City of Caribou, Maine

Municipal Building
25 High Street
Caribou, ME 04736
Telephone (207) 493-3324
Fax (207 498-3954

www.cariboumaine.org

Caribou Planning Board
Regular Meeting
Thursday, December 10, 2020 at 5:30 p.m.
City Council Chambers

AMENDED AGENDA

I. Call Meeting to Order

II. Approval of Minutes:

a. November 12, 2020 Regular Planning Board Meeting — Pgs. 2-5
b. November 24, 2020 Special Planning Board Meeting — Pgs. 6-10

III. Public Hearing to consider a Site Design Review Application from SynerGen Caribou, LLC for a Solar Array proposed for adjacent properties on Tax Map 16 – Lot 30 and Tax Map 13 – Lot 17 accessed from the Ogren Road former Caribou Landfill entrance road. — Pgs. 11-42

Applicants Participating via Zoom.

IV. Staff Report

a. Birdseye Clean-up
b. 412 Access Highway (Pop-Up Junkyard)
c. Small Communities Grant (Septic Systems)
d. Riverside Redevelopment

V. Chapter 13

a. Land Use Table

VI. Adjournment

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Caribou Planning Board Meeting Minutes
Thursday, November 12, 2020 @ 5:30 pm
City Council Chambers

Members Present: Robert White, Dan Bagley, Christine Solman, Amanda Jandreau, Dave Corriveau and Frank McElwain

Members Absent: Drew Ayer

Others Present: Ken Murchison –CEO/Zoning Administrator, Dennis Marker –City Manager, James Bacon, Richard Solman, Mark Kelley –Country Farms Properties, Tom Ayer – Councilor Liaison and Denise Lausier – Executive Assistant to the City Manager

I. **Call Meeting to Order** – Chairman White called the meeting to order at 5:30 pm. Chairman White stated that there will be no votes on the Public Hearings this evening. The Hearings will continue to November 24th in which time the Board will vote.

II. **Approval of minutes from the September 10, 2020 Planning Board meeting** – Dan Bagley commented that it was an excellent treatment of the minutes, a lot of work went into them. It was a long meeting and there was a lot to capture and he really appreciates all the detail. Kudos to Denise Lausier. Christine Solman also thanked Denise for her work on the minutes.

Frank McElwain moved to approve the minutes; seconded by Dave Corriveau.

Roll call vote.
Amanda – yes; Dan – yes; Christine – yes; Frank – yes; Dave – yes; Bob – yes
Motion carried with all in favor.

III. Public Hearings:

a. Rezoning request at 31 Herschel Street Map 31, Lot 17 and related area from C-1 (High Density Commercial District) to R-2 (Residential Single and Multi-Family Dwelling District). –

Chairman White opened the Public Hearing at 5:34 pm.

Richard Solman was present and stated that he owns property in that area and he fully supports this rezoning request. Mr. Solman stated that there is a need for flexibility because a lot of buildings are empty. Mr. Solman said his property is divided into two zones and this request makes sense.

Mark Kelley from Country Farms Properties who submitted this request for rezoning was present. Mr. Kelley explained that he is in real estate development and buys foreclosure property and upgrades them. His proposal is to turn commercial space into residential space in the building at 31

Herschel Street. Mr. Kelley has a partnership with Cary Medical Center, they are in need of apartments for traveling nurses.

Christine Solman questioned how many residential/commercial activities are there. Mr. Kelley stated there is a hair salon, food pantry, laundry mat for tenants and a conference room for himself.

Dan Bagley questioned his plan to permit these units; apartments were put into this building without prior approval. CEO Ken Murchison stated that it is an existing non-conformance. Mr. Bagley stated to make sure the permitting is correct for this project. Mr. Kelley stated he owns buildings all over Caribou and surrounding communities as well as other buildings with apartments on Herschel Street and he never intended to go against code.

Amanda Jandreau asked how many apartment units Mr. Kelley had in that building. Mr. Kelley stated there are two units that are both being rented out to traveling nurses, one for Cary Medical Center, one for Pines Health Services. Mr. Kelley stated that they are one year leases and that there is an extreme shortage of nice rental units in Caribou. Mr. Kelley said he gets eight to ten calls per day for apartments.

Chairman White recessed the Public Hearing at 5:47 pm until the November 24th meeting at 5:30.

b. To consider a requested amendment to Section 13-700 §27 of Caribou Code; Sewage Disposal allowing temporary private systems. –

Chairman White introduced this item.

Chairman White opened the Public Hearing at 5:50 pm.

City Manager Dennis Marker stated that State Plumbing Code has a provision that someone who needs to connect to public sewer can get a private system installed temporarily for a twelve month period with a twelve month extension if needed. If someone is within so many feet of the public sewer line, they need to connect according to City standards and Plumbing Code. Manager Marker stated that Mr. Bacon's attorney drafted proposed City Code amendments.

CEO Murchison stated that the staff proposed language will make the City's Ordinance line up with State Statute. Manager Marker stated the City is proposing a six month extension to be more restrictive.

James Bacon stated that the estimated cost to repair the connection to public sewer must exceed $20,000 per the City but Mr. Bacon feels $10,000 was enough. Mr. Bacon stated that $20,000 was a little high and would be a big burden on someone else going forward. Mr. Bacon also questioned the performance bond.

Chairman Robert White stated that a performance bond is like an insurance policy. If the homeowner couldn't get the work done, the insurance would cover the work instead of the City.

Discussion on the cost of septic system and reconnection costs.

Chairman White stated that with Mr. Bacon's issue, this is about an existing section fourteen feet underground with the cost to reconnect to a new pipe has been estimated over $20,000. Mr. Bacon is looking for relief with a temporary private septic system and time to save up the cost to reconnect within 12-18 months.

Amanda Jandreau asked to clarify that this was just a temporary system and reconnect. If the cost is over $20,000 they can put in a temporary system. Manager Marker clarified that they want them to connect to City sewer; cost would be around $18,000 for new system and around $10,000 to reconnect to City sewer.

Dave Corriveau questioned if there is grant money available.

Mr. Bacon stated it's 14-16 feet deep. Chairman White commented it is cost prohibitive to fix at that depth.

Christine Solman questioned if refinancing credit enhancements can be used with new development. Manager Marker stated that Tax Increment Financing can fund infrastructure and clarified that we have that tool in parts of the City.

Dan Bagley had concerns that if at the end of the year and a half if no progress has been made, what can the City do. James Bacon stated this just buys some time. CEO Murchison noted that is why the performance bond is recommended.

Chairman White recessed the Public Hearing at 6:12 pm until the November 24th meeting at 5:30.

c. To consider an amendment to Section 13-700 §39 of Caribou Code; addressing Medical Marijuana related facilities. –

Chairman White introduced this item.

Chairman White opened the Public Hearing at 6:13 pm. There was no public comment.

CEO Ken Murchison stated that he was recently approached by this type of business. CEO Murchison said that what is proposed is good language to be able to handle and regulate this industry.

Chairman White clarified that Caribou has a facility that is non-profit and authorized by State law. This language is for the ones that are for profit and there are no laws to govern them. The State says if we have no laws, we cannot allow them. This is why this came up.

CEO Murchison produced a map to identify places in the City that can have this type of facility based on the proposed spacing standards. CEO Murchison said that City Ordinance states they need to be 500 feet from schools and churches, 1,000 feet from the drug free safe zones as well as 300 feet from residential. Mr. Murchison stated that there are only a couple of small potential areas for medical marijuana retail.

Discussion on caregivers, retail, dispensaries, profit and non-profit.

Dan Bagley questioned if the Board could decide to allow dispensaries but not retail. Manager Marker answered yes.

Chairman White commented there is a need to modify code for medical marijuana dispensaries, no more than what State allows. CEO Murchison stated that if we opt in, we can regulate how many and assess fees. Amanda Jandreau clarified that the Planning Board decides what zones they are allowed in and City Council would designate fees.

CEO Murchison stated that the City needs to be able to regulate somehow. Manager Marker commented that there are a lot of elements to the industry.

Dan Bagley questioned why on the Land Use Table that these facilities are not allowed in the Commercial and Industrial zones. Christine Solman commented that Retail and Testing could also be in the RC-2. Chairman White stated that they need to be 300 feet from residential, 500 feet from daycare and churches.

Chairman White recessed the Public Hearing at 6:37 pm to the November 24th meeting.

Dave Corriveau moved to hold a Special Planning Board meeting on November 24th at 5:30 pm to continue the three Public Hearings; seconded by Amanda Jandreau.

Motion carried with all in favor. Vote was unanimous by show of hands.

IV. New Communications – None.

V. Staff Report – CEO Ken Murchison

a. **412 Access Highway (New Court Date)** – New court date is in December.

b. **Downtown Team/Riverfront Development Committee Meeting** – Meeting on November 17th to discuss progress to date. This Committee is an off spin of the Downtown Team.

c. **Small Communities Grant (Septic Systems)** – CEO Murchison is working on closing out these grants. There have been some snags with contractors and clients.

d. **Day Care Permit Pending State Licensure** – Pending Daycare permit at 856 Sweden Street.

e. **Caribou Stream River Side and Dellwood Trailer Parks Septic Issues** – There are huge septic issues at these Trailer Parks. DEP brought these issues forward and the City needs solutions as soon as possible.

Also neighbor disputes on the Van Buren Road and on Access Highway.

VI. Chapter 13 – City Manager Dennis Marker

a. **Manager Marker TBA** – Manager Marker brought forward some work done on the Land Use Table. Christine Solman asked for a side by side comparison of the working Land Use Table with the current Land Use Table to better identify the changes. More discussion on this item at the December 10th meeting.

VII. Comprehensive Plan Update –

a. **Future Land Use (Information Only)** – CEO Ken Murchison is still working on the Land Use Study, nothing new to bring forward at this time.

VIII. Adjournment – Meeting adjourned at 6:55 pm.

Respectfully Submitted,

Christine Solman
Planning Board Secretary

CS/dl

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Caribou Planning Board Meeting Minutes
Thursday, November 24, 2020 @ 5:30 pm
City Council Chambers

Members Present: Robert White, Dan Bagley, Christine Solman, Amanda Jandreau, Dave Corriveau, Drew Ayer and Frank McElwain

Others Present: Ken Murchison –CEO/Zoning Administrator and Denise Lausier –Executive Assistant to the City Manager

I. Call Meeting to Order – Chairman White called the meeting to order at 5:30 pm.

II. Approval of minutes from the October 22, 2020 Planning Board meeting –

Dave Corriveau moved to approve the minutes; seconded by Frank McElwain.

Roll call vote.
Frank – yes; Amanda – yes; Dan – yes; Dave – yes; Drew – yes; Christine – yes; Bob – yes
Motion carried with all in favor.

III. Public Hearings Continuance from Thursday, November 12, 2020 Caribou Planning Board Meeting:

a. Rezoning request at 31 Herschel Street Map 31, Lot 17 and related area from C-1 (High Density Commercial District) to R-2 (Residential Single and Multi-Family Dwelling District). –

Chairman White called the Public Hearing back into session at 5:32 pm. No public was in attendance. CEO Ken Murchison stated that there were no further comments or concerns since the last meeting.

Dan Bagley asked about a permit for the work that has already been done by the applicant. CEO Ken Murchison stated that the applicant would need a permit for the existing non-conformance.

Chairman White closed the Public Hearing at 5:35 pm.

b. To consider a requested amendment to Section 13-700 §27 of Caribou Code; Sewage Disposal allowing temporary private systems. –

Chairman White called the Public Hearing back into session at 5:36 pm. No public was in attendance.

Dan Bagley commented that they received a letter from Mr. Bacon's attorney that stated he did not agree with staff's proposed changes. It states that a performance bond is not necessary, $20,000 is a bit high and suggested to lower the amount to $15,000 for a temporary system.

Frank McElwain questioned if the owner will continue to pay fees like he was connected to the main line. CEO Murchison stated they would pay for sewer, it's a base fee. Mr. McElwain questioned if it would be an incentive to get rid of the fee. Chairman White commented that it would not be an incentive to reconnect.

Christine Solman stated with an eighteen month temporary system, they could continue with it.

Amanda Jandreau commented that it should be more than a system cost which is $10,000-$15,000. Frank McElwain agreed.

Amanda Jandreau said a temporary system and then they would need to hook up to the main. Dan Bagley questioned the threshold to reconnect. Drew Ayer stated with it being fourteen feet in the ground, probably would be around $10,000 to do.

Dan Bagley & Christine Solman both had concerns with the eighteen months of a temporary system and then still needing the cost to hook up, they both feel it will cause problems. Chairman White commented that could be remedied with a possible six month extension.

Christine Solman questioned what would happen if they don't reconnect at the end of eighteen months. Amanda Jandreau stated it then becomes non-conforming. Chairman White said they would be served non-occupancy. CEO Murchison stated that the LPI (licensed plumbing inspector) would need to inspect and they would need to exercise the performance bond to get it done.

Frank McElwain questioned if other communities have language for this. Chairman White stated performance bonds are common in agreements with municipalities.

After discussion, Chairman White stated the Board has three options. #1 – leave as is with no temporary solution. #2 – recommend inaction of amendment to ordinances as presented. #3 – go with the recommendations with modifications with Board input.

Attorney Rudman's language proposed both to delete the performance bond and to change the trigger level from $20,000 to $15,000.

Amanda Jandreau stated that with the performance bond, requiring three bids and needing to pay for a temporary system, they may realize at some point that they need to connect to the City sewer line. Ms. Jandreau also stated that she believes the performance bond is a good idea.

