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November 13, 2020

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

Re: **Case No. 19-1881-EL-BGN -** In the Matter of the Application of Madison Fields Solar Project, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Madison County, Ohio.

Supplemental Responses to the Third and Fourth Data Requests from Staff of the Ohio Power Siting Board

Dear Ms. Troupe:

Attached please find Madison Fields Solar Project, LLC's ("Applicant") Supplemental Responses to the Third and Fourth Data Requests from the staff of the Ohio Power Siting Board ("OPSB Staff"). The Applicant provided this response to OPSB Staff on November 11 and 13, 2020.

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)
William Vorys (0093479)
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
Columbus, Ohio 43215
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Attorneys for Madison Fields Solar Project, LLC

Cc: Matt Butler

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 13th day of November, 2020.

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

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matthew.sandor@puco.ohio.gov

4837-9912-9809 v1 [88534-2]

BEFORE
THE OHIO POWER SITING BOARD

In the Matter of the Application of Madison Fields Solar Project, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Madison County, Ohio.	)))))	Case No: 19-1881-EL-BGN

MADISON FIELDS SOLAR PROJECT, LLC 'S
SUPPLEMENTAL RESPONSES TO THE THIRD AND FOURTH DATA REQUESTS
FROM THE STAFF OF THE OHIO POWER SITING BOARD

On July 17, 2020, as supplemented on August 3, 2020, Madison Fields Solar Project, LLC ("Applicant"), a wholly-owned subsidiary of Savion, LLC ("Savion"), filed an application ("Application") with the Ohio Power Siting Board ("OPSB") proposing to construct a solar-powered electric generation facility in Madison County, Ohio.

On October 23 and November 4, 2020, the Applicant filed responses to the Third Data Request and Fourth Data Request from the Staff of the OPSB ("OPSB Staff"). Now comes the Applicant providing the following supplemental responses to those data requests from the OPSB Staff.

Supplement to Third Data Request – Question 3:

3. Have the solar panels under consideration by Madison Fields Solar passed the US EPA's Toxicity Characteristic Leaching Procedure (TCLP) test?

Response: The Applicant continues to actively work to address the public interest regarding the safety and reliability of the generation equipment that will be used as part of the Project.

As part of the OPSB permitting process, Ohio Administrative Code ("O.A.C."), Rule 4906-4-08(A)(1)(c) requires the Applicant to "provide the generation equipment manufacturer's safety standards" and "include a complete copy of the manufacturer's safety manual or similar document and any recommended setbacks from the manufacturer". The Applicant will provide this information to the OPSB when specific technology has been selected for the Project, which will be prior to construction. Although the equipment has not yet been procured, the Applicant commits to utilizing Tier I photovoltaic ("PV") modules. Tier I modules are from well-respected manufacturers and are understood to be of high quality, which predictable performance, durability, and content.

Although not required per the O.A.C., members of the public have requested that the Applicant provide Safety Data Sheets ("SDS"), Material Safety Data Sheets ("MSDS"), and Product Safety Data Sheets ("PSDS") for all modules, inverters, and trackers that were included in the application. MSDS are generated for PV modules, but not for inverters or trackers. PV modules are made of silicon cells whose exact composition can be analyzed and reported in a tabular format. PV modules typically do not have an SDS or PSDS generated for them since they do not contain toxic chemicals and therefore do not require any special handling to prevent the release of toxic chemicals. The inverters and trackers typically do not have MSDS created for them since they are mechanical systems that do not contain hazardous substances.

The Applicant has requested MSDS from the manufacturers of the PV modules included in the Application, but has yet to receive a response from every manufacturer. As a show

of good faith and commitment to address the public's questions, the Applicant is submitting the MSDS that have been received to date (See Attachment 1 for Jinko, Longi, and Trina). These MSDS are for Crystalline Silicon PV modules, which is the technology that will be utilized on the Madison Fields Solar Project. Crystalline Silicon PV modules are one of the two most common module technologies and make up about 90% of panels installed today. Although there might be slight variations between manufacturers, the MSDS that are included as part of this filing are representative of the Crystalline Silicon technology that will be used on the Madison Fields Solar Project and should address the public's concern regarding the contents of the modules.

Multiple Tier I PV module manufacuturers report that most modern PV panels (including Crystalline Silicon) pass the U.S. Environmental Protection Agency's ("USEPA") Toxic Characteristic Leaching Procedure ("TCLP") test.[1] Specific information regarding the TCLP can be found on the USEPA's website. The PV modules that will be chosen for the Madison Fields Solar Project will either have passed the TCLP test or their MSDS will indicate that the modules will not cause harm to the environment.

[1] https://nccleantech.ncsu.edu/wp-content/uploads/2018/05/Health-and-Safety-Impacts-of-Solar-Photovoltaics-2017_white-paper.pdf

Supplement to Fourth Data Request – Question 1:

1. Please provide an update to figure 3-2 that depicts the proposed location of electric collection lines and met towers.

Response: An updated Figure 3-2 (Project Site Layout Map) that depicts the proposed location of electric collection lines and met towers is provided as Attachment 2. This updated map replaces and supersedes the map filed on November 4, 2020.

