

**COMMONWEALTH OF KENTUCKY  
BEFORE THE KENTUCKY STATE BOARD  
ON ELECTRIC GENERATION AND TRANSMISSION SITING**

**In the Matter of the Application of Horseshoe Bend            )**  
**Solar, LLC, for a Construction Certificate to Construct    ) Case No. 2020-00190**  
**a Merchant Electric Generating Facility                    )**

**APPLICANT’S MOTION FOR DEVIATION FROM SETBACK REQUIREMENTS**

Comes the Applicant, Horseshoe Bend Solar, LLC (“Horseshoe Bend”), by counsel, and pursuant to KRS 278.704(4), moves the Kentucky State Board on Electric Generation and Transmission Siting (the “Board”) to grant a deviation from the setback requirements of KRS 278.704(2). In support thereof, Horseshoe Bend states as follows:

**I.     INTRODUCTION**

Horseshoe Bend filed its Application for a Certificate to Construct a Merchant Electric Generating Facility in Green County, Kentucky (the “Application”) for a 60-megawatt alternating current (MWac) photovoltaic electricity generation facility (the “Project”) on December 14, 2020. The Project will consist of approximately 550 acres of solar photovoltaic panels and associated racking, approximately 15 inverters, a dc-coupled energy storage system to be co-located at each inverter as well as a Project substation transformer that will connect to East Kentucky Power Cooperative’s Green County - Summer Shade 161 kilovolt transmission line near the community of Exie in Green County, Kentucky.

Based on the limited impact the Project will have on the surrounding property as result of many factors, including existing terrain and trees, Project layout and design, and mitigation measures proposed by Horseshoe Bend, the Board should grant this motion seeking approval of deviation for a 600-foot setback (the “Requested Setback”) from one residential neighborhood that lies adjacent to the Project site (as measured from the nearest home in the Neighborhood).

## **II. SETBACK REQUIREMENTS AND DEVIATION STANDARDS**

### **A. Setback Requirements**

The setback requirements applicable to the Horseshoe Bend Solar Project (“Project”) are set forth in KRS 278.704(2), which states:

Except as provided in subsections (3), (4), and (5) of this section, no construction certificate shall be issued to construct a merchant electric generating facility unless the exhaust stack of the proposed facility and any wind turbine is at least one thousand (1,000) feet from the property boundary of any adjoining property owner and all proposed structures or facilities used for generation of electricity are two thousand (2,000) feet from any residential neighborhood, school, hospital, or nursing home facility.

### **B. The 1,000-Foot Setback Requirement**

As noted in the Application, the Project’s sources of generation are solar panels and associated infrastructure. Because the statutory language for the 1,000-foot setback is limited to those sources of generation with an exhaust stack or a wind turbine, the 1,000-foot setback is inapplicable to the Project.

### **C. The 2,000-Foot Setback Requirement**

As shown in the Application, there is one residential neighborhood (the “Neighborhood”), as defined by KRS 278.700(6)<sup>1</sup>, within 2,000 feet of the proposed “structures or facilities used for generation of electricity.” Without a deviation, all proposed structures or facilities used for generation of electricity must be located more than 2,000 feet from any residential neighborhood. Pursuant to KRS 278.704(4), the Board may grant a deviation from the 2,000-foot setback requirements in KRS 278.704(2) if “the proposed facility is designed to and, as located, would meet the goals of KRS 224.10-280, 278.010, 278.212, 278.24, 278.216, 278.218, and 278.700 to 278.716 at a distance closer than those provided in subsection (2) of this

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<sup>1</sup> Per KRS 278.700(6), a “residential neighborhood” is “a populated area of five (5) or more acres containing at least one (1) residential structure per acre.”

section.”

For the reasons set forth below, and applying guidance from prior Board actions interpreting KRS 278.704(4), Horseshoe Bend respectfully requests that the Board grant a deviation from the setback requirements of KRS 278.704(2) and approve the Requested Setback.

### **III. ARGUMENT**

#### **A. Description of the Area Subject to the Deviation Request.**

Exhibit 1 provides a high-level context map showing the location of the Project, the Neighborhood, a two-mile buffer around the Project and the absence of any other residential neighborhood, school, hospital, or nursing home facility. Exhibit 2 provides a close-up map of the Neighborhood indicating there are eight residential structures in this area. Of the eight residential structures, the two residences located closest to the Project footprint are owned by a landowner who is leasing land to the Project, and is supportive of the Project’s location on his property. Exhibit 3 depicts the required 2,000-foot setback, the Requested Setback, and the area of the Project that would be permitted when the Board approves the Requested Setback.

#### **B. Minimal Impacts on Adjacent Landowners.**

In the Board action styled, In the Matter of: Application of ecoPower Generation-Hazard, LLC for a Certificate to Construct and Operate a Merchant Electric Generating Facility and a 69kV Transmission Line in Perry County, Kentucky, *Board Case No. 2009-00530 (hereinafter “ecoPower”)*, the Board enunciated the standards applicable to merchant generating facilities seeking a deviation from the setback requirements found in KRS 278.704(2). In *ecoPower*, the Board stated, “the setback provisions of KRS 278.704(2) were enacted to afford some level of protection for persons occupying a property adjacent to a property where a merchant generating plant is to be constructed and operated.” *ecoPower* at 31. The Board concluded that it must

consider the effects of the planned facility on the adjacent residents when determining whether to grant a deviation pursuant to KRS 278.704(4). *See id.* at 32. The Board subsequently followed the ecoPower deviation procedure in approving the application in SunCoke Energy South Shore, LLC, Case No. 2014-00162.

The design of the Project minimizes the impacts on the environment and the Neighborhood. The Site Assessment Report included in the Application. (*See* Application, Volume 2, entitled Site Assessment Report and referred to herein as the “SAR”) describes the limited noise, visual and traffic impacts of the Project and provides adequate assurances to the Board that granting of the requested setback deviation is justified and warranted.

*1.     Noise.*

The SAR contains at Attachment F a Noise and Traffic Study (SAR, Vol. 2, Page 150) that thoroughly evaluates and provides technical data regarding the expected noise levels from the proposed Project during the construction phase and during its operation and the impact of those noise levels on all property owners adjacent to the Project, including the Neighborhood.

Construction activities are anticipated to be transient in nature and of a limited duration, ending once construction has been completed, and taking place daily during the hours of 7 AM to 9 PM. The loudest source from construction is expected to be pile driving equipment used in the construction of the solar panel racking system, but at the edge of the Neighborhood, based on the Requested Setback, sound level impacts from active pile driving operations would be less than the sound level produced by the use of a household hairdryer. This noise would be temporary as the pile driver would be moved about the project site (and away from the Neighborhood). Other equipment used during construction has a lower sound impact than the pile drivers, and as such, the impact to the local sound environment due to construction is

anticipated to be minor and temporary.