Chairman White closed the Public Hearing at 6:00 pm.

c. To consider an amendment to Section 13-700 §39 of Caribou Code; addressing Medical Marijuana related facilities. –

Chairman White called the Public Hearing back into session at 6:01 pm. No public was in attendance.

Dave Corriveau asked if the proposed language mirrored the State's laws; CEO Murchison stated that it does.

CEO Ken Murchison stated that the City has language for non-profit dispensaries and language in Ordinance for drug safe zones with thousand foot setbacks.

Dan Bagley questioned the proposed language in the land use table and why it wouldn't be allowed to exist in the commercial zones. Christine Solman stated that a lot of marijuana activity complaints are about odors from sites. Ms. Solman commented that C-1 & C-2 sites are small and processing or baking the product may be an issue and may be something the Board should consider. CEO Murchison commented that higher density of development has issues with odors when harvested.

CEO Murchison stated that in the C-1 there was a medical marijuana provider that was giving out prescriptions in the downtown, but since then a daycare has moved in.

Chairman White stated that retail store under C-1 on the land use table should be a No. Drew Ayer agreed.

Chairman White closed the Public Hearing at 6:11 pm.

IV. Possible Action for Pending Amendments –

a. Rezoning request at 31 Herschel Street Map 31, Lot 17 and related area from C-1 (High Density Commercial District) to R-2 (Residential Single and Multi-Family Dwelling District). –

Dan Bagley stated they have an option to let it slide and wait for the Chapter 13, Zoning Code re-write. Drew Ayer & Dave Corriveau stated they felt the Board needed to move on this item.

Dan Bagley has concerns with approving this after the fact and others down the road. CEO Ken Murchison stated it's more than a spot zone in this case, need to look at the whole area. Drew Ayer also stated he had concerns with repercussions.

Dave Corriveau stated that trends are changing and there is more demand for residential than commercial.

Chairman White said he was inclined to make the zoning change. Chairman White commented that senior housing on Collins Street is half in the R-2 zone and the commercial zone and another property landed in the commercial zone.

Dave Corriveau moved to send a recommendation to the City Council to approve this zone change request; seconded by Frank McElwain.

Drew Ayer questioned the current non-conformance. CEO Murchison stated that he will need permits and Chairman White stated the CEO will need to inspect.

Christine Solman stated that she doesn't support changing those lots out of commercial. The City has a Downtown Team looking to develop the downtown. Dave Corriveau commented that the demographics have changed over the last 35 years. Mr. Corriveau said the downtown is almost non-existent and that this would be changing with the times accommodating residents in the downtown area. Chairman White stated that grocery stores will be within walking distance for them.

Amanda Jandreau commented that the Board received a similar request from Rick Solman a short time ago. Chairman White said that Mr. Solman has not come back.

Drew Ayer stated he supports the zone change request.

Chairman White called for a roll call vote on the motion.
Frank – yes; Amanda – yes; Dan – yes; Dave – yes; Drew – yes; Christine – no; Robert – yes
Motion carried (6 – Yes; 1 – No, Christine Solman).

Dan Bagley asked that in the Board's recommendation letter to the City Council that the Board's concerns would be outlined as well.

b. To consider a requested amendment to Section 13-700 §27 of Caribou Code; Sewage Disposal allowing temporary private systems. –

Chairman White stated that two issues were raised by Attorney Rudman; a performance bond and the trigger amount. Chairman White said that if they leave as is, the City would not have an ordinance that would comply with the State. Amanda Jandreau commented that City ordinance is stricter than the State and would not allow temporary systems. CEO Murchison stated that the City requires they connect with the Utilities District connection and there is no temporary option of a holding tank or private system, with the State statute they can have a temporary system for eighteen months.

Drew Ayer, Amanda Jandreau and Dan Bagley all agreed to follow State statute.

Chairman White stated that with the requiring of three bids from contractors, that perhaps two bids should be required instead of three. Amanda Jandreau stated that they shouldn't go with just one because it's a competitive process. Christine Solman & Drew Ayer agreed that three bids is fair. After Board discussion, consensus was to require three bids and it was requested the language be fixed under section '3 a-i' to state "or non-bids verified in writing" and also leave the amount at $20,000 for a temporary system.

Chairman White brought up the second issue of performance bonds. Dan Bagley felt performance bonds were a great idea because they protect the City.

After Board discussion, consensus was to leave in the need for a performance bond. Dave Corriveau suggested to get a cost from insurance companies on performance bonds.

Drew Ayer moved to send a recommendation to the City Council as written in staff recommended changes with the change in section '3 a-i' to state "or non-bids verified in writing"; seconded by Amanda Jandreau.

Roll call vote.
Frank – yes; Amanda – yes; Dan – yes; Robert – yes; Christine – yes; Drew – no; Dave – yes
Motion carried with all in favor.

c. To consider an amendment to Section 13-700 §39 of Caribou Code; addressing Medical Marijuana related facilities. –

Chairman White stated that there was one change desired thus far by the Planning Board that Retail Store on the Land Use Table under the C-1 zone be changed from Planning Board to a No.

Dan Bagley questioned if the Board could pull back and recommend that we don't want any of this for Caribou at all. CEO Murchison stated that the City Council asked that this be addressed.

Dan Bagley questioned if they were under any obligation to have cultivation, manufacturing or testing facilities. Drew Ayer & Dave Corriveau both commented that this is coming.

Amanda Jandreau asked if this is a way for Caribou to set boundaries knowing it's in the area. CEO Murchison stated it was a way to regulate.

Dan Bagley had concerns that once it's in City Ordinance and in the Land Use Table they cannot say no and he asked if they really wanted to go this direction.

Chairman White commented to take manufacturing and testing off the table. Dave Corriveau said that if testing comes about it would be high paying jobs.

CEO Murchison stated that the Board could also send their concerns with recommendations to the City Council.

Frank McElwain moved to send to the City Council 'Exhibit C' as presented with the one change on the Land Use Table for Retail Stores in the C-1 zone from Planning Board to a No; seconded by Dave Corriveau.

Roll call vote.
Dave – yes; Drew – yes; Christine – yes; Dan – no; Amanda – yes; Frank – yes; Robert – yes
Motion carried (6 – Yes; 1 – No, Dan Bagley).

V. Adjournment – Board adjourned at 7:25 pm.

Respectfully Submitted,

Christine Solman
Planning Board Secretary

CS/dl

CARIBOU ADMINISTRATION
25 HIGH STREET
CARIBOU, ME. 04736

MEMO

TO: Planning Board
FROM: Code Enforcement Department
RE: Public Hearing regarding SynerGen Caribou, LLC Solar Array Project Site Design Review Application
DATE: December 10, 2020

Included in the Planning Board Agenda for the December 10, 2020

Exhibit A: Public Hearing to consider a Site Design Review Application from SynerGen Caribou, LLC for a solar array proposed for adjacent properties on Map 16 – Lot 30 and Map 13 – Lot 17 accessed from the Ogren Road former Caribou Landfill entrance road.

This Application has been held over by the applicant's request. The original application dated april 9, 2020 called for more extensive use of the former Caribou Landfill property, but it became evident that there would be significant impacts to wetland areas on that site.

The revised application makes use of two adjacent properties on leased land to achieve the desired development (East and West arrays), involves Use Permit Application for both lots and must address some enhanced restrictions for developing, in part, on an existing closed landfill (East array).

The timeline for this Public Hearing for Site Design Review Application requires that the preliminary review be conducted at the regular meeting of the Caribou Planning Board Thursday December 10, 2020 with the final review and anticipated actions taken at the next meeting of the Planning Board currently slated for January 14, 2021.

JONES
ASSOCIATES
Foresters, Surveyors and
Environmental Consultants

November 19, 2020

Ken Murchison
Code Enforcement Officer
25 High Street
Caribou, Maine 04736

Dear Mr. Murchison:

SynerGen Caribou, LLC, is seeking to develop a solar field on property owned by the City of Caribou (Tax Map 16, Lot 30) and Guerrette Farms Corp (Tax Map 13, Lot 17), both located off of Ogren Road. Both sites are accessible by an old woods road. SynerGen Caribou, LLC, is proposing to occupy the property owned by City of Caribou and Guerrette Farms Corp. through lease agreements.

Project Description:

This project will consist of two arrays, referred to throughout the rest of this application as the "West Array" and the "Easy Array." The West Array will be located on leased property from Guerrette Farms Corp. and the East Array will be located on leased property from the City of Caribou. Both arrays will be surrounded by a fence and will only be able to be accessed through a gate with a combination lock.

The East Array will be located on the former Caribou landfill. The landfill was closed and capped in 1993. The final cover system consists of 18" of compacted, sandy, glacial till containing well-graded material with a minimum of 15% fines capped with 6" of topsoil. The East array will be a fixed tilt system installed on the landfill site using RBI's ballasted racking. The ballasted racking will use pre-cast ballast blocks that will rest directly on top of the landfill with no penetrations into the ground. The racking for the solar will be mechanically attached directly to these ballast blocks. The solar modules will be installed to this racking in two rows of portrait orientation.

The West Array will be located on land formerly used as farmland by Guerrette Farms Corp. The West array will be a fixed tilt system installed on a farmland site using RBI's pile driven racking. The racking for the solar will be mechanically attached directly to these steel piles. The solar modules will be installed to this racking in two rows of portrait orientation.

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Auburn, Maine 04210
(207) 241-0235
Email: rjones@jonesai.com ; jgriffin@jonesai.com
Website: www.jonesai.com

Below is a system summary of the project. The project area is approximately 17.6 acres (19.8 acres with a ten foot buffer around the project area) and consists of 561 tables. The Easy Array will have 238 tables and the West Array will have 323 tables.

System Summary

Total DC System Size	5,896.80 kWDC
AC System Size	4,100.00 kWAC
Module Manufacturer	JA Solar
Module Model	JAM72S10-410/MR 410W
Modules Per String	626
Module Quantity	14,586
String Quantity	561
Module Tilt	25 degrees
Module Azimuth	180 degrees / 190 degrees
Inverter Manufacturer	CHINT
Inverter Model	CPS SCH125KTL-DO/US-600
Inverter Quantity	33

Landfill Gas Management:

In terms of landfill gas management, there is no existing gas management system in place at the landfill. The Caribou Landfill was operated as an open burning dump from the 1950's to October 1977 when it closed. Since the waste material is comprised predominantly of ash, a minimal amount of gas is expected to be generated. In addition, the landfill was left open until 1983 when a minimal closure of the site was conducted by the City of Caribou. The 6 years the landfill remained open without final cover allowed rain/snowfall to infiltrate the landfill, decompose the waste, and produce landfill gas that was released. The DEP required additional closure work and a cap that was completed in 1993 as the cap was found insufficient to prevent infiltration of rain/snow fall (or prevent gas release). At the time of the 1993 closure, no additional gas management or venting was thought necessary or required in part because of the length of time (16 years) the landfill was open and uncovered. Previous inspections of the cover system by DEP Staff in 2003 and 2006 do not indicate landfill gas generation to be an issue. No stressed vegetation has been observed. No odors or other indication of the presence of gas that would impact this installation have been noted.

We reexamined the potential for landfill gas during a site visit on May 7, 2020. We made a number of traverses across the landfill and across the slopes and found healthy vegetation. No bald spots, distressed vegetation or odors from landfill gas were observed.

On July 14, 2020, we met onsite with DEP staff to view the site. The vegetation on the landfill looked stressed compared to our May visit, in part because of a severe drought in Aroostook County in the summer. DEP staff believe that the presence of moss and strawberries in widespread areas on top of the landfill result from landfill gas emissions. This is an area that DEP staff are still researching, but did not believe that

corrective action was warranted at this time. Based on our and DEP staff observations, we do not believe that landfill gas mitigation is needed for this solar field project.

Landfill Settlement and Loading:

As for landfill settlement and loading, there has been no evidence of waste settlement since the final cover system was installed first in 1983 and again in 1993. Construction inspections and regulatory inspections conducted after the closure of the landfill found no evidence of settlement or slope movement. The proposed solar equipment, including panels and concrete with a dead load maximum of 4.5 psi, is not expected to significantly increase the risk of settlement at this landfill. We have evaluated the potential for settlement of the landfill based upon the increased loading of the proposed solar system and it should not impact the integrity of the final cover system. The existing final cover is 18" of sandy glacial till containing well graded material with 15 to 20% fines. Field density tests taken during construction show compaction percentages between 93-99% at 5.5 to 12.3 % moisture content. Laboratory dry density tests were between 136 to 141%.

During our May 7, 2020 landfill inspection, we made three traverses across the landfill surface. We drilled a small bucket auger boring in the northern third of the landfill crest to determine the thickness of the cover material. We found the cover to be in excess of 2' deep. A 3/8" diameter soil tile probe was used to determine how firm and compacted the landfill surface was. Probing was done every six feet on each traverse.

The probe was inserted with a firm push and withdrawn. Except in two damp areas in closed depressions, the probe reached refusal between 2-4" in depth. In the closed depressions, the probe went to 4-6" in depth. The only settlement observed was in two small depressions near the north end of the landfill. The two small depressions are the areas that contain the starch ('peanut butter lagoons') and were probed with a soil probe and found to be quite firm below 6". The areas appear stable and will not interfere with the placement of the solar panels. Some small amounts of additional fill can be added to the depressions to bring them to grade.

Two very small areas of slope movement can be found on the steep slopes on the south side of the landfill. Both areas have healed and are completely vegetated. The PV system will be restricted to the relatively flat (2-3% slope) of the top of the landfill not the side slopes. The surface in all areas was firm and well compacted, the cover system is unlikely to settle under the additional weight of the system.

The inspection report from May 7, 2020 has been included in the application.