Respectfully submitted,

/s/ *Christine M.T. Pirik*
Christine M.T. Pirik (0029759)
(Counsel of Record)
William V. Vorys (0093479)
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
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Attorneys for Madison Fields Solar Project, LLC

4816-0255-9697 v3 [88534-2]

Attachment 1

PV Module Material Safety Data Sheets

/s/ Christine M.T. Pirik
Christine M.T. Pirik (0029759)
William Vorys (0093479)
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150 East Gay Street, Suite 2400
Columbus, Ohio 43215
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cpirik@dickinsonwright.com
wvorys@dickinsonwright.com

Attorneys for Madison Fields Solar Project, LLC

MSDS REPORT

MATERIAL SAFETY DATA SHEET

SECTION 1- PRODUCT AND COMPANY

IDENTIFICATION PRODUCT NAME: PV Crystal Silicon Module

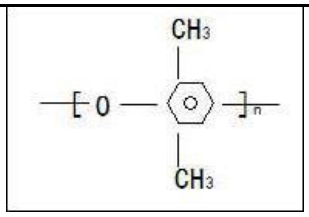
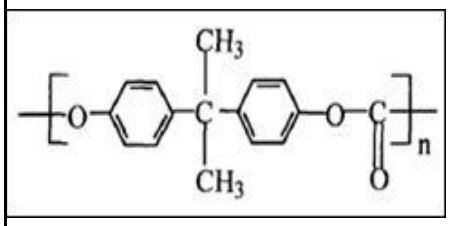
Company Identification: LONGi Solar Technology Co., Ltd.

Address: Block B, No.8989 Shangji Road, Xi'an Economic And Technological Development Zone, Xi'an, Shanxi, China.
Telephone: +86-29-82219988
Fax: +86-29-82210808
Website: www.longi-solar.com

SECTION2- COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENTS CONTENT:

Material Item	Chemical Name of Composition	Formula & Model
Frame	Aluminum	AL
	Alumina	AL_2O_3
	Silicon	Si
	Magnesium	Mg
	Iron	Fe
	Manganese	Mn
Cell	Silicon	Si
	Phosphorus	P
	Boron	B
	Silicon nitride	Si_3N_X
	Silver	Ag
	Aluminum	AL

Junction-Box	Polyphenylene oxide (PPO)	
	Tin	Sn
	Copper	Cu
	Polyethylene（PE）	nCH2=CH2→—[CH2—CH2]—
	Polycarbonate（PC）	
	Polyamides(PA)	—[NH(CH2)$_x$CO]$_n$—
Glass	potassium	K_2O
	calcium	CaO
	sodium	Na_2O
	Tempered glass	SIO_2
Silica Gel	Silicon substrate	(SiO2)m·(H20)n
	Silane coupling agent	KH550
Bus bar	Copper	Cu
	Tin	Sn
	Isopropyl alcohol	C_3H_8O
Back sheet	Polyvinyl fluoride (PVF)	(C2H3F)x
	Polyethylene terephthalate（PET）	—[OCH$_2$-CH$_2$OCOC$_6$H$_4$CO]$_n$—
	Polyethylene（PE）	nCH$_2$ =CH$_2$→—[CH$_2$—CH$_2$]$_n$—
Laminate material	EVA	Ethylene vinyl acetate copolymer

Emergency Overview: warning, non-demolition, not exposed to flame or fire. There is the risk of explosion and burn under fire conditions.
Do not short-circuit, squeezing, burning, or removing the module.

Potential health hazards

Risk Categories: None Invasive Ways: None

Environmental Hazards: None Health Hazards: None

The inverter device does not meet the provision, the flaws on system design, the quality problem of the junction box, the hot spot effect will be the reason of spontaneous combustion of this product.

SECTION4- FIRST AID MEASURES

Eye contact: No damage found on eye contact, no special provisions.

Skin contact: No skin contact injury found. It is proposed to wash hands before and after touch back sheet. If molten polymer contacts skin, immediately cool it with cold water, and do not directly peel them from the skin, go to hospital for treatment by burns drugs.

Ingestion: No damage found, no special provisions.

Inhalation: No damage found, no special provisions. If you have overheating or fire hazard, be away from heat. Go to hospital if any discomfort.

SECTION5- FIRE FIGHTING MEASURES

In general: during normal operation, this product is not prone to burning.

Hazardous Combustion Products: CO, HF,

Extinguishing Media: The hydrogen produced under the using of water may be mixed with air to form an explosive mixture if the module is burning. For small fires, carbon dioxide, dry powder or foam extinguishing agent are preferred medium. But they may not work to the burning module until the combustion module will be completely burned out. LITH-X (powdered graphite) or copper powder extinguisher, sand, dried, pulverized dolomite or soda ash can also be used, and these materials can be used as a smothering agent.

Extinguishing Note: transfer people to a safe area in the upwind air, wear respirators, protective gloves and fire fighting clothing. If large amounts are inhaled, give emergency medical treatment.

SECTION6- ACCIDENTAL RELEASE MEASURES

Emergency treatment: solid normally, NA.

SECTION7- HANDLING AND STORAGE

Handling Precautions:

Outline

1, In strict accordance with the requirements of the specification to install modules, and are not free to install, maintain.

