at a depth of greater than three feet, and therefore will be abandoned in place. The Facility owner will contact the applicable regional transmission organization and interconnection utility prior to decommissioning to manage/coordinate efforts to ensure no disruption to the electrical grid.

### **3.4 Access Roads**

For purposes of this study, it is assumed that all of the access roads will be removed as part of the decommissioning of the Facility. This will include removal of the aggregate surface, geotextile materials and any modified subgrade material. Areas where aggregate surfacing has been removed will be decompacted and spread with topsoil. The decommissioned areas, inclusive of the access roads, will be graded to contours consistent with pre-construction topography to ensure suitable surface drainage, and restore drainage patterns. The removed aggregate will be loaded into a dump truck and the demolition contractor will take ownership of the aggregate.

Participating landowners may choose to retain roads for their own use following decommissioning, so prior to any removal activities landowners will be directly contacted and their intentions will be properly documented.

### **3.5 Solar Meteorological Stations**

The equipment, prefabricated foundations and surrounding fencing within the Solar Meteorological Stations will be removed by mechanical equipment and the demolition contractor will take ownership of the equipment with all salvage value to be retained by the demolition contractor. It is assumed that the salvage value of this electrical equipment will be used to offset the demolition costs. All fencing will be removed, loaded into a dump truck or trailer, and recycled or reused.

#### 4.0 SITE RECLAMATION

Once the removal of all equipment and site demolition is complete, site reclamation activities will commence. Agricultural areas will be restored to conditions prior to site disturbance, unless another use is more appropriate or desired by the respective landowners. The decommissioned areas, inclusive of the access roads, will be graded to contours consistent with pre-construction topography to ensure suitable surface drainage and restore drainage patterns. In areas where topsoil was removed during construction, topsoil will be redistributed to provide similar ground cover that was present prior to site disturbance. Prior to preparing for seeding, any areas where the soil has been compacted by decommissioning activities shall be decompacted prior to placing topsoil and preparing the seed bed. Decompaction can be performed with a disk for shallow compaction or a winged subsoiler or straight ripper shank for areas that may have been compacted to deeper depths.

Soil quality should not be greatly impacted by the solar development, due to solar facility maintaining vegetative ground cover throughout the life of the Project. Maintenance during operation would include mowing activities and leaving grass cuttings in place to decompose. The decomposed organic material would then be naturally added to the existing soils. Disturbed areas will be seeded and mulched to provide vegetative cover to minimize erosion of topsoil. Seed mixes and other materials used will be acquired in quantities sufficient to complete any revegetation work necessary following decommissioning. Ideally, seeding will occur in the fall before first frost or early spring just before the last frost. The average frost-free growing season for the Project Area is mid-April through the end of October. Sources of guidance for seeding and mulching, including watering, mowing, and repairing include the Ohio Rainwater and Land Development Manual (Ohio Department of Natural Resources, 2006) and the Ohio Department of Transportation. (Ohio Department of Transportation , 2020).

Any agricultural drainage tiles impacted during the decommissioning activities will be restored to conditions prior to site disturbance. Impacted drainage tiles during construction, operation and/or maintenance of the Facility should have been timely addressed during those specific activities. Field tile systems that may be damaged during decommissioning activities shall be promptly repaired no later than 30 days after such damage is discovered. Tile installation or repairs shall be performed, to the extent practical, in accordance with applicable provisions of the current version of the Standard Practice for Subsurface Installation of Corrugated Polyethylene Pipe for Agricultural Drainage or Water Table Control, ASTM F449-02 (2008).

## **5.0 DECOMMISSIONING COSTS**

The Facility owner will provide for financial security to ensure that funds are available to decommission the Facility and restore the Project Area. Based on the results of this evaluation, the estimated decommissioning obligation cost for the Alamo Solar Project are as represented within Appendix A.

## **6.0 DECOMMISSIONING SCHEDULE AND PERMITS**

The schedule for completing the decommissioning is estimated to take 5.25 months which consists of 1.5 months of permitting activities and 3.75 months of demolition activities.

This estimated schedule includes multiple demolition and restoration crews to restore all areas to a condition prior to being disturbed. Essentially all of the land being used by the Facility was previously agricultural lands, so the intended future use of the land following reclamation is for it to return to agricultural use with the specific agricultural use to be at the discretion of the landowner.

The structure demolition and the restoration crew will consist of the following personnel per crew:

### **Structure Demolition Crew:**

- machine operators;
- laborers;
- Multiple trucks for hauling; and
- General Superintendent.

