



thoroughbred solar

Attachment F

Listed Species Review

- **Correspondence with Kentucky Energy and Environmental Cabinet**
- **Correspondence with United States Fish and Wildlife Service**



HALEY & ALDRICH, INC.
8899 Gander Creek Drive
Miamisburg, Ohio 45342

04 April 2022
File No. 0203928

Kentucky Energy and Environment Cabinet
Office of Kentucky Nature Preserves
300 Sower Boulevard
Frankfort, Kentucky 40601

Subject: Request for Concurrence – Thoroughbred Solar, Hart County, Kentucky

To Whom it May Concern:

Haley & Aldrich, Inc. is requesting concurrence from the Kentucky Energy and Environment Cabinet regarding the potential presence of threatened or endangered species on or near the location proposed for a solar energy facility known as Thoroughbred Solar (the Project). The approximately 450-acre Project Area is shown on Figures 1 and 2. The Project will require an application before the Kentucky Power Siting Board.

The Project Area is located entirely within Hart County, Kentucky. The center of the Project Area is approximately 37° 14' 19.03"N, 85° 54' 48.95"W. The Project Area consists primarily of agricultural land interspersed with small areas of trees. Although fencerows within the Project Area may result in some tree clearing, between the dates of October 1 to March 31, the larger patch of forest within the Project Area is not planned to be cleared. A wetland and stream delineation has been conducted that indicated only one small non-forested wetland and no streams located within the Project Area; the wetland will be avoided by the Project layout. Two sinkholes were identified within the Project Area.

Results of the Biological Assessment Tool (BAT) were obtained on 25 March 2022. Table 1 lists the species and critical habitats resulting from the BAT, along with commentary regarding the anticipated potential for species presence and/or impact. The BAT identified four managed areas located within one mile of the Project Area, including Green River Outstanding Resource Water, Green River Conservation Easements, Green River State Natural Area, and Upper Green River Biological Preserve. As can be seen on Figure 3, these managed areas appear to be more than one-half mile from the Project Area and would not be affected by the Project. Fourteen (14) caves were also identified in the BAT.

Table 1: State Listed Species Within or Near the Project Area

Scientific Name	Common Name	Listing Status	Year Last Observed	Comments
Mammals				
<i>Tyto alba</i>	Barn Owl	Special Concern	1998	Barn owls nest and roost in cavities, abandoned barns or other buildings, and dense trees. The barn owl requires large areas of open land to hunt, which can include marsh, grasslands, or mixed agricultural fields. Two buildings were found on site; however, no solar panels will be built in that area and therefore no impact to the barn owl is anticipated.
Clams				
<i>Alasmidonta marginata</i>	Elktoe	Threatened	1997	No streams are present; therefore, no impact is anticipated.
<i>Antroselates spiralis</i>	Shaggy Cavesnail	Special Concern	Pre-1993	
<i>Cyprogenia stegaria</i>	Fanshell	Endangered	2007	
<i>Fusconaia subrotunda</i>	Longsolid	Special Concern	2007	
<i>Lampsilis ovata</i>	Pocketbook	Endangered	No Date	
<i>Leaunio lienosus aquilonius</i>	Northern Spectaclecase	Threatened	No Date	
<i>Leaunio ortmanni</i>	Kentucky Creekshell	Endangered	1982	
<i>Obovaria retusa</i>	Ring Pink	Endangered	1982	
<i>Pleurobema plenum</i>	Rough Pigtoe	Endangered	1968	
<i>Pleurobema plenum</i>	Pyramid Pigtoe	Endangered	2000	

Scientific Name	Common Name	Listing Status	Year Last Observed	Comments
<i>Plethobasus cyphus</i>	Sheepnose Mussel	Endangered	2007	
Crustaceans				
<i>Palaemonias ganteri</i>	Mammoth Cave Shrimp	Endangered	1983	No streams are present; therefore, no impact is anticipated.
Fish				
<i>Hybopsis amnis</i>	Pallid Shiner	Endangered	Pre-1980	No streams are present; therefore, no impact is anticipated.
<i>Nothonotus maculatus</i>	Spotted Darter	Threatened	1981	
<i>Typhlichthys subterraneus</i>	Southern Cavefish	Special Concern	1955	
Plants				
<i>Liatris cylindracea</i>	Slender Blazingstar	Endangered	Pre-1993	Typically occurs in rocky areas, glades, or prairies; given the Project Area characteristics, species presence is not expected.
Critical Habitat Areas				
<i>Myotis sodalis</i>	Indiana bat			Only limited tree clearing is proposed and clearing of mature trees will be restricted to October 1 to March 31. Therefore, no impact to the species is expected.
<i>Quadrula cylindrica cylindrica</i>	Rabbitsfoot			No streams are present; therefore, no impact is anticipated.
<i>Crystallaria cincotta</i>	Diamond Darter			

Kentucky Energy and Environment Cabinet

04 April 2022

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We would appreciate it if you could provide additional review for the Project Area, and indicate your concurrence with our findings, or if appropriate, the need for additional studies to determine the impact for protected species impacts.

If you have any questions or require additional information, please do not hesitate to contact me (937.530.1414; awest@haleyaldrich.com). Thank you in advance for your assistance.

Sincerely yours,
HALEY & ALDRICH, INC.

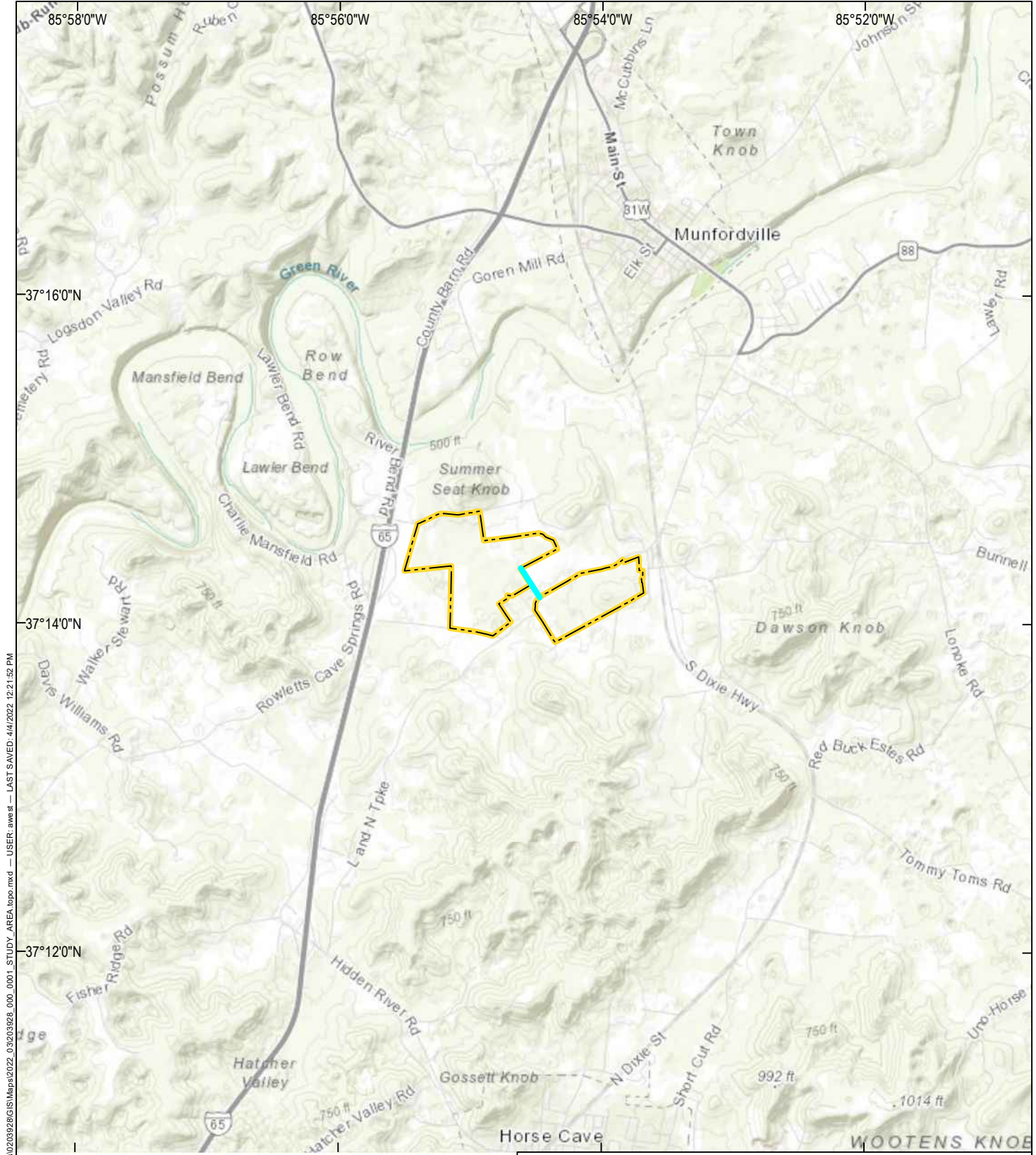


Audrey West
Assistant Project Manager



Attachments: Figures 1, 2, and 3

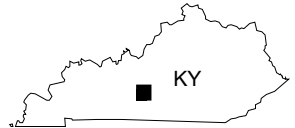
c: Leeward Renewable Energy Development, LLC; Attn: Robert Kalbous

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- Legend**
-  Collector Line Corridor
 -  Project Area