2, Do not strongly illuminate module artificially(artificial sunlight is unavailable)

3, The system DC voltage exceeds 100V, operation must be done by specialized electrician.

4, It is potentially dangerous to contact a voltage of 30V or above.

5, Junction boxes, cables, brackets, etc should be matched with modules during installation of electrical systems.

6, Installation of all accessories must follow safe working practices (other accessories must also comply with the security provisions of operation)

7, The installation should be in accordance with local, national and international standards.

8, Module installation should be operated by professionals.

Safe handling

1, Properly packed before installation of modules.

2, Do not directly holding the junction box to handle the modules

3, Not drop modules or obstacles fall on it.

4, Handle it gently, especially angular point.

5, Do not disassemble the modules and move any part of the modules or label after installation.

6, Do spray paint or stick other items on the back of the modules.

7, Do not drill on the glass and module border.

8, Do not place the module without bracket or not an unsafe place

9, The module cannot be used after glass is broken.

10, To operate with dry tool in the clean environment.

Install security

1, Do not allow the children to close during installation.

2, Module cannot be installed in high winds.

3, Appropriate Installation methods and safety equipment should be used in the installation site to prevent the falling of modules.

4, Do not touch the wire or connection port when the installation of the modules or the modules are exposed to the sunlight.

5, Do not wear metal jewelry during the installation.

6, Do not disconnect the line or unplug the connection plug when circuit is working.

Fire safety

1, Roof structures and installations that may affect the fire safety of the entire building, unreasonable installation will aggravate to the severity of the fire.

2, The modules should be installed on the fire isolation layer, in order to improve security

3, Module installation on the rooftop and ground should be the same, with insurance device and circuit fuse.

4, Do not install the modules near the storage equipment and place of flammable gas.

Electrical Installation

1, Avoid the risk of electric shock during installation, wiring, module operating.

2, The module of different specifications cannot used in the same array.

3, The open circuit voltage of module is less than the maximum voltage of standard system.

4, All of the modules no matter how much voltage should be grounding.

5, The cable is to be placed where the children and animals cannot touch.

6, Cables and junction boxes may overheat at high current.

7, Make sure junction box and wire can go through the short-circuit current.

8, Make sure the positive and negative polarity of the cable and terminal during connection.

9, Grounding line is provided.

Mechanical Installation

1, Fix the modules with the installation tools and special bracket to support modules

2, Make sure the module can still work carrying a certain load, which is not affected by the impact of the snow load or thermal expansion and contraction

3, Make sure that the modules can still work in the ambient temperature within the variable range of -40 to +80 ℃.

4, Off-grid power generation system installed in large areas of snow, require module position lower and bracket narrower

5, Providing install mounting holes for frame modules which can withstand a certain degree of mechanical strength.

6, All four position holes on the module are used for installation.

7, Be well-ventilated behind the module. (5 cm / 2 inch gap)

8, Be away from the other items behind the modules.

Storage:

Use wooden boxes (carton) packaging and store it in a cool, well-ventilated place, be away from heat and fire sources.

SECTION8-EXPOSURE CONTROLS/PERSONAL PROTECTION EQUIPMENT

Engineering Controls: NA

Eye protection: NA

Skin contact: NA under normal conditions, if the module is damaged, please wear appropriate protective gloves.

Clothing: NA under normal conditions, if the module is on fire and burst, please wear appropriate protective clothing.

Respirator: NA under normal conditions

SECTION9- PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Odor: None

Voltage: different specifications, different voltage

Weight: See Product Introduction Manual

Solubility in water: insoluble in water

SECTION10- STABILITY AND REACTIVITY

Stability: Stable under normal storage and operating conditions.

Conditions to avoid: fire, high temperature, high humidity, salt spray

Substances to be avoided: strong oxidizing agents.

Hazardous decomposition products: fire conditions may produce hazardous decomposition products.

Hazardous Polymerization: No information available.

SECTION11- TOXICOLOGICAL INFORMATION

Acute poisoning: under normal conditions, the product will not cause any abnormal emergency injury

Irritation: None

SECTION12- ECOLOGICAL INFORMATION

Ecological toxicity: the proper use and disposal of the module will not cause harm to the environment. Disposal of waste modules, be away from the water, rain and snow.

SECTION13- DISPOSAL

Disposal: Should refer to national and local laws and regulations before disposal.

SECTION14- TRANSPORT INFORMATION

Dangerous Goods Code: No information

UN Number: information

Packing mark: no information

Packaging category: Z01

Packing method: No information available.

Transportation Note: Package should be complete before transportation, and loading should be safe. To ensure that the container does not leak, not fall, not damaged during transportation. Do not be together with oxidizing agents, alkalis, food chemicals. Goods should be anti-exposure, rain, anti-high temperature during transportation.