### **Restoration crew:**

- machine operators;
- laborers; and
- Multiple trucks for hauling.

At a minimum, the following permits, plans, and/or approvals will likely be required prior to initiating demolition activities:

- Health & Safety Plan Development;
- Demolition Permit;
- Road use and maintenance agreement (RUMA);
- Waste Disposal Plan;
- NPDES General Permit for Storm Water Associated with Construction Activities and a Stormwater Pollution Prevention Plan (SWPPP); and
- Air Monitoring (Dust) Plan / Equipment Mobilization.

While the above list is intended to cover the major permits and approvals that will likely be required, local requirements may require additional site-specific permits and/or approvals that may not be listed above. A detailed study is recommended as part of the normal pre-demolition planning activities to confirm the exact permitting requirements that may be needed to execute the work.

A schedule for this work is provided in Appendix B.

## 7.0 DECOMMISSIONING ASSUMPTIONS

The following assumptions were made as the basis for the cost estimates:

1. The cost estimate is based upon typical industry and market conditions as of the date of this estimate. Natural disasters, homeland security escalation, inflation, financing, and other unforeseen circumstances can cause sudden increases in material and labor costs.
2. It is recognized that neither Hull & Associates, LLC nor its Client has control over the cost of labor, materials or equipment, or over the Contractor's methods of determining bid prices and competitive bidding or negotiating conditions.
3. The costs were based on a standard work shift and does not include premiums for work required to be completed during off hours or weekends.
4. The estimate does not include contractor standby time.
5. The estimate assumes that contractors will have full access to all work areas at the scheduled time of work and does not include delays associated with gaining access.
6. No hazardous construction material abatement is required.
7. No environmental costs have been included to address site cleanup of contaminated soils, hazardous materials, or other conditions present on-site having a negative environmental impact.
8. All solar module units, racking, piles, above ground electric cables, inverters, transformers, collection substation equipment, and solar meteorological equipment are removed from the Project by the demolition contractor and ownership transferred to the contractor with all salvage and scrap value to be retained by the contractor.
9. No buildings are included in the site demolition activities.
10. All fencing is removed as part of site demolition activities.
11. Underground electrical power collection system cabling will be abandoned in place as it is assumed to be greater than three feet below finished grade.
12. All equipment foundations will be removed to a minimum of three feet below finished grade.
13. All crushed rock surfacing around equipment and all crushed rock surfacing associated with the access roads will be removed.
14. During decommissioning efforts, public road improvements were not anticipated due to legal load limits (weight, size) or special hauling permits being adhered to.
15. Topsoil that has been stockpiled at the site will be re-graded in areas where crushed rock surfacing and foundations have been removed to achieve suitable site drainage to natural drainage patterns. All disturbed site areas will be graded. In all areas where the ground has been disturbed as part of decommissioning activities, the ground will be seeded to prevent erosion, but no watering of the seeded areas is included. It is assumed that work will be completed in the Spring or Fall.

## **8.0 STANDARD OF CARE AND LIMITATIONS**

Hull has performed its services using that degree of care and skill ordinarily exercised under similar conditions by reputable members of its profession practicing in the same or similar locality at the time of service. No other warranty, express or implied, is made or intended by our oral or written reports. The work did not attempt to evaluate past or present compliance with federal, state, or local environmental laws or regulations. Hull makes no guarantees regarding the completeness or accuracy of any information obtained from public or private files or information provided by subcontractors.