MAP SOURCE: ESRI
 SITE COORDINATES: 37°14'15"N, 85°54'37"W

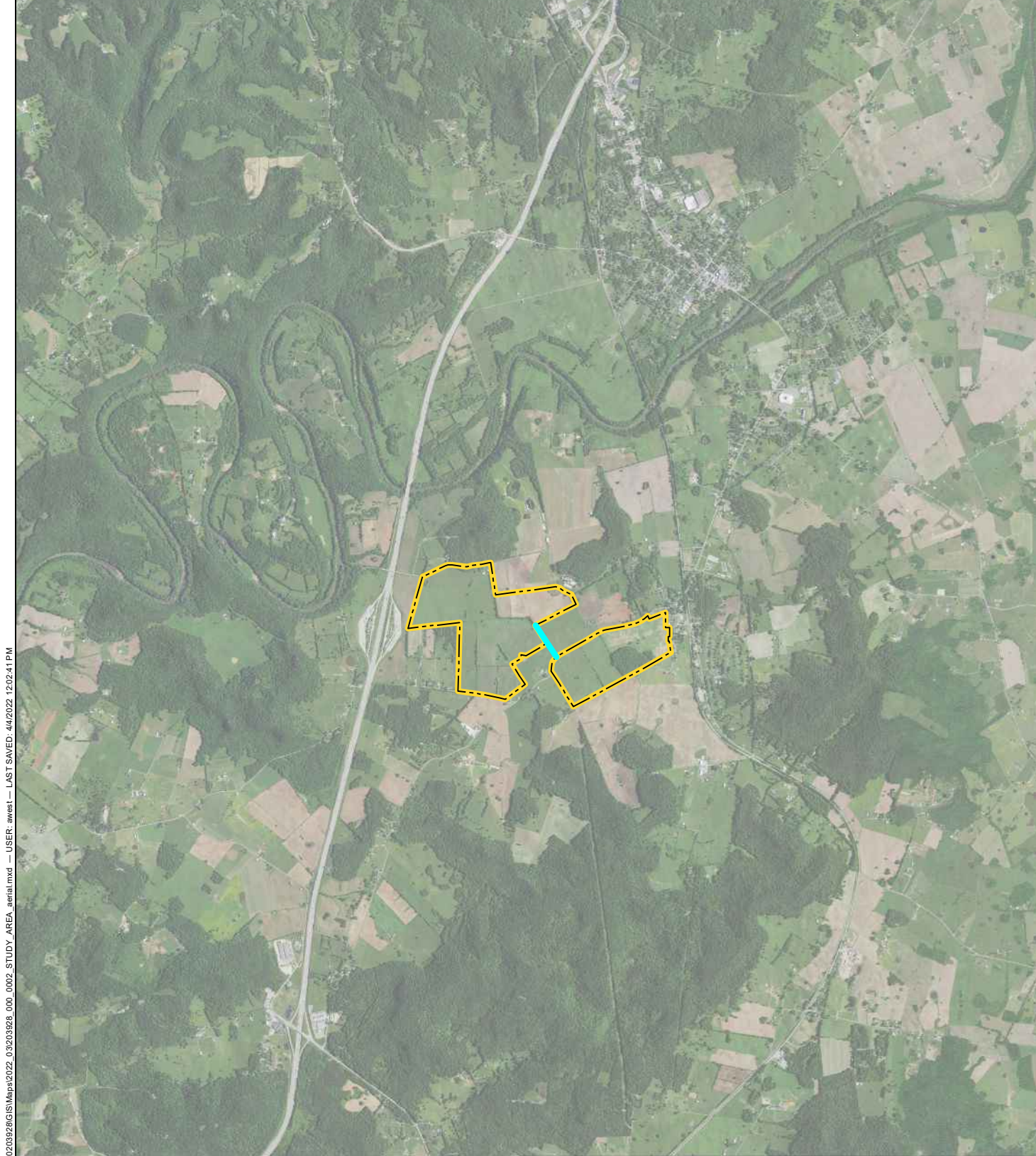
**HALEY
 ALDRICH**

THOROUGHBRED SOLAR
 HART COUNTY, KENTUCKY

PROJECT AREA OVERVIEW



APPROXIMATE SCALE: 1 IN = 5000 FT
 APRIL 2022

FIGURE 1



GIS FILE PATH: \\haleyaldrich.com\share\CFR\Projects\0203928\GIS\Maps\022_030203928_000_0002_STUDY_AREA_aerial.mxd — USER: awes1 — LAST SAVED: 4/4/2022 12:02:41 PM

Legend

-  Collector Line Corridor
-  Project Area



0 2,000 4,000

SCALE IN FEET

MAP SOURCE: ESRI

SITE COORDINATES: 37°14'15"N, 85°54'37"W

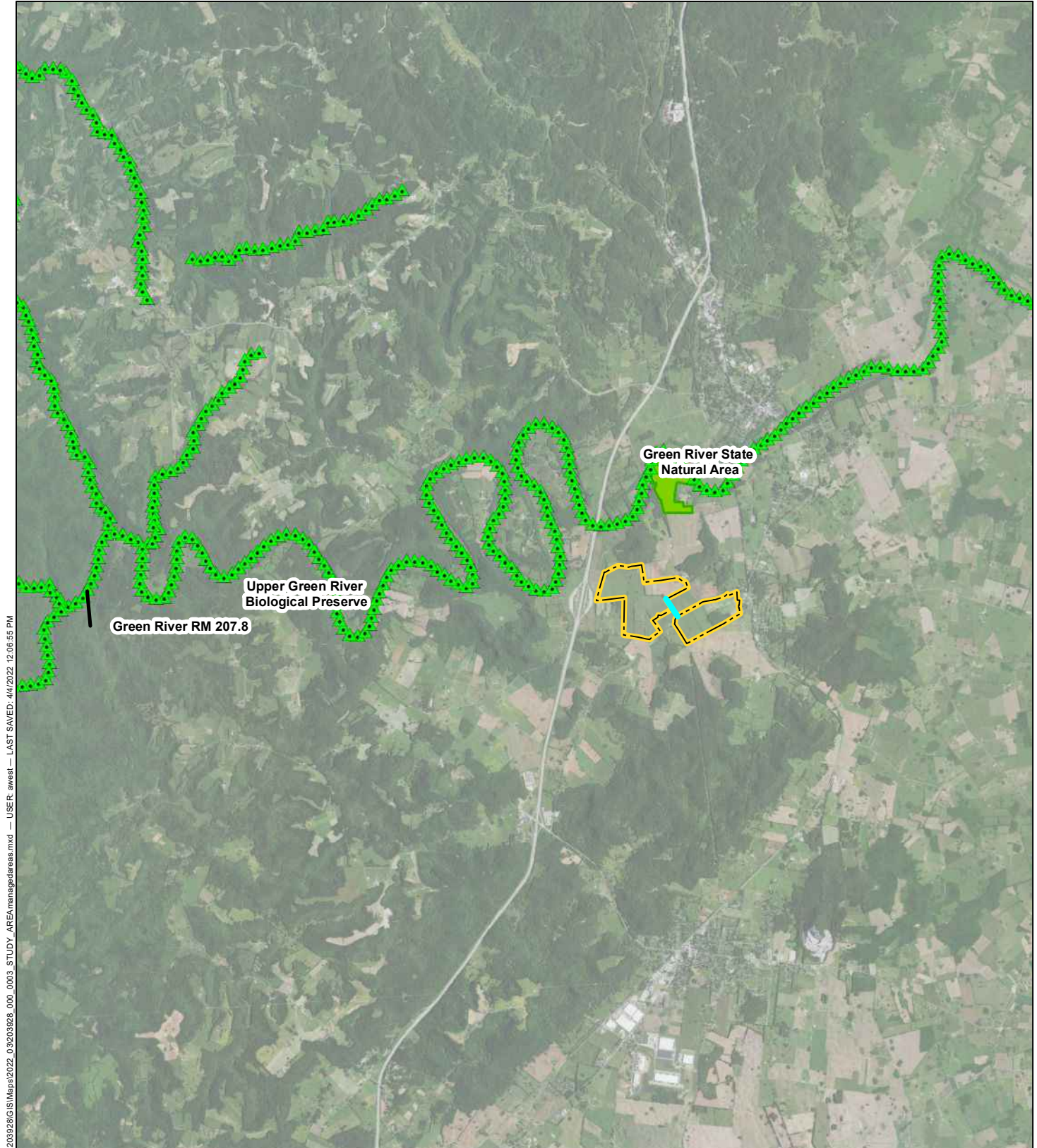


THOROUGHBRED SOLAR
HART COUNTY, KENTUCKY

**PROJECT AREA WITH
AERIAL IMAGERY**





APRIL 2022

FIGURE 2



GIS FILE PATH: \\haleyaldrich.com\share\CFP\Projects\020328\GIS\Maps\022_03\020328_000_0003_STUDY_AREA\managedareas.mxd — USER: awest — LAST SAVED: 4/4/2022 12:06:55 PM

Legend

-  Collector Line Corridor
-  Project Area
-  River Milepoints
-  State Natural Areas



0 4,000 8,000

SCALE IN FEET

MAP SOURCE: ESRI

SITE COORDINATES: 37°14'15"N, 85°54'37"W



THOROUGHbred SOLAR
HART COUNTY, KENTUCKY

**PROJECT AREA WITH
MANAGED AREAS**

APRIL 2022

FIGURE 3



ANDY BESHEAR
GOVERNOR

REBECCA W. GOODMAN
SECRETARY

ENERGY AND ENVIRONMENT CABINET
OFFICE OF KENTUCKY NATURE PRESERVES

SUNNI CARR
EXECUTIVE DIRECTOR

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601
TELEPHONE: 502-573-2886
TELEFAX: 502-564-7484

March 25, 2022

Audrey West
Haley Aldrich
8899 Gander Creek Drive
Dayton, OH 45342

Project: Thoroughbred Solar
Project ID: 22-0161
Project Type: Standard (*customers will be invoiced), 1 mile buffer
(\$120 fee)
Site Acreage: 452.31
Site Lat/Lon: 37.238043 / -85.911181
County: Hart
USGS Quad: HORSE CAVE
Watershed HUC12: Waterloo Valley-Green River

Dear Audrey West,

This letter is in response to your data request for the project referenced above. We have reviewed our Natural Heritage Program Database to determine if any of the endangered, threatened, or special concern plants and animals or exemplary natural communities monitored by the Office of Kentucky Nature Preserves occur within your general project area. Your project does pose a concern at this time, therefore please see the attached reports and [report key](#) for more detailed information.

