DICKINSON WRIGHT PLLC

150 E. GAY STREET, 24TH FLOOR
COLUMBUS, OH 43215-3192
TELEPHONE: (614) 591-5461
FACSIMILE: (844) 670-6009
http://www.dickinsonwright.com

CHRISTINE M.T. PIRIK
CPirik@dickinsonwright.com

December 23, 2021

Ms. Tanowa Troupe, Secretary
Ohio Power Siting Board
Docketing Division
180 East Broad Street, 11th Floor
Columbus, Ohio 43215-3797

Re: **Case No. 21-277-EL-BGN -** In the Matter of the Application of Border Basin I, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Hancock County, Ohio.

Response to Fifth Data Request from Staff of the Ohio Power Siting Board

Dear Ms. Troupe:

Attached please find Border Basin I, LLC's ("Applicant") Response to the Fifth Data Request in the September 7, 2021 Letter of Compliance from the Staff of the Ohio Power Siting Board ("OPSB Staff"). The Applicant provided this response to OPSB Staff on December 23, 2021.

We are available, at your convenience, to answer any questions you may have.

Respectfully submitted,

/s/ *Christine M.T. Pirik*
Christine M.T. Pirik (0029759)
(Counsel of Record)
Terrence O'Donnell (0074213)
Matthew C. McDonnell (0090164)
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
Columbus, Ohio 43215
Phone: (614) 591-5461
Email: cpirik@dickinsonwright.com
todonnell@dickinsonwright.com
mmcdonnell@dickinsonwright.com
Attorneys for Border Basin I, LLC

Cc: James O'Dell
Theresa White
Randall Schumacher
Jon Pawley

CERTIFICATE OF SERVICE

The Ohio Power Siting Board's e-filing system will electronically serve notice of the filing of this document on the parties referenced in the service list of the docket card who have electronically subscribed to these cases. In addition, the undersigned certifies that a copy of the foregoing document is also being served upon the persons below this 23rd day of December, 2021.

/s/ Christine M.T. Pirik
Christine M.T. Pirik (0029759)

Counsel:

robert.Eubanks@OhioAGO.gov
thomas.shepherd@ohioAGO.gov
tony.core@squirepb.com
LMLand@co.hancock.oh.us

Intervenors:

jdoflhrider@gmail.com
dnoel1979@gmail.com

Administrative Law Judge:

michael.Williams@puco.ohio.gov
patricia.schabo@puco.ohio.gov

4890-2117-2231 v1 [96702-1]

BEFORE
THE OHIO POWER SITING BOARD

In the Matter of the Application of Border Basin I, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Hancock County, Ohio.	)))))	Case No: 21-277-EL-BGN

BORDER BASIN I, LLC'S
RESPONSE TO THE FIFTH DATA REQUEST
FROM THE STAFF OF THE OHIO POWER SITING BOARD

On June 15, 2021, as supplemented on July 21, 2021, August 31, 2021, September 29, 2021 and November 12, 2021, Border Basin I, LLC ("Applicant"), filed an application ("Application") with the Ohio Power Siting Board ("OPSB") proposing to construct a solar-powered electric generation facility in Hancock County, Ohio ("Project" or "Facility").

On September 7, 2021, the Staff of the OPSB ("OPSB Staff") provided the Applicant with OPSB Staff's Fifth Data Request contained OPSB Staff's Compliance Letter. Now comes the Applicant providing the following response to the Fifth Data Request from the OPSB Staff.

There were a number of questions raised in the Compliance Letter regarding historical oil and gas ("O&G") wells identified within the Project area and OPSB Staff requested that the Applicant prepare an Engineering Constructability Report ("ECR") which is attached to this response. The historical O&G wells within the Project area were drilled over 100 years ago during the turn of the 20th century and can be considered idle and orphaned. An idle and orphaned well is a well for which a bond has been forfeited by the well owner because the owner has failed to plug the well or an abandoned well for which there is no known responsible owner with money to plug the well. In the case of the O&G wells within the Project area, there are no known responsible owners.

The Ohio Department of Natural Resources ("ODNR") Division of Oil and Gas Resources Management ("the Division") operates the Orphan Well Program to plug idle and orphaned oil and natural gas wells. Ohio Revised Code ("R.C.") 1509.071 specifies the process under which idle and orphaned wells are to be plugged and requires the Chief of the Division to use an annual portion of revenues in the Oil and Gas Well Fund to plug idle and orphaned wells. Under R.C. 1509.071 (E), the Chief distributes funds to the contractor plugging the well or can reimburse the

landowner if other regulatory requirements are met. Accordingly, the Division is responsible for the payment of remediation of idle and orphaned wells in the state.

The Applicant through aerial and ground electromagnetic ("EM") surveys used best practices to identify the existence of historical O&G wells in the Project area. The information gathered in the EM surveys is included in the ECR and is being provided to the Division.

The Project's development has contributed to the Divisions' knowledge of the location and status of idle and orphan O&G wells in the Project area. The Project will ensure that the Division has full access to fulfill their obligations under R.C. 1509.071 to fund the remediation of idle and orphaned O&G wells and will continue to work with the Division by sharing information on idle and orphaned O&G wells in the Project area if and when it becomes available.

The ECR outlines how the Project can be safely constructed and operated in an area of historic oil and gas activity. Today's energy infrastructure can be built safely in the same locations as the energy infrastructure of the 19th and 20th century while providing the access and awareness needed for any required remediation by the Division.

1. Name of the engineering firm, or technical expert writing the report

Response: The Applicant retained Stantec Consulting Services Inc. ("Stantec") as the lead technical expert for the preparation of the ECR. In addition, the Applicant and Stantec received input from Oilfield Policy Advisors, LLC, Summit Petroleum, and Wood PLC.[1] Their input and opinions are included in Sections 1.2 and 2.1 and Appendices C and H of the ECR.

[1] Oilfield Policy Advisors employs a sole principal that served as an executive vice president of the Ohio Oil and Gas Association from September 1991 to December 2014; this principal currently serves on the Underground Technical Committee, Public Utilities Commission of Ohio, as appointed by the Ohio Senate in 2015 and on the Technical Advisory Council on Oil and Gas, as appointed by the Governor of Ohio in 2019. Summit Petroleum employs a petroleum engineer with decades of experience in the O & G production industry in Ohio. Wood PLC is a global engineering and consulting firm in the oil and gas sectors.

2. An explanation of what oil/gas wells are and the potential adverse environmental impacts (such as: brine release affecting vegetation, odors, vapors, oil leakage) that could result from damage to an oil/gas well and why these require special construction consideration

Response: Within Section 2.1 of the ECR, a detailed explanation of the potential environmental impacts associated with oil/gas wells is provided. A surface release, however unlikely, remains the most likely potential adverse environmental impact of historical oil/gas wells in the Project area. A surface release poses a risk of fire and/or explosion and environmental contamination.

Many of the agricultural fields in this part of the state have had field or drain tiles installed to quickly drain away excess rainfall to the nearest stream or ditch. A surface release of crude oil into tiled fields leads to not only soil contamination, which must be excavated and disposed of at a qualified disposal facility, but if the crude oil reaches the field drain system it could make its way to the stream or ditch. Any crude oil spill which enters the waters of the state in an amount that causes a film or sheen on the surface of the water must be reported to the Ohio Emergency Notification System which will notify Ohio Environmental Protection Agency ("OEPA"). OEPA oversees cleanup of the spill and evaluate if it is in violation of the Federal Clean Water Act.

Many, or even potentially most, of the wells in the Findlay-Lima Trenton Field area were not plugged or plugged using only rudimentary techniques. For known well locations identified through the EM surveys, the best way to avoid any potential adverse environmental impacts from construction is to simply avoid any activities that disturb the ground or sub-surface within 50 feet of well locations. By avoiding known historical well locations during the construction and operation of the solar facility, risk of potential adverse impacts is minimized. Furthermore, risk will be lower than in current farming practices, which do not actively avoid the ground over these well locations.

If wells exist within the Project area that were not identified by the EM surveys, there should be no remaining metal casing within approximately 60 feet of the surface, based on the detection capability of the EM survey equipment. These wells, should they exist, have

caps formed from the soil and debris that has accumulated throughout the years. Should a well be encountered during construction where there is no remaining metal casing, immediate steps should be taken to contain the flow, if present, and plug the well. In the case of solar facility construction, the limited subsurface disturbances (i.e. racking mechanism foundation piles driven six to no more than 10 feet below ground ("fbg"), underground collection lines no more than four fbg, and minor grading for the Project substation) when the well casing is 60 or more feet deep should have negligible impact on the "sealing effect" provided by the soil above the well.

3. A hydrogeological impact assessment

Response: Section 2.2 of the ECR provided a limited hydrogeological assessment of the Project area. The soil beneath the Project area is expected to consist predominantly of clay and other fine-grained soils to a depth of approximately 70 fbg, below which lies a water-bearing limestone. Based on observed differences between the depth at which groundwater is first encountered to static water depths, it appears that the overlying clay deposits may act as a confining layer. The uppermost known exploited oil and gas bearing zone is at a depth of approximately 1,100 feet below the ground surface which is approximately 1,000 feet below the base of the domestic supply wells. In addition, subsurface land disturbance for the Project is anticipated extend less than 10 feet below the ground surface. Therefore, groundwater will likely only be encountered for a small percentage of the construction activities and the subsurface land disturbance is unlikely to impact local groundwater conditions.

4. A statement on your coordination and consultation effort with Ohio Department of Natural Resources (ODNR)

Response: Between the end of July through November 2021, the Applicant and their consultants had numerous conversations with ODNR seeking their input and guidance regarding historical oil/gas wells. ODNR provided the Applicant with invaluable knowledge, expertise, and opinions regarding oil/gas wells potentially present in the Project area and their likely status and characteristics. The Applicant provided ODNR an ECR workplan for review and comment to assure that the ODNR agreed that the effort and

detail to be provided in the ECR was sufficient. Appendix B of the ECR contains the ODNR letter and their guidance and recommendations and Section 1.0 of the ECR summarizes the ODNR's role. All feedback from ODNR was carefully considered when preparing the ECR. Additionally, the Applicant will continue to correspond with ODNR throughout development of the Project.

5. An Inventory and map of the oil/gas wells within the project area, including their status (i.e. plugged, not plugged)

Response: Figure 3 in the ECR illustrates both the ODNR O&G well database well locations and status and the well-like anomalies identified by the EM surveys within the Project area. Section 1.2.2 of the ECR provides a detailed explanation of the ODNR oil/gas well database and its limitations. Section 1.3 of the ECR summarizes the EM survey process and results. The ECR also provides evidence and rationale why the well-like anomalies identified by EM surveys represent the most probable locations of historical O&G wells.

6. A determination of whether that oil/gas well poses a risk to public health, safety, or the environment

Response: Section 2.3 of the ECR details the ODNR process used to assess the risk to public health, safety, or the environment a historical oil/gas well may pose. The Applicant used the ODNR Risk Evaluation Matrix included in Appendix F of the ECR to evaluate this risk. The ODNR assigns risk to each discovered orphan well based on the condition of the well (e.g., what and how much is being release from the well) and the potential to come in contact with what is being released. Currently, Project area historical O&G wells identified in the ODNR well database can be reasonably considered to meet the ODNR Class 4 criteria as "Low Risk" wells.

7. An explanation of construction techniques to be employed when working around the oil/gas well (e.g., avoidance, plugging, setbacks)

Response: To assess potential environmental impacts associated with orphan wells present in the Project area, the Applicant reviewed available historical records, collected extensive

data (electromagnetic surveys), and consulted with the ODNR and numerous experts in the oil/gas industry regarding the history of O&G well construction, production, and plugging. The Applicant determined that avoidance of orphan wells was the most prudent course of action and will result in the lowest overall risk to the environment and human health.

As stated in Section 2.4 of the ECR, based on previous discussions with ODNR, the latest design considerations include a 50-foot setback from each well-like magnetic anomaly identified by the EM surveys. No generation facility infrastructure (i.e., panels, access roads, inverters, underground collection lines, substations, etc.) is proposed within these setbacks. The setback areas will ensure that equipment (e.g., drill rigs) could access the location to plug a well if it starts leaking during the operational phase of the Project. Additionally, to allow access of well plugging equipment to the well, the solar panel layout includes separation of no less than 15 feet between rows of panels. Summit Petroleum confirmed that this spacing allows vehicle and equipment access throughout the Project area in the event a historical O&G well requires mitigation in the future.

Revised Figures 3-2 (Project Site Layout Map) and 4-1 (Projects Constraints Map) have been provided. These maps supersede all previous versions. In addition to the revisions that allow for a 50-foot or greater setback around each identified potential historical O&G well, the Project boundary has been updated to eliminate three parcels that are no longer part of the Project area. Removal of these three parcels does not alter any of the results nor conclusions of any of the studies or assessments included as part of the Application. The Project area now totals approximately 1,325 acres.

8. An explanation of what the Applicant would do if other oil/gas wells are encountered or found during construction

Response: Section 5.0 of the ECR includes an Unanticipated Discovery Plan ("UDP") which describes the process the Applicant would employ in the event an unknown oil/gas well was discovered. The UDP includes measures to be taken by the Applicant's solar facility Engineering, Procurement, and Construction contractor and the process for

communicating these discoveries to the ODNR. The UDP also includes a description of a soil management plan to be prepared before Project construction.

9. If the Applicant discovers the need to plug wells (prior to construction, during operation, or at the end of solar facility's life), include an analysis of the probable costs of construction or decommissioning

Response: If an orphan well is discovered and ODNR requires the well to be plugged, the Applicant would initiate the process for allowing access to the well by the well plugging contractor retained by the ODNR Orphan Well Program. Summit Petroleum, a ODNR pre-qualified well plugging contractor (ODNR Contract Number CSP900922-37), provided a sample scope of work cost to plug a well in Hancock County (See ECR Appendix C). Since no historic oil/gas wells with an existing responsible party have been identified in the Project area, the ODNR Orphan Well Program will retain responsibility for plugging of oil/gas wells should the need arise.

10. Cost estimate to properly plug and abandon an oil/gas well.

Response: See response to Question 9 above and Appendix C of the ECR.

Respectfully submitted,

/s/ *Christine M.T. Pirik*
Christine M.T. Pirik (0029759)
(Counsel of Record)
Terrence O'Donnell (0074213)
Matthew C. McDonnell (0090164)
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
Columbus, Ohio 43215
Phone: (614) 591-5461

Attorneys for Border Basin I, LLC

Engineering Constructability Report

Border Basin Solar Project
Hancock County, Ohio

December 23, 2021

Prepared for:

Border Basin I, LLC
200 Portland Street 5th Floor
Boston, MA 02114

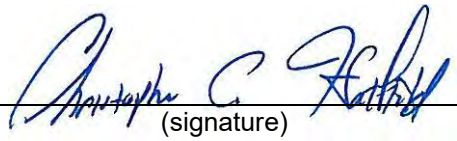
Prepared by:

Stantec Consulting Services Inc.
3001 Washington Boulevard, Suite 500
Arlington, VA 22201

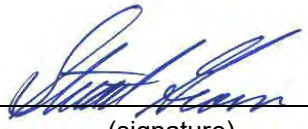
Project No.: 2028113269

ENGINEERING CONSTRUCTABILITY REPORT

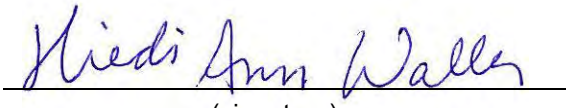
This document entitled Engineering Constructability Report was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of Border Basin I, LLC (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by  (signature)

Christopher C. Hatfield, PG
Senior Geologist

Reviewed by  (signature)

Stu J Gross, PG
Principal Geologist

Approved by  (signature)

Hiedi A. Waller, PE
Senior Engineer

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1.0 PROJECT INTRODUCTION

Border Basin I, LLC (Border Basin) is proposing to develop a 150-megawatt direct current (DC) photovoltaic solar energy project approximately five miles northeast of Findlay, Ohio (the Project). The Project area includes approximately 1,378 acres of agricultural land as show on **Figure 1** (the Project area). During June 2021 Border Basin submitted a Certificate of Environmental Compatibility and Public Need (CPCN) application to the Ohio Power Siting Board (OPSB). In a September 7, 2021, Compliance Letter from the OPSB, questions were raised regarding historical oil and gas (O&G) wells identified within the Project area. The OPSB Compliance Letter is included in **Appendix A**.

In response, during September 2021, Border Basin initiated direct communications with the Ohio Department of Natural Resources (ODNR) Division of Oil and Gas Resource Management regarding the OPSB questions on historical O&G wells. Stantec Consulting Services Inc. (Stantec) on behalf of Border Basin, provided a workplan to the ODNR detailing what would be included in the Engineering Constructability Report (ECR) to address the questions raised in the Compliance Letter and requested input and guidance from the ODNR (Stantec, 2021). Gene Chini, the ODNR Orphan Well Program Manager, provided comments regarding the ECR workplan in a November 30, 2021 letter included in **Appendix B**.

“The Orphan Well Program is tasked with plugging idle and orphan wells that have no responsible owner. The program prioritizes plugging of wells based on their potential for environmental harm or impact to public health and safety. It is important to note that, not all orphan wells pose immediate threats to public health and safety.” (ODNR 2021).

Pursuant to Ohio Revised Code (R.C.) Section 1509.021, the ODNR Division of Oil and Gas Resource Management has sole and exclusive authority to regulate the permitting, siting and operation of oil and gas wells in Ohio, including the minimum distances that shall be applied between the siting of an oil and gas well and the drilling unit boundary lines, roads, bodies of water, and occupied dwellings. Local ordinances have no authority to supersede or replace Ohio R.C. Section 1509.021. Conversely, the ODNR Division of Oil and Gas Resource Management does not regulate the minimum distance construction of a building or structure must maintain between any existing oil and gas well.

In addition to addressing the questions raised in the OPSB Compliance Letter, this ECR carefully considered the ODNR guidance and recommendations. The goal of the ECR is to provide a thorough assessment and plan to ensure the O&G well questions raised by OPSB for the Project have been appropriately assessed and considered when determining the constructability of the Project.

1.1 PROPERTY AND PROJECT DESCRIPTION

The Project area is comprised primarily of cultivated cropland with isolated small, forested areas and is located approximately five miles northeast of Findlay, Ohio and north of State Highway 12. Surrounding properties have similar uses as those found within the Project area. A map illustrating the main features of the Project area is provided as **Figure 1**. Parcels within the Project area will be leased or purchased by Border Basin in anticipation of development and construction of a solar photovoltaic facility.

The Project will consist of photovoltaic solar panels (modules) mounted on a racking system supported by driven steel piles, inverters, collector lines, a substation, and internal access roads, surrounded by security fencing. Gated driveways will allow access to the public roadways. The modules are mounted on a rack that rotates throughout the day to maximize the solar energy captured and electric generation of the array. Electricity generated by groups of modules is collected and sent to inverters located throughout the array to convert the electricity from DC to alternating current (AC). Collector lines, a series of medium voltage (MV; 34.5 kilovolt) lines, will transfer the electricity from the inverters to a Project substation.

Construction impacts of the Project are confined to the electric generation equipment and project roads. The Project will be comprised of approximately 2,632 tracker tables, each containing 105 solar modules (per the current plan). Each tracker table will be supported on an estimated 17 driven piles. Internal tracker row spacing is currently planned to be approximately 33 feet wide, panel edge to panel edge, and the ground surface beneath the panels will be re-seeded. In addition to the tracker tables, a Project substation, inverter pads, combiner boxes and underground medium-voltage wiring are expected to make up the full body of construction impacts of the Project. The installation of low-voltage wiring is typically above ground except at the inverter locations. Most low-voltage equipment installation will be installed above ground. Any below ground low voltage work will be completed using standard trenching construction methods, typically no deeper than four feet below ground.

During construction, temporary roads may be built to improve access, such as a 24-foot road to allow two vehicles to pass one another. These roads will be removed at the conclusion of construction. The permanent internal roads providing access to the Project for operations and maintenance (O&M) are typically 12-foot gravel roads plus four-foot shoulders on each side for an approximately 20-foot width. Approximately 100,000 linear feet of perimeter access road will be constructed for the Project. Perimeter access roads will be no more than 26 feet wide. Roads will be constructed with gravel, the depth of which will be determined as part of final engineering, but the anticipated depth would be less than two feet below ground surface (fbg).

Steel frame racking mechanisms support the modules and connect the modules to the posts. The steel posts are approximately six inches by seven inches. Posts are typically 10 to 15 feet long and are driven to approximately six fbg. Posts will be primarily installed by pile drivers. The Project, in its current form, will require installing approximately 19,936 posts. The total area of land disturbed by the posts will be approximately 0.13 acres. Approximately 54 pad-mounted inverters will be installed to convert the 1,500-volt DC energy collection system to AC power. Approximately 65,000 linear feet of below ground AC collection line will be installed for the Project. The depth of the installed AC cables will be determined during final engineering but will be less than three fbg except when going beneath waterways, wetlands, or roads. AC collection lines will be installed underground and will be plowed or trenched into place. Overhead lines will be avoided, however in rare occasions, they will be installed with self-supporting or guyed poles. Horizontal directional drilling will be used when necessary to install collection lines under roadways, streams, or wetlands.

Through the development of the Project's application to the OPSB for a CPCN, Border Basin became aware of historical records of O&G wells indicating their potential presence within the Project area. In response to OPSB-staff data request received July 26, 2021, Border Basin initiated review of the O&G well records and conversations with the ODNR Division of Oil & Gas. As part of the OPSB Compliance Letter dated September 7, 2021, Border Basin was notified that OPSB Staff may require additional information and/or studies related to the O&G wells. In addition, the OPSB Compliance letter requested an ECR. In response to the OPSB Compliance Letter, Border Basin began a more detailed site-specific assessment of historical O&G wells and continued conversations with the ODNR Division of Oil & Gas.

1.2 HISTORICAL O&G PRODUCTION SUMMARY

Since receiving OPSB's September 7, 2021, Compliance Letter, Border Basin gathered additional information and further investigated potential historical O&G wells in and near the Project area. A summary of those efforts is provided below.

1.2.1 O&G EXPLORATION AND WELL CONSTRUCTION DESCRIPTION

Stantec used the following sources of information to develop a detailed summary of historical O&G exploration and well construction in Hancock County, Ohio:

- ODNR – Division of Oil & Gas (ODNR, 2021a)
- Historical Oil Well Summary by Summit Petroleum, Inc. (**Appendix C**)
- "A Journey Through Two Early Ohio Oil Booms" by Jeff A. Spencer – Petroleum History Institute (Spencer, 2011)
- Thomas Stewart - Oilfield Policy Advisors, LLC (Stewart, 2021)

The state of Ohio has a long history of oil exploration and production beginning in the mid- to late-1800s with the discovery of the Findlay-Lima Trenton Field (sometimes referred to as the "Lima-Indiana Field") in northwestern Ohio. The first commercial O&G well in Ohio was drilled in 1860 near Macksburg (approximately 150 miles southeast of the Project area). Before this, oil and natural gas had been encountered in wells drilled exclusively for brine water that was distilled so the salt could be harvested and sold. By the early to late 1800s, Ohio became the leading oil-producing state as a period of land speculation and rapid oil field development occurred (Spencer, 2011).

The Findlay-Lima Trenton Field extends across the Project area with O&G development beginning in 1884 and essentially ending by 1910, with some outlier development occurring throughout the 1930s (Stewart, 2021). Recoverable oil came from the geologic unit known as the Trenton Limestone and made Ohio the nation's leading oil producer in 1896. The Trenton Limestone is a vugular, highly permeable limestone that easily allowed oil and gas to flow at prolific rates. Natural gas production was encountered primarily in Hancock County and large oil flows were found to the north in Wood County. Although official production records were not kept during this period, flow rates as high as 32 million cubic feet of natural gas per day and up to 40,000 barrels of oil per day have been reported (**Appendix C**). As a result, hundreds of exploration wells were completed in Hancock County in the late 1800s and early 1900s. By the 1920s, much of the easily extractable oil in Hancock County had been discovered and extracted and oil production and exploration in this area greatly diminished.

The development of the Findlay-Lima Trenton Field is a story of extreme over-drilling and very poor production practices that damaged long-term reservoir productivity. Current field evaluations demonstrate that the Trenton Limestone is depleted – unusually so, and certainly under any rational economic scenario or from a pure reservoir perspective. This has been demonstrated by failed attempts to revive production using modern secondary recovery techniques. It is unlikely that a disturbance to existing wellbores will result in meaningful hydrocarbon releases to the surface and thus, historical wells in the Findlay-Lima Trenton Field present negligible environmental risk (Stewart, 2021).

Summit Petroleum, Inc (Summit Petroleum) provided additional insight into historical oil wells and their construction. Summit Petroleum has been pre-qualified by the ODNR (ODNR Contract Number CSP900922-37) to plug orphan wells in Ohio and was selected by ODNR to plug numerous wells in Hancock County, Ohio. Timothy Altier (Summit Petroleum), a Petroleum and Natural Gas Engineer with

over 30 years of experience in the O&G well construction and plugging industry in Ohio, provided a detailed description of historical O&G wells in the report included in **Appendix C** and summarized below.

Description of O&G Wells in Hancock County

Although well construction records were not kept for most of the wells drilled during the late 1800s and early 1900s, drilling techniques and well depths were common enough to use the limited available well information to extrapolate how the wells in Project area were drilled. Wells in Hancock County drilled during this time would have followed a customary casing program consisting of installing 8- to 10-inch diameter casing through the unconsolidated soil at the surface (generally 50 to 100 fbg) and installing 5 ½- to 7-inch diameter casing to a depth that was below the freshwater aquifers, generally 400 to 600 fbg. The well bore was then drilled to the Trenton Limestone and left uncased to the total depth. The casing installed below the aquifer depth was to prevent fresh water from flowing into the well bore during drilling causing a slowing, or if the water flow was great enough, preventing the drilling process from continuing. After the drilling was completed, and if the well was productive, this casing would also prevent oil, gas, and brine from invading the freshwater aquifers.

Since O&G wells in the Project area were drilled in the late 1800s and early 1900s and as several hundred feet of casing would have been needed to prevent water from entering the well bore as drilling progressed, only steel casings would have been used in the O&G wells in the Project area. Wooden casings were limited to extending only tens of feet into the well bore and could not have been used to reach the Trenton Limestone (oil/gas bearing formation). The steel casings were permanently installed and used as a conduit to move the oil, gas, and brine to the surface and to isolate the producing formation from all other formations including the freshwater aquifers.

Based on a small sample of similar wells being plugged in Ohio's orphan well plugging program, debris (soil, rocks and/or wood) commonly accumulates within the top section of casing, with some wells also exhibiting debris caving into the uncased section several hundred feet below ground level. Due to the pressure depleted state of the Trenton Limestone, the vast majority of these old wells do not have the natural energy available to flow oil or natural gas to the surface. For those that do, debris present in the well can provide enough resistance to prevent ongoing oil or natural gas flow.