Stormwater Control:

The entire project area will create less than an acre of disturbed area. Therefore, an MDEP storm water permit will not be necessary for the project. Given the minimal area of

disturbance, any increase in stormwater will be infiltrated on-site. Any effect will be de minimis. The landfill itself is already considered disturbed area, but the proposed additional "disturbed" area that will occur on the East Array includes seven concrete pads, a variety of solar equipment, 476 ballast blocks (3' w x 9' l), fence posts with a bentonite seal (approx.. 28 sq. in. per post with approximately 346 fence posts around the landfill site), and an AC Trench from Transformer B to Transformer A (24" w x 30" d x 960' l). Therefore, the proposed additional "disturbed" area on the East Array will be approximately 14,037 sq. ft. (0.33 acres).

The proposed additional impervious area that will occur on the East Array includes seven concrete pads, a variety of solar equipment, 476 ballast blocks (3' w x 9' l), and fence posts with a bentonite seal (approx.. 28 sq. in. per post with approximately 346 post around the landfill site). The fence posts will not be located on the landfill, but on the edges of it. Therefore, the proposed additional impervious area on the East Array will be approximately 9,237 sq. ft. (0.22 acres).

The proposed "disturbed" area that will occur on the West Array includes two concrete pads, a variety of solar equipment, 1,292 posts for tables (assuming four posts per table with proposed impacts of 36 sq. in.), a DC Trench from combiner boxes in array to equipment pads (52" w x 45" d x 520' l), an AC Trench from Transformer A to riser pole (24" w x 30" d x 65' l). Therefore, the proposed "disturbed" area on the West Array will be approximately 9,443 sq. ft (0.22 acres).

The proposed impervious area that will occur on the West Array includes two concrete pads, a variety of solar equipment, and 1,292 posts for tables (assuming four posts per table with proposed impacts of 36 sq. in.). Therefore, the proposed impervious area on the West Array will be approximately 668 sq. ft. (0.02 acres).

To the south of the West Array, there are thirteen proposed utility poles, all approximately 20 sq. ft. These utility poles will create 260 sq. ft. (0.006 acres) of both impervious and "disturbed" area.

With a total of only 0.55 acres of total proposed additional "disturbed area" and 0.24 acres of total proposed additional impervious area, the project does not qualify as needing a stormwater permit according to DEP Stormwater Rules.

Erosion Control:

Though the arrays will be secured to concrete blocks and driven posts, minimal soil disturbance may occur during construction. The Maine Department of Environmental Protection's Best Management Practices will be followed. The Erosion Control Plan can be found attached to this application.

Inspection and Maintenance:

Monitoring and maintenance will be conducted by third party inspectors verified by the Maine Department of Environmental Protection. This third party inspector will be provided by Jones Associates, Inc. The surface beneath the panels will be mowed at least once annually but no more than twice annually.

The former landfill will be inspected once annually by a certified DEP inspector, and SynerGen Caribou, LLC will be responsible for three other inspections throughout the year. Inspections done by a certified DEP inspector will be conducted using the same format as the inspection report that was conducted on May 7, 2020, which demonstrates anticipated inspection and maintenance items for the project.

The three other inspections will occur when minimal snow coverage is present on the landfill as to make certain that inspections are able to be conducted as applicably and accurately as possible (approximately bi-monthly). These inspections will focus on erosion, maintenance of this site, operation of the PV system, fencing, and access issues.

Please see attached Use Permit and Site Design Review Application for more information.

Correspondence for Site Design Review Application:

Additionally, below is a list of the person(s) and address(s) to which all correspondence regarding this site design review application should be sent to:

Hillel Halberstam (SynerGen Solar, LLC)
600 Reisterstown Road, Pikesville, MD 21208
(410) 440-3597
hillel.halberstam@synergensolar.com

Jones Associates, Inc.
280 Poland Spring Road, Auburn, Maine 04210
(207) 241-0235
rjones@jonesai.com ; jgriffin@jonesai.com

Dennis Marker (City Manager of Caribou)
25 High Street, Caribou, Maine 04736
(207) 493-3324
citymanager@cariboumaine.org

Guerrette Farms Corp.
P.O. Box 1135, Caribou, Maine 04736
(207) 498-8109

If you have any questions or need additional information, please do not hesitate to contact our office.

Sincerely,

Josie Ray

Josie Ray

City of Caribou
Site Design Review Application

Planning & Code Enforcement
25 High St.
Caribou, Maine 04736
(207) 493 – 3324 X 214
kmurchison@cariboumaine.org

Note to Applicant: Complete this application and return it with the required documents. In addition, the required fee must be returned along with this completed application. Make checks payable to: "City of Caribou", in the amount of $90.00 plus $10.00 per 2000 square feet of total gross floor area for commercial, industrial or other non residential applications.

Please print or type all information

Name of Property Owner / Developer: Owner(s): City of Caribou & Guerrette Farms Corp. ; Developer: SynerGen Caribou, LLC

Development Name: Caribou Solar Project

Location of Property (Street Locations): Ogren Road, access road to former Caribou Landfill

City of Caribou Tax Map: 16 / 13 Lot: 30 (City of Caribou lot) / 17 (Guerrette Farms Corp. lot) Zone: Rural Mixed Uses

Site Design Review Application – City of Caribou, Maine

Site Design approval will not be considered complete until the Planning Board has determined it has all of the necessary information to review the proposal and render a decision. You are advised to meet with the Code Enforcement Officer prior to completing the application as it may not be necessary to comply with all of the items shown on the form. The review of your application shall consist of at least (2) two presentations to the Planning Board and possibly additional presentations until all required information has been provided. A "Performance Bond" may be required prior to approval of this project.

Applicant Information

Please provide a brief description of this project.

SynerGen Caribou, LLC, is proposing to construct 561 solar tables on the areas that they will be leasing from the City of Caribou and Guerrette Farms Corp. 323 tables will be placed on the west array (Guerrette Farms Corp. property) with driven posts, while 238 tables will be placed on the east array (City of Caribou property) using ballast blocks.

Person and address to which all correspondence regarding this application should be sent to:

Please see attached letter. Phone: _____

_____

_____ E-mail: _____

If applicant is a corporation, check if licensed in Maine (____) Yes (X) No
(Attach copy of Secretary of State Registration)

Name of Land Surveyor, Engineer, Architect or other Design Professionals. (attach list if needed)

Jones Associates, Inc. Phone: 207-241-0235

Pure Power Engineering Phone: 201-687-9975

What legal interest does the applicant have in property to be developed (ownership, owners representative, option, purchase & sales contract, etc?)

SynerGen Caribou, LLC, developer of the project, will be leasing portions of property from the City of Caribou and Guerrette Farms Corp. for this project.
(Attach supportive legal documentation)

General Information

Aroostook County Registry Deeds: Book # 2555 / 4894 Page # 44 (City of Caribou) / 249 (Guerrette Farms Corp.) (attach copy of deed)

What interest does the applicant have in any abutting property? None

Is any portion of the property within 250 feet of the normal high water line of a lake, pond, river, or wetland or within 75 feet of any stream? (____) Yes (X) No

Is any portion of the property within a Flood Hazard Zone? (____) Yes (X) No

Total area or acreage of parcel: M16 L30: +/-108 acres / M13 L17: +/- 942 acres Total area or acreage to be developed: +/- 17.9 acres

Has this land been part of subdivision in the past five years? (____) Yes (X) No

Identify existing use(s) of land (farmland, woodlot, residential, etc.) City of Caribou property: former Caribou Landfill

Guerrette Farms Corp.: farmland

Indicate any restrictive covenants to be placed in the deed -- (Please attach list)

Does the applicant propose to dedicate any recreation area, or common lands? (____) Yes (X) No

Recreation area(s) Estimated Area & Description: N/A

Common land(s) Estimated Area & Description: N/A

Anticipated start date for construction: month / year 01 /2021 Completion: 12 /2021

Does any portion of the proposal cross or abut an adjoining municipal line? ( ) Yes (X) No

Does this development require extension of public services? ( ) Yes (X) No

Roads: No Storm Drainage: No Sidewalks: No Sewer Lines: No Other: N/A

Estimated cost for infrastructure improvements: $ project design: ~$255,000 project construction: ~$15,670,000 interconection upgrade costs: ~$2,300,000

Water Supply: Private Well: (N/A) Public Water Supply: (N/A)

Sewerage Disposal: Private SSWD: (N/A) Public Sewer: (N/A)

Estimated sewerage disposal gallons per day: (0 / day)

Does the building require plan review by the State Fire Marshal Office? ( ) Yes (X) No
(Attach Barrier free and Construction Permits from SFMO)

Have the plans been reviewed & approved by the Caribou Fire Chief? ( ) Yes (X) No

Does the building have an automatic sprinkler system? ( ) Yes (X) No

Does the building have an automatic fire detection system? ( ) Yes (X) No

Will the development require a hydrant or dry hydrant fire pond? ( ) Yes (X) No

Concept Plan Review Criterion

The Planning Board shall review applications first as a Concept Plan. Concept Plan Review is intended to insure the proposed plan is in conformance with the Caribou Comprehensive Plan and all City Ordinances. The completed application and concept plans shall be delivered to the Code Enforcement Office no less than 21 days prior to the first day of the next month. The Chairman of the Planning Board shall determine the schedule and agenda of the next meeting when the application and plans will receive Concept Plan Review. At a minimum, Concept Plan applications shall include the following:

1. X Name and address of the owner of record and applicant (if different).
2. X Name of the proposed development and location.
3. X Names and addresses of all property owners within 500 feet of the property.

4. X A copy of the deed to the property, option to purchase the property, or other documentation to demonstrate right, title, or interest in the property on the part of the applicant.

5. X Names and addresses of all consultants working on the project.

6. X 1 complete set of plans, 24" X 36" & 10 complete sets of plans, 11" X 17"
Plans to be included:
Boundary Survey
Storm Water Management
Erosion and Sediment Control
Finish Grading Plan
Site Improvement Detail
Building Elevations and Structural Plans

7. **Plans to show the following elements for review:**

X a. Graphic scale and north arrow.

X b. Location and dimensions of any existing or proposed easements and copies of existing covenants or deed restrictions.

X c. Name, registration number, and seal of the land surveyor, architect, engineer, and/or similar professional who prepared the Plan.

X d. All property boundaries, land area, and zoning designations of the site, regardless of whether all or part is being developed at this time.

X e. Size, shape, and location of existing and proposed buildings on the site including dimensions of the buildings and setbacks from property lines.

X f. Access for Emergency Vehicles, location and layout design of vehicular parking, circulation areas, loading areas, and walkways including curb cuts, driveways, parking space and vehicle turn around areas.

X g. Location and names of streets and rights-of-way within 200' and adjacent to the proposed development.

N/A h. Proposed finish grades and graphic arrows indicating the direction of storm water runoff.

N/A i. Conceptual treatment of on and off site storm water management facilities.

N/A j. Location and sizes of existing and proposed sewer and water services including connections.

N/A k. Conceptual treatment of landscaping buffers, screens, and plantings.

X l. Location of outdoor storage areas, fences, signage and accessory structures.

X m. Context map illustrating the area surrounding the site which will be affected by the proposal including all streets, sidewalks, intersections, storm water drainage ways, sanitary sewer lines and pump stations, nearby properties and buildings, zoning Districts, and geographic features such as, but not limited to, wetlands, natural features, historic sites, flood plains, significant scenic areas, and significant wildlife habitats as provided in the Comprehensive Plan.

X n. All proposed signage and exterior lighting including the location, size and wording of all signs, type of exterior lights, radius of light, manufacturer's specifications sheet, and the ground level intensity in foot- candles of all exterior lights.

Final Site Design Plan Requirements

Following approval of the Concept Plan Review, the Planning Board may by majority vote schedule the Site Design Application for Final Plan Review. Final Plan Review must be at least 30 days following Concept Plan Approval. If additional information is required by the Planning Board following the Concept Plan Review, a complete set of revised plans shall be provided for final review and approval. If additional information or a change of information is required, the revised plans shall be delivered to the Code Enforcement Office at least 21 days prior to the next scheduled meeting.

Final Site Design Plan Review shall require three (3) 24" X 36" sets of plans for Board Signatures.

If the Planning Board determines that third party review will be necessary to make a sound decision, the applicant will be responsible for any fees incurred for the third party review.

During the Final Site Design Review the Chairman or designee shall determine that all of the elements of review 7-a., through 7-n. above have been addressed. The chair may then call for a motion.

If the Final Plan is approved by the Planning Board, no work may commence for a period of 30 days following the date of approval.

Final Site Design Plans shall provide an area designated for all seven Planning Board members signatures.

Applicant Signature:

To the best of my knowledge, all of the information submitted in this application is true and correct.