I would like to take this opportunity to remind you of the terms of the data request license, which you agreed upon in order to submit your request. The license agreement states "Data and data products received from the Office of Kentucky Nature Preserves, including any portion thereof, may not be reproduced in any form or by any means without the express written authorization of the Office of Kentucky Nature Preserves." The exact location of plants, animals, and natural communities, if released by the Office of Kentucky Nature Preserves, may not be released in any document or correspondence. These products are provided on a temporary basis for the express project (described above) of the requester, and may not be redistributed, resold or copied without the written permission of the Biological Assessment Branch (300 Sower Blvd - 4th Floor, Frankfort, KY, 40601. Phone: 502-782-7828).

Please note that the quantity and quality of data collected by the Kentucky Natural Heritage Program are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the

Project ID: 22-0161

March 25, 2022

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result of comprehensive or site-specific field surveys; many natural areas in Kentucky have never been thoroughly surveyed and new plants and animals are still being discovered. For these reasons, the Kentucky Natural Heritage Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of Kentucky. Heritage reports summarize the existing information known to the Kentucky Natural Heritage Program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. We would greatly appreciate receiving any pertinent information obtained as a result of on-site surveys.

If you have any questions, or if I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Alexis R Schoenlaub
Geoprocessing Specialist

Standard Occurrence Report
KNP monitored species within 1 Miles of Project Area

EO ID	Scientific Name	Common Name	GRank	SRank	SPROT	USES A	STWG	Last Obs Date	Precision	EO Rank	Lat / Lon	Directions	Habitat
1549	<i>Alasmidonta marginata</i>	Elktoe	G4	S2	T	SOMC	Y	1997-09-17	S	D	37.2494 / -85.9353	Green River, Hart County: river mile 219.6 (050A).	Occurs in large to medium size streams but more typical of smaller streams (Buchanan 1980, Goodrich and Van Der Schalie 1944, Oesch 1984, Parmalee 1967, Wilson and Clark 1914). Sometimes found in lakes connected to rivers. Parmalee (1967) reported the pre
2358	<i>Antroselates spiralis</i>	Shaggy Cavesnail	G3	S2	S			1993-pre	M	E		Sensitive Element - Contact OKNP at eec.kybat@ky.gov	Found on the undersides of large stones in running water of springs and streams in caves (Hubricht 1963, Burch 1989). Occurs only in base-level cave streams and their spring orifices, and was taken on the undersides of submerged planks and slabs of breakd
19178	<i>Cave</i>		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	
19326	<i>Cave</i>		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	
19329	<i>Cave</i>		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	
19331	<i>Cave</i>		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	
19827	<i>Cave</i>		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	
19828	<i>Cave</i>		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	
19829	<i>Cave</i>		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	
19830	<i>Cave</i>		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	

Standard Occurrence Report
KNP monitored species within 1 Miles of Project Area

EO ID	Scientific Name	Common Name	GRank	SRank	SPROT	USES A	STWG	Last Obs Date	Precision	EO Rank	Lat / Lon	Directions	Habitat
20039	Cave		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	
20047	Cave		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	
21211	Cave		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	
21328	Cave		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	
21362	Cave		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	
21462	Cave		GU	SNR	N			No Date	S	E		Sensitive Element - Contact KSS at ksscaves.com	
1861	<i>Cyprogenia stegaria</i>	Fanshell	G1	S1	E	LE	Y	1997-09-17	S	D	37.2492 / -85.9336	GREEN RIVER MILE 219.6.	Medium to large streams and rivers with moderate to strong current in coarse sand and gravel and depth ranging from shallow to deep (Goodrich and Van Der Schalie 1944, Neel and Allen 1964, Parmalee 1967, Johnson 1980, Gordon and Layzer 1989).
3474	<i>Cyprogenia stegaria</i>	Fanshell	G1	S1	E	LE	Y	1982-07-03	S	F	37.2556 / -85.9286	GREEN RIVER, 3.8 MI WSW OF MUMFORDVILLE, 4.9 MI SSE OF MT BEULAH.	Medium to large streams and rivers with moderate to strong current in coarse sand and gravel and depth ranging from shallow to deep (Goodrich and Van Der Schalie 1944, Neel and Allen 1964, Parmalee 1967, Johnson 1980, Gordon and Layzer 1989).
3802	<i>Cyprogenia stegaria</i>	Fanshell	G1	S1	E	LE	Y	1990-08-16	S	D	37.2464 / -85.9328	GREEN RIVER BETW TWO UNNAMED ISLANDS ON E SIDE LAWLER BEND (SITE 1).	Medium to large streams and rivers with moderate to strong current in coarse sand and gravel and depth ranging from shallow to deep (Goodrich and Van Der Schalie 1944, Neel and Allen 1964, Parmalee 1967, Johnson 1980, Gordon and

Standard Occurrence Report
KNP monitored species within 1 Miles of Project Area

EO ID	Scientific Name	Common Name	GRank	SRank	SPROT	USESA	STWG	Last Obs Date	Precision	EO Rank	Lat / Lon	Directions	Habitat
10587	<i>Cyprogenia stegaria</i>	Fanshell	G1	S1	E	LE	Y	1983-09-24	M	D	37.2411 / -85.9342	GREEN RIVER OFF KY 2757 CA 3 MI W (SW) OF MUNFORDVILLE.	Layzer 1989). Medium to large streams and rivers with moderate to strong current in coarse sand and gravel and depth ranging from shallow to deep (Goodrich and Van Der Schalie 1944, Neel and Allen 1964, Parmalee 1967, Johnson 1980, Gordon and Layzer 1989).
21858	<i>Cyprogenia stegaria</i>	Fanshell	G1	S1	E	LE	Y	2007-09-18	S	E	37.2515 / -85.9245	Between I-65 Bridge and 400ft upstream of bridge	Medium to large streams and rivers with moderate to strong current in coarse sand and gravel and depth ranging from shallow to deep (Goodrich and Van Der Schalie 1944, Neel and Allen 1964, Parmalee 1967, Johnson 1980, Gordon and Layzer 1989).
4239	<i>Fusconaia subrotunda</i>	Longsolid	G3	S3	S		Y	1982-07-03	S	F	37.2556 / -85.9286	GREEN RIVER, 3.8 MI WSW OF MUNFORDVILLE, 4.9 MI SSE OF MT BEULAH.	Gravel bars and deep pools in large rivers and large to medium-sized streams (Ahlstedt 1984, Goodrich and Van Der Schalie 1944, Neel and Allen 1964, Parmalee 1967).
10171	<i>Fusconaia subrotunda</i>	Longsolid	G3	S3	S		Y	1997-09-17	S	C	37.2495 / -85.9336	GREEN RIVER MILE 219.6.	Gravel bars and deep pools in large rivers and large to medium-sized streams (Ahlstedt 1984, Goodrich and Van Der Schalie 1944, Neel and Allen 1964, Parmalee 1967).
21860	<i>Fusconaia subrotunda</i>	Longsolid	G3	S3	S		Y	2007-09-18	S	E	37.2515 / -85.9245	Between I-65 Bridge and 400ft upstream of bridge	Gravel bars and deep pools in large rivers and large to medium-sized streams (Ahlstedt 1984, Goodrich and Van Der Schalie 1944, Neel and Allen 1964, Parmalee 1967).
4906	<i>Hybopsis amnis</i>	Pallid Shiner	G4	S1	E	SOMC	Y	1980-Pre	G	E	37.2774 / -85.8617	GREEN RIVER. [Hart County]	Sandy and silty pools of medium to large rivers (Page and Burr 1991).
21872	<i>Lampsilis ovata</i>	Pocketbook	G5	S1	E		Y	No Date	S	U	37.2515 / -85.9245	Relic shells found at Island down stream of bridge (Green River at	Considered a large river species (Clench and Van Der Schalie 1944, Parmalee

Standard Occurrence Report
KNP monitored species within 1 Miles of Project Area

EO ID	Scientific Name	Common Name	GRank	SRank	SPROT	USESA	STWG	Last Obs Date	Precision	EO Rank	Lat / Lon	Directions	Habitat
												I-65 Bridge)	1967, Stansbery 1976), but occurs in medium-sized streams in gravel, sand, or even mud (Parmalee 1967, Johnson 1970, Gordon and Layzer 1989). In the Lower Wabash and Ohio Rivers s
9709	<i>Leaunio lienosus aquilonius</i>	Northern Spectaclecase	G5TNR	S2S3	T			No Date	M	F	37.2411 / -85.9342	GREEN RIVER OFF KY 2757, CA 3 MI W (SW) OF MUNFORDVILLE.	
7535	<i>Leaunio ortmanni</i>	Kentucky Creekshell	G2	S1S2	E	SOMC	Y	1982-07-03	S	F	37.2556 / -85.9286	Green River, Hart County: 3.8 mi WSW of Munfordville, 4.9 mi SSE of Mt. Beulah (018A).	Free-flowing, upland rivers that range in size from small (1st order) spring fed streams to the Green River (Cicerello 1994). Many flow permanently, but others sometimes have no flow. Substrates range from cobble and boulder with mixed gravel and sand ove
8959	<i>Leaunio ortmanni</i>	Kentucky Creekshell	G2	S1S2	E	SOMC	Y	No date	M	F	37.2411 / -85.9342	Green River, Hart County: off KY 2757, ca 3 mi W (SW) of Munfordville (045A).	Free-flowing, upland rivers that range in size from small (1st order) spring fed streams to the Green River (Cicerello 1994). Many flow permanently, but others sometimes have no flow. Substrates range from cobble and boulder with mixed gravel and sand ove
6555	<i>Liatrix cylindracea</i>	Slender Blazingstar	G5	S2	E			1993-Pre	C	H?	37.2998 / -85.8845	Hart County	Dry calcareous or siliceous soil, hillside glades, prairie openings.
4653	<i>Nothonotus maculatus</i>	Spotted Darter	G2G3	S2	T	SOMC	Y	1981-07-03	M	D	37.2597 / -85.9139	GREEN RIVER AT RUSH ISLAND, 2.5 KM WSW OF MUNFORDVILLE.	Inhabits medium to large streams where it occurs among coarse gravel, cobble and boulders in swift riffles and shoals (Kuehne and Barbour 1983, Page 1983, Zorach and Raney 1967, Stiles 1972, Burr and Warren 1986, Kessler 1992).
5941	<i>Obovaria retusa</i>	Ring Pink	G1	S1	E	LE	Y	1982-07-03	S	F	37.2556 / -85.9286	GREEN RIVER, 3.8 MI WSW OF MUNFORDVILLE, 4.9 MI SSE OF MT. BEULAH.	Large river species that inhabits gravel and sand bars (Bogan and Parmalee 1983, Goodrich and Van Der Schalie 1944, Neel and Allen 1964, Stansbery

