Attachment 11

Preliminary Stormwater Pollution Prevention Plan

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

RHUDES CREEK SOLAR

TOWN OF CECILIA
HARDIN COUNTY, KENTUCKY

IN GENERAL COMPLIANCE WITH THE

KENTUCKY STATE DEPARTMENT FOR ENVIRONMENTAL PROTECTION
KENTUCKY POLLUTANT DICHARGE ELIMINATION SYSTEM (KPDES)
CONSTRUCTION GENERAL PERMIT (KYR10)
FOR
STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

Prepared for:

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November 2020

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1.0 Introduction

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared by TRC for ibV Energy Partners (the Client) to address stormwater from construction activities associated with Rhudes Creek Solar (the Project). The project includes the installation of an approximate 100 MW AC solar generation field on a site with a potential development area of 924.22 acres.

The purpose of this SWPPP is to establish requirements and instructions for the management of construction-related stormwater discharges from Project Sites located in the Commonwealth of Kentucky and discharging to the Mississippi and Ohio River basins and subbasins. Erosion and sediment controls have been designed and shall be installed and maintained to minimize the discharge of pollutants and prevent a violation of the water quality standards.

2.0 Regulatory Requirements

This SWPPP has been prepared in accordance with the Kentucky Department for Environmental Protection (KDEP) KPDES Construction General Permit (KYR10) which requires coverage for any "construction activities disturbing individually one (1) acre or more, including, in the case of a common plan of development, contiguous construction activities that cumulatively equal one (1) acre or more of disturbance.".

Erosion and sedimentation control measures will be designed in accordance with current versions of the University of Kentucky, Kentucky Transportation Center "Best Management Practices (BMPs) for Controlling Erosion, Sediment, and Pollutant Runoff from Construction Sites" and the University of Kentucky "Kentucky Erosion Prevention and Sediment Control Field Guide"

Stormwater design will be in accordance with the Engineering Department of Hardin County, "Kentucky Stormwater Manual", dated 2005 and the Hardin County Post-Construction Runoff Control Ordinance.

A Notice of Intent (NOI) will be submitted to Kentucky Division of Water (KDOW) for approval prior to the start of construction.

3.0 Permit Coverage Information

This SWPPP serves as the minimum requirements necessary to address soil exposure and stormwater management during construction activities. This SWPPP is a living document that may be amended for unforeseen circumstances. If unanticipated site conditions warrant changes or additions to existing practices, the Owner/Operator and the Contractor(s), in consultation with the Qualified Inspector or Project Engineer, will be required to implement those measures.

The SWPPP and associated documentation must be kept current to ensure the erosion and sediment control practices are accurately documented.

Th SWPPP should continue to be implemented during construction activity, including inspections every 7 days or every 14 days. If on a 14-day cycle, inspections shall also occur within 24 hours after each rainfall of 0.5 inches or more.

4.0 Project Site Information

The Project Site is located along both sides of South Black Branch Road in the Town of Cecilia, Hardin County, Kentucky.

The Project proposes solar arrays, gravel access roads, utility pads, perimeter security fence, and related stormwater features.

The general scope of work for the Project which may result in soil disturbance includes, but is not limited to, site clearing, grading, gravel access road installation, equipment pad installation, solar panel and related electrical wire installation.

The Project Site consists of approximately 924.22 acres, of which 868.75 acres will be enclosed within fence. The existing groundcover of the Project Site is composed mainly of agricultural land, wetlands, wooded areas, some utility rights-of-way and a railway. Refer to the Construction Drawings for additional Project Site land cover, environmental resource, and topographic information.

Environmental features including streams and wetlands are present throughout this site. There are some geological features such as karst terrain that has the presence of sinkholes that will be carefully evaluated during site design.

4.1 Soils Classification

Review of the United States Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey indicated the predominant soil series mapped within the Project Site are Bedford silt loam, Hydrologic Soil Group (HSG) rating C/D; Crider silt loam, HSG rating B; Cumberland silt loam, HSG rating B; Dunning silty clay loam, HSG rating C/D; Fedonia-Rock outcrop complex, HSG rating C; Gatton silt loam, HSG rating D; Huntington silt loam, HSG rating B; Lawrence silt loam, HSG rating D; Melvin silt loam, HSG rating B/D; and Newark loam, HSG rating B/D; Nolan silt loam, HSG rating B; Otwood silt loam, HSG rating C/D; Pembroke silt loam, HSG rating B; Sonora silt loam, HSG rating B;.Vertrees silty clay loam, HSG rating B; and Waynesboro loam, HSG rating B. The Soil Conservation Service defines the HSGs as follows:

- Type A Soils: Soils having a high infiltration rate (low runoff potential).
- Type B Soils: Soils having a moderate infiltration rate.
- Type C Soils: Soils having a slow infiltration rate.
- Type D Soils: Soils having a very slow infiltration rate (high runoff potential).

For soils assigned to a dual hydrologic group, the first letter refers to drained areas and the second refers to undrained areas. In project areas of unknown soil type or areas not within agricultural land, the more conservative soil classification is assumed.

4.2 Rainfall Information

Rainfall data for the 10-year, 1 hour; 100-year, 1-hour; and 100-year, 6-hour rainfall events will be used to evaluate the pre- and post-development stormwater hydraulic and hydrologic characteristics of the site.

5.0 Personnel Contact List

A Construction Personnel Contact List for the Project will be provided. The listed personnel are responsible for ensuring compliance with the SWPPP and associated permit conditions. Personnel responsibilities include, but are not limited to, the following:

- Implement the SWPPP;
- Oversee maintenance practices identified in the SWPPP;
- Conduct or provide for inspection and monitoring activities;
- Identify potential erosion, sedimentation, and pollutant sources during construction and ensure issues are addressed appropriately and in a timely manner;
- Identify necessary amendments to the SWPPP and ensure proper implementation; and,
- Document activities associated with the implementation of this SWPPP and supporting documents.

6.0 SWPPP Construction Requirements and Sequencing

This section provides the Owner/Operator and the Contractor with a suggested order of construction that will minimize erosion and the transport of sediments. The individual objectives of the construction techniques described herein shall be considered an integral component of the Project design. The construction sequence is not intended to prescribe definitive construction methods and should not be interpreted as a construction specification document.

The Contractor shall follow the general principles outlined below throughout the construction phase:

- Protect and maintain existing vegetation wherever possible;
- Minimize the area of disturbance;
- To the extent possible, route unpolluted flows around disturbed areas;
- Install approved erosion and sediment control devices as early as possible;
- Minimize the time disturbed areas are left un-stabilized; and,
- Maintain erosion and sediment control devices in proper condition.

The Contractor should use the suggested construction sequence and techniques as a general guide and modify the suggested methods and procedures as required to best suit seasonal and site-specific physical constraints for the purpose of minimizing the environmental impact due to construction.

The Project is anticipated to involve multiple stages of work; site preparation, construction, and site restoration. Prior to the commencement of construction activities, temporary erosion and sediment control measures shall be installed per the Construction Drawings. The Project stages are detailed below.

Stage 1: Project Site Preparation

- Establish access to the Project Site including the stabilized construction entrances and access roads;
- Stake/flag construction limits, staging/storage areas, concrete washout locations, environmentally sensitive areas, and other associated work areas;
- Mark existing utilities and infrastructure;
- Conduct tree clearing and vegetation management, if necessary, and grading of work areas, as required; and,
- Install the erosion and sediment controls as detailed on the Erosion and Sediment Control Plans.

Stage 2: Construction

Construction projects typically requires the following general operations that have the potential for erosion and sedimentation due to stormwater flows.

- Tree Clearing – Removal of vegetation can expose soils to erosion. Ruts caused by equipment can create paths for concentrated water flows.
- Construction Site Entrance – Vehicles leaving the Project Site can track soil onto public roadways.
- Grading Operations – Exposed soils have the potential for erosion and discharge of sediment.
- Fugitive Dust – Dust generated by vehicles can be deposited in wetlands and waterways.
- Access Drive Preparation and Similar Grading Activities – Maintenance and heavy use of access roads can expose soils, creating erosion potential.
- Construct the Solar Generation Field.

Stage 3: Project Site Restoration

- Remove and dispose of Project related waste material at an approved disposal facility;
- Prepare soils as needed (restoration of original grade, de-compaction, soil amendments, etc.), and seed and mulching all disturbed areas. Stabilize disturbed soils with proper vegetation;
- Remove the temporary erosion and sediment controls when natural vegetative cover has been restored and erosion issues are no longer present;
- Submit the NOT to KDOW in accordance with the Construction General Permit.

This site is very large, and areas of development are spread out across the 924.22 acres. Construction should be done in phases so that some areas of the site can be completed and stabilized before others are disturbed. This will keep the amount of disturbed area to a minimum at any one time.

7.0 Stormwater Management and Pollution Controls

Prior to the commencement of construction activities, temporary erosion and sediment controls shall be installed to prevent erosion of the soils and prevent water quality degradation in wetlands and waterbodies. Erosion and sediment controls will be utilized to limit, control, and mitigate construction related impacts. The stormwater management and pollution controls shall include practices that involve runoff control, soil stabilization practices, and sediment control.

The following sections detail potential stormwater contamination sources due to construction related activities and the temporary and permanent erosion and sediment controls to be utilized throughout the construction of the Project to mitigate impacts.

7.1 Potential Impacts for Stormwater Contamination

Construction activities and processes that result in either increased stormwater runoff or the potential to add pollutants to runoff are subject to the requirements of this SWPPP. These activities may include areas of land disturbed by grading, excavation, construction, or material storage. Water that comes in contact with the surface of the Project Site as a result of precipitation (snow, hail, rain, etc.) is classified as stormwater associated with the Project and is subject to the requirements of this SWPPP.