Signature of Applicant: [signature] Date: 11/18/2020

Final Site Design Review Criteria by Planning Board

Date: ________		Yes	No	N/A
A.	Conformance with Comprehensive Plan	____	____	____
B.	Traffic	____	____	____
C.	Site Access	____	____	____

		Yes	No	N/A
D.	Parking & Vehicle Circulation	____	____	____
E.	Pedestrian Circulation	____	____	____
F.	Site Conditions	____	____	____
G.	Open Space	____	____	____
H.	Sanitary Sewage	____	____	____
I.	Water	____	____	____
J.	Emergency Vehicle Access	____	____	____
K.	Waste Disposal	____	____	____
L.	Buffering	____	____	____
M.	Natural Areas	____	____	____
N.	Exterior Lighting	____	____	____
O.	Stormwater Management	____	____	____
P.	Erosion & Sediment Control	____	____	____
Q.	Buildings	____	____	____
R.	Existing Landscaping	____	____	____
S.	Infrastructure	____	____	____
T.	Advertising Features	____	____	____
U.	Design Relationship to Site & Surrounding Properties	____	____	____
V.	Scenic Vistas & Areas	____	____	____
W.	Utilities	____	____	____
X.	Mineral Exploration	____	____	____
Y.	General Requirements (Pg. 859)	____	____	____

Z. Phosphorus Export ____ ____ ____

City of Caribou, Maine
Planning Board

Site Design Review for: _____

Address: _____

On _____(date) the members of the Caribou Planning Board met to consider the application for Site Design Review on the property referenced above.
The application was: **Denied** / **Approved** / **Approved with conditions**

Approved by the Caribou Planning Board

Signed: _____ Chairman of the Planning Board

_____

_____

_____

_____

_____

_____

Date: ____/____/____

Conditions of Approval:

_____

_____

_____

24

CONCEPT SKETCH PLANS

LOCATION PLAN

LEGEND

- SUBJECT BOUNDARY LINE
- ABUTTER OR RIGHT OF WAY LINE
- DELINEATED WETLANDS
- PROPOSED FENCE LINES OF PROJECT
- MV — PROPOSED MEDIUM VOLTAGE LINE
- DC — PROPOSED DIRECT CURRENT LINE
- OHE — PROPOSED OVERHEAD ELECTRIC LINE
- UTILITY POLE
- PROPOSED UTILITY POLE
- PROPOSED SOLAR MODULES

NOTES:

1. CONCEPT SKETCH PLAN BASED ON PARTIAL BOUNDARY SURVEY OF LAND OF THE CITY OF CARIBOU, DATED OCTOBER ____, 2020, PREPARED BY JONES ASSOCIATES, INC.
2. WETLANDS WERE IDENTIFIED AND DELINEATED BY JONES ASSOCIATES, INC. IN MAY OF 2020. ACCORDING TO U.S. ARMY CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL (1987) AND REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION.
3. WETLAND FLAGS WERE LOCATED USING TRIMBLE GLOBAL POSITIONING SYSTEM (GPS) TECHNOLOGY WITH EXPECTED ACCURACY OF SUB-METER. THIS METHOD IS RECOGNIZED BY BOTH STATE AND FEDERAL AGENCIES. HOWEVER, JONES ASSOCIATES, INC. RECOMMENDS THAT THE WETLAND BOUNDARY BE SURVEYED USING A MORE PRECISE METHOD IF ANY FILL OR REGULATED ACTIVITIES ARE TO BE PERFORMED WITHIN 20 FEET OF THE GPS LOCATED WETLAND.
4. BOTH PROJECT AREAS (WEST ARRAY AND EAST ARRAY) ARE LOCATED IN THE CITY OF CARIBOU'S RURAL MIXED USES DISTRICT (R-3).
5. DIMENSIONAL REQUIREMENTS OF LOTS:

   MINIMUM LOT SIZE: 65,000 SQ. FT.
   MINIMUM LOT FRONTAGE: 160'
   MAXIMUM LOT COVERAGE: 30%
6. MINIMUM SETBACK DIMENSIONS OF LOTS:

   FRONT (FROM ROW): 30'
   SIDE (EACH): 15'
   REAR: 15'
   MAXIMUM HEIGHT: 35'
7. EACH SOLAR TABLE IS APPROXIMATELY 43 FT (L) BY 12 FT (W). OTHER RELATED EQUIPMENT VARIES IN SIZE AND SHAPE.

GRAPHIC SCALE
0 125 250 500
1 inch = 250 ft

OVERALL CONCEPT SKETCH PLAN

CARIBOU SOLAR PROJECT

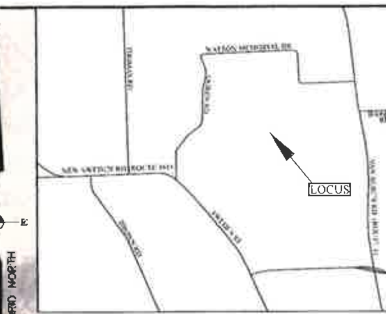
OGREN ROAD
CARIBOU, MAINE

PREPARED FOR: SYNERGEN CARIBOU, LLC
600 REISTERSTOWN ROAD, SUITE 310
PIKESVILLE, MARYLAND

PREPARED BY:
JONES ASSOCIATES INC.
Planners, Surveyors And Environmental Consultants
280 POLAND SPRING ROAD, AUBURN, MAINE 04210
(207) 241-0235

RECORD OWNERS:
[illegible]

PLAN DATE: NOVEMBER 3, 2020
SCALE: 1"=250'
PROJ. #: 20-019CU



LOCATION PLAN

LEGEND

— - - — - - —	SUBJECT BOUNDARY LINE
— - — - —	ABUTTER OR RIGHT OF WAY LINE
(wetland symbol)	DELINEATED WETLANDS
—o—o—o—	PROPOSED FENCE LINES OF PROJECT
—MV—	PROPOSED MEDIUM VOLTAGE LINE
—DC—	PROPOSED DIRECT CURRENT LINE
—OHE—	PROPOSED OVERHEAD ELECTRIC LINE
(symbol)	UTILITY POLE
(symbol)	PROPOSED UTILITY POLE
(blue box)	PROPOSED SOLAR MODULES

NOTES:

1. CONCEPT SKETCH PLAN BASED ON PARTIAL BOUNDARY SURVEY OF LAND OF THE CITY OF CARIBOU, DATED OCTOBER __, 2020, PREPARED BY JONES ASSOCIATES, INC.

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4. BOTH PROJECT AREAS (WEST ARRAY AND EAST ARRAY) ARE LOCATED IN THE CITY OF CARIBOU'S RURAL MIXED USES DISTRICT (R-3)

5. DIMENSIONAL REQUIREMENTS OF LOTS:

   MINIMUM LOT SIZE: 65,000 SQ. FT.
   MINIMUM LOT FRONTAGE: 160'
   MAXIMUM LOT COVERAGE: 30%

6. MINIMUM SETBACK DIMENSIONS OF LOTS:

   FRONT (FROM ROW): 30'
   SIDE (EACH): 15'
   REAR: 15'
   MAXIMUM HEIGHT: 35'

7. EACH SOLAR TABLE IS APPROXIMATELY 43 FT (L) BY 12 FT (W). OTHER RELATED EQUIPMENT VARIES IN SIZE AND SHAPE.

CONCEPT SKETCH PLAN

CARIBOU SOLAR PROJECT

OGREN ROAD
CARIBOU, MAINE

PREPARED FOR: SYNERGEN CARIBOU, LLC
600 REISTERSTOWN ROAD, SUITE 310
PIKESVILLE, MARYLAND

PREPARED BY:
JONES ASSOCIATES INC.
Foresters, Surveyors And Environmental Consultants
200 POLAND SPRING ROAD, AUBURN, MAINE 04210
(207) 241-0233

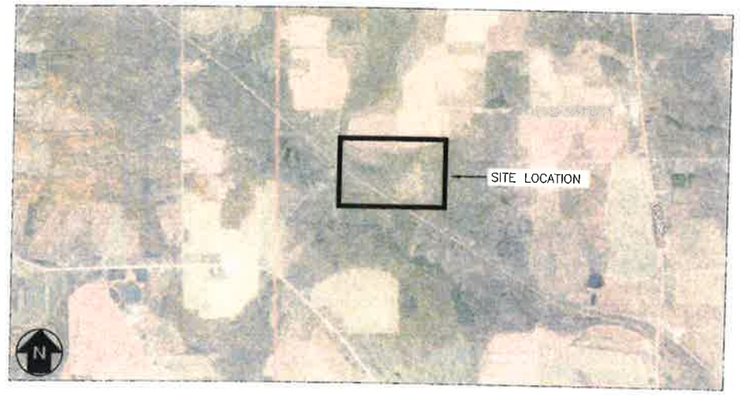
RECORD OWNERS:

PLAN DATE: NOVEMBER 3, 2020
SCALE: 1"=100'
PROJ. #: 20-019CU

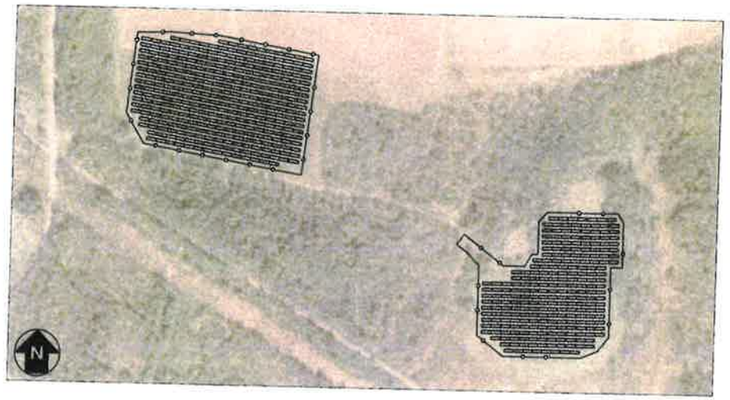
5,980.26 KW SOLAR GROUND MOUNT & LANDFILL SYSTEM AT

CARIBOU LANDFILL

46.909°, −68.046°, CARIBOU, ME 04736



LOCATION MAP
SCALE: 1" = 2000'



SYSTEM PLAN
SCALE: 1" = 300'

TOTAL SYSTEM SUMMARY:

TOTAL DC SYSTEM SIZE:	5,980.26 kWDC
AC SYSTEM SIZE:	4,100.00 kWAC
MODULE MANUFACTURER:	JA SOLAR
MODULE MODEL:	JAM72S10-410/MR 410W
MODULES PER STRING:	26
MODULE QUANTITY:	14,586
STRING QUANTITY:	561
MODULE TILT:	25°
MODULE AZIMUTH:	180°,190°
INVERTER MANUFACTURER:	CHINT
INVERTER MODEL:	CPS SCH125KTL-DO/US-600
INVERTER QUANTITY:	33

DEVELOPER:

SynerGen Solar

600 REISTERTOWN RD, SUITE 310
PIKESVILLE, MD 21208

ENGINEERED BY:

PUREPOWER ENGINEERING

5 MARINE VIEW PLAZA, SUITE 301
HOBOKEN, NEW JERSEY, 07030

SCOPE OF WORK SUMMARY

GROUND MOUNT PV ARRAY:

- INSTALL SOLAR MODULES AND RACKING SYSTEM ON GROUND LEVEL.
- INSTALL INVERTERS AND ELECTRICAL DISTRIBUTION EQUIPMENT TO INTERCONNECT AT EXISTING MAIN ELECTRICAL DISTRIBUTION EQUIPMENT.

DRAWING INDEX

		INTERCONNECTION DOCUMENTS REVS. 08/28/2020	CONCEPTUAL DESIGN 09/01/2020	ISSUE FOR PERMIT 09/04/2020		
GENERAL						
G001	TITLE SHEET		●	●		
ELECTRICAL						
E001	ELECTRICAL NOTES & SYMBOL LIST			●		
E100	AC ELECTRICAL PLAN	●	●	●		
E101	PARTIAL ELECTRICAL PLAN – WEST ARRAY		●	●		
E102	PARTIAL ELECTRICAL PLAN – EAST ARRAY		●	●		
E110	EQUIPMENT AREA PLAN			●		
E120	EQUIPMENT MOUNTING DETAILS IN ARRAY			●		
E201	PARTIAL DC STRINGING PLAN – WEST ARRAY			●		
E202	PARTIAL DC STRINGING PLAN – EAST ARRAY			●		
E203	CAB HANGER LAYOUT – EAST ARRAY			●		
E300	ONE LINE DIAGRAM – MEDIUM VOLTAGE	●	●	○		
E301	ONE LINE DIAGRAM – LOW VOLTAGE	●	●	●		
E302	CONTROL SCHEMATIC & PROTECTIVE SETTINGS	○	●	○		
E310	AC SCHEDULES & CALCULATIONS			●		
E311	DC SCHEDULES & CALCULATIONS			●		
E312	DC SCHEDULES – WEST ARRAY			●		
E313	DC SCHEDULES – EAST ARRAY			●		
E401	GROUNDING DETAILS			●		
E402	ELECTRICAL DETAILS			●		
E403	ELECTRICAL DETAILS – LANDFILL ONLY			●		
E500	LABELS & SIGNAGE			●		
E600	EQUIPMENT DATA SHEETS			●		
E601	EQUIPMENT DATA SHEETS			●		

LEGEND:

UPDATED DRAWING ISSUED	●
UNCHANGED, PREVIOUSLY ISSUED DRAWING STILL CURRENT	○
DRAWING REMOVED FROM SET	×

DATE	REVISION DESCRIPTION	PM	CHD	DPM
09/04/2020	ISSUE FOR PERMIT	BA	SV	MD
09/01/2020	CONCEPTUAL DESIGN	BA	SV	MD

PUREPOWER ENGINEERING
5 MARINE VIEW PLAZA, HOBOKEN, NJ 07030
WWW.PUREPOWERENG.COM
RICHARD A. WINS
ME LICENSE No. 14326

SYNERGEN SOLAR
600 REISTERTOWN RD, SUITE 310
PIKESVILLE, MD 21208
SYNERGENSOLAR.COM

DEVELOPER: SynerGen Solar

PAGE SIZE: 36" x 24"
PROJECT #: 00342

DC SYSTEM SIZE: 5,980.26 kW
AC SYSTEM SIZE: 4,100.00 kW
MODULE TYPE: JA SOLAR JAM72S10-410/MR
MODULE QUANTITY: 14,586
STRING QUANTITY: 561
ORIENTATION: 25° TILT, AZIMUTH VARIES

PROJECT: 4.10 MWAC SOLAR SYSTEM AT OGREN ROAD, CARIBOU
MAP 16, LOT 30 & MAP 13, LOT 17
CARIBOU, ME

DRAWING TITLE: TITLE SHEET

DRAWING #: G001

28

PLOT DATE: 9/4/2020 1:01 PM

RULER IN INCHES:

ELECTRICAL NOTES

1. GENERAL
1.A. ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ALL EQUIPMENT SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) TO APPLICABLE UL STANDARDS. THE CONTRACTOR SHALL PROCURE ALL NECESSARY CERTIFICATIONS FOR ALL WORK INSTALLED, PAY ALL FEES AND CHARGES CONNECTED THEREWITH AND DELIVER ALL CERTIFICATES AND INSPECTION APPROVALS TO THE OWNER THROUGH THE ENGINEER, BEFORE WORK WILL BE FINALLY ACCEPTED.
1.B. ALL INVERTERS SHALL BE IEEE 1547 COMPLIANT AND SHALL BE INSPECTED BY LOCAL UTILITY BEFORE COMMISSIONING, TESTING AND OPERATION OF THE SYSTEM.
1.C. UNLESS OTHERWISE NOTED, NEW EQUIPMENT SHALL HAVE AN INTERRUPT RATING (kAIC) OR SHORT CIRCUIT CURRENT RATING (SCCR) GREATER THAN OR EQUAL TO THE EXISTING EQUIPMENT.