The SAR also examines noise levels during the operations of the Project and focuses on noise generated from inverters, HVAC units and the Project substation. The Project substation is not located within the 2,000-foot setback requirement and should not be considered as part of the request for deviation from that setback. The inverters, energy storage devices, and associated HVAC units will not have a material impact on the Neighborhood at a 600-foot distance. Based on the operational sound levels of this equipment as outlined in the Noise and Traffic Study, at 600 feet, the sound level contribution from this equipment will be less than 1.5 dBA, below the average human ear's sensitivity to sound level changes.

As the data in the SAR demonstrates, allowing the Project to install equipment up to 600 feet away from the Neighborhood would generate noise levels similar to background or common noise levels typically present in residential areas. The Board should therefore conclude that the property owners in the Neighborhood are adequately protected from any noise impacts from the Project and grant the requested setback deviation.

## ***2. Visual Obstruction of Scenic Views.***

The SAR provides an in-depth analysis of the compatibility of the facility with the scenic surroundings and notes that many of the adjacent property owners are screened from the Project by existing vegetation. That is also the case for the Neighborhood, which includes eight residential structures as noted on Exhibit 2. Four of those eight homes are located on the north side of Highway 218 and will have limited, to no, view of the Project if the setback deviation is granted, as the existing structures on the south side of the road and the topography and stand of trees behind those homes should almost entirely block the view of the Project.

The view from three of the four houses on the south side of Highway 218 will be

substantially similar to those on the north side as the existing trees and terrain will shield these homes from a view of the Project. The house on the far west portion of the Neighborhood will have more impact to its view, however this home is owned by a landowner who is leasing land to the Project, and is supportive of the Project's location on his property. Attached as Exhibit 4 to this Motion are pictures taken from Google Earth street view adjacent to the two homes on the South side of Highway 218 that are not owned by the Project landowner, and an aerial view that indicates the primary site line from these 2 houses to the Project. The closest Project equipment would be approximately 725 feet from the nearest house, and as seen in the picture, the topography and wooded area substantially shield the view to the Project area. As described in the Application these neighbors received multiple notices from Horseshoe Bend, including an invitation to the public meeting, and two letters (one sent via USPS mail, one sent via certified mail) notifying them of the application. The Project has been described in two front-page articles in the Greensburg Record-Herald, one of which included the Project site plan, and there have been two public notices printed in the Greensburg Record-Herald regarding the public meeting and application.

The Board should approve the Requested Setback as there would be limited to no impact on the residential structures in the Neighborhood as a result of such approval, and after substantial opportunity to be informed of the Project, the neighbors have not voiced concerns about the Project.

### **3. Traffic.**

The SAR describes the road infrastructure surrounding the Project, provides current traffic statistics and includes specific information on the types of vehicles and the number of trips for each during construction and during operations.

Construction of the Project is expected to take eight to 12 months, with working hours from 7 AM to 9 PM daily. Trips to the Project during construction are anticipated to consist of workers commuting to the site in passenger vehicles and construction deliveries in larger trucks, including trucks with trailers. The daily total traffic would be less than 200 vehicles per day, with the majority of trips for workers (FHWA Class 2 and 3 vehicles). Two-way peak hour traffic volumes along nearby roads average fewer than 150 vehicles per hour (fewer than three vehicles per minute), due to this low background traffic volume no adverse traffic impacts are anticipated as a result of construction.

The operation of the Project will not regularly require on-site employees. Approximately two employees may visit the site up to a few times a month for inspection and to perform or coordinate maintenance as needed. With only a few occasional employee trips per month, operation of the facility is not anticipated to adversely impact area traffic.

In addition to relatively low amount of traffic generated from the Project, safety precautions will be taken to reduce the risk of collisions by the temporary presence of flagmen and markings. Any significant degradation of the roadways resulting from project construction will be repaired in accordance with the transportation permits associated with the construction of the project.

Because of minimal additional traffic being added to currently low traffic volumes coupled with the preventative measures that will be taken, the Project will not adversely affect traffic and therefore the Board should approve the Requested Setback.

C. **The Proposed Facility is Designed and Located to Meet the Goals of KRS 278.700, et seq.**

In ecoPower's motion for a deviation, the Board stated that the applicant must satisfy the goals of certain statutes described in KRS 278.704(4) as follows:

**1. KRS 224.10-280 - Cumulative Environmental Assessment.**

KRS 224.10-280 provides that no person shall commence to construct a facility to be used for the generation of electricity unless that person has submitted a cumulative environmental assessment ("CEA") to the Energy and Environment Cabinet ("Cabinet") with its permit application and remits a fee which has been set pursuant to KRS 224.10-100(20).

Upon researching the statute and accompanying regulations, Horseshoe Bend is unaware of any regulations that have been promulgated regarding CEAs. At the time of the *ecoPower* Order, the Board concluded that there were no regulations involving CEAs (*see ecoPower* at 34) and Horseshoe Bend is unaware of any additional regulations since that order. Consequently, no fee has been established for Horseshoe Bend to pay "to defray the cost of processing the cumulative environmental assessment." KRS 224.10-280.

As described below, the Project is designed and located to meet the goals of KRS 224.10-280. Horseshoe Bend will submit its CEA contemporaneously with the filing of this motion, Horseshoe Bend's CEA provides an in-depth analysis of the potential air which contains a description and analysis of anticipated air pollutants, water pollutants, wastes, and water withdrawal needs. The CEA also references the substantial amount of planning, permitting, and assessments which have been completed for the facility and which are ongoing. The Project development team shall continue permitting as required to comply with all applicable regulations. (See the Horseshoe Bend CEA, attached herein as Exhibit 5).

**(a) Air Evaluation- KRS 224.10-280(3)(a).**

As required by KRS 224.10-280(3)(a), the CEA evaluates the air pollutants to be emitted



by the facility and the associated control measures. (See Exhibit 5, pp. 3-4). The solar panels produce zero emissions. Therefore, the proposed Horseshoe Bend Solar Facility is not expected to emit any of the following criteria pollutants: Particulate Matter (PM), Particulate Matter 10 microns diameter and smaller (PM10), Particulate Matter 2.5 microns diameter and smaller (PM2.5), Carbon Monoxide (CO), Sulfur Dioxide (SO<sub>2</sub>), Nitrogen Oxides (NO<sub>x</sub>), Volatile Organic Contaminants (VOCs), or lead. Similarly, the facility is also not expected to emit Hazardous Air Pollutants (HAPs). The CEA describes the estimated emissions of each air pollutant. (See Exhibit 5, pp. 3-4).