1.2.2 ODNR O&G DATABASE FINDINGS

In 1965, the ODNR created the Division of Oil and Gas (the Division) that was responsible for regulating Ohio's oil and natural gas industry. Since much of the oil and gas production in the state occurred before the mid-1900s, the Division created the Orphan Well program to identify and locate O&G wells records and locations. Information used to identify and locate O&G wells included well drilling logs, location maps for singular wells or groups of wells, interviews with landowners, limited field investigations, and miscellaneous records. Using this information, the Division created a database with over 100,000 well records in Ohio. This database was then used to create the online "Oil and Gas Well Locator" application (https://gis.ohiodnr.gov/MapViewer/?config=oilgaswells). The ODNR O&G database identified the following three classifications of historical O&G wells associated with the Project.

ODNR O&G Well Database Listing	Total In Project area	Total Inside Project Fence Line
Wells that were permitted but were not drilled	16	6
Plugged Wells	22	11
Historic Production Wells	112	81

The plugged well and historic production well locations reported by the Division are illustrated in the attached **Figure 2**. No active oil or gas production wells are identified in the Project area. All well records within the Project area had a well date of "1/1/1900" which is the Division's default date for all wells when the drilling date cannot be determined and means they could have been drilled prior to or after that date.

Stantec also reviewed United States Geological Survey (USGS) historical topographic maps from 1903, 1956, 1960, 1986, 2010, 2013, and 2016 that are available online and that included the Project area (https://ngmdb.usgs.gov/topoview/viewer/#14/41.0897/-83.5809). USGS topographic maps sometimes identify structures such as O&G wells. The 1960 USGS topographic map identified a gas well approximately 200 feet outside the southwest Project area boundary. The ODNR mapping did not identify a well at this location.

1.2.3 ODNR - DIVISION OF OIL & GAS INTERVIEWS

On July 30, 2021, a conference call with Chris Hatfield (Stantec), Adam Schroeder (ODNR – Division of Oil & Gas), and Ben Metcalf (Border Basin) was conducted to gather additional information regarding the process ODNR has gone through to locate historical O&G wells. Mr. Schroeder provided the following information and insight:

- The records for wells completed before 1960 are limited and their physical locations may not be accurate.
- Well records available in the database and online viewer are often incomplete with data limited to a generic "1/1/1900" date and Township/Range/Section. Latitude/longitude locations are included in the online well records; however, those are determined by where they have been plotted on the online viewer and do not represent the precise location of the well as it cannot be determined where within the Section the well was drilled.
- Most often, wells constructed prior to 1940 have little to no easily identifiable evidence of existing beyond paper records. In rare instances, wells structures (i.e., metal well casings, brick-lined wells, evidence of plugging materials) have been encountered in the subsurface at locations with no visual surface evidence of a well.
- The historical well owner most often defaults to ODNR, since the original well owner is not known or is no longer in existence.
- The well locations in the online "Oil and Gas Well Locator" application were plotted using a combination of historical maps, well logs and landowner interviews, with limited field verification.
- In Hancock County, the ODNR recently flew drones equipped with a magnetometer to identify subsurface well structures with some success. Mr. Schroeder was not aware if drone surveys extended into the Project area.

- The Ohio Historical Society stores old paper and scanned well records. These records are included in the ODNR well database. Mr. Schroeder stated it was unlikely that review of these records would identify well records not already included in the ODNR online records.

On October 21, 2021, Madge Fitak, with the ODNR, electronically provided Stantec the original scanned Cass Township map dated 1951 and an Ohio Oil Co. map dated 1914 (Fitak, 2021). Both maps identified approximate point locations for O&G wells in the Project area. The locations appeared to correlate closely with the ODNR online mapper, however the maps appeared to have fewer well locations when compared to the online mapper.

The ODNR has a robust Orphan Well Program (https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-ODNR/oil-gas/orphan-wells). The ODNR developed this program in 1977 to plug improperly abandoned O&G wells. The program is funded by a portion of the state tax on O&G production. To date, this program has provided funding to plug more than one thousand wells. Funding of the program continues to the present.

Given the extensive historical oil exploration and production activity in Ohio, the ODNR has attempted to identify known and possible O&G well locations using the limited historical records available. O&G wells identified in or near the Project area were all installed prior to the 1940s. Therefore, precise information regarding well locations, construction details, or whether the well was used to extract oil or gas is not available for any well identified within the Project area. Although the ODNR records geolocate the wells, these point locations are estimates based on the limited locational information and the wells, if still present, could be tens to hundreds of feet from this plotted location. Given the age of most O&G wells in Hancock County, it is likely that these wells or well structures are no longer present within two feet of the ground surface (typical tilling depth in agricultural fields).

1.3 EM SURVEY OF THE PROJECT AREA

From September to December 2021, UAV Exploration, Inc (UAV Exploration) completed an electromagnetic (EM) survey of the portions of the Project area where infrastructure is planned, using a combination of an unmanned aerial vehicle (UAV) and ground-based surveying techniques (herein collectively referred to as “the EM Survey”). The goal of the EM Survey was to identify and geo-locate sub-surface steel-cased gas wells within Project area. UAV Exploration prepared the EM Survey data table and figures are included in **Appendix D.** UAV Exploration previously worked with the ODNR to identify historical O&G wells in other areas of Ohio, including in Hancock County. A summary of the EM Survey is provided below.

1.3.1 GENERAL EM SURVEY PROCESS AND LIMITATIONS

UAV Exploration provided the following information and opinions regarding the effectiveness of EM surveys (Wylie, 2021).

EM surveys can identify subsurface magnetic sources at survey elevations up to approximately 160 feet above the source. Since the type of media (soil, air, water) between the source and sensor is irrelevant, the detection is the same. The aerial EM Survey conducted by UAV flew the drone 108 feet above the ground surface. Therefore, well-like structures are likely to be detected up to approximately 52 feet below the ground surface. When magnetic anomalies identified during the EM Survey have monopolar magnetic fields, these anomalies are identified by UAV as “well-like anomalies”.

Typically, the shallower (closer to the sensor) the well casing, the higher the maximum intensity and the narrower the diameter of the anomaly. Based on this principle, only a very general qualitative determination can be made when comparing two well-like magnetic sources (a wide and weak anomaly is often deeper relative to an anomaly that is narrow and strong). Other factors that affect the strength and width of well-like anomalies include the length and diameter of casing, the magnetic susceptibility of the steel, permanent magnetization of the steel, and the influence of other proximal magnetic sources that could alter or mask the detection.

From the aerial survey, the X and Y position of detected well-like anomalies from a 30-meter altitude, using a 30-meter line spacing survey is approximately +/- 6 meters on average from the true position. This is based on data from prior surveys UAV Exploration conducted where wells were successfully ground pinpointed and excavated. From the ground, the X, Y position of well casing can be resolved to within a half meter using handheld magnetic locators, but normally less. The Global Positioning System (GPS) error on points collected from the ground is approximately +/- 10 centimeters.

1.3.2 PROJECT AREA EM SURVEY METHODS

The principal geophysical sensors used included an Ex-Mag Atomic Magnetometer System mounted on a UAV platform and a Gem Systems GSM-19 Overhauser Proton Procession magnetometer base station. Ground-based detections were confirmed using a Schondstedt handheld magnetic locator. The total combined survey distance for the Project was approximately 58.4-line miles. The data was examined for ferro-magnetic anomalies, which display the potential to be sub-surface steel-cased well casings and investigated in the field during ground truthing.

Flight Operations

On September 5, 2021, UAV Exploration conducted the UAV EM survey by systematically covering the Project area. The daily survey procedure consisted of a morning safety and survey plan meeting. The GSM-19W Overhauser Base Station was set up and initiated at the start of each survey day. UAV-based magnetic data collection was conducted in a north-south flight pattern at a nominal altitude of approximately 108 feet above ground level which was the calculated maximum tree height plus a safety margin in each survey grid. Flight-line spacing was 92 to 95 feet as shown on the map included in **Attachment C**. Two existing powerline exclusion areas were also present within the Project area and are highlighted in red on the map**.**

The position and altitude of the aircraft and magnetometer payload was achieved using a combination of Barometric Pressure Measurement, GPS, Compass, Inertial Measurement Unit and RADAR altimeter. AGL altitude was maintained using a combination of RADAR altitude measurement and barometric pressure readings. The magnetometer was suspended from the UAV in a fixed orientation by a vibration isolated mounting system at a sensor distance of approximately 4 ¼ feet to reduce UAV noise and magnetic interference. Nominal survey speed was maintained at 26 to 33 feet per second ground speed. Scan rates for data acquisition was 1000 hertz (Hz) for the magnetometer and one Hz for GPS positioning which translates to an effective downline sampling of 1cm.

UAV Exploration maintained navigation of the UAV by the onboard GPS-Compass system. Pre-programmed flight plans were uploaded to the UAV prior to takeoff, and the aircraft flew the flight lines autonomously, returning to its takeoff location, or a pre-programed landing location once the lines were completed. Landing and takeoff were conducted manually by the UAV Exploration pilot and ground crew. Raw survey data was downloaded at the completion of each flight and quality checked.

Data Processing

For each mission, raw data files were initially batch processed into a single comma- delimited file using custom software. The concatenated files from each mission were imported into Oasis Montaj for all remaining processing. The following corrections were applied:

- Instrument Lag
- Magnetic Heading
- Major attitude noise due to wind
- Diurnal variation
- 1D filtering
- Combining sorties into one dataset
- Trend removal filter
- Analytic signal grid filter
- Other 2D smoothing filters

At the completion of each survey grid sub-section, the latitude and longitude location of well-like anomalies were identified.

Ground Truthing

After completing the aerial drone EM Survey, a geophysicist compiled, processed, and analyzed all magnetic data to identify and geolocate magnetic anomalies. Following that analysis and after crop harvest, UAV conducted ground-based EM surveys of magnetic anomalies in phases during October to December 2021 utilizing a Schonstedt GA-72cd and Maggie magnetic locators. The principal technologies and processes employed by UAV Exploration in other ODNR surveys remain essentially the same in this survey. UAV Exploration conducted the ground-based EM survey equipment utilizing the following methods:

1. The field crew traversed on foot to each anomaly location individually for ground identification and magnetic verification using an Emlid global navigation satellite systems (GNSS).

2. A serpentine path is walked within an approximate 15-meter diameter radius, starting at the center.

3. Once a potential target is detected, a circle is walked around the target to determine if the magnetic field is monopolar (well-like) or dipolar (not well-like).

4. If determined to be monopolar, the exact position is located where the magnetic gradient is the highest.
5. A wider, minimum of 30-meter, circle is surveyed to rule out additional weaker anomalous signatures in proximity to the well.

6. All magnetic detections which indicated the likely presence of a sub-surface well were flagged at the point of peak magnetic gradient.

Some wells which indicated a relatively shallow casing depth were excavated using shovels to attempt to reveal and photograph the top of well casing. At each suspected well location, UAV Exploration recorded the point of peak magnetic gradient using the Emlid GNSS and logged it.

Following completion of the ground-based EM surveys, a geophysicist compiled, processed, analyzed, and tabulated all magnetic data for use and provided Border Basin with the results.

1.3.3 EM SURVEY RESULTS

Based on the EM Survey results, UAV Exploration identified the following likely O&G well features associated with the Project.

Type of Well-Like Anomalies	Total In Project Area	Total Inside Project Fence Line
"Ground-Confirmed Wells" (excavated after completing ground-based EM survey or exposed at the ground surface)	5	3
"Ground-Located Well-Like Anomalies"	56	47
"Deep Ground-Located Well-Like Anomalies"	13	9
"Aerial-Only Well-Like Anomalies"	16	10

In addition to the maps provided by UAV Exploration in **Appendix D**, the well-like anomalies are also shown on **Figure 2** so that a comparison between well-like anomalies and historical O&G well database well locations could be made. Some of the well-like anomalies identified by the EM Survey are within 100 feet of ODNR historical O&G well mapped locations. However, locations of the majority of well-like anomalies and ODNR mapped wells do not appear to correlate.

UAV Exploration prepared a table summarizing the EM Survey data included in **Appendix D**. Of the ground-confirmed wells, two wells (GC-1 and GC-4) had steel casing extending above the ground surface. Both wells had 10-inch diameter open casing that extended from approximate two feet above the ground surface to an unknown depth. The wells did not appear to be plugged. Petroleum odors were noted at GC-1. Eight- to ten-inch diameter steel open casing was encountered approximately 0.5 to 1 foot below the ground surface at ground-confirmed wells GC-0, GC-2, GC-3, and GC-5. The wells did not appear to be plugged and petroleum odors and/or stained soils were observed within a few feet each well except for GC-5. No visual evidence or petroleum odors were noted beyond the immediate vicinity of the wells.

Of the ground-located well-like anomalies, eight (GL-21, GL-27, GL-34, GL-36, GL-37, GL-43, and GL-45) were likely to be present at a greater depth. No visual evidence of the wells were noted by UAV Exploration. EM Survey data suggested that former product lines may extend from AO-18 to GL-53 to GL-50 in the southern portion of the Project area.

2.0 HISTORICAL O&G WELL ENGINEERING CONSTRUCTABILITY ASSESSMENT

Responses to the questions raised in the OPSB Compliance Letter regarding the impact historical O&G wells may have on the Project is provided in the following subsections.

2.1 POTENTIAL ADVERSE ENVIRONMENTAL IMPACTS

Potential adverse impacts include release of petroleum or brine affecting vegetation, groundwater, or surface water; odors; gas vapors; or oil leakage. The extensive investigation and research regarding potential O&G wells in the Project area helped determine the best methods to limit the potential environmental impact. To evaluate the potential adverse environmental impacts of historical O&G wells in the Project area, Stantec and Border Basin consulted with Thomas Stewart with Oilfield Policy Advisors, LLC and Timothy Altier with Summit Petroleum. Mr. Stewart formerly served in the Ohio Oil & Gas Association, the Interstate Oil and Natural Gas Compact Commission, and currently serves on the technical advisory board to ODNR Division of Oil & Gas and has 15 years of direct experience in the O&G well drilling and production industry. Mr. Altier is a Petroleum and Natural Gas Engineer with over 30 years of experience in the O&G well construction and plugging industry in Ohio.

Mr. Stewart provided the following insight (Stewart, 2021):

> *"The development of the Findlay-Lima Trenton Field is a story of extreme over-drilling and very poor production practices that damaged long-term reservoir productivity. Any evaluation of the field demonstrates that the Trenton Limestone is depleted – unusually so, and certainly under any rational economic scenario or from a pure reservoir perspective. This has been demonstrated by failed attempts to revive production using modern secondary recovery techniques. It is very unlikely that any disturbance to existing wellbores will result in meaningful hydrocarbon releases to the surface and thus present negligible risk".*

Mr. Altier also provided valuable insight based on his over 30 years of experience in O&G well construction and plugging in Ohio (**Appendix C**) that is summarized below.

The most adverse environmental impact of an O&G well is a release to the surface or to the underground freshwater aquifers. A release to the surface poses a risk of fire and/or explosion and environmental contamination.

Many of the agricultural fields in this area have had field or drain tiles installed to quickly drain away excess rainfall to the nearest stream. A surface release of crude oil into tiled fields leads to not only soil contamination, which must be excavated and disposed of at a qualified disposal facility, but if the crude oil reaches the field drain system it will make its way to the stream, or "waters of the state". A crude oil spill which enters the waters of the state in an amount that causes a film or sheen on the surface of the water must be reported to the Ohio Emergency Notification System which will notify Ohio Environmental Protection Agency (OEPA). OEPA will oversee cleanup of the spill and evaluate if it is in violation of the Federal Clean Water Act.

As many or most of the wells in the Findlay-Lima Trenton Field area were not plugged or plugged using only rudimentary techniques, excavation of the soil on top of the remaining casing can remove the "cap"

that's preventing the well contents from flowing to the surface. Flowing, however, is a misleading term for these pressure-depleted wells found in the Project area. When excavated, these wells will normally just ooze a mixture of crude oil and brine. For known well locations identified through the EM surveys, the best way to avoid potential adverse environmental impacts from construction is to simply avoid activities that disturb the ground or sub-surface within 50 feet of well locations. By avoiding potential historical well locations in the construction and operation of the solar facility, risk of potential adverse impacts is minimized. Furthermore, risk will be lower than in current farming practices, which do not actively avoid the ground over these locations.

If wells exist within the Project area that were not identified by the EM surveys, there should be no remaining metal casing within approximately 50 feet of the surface. These wells, should they exist, have caps formed from the soil and debris that has accumulated throughout the years. Past construction activities which have excavated the soil on top of similar wells have led to the wells oozing a mixture of crude oil and brine. Should a well be encountered in this manner, immediate steps should be taken to contain the flow and plug the well. In the case of solar construction, the limited subsurface disturbances (i.e. racking mechanisms foundation piles driven six to no more than 10 fbg, underground collection lines no more than four fbg, and minor grading for the Project substation) when the well casing is 50 or more feet deep should have negligible impact on the "sealing effect" provided by the soil above the well.

2.2 LIMITED HYDROGEOLOGICAL ASSESSMENT

2.2.1 REGIONAL GEOLOGY

The bedrock geology of Ohio generally consists of flat to gently dipping sedimentary rocks ranging in age from Upper Ordovician to Upper Carboniferous-Lower Permian. Underlying the surface and near-surface bedrock are older sedimentary, igneous, and metamorphic rocks ranging from Lower Ordovician to Mesoproterozoic in age. The Project area overlies Silurian-aged marine deposits ranging in age from approximately 423 million to 435 million years in age (ODGS, 2006).

The surficial geology in the Project area is unconsolidated Quaternary glacial till and alluvium, as mapped by the ODNR (ODNR; 2005). The till is comprised of unsorted mix of silt, clay, sand, gravel, and boulders of glacial origin. The alluvium is derived from reworked glacial deposits (USGS, 1995). The thickness of the surficial deposits is usually less than 100 feet but can be up to 200 feet thick in some buried glacial valleys (USGS, 1995). The till was deposited by southward moving glaciers, which caused broad flat plains, rolling surfaces along moraines, and low well-rounded hills of consolidated rock along the landscape.

The Project area overlies the Findlay Arch, a geological structure first successfully exploited for O&G exploration in the late 1800's when a discovery well drilled near Findlay, Ohio encountered natural gas at a depth of approximately 1,100 feet in a reservoir constituting Middle Ordovician Trenton Limestone. This discovery subsequently led to the development of what would become the Lima-Indiana Oil and Gas Field. In the early 1900's, deeper exploration identified an oil reservoir in the Tiffin field at a depth of approximately 2,200 feet. More recently, O&G exploration in the Project area has been focused on the Trenton Limestone (encountered at a depth of approximately 1,100 to 1,800 feet) and the Knox Group (encountered at a depth of approximately 1,700 to 2,400 feet) (USGS, 1987).

2.2.2 REGIONAL HYDROLOGY

Groundwater in the Project area occurs within unconsolidated surficial deposits and underlying dolomite. Groundwater within the surficial deposits is generally unconfined (USGS, 1995). However, artesian or confined conditions may exist in places where interbedded clay or silt compose local confining units. Horizontal hydraulic gradients are often influenced by local topography, and are generally oriented towards local drainages, streams, and rivers. Hydraulic conductivities of the glacial deposits are highly variable depending on local lithology (USGS, 1995). Vertical hydraulic conductivity is highly dependent on the presence and thickness of clay-rich till (Bugliosi, 1990).

Groundwater within dolomite is generally under confined conditions with flow occurring through fractures, bedding planes, and solution cavities (USGS, 1995). The dolomite is recharged from the overlying surficial aquifer system in areas where water levels in the surficial aquifer system are higher than those in the dolomite. Groundwater may discharge to the surficial aquifer system locally when water-level differences are reversed. Hydraulic conductivity within the bedrock is generally less than in the overlying unconsolidated sediments. Groundwater flow direction of the bedrock aquifer is generally to the north towards Lake Erie (Sprowls, 2008), but is also influenced locally by drainages and streams when the bedrock is near the surface.

2.2.3 LOCAL GEOLOGY AND HYDROLOGY

To evaluate local geology and hydrology, Stantec reviewed geotechnical data collected in the Project area and a selection of private water well construction records located in the site vicinity utilizing online well records maintained by the ODNR.

During May 2021, the John Wood Group PLC (Wood) completed a Report of Preliminary Geotechnical Exploration in the Border Basin Project area (Wood, 2021). The geotechnical exploration included collecting soil samples from 18 borings that extended to 15.5 fbg at various locations within the Project area. Generally, clay with varying amounts of gravel and coarse-grained sedimentary rock fragments were encountered in the borings. Anthropogenic materials or evidence of historical O&G well structures were not identified in the soil samples collected. Auger refusal was not encountered in any of the borings, suggesting competent bedrock is not present within the depths explored.

Stantec reviewed a series of well construction records in a general north-south direction along Township Road 238 which bisects the southern portion of the Project area and is located on the western edge of the northern portion of the Project area (ODNR, 2021b). Those well log records are included in **Appendix E**. The well records reviewed include the following:

- **Well Log 66580** – A domestic supply well located on the west side of Township Road 238, approximately 300 feet south of County Road 216. The well was completed in 1987 to a depth of 80 fbg; water was encountered at a depth of 80 fbg, with static water measured at a depth of approximately 20 fbg. Lithology observed during well installation activities consisted of clay from surface to a depth of 20 fbg, a fine gravel-clay mixture from 20 to 64 fbg, gravel from 64 to 68 fbg, sand from 68 to 70 fbg, and limestone from 70 fbg to the total depth explored.

- **Well Log 2016694** – An abandoned borehole for an intended domestic supply well located on the west side of Township Road 238, approximately 45 feet northeast of the house at 4850 Township Road 238 (north of County Road 215). The borehole was drilled in 2008 but was abandoned due to the water being observed to contain oil and oil sheen and having a strong sulfur odor. Water

was encountered at a depth of 83 fbg, with static water measured at a depth of approximately 40 fbg. Lithology observed during drilling activities consisted of clay from surface to a depth of 71 fbg with a layer of limestone encountered from 68 to 69.5 fbg and was underlain by limestone from 71 fbg to the total depth explored.

    - Due to the unfavorable water characteristics, a second well (**Well Log 2016695**) was subsequently drilled approximately 250 feet southwest of the original boring location. This well, also drilled in 2008 was noted as being "clear with no sulfur odor". The lithology was similar to that for the initial borehole, with water being first encountered at a depth of approximately 75 fbg and a static water level of 56 fbg.

- **Well Log 598584** – A domestic supply well located at the northeast corner of County Road 216 and Township Road 238. The well was completed in 1981 to a depth of 120 fbg with static water measured at a depth of approximately 35 fbg. The depth at which water was first encountered was not noted; however, the well log did have the "odor" field in the Bailing or Pumping Test section of the report circled. Lithology observed during well installation activities consisted of clay from surface to a depth of 65 fbg, a sand-clay mixture from 65 to 69 fbg, and limestone from 69 fbg to the total depth explored.

- **Well Log 723305** – A domestic supply well located on the east side of Township Road 238, approximately 300 feet north of County Road 216. The well was completed in 1991 to a depth of 75 fbg; water was encountered at a depth of 75 fbg, with static water measured at a depth of approximately 27 fbg. Lithology observed during well installation activities consisted of clay from surface to a depth of 21 fbg, a fine shale-clay mixture from 21 to 45 fbg, sandy clay from 45 to 60 fbg, gravel, sand, and clay from 60 to 73 fbg, and limestone from 73 fbg to the total depth explored.

There are no municipal water supply wells in the vicinity of the Project area as Findlay procures their water supply from the Blanchard River, pumping water into two reservoirs for storage and treatment prior to being dispensed through their network of water lines in the city and surrounding areas. Surface water data provided by Findlay in their annual reports (the most recent of which from 2020 is available online at: https://www.findlayohio.com/home/showpublisheddocument/10947/637540972564870000) indicates there were no violations in the drinking water quality.

2.2.4 SUMMARY

In summary, soil beneath the Property is expected to consist predominantly of clay and other fine-grained soils to a depth of approximately 70 fbg, below which lies a water-bearing limestone. Based on observed differences between the depth at which groundwater is first encountered to static water depths, it appears that the overlying clay deposits may act as a confining layer. Additionally, based on noted odors (see Well Logs 2016994 and 598584) and oil/oil sheen (see Well Log 2016994), groundwater may potentially be impacted by petroleum hydrocarbons. The scope of Stantec's review of local geology and hydrology conditions precludes a determination of whether the observed petroleum hydrocarbons represent localized contamination of shallow soils that had migrated downward, or upward migration of petroleum hydrocarbons from depth via preferential pathways. It should be noted however, as presented in the Regional Geology section above, that the uppermost known exploited oil and gas bearing zone is at a depth of approximately 1,100 fbg; approximately 1,000 feet below the base of the domestic supply wells. In addition, subsurface land disturbance for the Project is anticipated extend less than 10 fbg. Therefore,

groundwater is will likely only be encountered for a small percentage of the construction activities and the subsurface land disturbance is unlikely to impact local groundwater conditions.

2.3 O&G WELL RISK DETERMINATION PROCESS

In the simplest terms, environmental risk is a combination of the probability and consequence of an unwanted accident. If an unwanted accident is both unlikely to occur and unlikely to pose significant consequence, then risk generally can be considered "low". As previously discussed in Section 2.1, given the depleted nature of the Findlay-Lima Trenton Field, it is very unlikely that disturbances to existing orphan wells in the Project area will result in meaningful hydrocarbon releases to the surface and thus present low risk.

In addition to the general potential risk of an improperly or unplugged well, the ODNR has developed a Risk Evaluation Matrix (**Appendix F**) that currently categorizes orphan wells into the following classes:

Class 1 – Emergency (as declared by ODNR)
Class 2 – High Risk (Non-Emergency)
Class 3 – Medium Risk
Class 4 – Low Risk

The ODNR assigns risk to each discovered orphan well based on the condition of the well (e.g. what and how much is being release from the well) and the potential to come in contact with what is being released. Currently, Project area historical wells identified in the ODNR well database and EM Survey can reasonably be considered to meet the ODNR Class 4 criteria as "Low Risk" wells.

2.4 O&G WELL AVOIDANCE, MINIMIZATION, AND MITIGATION METHODS

As previously described in Section 2.1, well avoidance most effectively minimizes risk to human health and welfare and the environment. Based on previous discussions with the ODNR, the latest design considerations include a 50-foot setback from each well-like magnetic anomaly identified by the EM surveys. No generation facility infrastructure (i.e., panels, access roads, inverters, underground collection lines, substations, etc.) is proposed within these setbacks. The setback areas will ensure that equipment (e.g. drill rigs) could access the location to plug a well if it starts leaking. Additionally, the solar panel layout includes separation of no less than 15 feet between rows of panels. Summit Petroleum confirmed that spacing allows well plugging equipment access throughout the Project area in the event a historical O&G well requires mitigation in the future.