Standard Occurrence Report
KNP monitored species within 1 Miles of Project Area

EO ID	Scientific Name	Common Name	GRank	SRank	SPROT	USESA	STWG	Last Obs Date	Precision	EO Rank	Lat / Lon	Directions	Habitat
7715	<i>Palaemonias ganteri</i>	Mammoth Cave Shrimp	G1	S1	E	LE	Y	1983-09-11	G	D		Sensitive Element - Contact OKNP at eec.kybat@ky.gov	1976). Large base level stream passages (i.e., lowest level) and associated tributaries characterized by slow flow, coarse to fine grain sand and coarse silt sediments, and abundant quantities of organic material (USFWS 1988).
21859	<i>Plethobasus cyphus</i>	Sheepnose	G3	S1	E	LE	Y	2007-09-18	S	E	37.2515 / -85.9245	Between I-65 Bridge and 400ft upstream of bridge	Usually found in large rivers in current on mud, sand, or gravel bottoms at depth of 1-2 meters or more (Baker 1928, Parmalee 1967, Gordon and Layzer 1989).
7329	<i>Pleurobema plenum</i>	Rough Pigtoe	G1	S1	E	LE	Y	1968	G	H?	37.3016 / -85.6974	GREEN RIVER FROM GREEN-TAYLOR COUNTY LINE TO EAST BOUNDARY OF MAMMOTH CAVE NATIONAL PARK.	Medium to large rivers in sand, gravel, and cobble substrates (Ahlstedt 1984, Bogan and Parmalee 1983, Clarke 1981, Neel and Allen 1964).
7960	<i>Pleurobema rubrum</i>	Pyramid Pigtoe	G2G3	S1	E	SOMC	Y	2000-08-23	S	D	37.2556 / -85.9286	GREEN RIVER, 3.8 MI WSW OF MUNFORDVILLE, 4.9 MI SSE OF MT. BEULAH.	Inhabits medium to large rivers and usually occurs in sand or gravel bottoms in deep waters (Ahlstedt 1984, Murray and Leonard 1962, Parmalee et al. 1982).
2479	<i>Typhlichthys subterraneus</i>	Southern Cavefish	G4	S2S3	S	SOMC	Y	1955-09-18	G	H		Sensitive Element - Contact OKNP at eec.kybat@ky.gov	Subterranean waters where limestone bedrocks are honeycombed by subsurface drainages. Occurs in cave streams, most frequently over mixed gravel, sand, and mud, or rubble substrates and may occur at springs and wells (Cooper 1980, Cooper and Beiter 1972, P
808	<i>Tyto alba</i>	Barn Owl	G5	S3	S		Y	1998-03	M	E	37.2607 / -85.8883	Woodsonville, McCombs farm at 699 Dowling Road.	Open and partly open country in a wide variety of situations, often around human habitation (B83COM01NA). In northern winter often roosts in dense conifers; also roosts in nest boxes if available (A85MAR01NA).

Critical Habitats within 1 Miles of Project Area

Critical Habitat Name	Unit Name	Subunit Name	Federal Register
<i>Diamond darter</i>	Green River	Not Applicable	52364
<i>Indiana bat</i>			42FR47840
<i>Rabbitsfoot</i>	Green River		80FR 24691

Managed Areas within 1 Miles of Project Area

MA ID	Managed Area Name	Unit Type	Owner Name	Managing Institution
342	<i>Green River (RM 207.8 to 30.5-Green River Lake Dam) Outstanding Resource Water</i>	Outstanding State Resource Water	Kentucky Division of Water	Kentucky Division of Water
1148	<i>Green River Conservation Easements</i>	Conservation Easement	The Nature Conservancy	The Nature Conservancy
768	<i>Green River State Natural Area (Rush Island Bottoms)</i>	State Natural Area	Office of Kentucky Nature Preserves	Office of Kentucky Nature Preserves
1169	<i>Upper Green River Biological Preserve (Lawler Bend)</i>	Research Forest	Western Kentucky University	Western Kentucky University

Areas of Significant Biodiversity within 1 Miles of Project Area

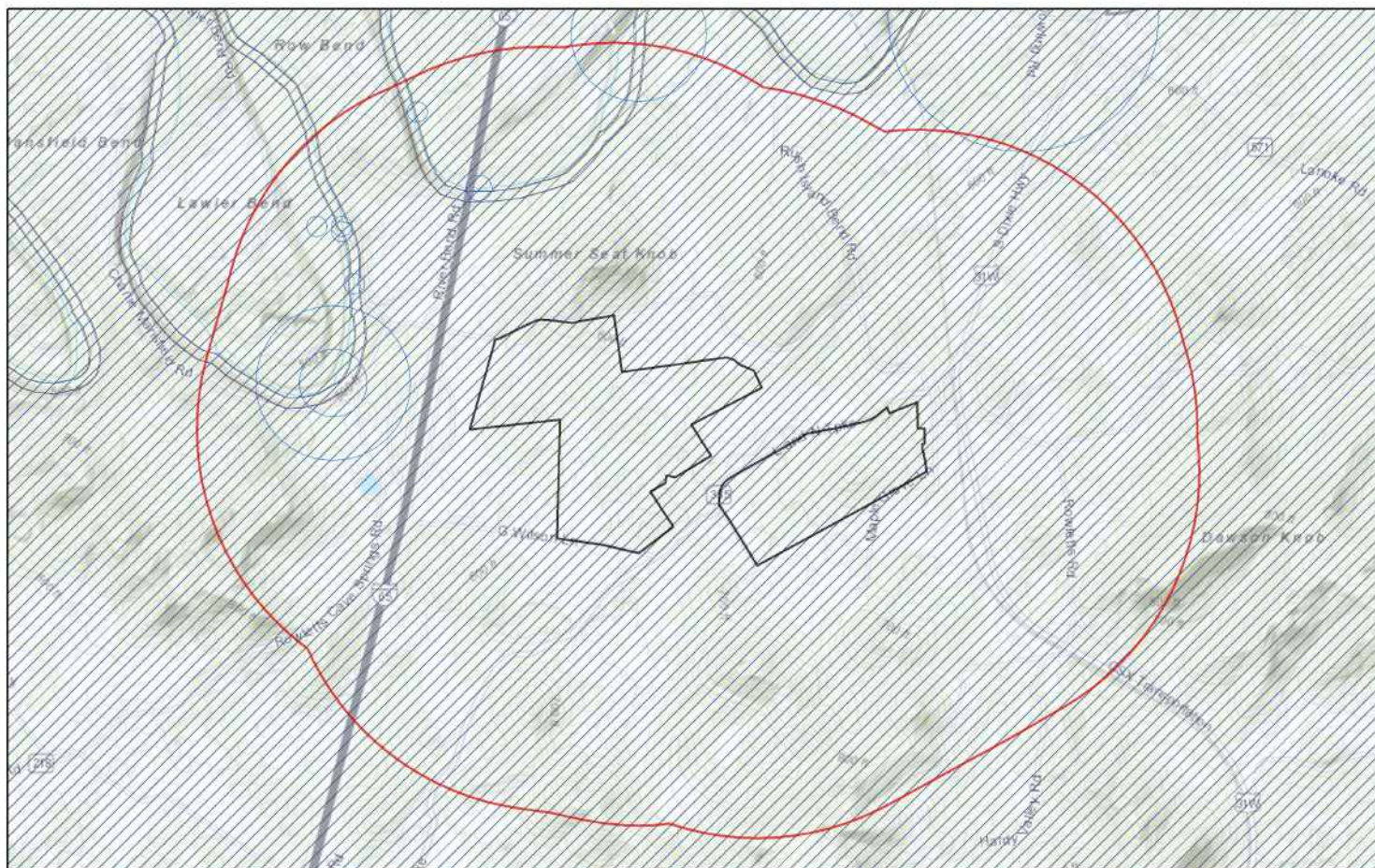
Site ID	Site Name
442	<i>Green River Bioreserve Megasite</i>
801	<i>Green River Macrosite</i>

Bat Habitats within 1 Miles of Project Area

Habitat	Species	USFWS
SWARMING 1	<i>M. sodalis</i>	Contact USFWS at (502) 695-0468 or KentuckyES@fws.gov

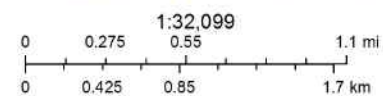
THESE DATA ARE VALID ONLY ON THE DATE ON WHICH THE REPORT WAS GENERATED.
THESE DATA MAY ONLY BE USED FOR THE PROJECT NAMED ABOVE.

Thoroughbred Solar



March 25, 2022

-  Project Boundary
-  Buffered Project Boundary
-  Element Occurrences
-  USFWS Critical Habitats



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri



HALEY & ALDRICH, INC.
8899 Gander Creek Drive
Miamisburg, Ohio 45342
937.384.9940

21 June 2022
File No. 0203928

United States Fish and Wildlife Service
Kentucky Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601

Subject: Response to USFWS – Thoroughbred Solar, Hart County, Kentucky – FWS 22-0025615

To Carrie Allison:

Thank you for your response providing comments related to federally-listed species dated 4 May 2022. In your correspondence, you affirmed that the Thoroughbred Solar project (the Project) would have no effect on the various listed mussels or on the Indiana bat designated habitat. You requested additional information regarding three topics: karst features; forested habitat; and pollinators. Additional information is provided below with regard to each topic.