Construction activities that may negatively impact stormwater include, but are not limited to, the following:

- Tree Clearing and Vegetation Removal: Removal of vegetation can expose and weaken soils and may result in erosion.
- Construction Site Entrance: Vehicles leaving the Project Site can track soils onto public roadways.
- Grading Operations: Exposed soils have the potential for erosion and sedimentation when not stabilized.
- Fugitive Dust: Dust generated by vehicles or from strong winds during a drought period can be deposited in wetlands, waterways, and other environmentally sensitive areas, or may negatively impact the air quality.
- General Site Construction Activities: Maintenance and heavy use of access roads can expose soils, creating significant erosion potential. Soil stockpiling from site excavations and grading may promote erosion and sedimentation. Dewatering activities may result in concentrated flows and has the potential to increase erosion.
- Construction Vehicles and Equipment: Refueling of vehicles may result in spilling or dripping gasoline and diesel fuel onto the ground. On-site maintenance of excavating equipment may result in hydraulic oil, lubricants, or antifreeze dripping onto the ground. Sediment tracking and the spread of invasive species may occur if construction vehicles are improperly maintained. Ruts caused by equipment can create paths for concentrated water flows.
- Waste Management Practices: Typical construction projects often generate significant quantities of solid waste, such as wrappings, personnel-generated trash and waste, and construction debris.

Proper utilization of staging and storage areas, stockpiling areas, and erosion and sediment controls will mitigate potential impacts to the stormwater.

7.2 Protection of Existing Vegetation

Natural vegetation shall be preserved to the maximum extent practicable. Preserving natural vegetation will reduce soil erosion and maintain the inherent integrity of the Project Site. Protection practices may include barrier fencing to prevent equipment and vehicle traffic in vegetated and environmentally sensitive areas.

7.3 Temporary Erosion and Sediment Controls

Temporary erosion and sediment controls shall be utilized to reduce erosion, sedimentation, and pollutants in stormwater discharges, and to prevent impacts to undisturbed areas, natural resources, wetlands, waterbodies, and downstream areas. Both stabilization techniques and structural methods will be utilized, as needed, to meet these objectives.

Temporary erosion and sediment control measures shall be applied during construction to:

- Minimize soil erosion and sedimentation through the stabilization of disturbed areas and removal of sediment from construction site discharges.
- Preserve existing vegetation to the maximum extent practicable and establish permanent vegetation on exposed soils following the completion of soil disturbance activities.
- Minimize the area and duration of soil disturbance through site preparation activities and construction sequencing.

Table 1, below, lists the erosion and sediment controls anticipated to be utilized at the Project Site.

Table 1 - Proposed Erosion and Sediment Control Measures

Stabilized Construction Access	Construction Road Stabilization
Protecting Vegetation During Construction	Temporary Construction Area Seeding
Dust Control	Silt Fence
Compost Filter Sock	Sediment Trap
Check Dam	Straw Bale Dike
Rock Outlet Protection	Dewatering Sump Pit
Timber Matting	Buffer Filter Strip
Soil Stabilization	Topsoiling
Soil Restoration	Mulching

Seeding	Fertilizer Application
Horizontal Directional Drilling	

8.0 Post-Construction Stormwater Management

The pre-development and post-development conditions for the Project Site were divided into subcatchments, which depict the watershed conditions, methods of collection, conveyance, points of discharge and topography. In addition, the drainage pattern, drainage structures, soil types, and ground covers are utilized to analyze the rate of runoff in the existing and proposed conditions. The subcatchments include off-site contributing areas as determined by the site topography and site features. The Project Site was divided into twenty-four (24) subcatchments. These subcatchments have been depicted on the pre and post development drainage area maps included in this report.

In order to compare the pre-development and post-development runoff conditions, study points were selected across the Project Site. The overall bounds of the study area and study points remain unchanged from the pre-development condition.

The stormwater analysis for this site includes:

1. Site planning to preserve natural site features and reduce impervious cover.
2. Calculate the Water Quality Volume (WQv) of the Project Site.
3. Design for water quantity (flood control).
4. Design for peak runoff rates, where required.
5. Crossing of environmental features such as streams and wetlands. Permits will be obtained for any proposed crossings.
6. Consideration of sinkholes.

The proposed new development will mimic the existing runoff patterns to the maximum extent practicable.

These items will be addressed in the sections below.

8.1 Design Justification

The proposed Project will result in greater than one acre of soil disturbance and an increase in impervious surface, therefore post-construction stormwater management practices are required.

The Water Quality Volume (WQv) and rate of runoff requirements shall be met by projects requiring post-construction stormwater controls. The Hardin County Stormwater Manual details the stormwater management practices that may be implemented at the Project Site to aid in the reduction of stormwater effects to newly developed areas.

Most of the project will be developed in open, agricultural areas; therefore, the increase in coverage (CN) numbers will be minimal. The Project proposes the creation of new impervious cover in the form of gravel access drives and concrete equipment pads. Where changes in landcover will increase the rate of runoff from a subcatchment area, structural BMPs will be proposed to manage the increase.

The peak runoff rates for the pre-development and post-development conditions will be analyzed to aid in maintaining the pre-development runoff rates. Regulating the runoff rate will minimize the impacts to adjacent and downstream properties and waterbodies and minimize impacts to the stormwater runoff quality.

8.2 Stormwater Quality Analysis

The Project requires treatment of the WQv, which is intended to improve water quality by capturing and treating runoff from small, frequent storm events. The WQv to be treated shall be equal to ½" multiplied by the site area.

Measures most likely to be used include bioretention, extended detention ponds, grass swales, bermed swales and vegetated filter strips.

8.3 Stormwater Quantity Analysis

The quantity (flood control) will be considered for this development to protect streams and associated floodplains. In areas of the site where land coverage (CN) values will be increased due to tree clearing and/or installation of impervious surfaces, structural BMPs shall be designed to manage the resulting increase in rate of runoff.

The runoff reduction techniques will most likely include detention ponds or extended detention ponds.

8.4 Post-Construction Runoff Rates

Proposed construction on this site will increase the coverage number (CN) of land in some areas. These increases will occur where the project proposes tree removal and/or the construction of impervious surfaces such as gravel access drives and concrete equipment pads.

Vegetated filter strips will be utilized under solar panels where slopes are less than 6%. In areas where the increased CN number will cause an increase in the rate of runoff from the site, structural BMPs will be proposed.

8.5 Environmental Crossings

Most of the construction will be outside wetlands and the floodplains of streams. Setbacks will be applied twenty-five (25) feet from the top of bank on each side of the streams. The construction of this site may require construction to cross streams or wetlands to access some areas of proposed development. In these cases, the proper permits must be obtained.

Horizontal directional drilling (HDD) will be considered to minimize impacts where electric lines need to cross an environmental feature.

8.6 Sinkholes

Karst terrain has been identified within the project site. Karst terrain is susceptible to sinkhole activity. Development within identified sinkhole areas of the site will be avoided to the greatest degree possible. If excavation is required within these areas, exposed soils will be covered with clayey soils or bentonite will be mixed into the soils to create a low permeability soil cover. Basins in these areas should be impermeable.

8.7 Post-Construction Stormwater Control Practices Utilized

Structural stormwater management practices proposed to treat the site include Vegetated Filter Strips, Grass Swales, Bermed Swales, Infiltration Trenches Detention Basins and Extended Detention Basins.

Grass Swales and Bermed Swales will be considered along the access drives and equipment pad locations wherever the slopes are less than 4%.

The vegetation under solar panels with a maximum slope of 6% will be accounted for as Vegetated Filter Strips.

Detention basins will be considered in areas where tree removal will increase landcover CN values to keep post development runoff rates equal to or less than predevelopment runoff rates. The locations of these basins shown on Post Development Drainage Area maps may be used as Extended Detention Ponds to meet the Water Quality requirements.

9.0 Construction Pollution Prevention

Proper material storage, handling, and disposal practices shall be implemented during construction to reduce the risk of exposure of materials and hazardous substances to stormwater and environmental resources. The storage, handling, and disposal procedures to be enforced by the Owner/Operator, Contractor(s) and the Qualified Inspector are described below.

9.1 Management of Spills and Releases

The Owner/Operator must be notified in the event of a non-stormwater (fuel, oil, chemical, etc.) spill or release to ensure proper reporting and clean up. The Owner/Operator shall proceed as appropriate in accordance with the Owner/Operator's, local, state, and federal environmental policies and procedures.

The Contractor is responsible for retaining documentation containing the appropriate spill number and spill information to provide to the Owner/Operator and the Qualified Inspector. The Contractor is responsible for the cleanup and response actions, in accordance with the on-site spill prevention procedures manual. Contaminated soil shall be removed from the Project Site and disposed of in accordance with the product specific Safety Data Sheets (SDS) and environmental guidance.

Potential pollutant sources are likely to be stored on the construction site. Bulk petroleum storage (1,100 gallon above ground tank and/or 110 below ground tank) and chemical storage (185 gallon above ground tank and/or any below ground tank) shall not be present onsite.

Construction materials typically present on construction sites, include, but are not limited to, the following:

- Building Products: Asphalt sealants, copper flashing, roofing materials, adhesives, concrete admixtures, and gravel and/or mulch stockpiles;
- Chemicals: Pesticides, herbicides, insecticides, fertilizers, and landscape materials;
- Petroleum Products: Diesel fuel, oil, hydraulic fluids, gasoline, etc.;
- Hazardous or Toxic Waste: Paints, caulks, sealants, fluorescent light ballasts, solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids;
- Sanitary Facilities: Portable toilets; and,
- Construction Debris: Fill, vegetative debris, stumps, and construction waste.

Specific quantities cannot be estimated until construction methodology and contractor(s) are secured for construction.

Spill cleanup and response guidance is provided in Appendix H of this SWPPP.

9.2 Construction Housekeeping

The Owner/Operator or the Contractor shall coordinate with local fire officials regarding on-site fire safety and emergency response. The Contractor shall keep the Construction Supervisor and the Qualified Inspector/Qualified Professional aware of chemicals and waste present on site. The Contractor shall periodically conduct safety inspections at the Project Site to identify housekeeping issues and employ spill prevention procedures.

9.2.1 Material Stockpiling

Material resulting from clearing and grubbing, grading, and other construction activities, or new material delivered to the Project Site, shall be stockpiled upslope of disturbed areas. The stockpile areas shall have the proper erosion and sediment controls installed to prevent the migration of sediments and materials.

9.2.2 Staging, Storage, and Marshalling Areas

Construction materials and equipment should be stored in designated staging areas as indicated on the Construction Drawings or as directed by the Project Engineer (or Qualified Inspector). The staging, storage, and marshalling areas should be located in an area which minimizes impacts to stormwater quality.