3.0 PROJECT LAYOUT CONSIDERATIONS

The Project design will primarily focus on avoidance of and setback from well-like features identified by the EM surveys. For planning purposes and to reduce the potential for damage to potential buried oil wells located within the Project area, the EM survey results were used to create setbacks from each well-like anomaly identified to ensure that no structural footing or other ground disturbance (grading, trenching, etc.) occurs within 50 feet of the identified anomaly. The conceptual site design plan exhibit is included in **Appendix G**. Additionally, the locations of the identified anomalies will be cordoned off to ensure that heavy equipment does not traverse across the top of the well-like features.

4.0 ORPHAN WELLS

4.1 STATUTORY CONSIDERATIONS

Based on available records and conversations with the ODNR, all potential O&G wells in the Project area would be classified by the ODNR Division of Oil and Gas Resource Management ("the Division") as orphan wells as they represent abandoned wells for which there is no known responsible owner. As specified in R.C. Section 1509.01 and R.C. Section 1509.071, The Division operates the Orphan Well Program to plug idle and orphaned oil and natural gas wells. An idle and orphaned well is a well for which a bond has been forfeited by the well owner because the owner has failed to plug the well or an abandoned well for which there is no known responsible owner. The program has been operating since 1977. Under the program, the Division may provide for plugging a well, or a landowner may hire a contractor to plug the well and receive reimbursement of the costs from the Division. The program also provides for the plugging of a well in an emergency situation.

R.C. Section 1509.071 specifies the process under which idle and orphaned wells are to be plugged and requires the Chief of the Division to use an annual portion of revenues in the Oil and Gas Well Fund to plug idle and orphaned wells. First, the Division attempts to determine the current property owner where the well is located, any persons owning a right or interest in the oil and gas mineral interests, and the identities of any persons having a lien upon any equipment appurtenant to the well ("notified parties"). Next, the Division provides notice to these same notified parties that the well is to be plugged. If no response is received from the notified parties within 30 days of the written notice or publication in a newspaper, all equipment is forfeited to the state to be used to defray the cost of plugging the well and restoring the land surface at the well site. Should no responsible owner be found and no person lay claim to the well or its appurtenant equipment, the well is then plugged under the Orphan Well Program.

R.C. Section 1509.071 also authorizes a landowner who discovers an idle and orphaned or abandoned well to report the well's existence to the Chief of the Division. When the Chief receives a report from the landowner regarding the existence of an idle and orphaned well, the Chief must inspect the well within 30 days after the landowner's report. After inspection, the well would be given consideration for plugging under ODNR's scoring matrix.

Under R.C. Section 1509.071 (E), the Chief distributes funds to the contractor plugging the well or can reimburse the landowner if other regulatory requirements are met. Accordingly, the Division is responsible for the payment of remediation of idle and orphaned wells in the state.

R.C. Section 1509.021 establishes the distance that new oil and gas wells are permitted to be from occupied dwellings for health and safety purposes. This provision requires the permitting and location of a well to be no less than 100-foot setback from any occupied dwelling in rural setting and 150 feet in an urban setting. These setbacks help protect correlative rights and promote orderly development.

Border Basin has voluntarily proposed a setback of at least 50 feet from any identifiable historic O&G well. This setback will avoid disturbance during construction and operations and is consistent with the recommendation of both ODNR and Summit Petroleum.

4.2 ORPHAN WELL ABANDONMENT

The ODNR Orphan Well Program is tasked with plugging idle and orphan wells that have no responsibility owner. In June 2018, the Ohio General Assembly enacted House Bill 225, increasing funding for the Orphan Well Program from 14% to 30% of the revenue credited to the oil and gas well fund during the previous fiscal year. In Fiscal Year 2020, ODNR awarded offers to plug 131 wells totaling $13 million. ODNR's goal is to award bids to plug at least 200 wells a year for the next few years, with planned expenditures for the Orphan Well Program nearing and exceeding $25 million annually.

All of the potential O&G wells in the Project area would be classified by the ODNR as orphan wells. The Orphan Well Program prioritizes plugging of wells based on their relative risk to the environmental or impact to public health and safety and that not all orphan wells pose an immediate threat. Based on the ODNR orphan well risk evaluation matrix, all orphan wells identified in the Project area would be classified as low risk and therefore do not require plugging at this time.

If an orphan well is discovered and begins to leak, such that the ODNR requires the well to be plugged, Border Basin would initiate the process for allowing access to the well by the well plugging contractor retained by the ODNR Orphan Well Program. Summit Petroleum, a ODNR pre-qualified well plugging contractor (ODNR Contract Number CSP900922-37), provided a sample scope of work cost to plug a well in Hancock County (**Appendix C**). The ODNR Orphan Well Program would pay the entirety of these costs.

5.0 UNANTICIPATED DISCOVERY PLAN (UDP)

In the event an unidentified O&G well is discovered, Border Basin will provide access to the orphan well, however, the right to assess, modify, and/or plug the orphan wells in the Project area would be retained by the ODNR in accordance with the ODNR Orphan Well statutory authority.

Border Basin retained Wood, a global engineering and consulting firm in the solar and up, mid, and downstream oil and gas sectors, to provide its opinion regarding constructability and operations of the Project specifically as it relates to the risk of unexpected orphan well leaks discovered during operation of the Border Basin facility. Wood provided their opinions in the letter included in **Appendix H**. This letter was used to develop unknown orphan well discovery plans to be used during solar facility construction and during the post-construction O&M of the Project.

With respect to orphan wells located on the Property, the primary objective will be to ensure that no wells are disturbed during the site construction activities. A geophysical survey has been conducted across the entirety of the proposed construction area (EM surveys summarized in Section 1.5). Six unplugged orphan wells have been visually confirmed in the Project area. The conceptual design figure in **Appendix G** already includes a 50-foot setback around these wells. There are no other known surface expressions of identified potential orphan well locations. Additional buried orphan wells, if encountered during ground disturbance activities, are therefore assumed to be idle. In the event a buried orphan well (usually steel casing that can range in diameter of between 6 and 12 inches in diameter) is encountered, notifications will be made to both the Property owner and ODNR following the procedures outlined below.

5.1 UNKNOWN WELL-LIKE STRUCTURES

During Project construction activities, the possibility exists that previously undiscovered orphan wells may be encountered. If any below-grade metal piping, well casing, or other structures that may be indicative of a former oil or gas well are encountered, construction activities within 50 feet of the well-like features will immediately cease as soon as it is safe to do so. The construction contractor will then contact a Border Basin representative to inspect the possible well structure at their earliest opportunity. Notifications will also be made to the property owner (that retains the ownership of former O&G wells and mineral rights) as well as the ODNR. The coordinated inspection will consist of the following activities:

- A visual inspection of the identified structure, including the collection of photographs upon arrival;
- Observing adjacent site soils for visual or olfactory indications of petroleum hydrocarbon contamination, including the use of a photoionization detector (PID) to field screen the adjacent soil;
- Utilizing a 4-gas meter to evaluate ambient air conditions in the immediate vicinity of the identified structure for the presence of methane and hydrogen sulfide; and
- If necessary, utilize hand tools (ex. shovel) to further expose a limited amount of the identified structure to further evaluate whether the structure appears to be related to O&G exploration or extraction activities.

If there is any visual or monitoring data (i.e. PID and 4-gas meter readings) indicative that an orphan well had been compromised, ODNR will be contacted that day and alerted to the matter.

Following the completion of the inspection activities, a Border Basin representative will generate a brief letter report discussing the findings of the inspection activities. The letter report will include a discussion of what activities took place, photographs documenting the observed site conditions, the results of the soil screening and air monitoring activities, and whether the identified structure appears to represent infrastructure related to oil and gas exploration or extraction activities. If the inspection activities allow the Border Basin representative to conclude that the identified structure does not represent a possible orphan well, the construction contractor will be notified that construction activities in the area may resume.

If Border Basin representative cannot immediately rule out the inspected structure as representing a possible orphan well, the following additional activities will occur:

- The location of the inspected structure will be secured to ensure precipitation-related runoff does not flow into or out of the excavated area in which the structure is located; and
- The coordinates of the encountered structure will be recorded utilizing a GPS device and the coordinates will be compared to known O&G well locations maintained by ODNR.

A Border Basin representative will then contact ODNR and present the findings of the inspection activities and the location of the inspected structure in relationship to known orphan well locations. Stantec will request input from ODNR to determine if any additional inspection activities need to occur, and whether ODNR considers the inspected structure to represent an orphan well. Given that Border Basin is neither the landowner, nor the owner of any wells on the Property, well inspection activities more intrusive than the use of hand tools will not be performed. Construction activities will not proceed in the vicinity of the inspected structure until given the go-ahead by ODNR. Conversely, the construction plans may be revised to facilitate a 50-foot setback for structural footings or other ground disturbances around the inspected structure.

Should a previously unidentified orphan oil well be discovered during pre-construction or construction, changes to the Project design to ensure appropriate setbacks is not an unreasonable expectation to require of the Engineering, Procurement & Construction (EPC) contractor. The EPC contractor will contractually agree to allocate cost and schedule impacts appropriately between the parties. In the general construction field, unexpected discoveries that impact design, schedule and/or execution are frequently encountered, and the possibility of orphan oil well discovery is a manageable risk with the appropriate planning.

Wood suggests an emergency response plan be created 30 days prior to the start of construction for leak containment and control while waiting on the response from the ODNR Orphan Well Department.

The health and safety aspects of the possibility of encountering orphan wells during construction is a legitimate concern, though one not uncommon in the construction industry. In Wood's opinion, there are additional methods EPC's may employ to help proactively locate the orphan wells expected on site.

5.2 SOILS MANAGEMENT PLAN (SMP)

Although impacts to soil associated with historical oil production in the Project area have not been discovered, a SMP may be warranted to provide protocols for the proper management of unknown impacts to soil or subsurface features potentially encountered at the Property during grading and construction activities. Prior to construction, the SMP will be developed to outline specific procedures that will be used for identifying, testing, handling, and disposing of soil containing regulated constituents that may be encountered during the redevelopment activities. Implementing the procedures in an SMP will

help to ensure that previously unidentified potentially contaminated soil or subsurface structure containing potential chemical contaminants is managed in a manner that is protective of human health and the potential environmental liability of Border Basin and the landowner while compliant with applicable federal, state, and local regulations.

Due to the presence of former orphan wells in the Project area, and the potential for unknown petroleum hydrocarbons related to surface or near-surface releases associated with historical oil and gas exploration and extraction activities, a SMP will be prepared prior to commencing with construction activities. A copy of the SMP will be maintained on-site by the construction contractor and referenced as needed. The SMP will detail steps that should be taken in the event that visual or olfactory indications of petroleum hydrocarbon contamination are observed or evidence of a possible former oil or gas well are encountered during construction activities. At a minimum, the SMP will contain the following components:

- Key contact information for the Client, Stantec, the ODNR, identified laboratories and disposal facilities, and other relevant state and local agencies;
- Notification procedures if unexpected conditions (i.e. former O&G wells) or highly impacted soils are encountered;
- General excavation protocols and procedures;
- Environmental oversight procedures;
- Soil screening and characterization procedures for suspected impacted soil, including necessary laboratory analyses;
- Management and profiling procedures for any generated soil stockpiles;
- Soil disposal procedures, including the identification of properly licensed disposal facilities; and
- Best management practices.

5.3 POST-CONSTRUCTION POTENTIAL ORPHAN WELL LEAKS

Wood also provided its opinion regarding constructability and operations of the Project specifically as it relates to the risk of unexpected orphan well leaks discovered during operation of the Border Basin PV facility (**Appendix G**). Wood's findings are provided below.

5.3.1 OPERATION IMPACTS DUE TO ORPHAN WELL LEAKS

During the expected operational life of a solar project, on-site activity is typically limited to light vehicular traffic on O&M roads and light-duty vegetation management equipment such as mowers, as necessary. It is reasonable for the selected O&M provider to have an unanticipated well discovery and soil management plan for use during project operations developed with specific, expeditious actions required to locate and support plugging the identified leak.

Given the expected layout of the Project, which will include approximately 30-foot to 35-foot row spacing (center-to-center spacing between tracker tables), the selected O&M provider's plan would entail de-energization of the impacted module strings, combiner boxes and/or inverters, and the removal of the necessary modules and tracking infrastructure as well as any electrical appurtenances to allow for plug truck access. Depending on the number of modules removed and their location relative to the combiner box (at one end of each string) the remaining module strings may or may not be de-energized. An electrical study can be run based on the finalized layout, design, and selected equipment (modules, inverters, etc.) by the selected EPC to outline both the parameters and process of any necessary module and tracker table removal. For instance, each tracker table is expected to be comprised of 3 strings of 35 modules each and it may be determined that the necessary removal of over half of the modules impacted

on a string will destabilize the string, thus necessitating the removal of the entire string, but any impact less than half the modules would necessitate only the removal of those impacted modules and not the entire string.

Wood understands that a 100- x 150-foot area is needed for plugging operations. The plugging area does not need to be centered on the well itself. The plugging area configuration can be designed to impact the fewest strings based on the known threshold of modules impacted that triggers the removal of the entire string. In some cases, more tracker tables impacted may actually be beneficial as it likely means fewer modules per table will be impacted, possibly making for a lower overall impact if no full strings are triggered for removal. In addition, the ability to rotate the plugging area rectangle provides flexibility to minimize impacts. Exhibits 1 and 2 provide example plugging areas and their racker table impacts.

EXHIBIT 1

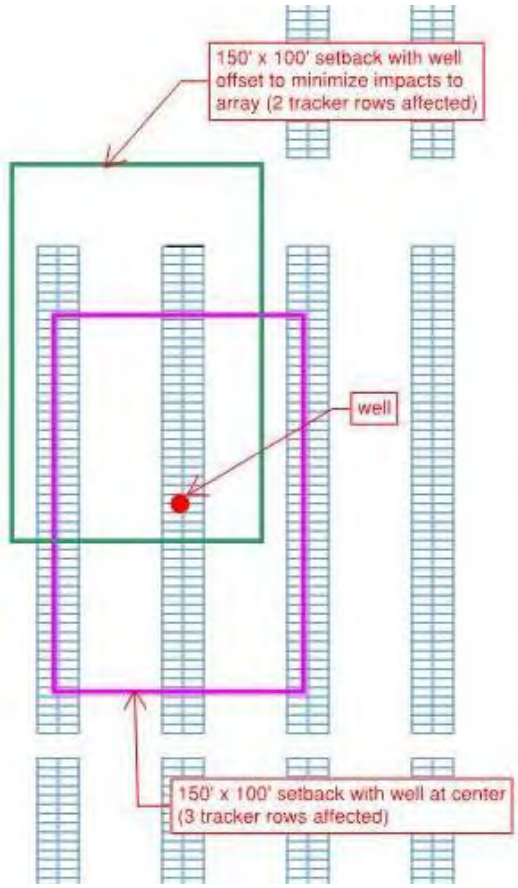
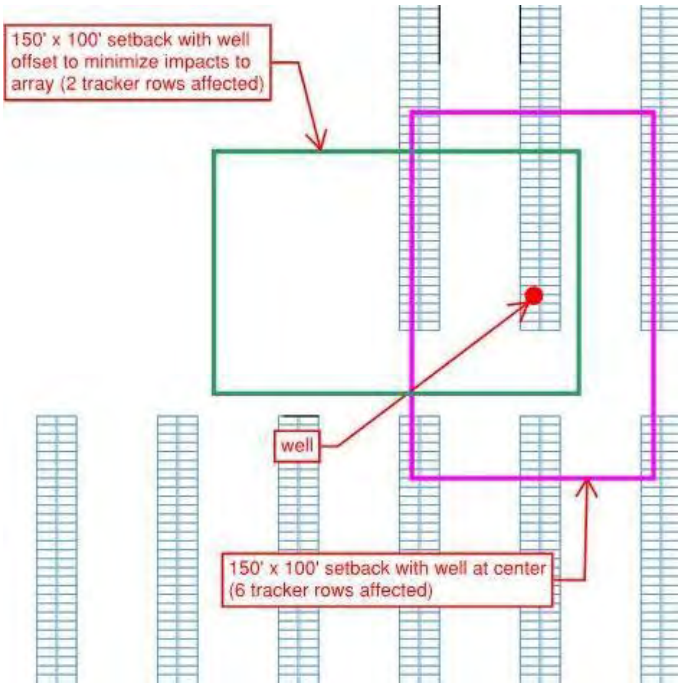


EXHIBIT 2



Wood considers that this type of analysis and strategy can be studied and outlined in an operational plan in coordination between the EPC and O&M provider.

The basic steps would include de-energization of the inverter block, disconnection of the string(s) that will be impacted, removal of the sufficient modules and racking to create the 100- x 150-foot plugging area for

well plugging equipment, and re-energization of the block and strings. In summary Wood provided the following conclusion.

> *"In Wood's opinion, the work required to action a leak, from identification of well to removal of the solar equipment to allow for plug truck access, should take between one and four days depending on the number of tables impacted and mobilization should be within a day or two of leak location identification."*

5.3.2 PROJECT IMPACTS FROM REMOVAL OF PANELS

The ongoing operation of the Project is not likely to be significantly impacted by the removal of a small percentage of strings localized adjacent around the orphan well. Each table represents 105 modules rated at 550W per panel (current plan) organized into three strings of 35 panels each, meaning one table represents 57.75kW of capacity, or less than 0.04% of the entire project's capacity. Even in the unlikely scenario that all 40 wells spontaneously leak during operations, requiring the removal of 80 tables (reasonably 2 per well plugged), the impact to the Project would only be approximately 3% of the total production capacity.

Further, based on information obtained during preparation of the ECR, it appears unlikely that a significant number of wells will begin leaking perceptibly during the operational life of the Project. In fact, Wood considered it reasonable to assume that spontaneous leaking during Project operation is less likely than should a solar project not be built, as activity inside the fence line will be minimal during the operational life.

In these scenarios, the overall revenue and energy production impact is expected to be minimal and Wood expects this issue to be taken into account during Project financing, meaning that the worst-case scenario will be assessed and understood by the eventual owners of the Project in a way that ensures long-term viability of the Project under all scenarios.

Finally, Wood stated that design considerations for the possible need to remove modules during operations can be taken into consideration by the Project and may include slight modification to inverter sizing, location, loading, etc. Wood considers it a reasonable engineering ask for the eventual Project design, construction, and operations.

6.0 CONCLUSIONS

The activities, research, and communication with industry experts and the ODNR not only provided a through response to OPSB's questions raised in their September 7, 2021 Compliance Letter regarding historical O&G wells identified within the Project area, but also resulted in a detailed understanding of historical O&G wells and their potential impact to the environment and the Project. The information presented in this ECR provided the following:

1. A detailed summary and clear understanding of historic oil production on and near the Project area.
2. Documentation of the working relationship Border Basin gained with the ODNR as it relates to historical O&G wells and their potential environmental and human health risk.
3. Assessment the potential adverse environmental impacts of historical O&G wells.
4. A limited hydrogeological study that demonstrated the limited potential impact the Project would have on groundwater resources.
5. An explanation of the ODNR O&G well risk determination process and determination that the orphan wells identified in the Project area can reasonably be considered to meet the ODNR Class 4 criteria as "Low Risk" wells.
6. Analysis of O&G well avoidance and mitigation efforts to minimize risk.
7. A design of the Project that created 50-foot setbacks around each identified orphan well and allows well plugging equipment to have future access to the orphan wells.
8. A determination that the O&G wells identified in the Project area should be classified by ODNR as orphan wells and therefore, by Ohio statutory code, are the responsibility of the ODNR. If the ODNR determines that an orphan well requires plugging, then the ODNR is responsible for well plugging costs.
9. The UDP outlining the steps to be taken if an unknown orphan well that the ODNR requires plugging is discovered during or after Project construction.

This ECR met the overall goal of providing a complete assessment and plan to ensure the O&G well questions for the Project have been appropriately assessed and considered and allowed Border Basin to determine that the Project is constructable.

7.0 LIMITATIONS

The conclusions presented in this report are professional opinions based on data described in this report. The opinions of this report have been arrived at in accordance with currently accepted hydrogeologic and engineering standards and practices applicable to this location and are subject to the following inherent limitations. Stantec makes no other warranty, either expressed or implied, concerning the conclusions and professional advice that is contained within the body of this report.

Inherent in most projects performed in a heterogeneous subsurface environment, continuing excavation and assessments may reveal findings that are different than those presented herein. This facet of the environmental profession should be considered when formulating professional opinions on the limited data collected on these projects.

This report has been issued with the clear understanding that it is the responsibility of the owner, or their representative, to make appropriate notifications to regulatory agencies. It is specifically not the responsibility of Stantec to conduct appropriate notifications as specified by current County and State regulations.

The information presented in this report is valid as of the date it was prepared. Site conditions may degrade with time; consequently, the findings presented herein are subject to change.

8.0 REFERENCES

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FIGURES

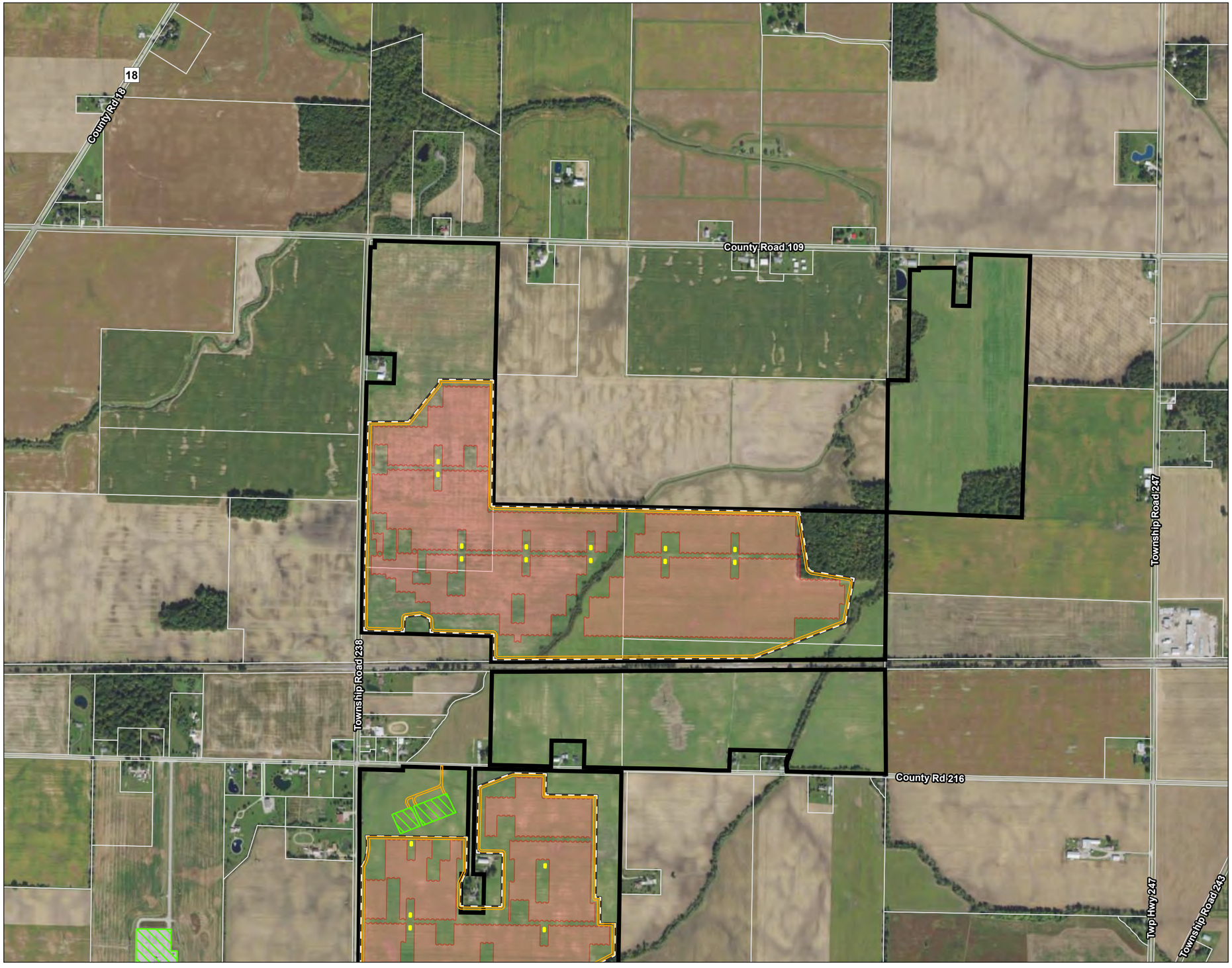


Figure No.
1

Title
Project Site Layout Map

Client/Project 2028113269
Border Basin I, LLC
Border Basin Solar Project

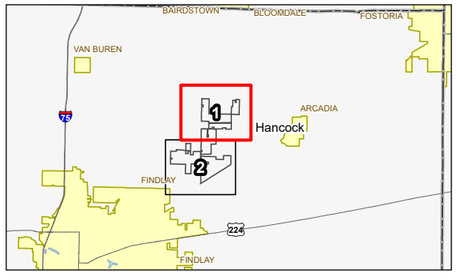
Project Location
Hancock County, Ohio

Prepared by MZ on 2021-05-27
TR by PM on 2021-06-01
IR by CD on 2021-6/4/2021

N

0 500 1,000 Feet
(At original document size of 11x17)
1:12,000

Legend
- Project Area
- Parcel Boundary
- Solar Array
- Inverter
- Substation
- Access Road
- Fence



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources: Stantec, Border Basin LLC, Esri, NADS, Hancock County
3. Background: NAIP 2019

Preliminary Design - Not for Construction

Stantec

Figure No.