Indirect air emissions from the Project would occur during construction from the use of vehicles and equipment and during facility operation from ancillary activities, such as mowing. No air quality permit is required for these construction or ancillary activities. The CEA describes the air pollution mitigation measures for construction and ancillary activity emission sources including construction equipment, worker vehicles, and maintenance equipment. (See Exhibit 5, pp. 3-4).

**(b) Water Evaluation - KRS 224.10-280(3)(b).**

As required by KRS 224.10-280(3)(b), the CEA evaluates the water pollutants to be emitted by the facility and the associated control measures. (See Exhibit 5, pp. 4-6). Horseshoe Bend expects the project to result in the discharge of stormwater during construction. Horseshoe Bend intends to comply with the Kentucky Division of Water's (KDOW) Construction Storm Water Discharge General Permit for those construction activities that disturb one acre or more. (See Exhibit 5, p. 5). Horseshoe Bend intends to submit a Notice of Intent prior to the commencement of construction and a notice of termination upon completion. To manage stormwater during construction, use of stormwater Best Management Practices (BMPs), such as

silt fences, will be implemented. A stormwater pollution prevention plan (SWPPP) also will be prepared and implemented to comply with KDOW requirements.

(c) **Waste Evaluation - KRS 224.10-280(3)(c).**

As required by KRS 224.10-280(3)(c), the CEA evaluates the waste to be generated by the facility and the associated control measures. (See Exhibit 5, pp. 6-7). Construction activities will generate solid waste consisting of construction debris and general trash, such as wooden crates, pallets, flattened cardboard module boxes, plastic packaging, and excess electrical wiring. To the extent feasible and practicable, construction waste will be recycled and material that cannot be recycled will be disposed offsite at a permitted facility. The Project will also generate very small amounts of hazardous waste (See Exhibit 5, p. 7). The project would be considered a conditionally exempt small quantity generator (CESQG). Any hazardous waste will be managed offsite at a permitted facility. In addition, operation-generated trash and other solid waste will also be disposed offsite at a permitted facility. Finally, portable chemical toilets will be provided for construction workers during development. (See Exhibit 5, pp. 6-7).

(d) **Water Withdrawal Evaluation - KRS 224.10-280(3)(d).**

As required by KRS 224.10-280(3)(d), the CEA identifies the source and volume of anticipated water withdrawal needed to support facility construction and operations, and the CEA describes the methods to be used for managing water usage and withdrawal. (See Exhibit 5, pp. 7-8). As described in the CEA, the proposed facility would primarily utilize groundwater from existing onsite wells to provide water needed for construction activities. Construction-related water use would support site preparation (including dust control, if applicable) and grading activities. Operation of solar facilities is not water-intensive. Precipitation in the region is adequate to remove dust from the PV panels while maintaining energy production; therefore,

manual panel washing with water or other substance is not part of regular solar project maintenance.

**2. KRS 278.010.**

KRS 278.010 provides a list of definitions to be used in conjunction with KRS 278.010 to 278.450, 278.541 to 278.544, 278.546 to 278.5462, and 278.990. The Board's authority begins with KRS 278.700 and extends through KRS 278.716 and any applicable provision of 278.990. In filing a complete Application pursuant to the applicable statutes in this proceeding, Horseshoe Bend has satisfied the goal of providing the required information utilizing the definition of any applicable term defined in KRS 278.010.

**3. KRS 278.212. *Filing of plans for electrical interconnection with merchant electric generating facility; costs of upgrading existing grid.***

Horseshoe Bend has met the goals of KRS 278.212 because Horseshoe Bend will comply with all applicable conditions relating to electrical interconnection with utilities by following the PJM interconnection process. Additionally, as described in the Application, Horseshoe Bend will pay for costs which result from its interconnecting with the electricity transmission grid, as calculated by the local utility, PJM Interconnection, and any neighboring utilities with affected systems, through interconnection study agreements executed by the Project. With Horseshoe Bend's commitment to comply with KRS 278.212, the proposed facility has been designed and located to meet the goals of KRS 278.212.

**4. KRS 278.214. *Curtailment of service by utility or generation and transmission cooperative.***

The goal of this statute is to establish the progression of entities whose service may be interrupted or curtailed pursuant to an emergency or other event. Horseshoe Bend will abide by

the requirements of this provision to the extent that these requirements are applicable. By committing to comply with these requirements Horseshoe Bend has met the goals anticipated by the statute.

**5. KRS 278.216. *Site compatibility certificate; site assessment report; commission action on application.***

KRS 278.216 requires a jurisdictional utility, as defined by KRS 278.010(3), which seeks to construct an electric generating facility to comply with many of the requirements that are included within KRS 278.700 to 278.716, including the submission of a site assessment report. However, KRS 278.216 specifically applies to jurisdictional utilities, as defined in KRS 278.010(3), and Horseshoe Bend is not such a defined utility. Therefore, by complying with the requirements of KRS 278.700 *et seq.*, Horseshoe Bend has met the requirements and goals of KRS 278.216.

**6. KRS 278.218. *Approval of commission for change in ownership or control of assets owned by utility.***

This statute specifically applies to utilities as those defined pursuant to KRS 278.010(3). The statute prohibits acquisition or transfer without prior approval of the Commission. Horseshoe Bend is not a utility as described in 278.010(3), and therefore this statute does not apply to Horseshoe Bend. However, to the extent Board approval may at some time be required for change of ownership or control of assets owned by Horseshoe Bend, Horseshoe Bend will abide by the applicable rules and regulations which govern its operation.

**7. KRS 278.700 - 278.716. *Electric Generation and Transmission Siting.***

These provisions of the Kentucky Revised Statutes govern the application of a merchant electric generating facility such as the one proposed by Horseshoe Bend in its Application to the

Board. According to the Board itself, the goals of these provisions include the following: to provide for the location of merchant electric generating facilities in a fashion which will not intrude upon or unnecessarily disrupt surrounding land uses including hospitals, nursing homes, residential areas, schools, parks or otherwise have adverse environmental impacts which are not otherwise regulated; to include an evaluation of the economic impact of the proposed facility (KRS 278.710(l)(c)); to determine whether the facility is to be located at a site where existing generating facilities are located (KRS 278.710(l)(d)); to determine whether the facility will meet all applicable local planning and zoning requirements (KRS 278.710(l)(e)); to determine whether the facility will adversely impact the reliability of electrical service for retail customers of utilities regulated by the Public Service Commission (KRS 278.710(l)(f)); to determine the efficacy of any proposed mitigation measures (KRS 278.710(l)(h)); and to provide the applicant's history of environmental compliance (KRS 278.710(l)(i)). *ecoPower* at 39.