2. MANNER OF INSTALLATION
2.A. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. ALL DETAILS OF THE INSTALLATION SHALL BE MECHANICALLY AND ELECTRICALLY CORRECT.
2.B. TORQUE AND MARK ALL RACKING AND MECHANICAL LUGS.

3. CONDUCTORS AND CONDUCTOR INSTALLATION
3.A. COMPRESSION LUGS SHALL BE USED ON ALL ALUMINUM CABLE TERMINATIONS. MECHANICAL LUGS MAY ONLY BE USED FOR COPPER CABLE TERMINATIONS OR ALUMINUM CABLE WITH COMPRESSION PIN ADAPTORS.
3.B. IF ALUMINUM MC CABLE IS USED, THHN/THWN-2 INSULATION IS ACCEPTABLE. FOR ALUMINUM CONDUCTORS, XHHW-2 SHALL BE USED.
3.C. ANTI-OXIDANT COMPOUND SHALL BE USED WITH ALL ALUMINUM LUGS. CLEAN OXIDATION FROM WIRE STRANDS WITH STEEL WIRE BRUSH PRIOR TO APPLICATION OF COMPOUND.
3.D. PV SYSTEM CONDUCTORS SHALL BE MARKED AND IDENTIFIED PER NEC 690.31(B).
3.E. INSTALL WIRE AND CABLE IN ACCORDANCE WITH THE NEC AND AS HEREINAFTER SPECIFIED. USE THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION'S "STANDARD OF INSTALLATION", THE MANUFACTURER'S WRITTEN INSTRUCTIONS, UNLESS SUPERSEDED BY THESE SPECIFICATIONS. IN ALL CASES THE INSTALLATION SHALL BE IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES.
3.F. THE USE OF WIRE SPLICES AT ANY POINT IN THE INSTALLATION IS STRICTLY PROHIBITED
3.G. THE USE OF WIRE LUBE IS REQUIRED FOR ALL WIRE PULLS THROUGH CONDUIT RUNS OF 20' OR LONGER, OR WITH BENDS IN 180° OR MORE. WIRE LUBE IS REQUIRED EVEN WHEN USING SELF LUBRICATING CABLES SUCH AS SOUTHWIRE 'SIMPULL'.
3.H. STRING WIRING & HOMERUNS SHALL BE SECURED TO UNDERSIDE OF THE RACKING & MODULES USING ZIP TIES OUTDOOR RATED FOR UV. HELLERMAN TYTON PA66UV OR EQUAL. TRANSITION TO EMT OUTSIDE OF ARRAY.
3.I. ALL PV SOURCE CIRCUITS WHICH WOULD BE EXPOSED TO PHYSICAL DAMAGE SHALL BE PROTECTED IN CONDUIT OR CABLE TRAY.
3.J. ALL PV SOURCE CIRCUITS WITH DIRECT EXPOSURE TO SUNLIGHT SHALL BE PROTECTED THROUGH THE USE OF CONDUIT, PROTECTIVE WRAP, SPLIT LOOM, OR EQUIVALENT, WHICH ARE DURABLE FOR THE ENVIRONMENT AND RATED FOR THE APPLICATION.
3.K. ALL PLUG AND SOCKET CONNECTORS MATED TOGETHER SHALL BE OF THE SAME TYPE AND OF THE SAME MANUFACTURER. "COMPATIBLE" CONNECTORS SHALL NOT BE ACCEPTED (IEC 62446-1).
3.L. ALL FIELD-MADE PLUG & SOCKET CONNECTORS SHALL BE INSTALLED USING MANUFACTURER APPROVED TOOLS AND METHODS, AND CABLE GLANDS SHALL BE TIGHTENED TO MANUFACTURER'S SPECIFIED TORQUE VALUE.

4. PHASE RELATIONSHIP
4.A. CONNECT FEEDERS TO MAINTAIN PHASE RELATIONSHIP THROUGH SYSTEM. PHASE LEGS OF FEEDERS SHALL MATCH BUS OR CABLE ARRANGEMENTS IN EQUIPMENT TO WHICH THE FEEDERS ARE CONNECTED. COLOR CODING SHALL BE AS FOLLOWS:

208/120 VAC
A PHASE: BLACK, B PHASE: RED, C PHASE: BLUE

277/480 VAC
A PHASE: BROWN, B PHASE; ORANGE, C PHASE: YELLOW

1500 VDC, 1000 VDC, OR 600 VDC
UNGROUNDED POSITIVE CONDUCTOR: RED
UNGROUNDED NEGATIVE CONDUCTOR: BLACK

AC AND DC SYSTEMS:
GROUNDED CONDUCTOR: WHITE
GROUND: GREEN

4.B. GROUNDED CONDUCTORS (NEUTRAL) AND EQUIPMENT GROUNDING CONDUCTORS SMALLER THAN #4 MUST HAVE COLOR CODED INSULATION. WHERE COLOR CODED CABLE IS NOT USED, TAPE CONDUCTOR WITH OVERLAPPED COLORED TAPE FOR A MINIMUM OF 6" IN ACCESSIBLE LOCATIONS. COLOR CODING MUST BE USED CONSISTENTLY FOR THE ENTIRE PROJECT.

5. CONDUITS AND RACEWAYS
5.A. PROVIDE RACEWAYS MINIMUM SIZE 3/4".
5.B. CONDUITS SHALL BE EMT WHERE NOT SUBJECT TO PHYSICAL DAMAGE. CONDUITS SHALL BE IMC OR RMC WHERE SUBJECT TO PHYSICAL DAMAGE. PVC CONDUITS ONLY PERMITTED IN BELOW GRADE DUCT BANKS.
5.C. DRAWINGS SHOW RACEWAY LOCATIONS DIAGRAMMATICALLY. CONTRACTOR SHALL ADJUST ROUTING TO SUIT FIELD LOCATIONS. ANY CHANGES TO PROPOSED ROUTING SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL.
5.D. FURNISH AND INSTALL ALL FITTINGS AND SPECIAL DEVICES NECESSARY FOR THE PROPER INSTALLATION, CONNECTION AND OPERATION OF THE SYSTEM. CONDUIT ELBOWS SHALL BE OF THE SAME MAKE, QUALITY AND FINISH AS THE CONDUIT USED.
5.E. A PROTECTIVE COATING OF ASPHALT COMPOUND, PLASTIC SHEATH, OR OTHER EQUIVALENT PROTECTION SHALL BE APPLIED TO ANY GALVANIZED STEEL CONDUITS DIRECTLY BURIED IN EARTH.
5.F. EMT CONDUIT SHALL USE COMPRESSION RAINTIGHT CONNECTORS, FACTORY STAMPED RAINTIGHT WITH COMPONENTS PROPERLY INSTALLED.
5.G. PROVIDE EXPANSION FITTINGS WITH BONDING JUMPERS FOR EVERY 100' OF STRAIGHT METAL CONDUIT RUN.
5.H. CONDUIT EXPANSION AND DEFLECTION FITTINGS WITH BONDING JUMPERS SHALL BE USED WHENEVER CROSSING BUILDING EXPANSION AND SEISMIC SEPARATION JOINTS.
5.I. LEAVE WIRE SUFFICIENTLY LONG TO PERMIT MAKING FINAL CONNECTIONS. ALL EMPTY CONDUITS OVER 10' IN LENGTH SHALL BE PROVIDED WITH SYNTHETIC FIBER ROPE PULL WIRE.
5.J. PATCH AND REPAIR ALL SURFACES DAMAGED BY TRENCHING TO MATCH THE PREVIOUSLY EXISTING CONDITIONS.
5.K. 15" WIDE OR LESS BUCKET TO BE USED FOR TRENCHING.
5.L. ALL PENETRATIONS SHALL BE SEALED TO MAINTAIN THE EXISTING FIRE RATING.
5.M. ALL ROOFTOP CONDUITS SHALL BE MARKED PER LOCAL FIRE CODES.
5.N. ALL CONDUITS ENTERING ENCLOSURES SHALL BE FITTED WITH PROTECTIVE BUSHINGS, INCLUDING CONDUIT WITH CONDUCTOR SIZES SMALLER THAN #4 AWG. METALLIC CONDUIT/BUSHINGS SHALL BE BONDED PER NEC.
5.O. ALL CONDUIT ENTERING ENCLOSURES SHALL BE SEALED WITH AN APPROVED SEALANT.

6. ELECTRICAL ENCLOSURES
6.A. ALL OUTDOOR ENCLOSURES (PANELBOARDS, DISCONNECT SWITCHES, JUNCTION BOXES, COMBINER BOXES, ETC.) SHALL BE NEMA 3R, 4, OR 4X. INDOOR ENCLOSURES SHALL BE NEMA 1.
6.B. PANELBOARD DOORS SHALL BE QUARTER TURN LATCHES OR EXTERNAL HANDLE WITH INTERNAL LATCHES, NO SETS OF EXTERNAL SCREW DOWN CLAMPS.
6.C. CONDUIT TERMINATING IN OUTDOOR ENCLOSURES SHALL USE MYERS-TYPE HUBS WITH GROUND SCREW. UTILIZE RAINTIGHT FITTINGS FOR ALL CABLE ENTRIES.
6.D. NO PENETRATIONS OR CABLE ENTRIES IN THE TOP OF OUTDOOR ENCLOSURES. ENTER OUTDOOR ENCLOSURES FROM THE BOTTOM (PREFERRED) OR SIDE.
6.E. ALL ELECTRICAL EQUIPMENT SHALL BE LISTED OR LABELED BY A RECOGNIZED TESTING AGENCY.
6.F. ARC FLASH HAZARD WARNING LABELS SHALL BE PROVIDED AND MOUNTED ON EVERY COMBINER BOX, TERMINAL BOX, INVERTER, AC AND DC SWITCH, TRANSFORMER, AND SWITCHGEAR.
6.G. HAND HOLES, PULL BOXES, OR CONDUIT BODIES SHALL BE INSTALLED (WHETHER OR NOT SHOWN ON DRAWINGS) WHEN THE RACEWAY HAS MORE THAN 360° OF BENDS, OR AS NECESSARY TO NOT EXCEED MANUFACTURER'S MAXIMUM CABLE PULLING TENSION.

7. GROUNDING
7.A. THE CONTRACTOR SHALL FURNISH AND INSTALL GROUNDING NECESSARY IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

8. TESTS
8.A. FINAL TESTS AND INSPECTION SHALL BE HELD IN THE PRESENCE OF OWNER'S REPRESENTATIVES AND TO THEIR SATISFACTION.
8.B. MEGGER ALL: STRING WIRING, COMBINER BOX OUTPUT FEEDERS, AND AC FEEDERS. SUBMIT RESULTS TO OWNER FOR REVIEW.
8.C. IV CURVE TRACES OF STRINGS SHALL BE GENERATED USING THE SOLMETRIC PV ANALYZER (OR EQUIVALENT DEVICE) AND SUBMITTED TO OWNER FOR APPROVAL.
8.D. OPEN-CIRCUIT VOLTAGE (Voc) MEASUREMENTS OF ALL STRING CONDUCTORS.

GENERAL NOTES

9. THE GENERAL NOTES APPLY TO ALL DRAWINGS UNDER THE CONTRACT. REFER TO INDIVIDUAL DRAWINGS FOR ADDITIONAL NOTES.
10. DRAWINGS ARE DIAGRAMS AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT OF WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS. MAINTAIN HEADROOM, SPACE CONDITIONS, AND REQUIRED CLEARANCES.
11. PV SYSTEM CONTRACTOR SHALL COORDINATE ALL THE WORK WITH THE ENGINEER, THE CONSTRUCTION MANAGER AND ALL OTHER CONTRACTORS TO INSURE THAT THE PV SYSTEM IS INSTALLED AS SPECIFIED IN THESE DRAWINGS.
12. PERSONAL PROTECTIVE EQUIPMENT (PPE) SHALL BE PROVIDED AS REQUIRED IN ACCORDANCE WITH NEC 70E AND OSHA REQUIREMENTS.
13. UNFORSEEN OBSTRUCTIONS ON THE SITE MAY NECESSITATE A CHANGE IN THE LAYOUT. ANY CHANGES TO THE RACKING LAYOUT SHOULD BE REPORTED TO THE ENGINEER. CHANGES IN UP TO 5% OF THE MODULES SHOULD BE ANTICIPATED. CHANGES TO THE ARRAY LAYOUT SHOULD BE MADE AS TO NOT IMPACT THE NUMBER OF MODULES ON A COMBINER BOX OR INVERTER.
14. LANDSCAPING: RESTORE TO ORIGINAL CONDITIONS.
15. ALL STRUCTURAL AND MISCELLANEOUS EXTERIOR STEEL, INCLUDING STRUT CHANNEL (SUCH AS UNISTUT OR KINDORF) SHALL BE CORROSION RESISTANT, HOT DIP GALVANIZED OR GALVANNEALED WITH A COATED FINISH MINIMUM.