KARST FEATURES

In your correspondence, you requested additional information with regard to karst features in proximity to the Project in order to determine whether cave habitat was present that could be habitat for the grey bat, Indiana bat, northern long-eared bat, or Kentucky Cave Shrimp.

Haley & Aldrich contracted Environmental Solutions & Innovations, Inc. (ESI) to further assess three potential sinkholes located within the Project area. ESI determined that no portal openings were located within the three sinkholes (Figure 1). One was confirmed to be a wetland depression with no substantial sinkhole present; this area was considered likely to be man-made more than 20 years ago for agricultural uses. Karst feature 1 was determined to have an average depression depth of approximately 23 feet with the maximum depth at approximately 33 feet. Karst feature 2 was determined to have an average depth of 16 feet. No indication that an opening existed at either feature; in addition, no air movement was detected.

FORESTED HABITAT

As shown on Figure 2, a total of approximately 20 acres of trees are proposed to be cleared in association with the Project. Based upon the specific clearing areas proposed, please let us know if the additional clearing restriction is still recommended. Although the Applicant would prefer to be allowed to clear trees in October and early November, the additional time for seasonal clearing restrictions will be observed if necessary.

POLLINATORS

The Applicant intends to incorporate planting of pollinator species, which is expected to diversify potential habitat for butterfly and/or moth species.

We would appreciate your additional review of the above information. If you have any questions or require additional information, please do not hesitate to contact me (937.530.1414; awest@haleyaldrich.com). We look forward to your feedback. Thank you in advance for your assistance.

Sincerely yours,
HALEY & ALDRICH, INC.



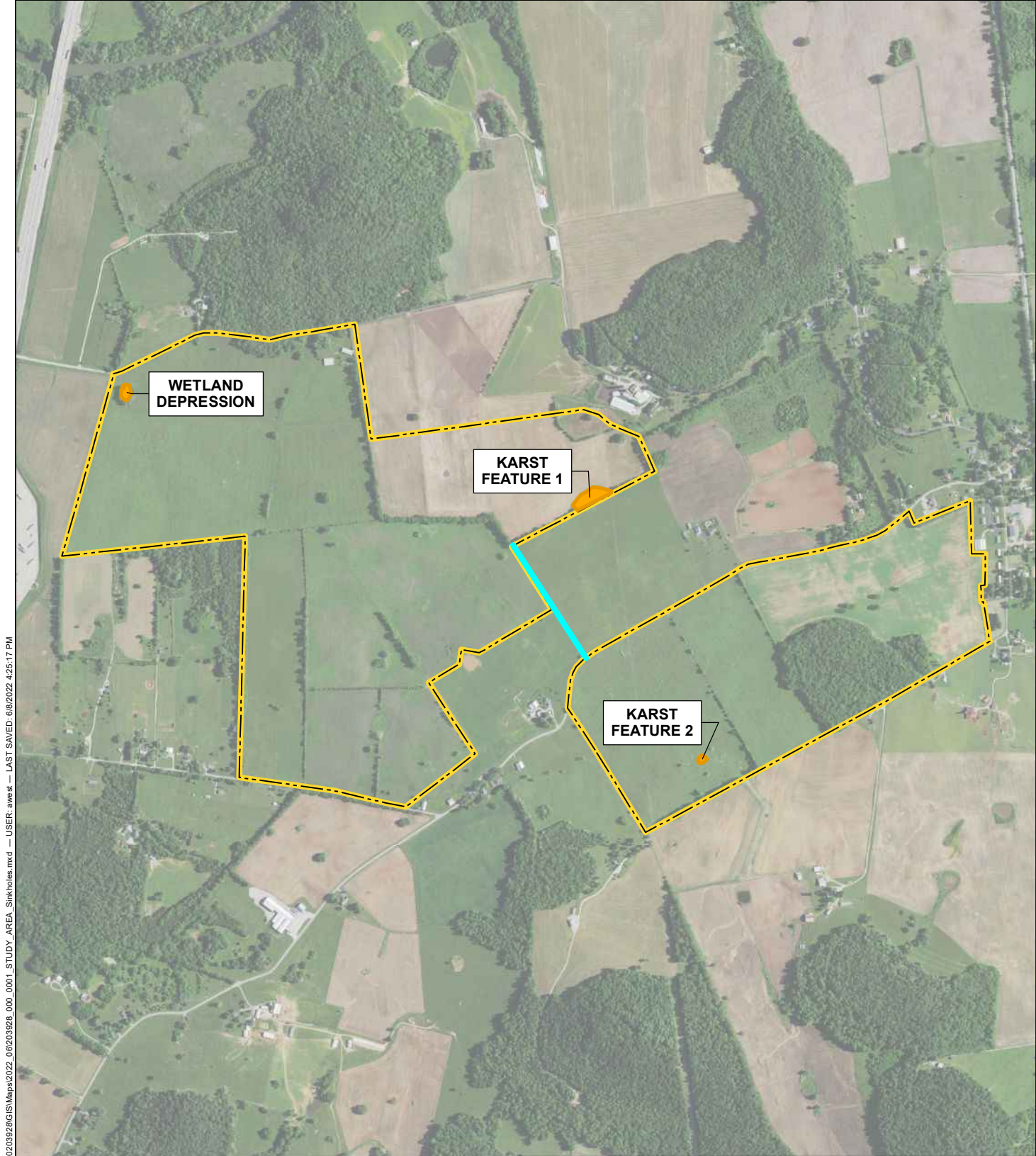
Audrey West
Assistant Project Manager

Attachments:

Figures 1 and 2




Environmental Solutions Innovations, Inc. Habitat Assessment of Potentially Suitable Hibernacula on the Proposed Thoroughbred Solar Project in Hart County, Kentucky Report

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Legend

-  Collector Line Corridor
-  ESI Investigated Areas
-  Project Area



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SCALE IN FEET

MAP SOURCE: ESRI
SITE COORDINATES: 37°14'15"N, 85°54'37"W

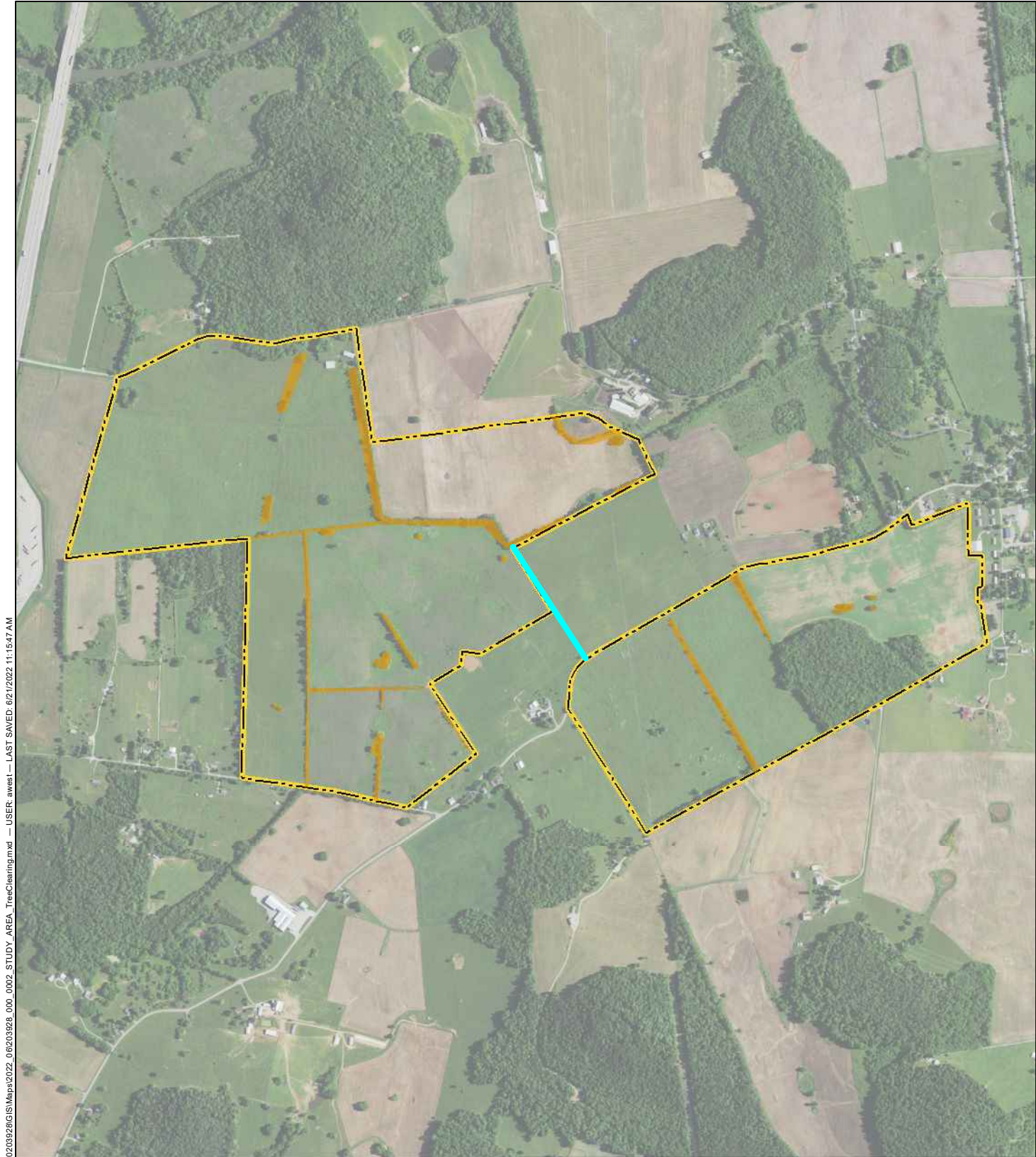
**HALEY
ALDRICH**

THOROUGHBRED SOLAR
HART COUNTY, KENTUCKY

**PROJECT AREA WITH
ESI INVESTIGATED AREAS**




JUNE 2022

FIGURE 1



GIS FILE PATH: \\haleyaldrich.com\share\CFP\Projects\020328\GIS\Maps\022_06\020328_000_0002_STUDY_AREA_TreeClearing.mxd — USER: awest — LAST SAVED: 6/21/2022 11:15:47 AM

Legend

-  Collector Line Corridor
-  Proposed Tree Clearing
-  Project Area



0 500 1,000
SCALE IN FEET

MAP SOURCE: ESRI
SITE COORDINATES: 37°14'15"N, 85°54'37"W

**HALEY
ALDRICH**

THOROUGHBRED SOLAR
HART COUNTY, KENTUCKY

**PROJECT AREA WITH
PROPOSED TREE CLEARING**

JUNE 2022

FIGURE 2



ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.