In summary, Horseshoe Bend has met the goals set forth in these provisions as evidenced by the Application in its entirety. Horseshoe Bend has provided a comprehensive Application with a detailed discussion of all of the criteria applicable to its proposed facility under KRS 278.700-278.716.

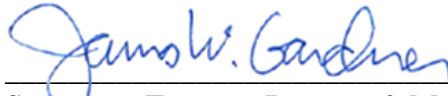
### **III. CONCLUSION**

Horseshoe Bend has engaged in public education and public notification about the Project, has held a public meeting and other meetings to respond to inquiries concerning the Project, and has specifically discussed and made itself available for questioning by adjoining landowners concerning the Project. Because of the extensive outreach in person and the various steps taken by Horseshoe Bend to minimize the impact of the Project on the surrounding area, including the use of setbacks, existing vegetation, and new vegetative buffers, the neighboring

occupants and owners are aware of and have not objected to the Project. Furthermore, Horseshoe Bend has clearly met the goals of KRS 278.700 *et seq.* in locating the proposed Project in an environmentally compatible location, disclosing the facts surrounding its proposed operation, responding to inquiries, and obtaining the proper permits for the Project.

WHEREFORE, Horseshoe Bend Solar respectfully requests the Board to approve a deviation from the setback requirements contained in KRS 278.704(2) and establish a new setback requirement that will allow Horseshoe Bend to install any and all equipment as close as 600 feet from the Neighborhood as measured from the nearest home in the Neighborhood.

Respectfully submitted,



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


*Counsel for Horseshoe Bend Solar, LLC*

# Exhibit 1



# Horseshoe Bend Solar Context Map



	Horseshoe Bend Solar Project Outline
	Residential Neighborhoods (as defined in KRS 278.700(6))
	Residential Structures
	East Kentucky Power Cooperative Transmission Line
	Kentucky State Roadways

2 mile radius

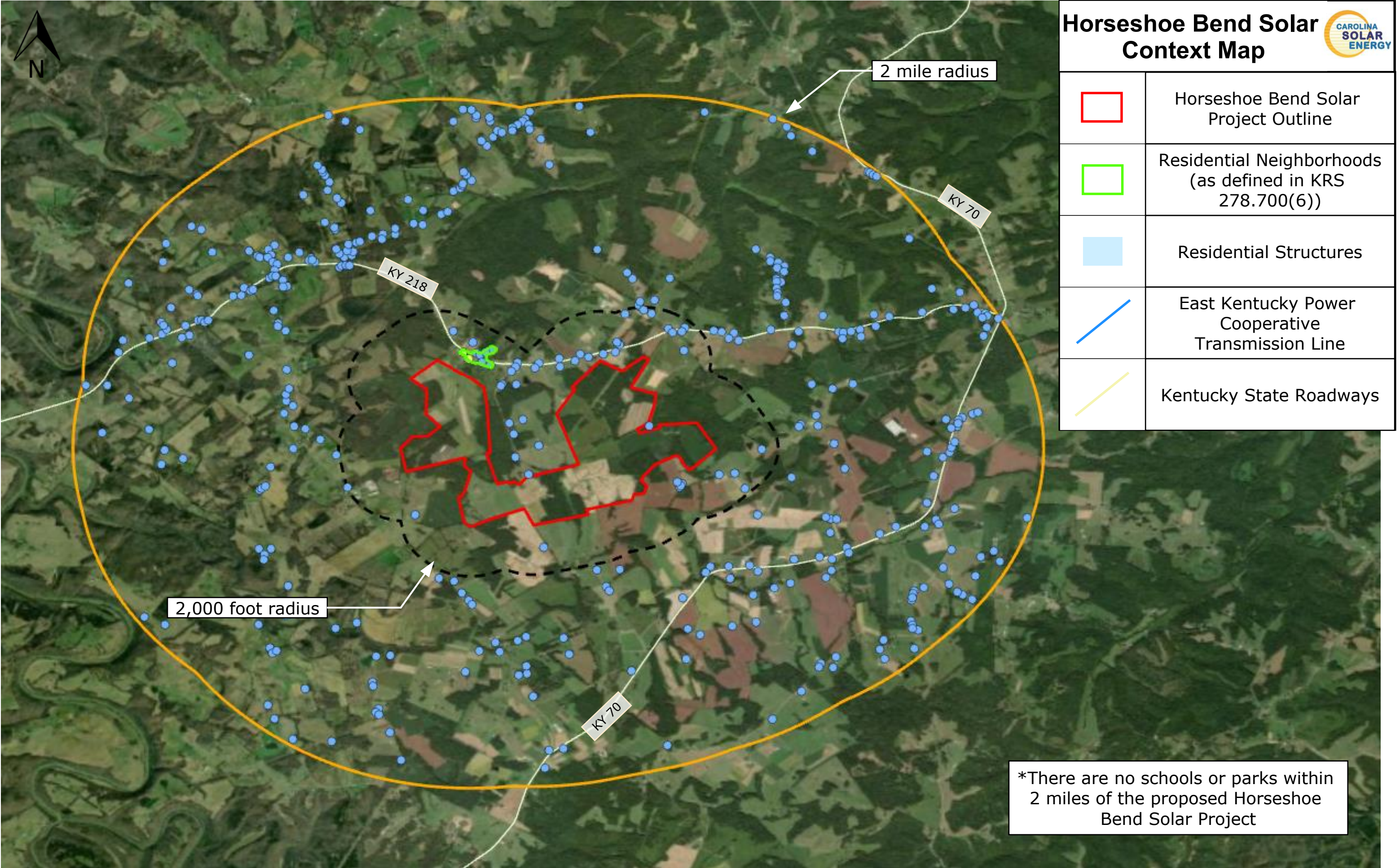
2,000 foot radius

KY 218

KY 70

KY 70

\*There are no schools or parks within 2 miles of the proposed Horseshoe Bend Solar Project