1

Title

Project Site Layout Map

Client/Project 2028113269

Border Basin I, LLC
Border Basin Solar Project

Project Location
Hancock County, Ohio

Prepared by MZ on 2021-05-27
TR by PM on 2021-06-01
IR by CD on 2021-6/4/2021

N

0 500 1,000 Feet
(At original document size of 11x17)
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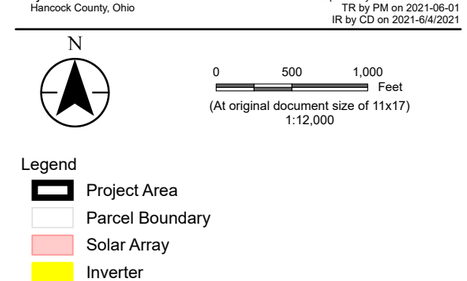
Legend
- Project Area
- Parcel Boundary
- Solar Array
- Inverter
- Substation
- Access Road
- Fence



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources: Stantec, Border Basin LLC, Esri, NADS, Hancock County
3. Background: NAIP 2019

Preliminary Design - Not for Construction

Stantec

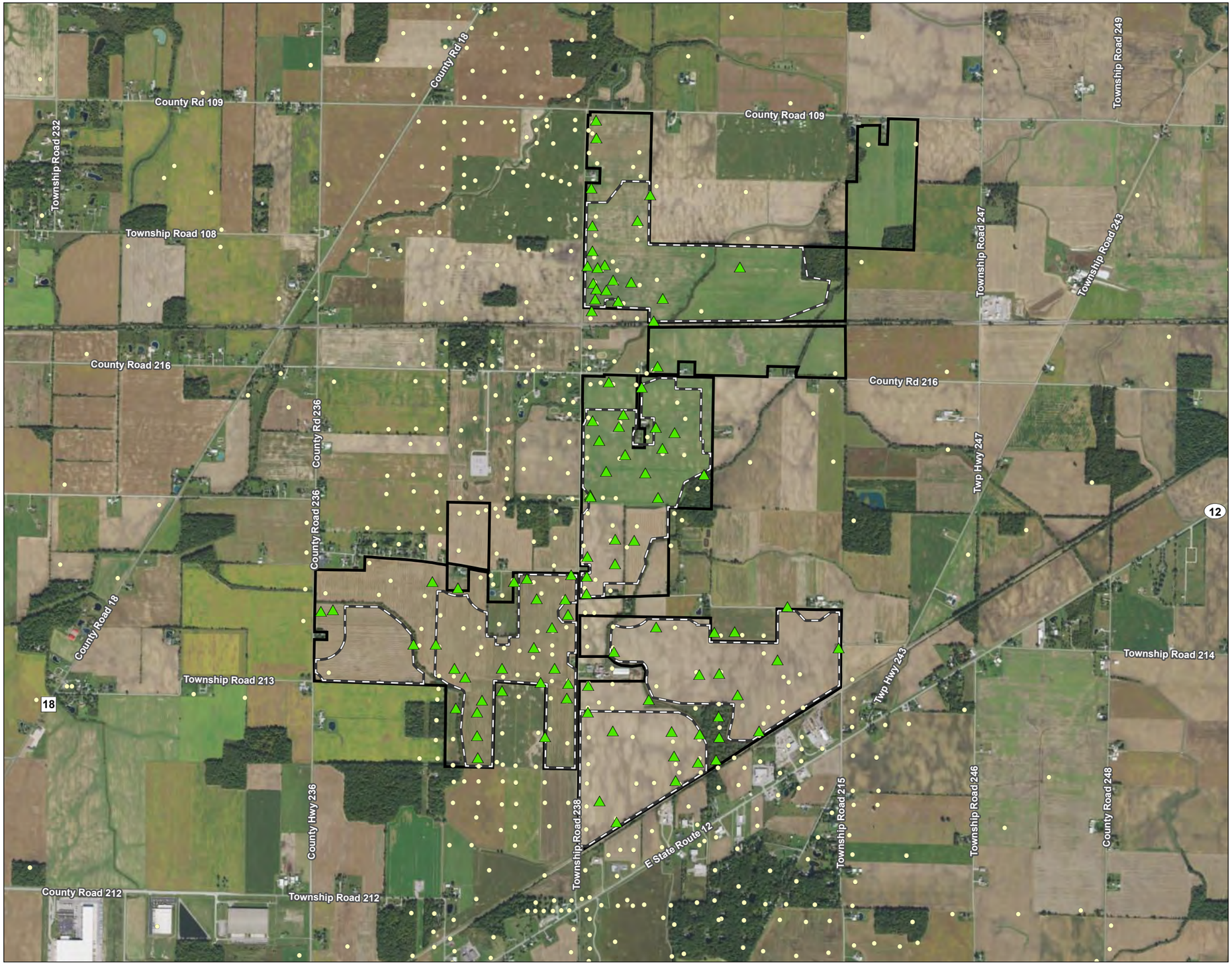


Figure No.

2

Title

Historical Oil & Gas Well Map

Client/Project 2028113269

Border Basin 1, LLC
Border Basin Solar Project

Project Location
Hancock County, OH

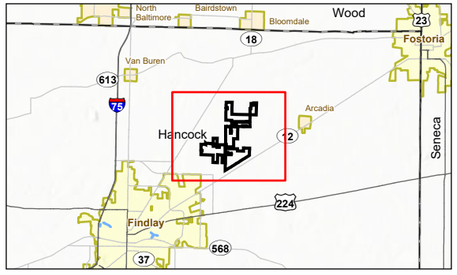
Prepared by MZ on 2021-12-17
TR by PM on 2021-12-20
IR by CH on 2021-12-23

N

0 1,000 2,000 Feet
(At original document size of 11x17)
1:24,000

Legend

- Project Area
- Project Fence
- EM Survey Well-like Anomaly
- Historic Oil & Gas Well Database Listing



Notes

1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources: Stantec, Border Basin 1, LLC, NADS, ODNR
3. NAIP 2019

Stantec

APPENDIX A

OPSB Compliance Letter

Ohio | Power Siting Board

Mike DeWine, Governor
Jenifer French, Chair

September 7, 2021

Christine M. T. Pirik, Counsel of Record
Attorney for Border Basin I, LLC
Dickinson Wright
150 E. Gay Street, Suite 2400
Columbus, OH 43215

Application for Certificate of Environmental Compatibility and Public Need
Case: 120 MW Border Basin
Case Number: 21-0277-EL-BGN

Dear Ms. Pirik:

This letter is to inform you that the above referenced application, filed with the Ohio Power Siting Board (Board) on June 15, 2021 and as supplemented on July 21, 2021 and August 31, 2021 along with Border Basin I, LLC's data request responses, has been found to comply with Chapters 4906-01, et seq., of the Ohio Administrative Code (Ohio Adm.Code). This means the Board's staff (Staff) has received sufficient information to begin its review of this application. During the course of its investigation, the Staff may request additional information to ensure Staff can continue to conduct its review of the application, including but not limited to:

- Final concurrence from the Ohio Historic Preservation Office (OHPO) on specific avoidance or mitigation measures for impacts from the project on archaeological and historic/architecture sites as outlined in OHPO's letter to Applicant dated June 18, 2021.
- An updated decommissioning plan and cost estimate, and performance bond financial assurance mechanism without regard to salvage value.
- An Engineering Constructability Report, which shall include but is not limited to the following
    - Name of the engineering firm, or technical expert writing the report;
    - An explanation of what oil/gas wells are and the potential adverse environmental impacts (such as: brine release affecting vegetation, odors, vapors, oil leakage) that could result from damage to an oil/gas well and why these require special construction consideration;
    - A hydrogeological impact assessment;
    - A statement on your coordination and consultation effort with Ohio Department of Natural Resources (ODNR);
    - An Inventory and map of the oil/gas wells within the project area, including their status (i.e. plugged, not plugged);
    - A determination of whether that oil/gas well poses a risk to public health, safety, or the environment;
    - An explanation of construction techniques to be employed when working around the oil/gas well (e.g., avoidance, plugging, setbacks);

  - Include a revised Figure 3-2 (Project Site Layout Map)
  - Include a revised Figure 4-1 (Project Constraints Map)
- An explanation of what the Applicant would do if other oil/gas wells are encountered or found during construction;
- If the Applicant discovers the need to plug wells (prior to construction, during operation, or at the end of solar facility's life), include an analysis of the probable costs of construction or decommissioning; and
- Cost estimate to properly plug and abandon an oil/gas well.

Pursuant to Board rules, the certified application and supplements must now be filed with the Board in accordance with the provisions of Ohio Adm.Code Rules 4906-3-06 and 4906-3-07. In summary form, these rules require:

1. Serving copies of the certified application upon appropriate government officials and public agencies. In this regard, please inform these officials in writing that if they wish to intervene in the proceedings, they must file a notice of intervention with the Board within thirty days of being served a copy of the application.

2. Filing Proof of Service with the Board.

Upon completion of these requirements, you will be notified of the effective date of filing and the date and details of the public hearing.

Please be informed that under Section 4906.04 of the Ohio Revised Code (R.C.), the applicant shall not commence to construct any portion of the facility prior to obtaining a certificate from the Board.

Also be informed that to assist your company in meeting the provisions of Ohio Power Siting Board rules, the Board will serve as a clearinghouse for the distribution to and service of the application and supplements upon the following state agencies:

Public Utilities Commission of Ohio
Ohio Environmental Protection Agency
Ohio Department of Agriculture
Ohio Development Services Agency
Ohio Department of Health
Ohio Department of Natural Resources
Ohio Department of Transportation
Ohio Historical Society

Upon filing, pursuant to R.C. 4906.06(F) and Ohio Adm.Code Rule 4906-3-12, the amount of $60,000 is an application fee.

Ohio | Power Siting Board

Mike DeWine, Governor
Jenifer French, Chair

You will receive an invoice from the Public Utilities Commission of Ohio, Finance Department.

Payment of the application fee is due within 30 days.

Please file proof of payment in the docket.

Depending on the complexity of the staff investigation, the application fee may not cover all costs associated with this case. Additional invoicing may be necessary.

If you have any questions regarding the above, please contact me at (866) 270-6772 or Jim O'Dell via james.o'dell@puco.ohio.gov or at (614) 644-5736.

Sincerely,

Theresa White
Executive Director
Ohio Power Siting Board

cc: Ben Metcalf, Director of Development, Border Basin I, LLC (via email)
Amanda Willis, Development Manager, Border Basin I, LLC (via email)

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

9/7/2021 5:02:14 PM

in

Case No(s). 21-0277-EL-BGN

Summary: Correspondence regarding application completeness electronically filed by Mr. Andrew S Conway on behalf of Staff of OPSB

APPENDIX B

November 30, 2021 ODNR Letter

Ohio Department of Natural Resources

MIKE DEWINE, GOVERNOR MARY MERTZ, DIRECTOR

Eric Vendel, Chief
Division of Oil and Gas Resources Management
2045 Morse Rd, Building F
Columbus, Ohio 43229
Phone: (614) 265-6922; Fax: (614) 265-6910

Galehead Development
Attn: Amanda Willis

November 30, 2021

Sent via email: amanda.willis@galeheaddev.com

Dear Ms. Wills,

The Division of Oil and Gas Resources Management (Division) received the draft of the Border Basin Engineering Constructability Work Plan that was provided by Chris Hatfield on November 10, 2021. The Division appreciates the opportunity to review the draft and provide the feedback shown below.

As we have discussed, the Division regulates the siting and operation of oil and gas wells. The Division does not regulate the siting or setbacks of inhabited or uninhabited structures or equipment near oil and gas wells. Generally, local building, zoning, or fire departments have the jurisdiction of setbacks and siting for construction activities within their jurisdictions.

When permitting a new oil and gas well, in an urban area (greater than 5,000 people), the regulatory setback from an inhabited structure is 150 feet. In a non-urban area (less than 5,000 people), the regulatory setback decreases to 100 feet.

The Orphan Well Program (OWP) is tasked with plugging idle and orphan wells that have no responsible owner. The program prioritizes plugging of wells based on their potential for environmental harm or impact to public health and safety. It is important to note that, not all orphan wells pose immediate threats to public health and safety. Rather, these wells may become problematic by unpredictably releasing gas, oil, brine, hydrogen sulfide (H_2S), or any combination of these substances. Also, when the OWP plugs a well, it typically requires a 15-foot-wide access pathway and approximately a 50-foot radius around the well(s) to adequately stage equipment and safely complete the plugging operation.

I hope that this information is helpful as you plan your projects. Again, the Division thanks you for the opportunity to review your draft report and offer the above comments

Sincerely,

Gene Chini

Gene Chini, Orphan Well Program Manager
Division of Oil and Gas Resources Management
330-284-2942

APPENDIX C

Summit Petroleum Report

SUMMIT PETROLEUM INC
ENERGY SERVICES & SOLUTIONS

November 30, 2021

Mr. Ben Metcalf
Director, Project Development
Galehead Development
200 Portland Street
Boston, MA 02114

Dear Ben:
Please find enclosed the final version of the report for your Border Basin Project..

Thank you for the opportunity to work with Galehead Development on your Hancock County, Ohio solar project.

Best Regards,

Timothy L. Altier
Consulting Petroleum Engineer
Summit Petroleum, Inc.
330.495.6113 (mobile)
taltier@summitpetroleuminc.com

SUMMIT PETROLEUM INC
ENERGY SERVICES & SOLUTIONS

AN EXPLANATION OF WHAT OIL & GAS WELLS ARE:

The first commercial oil and gas well in Ohio was drilled in the fall of 1860 near Macksburg, Ohio. Before this, oil and natural gas had been encountered in wells drilled exclusively for brine water that was distilled so the salt could be harvested and sold.

Early drilling technology limited wells to no more than several hundred feet deep and used hollowed-out trees as casing to prevent the wellbore from caving in and to prevent the flow of water from upper formations into the wellbore. By the time the wells in the project area were drilled technology had advanced and well depths had increased. Due to the fact several hundred feet of casing was needed to prevent water from entering the wellbore as drilling progressed, only steel casings could have been used in the wells in the project area. Wooden casings were limited to extending only tens of feet into the wellbore and could not have been used. The steel casings were permanently installed and used as a conduit to move the oil, gas, and brine to the surface and to isolate the producing formation from all other formations including the freshwater aquifers.

The Border Basin project area is part of the Lima-Indiana field. Discovered in 1884 at Findlay, Ohio, production from the Lima-Indiana field came from the geologic unit known as the Trenton Limestone and made Ohio the nation's leading oil producer in 1896. Geologically, the Trenton is a vugular, highly permeable limestone that easily allowed oil and gas to flow at prolific rates. Natural gas production was encountered primarily in Hancock County and large oil flows were found to the north in Wood County. Although official production records were not kept during this period, flow rates as high as 32 million cubic feet of natural gas per day and up to 40,000 barrels of oil per day have been reported[1].

Wasteful production practices and lack of a regulatory framework for well spacing quickly depleted the reservoir's internal gas pressure. As a result, drilling in this area of the Lima-Indiana field essentially ended by 1936.

Although well construction records were not kept for most of the wells drilled during this time, drilling techniques and well depths were common enough to use the well information we do have to extrapolate how the wells in Galehead's project area were drilled, and more importantly from an environmental impact standpoint, how they were cased and possibly plugged.

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[1] Mark J. Camp, PhD. ON A HANDSHAKE Humble Beginnings to Global Impact: Ohio's Oil & Gas Industry

As previously discussed, steel casing is run into the wellbore as the well drilling is progressing to prevent the wellbore from caving in and to prevent fluids from entering or exiting the wellbore. Modern cementing technology had not been established during the time these wells were drilled, so the casings were run into the wellbore and were anchored in place with a clay-water mixture or simply set on the bottom of the wellbore. Over time sediment caved in around them providing a natural sealing mechanism.

Wells in Hancock County drilled during this time would have followed a customary casing program consisting of installing 8-to-10-inch diameter casing through the unconsolidated soil at the surface, generally 50 to 100 feet, and installing 6, 7, or 5-1/2 inch casing to a depth that was below the fresh water aquifers, generally 400 to 600 feet. The wellbore was then drilled to the Trenton Limestone and left uncased to total depth. The casing installed below the aquifer depth was to prevent fresh water from flowing into the wellbore during drilling causing a slowing, or if the water flow was great enough even preventing the drilling process from continuing. After the drilling was completed and if the well was productive, this casing would also prevent oil, gas, and brine from invading the freshwater aquifers.

Based on a small sample of similar wells being plugged in Ohio's orphan well plugging program, whether casing is found above or below ground, over many years debris (soil, rocks and/or wood) accumulates within the top section of casing with some wells also exhibiting debris caving into the uncased section several hundred feet below ground level. Due to the pressure depleted state of the Trenton Limestone, many of these old wells do not have the natural energy available to flow oil or natural gas to the surface and those which still do, these debris can provide enough resistance to prevent it.

THE POTENTIAL ADVERSE ENVIRONMENTAL IMPACTS THAT COULD RESULT FROM DAMAGE TO AN OIL/GAS WELL:

The most adverse environmental impact of an oil and gas well is a release to the surface or to the underground freshwater aquifers. A release to the surface poses a risk of fire and/or explosion and environmental contamination.

Many of the agricultural fields in this area have had field or drain tile installed to quickly drain away excess rainfall to the nearest public stream. A surface release of crude oil into tiled fields leads to not only soil contamination, which must be excavated and disposed of at a qualified disposal facility, but if the crude oil reaches the field drain system it will make its way to the stream, or "waters of the state". Any crude oil spill which enters the waters of the state in an amount that causes a film or sheen on the surface of the water must be reported to The Ohio Emergency Notification System which will notify Ohio EPA[2]. Ohio EPA will oversee cleanup of the spill and evaluate if it is in violation of the Federal Clean Water Act.

An underground release into the freshwater aquifers can cause extensive and significant contamination of the drinking water resources of the area. In the event such a release happens, Ohio law stipulates

[2] Ohio Administrative Code Section 1501:9-8-02: Incident notifications. https://codes.ohio.gov/ohio-administrative-code/rule-1501:9-8-02

that the well owner must provide a temporary water supply or reimburse the property owners for the reasonable cost of obtaining a temporary water supply from the time of the interruption until the well owner has complied with an order of the chief and replace or compensate the property owners for the lost water supply[3].

WHY THE POTENTIAL ADVERSE ENVIRONMENTAL IMPACTS REQUIRE SPECIAL CONSTRUCTION CONSIDERATION:

Due to the fact many or most of the wells from this period were not plugged or plugged using only rudimentary techniques, excavation of the soil on top of the remaining casing can remove the "cap" that's preventing the well from flowing to the surface. Flowing is a misleading term for these pressure depleted wells where the Border Basin project is in the Lima-Indiana field. When excavated these wells will normally just ooze a mixture of crude oil and brine onto the ground.

For known well locations identified through the unmanned aerial magnetic survey, the best way to avoid any potential adverse environmental impacts from construction is to simply avoid any activities that disturb the ground or sub-surface within 50 feet of well locations.

If wells exist within the project area that were not identified by the aerial magnetic survey conducted, we know that there would be no remaining metal casing within approximately 60 feet of the surface. These wells, should they exist at all, in effect have a natural cap from the debris that has accumulated over the years. Construction activities in the past that have excavated the soil on top of similar wells have led to the wells flowing onto the ground. Should a well be encountered in this manner immediate steps should be taken to contain the flow and plug the well. In the case of solar construction though, boring a small amount of soil, (6 to no more than 10 feet) for solar pilings when the well casing is 60 or more feet deep should have a very minimal impact on the "sealing effect" provided by the soil above the well.

DESCRIPTION OF PLUGGING A WELL:

REFERENCES TO REGULATORY STANDARDS

- Well plugging regulations are promulgated in Ohio Revised Code Section 1509:9-11 "Plugging of Wells". They can be found at https://codes.ohio.gov/ohio-administrative-code/chapter-1501:9-11.
- Section 1509:9-11-02: Permit to plug or plug back
- Section 1509:9-11-03: Objectives and methods
- Section 1509:9-11-04: Notification and supervision
- Section 1509:9-11-05: Plugging a lost or dry hole

[3] Ohio Administrative Code Section 1509.22: Storage or disposal of brine, crude oil, natural gas, or other fluids. https://codes.ohio.gov/ohio-revised-code/section-1509.22

- Section 1509:9-11-06: Top-hole considerations
- Section 1509:9-11-07: Materials
- Section 1509:9-11-08: Plugging with cement
- Section 1509:9-11-09: Plugging with prepared clay
- Section 1509:9-11-10: Cutting off conductor pipe or surface casing below grade; identification tag
- Section 1509:9-11-12: Plugging report

A HIGH-LEVEL OVERVIEW OF PLUGGING A WELL IS AS FOLLOWS:

- Apply for and obtaining a permit to plug from the Ohio Division of Oil & Gas Resources.
- Remove the rods and tubing if they are present in the well and clean out any remaining debris to reach the original total depth of the well or to reach a depth deemed to be satisfactory by the Division of Oil & Gas Resources to successfully plug the well.
- Place a cement plug across the producing formation, also referred to as the "Reservoir Rock" in in the 1501:9-11 definitions.
- If possible, cut off and remove the production casing string, also referred to as the "Long String" in the 1501:9-11 definitions, from the wellbore.
- Place a cement plug at the depth this casing was cut off.
- Place a cement plug at depths where other formations exist which have historically exhibited the capability of producing oil and gas in commercial quantities.
- Remove the surface casing if it has not been cemented and can be pulled.
- Place a cement plug from the base of where the surface casing was removed or, if the casing was not able to be removed, at the base of the known freshwater aquifers to the surface.
- If any casing is left in the well it must be cut off 30 inches below the surface and a cap welded onto it with the well identification information attached.
- Complete and submit a plugging report to the Ohio Division of Oil & Gas Resources.

EQUIPMENT AND SPACE NECESSARY TO PLUG A WELL:

- The equipment necessary to plug a well consists of a service rig, also referred to as a workover or plugging rig, and cement mixing and pumping equipment. The wells in the project area are not very deep compared to today's standards and therefore can be plugged with a smaller rig

(and footprint). Locations with dimensions of 100 feet by 150 feet are commonly used and normally sufficient.

- A minimum of a 15 foot access lane for the plugging rig is required to access wells for plugging operations.

SAMPLE PLUGGING AUTHORIZATION FOR EXPENDITURE (AFE):

A sample plugging AFE is included as Attachment #1.

Summit Petroleum, Inc.

Timothy L. Altier
Consulting Petroleum Engineer

Phone: 330.487.5494 (office)
330.495.6113 (mobile)

taltier@summitpetroleuminc.com

Summit Petroleum, Inc.

Sample Scope of Work

Hancock County, Ohio

Well Name: Sample Well #1

Permit Number: 34-063-XXXX

Line Number	Description	Unit Price	Quantity	Unit	Item Total
1	Mobilization	$ 1,250.00	1	Lump Sum	$ 1,250.00
2	Secondary Containment	$ 900.00	1	Lump Sum	$ 900.00
3	Surface Casing (5.5")	$ 21.86	99	Linear Ft	$ 2,164.14
4	Well Head Control	$ 2,500.00	1	Lump Sum	$ 2,500.00
5	Well Control Fluid	$ 6.00	85	BBL	$ 510.00
6	Logging (GR/CCL/Bond/Caliper)	$ 2,850.00	1	Each	$ 2,850.00
7	Well Preparation & Plugging	$ 25,700.00	1	Lump Sum	$ 25,700.00
8	Tubing	$ 2,800.00	1	Lump Sum	$ 2,800.00
9	Class "A" Cement	$ 16.00	375	Sack	$ 6,000.00
10	Cement Mixing & Pumping	$ 2,450.00	4	Each	$ 9,800.00
11	Fluid Disposal	$ 12.00	85	BBL	$ 1,020.00
12	Demobilization	$ 1,250.00	1	Lump Sum	$ 1,250.00
	Total Proposal:				**$ 56,744.14**

Attachment #1 : Sample Border Basin Plugging AFE

APPENDIX D

UAV Exploration EM Survey Results

Table 1 - UAV Exploration - EM Survey Data Summary
Border Basin Solar Project, Hancock, County, Ohio

Anomaly ID	Magnetic Gradient Value (ΔnT)	Longitude (WGS84)	Latitude (WGS84)	Easting UTM (17N, WGS84, meters)	Northing UTM (17N, WGS84, meters)	Easting SPC (OH North, NAD83, feet)	Nothing SPC (OH North, NAD83, feet)	Description
Ground Confirmed Wells (Excavated or Exposed a the surface)								
GC-0	45000+	-83.5730522	41.1228612	283994.77	4555586.98	1672877.65	532344.54	Excavated ~10" open casing. Water visible inside casing. Some petroleum odor present.
GC-1	Not measured	-83.5690613	41.1188293	284316.62	4555129.44	1673959.06	530862.19	Exposed well at the surface. Open 6" inner casing and 9-10" outer casing. 2" flowline outflow pipe laying next the well. Petroleum odor present.
GC-2	45000+	-83.5625140	41.1149260	284853.59	4554679.86	1675745.51	529418.13	Excavated open ~8" inner casing and ~10" outer casing. Depth of 12" below surface. Petroleum odor present.
GC-3	45000+	-83.5731483	41.1023662	283919.45	4553311.72	1672759.28	524878.40	Excavated damaged well casing. Diameter unclear. Strong petroleum smell and black/white discolored soil. 2nd well-like detection **(GL-23)** about 11 meters SE.
GC-4	45000+	-83.5744504	41.0979878	283795.73	4552828.83	1672380.81	523287.73	Exposed well at the surface. 10" outer casing.
GC-5	45000+	-83.5841697	41.0940819	282966.56	4552419.35	1669684.63	521897.96	Excavated 6" open casing. Loose metal cap, but no visible plug. Depth of ~12" below surface. No petroleum odor.
Ground Located Well-like Anomalies								
GL-0	4500	-83.5730077	41.1219042	283995.36	4555480.62	1672885.61	531995.74	
GL-1	28000	-83.5733312	41.1191576	283959.19	4555176.48	1672784.18	530996.24	
GL-2	45000+	-83.5731965	41.1157230	283959.23	4554794.81	1672805.88	529744.53	
GL-3	1600	-83.5722963	41.1149705	284032.35	4554709.03	1673050.52	529467.35	
GL-4	5000	-83.5728078	41.1147983	283988.84	4554691.18	1672908.85	529406.35	
GL-5	38500	-83.5731039	41.1139561	283961.21	4554598.41	1672823.48	529100.53	Suspected buried flowlines between this well and **(GL-6)**
GL-6	8500	-83.5728679	41.1136328	283979.97	4554561.93	1672887.06	528981.95	Suspected buried flowlines between this well and **(GL-5)**
GL-7	8000	-83.5721504	41.1135732	284040.01	4554553.53	1673084.46	528957.81	
GL-8	12500	-83.5729509	41.1130841	283971.19	4554501.21	1672861.71	528782.32	
GL-9	45000+	-83.5712937	41.1129819	284110.01	4554485.75	1673317.87	528739.47	
GL-10	45000+	-83.5731995	41.1124428	283948.21	4554430.63	1672790.35	528549.56	
GL-11	12500	-83.5686981	41.1119386	284324.54	4554363.48	1674028.34	528350.62	
GL-12	35000	-83.5683830	41.1094568	284342.88	4554087.16	1674104.09	527445.43	
GL-13	45000+	-83.5718958	41.1085541	284044.94	4553995.64	1673132.14	527128.46	
GL-14	26700	-83.5711302	41.1061208	284101.25	4553723.58	1673332.21	526239.40	
GL-15	45000+	-83.5684543	41.1061147	284325.95	4553716.27	1674069.53	526228.12	
GL-16	45000+	-83.5670830	41.1058342	284440.19	4553681.74	1674446.16	526121.31	
GL-17	45000+	-83.5725352	41.1053526	283980.74	4553641.78	1672941.62	525964.30	
GL-18	16500	-83.5679556	41.1049681	284364.08	4553587.73	1674201.85	525808.72	
GL-19	45000+	-83.5706458	41.1045879	284136.91	4553552.19	1673458.83	525679.31	
GL-20	43000	-83.5720082	41.1036678	284019.48	4553453.41	1673079.30	525348.72	
GL-21	8400	-83.5691752	41.1036043	284257.18	4553439.34	1673859.67	525316.01	Possibly at greater depth
GL-22	45000+	-83.5649264	41.1035470	284613.82	4553422.46	1675030.24	525280.81	Partially excavated. Terracotta circular rim observed. Well casing not visually confirmed.
GL-23	15000	-83.5731176	41.1022714	283921.73	4553301.12	1672767.33	524843.75	2nd well-like detection 11 m SE of excavated well **(GC-3)**
GL-24	10000	-83.5682263	41.1022669	284332.50	4553288.50	1674115.21	524825.58	
GL-25	28500	-83.5699215	41.0999010	284182.38	4553030.01	1673637.49	523969.37	
GL-26	11500	-83.5732968	41.0989947	283895.93	4552937.77	1672703.26	523650.65	
GL-27	3100	-83.5712862	41.0986002	284063.50	4552888.97	1673255.56	523500.10	Possibly at greater depth
GL-28	45000+	-83.5733094	41.0979155	283891.33	4552817.98	1672694.95	523257.53	
GL-29	9500	-83.5776424	41.0977475	283526.86	4552810.08	1671500.07	523211.05	
GL-30	5800	-83.5733160	41.0969763	283887.70	4552713.72	1672688.92	522915.39	
GL-31	44400	-83.5748552	41.0966460	283757.34	4552680.86	1672263.25	522800.29	
GL-32	30000	-83.5925214	41.0958160	282270.80	4552632.72	1667390.77	522558.40	
GL-33	45000+	-83.5746359	41.0957987	283772.97	4552586.25	1672319.87	522490.87	
GL-34	8000	-83.5757848	41.0950902	283674.15	4552510.44	1672000.06	522236.67	Possibly at greater depth
GL-35	44100	-83.5682489	41.0951937	284307.45	4552503.24	1674077.41	522248.83	
GL-36	2600	-83.5712749	41.0937987	284048.72	4552355.85	1673237.21	521750.85	Possibly at greater depth
GL-37	5000	-83.5594388	41.0934495	285041.73	4552287.81	1676497.72	521583.80	Possibly at greater depth
GL-38	23000	-83.5793624	41.0928168	283366.19	4552266.92	1671003.83	521420.64	
GL-39	45000+	-83.5820147	41.0922942	283141.68	4552215.50	1670270.45	521239.30	
GL-40	45000+	-83.5636457	41.0926871	284685.89	4552213.55	1675334.91	521320.15	
GL-41	11300	-83.5650855	41.0926073	284564.69	4552208.26	1674937.73	521295.95	
GL-42	44400	-83.5765539	41.0920776	283599.66	4552177.87	1671774.55	521141.76	
GL-43	700	-83.5745481	41.0920312	283767.98	4552167.74	1672327.14	521118.05	Possibly at greater depth. Could be reclassified as a "Deep Ground Located" anomaly
GL-44	12400	-83.5731109	41.0919338	283888.38	4552153.35	1672722.83	521077.68	
GL-45	3100	-83.5793442	41.0915901	283363.68	4552130.68	1671003.31	520973.69	Possibly at greater depth