4525 Este Avenue
Cincinnati, OH 45232
Phone: 513-451-1777 Fax: 513-451-3321

Pesi 1909

14 June 2022

Lynn Gresock
Haley & Aldrich, Inc.
3 Bedford Farms Drive, Suite 301
Bedford, New Hampshire 03110

RE: Habitat Assessment of Potentially Suitable Hibernacula on the Proposed Thoroughbred Solar Project in Hart County, Kentucky

Greetings,

Haley & Aldrich, Inc. (H & A) contracted Environmental Solutions & Innovations, Inc. (ESI) to assess three potential sinkholes located during wetland delineations by H & A in support of the Thoroughbred Solar Project in Hart County, Kentucky (Project); the location of the sinkholes are shown on Figure 1. The Project area (37.238984, -85.910277 centroid) is characterized by near-surface karst. Within Hart County, sinkholes occur regularly, as is customary in areas with near-surface limestone strata.

As the Project is within the ranges of the federally listed Indiana (*Myotis sodalis*), gray (*Myotis grisescens*), and northern long-eared (*Myotis septentrionalis*) bat, subsurface openings may be considered potentially suitable hibernacula for these species. Additionally, a documented fall swarm site is within five miles (8 km) of the Project area.

1.1 Methodology

ESI deployed a single-rope access team (Team) on 31 May - 1 June. The Team specializes in portal assessments and hibernacula surveys with a federal endangered species permit to enter hibernacula and maternity colonies (Permit # ES02373A-15). Assessment methodology followed the U.S. Fish and Wildlife Service's (USFWS) 2022 *Indiana Bat and Northern Long-Eared Bat Survey Guidelines*, Appendix H, Phase 1, Step 2 for portal assessments. The Team is experienced in assessing portal characteristics; consultation with USFWS would be required prior to entering a void exhibiting roost potential.

The Team assessed the potential sinkholes by walking each feature or using a picketing rig for a safety line or vertical rope access, where applicable. Each feature was assessed through the collapsed material for openings that may indicate void features either beneath, or transverse to, each opening. If a portal was located, it was planned to be



assessed for size, temperature, depth by site, airflow, and any other characteristics deemed relevant by the Team.

1.2 Findings

No portal openings were located while investigating the three sinkholes identified by H & A within the proposed Project area. Pictures are provided in an attached .zip file (compiled into a photolog provided as Attachment 1). Survey details for each sinkhole is provided below.

1.2.1 Wetland Depression (Northern Site)

Though a depression exists, the feature is not a sinkhole. No evidence of a karst feature was located and no evidence was apparent that the collapse of such a feature below the surface resulted in the depression. Based on existing vegetation, this depression is likely man-made, created as a cattle pond greater than 20 years ago. H & A has designated this location as a delineated wetland.

1.2.2 Karst Feature 1 (Central Site)

The feature is a sinkhole, occurring along the edge of an alfalfa field, on a fencerow adjacent to another agricultural field. No opening exists. The depth of the depression averages approximately 23 feet (7 m) with a maximum depth of approximately 33 feet (10 m). The feature was formed by collapse and has some rock outcrops as a result. Prior to collapse, the feature may have been a karst window, though there was no field indication that an opening (i.e., a portal) existed. At the time of survey there was no indication that the site was unstable or that further collapse is likely. Air movement, a key indicator of the opportunity for passage, was not detected during the survey.

1.2.3 Karst Feature 2 (Southern Site)

The sinkhole is located in a hayfield and is a natural feature. The depression is approximately 16 feet (5 m) deep and 30 feet (9 m) wide. No opening exists. The bottom of the depression is bare-earth and rounded, without exposed limestone or other features suggestive of a karst opening. No airflow was detected.

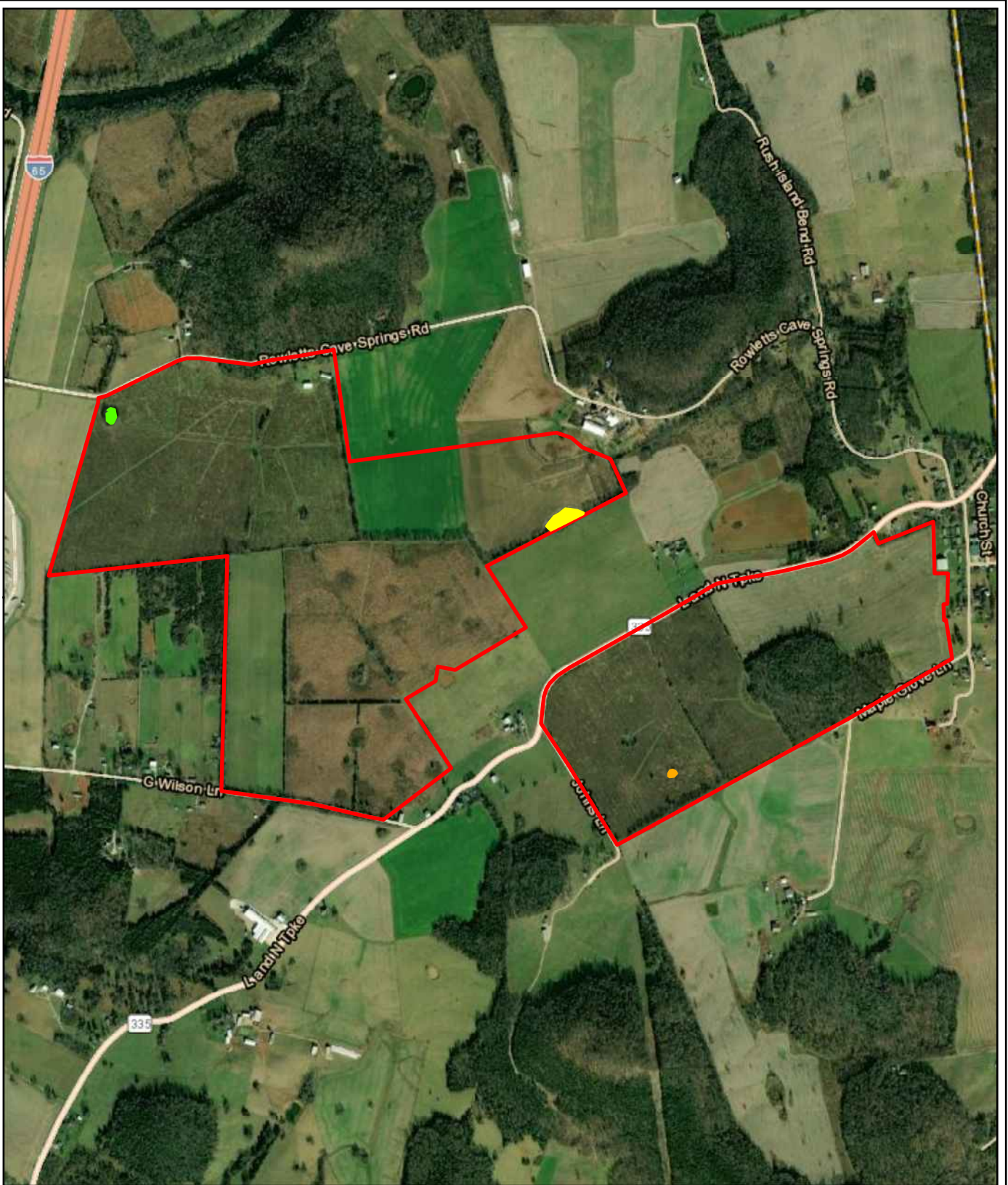
In summary, the three identified depressions/sinkholes do not lead to openings, voids, or passage. The Project area is not suitable for roosting bats in a cave environment. Please let me know if you have any additional questions.

Sincerely,



Patrick Moore, CWB®
Field Ecology Group Manager
Phone: 417.755.3959
Email: PMoore@envsi.com





Karst Feature 1
 Karst Feature 2
 Wetland
 Area of Investigation (AOI)

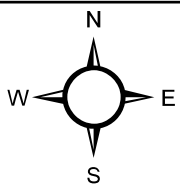


Figure 1. Locations of features evaluated for potential subsurface connectivity on the proposed Thoroughbred Solar Project in Hart County, Kentucky.

Project No.
1909

0 350 700
Meters
Base Map: Esri World Imagery



**ENVIRONMENTAL SOLUTIONS
& INNOVATIONS, INC.**

Thoroughbred Solar Project
Hart County, Kentucky
File No. 0203928
Date Photographs Taken: May 31 – June 1, 2022



Photo 1: Wetland Depressional area in northwest portion of the Project area.



Photo 2: Wetland Depressional area in northwest portion of the Project area.



Photo 3: Karst feature 1 located along a fencerow within the central portion of the Project area.



Photo 4: Karst feature 1 located along a fencerow within the central portion of the Project area.



Photo 5: Karst feature 1 located along a fencerow within the central portion of the Project area.



Photo 6: Karst feature 1 located along a fencerow within the central portion of the Project area.