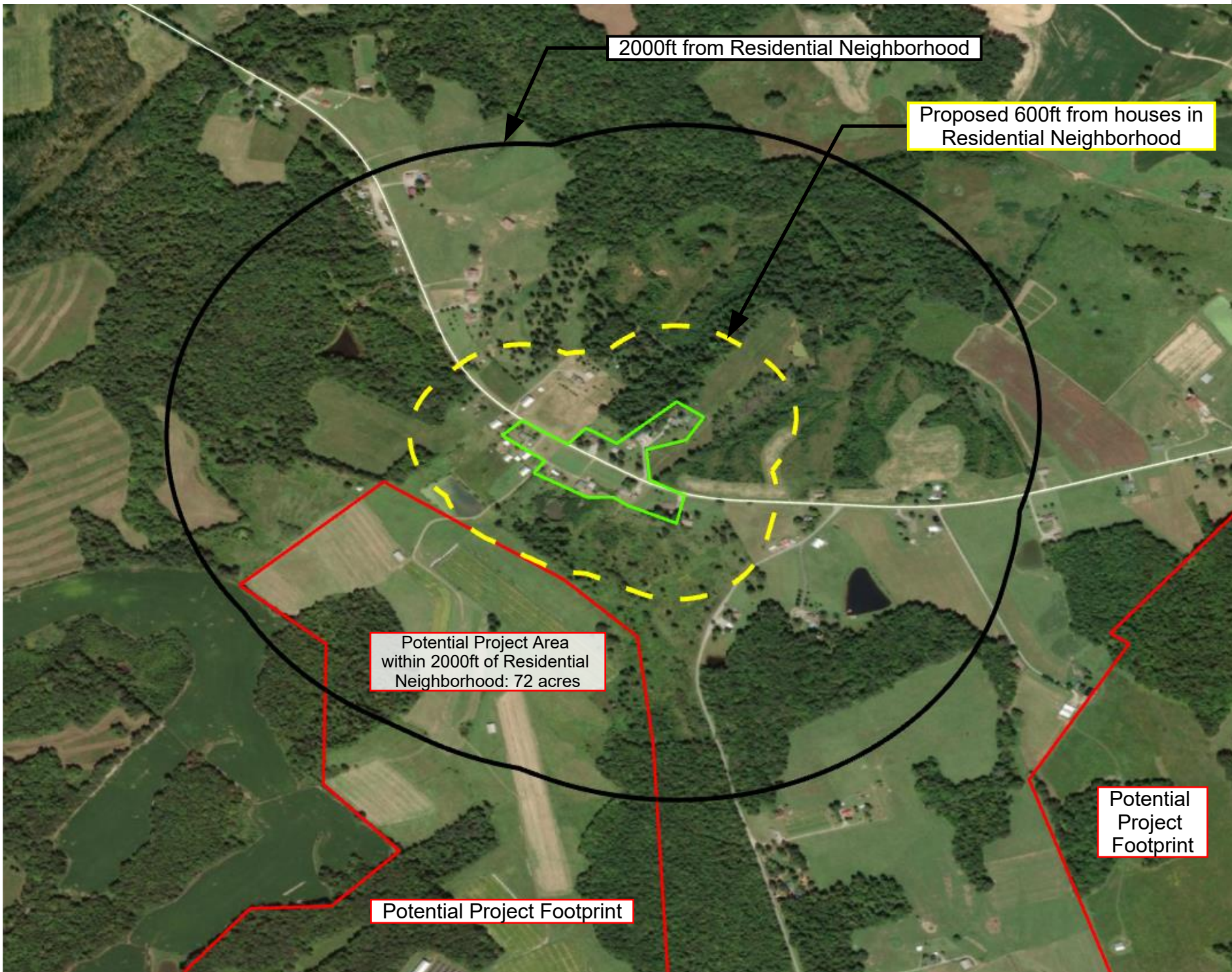




# Exhibit 2



# Exhibit 3



**Carolina Solar Energy**  
 400 W Main St  
 Durham, NC 27701  
 Suite 503

**DESCRIPTION**  
 Residential  
 Neighborhood  
 Buffers

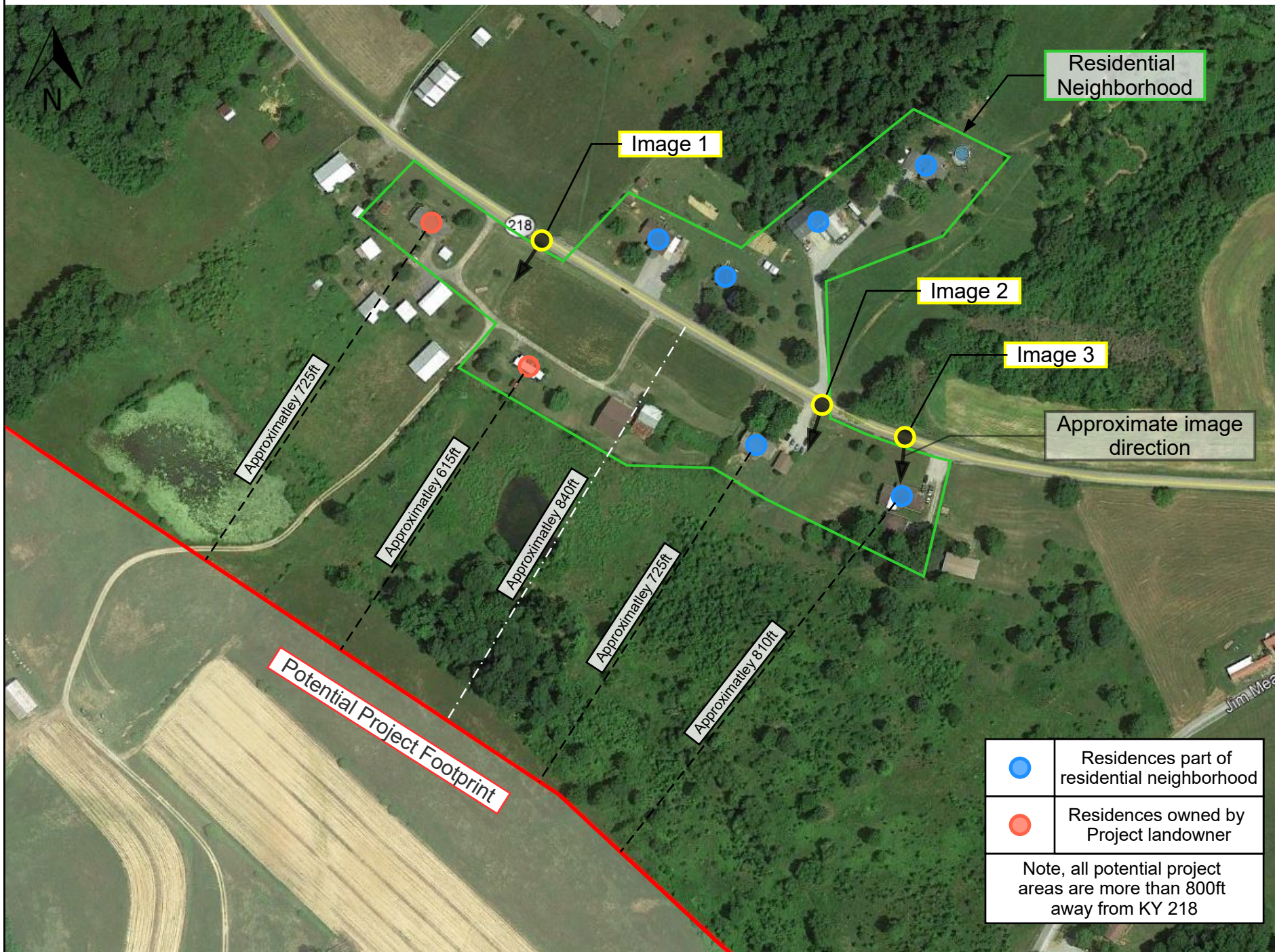
**CLIENT**  
 KY PSC

**DRAWN BY**  
 TC

**ISSUE**  
 2.18.2021

**PROJECT**  
 Horseshoe  
 Bend

# Exhibit 4



Residential Neighborhood

Image 1

Image 2

Image 3

Approximate image direction

Approximately 725ft

Approximately 615ft

Approximately 840ft

Approximately 725ft

Approximately 810ft

Potential Project Footprint

- Residences part of residential neighborhood
- Residences owned by Project landowner