Chemicals, solvents, fertilizers, and other toxic materials must be stored in waterproof containers and must be kept in the proper storage facilities, except during use or application. Runoff containing such materials must be collected and disposed of at an approved solid waste or chemical disposal facility.

Bulk storage of materials will be staged at the Project marshalling yard. Contractor marshalling yards may be associated with other projects not covered under this SWPPP and General Permit. If the marshalling area is associated with this SWPPP, the yard shall

be inspected by the Qualified Inspector until Project related activities have ceased. A Qualified Inspector shall inspect the marshalling yard to assess for environmental impacts prior to and throughout its use. If additional marshalling yards are required, they must abide by this SWPPP. Amendments shall be made to the SWPPP, as necessary, for the additional marshalling areas.

9.2.3 Equipment Cleaning and Maintenance

All on-site construction vehicles, including employee vehicles, shall be monitored for leaks and shall receive regular preventative maintenance to reduce the risk of leakage. Any equipment leaking oil, fuel, or hydraulic fluid shall be repaired immediately or removed from the Project Site. Construction equipment and Contractor personal vehicles shall be parked, refueled and serviced at least 100 feet from a wetland, waterbody, or other ecologically sensitive area, at an upland location away from conveyance channels, unless approved by the Qualified Inspector/Qualified Professional.

Where there is no reasonable alternative, refueling may occur within these setbacks, but only under the observation of the Qualified Inspector or Trained Contractor and after proper precautions are taken to prevent an accidental spill. The Contractor shall take precautions to ensure that drips, spills, or seeps do not enter the ground. The use of absorbent towels and/or a portable basin beneath the fuel tank is recommended. Refueling activities shall be performed under continual surveillance with extreme care. In the event of a release, the spill shall be promptly cleaned up in accordance with the spill response and clean up procedures.

Petroleum products and hydraulic fluids that are not in vehicles shall be stored in tightly sealed containers that are clearly labeled. All gasoline and fuel storage vessels with greater than a 25-gallon capacity must have secondary containment constructed of an impervious material and be capable of holding 110% of the vessel capacity.

9.2.4 Concrete Washout Areas

Designated concrete washout areas should be provided as needed to allow concrete trucks to wash out or discharge surplus concrete and wash water on site. The concrete washout areas shall be a diked impervious area, located a minimum of 100 feet from a drainage way, waterbody, or wetland area. The concrete washout areas should be designed to prevent contact between the concrete wash and stormwater. The concrete washout areas shall have the proper signage to indicate the location of the facility. The Contractor is responsible for the maintenance of the concrete washout areas. Waste collected at the concrete washout areas shall be disposed of as non-hazardous construction waste material.

The washout facility should have sufficient volume to contain the concrete waste resulting from washout and a minimum freeboard of 12 inches. The washout areas should not be filled beyond 95% capacity and shall be cleaned out once 75% capacity has been met unless a new facility has been constructed.

9.3 Waste Management

The Contractor shall comply with all required regulations governing the on-site management and off-site disposal of solid and hazardous waste generated during construction of the

Project. Substances and materials with the potential to pollute surface and groundwaters must be handled, controlled and contained as appropriate to ensure they do not discharge from the Project Site.

A solid waste management program will be implemented to support proper solid waste disposal and recycling practices. Solid waste and debris that cannot be recycled, reused, or salvaged shall be stored in on-site containers for off-site disposal. The containers shall be emptied periodically by a licensed waste transport service and hauled away from the site for proper disposal. No loose materials shall be allowed at the Project Site and all waste material shall be disposed of promptly and properly. The burning of crates, waste, and other refuse is not permitted.

If a hazardous material spill occurs, it must be contained and disposed of immediately.

10.0 Maintenance Inspections and Reporting Requirements

10.1 Pre-Construction Inspection

A site assessment shall be conducted by the Qualified Inspector prior to commencement of construction activities to ensure erosion and sediment controls have been adequately and appropriately installed. The Contractor is responsible for contacting the Qualified Inspector for the pre-construction inspection following the installation of the erosion and sediment control measures.

10.2 Construction Phase Inspections

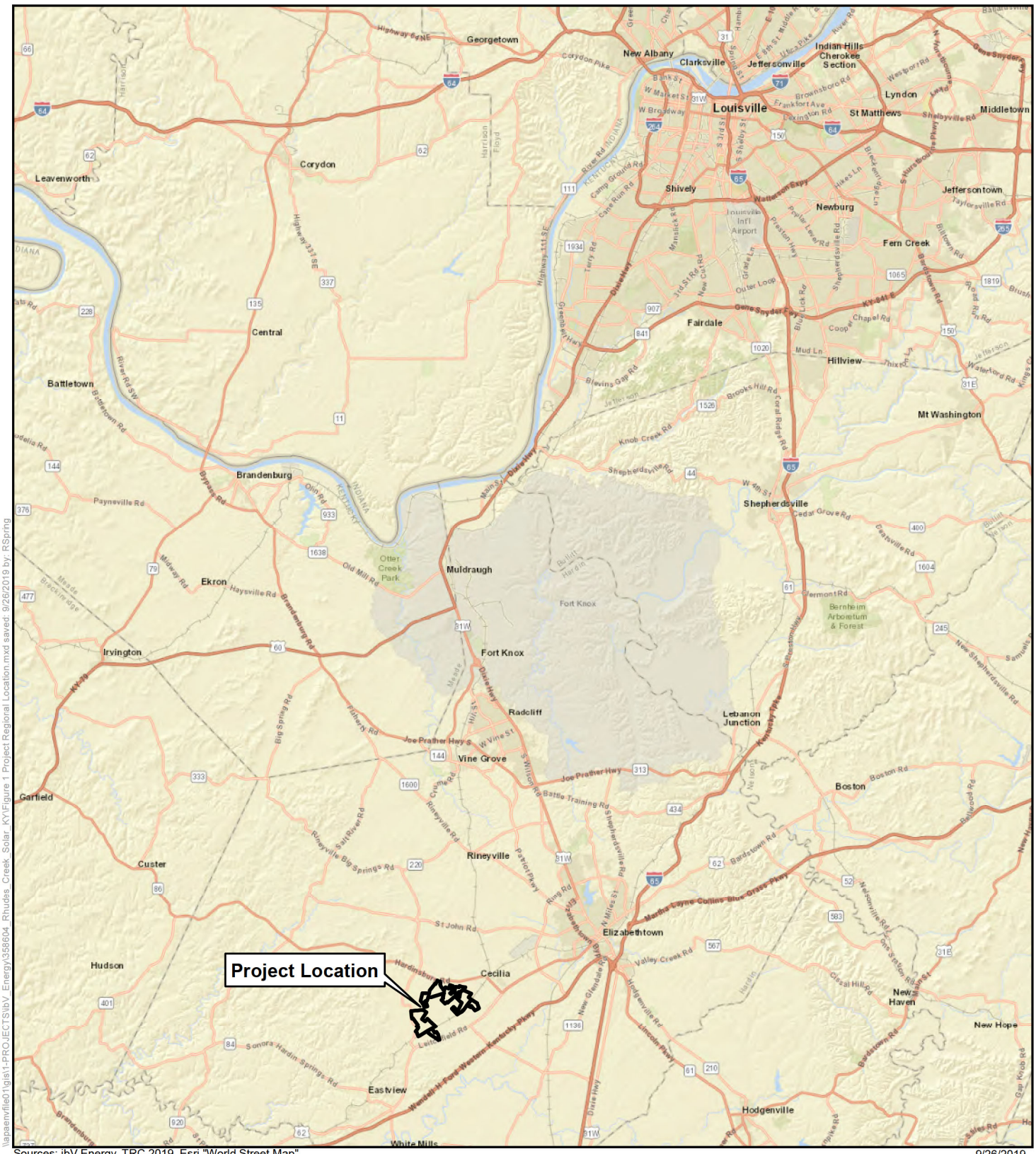
A Qualified Inspector shall conduct regular site inspections for the implementation of this SWPPP through final stabilization of the Project Site. Inspections shall occur at an interval set forth in the Construction General Permit.

The Qualified Inspector shall conduct site inspections to assess the performance of the erosion and sediment controls and identify areas requiring modification or repair. The Qualified Inspector shall complete an inspection report following each inspection.

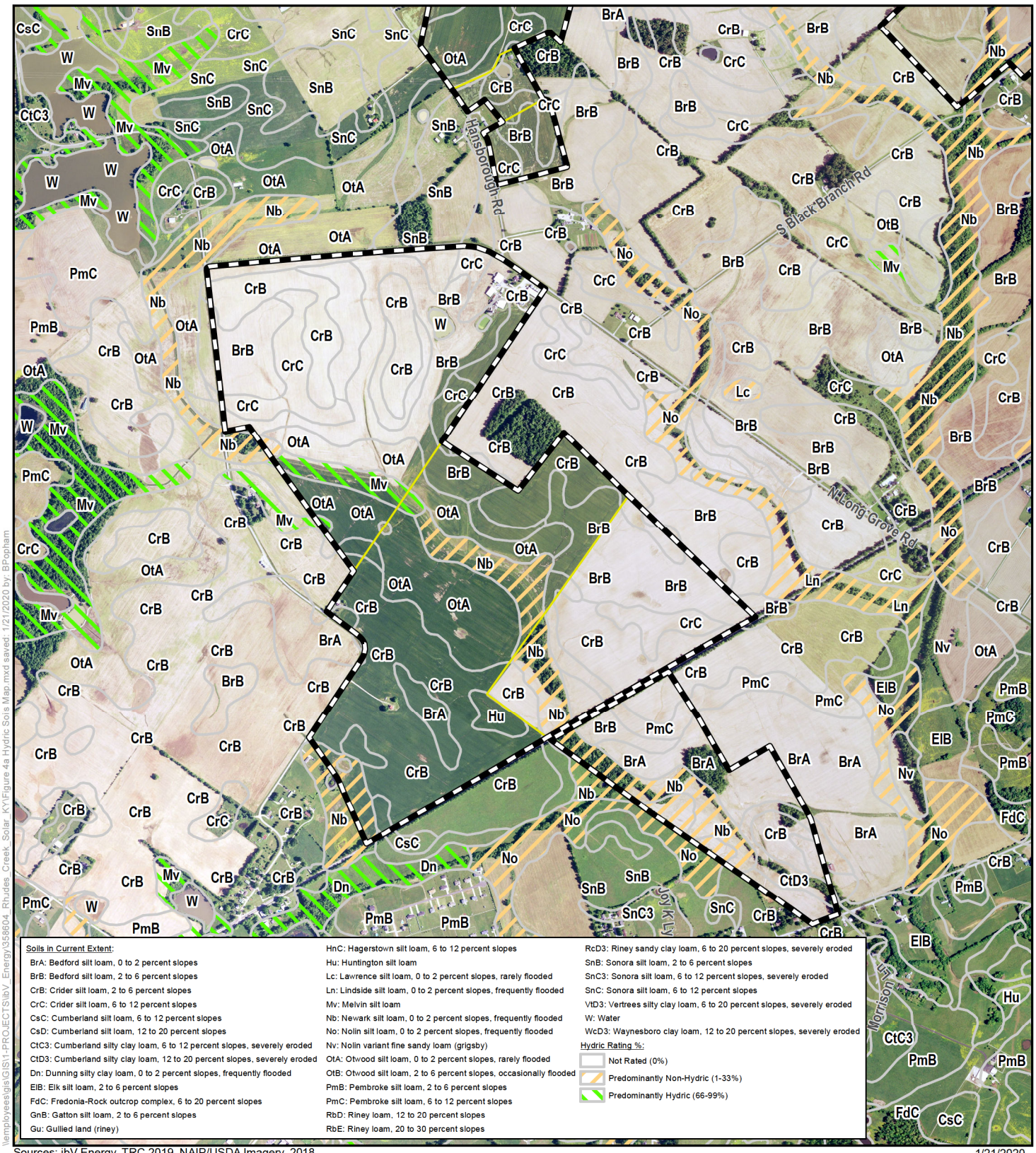
The Owner/Operator and the Contractor(s) must ensure the erosion and sediment control practices implemented at the Project Site have been maintained. The trained Contractor shall regularly inspect the erosion and sediment control practices and pollution prevention measures to ensure they are being maintained in effective operating condition at all times. Corrective actions to the identified deficiencies shall be made within a reasonable time frame.