SECTION15- REGULATORY INFORMATION

Regulatory Information: Refer to local, domestic, EU / international regulations

SECTION16-OTHER INFORMATION

MSDS Preparation date: April 10, 2019

The information of this MSDS is just based on our current related information, which have been prepared only for the description of the goods health, safety and environmental requirements, to enable all interested parties to better understand and trust this product. This information is only available to you for consideration, study and confirmation. Some description of hazard prevention measures is not unique. Without any implied guarantees, description or expression

to use this information, LONGi Solar Technology Co., Ltd does not assume any liability of this MSDS. So this MSDS cannot guarantee any particular purpose of this product. The users have the responsibility to complete this product security and other aspects of the test in advance, to judge whether it meets your intended use.

MSDS REPORT

MATERIAL SAFETY DATA SHEET

SECTION 1- PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: PV Crystal silicon module

Company Identification: Changzhou Trina Solar Energy Co., Ltd.

Address: No.2 Trina Road, Trina PV Park, New District, Changzhou, Jiangsu, P.R.China213031

Postal Code: 213002

Telephone: +86-0519-85482008

Emergency Telephone number : +86-0519-85176110

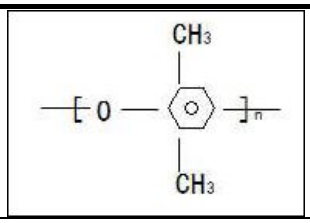
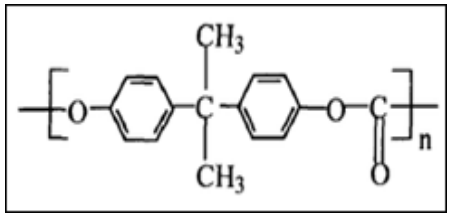
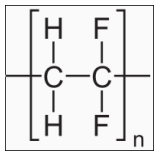
Fax: +86-0519-85187444

Mail address: mail.trinasolar.com

SECTION2- COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENTS CONTENT:

Material Item	Chemical Name of Composition	Formula & Model
Frame	Aluminum	AL
	Alumina	AL_2O_3
	Manganese	Mn
Cell	Silicon	Si
	Phosphorus	P
	Boron	B
	Silicon nitride	Si_3N_X
	Silver	Ag
	Aluminum	AL

Junction-Box	Polyphenylene oxide （PPO）	
	Tin	Sn
	Copper	Cu
	Polyethylene （PE）	nCH2=CH2→—[CH2—CH2]—
	Polycarbonate（PC）	
Glass	Tin	Sn
	Tempered glass	SIO_2
Silica Gel	Silicon substrate	(SiO2)m • (H20)n
	Silane coupling agent	KH550
Bus bar	Copper	Cu
	Tin	Sn
	Isopropyl alcohol	C_3H_8O
Back sheet	Polyvinylidene fluoride （PVDF）	
	Polyethylene terephthalate （PET）	$-OCH_2-CH_2OCOC_6H_4CO-$
	Polyethylene（PE）	$nCH_2=CH_2→—[CH_2—CH_2]—$
Laminate material	EVA	Ethylene vinyl acetate copolymer

Emergency Overview: warning, non-demolition, not exposed to flame or fire. There is the risk of explosion and burn under fire conditions.

Do not short-circuit, squeezing, burning, or removing the module.

Potential health hazards

Risk Categories: None Invasive Ways: None

Environmental Hazards: None Health Hazards: None

Explosion Hazard: Tempered glass has a 1/10000 explosion risk.

The inverter device does not meet the provision, the flaws on system design, the quality problem of the junction box, the hot spot effect will be the reason of spontaneous combustion of this product.

SECTION4- FIRST AID MEASURES

Eye contact: No damage found on eye contact, no special provisions.

Skin contact: No skin contact injury found. It is proposed to wash hands before and after touch back sheet. If molten polymer contacts skin, immediately cool it with cold water, and do not directly peel them from the skin, go to hospital for treatment by burns drugs.

Ingestion: No damage found, no special provisions.

Inhalation: No damage found, no special provisions. If you have overheating or fire hazard, be away from heat. Go to hospital if any discomfort.

SECTION5- FIRE FIGHTING MEASURES

In general: during normal operation, this product is not prone to burning.

Hazardous Combustion Products: CO, HF,

Extinguishing Media: The hydrogen produced under the using of water may be mixed with air to form an explosive mixture if the module is burning. For small fires, carbon dioxide, dry powder or foam extinguishing agent are preferred medium. But they may not work to the burning module until the combustion module will be completely burned out. LITH-X (powdered graphite) or copper powder extinguisher, sand, dried, pulverized dolomite or soda ash can also be used, and these materials can be used as a smothering agent.

Extinguishing Note: transfer people to a safe area in the upwind air, wear respirators, protective gloves and fire fighting clothing. If large amounts are inhaled, give emergency medical treatment.

SECTION6- ACCIDENTAL RELEASE MEASURES

Emergency treatment: solid normally, NA.

SECTION7- HANDLING AND STORAGE

Handling Precautions:

Outline

1, In strict accordance with the requirements of the specification to install modules, and are not free to install, maintain.

2, Do not strongly illuminate module artificially(artificial sunlight is unavailable)

3, The system DC voltage exceeds 100V, operation must be done by specialized electrician.

4, It is potentially dangerous to contact a voltage of 30V or above.

5, Junction boxes, cables, brackets, etc should be matched with modules during installation of electrical systems.