Photo 7: Karst feature 1 located along a fencerow within the central portion of the Project area.



Photo 8: Karst feature 1 located along a fencerow within the central portion of the Project area.



Photo 9: Karst feature 2 located within a hayfield within the southern portion of the Project Area.



Photo 10: Karst feature 2 located within a hayfield within the southern portion of the Project Area.



Photo 9: Karst feature 2 located within a hayfield within the southern portion of the Project Area.



Photo 9: Karst feature 2 located within a hayfield within the southern portion of the Project Area.



Photo 9: Karst feature 2 located within a hayfield within the southern portion of the Project Area.



Photo 9: Karst feature 2 located within a hayfield within the southern portion of the Project Area.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468

May 4, 2022

Audrey West
Haley & Aldrich, Inc,
8899 Gander Creek Drive
Miamisburg, Ohio 45342

Subject: FWS 22-0025615; Thoroughbred Solar Facility; Hart County, Kentucky

Dear Audrey West:

The U.S. Fish and Wildlife Service's Kentucky Field Office (KFO) has reviewed your request for site-specific environmental review received on April 4, 2022. Thoroughbred Solar proposes to establish a solar facility within an approximate 450-acre area in Hart County, Kentucky. We offer the following comments related to federally-listed species for your consideration.

Federally Listed Species

On behalf of Thoroughbred Solar, Haley & Aldrich, Inc. (H&A) has determined that the proposed project will have "no effect" on the Clubshell (*Pleurobema clava*), Fanshell (*Cyprogenia stegaria*), Northern Riffleshell (*Epioblasma rangiana*), Pink Mucket (*Lampsilis abrupta*), Rabbitsfoot (*Quadrula cylindrica cylindrica*), Ring Pink (*Obovaria retusa*), Rough Pigtoe (*Pleurobema plenum*), Sheepnose (*Pletobasus cyphus*), Snuffbox (*Epioblasma triquetra*), and Spectaclecase (*Cumberlandia monodonta*) because there are no streams within the project area. The KFO acknowledges this determination and has no additional comments or concerns regarding these species. In addition, the project area is greater than 10 miles from the nearest Indiana bat designated critical habitat; therefore, we agree that the project will have "no effect" on Indiana bat designated critical habitat.

H&A has also determined that the project will have "no effect" on the gray bat (*Myotis grisescens*), Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), and Kentucky cave shrimp (*Palaemonias ganteri*). The KFO offers the following recommendations related to these species and their habitats.

Karst Features: The proposed project occurs in a high-karst area with numerous caves and sinkholes. These features could be used by gray bats for summer and/or winter roosting and by Indiana bats and northern long-eared bats for winter roosting. In addition, though there are no surface streams within the project area, these features could also connect to subterranean streams that provide suitable habitat for the Kentucky cave shrimp. The project submittal stated that no caves would be impacted, but did not include site-specific information related to karst features

within the project area. At this time, the KFO does not have sufficient information to agree that the project will have “no effect” on the gray bat, Indiana bat, northern long-eared bat, and Kentucky cave shrimp. We recommend an assessment of the site to determine whether or not caves and/or sinkholes that could provide suitable habitat for these species occur within the project area. If these features are identified, we recommend additional coordination with our office to determine appropriate avoidance and minimization measures.

Forested Habitat: The majority of the project area consists of agricultural lands; however, there are also scattered trees, fencerows, and a large patch of forested habitat within the project area. Thoroughbred Solar has committed to avoiding the large patch of forested habitat that occurs near the southeastern boundary of the project area. In addition, Thoroughbred Solar has also agreed to only remove trees from October 1 to March 31 to avoid the potential of removing a tree while occupied by an Indiana bat or northern long-eared bat. However, adverse effects to these species could still occur if roosting, foraging, and commuting habitat is modified or degraded to an extent that results in significant impairment of behavioral patterns, such as breeding, feeding, or sheltering. If the proposed project would involve the removal of suitable Indiana bat or northern long-eared bat summer roosting habitat, we recommend coordinating with our office to address potential adverse effects to the species. Further, the western portion of the project area occurs in Known Swarming Habitat for the Indiana bat; therefore, we recommend that tree clearing only occur from November 15 to March 31 to avoid Indiana bats that could also use the area during fall swarming.

Pollinators

Pollinators, including the monarch butterfly (*Danaus plexippus*), play vital roles in our ecosystems. The main threats facing pollinators are habitat loss, degradation, and fragmentation. As native vegetation is replaced by roadways, manicured lawns, crops and non-native gardens, pollinators lose the habitat necessary for their survival. The monarch butterfly is a candidate species and not yet listed or proposed for listing. There are generally no section 7 requirements for candidate species, but we encourage all agencies and project proponents to take advantage of any opportunity they may have to conserve the species. For information on monarch conservation, please visit: <https://www.fws.gov/savethemonarch>

We appreciate the opportunity to review the proposed solar facility. If you have any questions regarding our recommendations, please contact Carrie Allison at Carrie_Allison@fws.gov.

Sincerely,

for Virgil Lee Andrew, Jr.
Field Supervisor



04 April 2022
File No. 0203928

United States Fish and Wildlife Service
Kentucky Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601

Subject: Request for Concurrence – Thoroughbred Solar, Hart County, Kentucky

To Whom it May Concern:

Haley & Aldrich, Inc. is requesting concurrence from the United States Fish and Wildlife Service regarding the potential presence of threatened or endangered species on or near the location proposed for a solar energy facility known as Thoroughbred Solar (the Project). The approximately 450-acre Project Area is shown on Figures 1 and 2. The Project will require an application before the Kentucky Power Siting Board. No federal nexus is believed to exist.

The Project Area is located entirely within Hart County, Kentucky. The center of the Project Area is approximately 37° 14' 19.03"N, 85° 54' 48.95"W. The Project Area consists primarily of agricultural land interspersed with small areas of trees. Although fencerows within the Project Area may result in some tree clearing, between the dates of October 1 to March 31, the larger patch of forest within the Project Area is not planned to be cleared. A wetland and stream delineation has been conducted that indicated only one small non-forested wetland and no streams located within the Project Area; the wetland will be avoided by the Project layout. Two sinkholes were identified within the Project Area.

An Information for Planning and Consultation (IPaC) assessment was completed on 29 March 2022. Table 1 lists the species and critical habitats resulting from the IPaC, along with commentary regarding the anticipated potential for species presence and/or impact.

Table 1: Federally Listed Species within or near the Project Area

Scientific Name	Common Name	Listing Status	Comments
Mammals			
<i>Myotis grisescens</i>	Gray Bat	Endangered	Typically live in caves year-round. No caves will be impacted by the Project; therefore, no impacts are anticipated.

Scientific Name	Common Name	Listing Status	Comments
<i>Myotis sodalis</i>	Indiana Bat	Endangered	Typically found in caves, tree cavities, or under loose bark in several tree species. No caves will be impacted, and limited tree clearing is anticipated for the Project; therefore, no impacts are anticipated.
<i>Myotis septentrionalis</i>	Northern Long-Eared Bat	Threatened	
Clams			
<i>Pleurobema clava</i>	Clubshell	Endangered	No streams are present; therefore, no impact is anticipated.
<i>Cyprogenia stegaria</i>	Fanshell	Endangered	
<i>Epioblasma torulosa rangiana</i>	Northern Riffleshell	Endangered	
<i>Lampsilis abrupta</i>	Pink Mucket	Endangered	
<i>Quadrula cylindrica cylindrica</i>	Rabbitsfoot	Threatened	
<i>Obovaria retusa</i>	Ring Pink	Endangered	
<i>Pleurobema plenum</i>	Rough Pigtoe	Endangered	
<i>Plethobasus cyphus</i>	Sheepnose Mussel	Endangered	
<i>Epioblasma triquetra</i>	Snuffbox Mussel	Endangered	
<i>Cumberlandia monodonta</i>	Spectaclecase	Endangered	
Crustaceans			
<i>Palaemonias ganteri</i>	Kentucky Cave Shrimp	Endangered	No streams are present; therefore, no impact is anticipated.
Insects			
<i>Danaus plexippus</i>	Monarch Butterfly	Candidate	Typically found in herbaceous areas dominated by milkweed. This habitat does not occur within the Project Area; therefore, no impact to the species is anticipated.

Scientific Name	Common Name	Listing Status	Comments
Critical Habitat Areas			
<i>Myotis sodalis</i>	Indiana bat	Endangered	Only limited tree clearing is proposed, and clearing of mature trees will be restricted to October 1 to March 31. Therefore, no impact to the species is expected.

We would appreciate it if you could provide additional review for the Project Area, and indicate your concurrence with our findings, or if appropriate, the need for additional studies to determine the impact for protected species impacts.

If you have any questions or require additional information, please do not hesitate to contact me (937.530.1414; awest@haleyaldrich.com). Thank you in advance for your assistance.

Sincerely yours,
HALEY & ALDRICH, INC.