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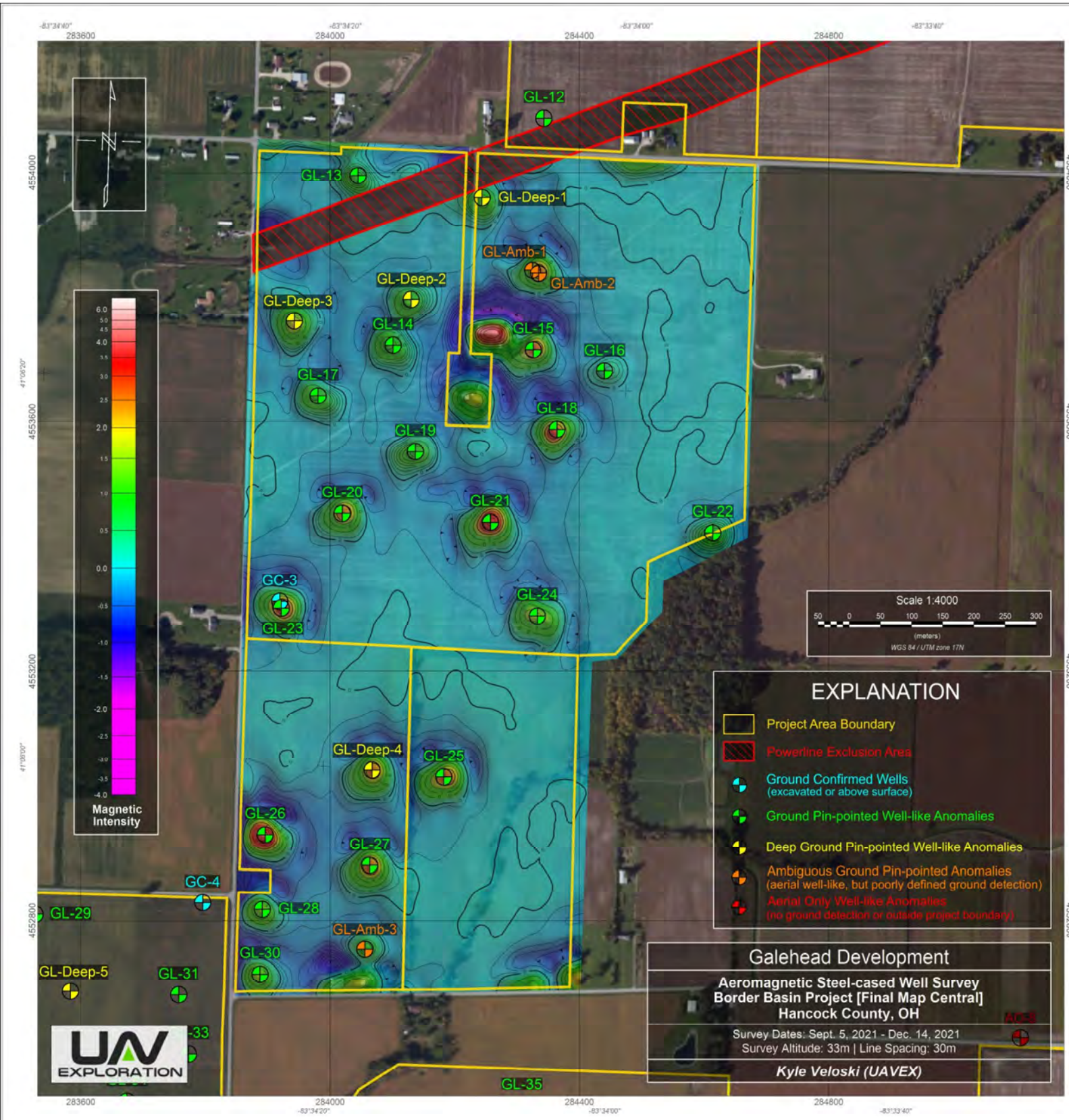
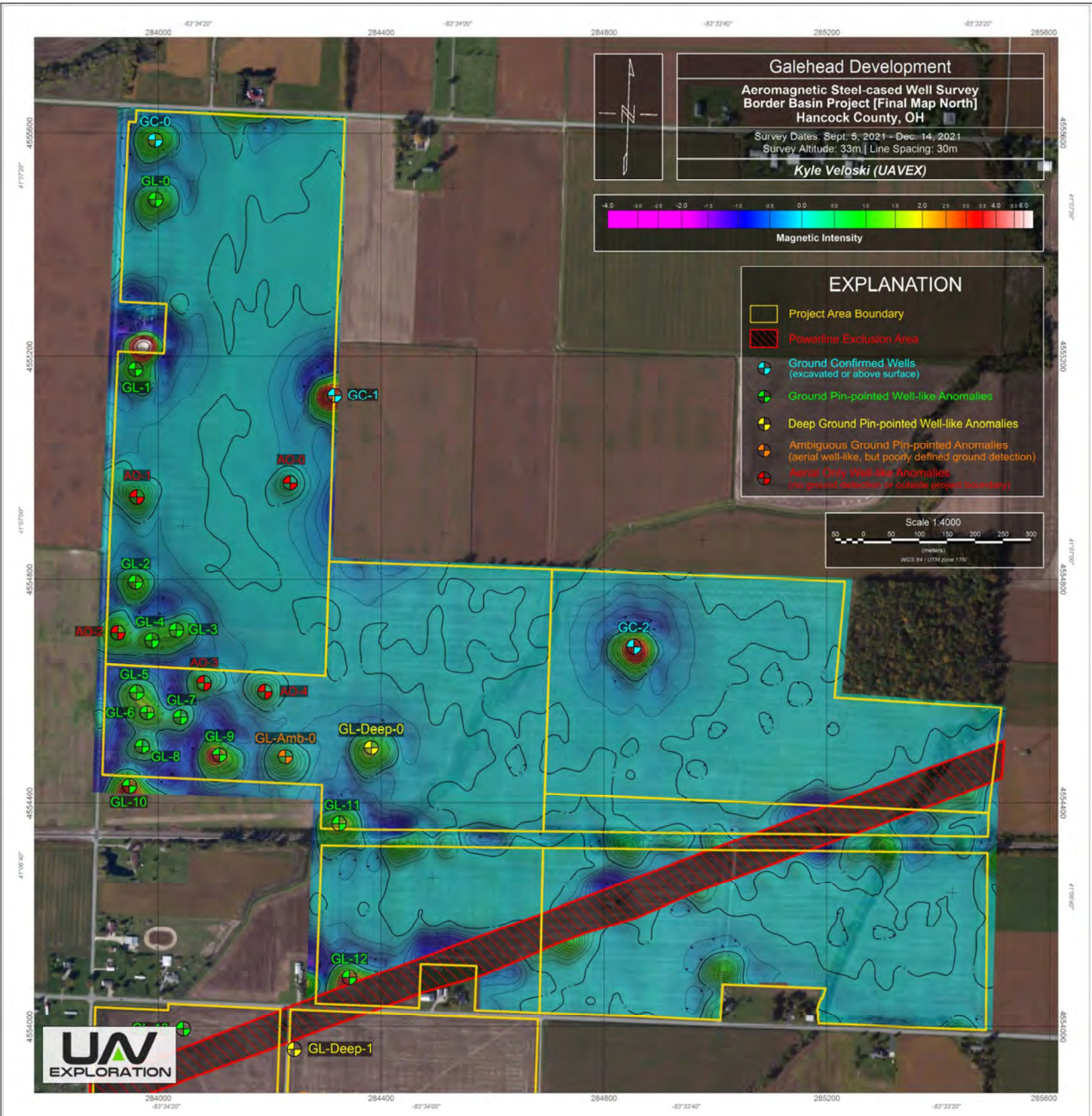
Border Basin Solar Project, Hancock, County, Ohio

GL-46	31000	-83.5622917	41.0915067	284795.76	4552079.15	1675702.82	520885.59	
GL-47	45000+	-83.5746555	41.0912200	283756.30	4552077.94	1672293.90	520822.88	
GL-48	19500	-83.5807778	41.0910586	283241.51	4552075.24	1670605.78	520784.95	
GL-49	44000	-83.5687167	41.0912152	284255.12	4552062.68	1673930.71	520801.03	
GL-50	12500	-83.5811312	41.0904135	283209.71	4552004.49	1670505.48	520551.13	Suspected buried flowlines between **GL-50**, **GL-53**, and **AO-18**, running north to south
GL-51	45000+	-83.5731202	41.0904824	283882.84	4551992.23	1672713.75	520548.95	
GL-52	45000+	-83.5712970	41.0894646	284032.65	4551874.71	1673211.71	520172.01	
GL-53	Not measured	-83.5811087	41.0891123	283207.32	4551859.97	1670505.81	520077.02	Suspected buried flowlines between **GL-50**, **GL-53**, and **AO-18**, running north to south
GL-54	45000+	-83.5607210	41.0895459	284921.30	4551857.57	1676127.06	520165.98	
GL-55	31000	-83.5650951	41.0878138	284548.21	4551676.07	1674913.74	519549.67	
GL-56	45000+	-83.5721904	41.0856354	283945.06	4551451.78	1672948.33	518780.02	
GL-57	44000	-83.5709387	41.0844805	284046.42	4551320.45	1673288.17	518355.06	
GL-Deep-8	45000+	-83.5755574	41.0928564	283685.91	4552261.86	1672052.69	521422.09	Incorrectly classified, likely at relatively shallow depth.
(Likely) Deep Ground Located Well-like Anomalies								
GL-Deep-0	700	-83.5680583	41.1131721	284382.31	4554498.85	1674210.14	528797.83	True position +/- 0.2 meters.
GL-Deep-1	1100	-83.5695157	41.1082848	284243.92	4553959.84	1673786.75	527022.30	Increased position error expected.
GL-Deep-2	300	-83.5708125	41.1067850	284130.10	4553796.53	1673422.71	526480.27	Increased position error expected.
GL-Deep-3	250	-83.5730297	41.1064237	283942.73	4553761.92	1672810.16	526356.16	Increased position error expected.
GL-Deep-4	260	-83.5712934	41.0999679	284067.38	4553040.84	1673259.71	523998.39	Increased position error expected.
GL-Deep-5	1500	-83.5769243	41.0966494	283583.56	4552686.38	1671693.03	522808.56	Increased position error expected.
GL-Deep-6	1300	-83.5916420	41.0958989	282344.94	4552639.73	1667633.52	522585.59	Increased position error expected.
GL-Deep-7	not measured	-83.5857864	41.0940699	282830.73	4552422.05	1669238.99	521899.13	Increased position error expected.
GL-Deep-9	600	-83.5650033	41.0893626	284560.98	4551847.80	1674945.94	520113.59	Increased position error expected.
GL-Deep-10	100	-83.5761938	41.0890879	283620.09	4551845.04	1671860.36	520051.39	Increased position error expected.
GL-Deep-11	300	-83.5668419	41.0881302	284402.51	4551715.52	1674433.68	519670.80	True position +/- 1 meter.
GL-Deep-12	600	-83.5667038	41.0867921	284409.74	4551566.61	1674465.80	519182.87	True position +/- 0.8 meters.
Ambiguous Ground Located Well-like Anomalies								
GL-Amb-0	200	-83.5698872	41.1129828	284228.12	4554482.37	1673705.39	528735.06	Narrow, weak well-like detection. 11.5 meters east of this position a vertically oriented pipe segment was excavated ~12" below the surface. True well position could be up to +/- 15 meters.
GL-Amb-1	10000	-83.5685128	41.1072554	284324.77	4553843.06	1674058.52	526643.87	Both of these points are possible candidates for the true well position.
GL-Amb-2	1700	-83.5683963	41.1072133	284334.41	4553838.10	1674090.41	526628.15	
GL-Amb-3	100	-83.5713307	41.0973766	284055.75	4552753.24	1673237.84	523054.51	Very weak and broad anomaly. The point of peak magnetic intensity is unclear (+/- 2 meters). The well casing is likely at significant depth.
Aerial Only Well-like Anomalies								
AO-0		-83.5699561	41.1174045	284236.82	4554973.46	1673706.16	530346.13	No ground detection. Well casing is likely at significant depth.
AO-1		-83.5732216	41.1170995	283961.64	4554947.70	1672805.14	530246.09	No ground detection. Well casing is likely at significant depth.
AO-2		-83.5735412	41.1149027	283927.59	4554704.59	1672707.22	529446.86	No ground detection. Well casing is likely at significant depth.
AO-3		-83.5716703	41.1141366	284082.17	4554614.89	1673219.26	529161.43	No ground detection. Well casing is likely at significant depth.
AO-4		-83.5703631	41.1140318	284191.60	4554600.01	1673578.97	529118.83	Excavated 2 adjacent 2" vertical pipe segments. Ruled out as well casing.
AO-5		-83.5844783	41.0975059	282951.92	4552800.28	1669615.09	523146.39	
AO-6		-83.5785685	41.0975689	283448.49	4552792.55	1671244.04	523149.13	
AO-7		-83.5826184	41.0971855	283107.07	4552760.06	1670126.19	523023.28	Determined to be outside the project area boundaries. Further ground truthing was discontinued on excluded private parcels. **AO-8** is likely a visible well casing exposed above the surface, just north of the road. No ground points collected.
AO-8		-83.5587713	41.0963833	285107.37	4552611.89	1676694.68	522650.37	
AO-9		-83.5625727	41.0949837	284783.51	4552465.88	1675640.81	522153.21	
AO-10		-83.5640421	41.0949346	284659.94	4552464.06	1675235.65	522140.26	
AO-11		-83.5770829	41.0939805	283561.47	4552390.46	1671637.31	521836.81	No ground detection. Well casing is likely at significant depth.
AO-12		-83.5550374	41.0941477	285413.70	4552354.47	1677713.88	521823.43	Water well visually confirmed near a pre-existing residence. No ground point was collected.
AO-13		-83.5828010	41.0927750	283077.22	4552270.83	1670055.91	521417.14	No ground detection. Well casing is likely at significant depth.
AO-14		-83.5826649	41.0906052	283081.51	4552029.60	1670083.63	520626.24	No ground detection. Well casing is likely at significant depth.
AO-15		-83.5636550	41.0903250	284677.38	4551951.32	1675321.83	520459.67	Determined to be outside the project area boundaries. No ground point collected.
AO-16		-83.5670366	41.0894626	284390.51	4551863.93	1674385.95	520156.86	No ground detection. Well casing is likely at significant depth.
AO-17		-83.5635961	41.0891944	284678.64	4551825.64	1675333.06	520047.57	Determined to be outside the project area boundaries. No ground point collected.
AO-18		-83.5810355	41.0879099	283209.51	4551726.29	1670520.55	519638.74	Suspected buried flowlines between **GL-50**, **GL-53**, and **AO-18**, running north to south
AO-19		-83.5637963	41.0879633	284657.80	4551689.45	1675272.39	519599.75	Determined to be outside the project area boundaries. No ground point collected.

Notes:

ID = identification
NAD = National Geodetic Survey
SPC = Stgate Plance Coordinates
WGS = World Geodetic Datum
UTM = universal traverse mercator coordinate system


GL-12
GL-13
GL-Deep-1
GL-Amb-1
GL-Amb-2
GL-Deep-2
GL-Deep-3
GL-14
GL-15
GL-16
GL-17
GL-18
GL-19
GL-20
GL-21
GL-22
GC-3
GL-23
GL-24
GL-Deep-4
GL-25
GL-26
GL-27
GC-4
GL-28
GL-29
GL-Amb-3
GL-30
GL-Deep-5
GL-31
GL-35
6.0
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
Magnetic Intensity
Scale 1:4000
50 0 50 100 150 200 250 300
(meters)
WGS 84 / UTM zone 17N
EXPLANATION
Project Area Boundary
Powerline Exclusion Area
Ground Confirmed Wells
(excavated or above surface)
Ground Pin-pointed Well-like Anomalies
Deep Ground Pin-pointed Well-like Anomalies
Ambiguous Ground Pin-pointed Anomalies
(aerial well-like, but poorly defined ground detection)
Aerial Only Well-like Anomalies
(no ground detection or outside project boundary)
Galehead Development
Aeromagnetic Steel-cased Well Survey
Border Basin Project [Final Map Central]
Hancock County, OH
Survey Dates: Sept. 5, 2021 - Dec. 14, 2021
Survey Altitude: 33m | Line Spacing: 30m
Kyle Veloski (UAVEX)
UAV EXPLORATION
283600
284000
284400
284800
4554000
4553600
4553200
4552800
41°06'20"
41°06'00"
-83°34'40"
-83°34'20"
-83°34'00"
-83°33'40"


Galehead Development
Aeromagnetic Steel-cased Well Survey
Border Basin Project [Final Map North]
Hancock County, OH
Survey Dates: Sept. 5, 2021 - Dec. 14, 2021
Survey Altitude: 33m | Line Spacing: 30m
Kyle Veloski (UAVEX)
-4.0 -3.5 -3.0 -2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 5.0 6.0
Magnetic Intensity
EXPLANATION
Project Area Boundary
Powerline Exclusion Area
Ground Confirmed Wells
(excavated or above surface)
Ground Pin-pointed Well-like Anomalies
Deep Ground Pin-pointed Well-like Anomalies
Ambiguous Ground Pin-pointed Anomalies
(aerial well-like, but poorly defined ground detection)
Aerial Only Well-like Anomalies
(no ground detection or outside project boundary)
Scale 1:4000
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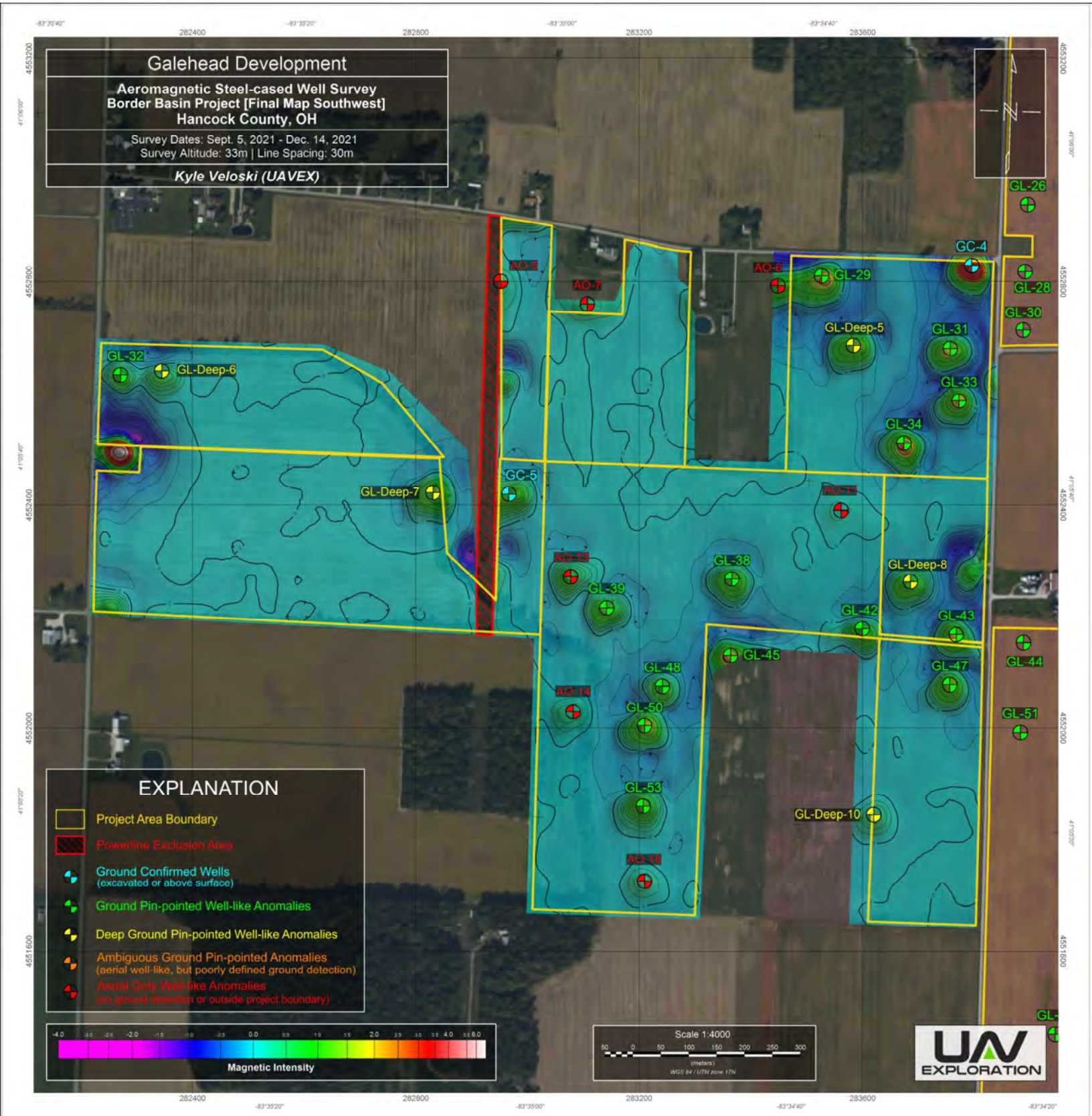
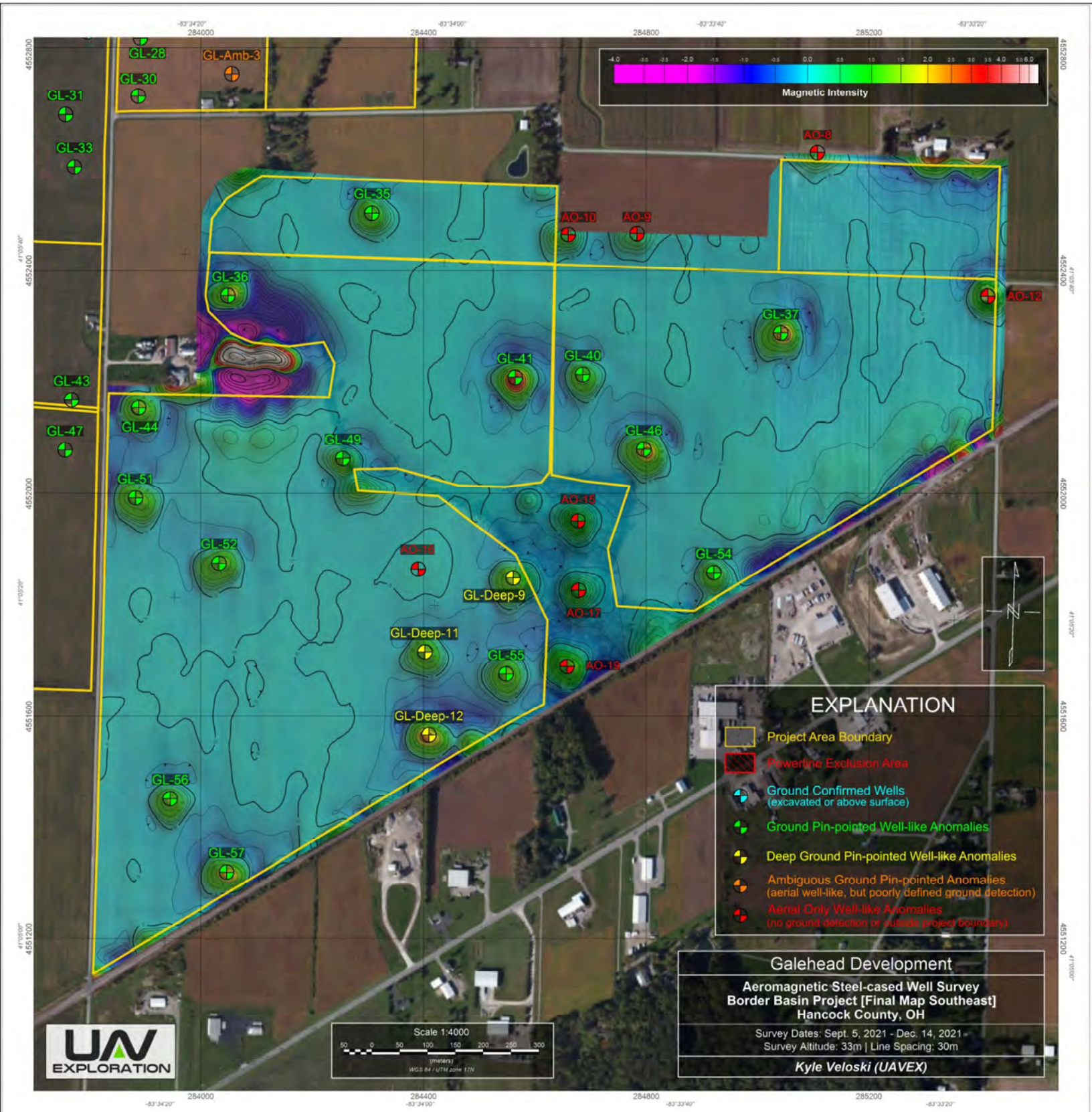
(meters)
WGS 84 / UTM zone 17N
GC-0
GL-0
GL-1
GC-1
AO-0
AO-1
GL-2
AO-2
GL-4
GL-3
AO-3
GL-5
AO-4
GL-7
GL-6
GL-9
GL-Amb-0
GL-Deep-0
GL-8
GL-10
GL-11
GC-2
GL-12
GL-Deep-1
UAV EXPLORATION
284000
284400
284800
285200
285600
4556600
4555200
4554800
4554400
4554000