The Qualified Inspector/Qualified Professional shall inspect the debris removal on a continual basis during construction to ensure proper management and disposal. When construction and restoration are complete, the Contractor is responsible for ensuring the Project Site is free of all construction debris and materials.

Figure 1: Site Location Map


Project Location
Georgetown
New Albany
Clarksville
Jeffersonville
Indian Hills Cherokee Section
Louisville
Lyndon
St Matthews
Middletown
Corydon
Leavenworth
Shively
Jeffersontown
Newburg
Fern Creek
Central
Fairdale
Hillview
Battletown
Mt Washington
Brandenburg
Shepherdsville
Ekron
Muldraugh
Fort Knox
Irvington
Radcliff
Lebanon Junction
Vine Grove
Boston
Garfield
Rineyville
Custer
Elizabethtown
Hudson
Cecilia
New Haven
New Hope
Eastview
Hodgenville
Sources: ibV Energy, TRC 2019, Esri "World Street Map"
9/26/2019
Project Location
N
1:400,000
0
5
10
Miles
TRC
ibV Energy Partners
Rhudes Creek Solar Project
Hardin County, Kentucky
Project Regional Location
Figure 1

Appendix A – USDA NRCS Soil Resource Report



Soils in Current Extent:

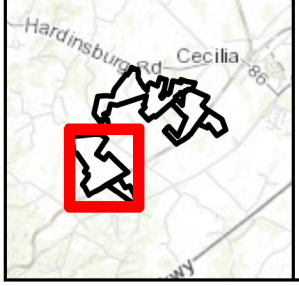
- BrA: Bedford silt loam, 0 to 2 percent slopes
- BrB: Bedford silt loam, 2 to 6 percent slopes
- CrB: Crider silt loam, 2 to 6 percent slopes
- CrC: Crider silt loam, 6 to 12 percent slopes
- CsC: Cumberland silt loam, 6 to 12 percent slopes
- CsD: Cumberland silt loam, 12 to 20 percent slopes
- CtC3: Cumberland silty clay loam, 6 to 12 percent slopes, severely eroded
- CtD3: Cumberland silty clay loam, 12 to 20 percent slopes, severely eroded
- Dn: Dunning silty clay loam, 0 to 2 percent slopes, frequently flooded
- ElB: Elk silt loam, 2 to 6 percent slopes
- FdC: Fredonia-Rock outcrop complex, 6 to 20 percent slopes
- GnB: Gatton silt loam, 2 to 6 percent slopes
- Gu: Gullied land (riney)
- HnC: Hagerstown silt loam, 6 to 12 percent slopes
- Hu: Huntington silt loam
- Lc: Lawrence silt loam, 0 to 2 percent slopes, rarely flooded
- Ln: Lindside silt loam, 0 to 2 percent slopes, frequently flooded
- Mv: Melvin silt loam
- Nb: Newark silt loam, 0 to 2 percent slopes, frequently flooded
- No: Nolin silt loam, 0 to 2 percent slopes, frequently flooded
- Nv: Nolin variant fine sandy loam (grigsby)
- OtA: Otwood silt loam, 0 to 2 percent slopes, rarely flooded
- OtB: Otwood silt loam, 2 to 6 percent slopes, occasionally flooded
- PmB: Pembroke silt loam, 2 to 6 percent slopes
- PmC: Pembroke silt loam, 6 to 12 percent slopes
- RbD: Riney loam, 12 to 20 percent slopes
- RbE: Riney loam, 20 to 30 percent slopes
- RcD3: Riney sandy clay loam, 6 to 20 percent slopes, severely eroded
- SnB: Sonora silt loam, 2 to 6 percent slopes
- SnC3: Sonora silt loam, 6 to 12 percent slopes, severely eroded
- SnC: Sonora silt loam, 6 to 12 percent slopes
- VtD3: Vertrees silty clay loam, 6 to 20 percent slopes, severely eroded
- W: Water
- WcD3: Waynesboro clay loam, 12 to 20 percent slopes, severely eroded

Hydric Rating %:

- Not Rated (0%)
- Predominantly Non-Hydric (1-33%)
- Predominantly Hydric (66-99%)

Sources: ibV Energy, TRC 2019, NAIP/USDA Imagery, 2018.

1/21/2020



Project Area

Parcel Boundary

Outparcel (Not part of Project Area)

N

1:18,000
1 inch = 1,500 feet
(when printed 8.5x11)

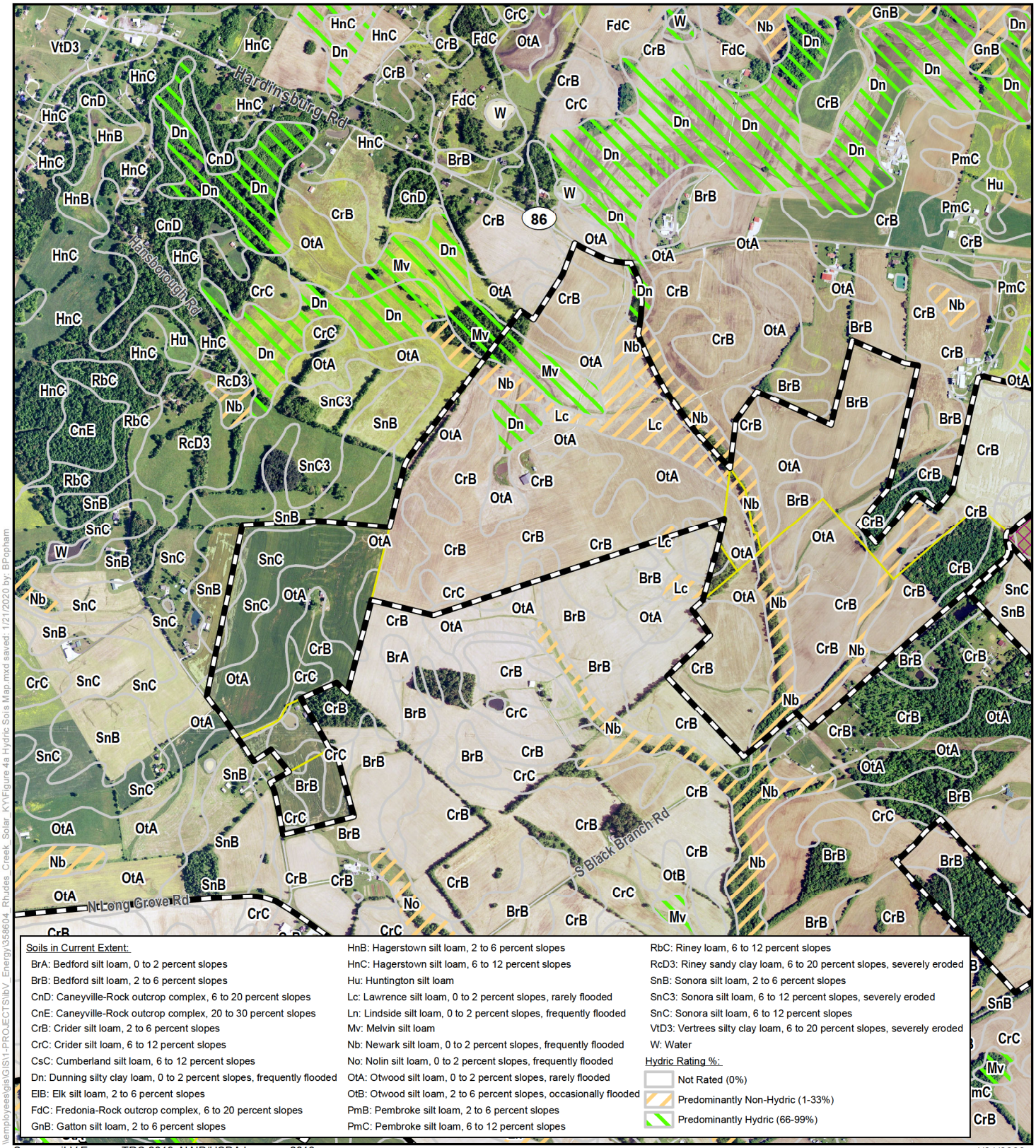
0 750 1,500 Feet

TRC

ibV Energy Partners
Rhudes Creek Solar Project
Hardin County, Kentucky

Hydric Soils
Figure 4a
Sheet 1 of 3

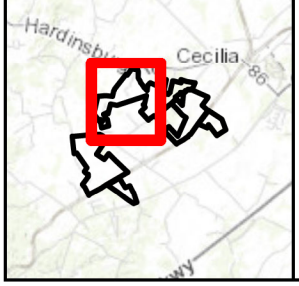
\\employees\gis\GIS\1-PROJECTS\ibV_Energy\358604_Rhudes_Creek_Solar_KY\Figure 4a Hydric Soils Map.mxd saved 1/21/2020 by: BPopham