6, Installation of all accessories must follow safe working practices (other accessories must also comply with the security provisions of operation)

7, The installation should be in accordance with local, national and international standards.

8, Module installation should be operated by professionals.

Safe handling

1, Properly packed before installation of modules.

2, Do not directly holding the junction box to handle the modules

3, Not drop modules or obstacles fall on it.

4, Handle it gently, especially angular point.

5, Do not disassemble the modules and move any part of the modules or label after installation.

6, Do spray paint or stick other items on the back of the modules.

7, Do not drill on the glass and module border.

8, Do not place the module without bracket or not an unsafe place

9, The module cannot be used after glass is broken.

10, To operate with dry tool in the clean environment.

Install security

1, Do not allow the children to close during installation.

2, Module cannot be installed in high winds.

3, Appropriate Installation methods and safety equipment should be used in the installation site to prevent the falling of modules.

4, Do not touch the wire or connection port when the installation of the modules or the modules are exposed to the sunlight.

5, Do not wear metal jewelry during the installation.

6, Do not disconnect the line or unplug the connection plug when circuit is working.

Fire safety

1, Roof structures and installations that may affect the fire safety of the entire building, unreasonable installation will aggravate to the severity of the fire.

2, The modules should be installed on the fire isolation layer, in order to improve security

3, Module installation on the rooftop and ground should be the same, with insurance device and circuit fuse.

4, Do not install the modules near the storage equipment and place of flammable gas.

Electrical Installation

1, Avoid the risk of electric shock during installation, wiring, module operating.

2, The module of different specifications cannot used in the same array.

3, The open circuit voltage of module is less than the maximum voltage of standard system.

4, All of the modules no matter how much voltage should be grounding.

5, The cable is to be placed where the children and animals cannot touch.

6, Cables and junction boxes may overheat at high current.

7, Make sure junction box and wire can go through the short-circuit current.

8, Make sure the positive and negative polarity of the cable and terminal during connection.

9, Grounding line is provided.

Mechanical Installation

1, Fix the modules with the installation tools and special bracket to support modules

2, Make sure the module can still work carrying a certain load, which is not affected by the impact of the snow load or thermal expansion and contraction

3, Make sure that the modules can still work in the ambient temperature within the variable range of -40 to +80 ℃ / -40 to176 ℉

4, Off-grid power generation system installed in large areas of snow, require module position lower and bracket narrower

5, Providing install mounting holes for frame modules which can withstand a certain degree of mechanical strength.

6, All four position holes on the module are used for installation.

7, Be well-ventilated behind the module. (5 cm / 2 inch gap)

8, Be away from the other items behind the modules.

Storage:

Use wooden boxes (carton) packaging and store it in a cool, well-ventilated place, be away from heat and fire sources.

SECTION8-EXPOSURE CONTROLS/PERSONAL PROTECTION EQUIPMENT

Engineering Controls: NA

Eye protection: NA

Skin contact: NA under normal conditions, if the module is damaged, please wear appropriate protective gloves.

Clothing: NA under normal conditions, if the module is on fire and burst, please wear appropriate protective clothing.

Respirator: NA under normal conditions

SECTION9- PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Odor: None

Voltage: different specifications, different voltage

Weight: 19.5 kg

Solubility in water: insoluble in water

SECTION10- STABILITY AND REACTIVITY

Stability: Stable under normal storage and operating conditions.

Conditions to avoid: fire, high temperature, high humidity, salt spray

Substances to be avoided: strong oxidizing agents.

Hazardous decomposition products: fire conditions may produce hazardous decomposition products.

Hazardous Polymerization: No information available.

SECTION11- TOXICOLOGICAL INFORMATION

Acute poisoning: under normal conditions, the product will not cause any abnormal emergency injury

Irritation: None

SECTION12- ECOLOGICAL INFORMATION

Ecological toxicity: the proper use and disposal of the module will not cause harm to the environment. Disposal of waste modules, be away from the water, rain and snow.

SECTION13- DISPOSAL

Disposal: Should refer to national and local laws and regulations before disposal.

SECTION14- TRANSPORT INFORMATION

Dangerous Goods Code: No information

UN Number: information

Packing mark: no information

Packaging category: Z01

Packing method: No information available.

Transportation Note: Package should be complete before transportation, and loading should be safe. To ensure that the container does not leak, not fall, not damaged during transportation. Do not be together with oxidizing agents, alkalis, food chemicals. Goods should be anti-exposure, rain, anti-high temperature during transportation.

SECTION15- REGULATORY INFORMATION

Regulatory Information: Refer to local, domestic, EU / international regulations

SECTION16-OTHER INFORMATION

MSDS Preparation date: November 15, 2012

The information of this MSDS is just based on our current related information, which have been prepared only for the description of the goods health, safety and environmental requirements, to enable all interested parties to better understand and trust this product. This information is only available to you for consideration, study and confirmation. Some description of hazard prevention measures is not unique. Without any implied guarantees, description or expression

to use this information, Changzhou Trina Solar Energy Co., does not assume any liability of this MSDS. So this MSDS cannot guarantee any particular purpose of this product. The users have the responsibility to complete this product security and other aspects of the test in advance, to judge whether it meets your intended use.