Galehead Development
Aeromagnetic Steel-cased Well Survey
Border Basin Project [Final Map Southwest]
Hancock County, OH
Survey Dates: Sept. 5, 2021 - Dec. 14, 2021
Survey Altitude: 33m | Line Spacing: 30m
Kyle Veloski (UAVEX)
N
GL-26
GC-4
GL-28
GL-30
GL-29
GL-31
GL-Deep-5
GL-33
GL-34
GL-32
GL-Deep-6
GL-Deep-7
GC-5
AO-11
GL-38
GL-Deep-8
GL-39
GL-42
GL-43
GL-44
GL-45
GL-48
GL-47
GL-50
GL-51
GL-53
GL-Deep-10
AO-14
EXPLANATION
Project Area Boundary
Powerline Exclusion Area
Ground Confirmed Wells
(excavated or above surface)
Ground Pin-pointed Well-like Anomalies
Deep Ground Pin-pointed Well-like Anomalies
Ambiguous Ground Pin-pointed Anomalies
(aerial well-like, but poorly defined ground detection)
Aerial Only Well-like Anomalies
(no ground detection or outside project boundary)
Magnetic Intensity
Scale 1:4000
(meters)
WGS 84 / UTM zone 17N
UAV EXPLORATION


Magnetic Intensity
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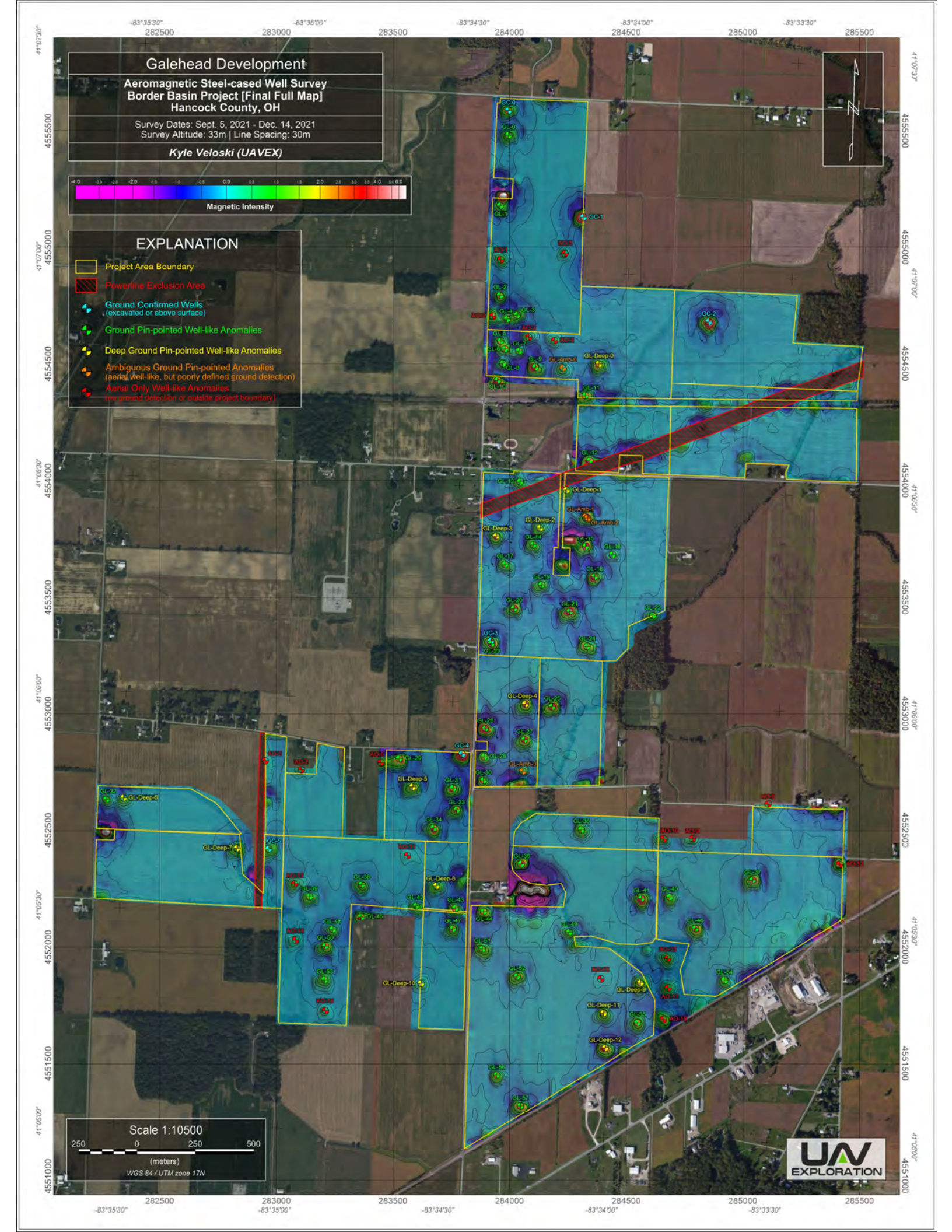
GL-28
GL-Amb-3
GL-30
GL-31
GL-33
GL-35
AO-8
AO-10
AO-9
GL-36
AO-12
GL-37
GL-41
GL-40
GL-43
GL-44
GL-47
GL-49
GL-46
GL-51
AO-15
GL-52
AO-18
GL-54
GL-Deep-9
AO-17
GL-Deep-11
GL-55
AO-19
GL-Deep-12
GL-56
GL-57
N
284000
284400
284800
285200
4552800
4552400
4552000
4551600
4551200
-83°34'20"
-83°34'00"
-83°33'40"
-83°33'20"
41°05'40"
41°05'20"
41°05'00"
EXPLANATION
Project Area Boundary
Powerline Exclusion Area
Ground Confirmed Wells
(excavated or above surface)
Ground Pin-pointed Well-like Anomalies
Deep Ground Pin-pointed Well-like Anomalies
Ambiguous Ground Pin-pointed Anomalies
(aerial well-like, but poorly defined ground detection)
Aerial Only Well-like Anomalies
(no ground detection or outside project boundary)
Scale 1:4000
50 0 50 100 150 200 250 300
(meters)
WGS 84 / UTM zone 17N
UAV EXPLORATION
Galehead Development
Aeromagnetic Steel-cased Well Survey
Border Basin Project [Final Map Southeast]
Hancock County, OH
Survey Dates: Sept. 5, 2021 - Dec. 14, 2021
Survey Altitude: 33m | Line Spacing: 30m
Kyle Veloski (UAVEX)


Galehead Development
Aeromagnetic Steel-cased Well Survey
Border Basin Project [Final Full Map]
Hancock County, OH
Survey Dates: Sept. 5, 2021 - Dec. 14, 2021
Survey Altitude: 33m | Line Spacing: 30m
Kyle Veloski (UAVEX)
Magnetic Intensity
EXPLANATION
Project Area Boundary
Powerline Exclusion Area
Ground Confirmed Wells
(excavated or above surface)
Ground Pin-pointed Well-like Anomalies
Deep Ground Pin-pointed Well-like Anomalies
Ambiguous Ground Pin-pointed Anomalies
(aerial well-like, but poorly defined ground detection)
Aerial Only Well-like Anomalies
(no ground detection or outside project boundary)
Scale 1:10500
250 0 250 500
(meters)
WGS 84 / UTM zone 17N
UAV EXPLORATION

APPENDIX E

Local Water Supply Well Construction Logs

WELL LOG AND DRILLING REPORT

ORIGINAL

23

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

480281

COUNTY Hancock TOWNSHIP Cass SECTION OF TOWNSHIP OR LOT NUMBER 26

OWNER Gene Brown ADDRESS RR Arcadia

LOCATION OF PROPERTY ¼ mile East of T-Rd 238 on T-Rd 215

CONSTRUCTION DETAILS

Casing diameter 5 5/8 Length of casing 73'

Type of screen _____ Length of screen _____

Type of pump _____

Capacity of pump _____

Depth of pump setting _____

Date of completion _____

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 40 gpm Duration of test _____ hrs

Drawdown _____ ft Date 1-13-75

Static level (depth to water) 23' ft

Quality (clear, cloudy, taste, odor) _____

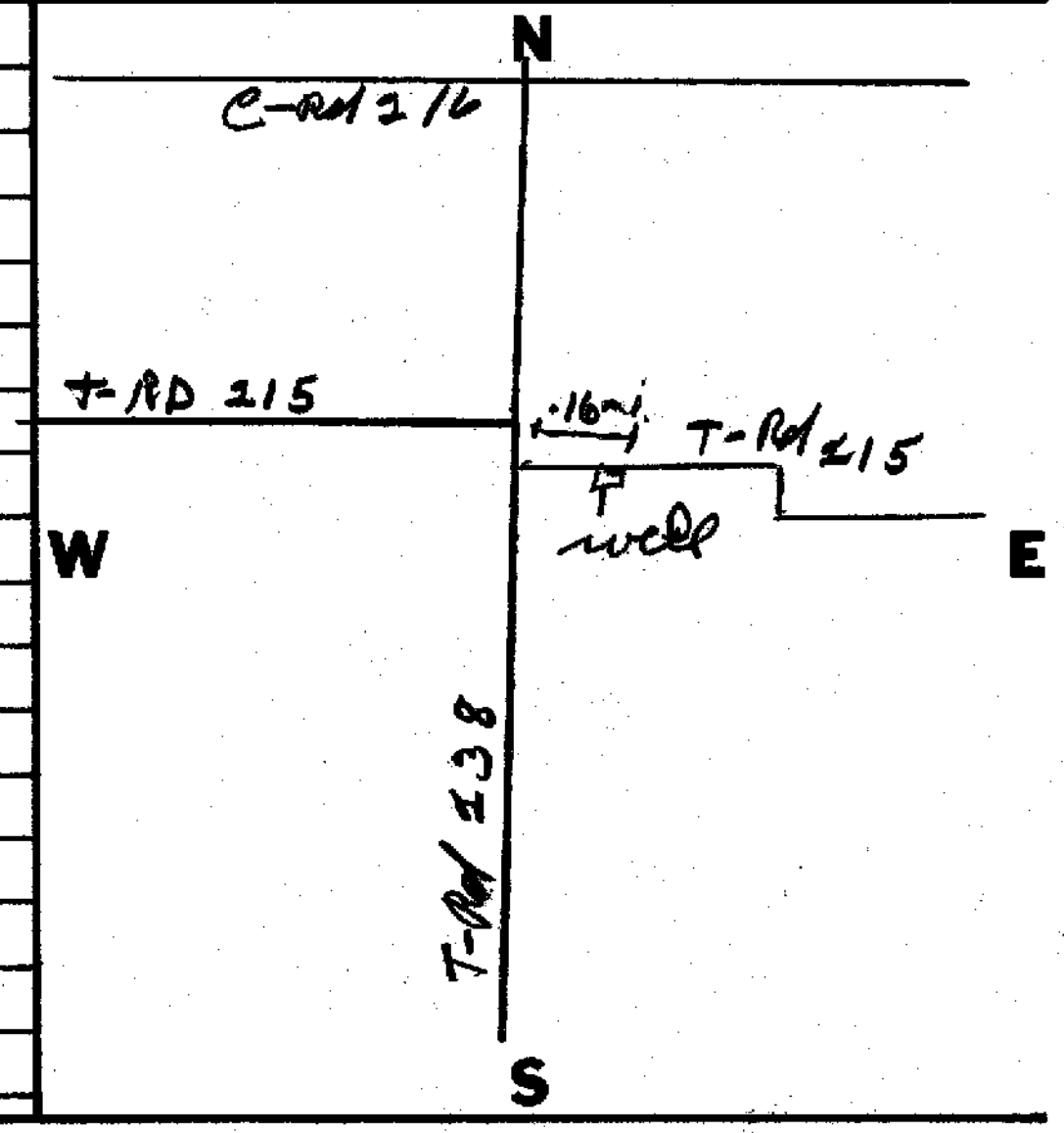
Pump installed by _____

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
clay	0 ft	40 ft
sand-clay	40	60
clay	60	72'
limestone	72	100

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Stimmel Hindell DATE 1-13-75

ADDRESS Arlington, I SIGNED J. K. Hindell

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGINAL
62

NO CARBON PAPER
NECESSARY–
SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

492592

COUNTY Hancock TOWNSHIP Cass SECTION OF TOWNSHIP OR LOT NUMBER 26

OWNER Cecil Bolz ADDRESS RR#1 Arcadia, O.

LOCATION OF PROPERTY .2 Mile East of T-238 on T-215

CONSTRUCTION DETAILS

Casing diameter 5 5/8 Length of casing 79'

Type of screen _____ Length of screen _____

Type of pump _____

Capacity of pump _____

Depth of pump setting _____

Date of completion _____

BAILING OR PUMPING TEST
(specify one ~~by circling~~)

Test rate 15 gpm Duration of test 1 hrs

Drawdown _____ ft Date 6-21-76

Static level (depth to water) 26 ft

Quality (clear, cloudy, taste, odor) _____

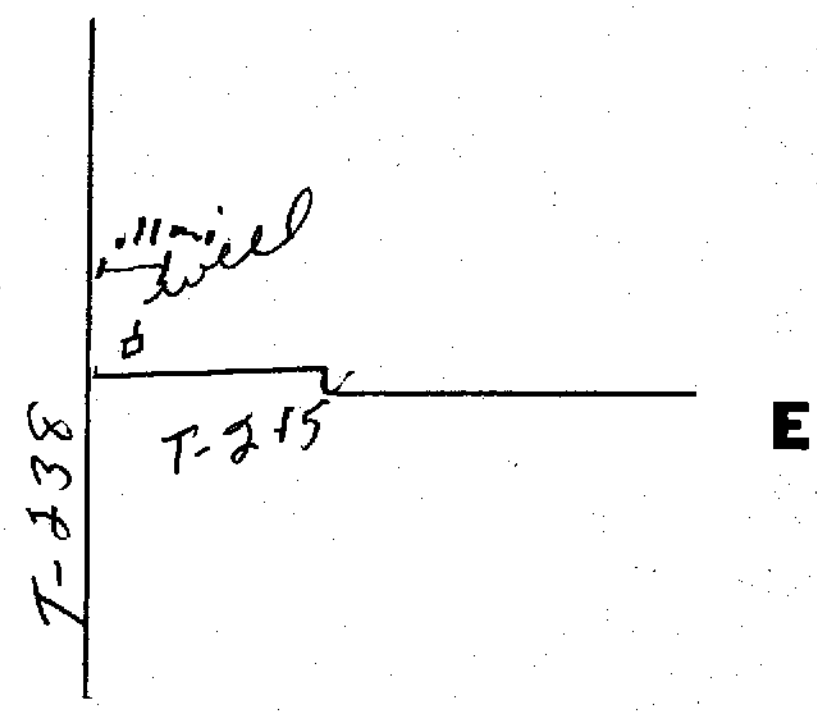
Pump installed by _____

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
clay	0 ft	47 ft
sand-clay	47	78
limestone	78	89

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Stimmann & Hindell DATE 6-21-76

ADDRESS Arlington, O. SIGNED J. K. Hindell

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGINAL
64

NO CARBON PAPER NECESSARY – SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

512923

COUNTY Hancock TOWNSHIP Cass SECTION OF TOWNSHIP 27

OWNER Richard Eddie ADDRESS RR #1 Arcadia

LOCATION OF PROPERTY On T-215 ½ mi East of CR Rd. 236

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing 76'

Type of screen _____ Length of screen _____

Type of pump _____

Capacity of pump _____

Depth of pump setting _____

Date of completion _____

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 8 gpm Duration of test _____ hrs

Drawdown _____ ft Date 3-10-77

Static level (depth to water) 29 ft

Quality (clear, cloudy, taste, odor) _____

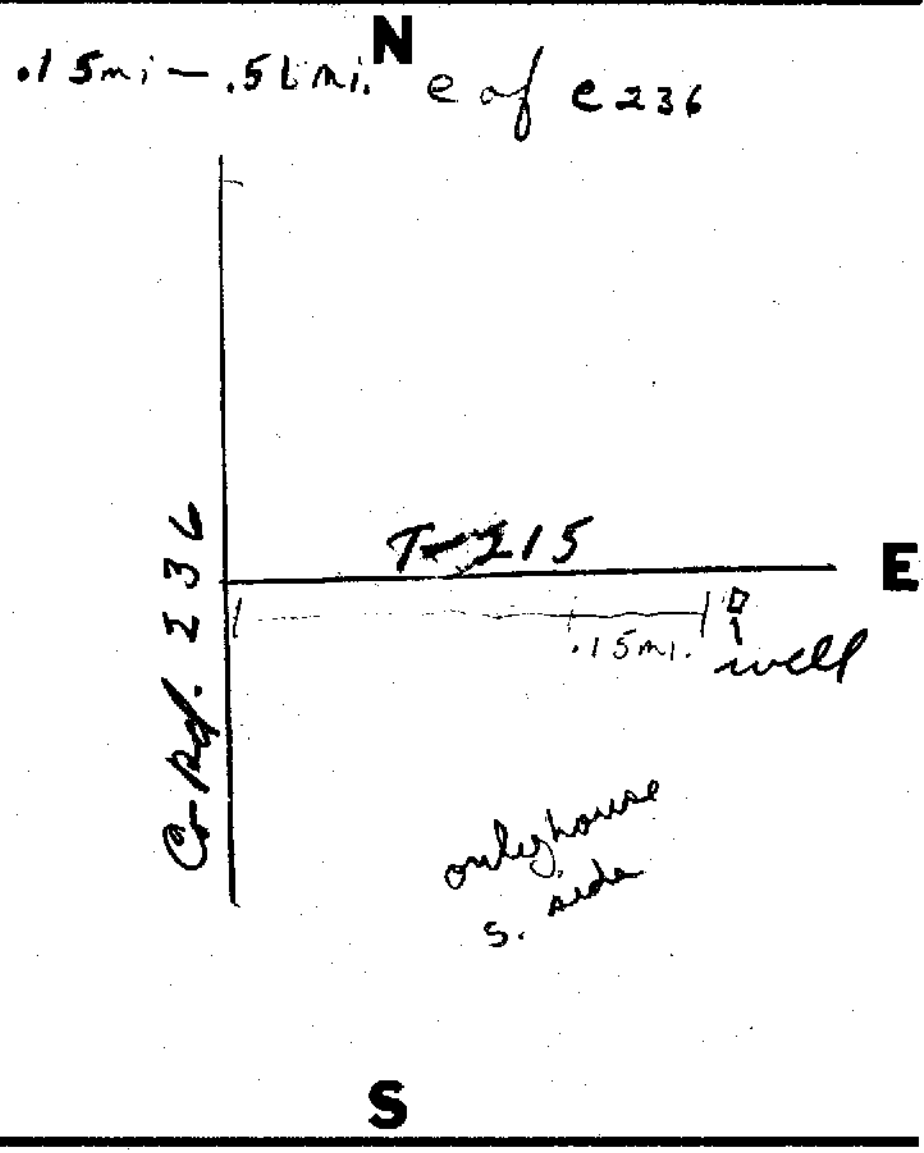
Pump installed by _____

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Sand	0 ft	10 ft
Clay	10	74
Limestone	74	132

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Stinman Hinkle DATE 3-10-77

ADDRESS Arlington O. SIGNED J. K. Hinkle

*If additional space is needed to complete well log, use next consecutive numbered form.

29

WELL LOG AND DRILLING REPORT

694661

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1939 Fountain Square Drive
Columbus, Ohio 43224
(614) 265-6739

TYPE OR USE PEN
SELF-TRANSCRIBING
PRESS HARD!

Permit Number 779-89

COUNTY Hancock TOWNSHIP Cass. SECTION/LOT NO. 35 (CIRCLE ONE)

OWNER/BUILDER (CIRCLE ONE OR BOTH) Anthony & Kimberly Miles PROPERTY ADDRESS 5007 CR 236 ~~Findlay~~ Ohio 45840 (ADDRESS OF WELL LOCATION)

LOCATION OF PROPERTY Take St-12 E of Findlay to CR-236 turn Left 1/4 mile Before Intersection I-75 Rt. Side

CONSTRUCTION DETAILS

CASING
Diameter 6 in. Length 78' ft. Wall Thickness ____ in.
Type: ☑ Steel ☑ Galv. ☐ PVC ☐ Other ____
Joints: ☑ Threaded ☐ Welded ☐ Solvent ☐ Other ____

SCREEN
Type (wire wrapped, louvered, etc.) ____ Material ____
Length ____ ft. Diameter ____ in.
Set between ____ ft. and ____ ft. Slot ____
☐ Rotary ☑ Cable ☐ Augered ☐ Driven ☐ Dug ☐ Other ____
Date of completion 9/23/89

GROUT
Material Granular Bentonite Volume used ____
Method of installation Poured Dry Grout
Depth: placed from Ground Level ft. to Level Along Casing. ft.

GRAVEL PACK
Material ____ Volume used ____
Method of installation ____
Depth: placed from ____ ft. to ____ ft.
Pitless Device ☑ Adapter ☐ Preassembled unit
Use of Well Human Consumption

PUMP

Type of pump Submersible Capacity 7 gpm
Pump set at 70' ft.
Pump installed by Mason Well Drilling (Gary Mason)

WELL TEST

Bailing ☑ or Pumping ☐
Test rate 9 gpm Duration of test 1 hrs.
Drawdown 46' ft.
Measured from: ☑ top of casing ☐ ground level ☐ Other ____
Static Level (depth to water) 30' ft. Date: 9/23/89
Quality (clear, cloudy, taste, odor) transparent w/ Blackish tint. (Sulfur)
(Attach a copy of the pumping test record, per 1521.05, ORC)

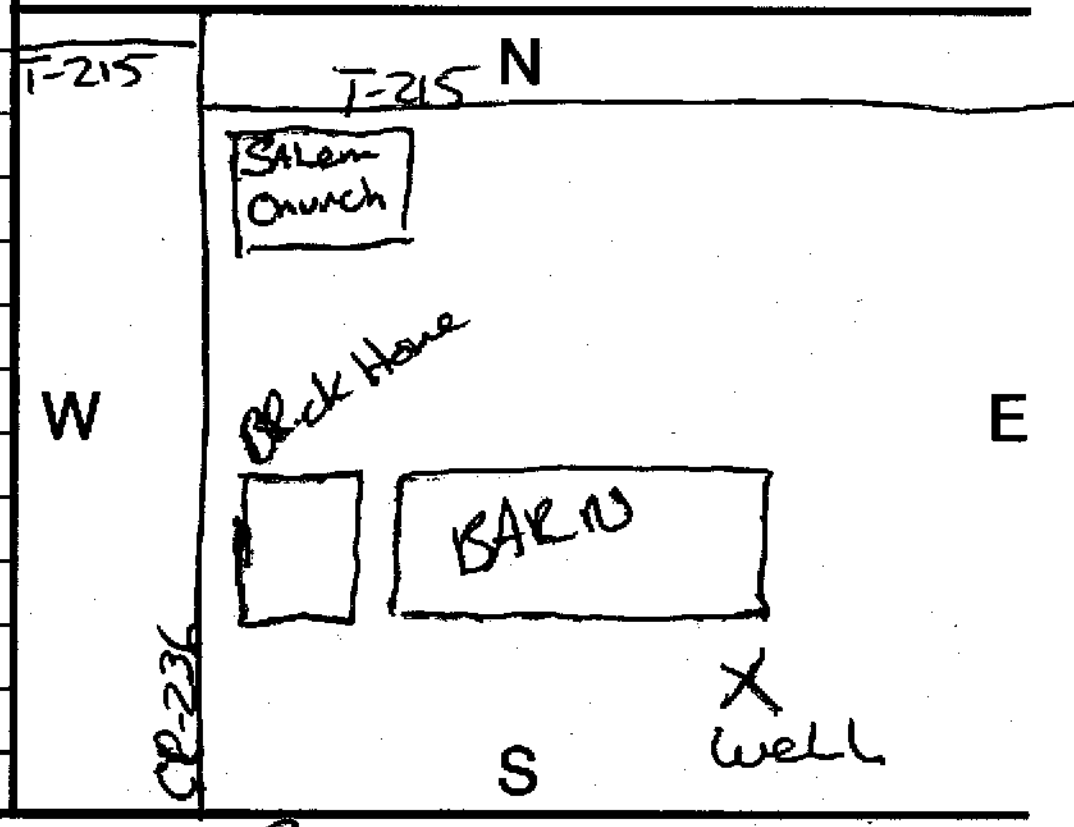
WELL LOG*

INDICATE DEPTH(S) AT WHICH WATER IS ENCOUNTERED.

Show color, texture, hardness, and formation: sandstone, shale, limestone, gravel, clay, sand, etc.	From	To
Brown clay	0 ft.	15 ft.
Grey clay & Fine Gravel	15	52
Grey Quicksand	52	78
Rock (est)	78	86
Water	86	

SKETCH SHOWING LOCATION

Show distances well lies from numbered state highways, street intersections, county roads, etc.



* If additional space is needed to complete well log, use next consecutively numbered form

DNR 7802.88

DRILLING FIRM Mason
ADDRESS 1306 Graceland Ave Findlay Oh. 45840
CITY, STATE, ZIP ____

SIGNED Gary E. Mason.
DATE 9/23/89
ODH REGISTRATION NUMBER 1323

Completion of this form is required by 1521.05, Ohio Revised Code - file within 30 days after completion of drilling.