Soils in Current Extent:		
BrA: Bedford silt loam, 0 to 2 percent slopes	HnB: Hagerstown silt loam, 2 to 6 percent slopes	RbC: Riney loam, 6 to 12 percent slopes
BrB: Bedford silt loam, 2 to 6 percent slopes	HnC: Hagerstown silt loam, 6 to 12 percent slopes	RcD3: Riney sandy clay loam, 6 to 20 percent slopes, severely eroded
CnD: Caneyville-Rock outcrop complex, 6 to 20 percent slopes	Hu: Huntington silt loam	SnB: Sonora silt loam, 2 to 6 percent slopes
CnE: Caneyville-Rock outcrop complex, 20 to 30 percent slopes	Lc: Lawrence silt loam, 0 to 2 percent slopes, rarely flooded	SnC3: Sonora silt loam, 6 to 12 percent slopes, severely eroded
CrB: Crider silt loam, 2 to 6 percent slopes	Ln: Lindside silt loam, 0 to 2 percent slopes, frequently flooded	SnC: Sonora silt loam, 6 to 12 percent slopes
CrC: Crider silt loam, 6 to 12 percent slopes	Mv: Melvin silt loam	VtD3: Vertrees silty clay loam, 6 to 20 percent slopes, severely eroded
CsC: Cumberland silt loam, 6 to 12 percent slopes	Nb: Newark silt loam, 0 to 2 percent slopes, frequently flooded	W: Water
Dn: Dunning silty clay loam, 0 to 2 percent slopes, frequently flooded	No: Nolin silt loam, 0 to 2 percent slopes, frequently flooded	Hydric Rating %:
ElB: Elk silt loam, 2 to 6 percent slopes	OtA: Otwood silt loam, 0 to 2 percent slopes, rarely flooded	Not Rated (0%)
FdC: Fredonia-Rock outcrop complex, 6 to 20 percent slopes	OtB: Otwood silt loam, 2 to 6 percent slopes, occasionally flooded	Predominantly Non-Hydric (1-33%)
GnB: Gatton silt loam, 2 to 6 percent slopes	PmB: Pembroke silt loam, 2 to 6 percent slopes	Predominantly Hydric (66-99%)
	PmC: Pembroke silt loam, 6 to 12 percent slopes	

Sources: ibV Energy, TRC 2019, NAIP/USDA Imagery, 2018.

1/21/2020



Project Area

Parcel Boundary

Outparcel (Not part of Project Area)

N

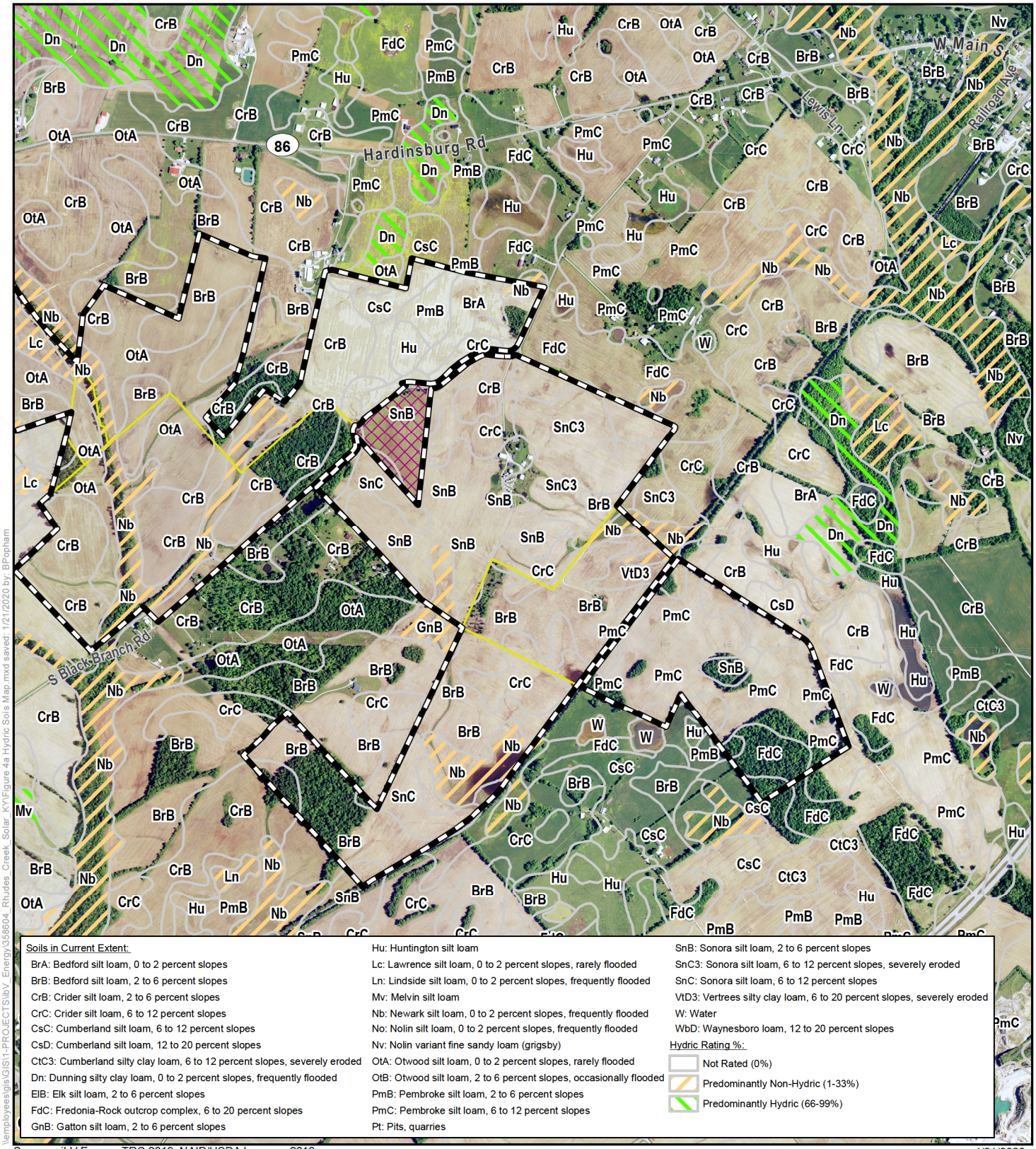
1:18,000
1 inch = 1,500 feet
(when printed 8.5x11)

0 750 1,500 Feet

TRC

ibV Energy Partners
Rhudes Creek Solar Project
Hardin County, Kentucky

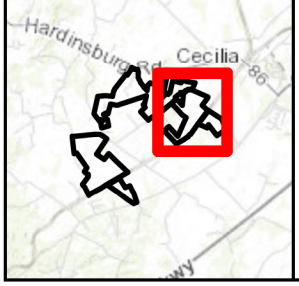
Hydric Soils
Figure 4a
Sheet 2 of 3



Soils in Current Extent:		
BrA: Bedford silt loam, 0 to 2 percent slopes	Hu: Huntington silt loam	SnB: Sonora silt loam, 2 to 6 percent slopes
BrB: Bedford silt loam, 2 to 6 percent slopes	Lc: Lawrence silt loam, 0 to 2 percent slopes, rarely flooded	SnC3: Sonora silt loam, 6 to 12 percent slopes, severely eroded
CrB: Crider silt loam, 2 to 6 percent slopes	Ln: Lindside silt loam, 0 to 2 percent slopes, frequently flooded	SnC: Sonora silt loam, 6 to 12 percent slopes
CrC: Crider silt loam, 6 to 12 percent slopes	Mv: Melvin silt loam	VtD3: Vertrees silty clay loam, 6 to 20 percent slopes, severely eroded
CsC: Cumberland silt loam, 6 to 12 percent slopes	Nb: Newark silt loam, 0 to 2 percent slopes, frequently flooded	W: Water
CsD: Cumberland silt loam, 12 to 20 percent slopes	No: Nolin silt loam, 0 to 2 percent slopes, frequently flooded	WbD: Waynesboro loam, 12 to 20 percent slopes
CtC3: Cumberland silty clay loam, 6 to 12 percent slopes, severely eroded	Nv: Nolin variant fine sandy loam (grigsby)	Hydric Rating %:
Dn: Dunning silty clay loam, 0 to 2 percent slopes, frequently flooded	OtA: Otwood silt loam, 0 to 2 percent slopes, rarely flooded	Not Rated (0%)
ElB: Elk silt loam, 2 to 6 percent slopes	OtB: Otwood silt loam, 2 to 6 percent slopes, occasionally flooded	Predominantly Non-Hydric (1-33%)
FdC: Fredonia-Rock outcrop complex, 6 to 20 percent slopes	PmB: Pembroke silt loam, 2 to 6 percent slopes	Predominantly Hydric (66-99%)
GnB: Gatton silt loam, 2 to 6 percent slopes	PmC: Pembroke silt loam, 6 to 12 percent slopes	
	Pt: Pits, quarries	

Sources: ibV Energy, TRC 2019, NAIP/USDA Imagery, 2018.