Component

Frame (main material: aluminium)	Chemical material	Test item	unit	Test result
		Si	%	0.44
		Fe	%	0.14
		Cu	%	0.01
		Mg	%	0.61
		Mn	%	‹0.01
		Zn	%	0.01
		Ti	%	0.02
		Cr	%	0.01

Glass	Chemical material	Test item	unit	Test result
		SiO_2	%	72.34
		Al_2O_3	%	1.34
		CaO	%	8.28
		MgO	%	3.95
		Fe_2O_3	%	0.0057
		Na_2O	%	13.38
		Sb_2O_3	%	0.19
		CeO_2	mg/kg	<0.1

Solder flux

COMPOSITION/INFORMATION ON MATERIAL

Chemical Name	CAS No.	%	OSHA PEL (ppm)	ACGIH TLV (ppm)	Other Limits Recommended
Aliphatic Alcohols	Proprietary	97	400	400	None Specified
Organic Acids		2	-	-	-
Others		1	-	-	-
Total		**100**			

Silicone

Test Result:

	Cd	Cr(VI)	Pb	Hg	PBBs (*)	PBDEs (*)
Maximum Permissible Limit ppm (mg/kg)	100	1000	1000	1000	1000	1000

Material No.	ppm (mg/kg)					
	Cd	Cr^	Pb	Hg	PBBs	PBDEs
	RL (mg/kg)					
	10	10	10	10	25	25
M001	n.d.	/	n.d.	n.d.	n.d.	n.d.

Test No.	Material No.	Hexavalent Chromium Content (mg/kg) (*2) RL : 100 mg/kg
T001	M001	n.d.

Abbreviation:

Pb	= Lead
Cd	= Cadmium
Hg	= Mercury
Cr (VI)	= Chromium (VI)
PBBs	= Total Polybrominated Biphenyls
PBDEs	= Total Polybrominated Dephenyl Ethers
n.d.	= Not Detected (<Reporting Limit)
RL	= Reporting Limit
n.a.	= Not Applicable
^	= The total Chromium have been determined.
ppm	= parts per million
mg/kg	= milligram per kilogram

orting limit for each individual PBBs and individual PBDEs are:

Reporting limit in ppm (mg/kg)		
PBBs	Bromobiphenyl	1
	Dibromobiphenyl	1
	Tribromobiphenyl	1
	Tetrabromobiphenyl	1
	Pentabromobiphenyl	2
	Hexabromobiphenyl	2
	Heptabromobiphenly	2
	Octabromobiphenyl	5
	Nonabromobiphenyl	5
	Decabromobiphenyl	5
PBDEs	Bromodiphenylether	1
	Dibromodiphenyl ether	1
	Tribromodiphenyl ether	1
	Tetrabromodiphenyl ether	1
	Pentabromodiphenyl ether	2
	Hexabromodiphenyl ether	2
	Heptabromodiphenyl ether	2
	Octabromodiphenyl ether	5
	Nonabromodiphenyl ether	5
	Decabromodiphenyl ether	5

Ribbon

Remarks :

(1) 1 mg/kg = 1 ppm = 0.0001%

(2) MDL = Method Detection Limit

(3) ND = Not Detected (< MDL)

(4) "-" = Not Regulated

RoHS Directive 2002/95/EC

Test Method : With reference to IEC 62321:2008

(1) Determination of Cadmium by ICP-OES.

(2) Determination of Lead by ICP-OES.

(3) Determination of Mercury by ICP-OES.

(4) Determination of Hexavalent Chromium by Spot test / Colorimetric Method using UV-Vis.

Test Item(s)	Limit	Unit	MDL	*001*
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	135
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	-	-	◇	Negative

Notes :

(1) The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2002/95/EC

(2) ◇ Spot-test:

Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;

The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.

◇ Boiling-water-extraction:

Negative = Absence of CrVI coating; Positive = Presence of CrVI coating

The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm^2 sample surface area.

For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

EVA

Composition/Information on Ingredients

HAZARDOUS COMPONENTS	(%)	OSHA PEL	ACGIH TLV
Ethylene/Vinyl Acetate Copolymer (CAS# 24937-78-8)	>95	N/A	N/A
Vinyl Acetate (CAS# 108-05-4)	<0.3	10ppm	10ppm
Polyvinyl Alcohol (CAS# 9002-89-5)	<1.0	N/A	N/A
00-t-Butyl 0-(2-Ethylhexyl) Monoperoxycarbonate(CAS# 34443-12-4)	0-5.0	N/A	N/A
2,5-dimethyl-2,5-(t-butylperoxy)hexane (CAS #78-63-7)	0-5.0	N/A	N/A
Hyroxy-n-alkoxybenzophone (CAS# 001843-05-06)	<1.0	N/A	N/A
Tris(mono-nonylphenyl) phosphite (CAS# 26523-78-4)	<1.0	N/A	N/A
Methoxysilane (CAS# 2530-85-0)	<0.5	200ppm	200ppm

Hazards Summarizing

SORT OF HAZARDS: The eyes and skin stimulus

THE WAY OF INVASION: Intake

HEALTH HAZARDS (Acute & Chronic): No adverse health effects are expected from processing when potential exposures are minimized by good industrial hygiene practices and adequate ventilation.