LEGEND – GENERAL

LIGHT LINE INDICATES EXISTING OR BEYOND THE SCOPE OF PROJECT
DARK LINE INDICATES NEW OR WITHIN THE SCOPE OF PROJECT
DASHED LINE INDICATES EQUIPMENT AT A DIFFERENT ELEVATION
EXISTING TEXT — LIGHT TEXT INDICATES EXISTING OR BEYOND THE SCOPE OF PROJECT
NEW TEXT — DARK TEXT INDICATES NEW OR WITHIN THE SCOPE OF PROJECT

LEGEND – PLAN SYMBOLS

SOLAR MODULE
RACEWAY TURNING UP OR TOWARDS OBSERVER
RACEWAY TURNING DOWN OR AWAY FROM OBSERVER
CABLE TRAY
P OR (P) — PULLBOX
J OR (J) — JUNCTION BOX
PANEL BOARD
LOCAL DISCONNECT SWITCH
SIMPLEX RECEPTACLE, RATED: 125-VOLTS AC, 20A
DUPLEX RECEPTACLE, RATED: 125-VOLTS AC, 20A
W — WEATHERPROOF DUPLEX RECEPTACLE, RATED: 125-VOLTS AC, 20A
GFCI — GROUND FAULT CIRCUIT INTERRUPTER DUPLEX RECEPTACLE, RATED: 125-VOLTS AC, 20A
DOUBLE DUPLEX (QUAD) RECEPTACLE
CEILING/PENDANT-MOUNT LIGHT, SEE FIXTURE SCHEDULE FOR TYPE
WALL-MOUNT LIGHT, SEE FIXTURE SCHEDULE FOR TYPE
GROUND ROD
GROUND ROD W/ TEST WELL

LEGEND – ONE LINE DIAGRAM AND WIRING DIAGRAM SYMBOLS

CIRCUIT BREAKER, FRAME SIZE AND TRIP SETTING AS NOTED
DISCONNECT SWITCH
INVERTER
BUS CONNECTION POINT
CROSSING POINT (NO CONNECTION)
NORMALLY CLOSED – NORMALLY OPEN CONTACTS
TRANSFORMER CONTROL/POWER, SIZE AND RATING AS NOTED
CURRENT TRANSFORMER
POTENTIAL TRANSFORMER
FUSE, SIZE/RATING AS NOTED
FUSED DISCONNECT SWITCH
EARTH GROUND
NC NO — PUSHBUTTON SWITCHES; NUMBER AND TYPE OF CONTACT BLOCKS MAY VARY
NC NO — PUSHBUTTON SWITCHES MUSHROOM HEAD; NUMBER AND TYPE OF CONTACT BLOCKS MAY VARY
(K) — KEYED INTERLOCK (KIRK KEY OR EQ.)
(ST) — SHUNT TRIP COIL

ABBREVIATIONS

A	AMPERES
AERMS	ARC ENERGY REDUCING MAINTENANCE SWITCH
AF	AMPERE FRAME
A.F.F.	ABOVE FINISH FLOOR
A.F.G.	ABOVE FINISH GRADE
AFDI	ARC FAULT DETECTION & INTERRUPTER
AIC	AMPS INTERRUPTING CAPACITY
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BKR	CIRCUIT BREAKER
C	CONDUIT
CB	COMBINER BOX
CKT	CIRCUIT
COU	CONDITIONS OF USE
CP	CONTROL PANEL
CU	COPPER
DISC	DISCONNECT
EGC	EQUIPMENT GROUNDING CONDUCTOR
ELEC	ELECTRIC, ELECTRICAL
EMERG	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
EXIST	EXISTING
G, GND	GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
GFCI	GROUND-FAULT CIRCUIT INTERRUPTER
GFPE	GROUND-FAULT PROTECTION OF EQUIPMENT
HID	HIGH-INTENSITY DISCHARGE (LIGHTING)
HZ	HERTZ
IMC	INTERMEDIATE METALLIC CONDUIT
kAIC	1000 AMPS INTERRUPT CAPACITY
kCMIL	1000 CIRCULAR MILLS
kVA	KILO-VOLT AMPERE
kW	KILOWATT
LA	LIGHTNING & SURGE ARRESTOR
LED	LIGHT-EMITTING DIODE
LSIG	LONG, SHORT, INSTANTANEOUS, & GROUND FAULT
LTG	LIGHTING
MAX	MAXIMUM
MFG	MANUFACTURER
MLO	MAIN LUGS ONLY
MLPE	MODULE LEVEL POWER ELECTRONICS
MPPT	MAXIMUM POWER POINT TRACKING
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NTS	NOT TO SCALE
P	POLE
PF	POWER FACTOR
PLC	PROGRAMMABLE LOGIC CONTROLLER
POA	PLANE OF ARRAY
POI	POINT OF INTERCONNECTION
PRI	PRIMARY
PVC	POLYVINYL CHLORIDE
PWR	POWER
RCPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL CONDUIT
RMC	RIGID METAL CONDUIT
SA	SURGE ARRESTOR
SEC	SECONDARY
SPD	SURGE PROTECTION DEVICE
SSBJ	SUPPLY SIDE BONDING JUMPER
ST	SHUNT TRIP
STP	SHIELDED TWISTED PAIR
SW	SWITCH
TBD	TO BE DETERMINED
TP	TWISTED PAIR
TYP	TYPICAL
V	VOLT
VA	VOLT-AMPERE
W	WATT
WP	WEATHERPROOF
XFMR	TRANSFORMER
ø	DIAMETER OR PHASE

NOTES SPECIFIC TO MAINE

ADOPTED NEC VERSION: 2017
ADOPTED IBC VERSION: 2015
ADOPTED IFC VERSION: 2015

UTILITY: VERSANT POWER

DATE	REVISION DESCRIPTION	PM	ENG	CHK
09/04/2020	ISSUE FOR PERMIT	BA	SV	MD

PUREPOWER ENGINEERING
5 MARINE VIEW PLAZA HOBOKEN, NJ
WWW.PUREPOWER.COM
RICHARD A. WINS
ME LICENSE No. 14308

ENGINEER

DEVELOPER
SYNERGEN SOLAR
600 REISTERTOWN RD, SUITE 310
PIKESVILLE, MD 21208
SYNERGENSOLAR.COM

PAGE SIZE: 36" x 24"
PROJECT #: 00342

DC SYSTEM SIZE: 5,980.26 kW
AC SYSTEM SIZE: 4,100.00 kW
MODULE TYPE: JA SOLAR JAM72S10-410/MR
MODULE QUANTITY: 14,586
STRING QUANTITY: 561
ORIENTATION: 25° TILT, AZIMUTH VARIES

PROJECT
4.10 MWAC SOLAR SYSTEM AT
OGREN ROAD, CARIBOU
MAP 16, LOT 30 & MAP 13, LOT 17
CARIBOU, ME

DRAWING TITLE
ELECTRICAL NOTES & SYMBOL LIST

DRAWING #
E001

PLOT DATE: 9/4/2020 1:01 PM
RULER IN INCHES:

PLOT DATE: 9/4/2020 1:02 PM

OGREN RD

WEST ARRAY
SEE PLAN E101
MODULE QUANTITY: 8,398
DC SYSTEM SIZE: 3,443.18kWDC
AZIMUTH/TILT 190°/25°
2X13 TABLE QTY: 323

EAST ARRAY
SEE PLAN E102
MODULE QUANTITY: 6,188
DC SYSTEM SIZE: 2,537.08kWDC
AZIMUTH/TILT 180°/25°
2X13 TABLE QTY: 238

FENCE.
AREA WITHIN FENCE
LINE: 10.44 ACRES

DRIVEN POST PV RACKING TABLE.
(TYP). SEE DETAIL 3/E100.

WETLANDS BOUNDARY (TYP)

SOLAR AC SWITCHBOARD A, SOLAR
TRANSFORMER A, AND INVERTERS
A1–A19 PAD MOUNTED

MV FEEDER IN DUCTBANK
ALONG ACCESS ROAD (TYP)

EXISTING GRAVEL
ACCESS ROAD (TYP)

POLE #6 SOLAR
RECLOSER & RISER POLE

OVERHEAD ELECTRICAL LINE (TYP)

POLE #5 SOLAR SYSTEM
DISCONNECT SWITCH

POLE #4 UTILITY GOAB

POLE #3 UTILITY RECLOSER

POLE #2 UTILITY PRIMARY METER

POLE #1 TAKEOFF POLE

POINT OF INTERCONNECTION
AT 12.47KV CIRCUIT ON
NEW SWEDEN RD

UTILITY TO EXTEND
FEEDER 1.17 MILES
FROM NEW SWEDEN RD
TO PROPERTY LOCATION

INLAND WATERFOWL/WADING
BIRD HABITAT

RESOURCE PROTECTION
ZONE. 250 FT SETBACK

SOLAR AC SWITCHBOARD B,
SOLAR TRANSFORMER B AND
INVERTERS B1–B14 PAD MOUNTED

BALLASTED PV RACKING TABLE.
(TYP). SEE DETAIL 2/E100.

SECURITY FENCE.
AREA WITHIN FENCE
LINE: 8.47 ACRES

50FT SETBACK FROM
PROPERTY LINE

GUERRETTE FARMS PROPERTY LINE:
TOWN OF CARIBOU, PARCEL 013-017

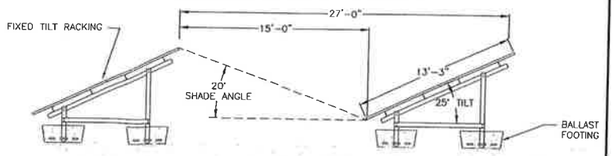
CARIBOU LANDFILL PROPERTY LINE:
TOWN OF CARIBOU, PARCEL 016-030

1 / E100 AC ELECTRICAL PLAN
SCALE: 1" = 100'-0"

N

TYPICAL TABLE SIZE
2 MODULES HIGH
13 MODULES WIDE
PORTRAIT ORIENTATION

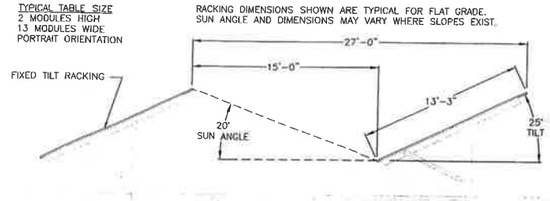
RACKING DIMENSIONS SHOWN ARE TYPICAL FOR FLAT GRADE. SUN ANGLE AND DIMENSIONS MAY VARY WHERE SLOPES EXIST.



2 / E100 RACKING DETAIL
SCALE: 3/16" = 1'-0"

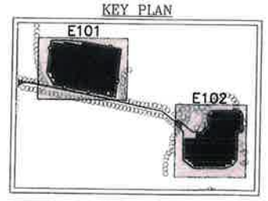
TYPICAL TABLE SIZE
2 MODULES HIGH
13 MODULES WIDE
PORTRAIT ORIENTATION

RACKING DIMENSIONS SHOWN ARE TYPICAL FOR FLAT GRADE. SUN ANGLE AND DIMENSIONS MAY VARY WHERE SLOPES EXIST.