## **APPENDIX A**

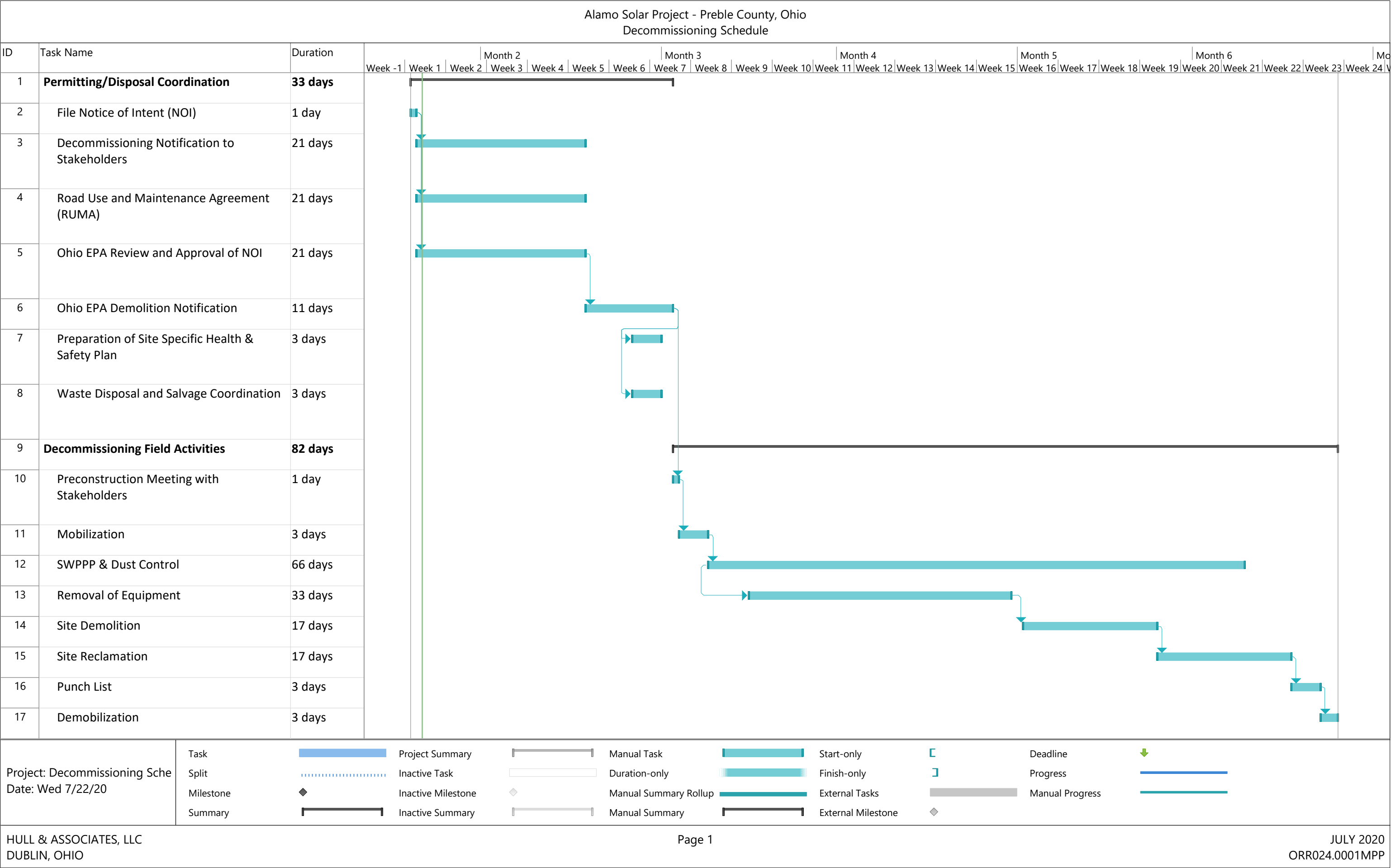
### Decommissioning Cost Evaluation

**Alamo Solar Farm Project**  
**Preble County, Ohio**  
**Decommissioning Obligation Cost Evaluation**

<b><u>Description</u></b>	<b><u>Duration (weeks)</u></b>	<b><u>Cost</u></b>	<b><u>Recycling Value</u></b>	<b><u>Total Cost</u></b>
Mobilization/Demobilization /General Conditions	12.0	\$204,000	0	\$ 204,000
Health & Safety	12.0	\$13,000	0	\$ 13,000
SWPPP & Dust Control	12.0	\$99,000	0	\$ 99,000
Removal of Equipment	6.0	\$4,039,593	(\$3,254,450)	\$ 785,143
Site Demolition	3.0	\$110,000	(\$251,650)	(\$141,650)
Site Reclamation	3.0	\$2,635,700	0	\$2,635,700
<b>Totals excluding 10% Contingency</b>		<b>\$7,101,293</b>	<b>(\$3,506,100)</b>	<b>\$3,595,193</b>
<b>10% Contingency</b>				<b>\$ 359,519</b>
<b>Total inclusive of 10% Contingency</b>				<b>\$3,954,712</b>

## **APPENDIX B**

### Project Schedule



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

**Commission of Ohio Docketing Information System on**

**10/9/2020 3:54:55 PM**

**in**

**Case No(s). 18-1578-EL-BGN**

Summary: Testimony Supplemental Direct Testimony of Mark J. Bonifas electronically filed by Mr. Michael J. Settineri on behalf of Alamo Solar I, LLC