ENVIRONMENTAL HAZARDS: N/A

BLASTING DANGER: N/A

Attachment 2

Updated Figure 3-2

/s/ Christine M.T. Pirik
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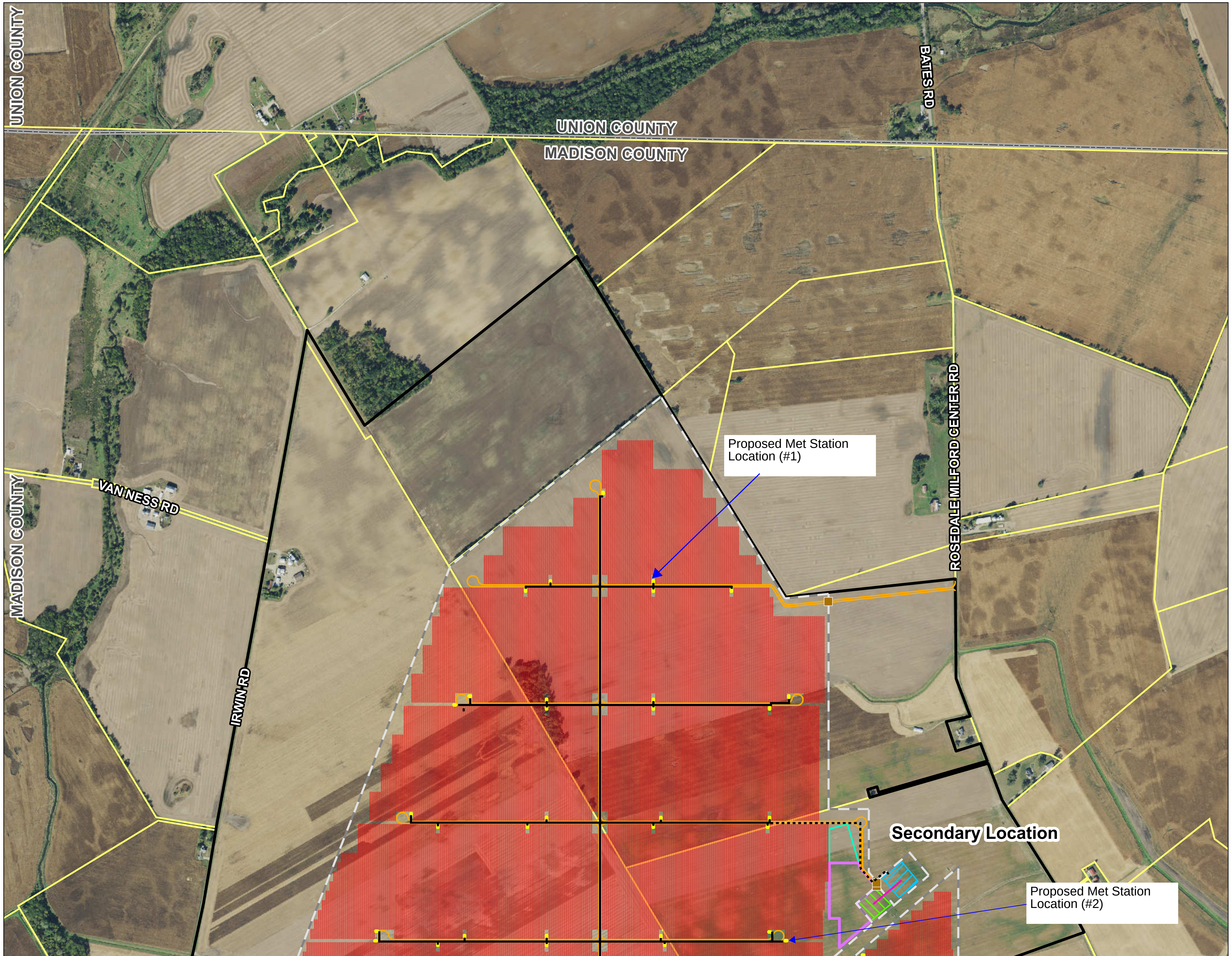


Figure No.
3-2

Title
Project Site Layout Map

Client/Project 2028113208
Madison Fields Solar Project, LLC
Madison Fields Solar Project

Project Location
Madison County
Ohio

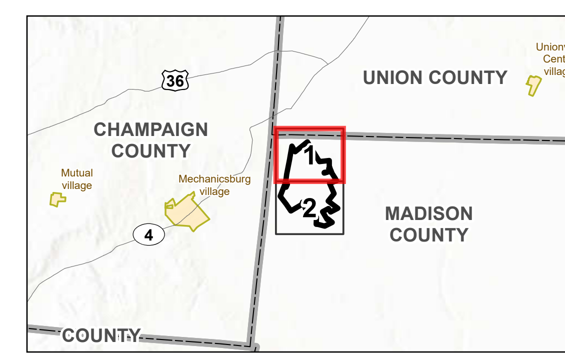
Prepared by JD on 2020-05-04
Technical Review by JH on 2020-05-04
Independent Review by CD on 2020-06-18