3 / E100 RACKING DETAIL
SCALE: 3/16" = 1'-0"

KEY PLAN



DATE	REVISION DESCRIPTION	PM	DRAWN	CHK'D
09/04/2020	ISSUE FOR PERMIT	BA	SV	MD
09/01/2020	CONCEPTUAL DESIGN	BA	SV	MD

PUREPOWER ENGINEERING
5 MARINE VIEW PLAZA, HOBOKEN, NJ
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RICHARD A. IVINS
ME LICENSE No. 11308

SYNERGEN SOLAR
600 REISTERTOWN RD, SUITE 310
PIKESVILLE, MD 21208
SYNERGENSOLAR.COM

DEVELOPER

PAGE SIZE: 36" x 24"

PROJECT #: 00342

DC SYSTEM SIZE: 5,980.26 kW
AC SYSTEM SIZE: 4,100.00 kW
MODULE MAKE/MODEL: JA SOLAR JAM72S10-410/NR
MODULE QUANTITY: 14,586
STRING QUANTITY: 561
ORIENTATION: 25° TILT, AZIMUTH VARIES

PROJECT

4.10 MWAC SOLAR SYSTEM AT
OGREN ROAD, CARIBOU
MAP 16, LOT 30 & MAP 13, LOT 17
CARIBOU, ME

DRAWING TITLE

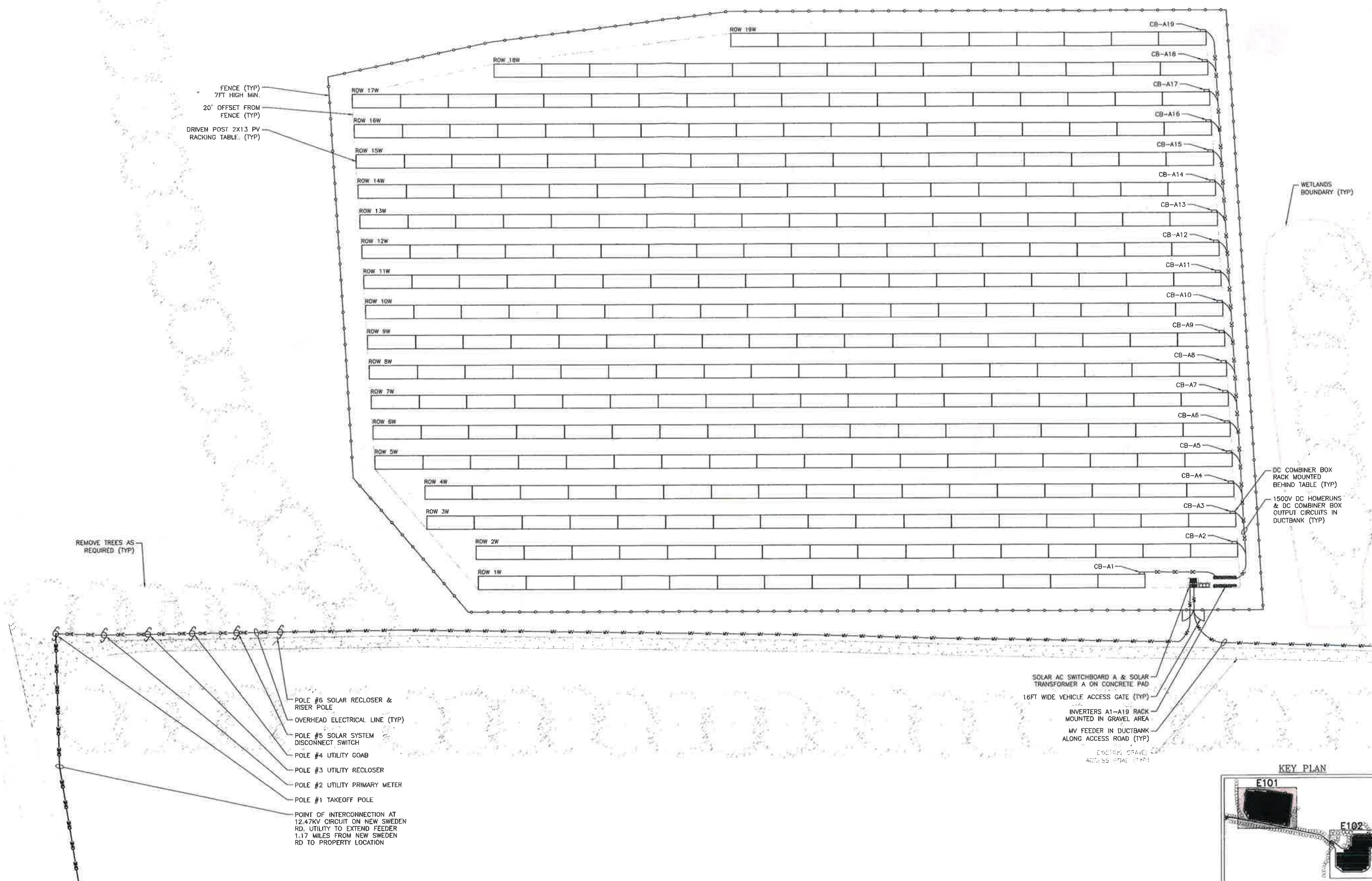
AC ELECTRICAL PLAN

DRAWING #

E100

RULER IN INCHES:

30


FENCE (TYP)
7FT HIGH MIN.
20' OFFSET FROM FENCE (TYP)
DRIVEN POST 2X13 PV RACKING TABLE (TYP)
ROW 19W
ROW 18W
ROW 17W
ROW 16W
ROW 15W
ROW 14W
ROW 13W
ROW 12W
ROW 11W
ROW 10W
ROW 9W
ROW 8W
ROW 7W
ROW 6W
ROW 5W
ROW 4W
ROW 3W
ROW 2W
ROW 1W
CB-A19
CB-A18
CB-A17
CB-A16
CB-A15
CB-A14
CB-A13
CB-A12
CB-A11
CB-A10
CB-A9
CB-A8
CB-A7
CB-A6
CB-A5
CB-A4
CB-A3
CB-A2
CB-A1
WETLANDS BOUNDARY (TYP)
DC COMBINER BOX RACK MOUNTED BEHIND TABLE (TYP)
1500V DC HOMERUNS & DC COMBINER BOX OUTPUT CIRCUITS IN DUCTBANK (TYP)
OGREN RD
REMOVE TREES AS REQUIRED (TYP)
POLE #6 SOLAR RECLOSER & RISER POLE
OVERHEAD ELECTRICAL LINE (TYP)
POLE #5 SOLAR SYSTEM DISCONNECT SWITCH
POLE #4 UTILITY GOAB
POLE #3 UTILITY RECLOSER
POLE #2 UTILITY PRIMARY METER
POLE #1 TAKEOFF POLE
POINT OF INTERCONNECTION AT 12.47KV CIRCUIT ON NEW SWEDEN RD. UTILITY TO EXTEND FEEDER 1.17 MILES FROM NEW SWEDEN RD TO PROPERTY LOCATION
SOLAR AC SWITCHBOARD A & SOLAR TRANSFORMER A ON CONCRETE PAD
16FT WIDE VEHICLE ACCESS GATE (TYP)
INVERTERS A1-A19 RACK MOUNTED IN GRAVEL AREA
MV FEEDER IN DUCTBANK ALONG ACCESS ROAD (TYP)
EXISTING GRAVEL ACCESS ROAD (TYP)

1 / E101 PARTIAL ELECTRICAL PLAN – WEST ARRAY
SCALE: 1' = 40'-0"

KEY PLAN
E101
E102

DATE	REVISION DESCRIPTION	PM	ENG	CHK
09/04/2020	ISSUE FOR PERMIT	BA	SV	MD
09/01/2020	CONCEPTUAL DESIGN	BA	SV	MD

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RICHARD A. IVINS
ME LICENSE No. 14308

DEVELOPER
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SYNERGEN SOLAR
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PIKESVILLE, MD 21208
SYNERGENSOLAR.COM

PAGE SIZE: 36" x 24"
PROJECT #: 00342

DC SYSTEM SIZE:	5,980.26 kW
AC SYSTEM SIZE:	4,100.00 kW
MODULE TYPE:	JA SOLAR JAM72S10-410/MR
MODULE QUANTITY:	14,586
STRING QUANTITY:	561
ORIENTATION:	25° TILT, AZIMUTH VARIES

PROJECT
4.10 MWAC SOLAR SYSTEM AT
OGREN ROAD, CARIBOU
MAP 16, LOT 30 & MAP 13, LOT 17
CARIBOU, ME

DRAWING TITLE
PARTIAL ELECTRICAL PLAN
WEST ARRAY

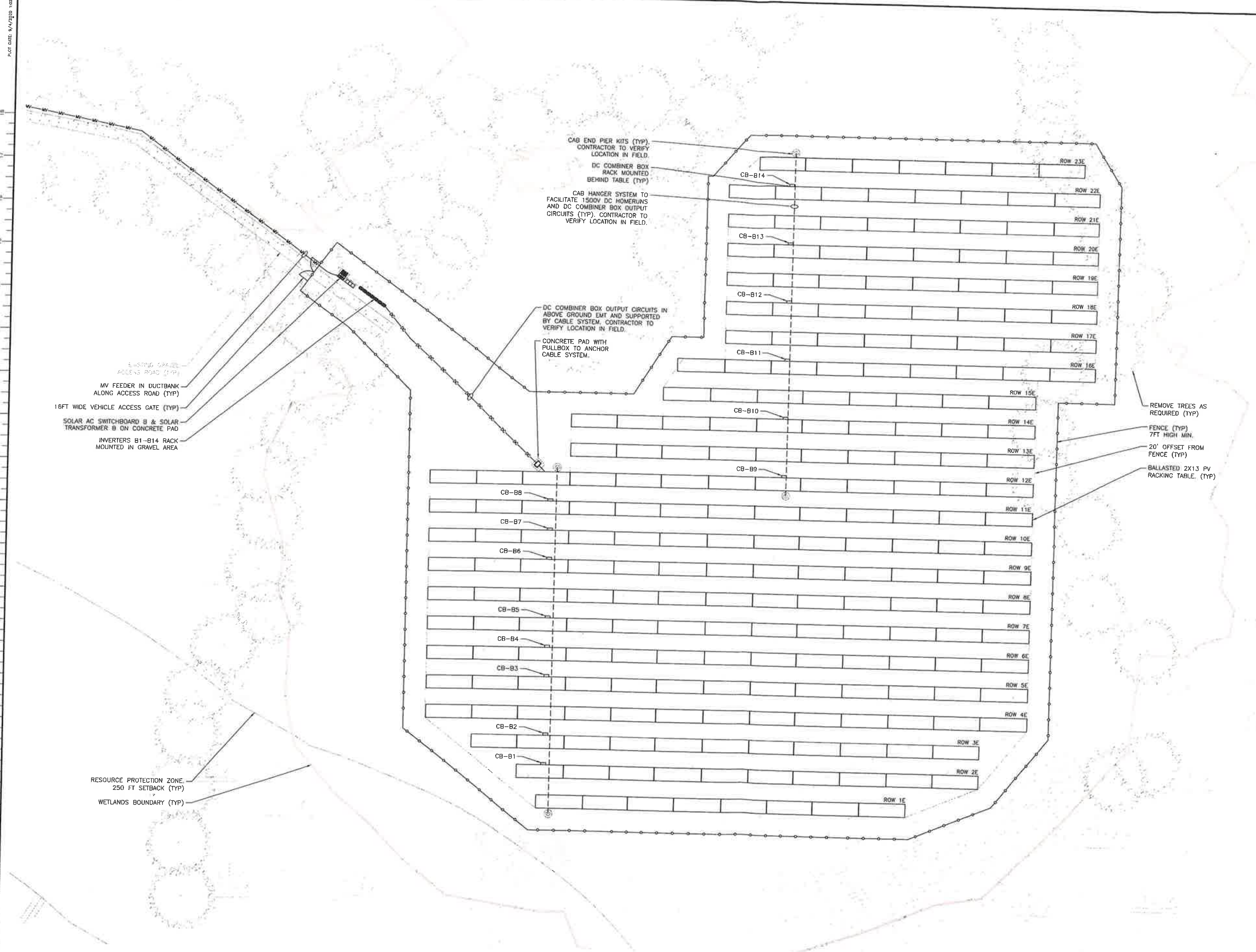
DRAWING #
E101

RULER IN INCHES:

PLOT DATE: 9/4/2020 1:02 PM

31

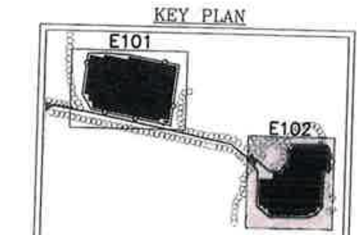
PLOT DATE: 9/4/2020 1:02 PM


CAB END PIER KITS (TYP). CONTRACTOR TO VERIFY LOCATION IN FIELD.
DC COMBINER BOX RACK MOUNTED BEHIND TABLE (TYP)
CAB HANGER SYSTEM TO FACILITATE 1500V DC HOMERUNS AND DC COMBINER BOX OUTPUT CIRCUITS (TYP). CONTRACTOR TO VERIFY LOCATION IN FIELD.
DC COMBINER BOX OUTPUT CIRCUITS IN ABOVE GROUND EMT AND SUPPORTED BY CABLE SYSTEM. CONTRACTOR TO VERIFY LOCATION IN FIELD.
CONCRETE PAD WITH PULLBOX TO ANCHOR CABLE SYSTEM.
MV FEEDER IN DUCTBANK ALONG ACCESS ROAD (TYP)
16FT WIDE VEHICLE ACCESS GATE (TYP)
SOLAR AC SWITCHBOARD B & SOLAR TRANSFORMER B ON CONCRETE PAD
INVERTERS B1-B14 RACK MOUNTED IN GRAVEL AREA
REMOVE TREES AS REQUIRED (TYP)
FENCE (TYP) 7FT HIGH MIN.
20' OFFSET FROM FENCE (TYP)
BALLASTED 2X13 PV RACKING TABLE. (TYP)
RESOURCE PROTECTION ZONE. 250 FT SETBACK (TYP)
WETLANDS BOUNDARY (TYP)
CB-B14
CB-B13
CB-B12
CB-B11
CB-B10
CB-B9
CB-B8
CB-B7
CB-B6
CB-B5
CB-B4
CB-B3
CB-B2
CB-B1
ROW 23E
ROW 22E
ROW 21E
ROW 20E
ROW 19E
ROW 18E
ROW 17E
ROW 16E
ROW 15E
ROW 14E
ROW 13E
ROW 12E
ROW 11E
ROW 10E
ROW 9E
ROW 8E
ROW 7E
ROW 6E
ROW 5E
ROW 4E
ROW 3E
ROW 2E
ROW 1E
N

1 E102 PARTIAL ELECTRICAL PLAN - EAST ARRAY
SCALE: 1" = 40'-0"

RULER IN INCHES:

KEY PLAN



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AC SYSTEM SIZE:	4,100.00 kW
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MODULE QUANTITY:	14,586
STRING QUANTITY:	561
ORIENTATION:	25° TILT, AZIMUTH VARIES