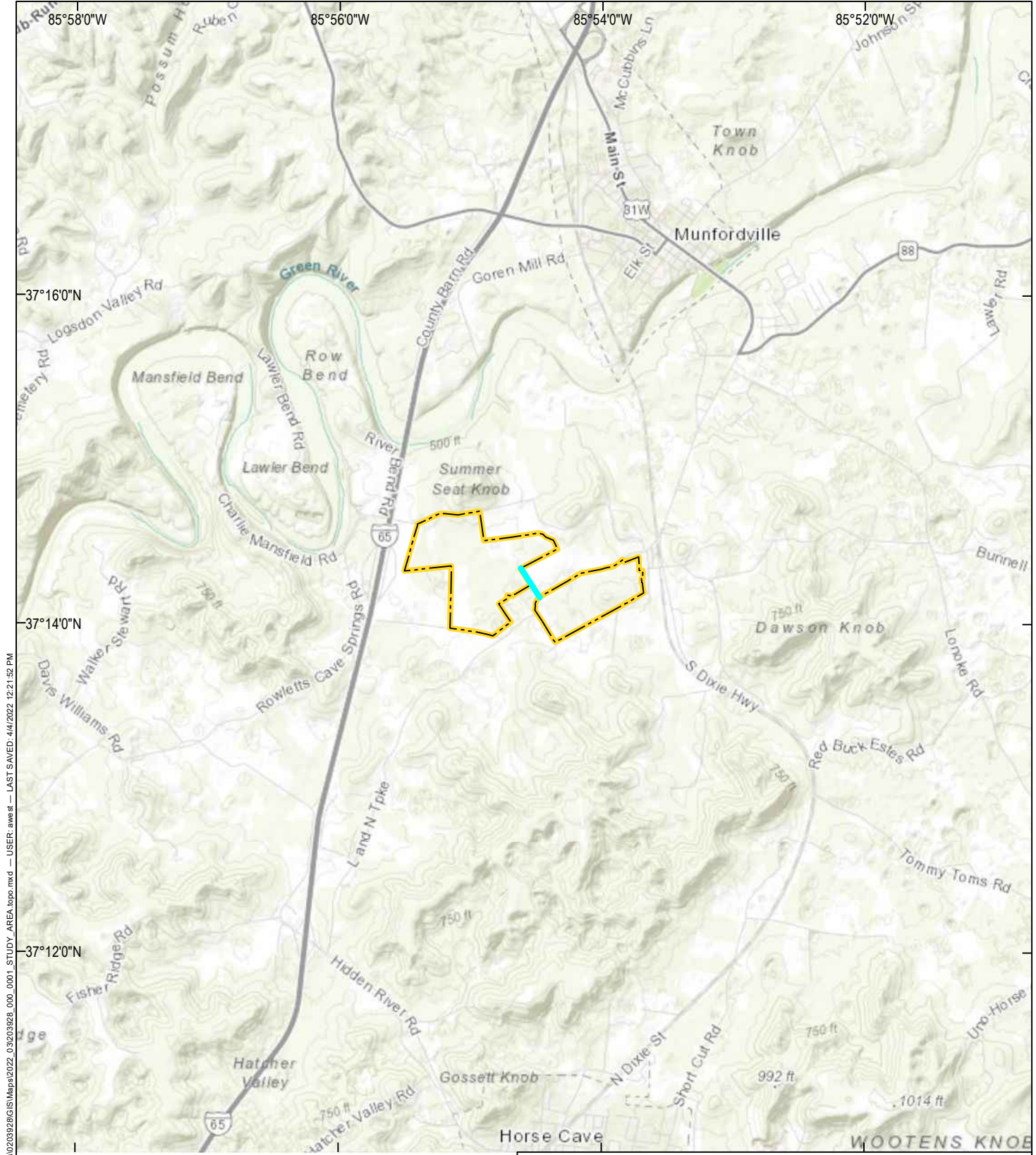


Audrey West
Assistant Project Manager



Attachments: Figures 1 and 2

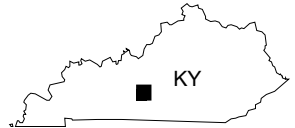
c: Leeward Renewable Energy Development, LLC; Attn: Robert Kalbous

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- Legend**
-  Collector Line Corridor
 -  Project Area



MAP SOURCE: ESRI
 SITE COORDINATES: 37°14'15"N, 85°54'37"W

**HALEY
 ALDRICH**

THOROUGHBRED SOLAR
 HART COUNTY, KENTUCKY

PROJECT AREA OVERVIEW



APPROXIMATE SCALE: 1 IN = 5000 FT
 APRIL 2022

FIGURE 1



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Legend

-  Collector Line Corridor
-  Project Area



0 2,000 4,000

SCALE IN FEET

MAP SOURCE: ESRI

SITE COORDINATES: 37°14'15"N, 85°54'37"W



THOROUGHBRED SOLAR
HART COUNTY, KENTUCKY

**PROJECT AREA WITH
AERIAL IMAGERY**

APRIL 2022

FIGURE 2



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
Phone: (502) 695-0468 Fax: (502) 695-1024
<http://www.fws.gov/frankfort/>

In Reply Refer To:
Project Code: 2022-0025615
Project Name: Thoroughbred Solar Project

March 29, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Kentucky Ecological Services Field Office

J C Watts Federal Building, Room 265

330 West Broadway

Frankfort, KY 40601-8670

(502) 695-0468

Project Summary

Project Code: 2022-0025615
Event Code: None
Project Name: Thoroughbred Solar Project
Project Type: Power Gen - Solar
Project Description: The Project will be located on approximately 450 acres over various parcels entirely within Hart County, Kentucky and proposes a 50-megawatt facility.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@37.235806,-85.90217106137467,14z>



Counties: Hart County, Kentucky

Endangered Species Act Species

There is a total of 15 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.
-

Mammals

NAME	STATUS
<p>Gray Bat <i>Myotis grisescens</i></p> <p>No critical habitat has been designated for this species.</p> <p>This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ The project area includes potential gray bat habitat. <p>Species profile: https://ecos.fws.gov/ecp/species/6329</p> <p>General project design guidelines: https://ipac.ecosphere.fws.gov/project/4BTWV2MAVFANHERZUVHLPBMKEM/documents/generated/6422.pdf</p>	Endangered
<p>Indiana Bat <i>Myotis sodalis</i></p> <p>There is final critical habitat for this species. Your location overlaps the critical habitat.</p> <p>This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ The project area includes 'potential' habitat. All activities in this location should consider possible effects to this species. ▪ The project area includes known 'swarming 1' habitat. <p>Species profile: https://ecos.fws.gov/ecp/species/5949</p> <p>General project design guidelines: https://ipac.ecosphere.fws.gov/project/4BTWV2MAVFANHERZUVHLPBMKEM/documents/generated/6422.pdf</p>	Endangered
<p>Northern Long-eared Bat <i>Myotis septentrionalis</i></p> <p>No critical habitat has been designated for this species.</p> <p>This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ The specified area includes areas in which incidental take would not be prohibited under the 4(d) rule. For reporting purposes, please use the "streamlined consultation form," linked to in the "general project design guidelines" for the species. <p>Species profile: https://ecos.fws.gov/ecp/species/9045</p> <p>General project design guidelines: https://ipac.ecosphere.fws.gov/project/4BTWV2MAVFANHERZUVHLPBMKEM/documents/generated/6422.pdf</p>	Threatened

Clams

NAME	STATUS
<p>Clubshell <i>Pleurobema clava</i></p> <p>Population: Wherever found; Except where listed as Experimental Populations</p> <p>No critical habitat has been designated for this species.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/3789</p> <p>General project design guidelines: https://ipac.ecosphere.fws.gov/project/4BTWV2MAVFANHERZUVHL.PBMKEM/documents/generated/5639.pdf</p>	Endangered
<p>Fanshell <i>Cyprogenia stegaria</i></p> <p>No critical habitat has been designated for this species.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/4822</p> <p>General project design guidelines: https://ipac.ecosphere.fws.gov/project/4BTWV2MAVFANHERZUVHL.PBMKEM/documents/generated/5639.pdf</p>	Endangered
<p>Northern Riffleshell <i>Epioblasma torulosa rangiana</i></p> <p>No critical habitat has been designated for this species.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/527</p> <p>General project design guidelines: https://ipac.ecosphere.fws.gov/project/4BTWV2MAVFANHERZUVHL.PBMKEM/documents/generated/5639.pdf</p>	Endangered
<p>Pink Mucket (pearlymussel) <i>Lampsilis abrupta</i></p> <p>No critical habitat has been designated for this species.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/7829</p> <p>General project design guidelines: https://ipac.ecosphere.fws.gov/project/4BTWV2MAVFANHERZUVHL.PBMKEM/documents/generated/5639.pdf</p>	Endangered
<p>Rabbitsfoot <i>Quadrula cylindrica cylindrica</i></p> <p>There is final critical habitat for this species. The location of the critical habitat is not available.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/5165</p> <p>General project design guidelines: https://ipac.ecosphere.fws.gov/project/4BTWV2MAVFANHERZUVHL.PBMKEM/documents/generated/5639.pdf</p>	Threatened
<p>Ring Pink (mussel) <i>Obovaria retusa</i></p> <p>No critical habitat has been designated for this species.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/4128</p> <p>General project design guidelines: https://ipac.ecosphere.fws.gov/project/4BTWV2MAVFANHERZUVHL.PBMKEM/documents/generated/5639.pdf</p>	Endangered
<p>Rough Pigtoe <i>Pleurobema plenum</i></p> <p>No critical habitat has been designated for this species.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/6894</p> <p>General project design guidelines: https://ipac.ecosphere.fws.gov/project/4BTWV2MAVFANHERZUVHL.PBMKEM/documents/generated/5639.pdf</p>	Endangered

NAME	STATUS
<p>Sheepnose Mussel <i>Plethobasus cyphus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6903 General project design guidelines: https://ipac.ecosphere.fws.gov/project/4BTWV2MAVFANHERZUVHL.PBMKEM/documents/generated/5639.pdf</p>	Endangered
<p>Snuffbox Mussel <i>Epioblasma triquetra</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4135</p>	Endangered
<p>Spectaclecase (mussel) <i>Cumberlandia monodonta</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7867 General project design guidelines: https://ipac.ecosphere.fws.gov/project/4BTWV2MAVFANHERZUVHL.PBMKEM/documents/generated/5639.pdf</p>	Endangered

Insects

NAME	STATUS
<p>Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743</p>	Candidate

Crustaceans

NAME	STATUS
<p>Kentucky Cave Shrimp <i>Palaemonias ganteri</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5008</p>	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
<p>Indiana Bat <i>Myotis sodalis</i> https://ecos.fws.gov/ecp/species/5949#crithab</p>	Final

IPaC User Contact Information

Agency: Haley & Aldrich
Name: Audrey West
Address: 8899 Gander Creek Drive
City: Miamisburg
State: OH
Zip: 45342
Email: awest@haleyaldrich.com
Phone: 6033913325