1/21/2020



Project Area

Parcel Boundary

Outparcel (Not part of Project Area)

N

1:18,000
1 inch = 1,500 feet
(when printed 8.5x11)

0 750 1,500 Feet

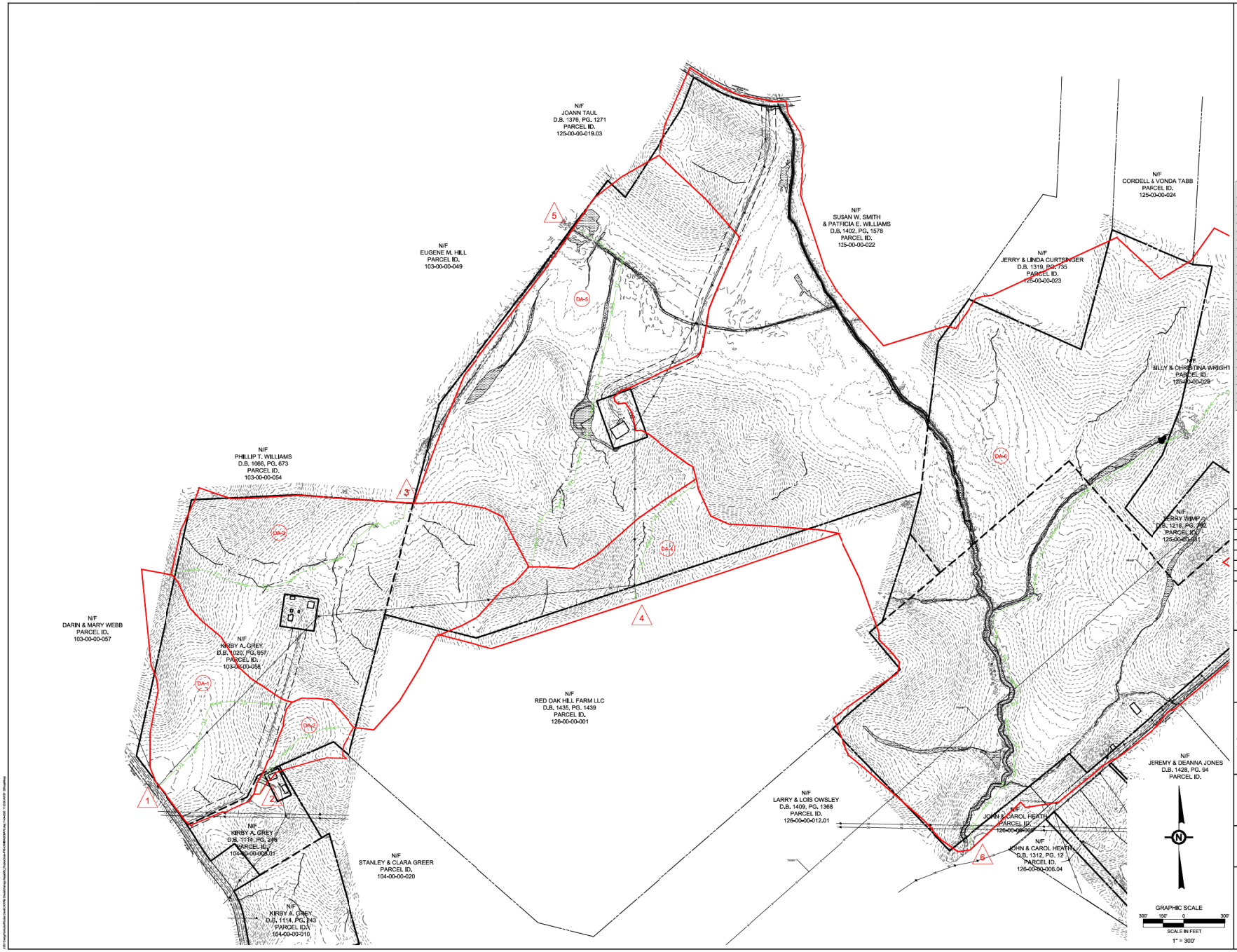
TRC

ibV Energy Partners
Rhudes Creek Solar Project
Hardin County, Kentucky

Hydric Soils
Figure 4a
Sheet 3 of 3

\\employees\gis\GIS\1-PROJECTS\ibV_Energy\358604_Rhudes_Creek_Solar_KY\Figure 4a Hydric Soils Map.mxd saved: 1/21/2020 by: BPopham

Appendix B – Pre-Development Subcatchment Map



LEGEND

PRE-DEVELOPMENT DRAINAGE AREA FEATURES

- DRAINAGE AREA BOUNDARY
- BYPASS DRAINAGE AREA BOUNDARY
- INLET DRAINAGE AREA BOUNDARY
- DRAINAGE AREA SUBAREA BOUNDARY
- TC — TIME OF CONCENTRATION TRAVEL PATH
- 1 — DRAINAGE AREA POINT OF INTERIST
- DA AC. — DRAINAGE AREA LABELS
- DRAINAGE AREA FLOW PATH

EXISTING CONDITIONS- SUMMARY OF DRAINAGE BOUNDARY AREAS

DISCHARGE POINT ID	DRAINAGE AREA IN ACRES
1	26.67
2	5.38
3	67.48
4	24.88
5	85.07
6	346.82
7	12.30
8	7.80
9	37.58
10	60.17
11	31.38
12	15.48
13	65.34
14	51.21
15	61.13
16	14.53
17	27.22
18	19.23
19	3.03
20	5.10
21	16.47
22	18.47
23	9.33
24	26.87

NO.	REVISION	DATE

Property Owners:

TRC Companies, Inc.
4300 Ritter Road
Suite 240
Mechanicsburg, PA 17055
Tel: 717-671-6430
www.trccompanies.com

Applicant:

ibV Energy Partners
777 Brickell Avenue, Suite 500
Miami, Florida 33131

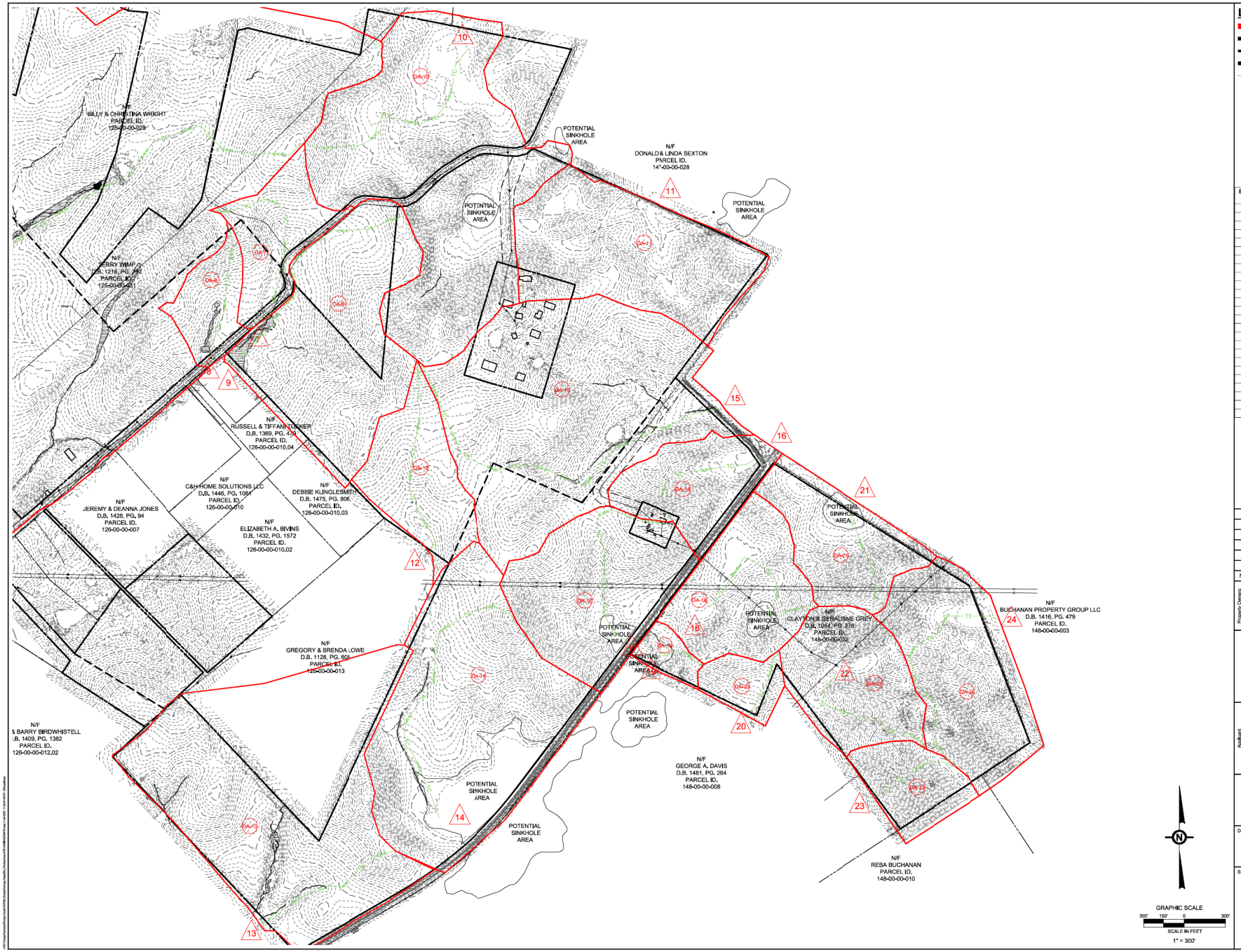
Rhudes Creek Solar Farm

DRAWING TITLE:

PREDEVELOPMENT DRAINAGE MAP

SEAL:

SCALE:	1" = 300'
DATE:	OCTOBER 23, 2020
DRAWN BY:	SB
CHECKED BY:	SML
PROJECT:	363193.0000.0000
DRAWING NO.:	1 of 5



LEGEND

PRE-DEVELOPMENT DRAINAGE AREA FEATURES

- DRAINAGE AREA BOUNDARY
- BYPASS DRAINAGE AREA BOUNDARY
- INLET DRAINAGE AREA BOUNDARY
- DRAINAGE AREA SUBAREA BOUNDARY
- TC — TIME OF CONCENTRATION TRAVEL PATH
- 1 — DRAINAGE AREA POINT OF INTERIST
- DA AC. — DRAINAGE AREA LABELS
- DRAINAGE AREA FLOW PATH