ORIGINAL COPY - ODNR, DIVISION OF WATER, 1939 FOUNTAIN SQ. DRIVE, COLS., OHIO 43224

Blue - Customer's Copy Pink - Driller's Copy Green - Local Health Dept. Copy

DNR 7802 96

TYPE OR USE PEN
SELF TRANSCRIBING
PRESS HARD

WELL LOG AND DRILLING REPORT

Ohio Department of Natural Resources
Division of Water, 1939 Fountain Square Drive
Columbus, Ohio 43224-9971 Voice (614) 265-6739 Fax (614) 447-9503

942423

WELL LOCATION

County Hancock Township Cass

Owner/Builder (Circle One or Both) Richard + Angie Goshe
First Last

Address of Well Location 15336 Twp Rd 215
Number Street Name

City Arcadia Ohio Zip Code +4 44804

Permit No. 171-02 Section/Lot No. (Circle One or Both)

Location of Well in State Plane coordinates, if available: Use of Well Single Family Dwelling

N [ ] X 41° 05 .999 +/- 0 or m

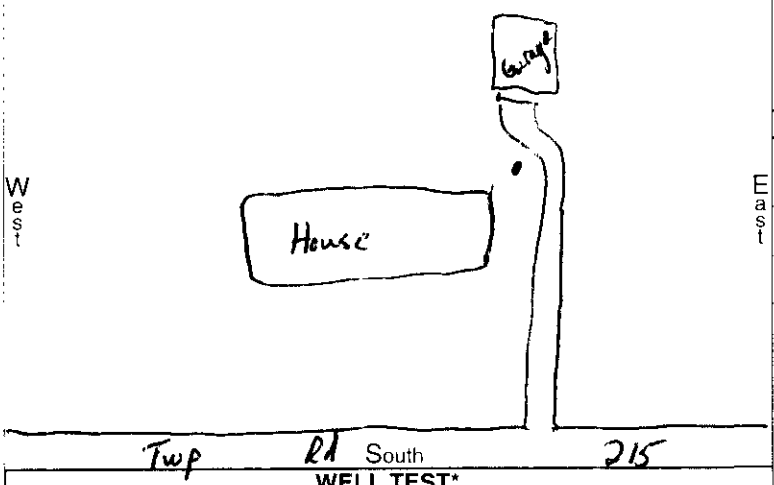
S [ ] Y W 083° 05 .150 +/- 0 or m

Elevation of Well 814 +/- 0 or m

Datum Plain: [ ] NAD27 [ ] NAD83 Elevation Source

Source of Coordinates: GPS Survey Other

Sketch a map showing distance well lies from numbered state highways, street intersections, county roads, buildings or other notable landmarks If latitude and longitude are available please include here: Lat: 41.049650 Long: 83.086333



WELL TEST*

Pre-Pumping Static Level 33 ft. Date 6-26-02

Measured from: [X] Top of Casing [ ] Ground Level Other

[X] Air [ ] Bailing [ ] Pumping* [ ] Other

Test Rate 30 gpm Duration of Test hrs.

Feet of Drawdown 40 ft. Sustainable Yield 30 gpm

*(Attach a copy of the pumping test record, per section 1521.05, ORC)

Is Copy Attached? [ ] Yes [X] No Flowing Well? [ ] Yes [X] No

Quality Clear

PUMP/PITLESS

Type of pump Capacity gpm

Pump set at ft. Pitless Type

Pump installed by

I hereby certify the information given is accurate and correct to the best of my knowledge.

Drilling Firm Holman Drilling

Address P.O. Box 257

City, State, Zip Risingsun Ohio 43457

Signed Dwight D. Holman Date 6-26-02

ODH Registration Number 521

CONSTRUCTION DETAILS

[X] Rotary [ ] Cable [ ] Augered [ ] Driven [ ] Other

BOREHOLE/CASING (measured from ground surface)

1| Borehole Diameter 9.75 inches Depth 82 ft.

Casing Diameter 6 in. Length 83 ft. Thickness SDR21 in.

2| Borehole Diameter inches Depth ft.

Casing Diameter in. Length ft. Thickness in.

Casing Height Above Ground 1 ft.

Type 1 [ ] Steel [ ] Galv. [X] PVC [ ]
2 [ ] [ ] [ ] [ ] Other

Joints 1 [ ] Threaded [ ] Welded [ ] Solvent [X]
2 [ ] [ ] [ ] [ ] Other Spline O-ring

SCREEN

Diameter Slot Size Screen Length ft

Type Material

Set Between ft. and ft

GRAVEL PACK (Filter Pack)

Material/Size Volume/Weight Used

Method of Installation

Depth: Placed FROM ft. TO ft.

GROUT

Material Benseal E-2 Mud Volume/Weight Used 120 gallons

Method of Installation Pumped

Depth: Placed FROM 82 ft. TO Surface ft.

DRILLING LOG*

INDICATE DEPTH(S) AT WHICH WATER IS ENCOUNTERED.

Show color, texture, hardness, and formation: sandstone, shale, limestone, gravel, clay, sand, etc.	From	To
Topsoil	0	1
Yellow Clay	1	8
Blue clay	8	78
Limestone Hard Brown + dry	78	82
Limestone turning white - Gray 5gpm	82	103
Limestone white softer 30gpm	103	128

*(If more space is needed to complete drilling log, use next consecutively numbered form)

Date of Well Completion 6-26-02 Total Depth of Well 128 ft

DNR 7802.03

TYPE OR USE PEN
SELF TRANSCRIBING
PRESS HARD

WELL LOG AND DRILLING REPORT

Ohio Department of Natural Resources
Divison of Water, 1939 Fountain Square Drive
Columbus, Ohio 43224-9971 Voice (614) 265-6740 Fax (614) 265-6767

990634

WELL LOCATION

County Hancock Township Marion

Owner/Builder (Circle One or Both) Sparks (First) Tire (Last)

Address of Well Location 16764 (Number) St.Rt. 12 East (Street Name)

City Findlay Oh Zip Code +4 45840

Permit No. EPA Section/Lot No. (Circle One or Both)

Location of Well in State Plane coordinates, if available: Use of Well Commercial

N X . +/- ft. or m

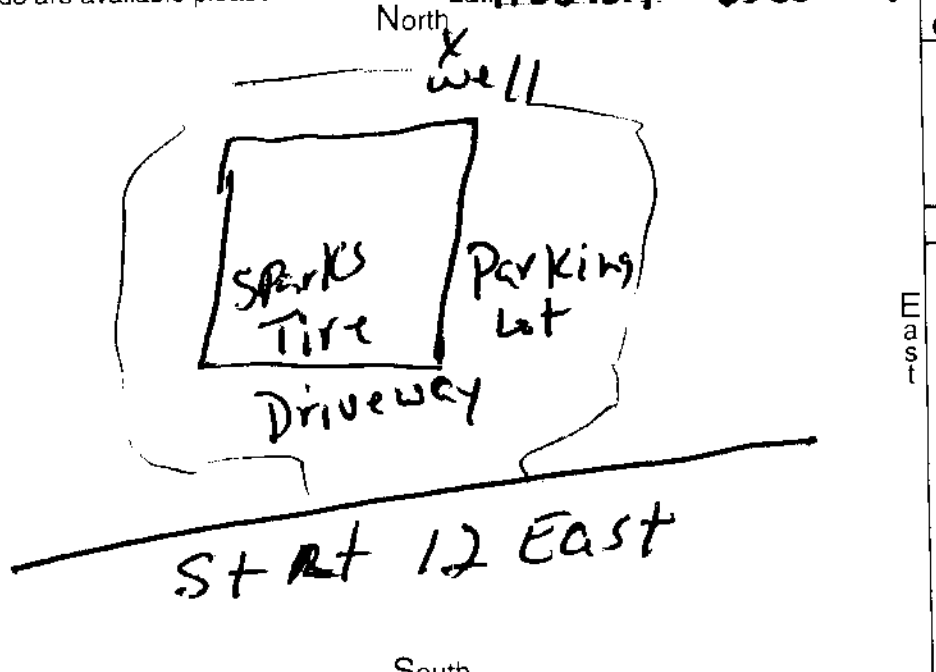
S Y . +/- ft. or m

Elevation of Well . +/- ft. or m

Datum Plain: NAD27 NAD83 Elevation Source

Source of Coordinates: GPS Survey Other

Sketch a map showing distance well lies from numbered state highways, street intersections, county roads, buildings or other notable landmarks. If latitude and longitude are available please include here: Lat 41 05 16.7 Lon 83 33 36.8



WELL TEST*

Pre-Pumping Static Level 32 ft. Date 10-27-05

Measured from: Top of Casing Ground Level Other

Bailing Pumping* Other

Test Rate 50 t gpm Duration of Test 1 hrs.

Feet of Drawdown ft. Sustainable Yield gpm

*(Attach a copy of the pumping test record, per section 1521.05, ORC)

Is Copy Attached? Yes No Flowing Well? Yes No

Quality Clear

PUMP/PITLESS

Type of pump Capacity gpm

Pump set at ft. Pitless Type

Pump installed by

I hereby certify the information given is accurate and correct to the best of my knowledge.

Drilling Firm G H Bierly Inc

Address 10933 Adard

City, State, Zip Ada Oh 45810

Signed Bruce Clem Date 10-27-05

ODH Registration Number 715

CONSTRUCTION DETAILS

Rotary Cable Augered Driven Other

BOREHOLE/CASING (measured from ground surface)

1 Borehole Diameter 10 inches Depth 72 ft.

Casing Diameter 6 in. Length 72 ft. Thickness SDR21 in.

2 Borehole Diameter inches Depth ft.

Casing Diameter in. Length ft. Thickness in.

Casing Height Above Ground 2 ft.

Type 1 Steel 1 Galv. 1 PVC 1 2 Other

Joints 1 Threaded 1 Welded 1 Solvent 1 2 Other

SCREEN

Diameter Slot Size Screen Length ft.

Type Material

Set Between ft. and ft.

GRAVEL PACK (Filter Pack)

Material/Size Volume/Weight Used

Method of Installation

Depth: Placed FROM ft. TO ft.

GROUT

Material Bentonite Volume/Weight Used 120 gal

Method of Installation Pump

Depth: Placed FROM 0 ft. TO 72 ft.

DRILLING LOG*

INDICATE DEPTH(S) AT WHICH WATER IS ENCOUNTERED.

Show color, texture, hardness, and formation: sandstone, shale, limestone, gravel, clay, sand, etc.	From	To
Yellow Clay	0	9
Sticky Blue Clay	9	58
Stoney Blue Clay	58	68
Broken Limestone	68	69
Hard Limestone	69	72
Limestone	72	142
Water 76'	76	
Water	137	

*(If more space is needed to complete drilling log, use next consecutively numbered form.)

Date of Well Completion 10-27-05 Total Depth of Well 142 ft.

Completion of this form is required by section 1521.05, Ohio Revised Code - file within 30 days after completion of drilling.
ORIGINAL COPY TO - ODNR, DIVISION OF WATER, 1939 FOUNTAIN SQ. DRIVE, COLS., OHIO 43224-9971
Blue - Customer's copy Pink - Driller's copy Green - Local Health Dept. copy

DNR 7802.05e

WELL LOG AND DRILLING REPORT

Ohio Department of Natural Resources
Division of Water, 2045 Morse Road, Columbus, Ohio 43229-6605
Voice (614) 265-6740 Fax (614) 265-6767

Well Log Number: 2009501

Page 1 of 1 for this record.

WELL LOCATION

County HANCOCK Township CASS

BOES FAMILY LIMITED PARTNERSHIP
Owner/Builder

15659 TR 215
Address of Well Location

City ARCADIA Zip Code +4 44804

Permit No. 909-07 Section; _____ *and or* Lot No. _____

Use of Well DOMESTIC

Coordinates of Well (Use only one of the below coordinate systems)

State Plane Coordinates

N ☐ X _____ +/- _____ ft.

S ☐ Y _____ +/- _____ ft.

Latitude, Longitude Coordinates

Latitude: 41.097778 Longitude: 83.575

Elevation of Well in feet: 810 +/- 25 ft.

Datum Plane: ☒ NAD27 ☐ NAD83 Elevation Source MAP-OTHERS

Source of Coordinates: MAP-OTHERS

Well location written description:

Comments on water quality/quantity and well construction:
SOME SULFUR

WELL TEST *

Pre-Pumping Static Level 27 ft. Date 4/22/2007

Measured from TOP OF CASING

Pumping test method AIR

Test Rate 25 gpm Duration of Test 1 hrs.

Feet of Drawdown 0 ft. Sustainable Yield 25 gpm

*(Attach a copy of the pumping test record, per section 1521.05, ORC)

Is Copy Attached? ☐ Yes ☒ No Flowing Well? ☐ Yes ☒ No

PUMP/PITLESS

Type of pump _____ Capacity _____ gpm

Pump set at _____ ft. Pitless Type _____

Pump installed by _____

I hereby certify the information given is accurate and correct to the best of my knowledge.

Drilling Firm BOES WELL DRILLING LLC

Address 2735 TR 155

City, State, Zip Tiffin OH 44883

Signed JERRY BOES (Filed Electronically) Date 5/7/2007

ODH Registration Number 03000

CONSTRUCTION DETAILS

Drilling Method: MUD ROTARY

BOREHOLE/CASING (Measured from ground surface)

1 Borehole Diameter 9.5 inches Depth 79 ft.
Casing Diameter 6 in. Length 81 ft. Thickness 0.316 in.

2 Borehole Diameter _____ inches Depth _____ ft.
Casing Diameter _____ in. Length _____ ft. Thickness _____ in.

Casing Height Above Ground 2 ft.

Type 1: PVC
2: _____

Joints 1: Solvent
2: _____

SCREEN

Diameter _____ in. Slot Size _____ in. Screen Length _____ ft.

Type _____ Material _____

Set Between _____ ft. and _____ ft.

GRAVEL PACK (Filter Pack)

Material/Size _____ Vol/Wt. Used _____

Method of Installation _____

Depth: Placed From: _____ ft. To: _____ ft.

GROUT

Material Bentonite/polymer slurry Vol/Wt. Used 145gal/300

Method of Installation Pumped w/Tremie pipe

Depth: Placed From: 78 ft. To: 0 ft.

DRILLING LOG*

FORMATIONS INCLUDE DEPTH(S) AT WHICH WATER IS ENCOUNTERED.

Color	Texture	Formation	From	To
BROWN	CLAYEY	CLAY	0	9
GRAY	CLAYEY	CLAY	9	50
GRAY	CLAYEY	SAND AND CLAY	50	75
GRAY	BROKEN	LIMESTONE	75	77
GRAY	HARD	LIMESTONE	77	80
GRAY	SOFT	LIMESTONE	80	82
GRAY	HARD	LIMESTONE	82	83
		Water Encountered At	81	82

Aquifer Type (Formation producing the most water.) LIMESTONE

Date of Well Completion 4/22/2007 Total Depth of Well 83 ft.

Completion of this form is required by section 1521.05, Ohio Revised Code - file within 30 days after completion of drilling.
Distribute copies of this record to Customer, and Local Health Deptartment.

DNR 7802.05e

WELL LOG AND DRILLING REPORT

Ohio Department of Natural Resources
Division of Water, 2045 Morse Road, Columbus, Ohio 43229-6605
Voice (614) 265-6740 Fax (614) 265-6767

Well Log Number: 2015852

Page 1 of 1 for this record.

WELL LOCATION

County HANCOCK Township CASS

JK-CO LLC
Owner/Builder

16960 E SR 12
Address of Well Location

City FINDLAY Zip Code +4 45840

Permit No. 940-07 Section; _____ *and or* Lot No. _____

Use of Well COMMERCIAL

Coordinates of Well (Use only one of the below coordinate systems)

State Plane Coordinates

N ☐ X _____ +/- _____ ft.

S ☐ Y _____ +/- _____ ft.

Latitude, Longitude Coordinates

Latitude: 41.088611 Longitude: 83.558056

Elevation of Well in feet: 790 +/- 50 ft.

Datum Plane: ☐ NAD27 ☒ NAD83 Elevation Source MAP-OTHERS

Source of Coordinates: MAP-OTHERS

Well location written description:

Comments on water quality/quantity and well construction:
NO SULFUR

WELL TEST *

Pre-Pumping Static Level 38 ft. Date 3/25/2008

Measured from TOP OF CASING

Pumping test method AIR

Test Rate 20 gpm Duration of Test 1.5 hrs.

Feet of Drawdown 0 ft. Sustainable Yield 20 gpm

*(Attach a copy of the pumping test record, per section 1521.05, ORC)

Is Copy Attached? ☐ Yes ☒ No Flowing Well? ☐ Yes ☒ No

PUMP/PITLESS

Type of pump _____ Capacity _____ gpm

Pump set at _____ ft. Pitless Type _____

Pump installed by _____

I hereby certify the information given is accurate and correct to the best of my knowledge.

Drilling Firm BOES WELL DRILLING LLC

Address 2735 TR 155

City, State, Zip Tiffin OH 44883

Signed JERRY BOES (Filed Electronically) Date 4/12/2008

ODH Registration Number 03000

CONSTRUCTION DETAILS

Drilling Method: MUD ROTARY

BOREHOLE/CASING (Measured from ground surface)

1 Borehole Diameter 9.75 inches Depth 73 ft.
Casing Diameter 6 in. Length 75.5 ft. Thickness 0.316 in.

2 Borehole Diameter _____ inches Depth _____ ft.
Casing Diameter _____ in. Length _____ ft. Thickness _____ in.

Casing Height Above Ground 2.3 ft.

Type 1: PVC
Type 2: _____

Joints 1: Solvent
Joints 2: _____

SCREEN

Diameter _____ in. Slot Size _____ in. Screen Length _____ ft.

Type _____ Material _____

Set Between _____ ft. and _____ ft.

GRAVEL PACK (Filter Pack)

Material/Size _____ Vol/Wt. Used _____

Method of Installation _____

Depth: Placed From: _____ ft. To: _____ ft.

GROUT

Material Bentonite/polymer slurry Vol/Wt. Used 160/325

Method of Installation Pumped w/Tremie pipe

Depth: Placed From: 72 ft. To: 0 ft.

DRILLING LOG*

FORMATIONS INCLUDE DEPTH(S) AT WHICH WATER IS ENCOUNTERED.

Color	Texture	Formation	From	To
BROWN	STICKY	CLAY	0	15
GRAY	CLAYEY	CLAY	15	50
GRAY	FINE TO COURSE	GRAVEL	50	54
GRAY	CLAYEY	CLAY	54	65
GRAY	BROKEN	LIMESTONE	65	70
GRAY	HARD	LIMESTONE	70	75
BROWN-GRAY	HARD	LIMESTONE	75	77
GRAY-WHITE	HARD	LIMESTONE	77	79
GRAY	HARD	LIMESTONE	79	88
		Water Encountered At	75	77
			86	87

Aquifer Type (Formation producing the most water.) LIMESTONE

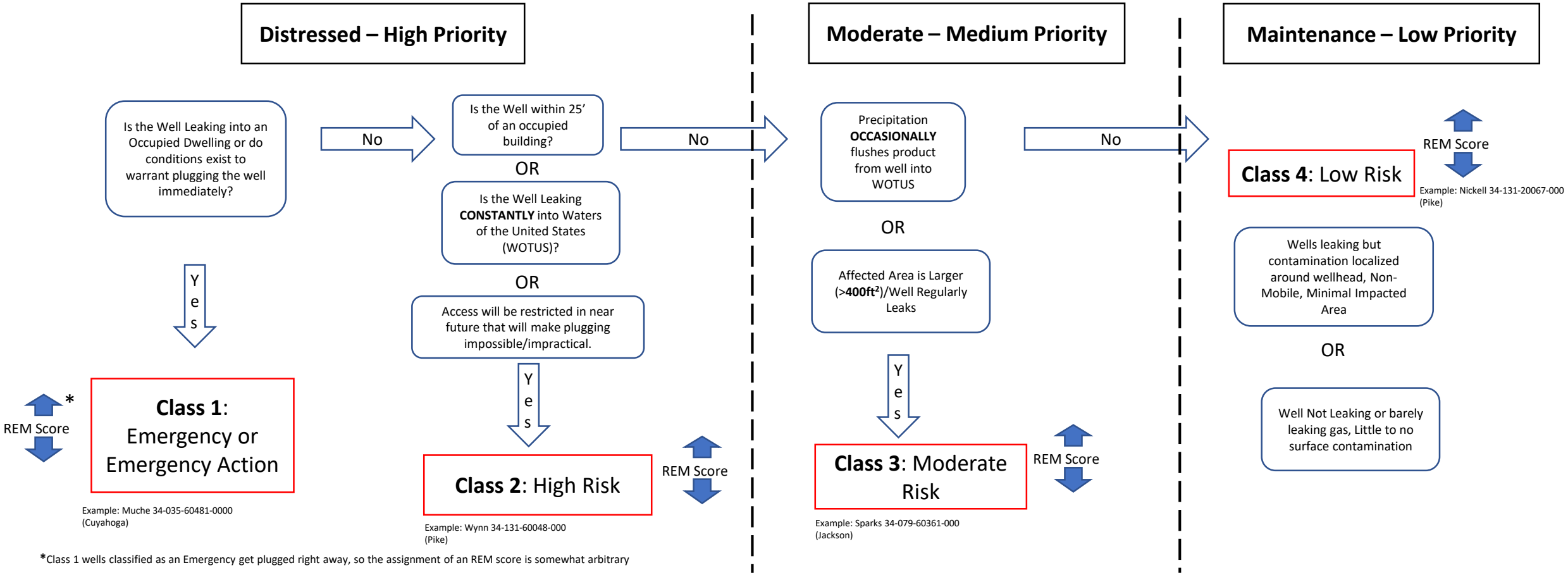
Date of Well Completion 3/25/2008 Total Depth of Well 88 ft.

Completion of this form is required by section 1521.05, Ohio Revised Code - file within 30 days after completion of drilling.
Distribute copies of this record to Customer, and Local Health Deptartment.

APPENDIX F

ODNR Risk Evaluation Matrix

Process for Assigning Risk to Orphan Wells in Ohio



*Class 1 wells classified as an Emergency get plugged right away, so the assignment of an REM score is somewhat arbitrary

Step #1 – Categorize wells and place them into appropriate Risk Class
Step #2 – Once in a class, the wells are prioritized **WITHIN** that class by a Risk Evaluation Matrix (REM) score

Notes:

- Sorting into risk classes first and **THEN** prioritizing within class allows for a more "apples to apples" comparison. (i.e. wells leaking into a creek are only compared to other wells leaking in a creek).
- Workload – Wells will be plugged by class first within an inspectors area. If there are no Class 1 (Emergency) wells, then focus on Class 2 (High Risk) wells. If there are no Class 2 wells, then focus on Class 3 (Moderate Risk) wells and so on.
- Grouping/Packaging - The inspector's workload could include some from each category. If we move into an area to plug a Class 2 (High Risk) well, then it makes sense to include any orphan wells on the same property or from the surrounding area in the package even if their class is lower.
- Senate Bill 225 comes into effect 9/28/2018. With it, wells will now be included into three groups: Distressed – High Priority (Class 1 and 2); Moderate – Medium Priority (Class 3); and Maintenance – Low Priority (Class 4).

APPENDIX G

Site Design Map

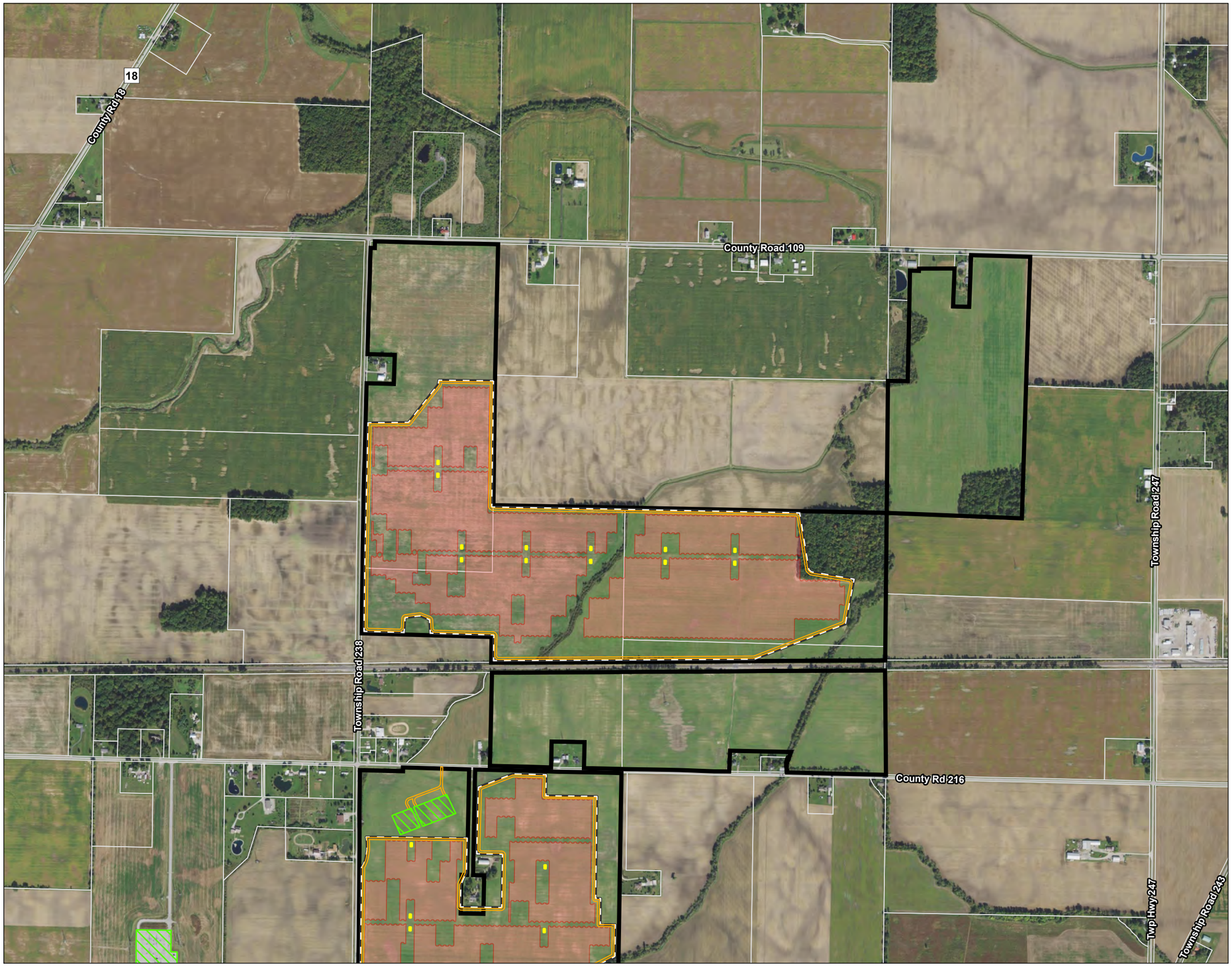


Figure No.
3-2

Title
Project Site Layout Map

Client/Project 2028113269
Border Basin I, LLC
Border Basin Solar Project

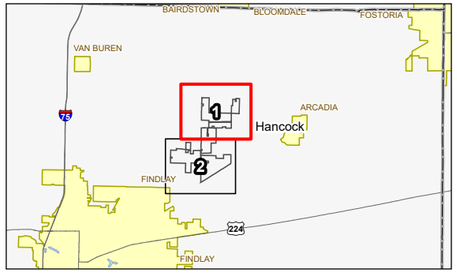
Project Location
Hancock County, Ohio

Prepared by MZ on 2021-05-27
TR by PM on 2021-06-01
IR by CD on 2021-6/4/2021

N

0 500 1,000 Feet
(At original document size of 11x17)
1:12,000

Legend
- Project Area
- Parcel Boundary
- Solar Array
- Inverter
- Substation
- Access Road
- Fence