N

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

Legend
- Project Boundary
- Property Boundary
- Gate
- Inverter
- Generation Tie-Line
- Access Road
- Fence
- Solar Array
- Laydown Area
- O&M Building
- Substation
- Switchyard
- County Boundary

Preliminary Design – Not for Construction



Notes
1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources: Stantec, Savion, Esri, USGS, OGRIP, NADS, Madison County
3. Background: 2019 NAIP

Stantec

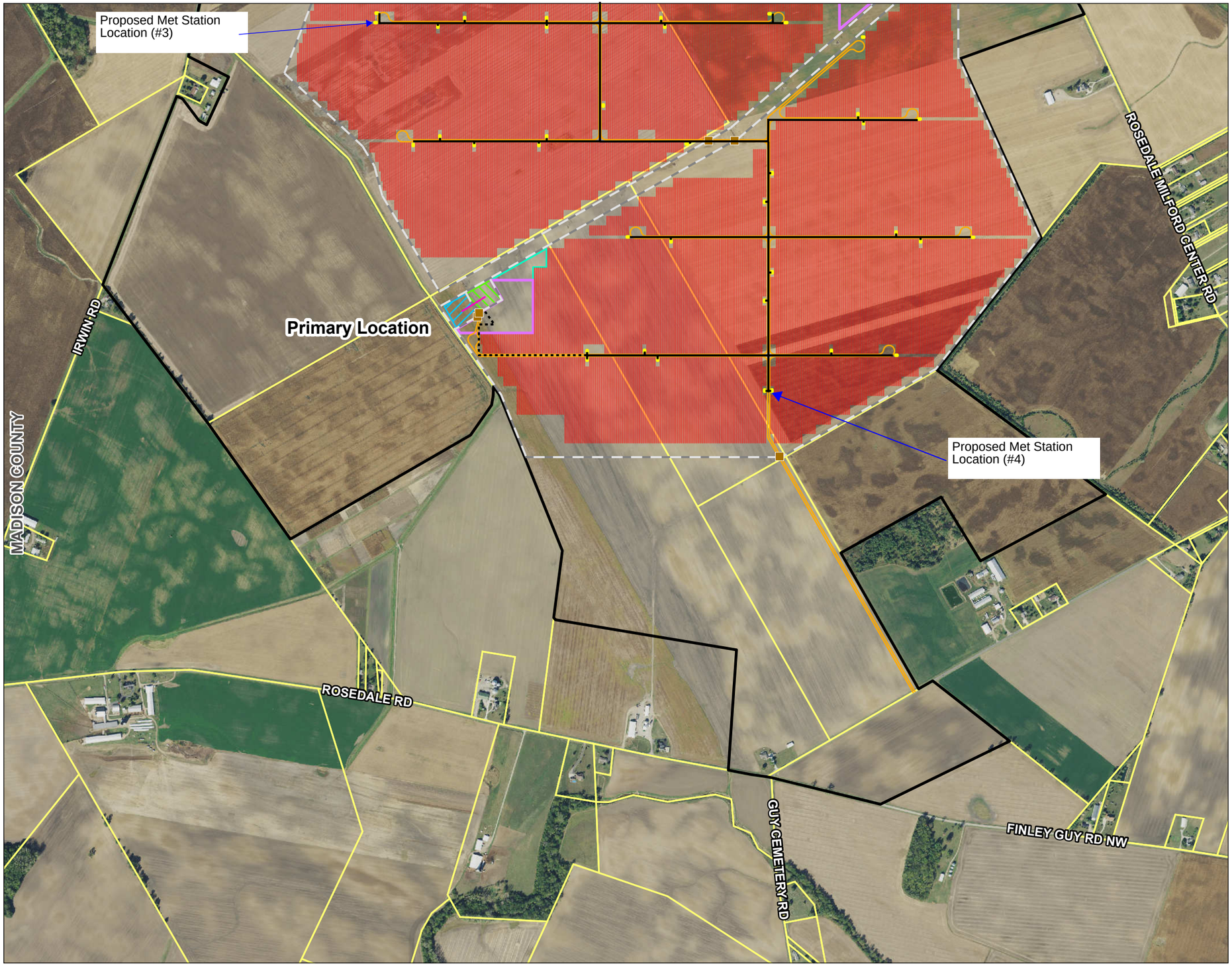


Figure No.

3-2

Title

Project Site Layout Map

Client/Project 2028113208

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Madison Fields Solar Project

Project Location
Madison County
Ohio

Prepared by JD on 2020-05-04
Technical Review by JH on 2020-05-04
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Legend

- Project Boundary
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- [redacted]

Preliminary Design - Not for Construction

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1. Coordinate System: NAD 1983 StatePlane Ohio South FIPS 3402 Feet
2. Data Sources: Stantec, Savion, Esri, USGS, OGRIP, NADS, Madison County
3. Background: 2019 NAIP

Stantec

Summary: Response - Supplemental Responses to the Third and Fourth Data Requests from Staff of the Ohio Power Siting Board electronically filed by Christine M.T. Pirik on behalf of Madison Fields Solar Project, LLC