EXISTING CONDITIONS- SUMMARY OF DRAINAGE BOUNDARY AREAS

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6	346.82
7	12.30
8	7.80
9	37.58
10	60.17
11	31.38
12	15.48
13	65.34
14	51.21
15	61.13
16	14.53
17	27.22
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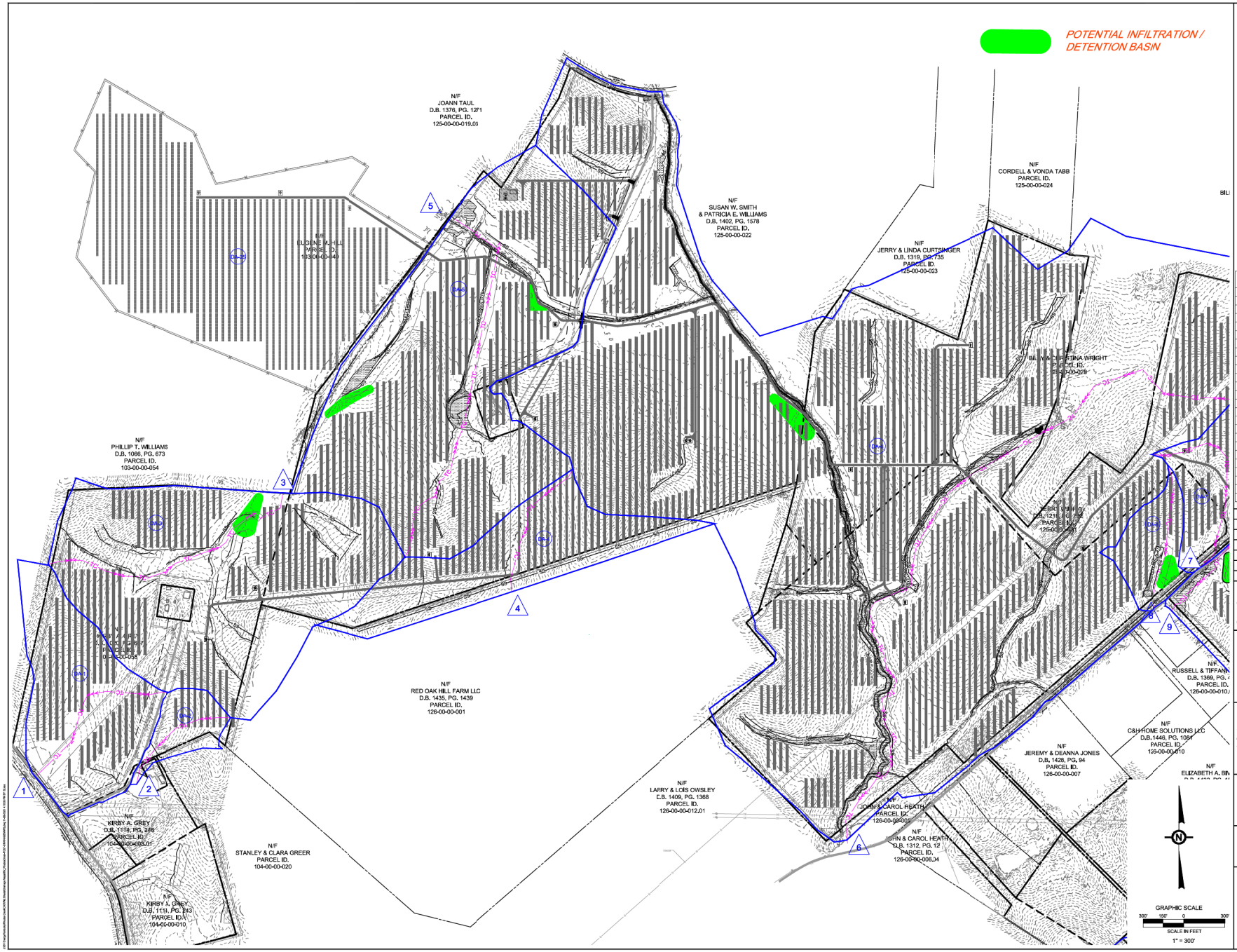
DATE:	OCTOBER 23, 2020
DRAWN BY:	SB
CHECKED BY:	SML
PROJECT:	363193.0000.0000
DRAWING NO.:	2 of 5

Appendix C – Post-Development Subcatchment Map



LEGEND — PROPOSED E&S CONTROL PLAN FEATURES

- STABILIZED ROCK DEVELOPMENT ENTRANCE
- SOIL MATERIAL STOCKPILE
- SF — SF — STANDARD SILT FENCE (18" HIGH)
- SS — SS — SILT SOCKS
- RIPRAP
- LOD — LIMIT OF DISTURBANCE

LEGEND — POST-DEVELOPMENT DRAINAGE AREA FEATURES

- DRAINAGE AREA BOUNDARY
- BYPASS DRAINAGE AREA BOUNDARY
- INLETDRAINAGE AREA BOUNDARY
- DRAINAGE AREA SUBAREA BOUNDARY
- TC — TIME OF CONCENTRATION TRAVEL PATH
- DRAINAGE AREA POINT OF INTEREST
- 1d — DRAINAGE AREA DESIGN POINT
- 1 — DRAINAGE AREA POINT OF INTEREST
- DA AC. — DRAINAGE AREA LABEL
- 1b CAT — INLETDRAINAGE AREA LABEL
- DRAINAGE AREA FLOW PATH

PROPOSED CONDITIONS- SUMMARY OF DRAINAGE BOUNDARY AREAS

DISCHARGE POINT ID	DRAINAGE AREA IN ACRES
1	26.67
2	5.38
3	67.48
4	24.88
5	85.07
6	346.82
7	12.30
8	7.80
9	37.58
10	60.17
11	31.38
12	15.48
13	65.34
14	51.21
15	61.13
16	14.53
17	27.22
18	19.23
19	3.03
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21	16.47
22	18.47
23	9.33
24	26.87

NO.	REVISION	DATE

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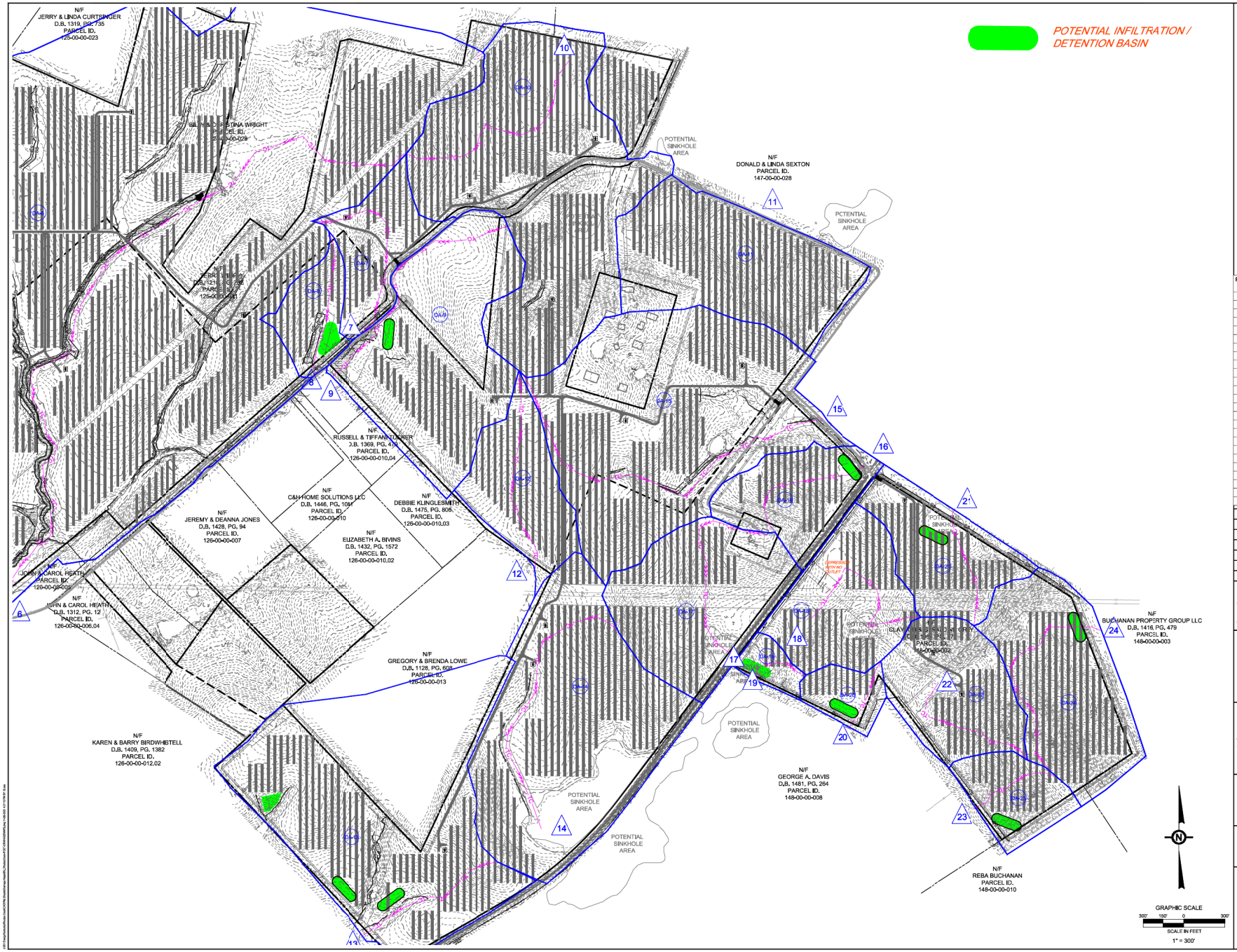
Rhudes Creek Solar Farm

DRAWING TITLE:

POST DEVELOPMENT DRAINAGE MAP

SEAL:

SCALE:	1" = 300'
DATE:	OCTOBER 23, 2020
DRAWN BY:	SB
CHECKED BY:	SML
PROJECT:	363193.0000.0000
DRAWING NO.:	3 of 5



LEGEND
PROPOSED E&S CONTROL PLAN FEATURES

- STABILIZED ROCK DEVELOPMENT ENTRANCE
- SOIL MATERIAL STOCKPILE
- SF — SF — STANDARD SILT FENCE (18" HIGH)
- SS — SS — SILT SOCKS
- RIPRAP
- LOD — LIMIT OF DISTURBANCE

LEGEND
POST-DEVELOPMENT DRAINAGE AREA FEATURES

- DRAINAGE AREA BOUNDARY
- BYPASS DRAINAGE AREA BOUNDARY
- INLETDRAINAGE AREA BOUNDARY
- DRAINAGE AREA SUBAREA BOUNDARY
- TC — TIME OF CONCENTRATION TRAVEL PATH
- DRAINAGE AREA POINT OF INTEREST
- 1d — DRAINAGE AREA DESIGN POINT
- 1 — DRAINAGE AREA POINT OF INTEREST
- DA AC. — DRAINAGE AREA LABEL
- 10 Q=87 — INLETDRAINAGE AREA LABEL
- DRAINAGE AREA FLOW PATH