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources: Stantec, Border Basin LLC, Esri, NADS, Hancock County
3. Background: NAIP 2019

Preliminary Design - Not for Construction

Stantec

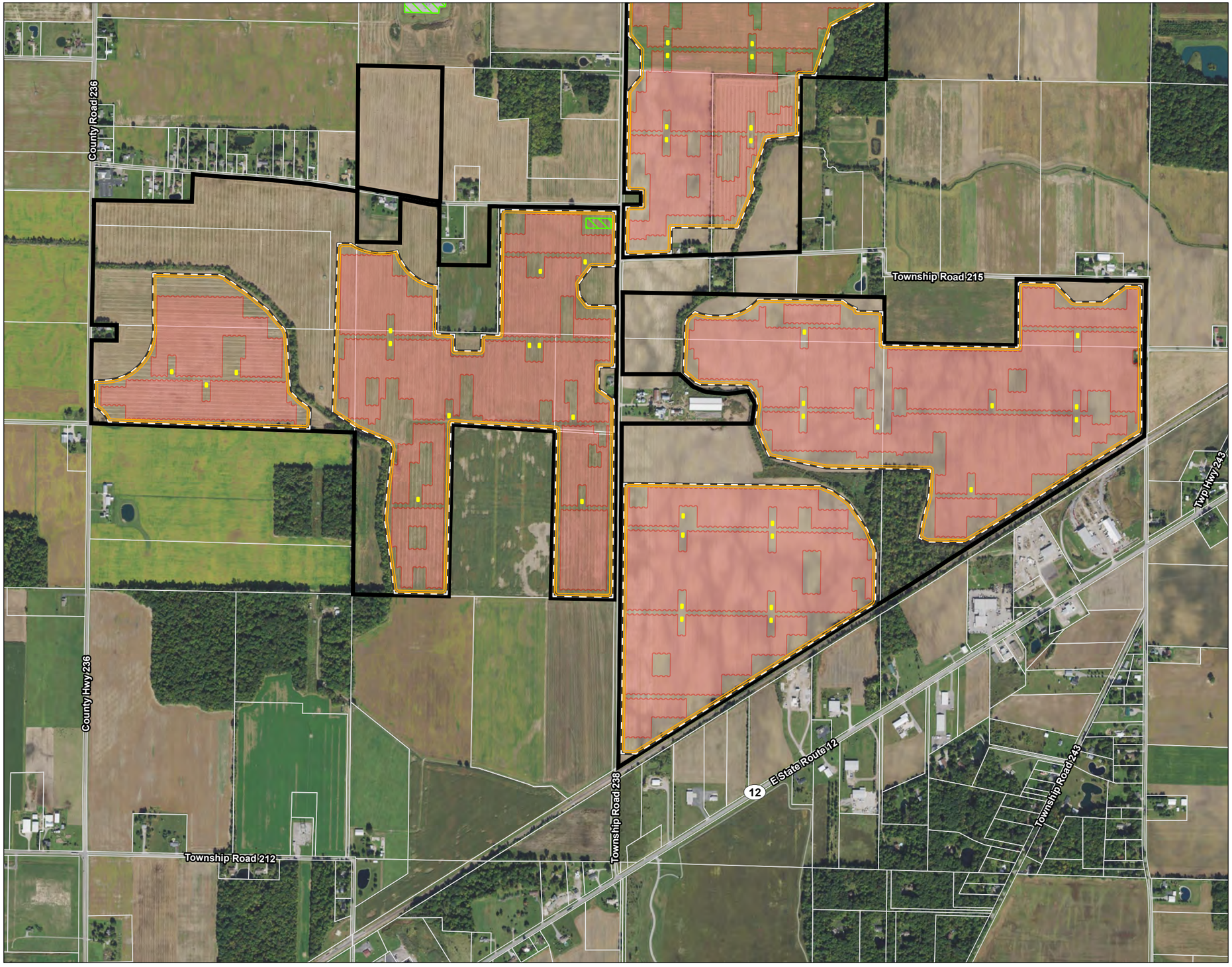


Figure No.
3-2

Title
Project Site Layout Map

Client/Project
Border Basin I, LLC
Border Basin Solar Project

2028113269

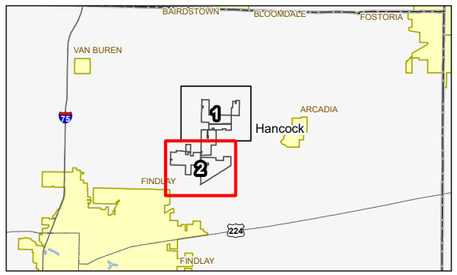
Project Location
Hancock County, Ohio

Prepared by MZ on 2021-05-27
TR by PM on 2021-06-01
IR by CD on 2021-6/4/2021

N

0 500 1,000 Feet
(At original document size of 11x17)
1:12,000

Legend
- Project Area
- Parcel Boundary
- Solar Array
- Inverter
- Substation
- Access Road
- Fence



Notes
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2. Data Sources: Stantec, Border Basin LLC, Esri, NADS, Hancock County
3. Background: NAIP 2019

Preliminary Design - Not for Construction

Stantec

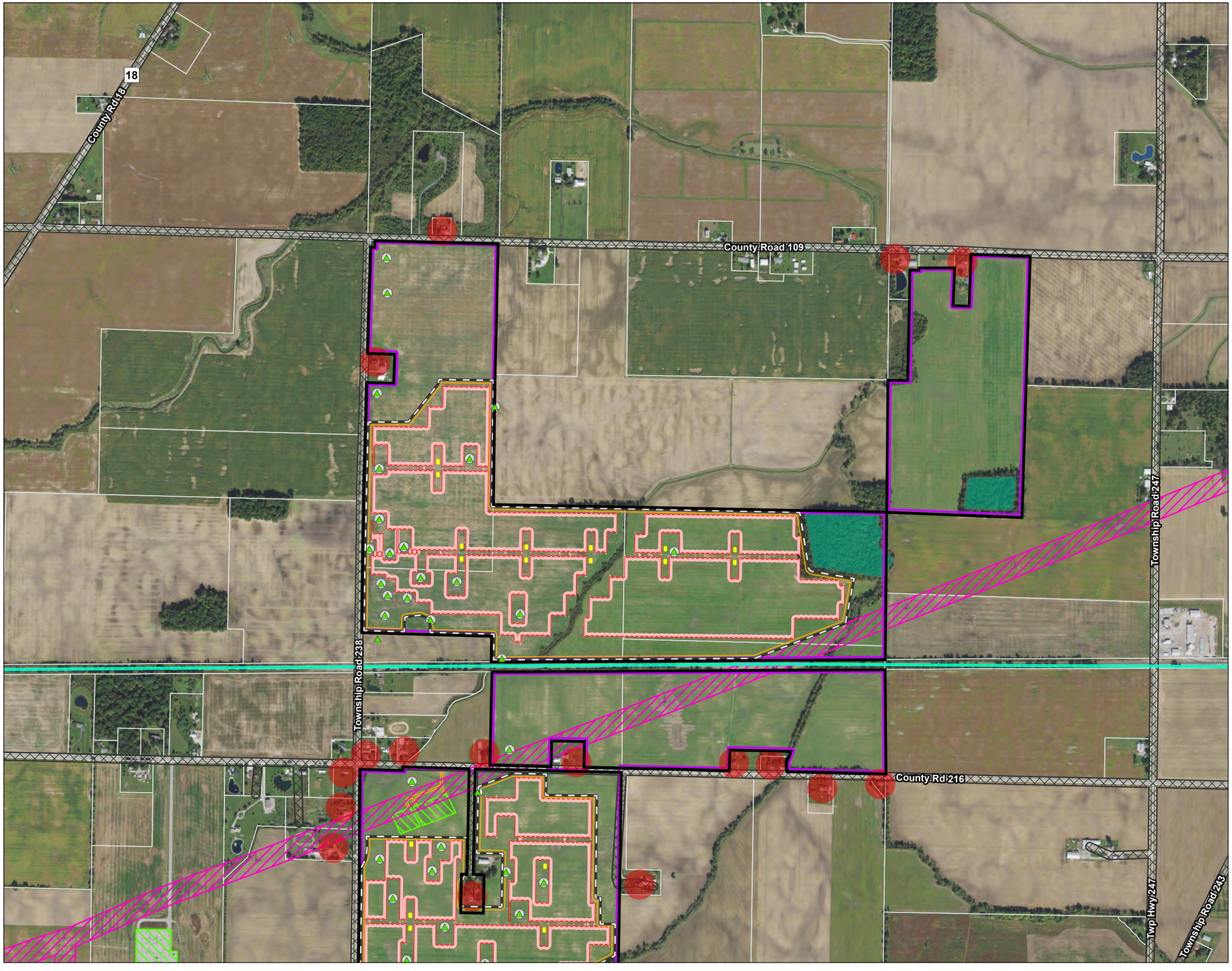


Figure No.
4-1

Title
Project Constraints Map

Client/Project 2028113269
Border Basin I, LLC
Border Basin Solar Project

Project Location
Hancock County, Ohio

Prepared by MZ on 2021-06-01
TR by MP on 2021-06-04
IR by CD on 2021-06-11

N

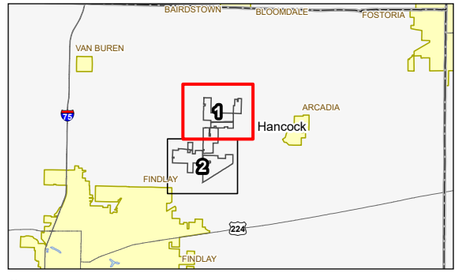
0 500 1,000 Feet
(At original document size of 11x17)
1:12,000

Legend

- Project Area
- Parcel Boundary
- Solar Array
- Inverter
- Substation
- Fence
- Access Road
- EM Survey Well-like Anomaly

Constraint

- Cemetery
- Parcel
- Public Road ROW
- Railroad
- Residential Building
- Transmission Easement
- Well Location
- PEM Wetland
- PSS Wetland
- PFO Wetland



Notes
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2. Data Sources: Stantec, Border Basin LLC, Esri, NADS, Hancock County
3. Background: NAIP 2019

Preliminary Design - Not for Construction

Stantec

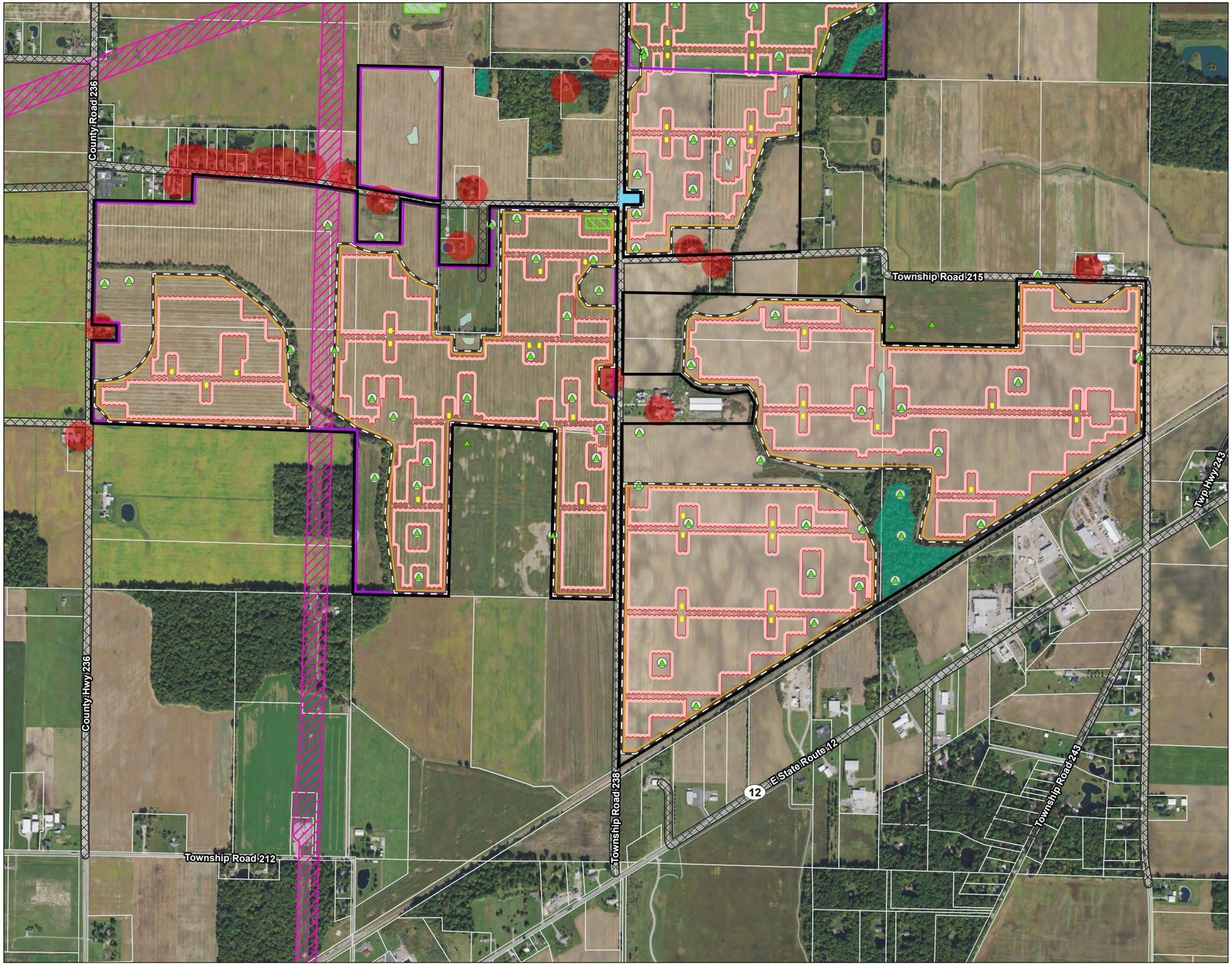


Figure No.
4-1

Title
Project Constraints Map

Client/Project
Border Basin I, LLC
Border Basin Solar Project

2028113269

Project Location
Hancock County, Ohio

Prepared by MZ on 2021-06-01
TR by MP on 2021-06-04
IR by CD on 2021-06-11

N

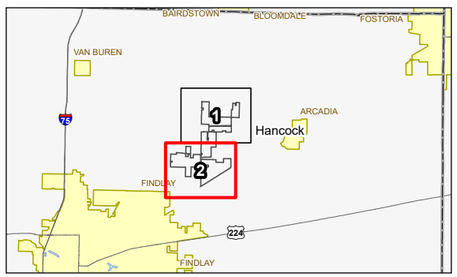
0 500 1,000 Feet
(At original document size of 11x17)
1:12,000

Legend

- Project Area
- Parcel Boundary
- Solar Array
- Inverter
- Substation
- Fence
- Access Road
- EM Survey Well-like Anomaly

Constraint

- Cemetery
- Parcel
- Public Road ROW
- Railroad
- Residential Building
- Transmission Easement
- Well Location
- PEM Wetland
- PSS Wetland
- PFO Wetland



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio North FIPS 3401 Feet
2. Data Sources: Stantec, Border Basin LLC, Esri, NADS, Hancock County
3. Background: NAIP 2019

Preliminary Design - Not for Construction

Stantec

APPENDIX H

Wood PLC Orphan Well Impact

Wood
3636 Executive Center Drive, Ste. 100
Austin, TX 78731
www.woodplc.com

December 2, 2021

Ben Metcalf
Galehead Development
Via: Ben.Metcalf@galeheaddev.com

Subject: Orphan Well Impact
Border Basin I Solar Project

Dear Mr. Metcalf:

Wood is a global engineering and consulting firm, employing over 45,000 people globally. In addition to having successfully delivered over 2,000 MWs of solar Engineering, Procurement & Construction (EPC) work, Wood is also an industry leader in the up, mid and downstream oil and gas sectors.

Wood has supported the Galehead Border Basin Project ("Project") on several items to-date, including on-site geotechnical investigations, EPC pricing, and constructability assessments.

Wood is pleased to provide its opinion on the constructability and operations of the Project specifically as it relates to the risk of unexpected orphan oil and gas well leaks discovered during construction or during operations

If there are any questions regarding our submittal please contact Erin Cozart, Renewable Energy Consultant, at (512) 670-6152, email: Erin.Cozart@woodplc.com or Jamie Macnab, Senior Consultant, at 512 662 6514, email: Jamie.macnab@woodplc.com.

Sincerely,

Jesse Gossett
Director, Project Development & Engineering
Renewables Americas

Expected Construction Process for Project

The Border Basin Project (the Project) expects to use an industry-standard single-axis tracker with modules mounted two in portrait and supported by driven steel piles. The steel piles for the Project are expected to be driven 6 to 8 feet into the ground, spaced at intervals of approximately 15 to 20 feet.

Construction impacts of the Project are confined to the electric generation equipment and project roads. The Project will be comprised of approximately 2,590 tracker tables, each containing 105 solar modules (per the current plan). Each tracker table will be supported on an estimated 17 driven piles. In addition to the trackers, a Project substation, inverter pads, combiner boxes and underground medium-voltage wiring are expected to make up the full body of construction impacts of the Project. The installation of the low-voltage wiring is typically above ground except at the inverter locations. It is also reasonable to perform most low-voltage equipment installation above ground. Any below ground low voltage work will be completed using standard trenching construction methods, typically no deeper than four feet below ground. During construction, temporary roads may be built to improve access, such as a 24-foot road to allow two vehicles to pass one another, and these roads are removed at the conclusion of construction. The internal project roads are typically 12-foot gravel roads plus four-foot shoulders for an approximately 20-foot width. Internal tracker row spacing is currently planned to be approximately 33 feet, panel edge to panel edge, and will be re-seeded.

Temporary construction impacts include clearing and grubbing and earthwork operations which require heavy equipment including earth-moving equipment, cranes and delivery trucks. Unanticipated oil well discovery may occur during typical construction activities due to ground disturbance and earthwork operations. If previously unidentified orphan oil wells are unintentionally discovered during construction, it is expected that an Unanticipated Discovery Plan will dictate the parties' response to engage the Ohio Department of Natural Resources, Division of Oil and Gas Resources Management and ensure containment activities are undertaken in the interim.

Unanticipated Discovery Plan

Wood understands that the currently identified oil well locations will be designed around with appropriate setbacks from solar trackers and other equipment both during construction and operations. As discussed in the Stantec Technical Memo in response to the OPSB data request, the Project is expected to employ an Unanticipated Discovery Plan / Soil Management Plan developed in partnership between Galehead and their to-be-selected EPC firm. Wood considers the plan prudent and a typical construction practice for this type of field risk.

Further, Wood considers that, should a previously unidentified orphan oil well be identified during pre-construction or construction, changes to the design to ensure appropriate setbacks is not an unreasonable expectation for the Project to require of the EPC, and that it would be contractually agreed to between the Project

and the selected EPC to allocate cost and schedule impacts appropriately between the parties. In the general construction field, unexpected discoveries that impact design, schedule and/or execution are frequently encountered, and Wood considers the possibility of orphan oil well discovery to be a manageable risk with the appropriate planning.

Wood suggests an emergency response plan be created 30 days prior to the start of construction for leak containment and control while waiting on the response from the Ohio Department of Natural Resources Orphan Well Department.

The health and safety aspects of the possibility of encountering orphan wells during construction is a legitimate concern, though one not uncommon in the construction industry. In Wood's opinion, there are additional methods EPCs may employ to help proactively locate the orphan wells expected on site, such as each pile driving crew to perform additional inspections as the work is underway. The cost impact of this should be negligible as the existing crew size would not need to be increased, only simple training provided to the pile driving crew.

Operation Impacts due to Orphan Well Leaks

During the expected operational life of a solar project, on-site activity is typically limited to light vehicular traffic on O&M roads and light-duty vegetation management equipment such as mowers, as necessary.

Wood considers it reasonable for the selected O&M provider of the Project to be required to have an unanticipated well discovery and soil management plan for use during project operations developed with specific, expeditious actions required to locate and support plugging the identified leak.

Given the expected layout of the Project, which will include approximately 30' - 35' row spacing (center-to-center spacing between tracker tables), the selected O&M provider's plan would entail de-energization of the impacted module strings, combiner boxes and/or inverters, and the removal of the necessary modules and tracking infrastructure as well as any electrical appurtenances such as the CAB system or met stations to allow for plug truck access. Depending on the number of modules removed and their location relative to the combiner box (at one end of each string) the remaining module strings may or may not be de-energized. An electrical study can be run based on the finalized layout, design, and selected equipment (modules, inverters, etc.) by the selected EPC to outline both the parameters and process of any necessary module and tracker table removal. For instance, each tracker table is expected to be comprised of 3 strings of 35 modules each and it may be determined that the necessary removal of over half of the modules impacted on a string will destabilize the string, thus necessitating the removal of the entire string, but any impact less than half the modules would necessitate only the removal of those impacted modules and not the entire string.

Wood understands that the 50 x 75-foot setback needed for plug truck access for the work required to plug the discovered does not need to be centered on the well itself. Figures 1 and 2 provide example setbacks and their tracker table impacts. If this is the case, the setback can be designed to impact the fewest strings based on the

known threshold of modules impacted that triggers the removal of the entire string. In some cases more tracker tables impacted may actually be beneficial as it likely means fewer modules per table will be impacted, possibly making for a lower overall impact if no full strings are triggered for removal. In addition, the ability to rotate the setback rectangle provides flexibility to minimize impacts.

Wood considers that this type of analysis and strategy can be studied and outlined in an operational plan in coordination between the EPC and O&M provider.

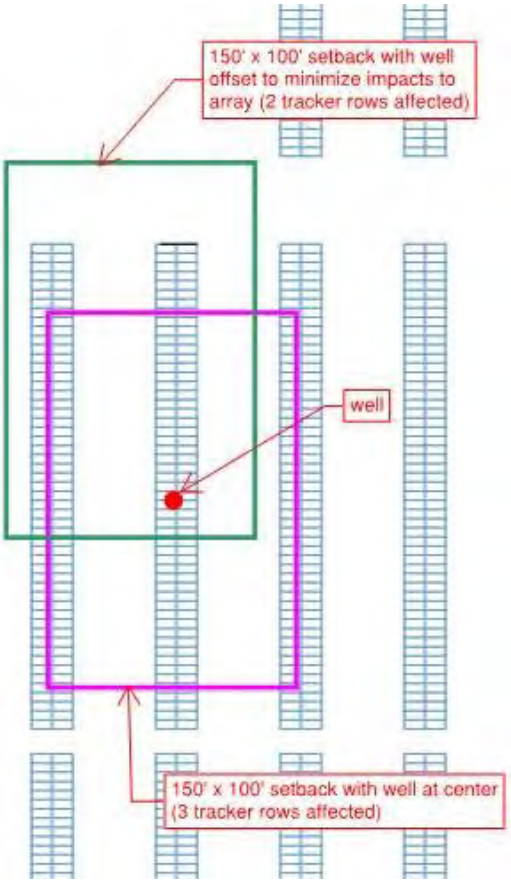


Figure 1

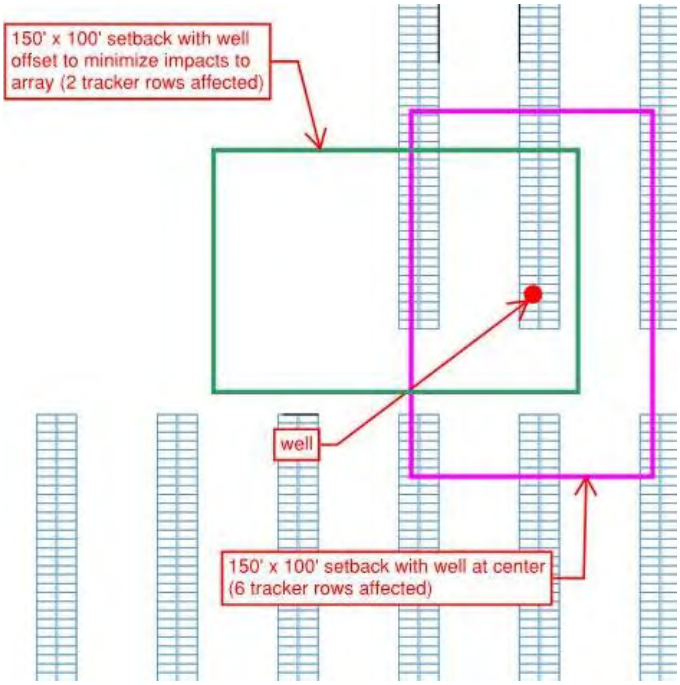


Figure 2

The basic steps would include de-energization of the inverter block, disconnection of the string(s) that will be impacted, removal of the modules and racking to create the 50-foot setback for the plug truck, and re-energization of the block and strings.

In Wood's opinion, the work required to action a leak, from identification of well to removal of the solar equipment to allow for plug truck access, should take between one and four days depending on the number of tables impacted and mobilization should be within a day or two of leak location identification.

Project Impacts from Removal of Panels

The ongoing operation of the Project is not likely to be significantly impacted by the removal of a handful of strings across the Project. Each table represents 105 modules rated at 550W per panel (current plan) organized into three strings of 35 panels each, meaning one table represents 57.75kW of capacity, or less than 0.04% of the entire project's capacity. Even in the unlikely scenario that all 40 wells spontaneously leak during operations, requiring the removal of 80 tables (reasonably 2 per well plugged), the impact would be approximately 3% of total capacity.

Further, given the possible presence of approximately 40 unidentified wells, the likelihood of continued locational discovery through additional survey activities and/or construction activities, it is not likely that a significant number of wells will begin leaking perceptibly during the operational life of the Project. In fact, Wood considers it reasonable to assume that spontaneous leaking during operations is less likely than should a solar project not be built, as activity inside the fence line will be minimal during the operational life.

In all these scenarios the overall revenue and energy production impact is expected to be minimal and Wood expects this issue to be taken into account during Project financing, meaning that the worst-case scenario will be assessed and understood by the eventual owners of the Project in a way that ensures long-term viability of the Project under all scenarios.

Finally, Wood expects that design considerations for the possible need to remove modules during operations can be taken into consideration by the Project and may include slight modification to inverter sizing, location, loading, etc. Wood considers it a reasonable engineering ask for the eventual Project design, construction, and operations.

Summary: Response - to Fifth Data Request from Staff of the Ohio Power Siting Board electronically filed by Christine M.T. Pirik on behalf of BORDER BASIN I LLC, GALEHEAD DEVELOPMENT LLC CEO