Note, all potential project areas are more than 800ft away from KY 218

# Exhibit 5



**COPPERHEAD**  
ENVIRONMENTAL CONSULTING

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## **Cumulative Environmental Assessment for Proposed Horseshoe Bend Solar, LLC Project Green County, Kentucky**



Prepared for:

Horseshoe Bend Solar, LLC

Marty Marchaterre  
Senior Environmental Planner  
Copperhead Environmental Consulting, Inc.

23 February 2021

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## Introduction

KRS 224.10-280 provides that no person shall commence to construct a facility to be used for the generation of electricity unless that person submits a cumulative environmental assessment (CEA) to the Kentucky Energy and Environment Cabinet with the permit application. The Horseshoe Bend Solar, LLC Project (Horseshoe Bend or Project) is a proposed solar farm sited on up to 550-acres that would generate electricity through the use of photovoltaic solar panels and associated racking, inverters, dc-coupled energy storage system, and a project substation transformer which would connect to East Kentucky Power Cooperative's Green County-Summer Shade 161 kv transmission line. Horseshoe Bend is located approximately 1.4 miles west of Exie in Green County. The proposed project site is currently farmland used for livestock farms, hayfields, and row crops.

Upon researching the statute and accompanying regulations, Horseshoe Bend is unaware of any regulations that have been promulgated regarding CEAs.

To comply with KRS 224.10-280, the cumulative environmental assessment would evaluate project impacts to four areas:

- 1) Air Pollutants
- 2) Water Pollutants
- 3) Wastes
- 4) Water Withdrawal



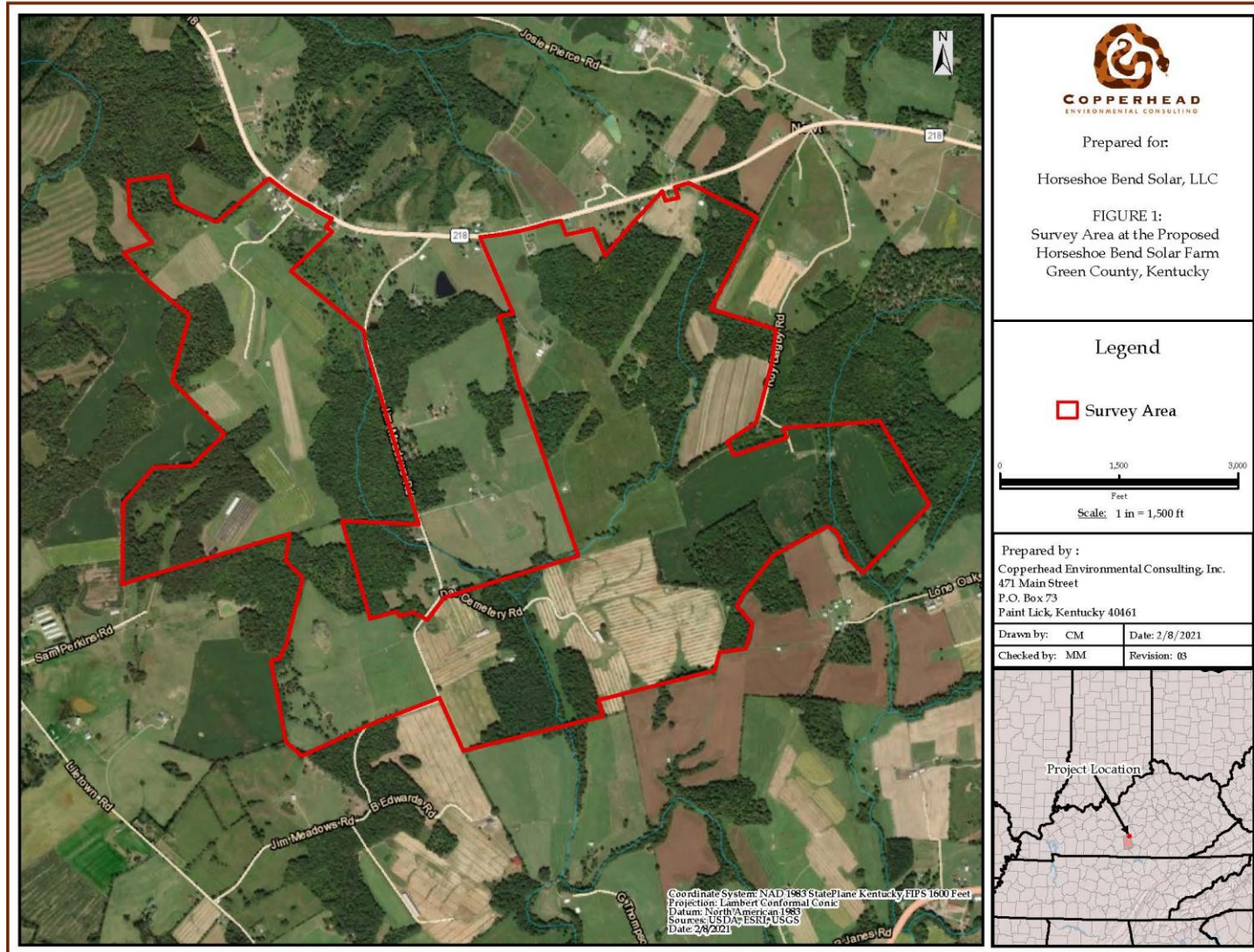


Figure 1. Project Location

## **Air Pollutants**

The Clean Air Act regulates the emission of air pollutants and, through its implementing regulations, establishes National Ambient Air Quality Standards (NAAQS) for several “criteria” pollutants that are designed to protect the public health and welfare with an ample margin of safety. The criteria pollutants are ozone, particulate matter (PM), carbon monoxide (CO), nitrous oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), and lead.