PROPOSED CONDITIONS- SUMMARY OF DRAINAGE BOUNDARY AREAS

DISCHARGE POINT ID	DRAINAGE AREA IN ACRES
1	26.67
2	5.38
3	67.48
4	24.88
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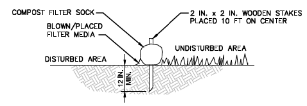
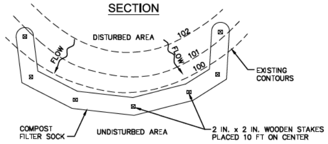
DRAWN BY:	SB
CHECKED BY:	SML
PROJECT:	363193.0000.0000
DRAWING NO.:	4 of 5



SECTION



PLAN VIEW

NOTES:

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

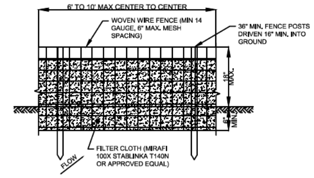
UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

TO BE CONSTRUCTED WITH MATERIALS AND TECHNIQUES IN ACCORDANCE WITH THE EROSION AND SEDIMENT POLLUTION CONTROL MANUAL EFFECTIVE DATE MARCH 31, 2012 AS AMENDED.

STANDARD CONSTRUCTION DETAIL #4-1

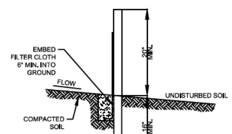
COMPOST FILTER SOCK

NOT TO SCALE



ELEVATION

1. WOVEN WIRE FENCE SHALL BE FASTENED TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH SHALL BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MIDSECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN BUILD-UP REACHES ½ THE HEIGHT OF THE FENCE.

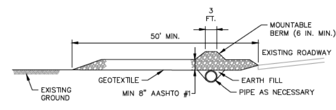


SECTION

POSTS: STEEL "T" OR "U" TYPE OR 2" HARDWOOD.
FENCE: WOVEN WIRE, 14½ GA 6" MAX MESH OPENING.
FILTER CLOTH: FILTER X, MIRAFI 100X, STABLINKA T140N OR APPROVED EQUAL.
PREFABRICATED UNIT: ENVIROFENCE OR APPROVED EQUAL.

SILT FENCE DETAILS

NOT TO SCALE



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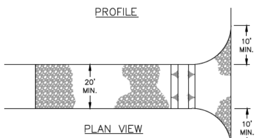


PLAN VIEW

* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:

REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE

4.8 Stream and Wetland Protection

4.8.2 Filter Strips

Vegetated filter strips can be designed into projects as attractive natural areas, with showy wildflowers and interesting fall colors. These amenities are in addition to the important functions of intercepting, filtering, and processing contaminants in storm runoff.

Definition

A filter strip is a planted strip of native grasses or other vegetation adjacent to and upgradient from a drainage ditch, stormwater system inlet, or natural water body such as a stream, river, lake, wetland, or sinkhole. They can also be used to protect lawns and paved areas. Filter strips are typically managed as a *natural* vegetative filter rather than mowed turf grass.

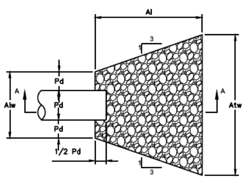
Purpose

The purpose of a vegetated filter strip is to act as a natural, vegetated buffer (see the Buffer Zone section) in reducing the amount of sediment in incoming runoff, the velocity of the runoff, and the temperature of the runoff during hot weather. Vegetated filter strips promote stormwater infiltration, deposition of sediment, absorption of other pollutants, and decomposition of organics to reduce or assimilate pollutants in the runoff.

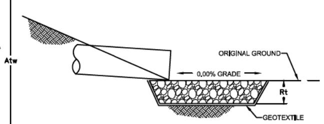
Vegetated Filter Strip Width Recommendations for Kentucky

Stream Type	Conditions	Minimum Buffer Width	General Considerations
Urban streams	> 25% imperviousness in drainage area	25 ft each bank	At least two-thirds of the buffer—nearest to the water—should be undisturbed native or natural vegetation.
Suburban streams	10% to 25% imperviousness in drainage area	50 ft each bank	
Rural streams	< 10% imperviousness in drainage area	≥ 60 ft each bank	Remainder can be permanent managed vegetation.
Large rivers	Rivers with floodplains > 500 ft wide	≥ 100 ft each bank	
Wetlands	For sloping sites, add more buffer	25 to 50 ft	Avoid turf grass in managed area if possible; use native grasses, wildflower mixes. Mow annually or less.
Sinkholes or other karst features	Will vary according to size and flow characteristics	25 to 50 ft radius	

156 Technical Specifications for BMPs



PLAN VIEW



SECTION A-A

NOTES:

ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

EXTEND RIPRAP ON BACK SIDE OF APRON TO AT LEAST 1/2 DEPTH OF PIPE ON BOTH SIDES TO PREVENT SCOUR AROUND THE PIPE.

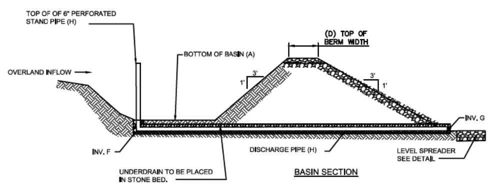
CULVERT 1 = ROUND PIPE, CULVERTS 2, 4 & 5 = BOX CULVERT, CULVERT 3 = ELLIPTICAL PIPE.

INLET NO.	PIPE DIA Pd (IN)	RIPRAP SIZE D_{50} (IN)	RIPRAP THICK. Rt (IN)	APRON LENGTH Al (FT)	APRON INITIAL WIDTH Aiw (FT)	APRON TERMINAL WIDTH Atw (FT)

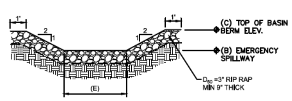
OUTLET NO.	PIPE DIA Pd (IN)	RIPRAP SIZE D_{50} (IN)	RIPRAP THICK. Rt (IN)	APRON LENGTH Al (FT)	APRON INITIAL WIDTH Aiw (FT)	APRON TERMINAL WIDTH Atw (FT)

RIP RAP INLET & OUTLET PROTECTION

NOT TO SCALE



BASIN SECTION



SPILLWAY SECTION

BASIN #	A (FT)	B (FT)	C (FT)	D (FT)	E (FT)	H	INV. F (FT)	INV. G (FT)	TOP H (FT)

BASIN EARTHWORK NOTES:

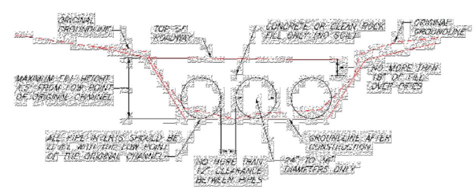
1. FILL MATERIAL SHOULD BE TAKEN FROM APPROVED DESIGNATED EXCAVATION AREAS. IT SHOULD BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6 INCHES, OR OTHER OBJECTIONABLE MATERIALS. MATERIALS ON THE OUTER SURFACE OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION.
2. AREAS WHERE FILL IS TO BE PLACED SHOULD BE SCARIFIED PRIOR TO PLACEMENT. FILL MATERIALS THE EMBANKMENT SHOULD BE PLACED IN MAXIMUM 6-INCH LIFTS. THE PRINCIPAL SPILLWAY SHOULD BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.
3. FILL MATERIAL MUST MEET ALL STATE REGULATIONS.
4. UNDERDARAIN PIPE SHALL BE SURROUNDED BY CLEAN CLEAN WASHED GRAVEL. GRAVEL SHALL BE 12" IN DEPTH AND PLACED A ON ALL SIDES OF UNDERDRAIN PIPE MINIMUM OF 3" ABOVE, BELLOW AND ON EITHER SIDE OF THE UNDERDRAIN PIPE.

TYPICAL BASIN SECTION

NOT TO SCALE

162 Technical Specifications for BMPs

STREAM CROSSING



NOTES:

1. THIS IS A CONCEPTUAL DRAWING. THE NUMBER AND SIZE OF PIPES AND OTHER DETAILS WILL VARY DEPENDING ON SPECIFIC SITE CONDITIONS.
2. THE PIPES AND BACKFILL MUST BE CONTAINED WITHIN THE STREAM CHANNEL AS SHOWN ABOVE. DURING THE CONSTRUCTION OF THE APPROACHES AND ACCESS ROADWAY ACROSS THE FLOODPLAIN, UNSTABLE AND UNCONSOLIDATED MATERIALS UNSUITABLE FOR ROADWAYS MAY BE EXCAVATED AND REPLACED WITH RIPRAP, CRUSHED STONE, OR OTHER STABLE ROAD CONSTRUCTION MATERIALS. THIS MAY ONLY BE DONE, HOWEVER, WITH THE FOLLOWING PROVISIONS: (1) THE DISPOSAL OF EXCESS, UNCONSOLIDATED MATERIALS THUS EXCAVATED MUST BE OUTSIDE OF THE FLOODPLAIN AND (2) THE FINISHED SURFACE OF THE COMPLETED ROAD MAY BE NO MORE THAN THREE INCHES (3") ABOVE THE PRE-CONSTRUCTION SURFACE OF THE FLOODPLAIN AT ANY POINT BEYOND THE TOP OF BANKS.

KY DIVISION OF WATER
LOW WATER CROSSING

NO.	REVISION	DATE

Property Owners:

TRC

TRC Companies, Inc.
4900 Ritter Road
Suite 240
Mechanicsburg, PA 17055
Tel: 717-671-6430
www.trccompanies.com

Applicant

ibV Energy Partners
777 Brickess Avenue, Suite 500
Miami, Florida 33131

Rhudes Creek Solar Farm

DRAWING TITLE:

EROSION CONTROL DETAILS

SEAL:

SCALE:	1" = 300'
DATE:	OCTOBER 23, 2020
DRAWN BY:	SB
CHECKED BY:	SML
PROJECT:	363193.0000.0000
DRAWING NO.:	