Specified geographic areas are designated as attainment, nonattainment, or unclassifiable for specific NAAQS. Areas with ambient concentrations of criteria pollutants exceeding the NAAQS are designated as nonattainment areas and new emissions sources in or near these areas are subject to more stringent air permitting requirements.

Green County and all surrounding counties (Adair, Hart, Larue, Metcalfe, and Taylor) are in attainment for all criteria pollutants (EPA 2020). Green County is also protected by Air Quality Regulations found in Title 401, Chapters 50–68 of the Kentucky Administrative Regulations (KAR).

The solar project would generate transient air pollutant emissions during construction and operation activities. Air quality impacts would primarily result from the staging and operation of construction vehicles, equipment, supplies, and worker personnel vehicles. The daily workforce for the Project during construction would vary depending on specific construction activities occurring on individual days. It is estimated that the work force would comprise up to 150 workers onsite at any time during the 8- to 12-month construction period. Construction and operation equipment would include, but not be limited to, graders, bulldozers, backhoes, flatbed semi-trucks, forklifts, bobcats and/or specialized tractors with extender or drill with auger or pile driver for installation of solar panel array posts, and concrete trucks.

Combustion of gasoline and diesel fuels by internal combustion engines would generate local emissions of PM, NO<sub>x</sub>, CO, volatile organic compounds (VOCs), and SO<sub>2</sub>. Emissions associated with these vehicles and equipment are expected to result in minor impacts to air quality because the sizes, number of vehicles, and hours each piece of equipment would operate would be small. For example, combustion emissions from a 200-horsepower diesel truck operating eight hours every day for three months would include less than one ton each of NO<sub>x</sub>, CO, and PM. Emissions of SO<sub>2</sub> would be negligible because of the ultralow sulfur diesel fuel available on the market.

Tree clearing or vegetative debris is anticipated to be limited as much of the land planned to be used for the Project is open as it is used for pasture, hayfields, and cultivated crops. Tree clearing or vegetative debris would either be burned onsite in accordance with Kentucky’s Open Burning regulations (401 KAR 63:005) and applicable local regulations, or would be chipped, ground, and composted on-site or managed offsite at a permitted facility.

Construction activities would result in temporary fugitive air pollutant emissions (e.g., small particles suspended in the air or dust). Vehicles and construction equipment traveling over

unpaved roads and the construction site would result in the emission of fugitive dust. A large fraction of fugitive emissions from vehicle traffic in unpaved areas would also be deposited near the unpaved areas. To minimize air impacts, the Project would require all contractors to keep construction equipment properly maintained and to use best management practices (BMPs) (such as covered loads and wet dust suppression if needed) which can reduce fugitive dust emissions by as much as 95 percent.

Air quality impacts from construction activities would be temporary and would depend on both man-made factors (intensity of activity, control measures, etc.) and natural factors such as wind speed and direction, soil moisture and other factors. However, even under unusually adverse conditions, these emissions would have, at most, a minor transient impact on off-site air quality and would be well below the applicable ambient air quality standard. The effects to air quality from construction-associated activities would be temporary and localized. Overall, the potential impacts to air quality from construction-related activities for the project would be minor.

During operation, the solar panels produce zero emission and therefore, the solar facility is not expected to emit any of the following criteria pollutants: PM, CO, SO<sub>2</sub>, NO<sub>x</sub>, VOCs, or lead. Similarly, the facility is also not expected to emit Hazardous Air Pollutants (HAPs).

The solar facility would only generate air emissions from worker vehicles and equipment for maintenance activities, such as mowers to control growth of vegetation. The Project would be monitored offsite 24/7, and maintenance workers sent to the site if any changes in production or equipment errors are detected remotely. Inspections would include identifying any physical damage to panels, wiring, inverters, pad mount transformers, and interconnection equipment. Additionally, maintenance would occur on a regular schedule. Vegetation on developed portions of the Project Site would be maintained to control growth and prevent overshadowing or shading of the PV panels. Regular trimming and mowing would prevent vegetation from shading the panels. There would also be benefits to air quality because the solar panels produce zero emissions while generating electricity. This benefit to local and regional air quality would occur over the life of the Project. No air quality permit is required for construction or ancillary activities.

## **Water Pollutants**

### *Surface water*

The Project is located within the Greasy Creek Watershed (Hydrologic Unit Code 05110001110460) and drains to the Green River. Much of the hydrology within the Green River Watershed is influenced by karst geology, ditching, and drainage for agriculture. No waterways in or adjacent to the Project are designated as Outstanding State Resource Waters or other Special Use Waters as defined by KDOW.

During construction activities, stormwater erosion and sedimentation may affect onsite surface water features (i.e., streams and wetlands). The Project would work with the existing landscape (e.g., slope, drainage, utilization of existing roads) where feasible and minimize or eliminate

grading work to the extent possible. Typically, land that has been previously farmed for row crops does not require grading and posts can usually be installed onto these areas of the Project site without earth disturbance. Any required grading activities would be performed with portable earthmoving equipment and would result in a consistent slope to the local land.

Horseshoe Bend expects the project to result in the discharge of stormwater during construction. Horseshoe Bend intends to comply with the Kentucky Division of Water's Construction Storm Water Discharge General Permit for those construction activities that disturb one acre or more. Horseshoe Bend would submit a Notice of Intent to the Kentucky Division of Water at least seven days prior to the commencement of construction. The Kentucky Division of Water would review the notice of intent and provide notification of authorization to discharge. When construction is completed, Horseshoe Bend would provide a notice of termination upon completion.

To manage stormwater, use of BMPs, including silt fences, on-site temporary sediment basins, sediment traps, and/or buffer zones (e.g., 25 feet) surrounding jurisdictional streams and wetlands would be implemented. A site-specific stormwater pollution prevention plan (SWPPP) would be prepared and a copy kept available on site. These stormwater BMPs would minimize sediment from entering Waters of the Commonwealth and sediment migration off site during construction, prior to achievement of final vegetative stabilization.

Disturbed areas would be seeded after construction using a mixture of certified weed-free, low-growing grass and herbaceous plant seed obtained from a reputable seed dealer. Erosion control measures would be inspected and maintained until vegetation in the disturbed areas has returned to the preconstruction conditions or the Project Site is stable. Water may be used for soil compaction and dust control during construction.

Following the establishment of vegetation on disturbed areas and to minimize potential for water impacts, only USEPA-registered and approved herbicides would be used in accordance with label directions designed in part to restrict applications near receiving waters and to prevent unacceptable aquatic impacts. All herbicides would be applied by Kentucky licensed and certified commercial pesticide applicators. Most vegetation control on solar farms is performed mechanically (i.e. mowing), however limited amounts of herbicides are used around posts or in areas that are not able to be mowed.

Approximately 10-15 acres of the Project Site would be used as construction assembly areas (also called staging or laydown areas) for worker assembly, vehicle parking, and material storage during construction. Some of these areas would be staged within the areas proposed for the solar or photovoltaic (PV) arrays. The laydown areas would be on site for the duration of construction. Temporary construction trailers intended for material storage and office space would be parked on site. Following completion of construction activities, trailers, unused materials, and construction debris would be removed from the Project Site. An operations and maintenance building would remain on site during the life of the Project.

The operations and maintenance of the solar facility would have little impact on surface water, and BMPs would be used during any maintenance activities that have the potential to cause runoff of sediment and pollutants. Beneficial indirect impacts to surface water are anticipated due to reduction in fertilizer and pesticide use compared with current agricultural use.

#### *Groundwater*

Groundwater is water located beneath the ground surface, within soils and subsurface formations known as hydrogeological units, or aquifers (USGS 1995). Aquifers have sufficient permeability to conduct groundwater and to allow economically significant quantities of water to be produced by man-made water wells and natural springs.

No direct adverse impacts to groundwater would be anticipated as a result of the Project. The PV panels would have a relatively minor effect on groundwater infiltration and surface water runoff because the panels would not include a runoff collection system. Rainwater would drain off the panels to the adjacent vegetated ground.

Hazardous materials that could potentially contaminate groundwater would be stored on the Project Site during construction. The minimal use of petroleum fuels, lubricants, and hydraulic fluids during construction and by maintenance vehicles would result in the potential for small on-site spills. However, the use of a spill prevention, control and countermeasure (SPCC) plan will reduce leaks and spills and minimize the potential for adverse impacts to groundwater.

Fertilizers and herbicides will be used sparingly and in accordance with manufacturer's recommendations to avoid contamination of groundwater. Additionally, beneficial indirect impacts to groundwater could result from the change in land use from agricultural uses due to reduction in fertilizer and herbicide use.

No direct adverse impacts are anticipated as a result of project development due to the use of a SPCC plan; there will be minor beneficial indirect impacts to groundwater due to the reduction in fertilizer and herbicide use as land use changes from agriculture to solar energy generation.

#### **Waste**

Waste would be generated during the construction and operation of the solar facility and would be handled and disposed of in accordance with local, state, and federal regulations. Construction activities would generate solid waste consisting of construction debris and general trash, including wooden crates, pallets, flattened cardboard module boxes, plastic packaging, and excess electrical wiring. To the extent feasible and practicable, construction waste would be recycled and material that cannot be recycled would be disposed offsite at a permitted facility to be determined by the designated contractor(s). No waste would be disposed of on the Project Site. Designated construction contractor and subcontractor personnel would be responsible for daily inspection, cleanup, and proper labeling, storage, and disposal of all refuse and debris produced. Disposal containers such as dumpsters or roll-off containers would be obtained from

a proper waste disposal contractor and would be located in the on-site staging area or other areas, as appropriate. Records of the amounts generated would be maintained by Horseshoe Bend.

During construction of the proposed solar facility, materials would be stored on site in storage tanks, vessels, or other appropriate containers specifically designed for the characteristics of these materials. The storage facilities would include secondary containment in case of tank or vessel failure. Construction-related materials stored on site would primarily be liquids such as used oil, diesel fuel, gasoline, hydraulic fluid, and other lubricants associated with construction equipment. Safety Data Sheets for all applicable materials present on site would be made readily available to on-site personnel.

Construction activities would involve use of machinery (e.g., semi-trucks, field trucks, tractors) fueled by petroleum products. Fueling of some construction vehicles would occur in the construction area. Other mobile equipment would return to the on-site laydown areas for refueling. Construction contractors would be responsible for preventing spills by implementing proper storage and handling procedures. Special procedures would be identified to minimize the potential for fuel spills, and spill control kits would be carried on all refueling vehicles for activities such as refueling, vehicle or equipment maintenance procedures, waste removal, and tank clean-out.

Small quantities (less than 55 gallons, 500 pounds or 200 cubic feet) of janitorial supplies, paint, degreasers, herbicides, pesticides, air conditioning fluids (chlorofluorocarbons [CFC]), gasoline, hydraulic fluid, propane, and welding rods typical of those purchased from retail outlets may also be stored and used at the facility. Due to the small quantities involved and the controlled environment, a spill could be cleaned up without significant environmental consequences.

Facility personnel would be supplied with appropriate personal protective equipment (PPE) and would be properly trained in the use of PPE as well as the handling, use, and cleanup of hazardous materials used at the facility and the procedures to be followed in the event of a leak or spill. Adequate supplies of appropriate cleanup materials would be stored on site.

Waste generation during operation would be minimal and would mainly result from the maintenance and/or replacement of worn or broken equipment and defective or broken electrical materials. All wastes would be managed by designated waste management company(ies) and disposed of in accordance with applicable federal and state requirements to minimize health and safety effects.

Portable chemical toilets would be provided for construction workers during Project development. Sewage would be pumped out by a licensed contractor and the sewage waste would be disposed at the Greensburg Waste Water Treatment Plant or other appropriate facility. No adverse effects are anticipated from wastewater treatment and disposal. Due to the size of the facility, no additional or permanent bathroom facilities are anticipated.



Based on a review of Project waste generation activities, no adverse effects from waste are anticipated.

### **Water Withdrawal**

Water service in the Project area is provided through at least one private well that provides water to the barns and fields. Aquifers beneath the Project have sufficient permeability to conduct groundwater and to allow economically significant quantities of water to be produced by man-made water wells. The Project anticipates using this existing well to provide water needed during construction and may either use the existing well for the construction manager trailer or develop a new water well.

Construction-related water use will support site preparation (including dust control) and grading activities. During earthwork for the grading of access roads, foundations, equipment pads, and other components, the primary use of water would be for compaction and dust control. Smaller quantities would be required for preparation of the equipment pads and other minor uses. The expected water volume needed for construction activities is not expected to adversely affect groundwater resources.

The internal access roads will not be heavily traveled during normal operation and consequently, water use for dust control is not expected. Equipment washing and any potential dust control discharges would be handled in accordance with BMPs described in the SWPPP for water-only cleaning.

Operation of solar electricity generating facilities is not water-intensive. Precipitation in the region is adequate to remove dust and other debris from the PV panels while maintaining energy production; therefore, manual panel washing with water or any other substance is likely not part of regular solar project maintenance. Water would be used for ongoing vegetation management needs, including: during screening vegetation installation; during prolonged times of drought; and for effective integrated vegetation management.