PROJECT
4.10 MWAC SOLAR SYSTEM AT
OGREN ROAD, CARIBOU
MAP 16, LOT 30 & MAP 13, LOT 17
CARIBOU, ME

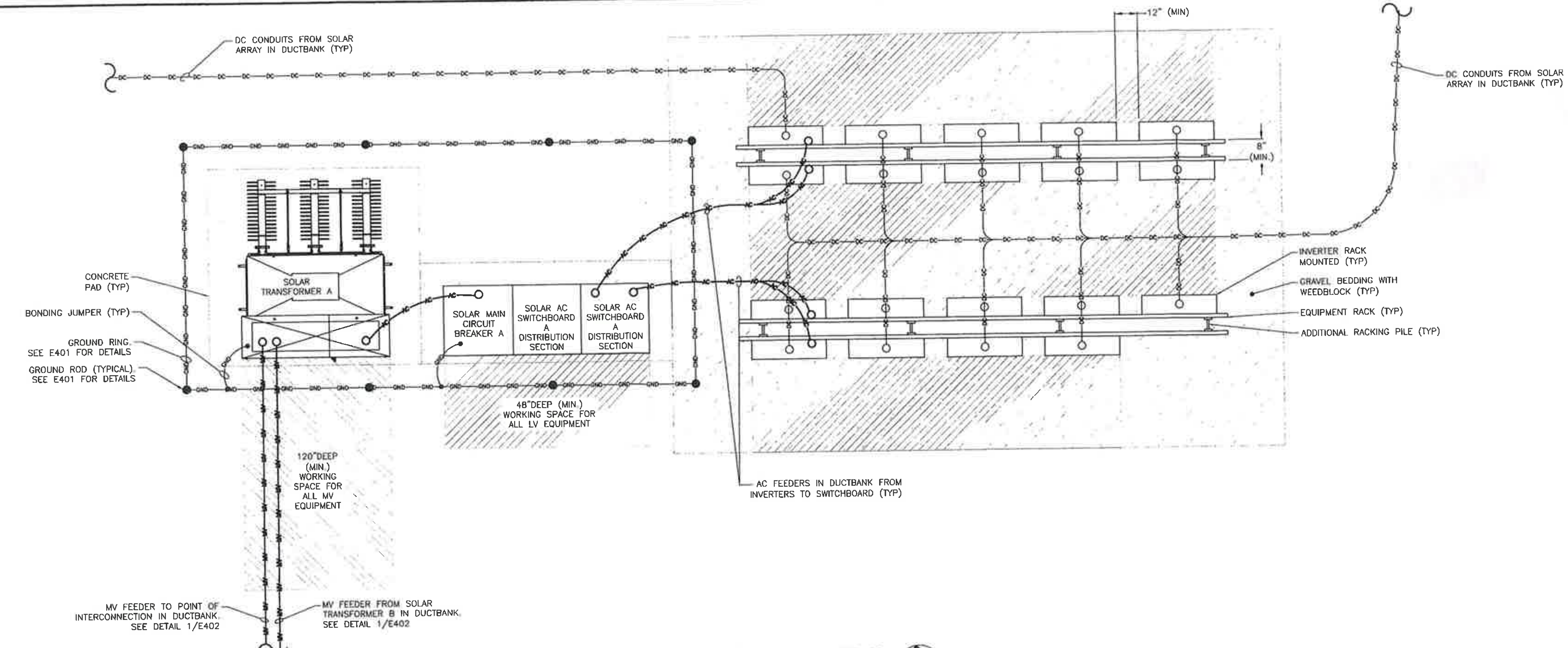
DRAWING TITLE
PARTIAL ELECTRICAL PLAN
EAST ARRAY

DRAWING #
E102

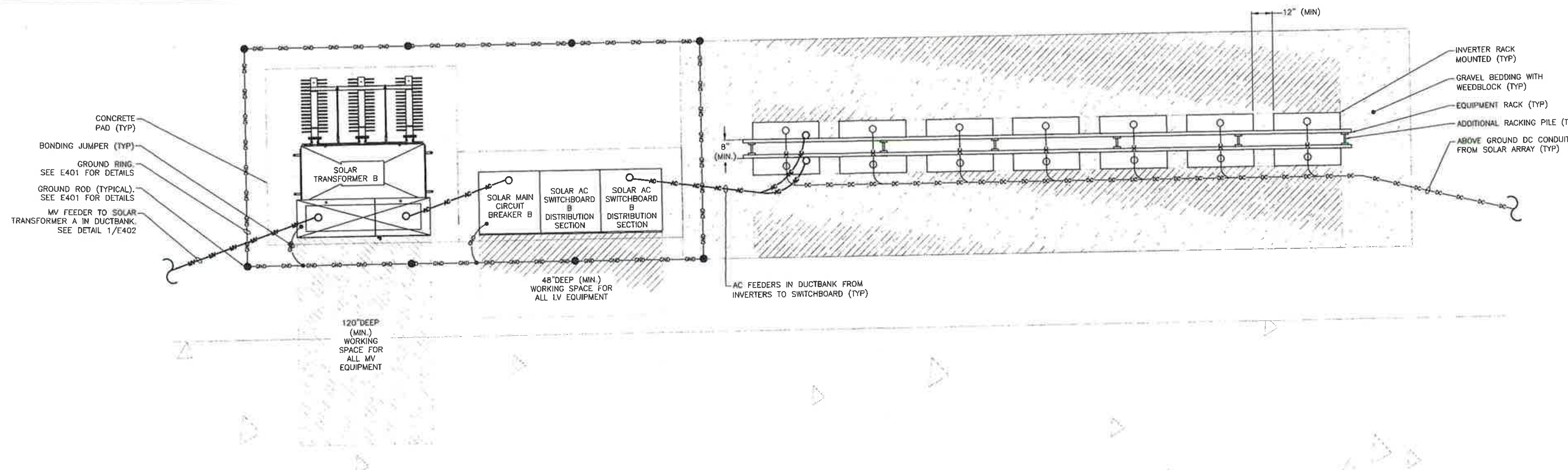
32

NOTES:

1. ALL PAD MOUNTED EQUIPMENT SHALL BE BOLTED AND SECURED TO EQUIPMENT PAD WITH SUITABLE CONCRETE ANCHORS AT FOUR CORNERS.
2. STUB-UP LOCATIONS ARE DIAGRAMATIC. REFER TO EQUIPMENT SUBMITALS FOR EXACT LOCATIONS.
3. PAD SIZE IS APPROXIMATE. CONTRACTOR TO COORDINATE WITH EQUIPMENT SHOP DRAWINGS.
4. MAINTAIN 48" (MIN) WORKING CLEARANCE FOR ALL EQUIPMENT, UNLESS NOTED OTHERWISE.
5. MOUNT EQUIPMENT AS PER INSTALLATION MANUAL INSTRUCTION.
6. TRANSITION AC, DC, AND COMMUNICATIONS CONDUITS FROM EMT TO LFMC WITHIN 24" OF INVERTER.
7. CONDUITS AND TROUGHS SHALL NOT ENCROACH MORE THAN 6" INTO WORKING SPACE OF EQUIPMENT.
8. EQUIPMENT SHALL BE INSTALLED AT HEIGHT SUCH THAT THE CENTER OF THE GRIP OF THE OPERATING HANDLE OF THE SWITCH OR CIRCUIT BREAKER, WHEN IN ITS HIGHEST POSITION, SHALL NOT BE MORE THAN 6'7" ABOVE THE WORKING PLATFORM.
9. TROUGHS AND WIREWAYS SHALL BE SIZED SUCH THAT THE SUM OF THE CROSS-SECTIONAL AREAS OF ALL CONDUCTORS AND CABLES AT ANY CROSS SECTION SHALL NOT EXCEED 20 PERCENT OF THE AREA OF THE TROUGH.
10. THE NUMBER OF CURRENT CARRYING CONDUCTORS SHALL NOT EXCEED 30 AT ANY CROSS-SECTION OF THE TROUGH.



2 / E110 EQUIPMENT AREA PLAN – WEST ARRAY
SCALE: 1/2" = 1'-0"



2 / E110 EQUIPMENT AREA PLAN – EAST ARRAY
SCALE: 1/2" = 1'-0"

DATE	REVISION DESCRIPTION	PM	ENG	CHK
09/04/2020	ISSUE FOR PERMIT	BA	SV	MD

ENGINEER: PUREPOWER ENGINEERING, 5 MARINE VIEW PLAZA HOBOKEN, NJ, WWW.PUREPOWER.COM, RICHARD A. WINS, ME LICENSE No. 14308

DEVELOPER: SYNERGEN SOLAR, 600 REISTERTOWN RD, SUITE 310, PIKESVILLE, MD 21208, SYNERGENSOLAR.COM

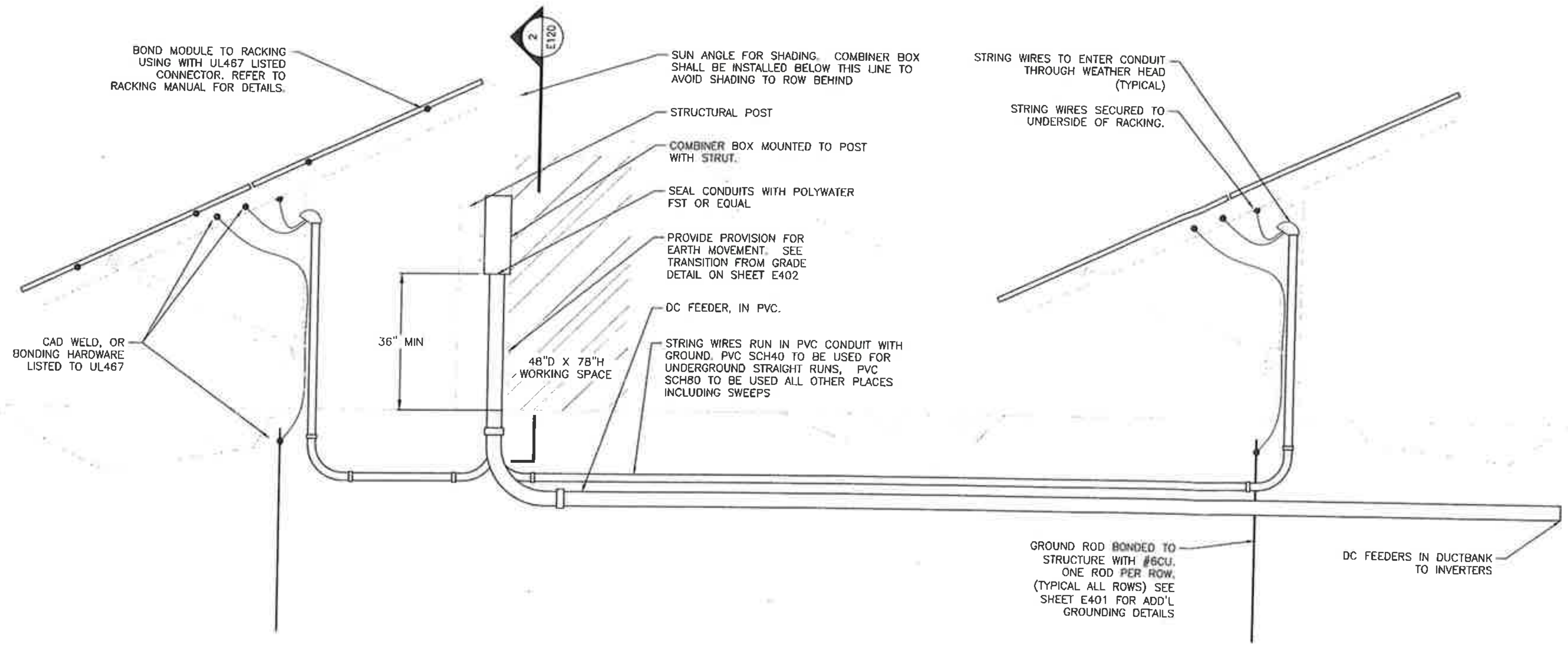
PAGE SIZE: 36" x 24"
PROJECT #: 00342

DC SYSTEM SIZE: 5,980.26 kW
AC SYSTEM SIZE: 4,100.00 kW
MODULE TYPE: JA SOLAR JAM72S10-410/MR
MODULE QUANTITY: 14,586
STRING QUANTITY: 561
ORIENTATION: 25° TILT, AZIMUTH VARIES

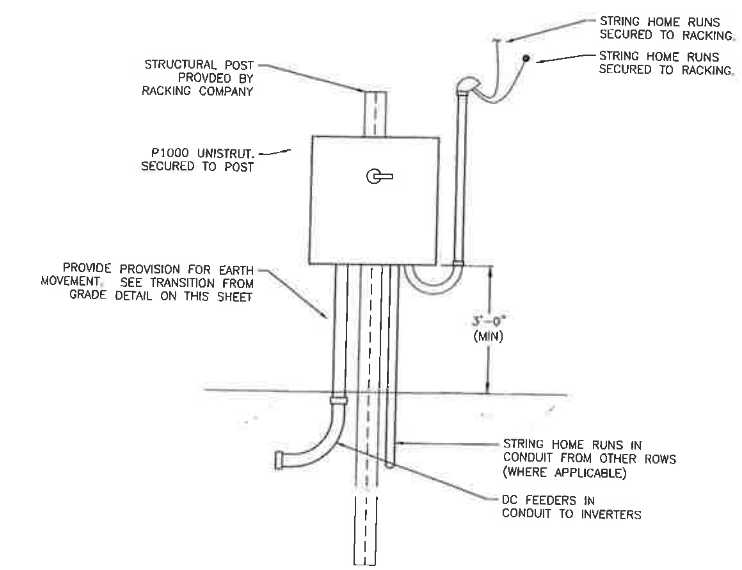
PROJECT: 4.10 MWAC SOLAR SYSTEM AT OGREN ROAD, CARIBOU, MAP 16, LOT 30 & MAP 13, LOT 17, CARIBOU, ME

DRAWING TITLE: EQUIPMENT AREA PLANS

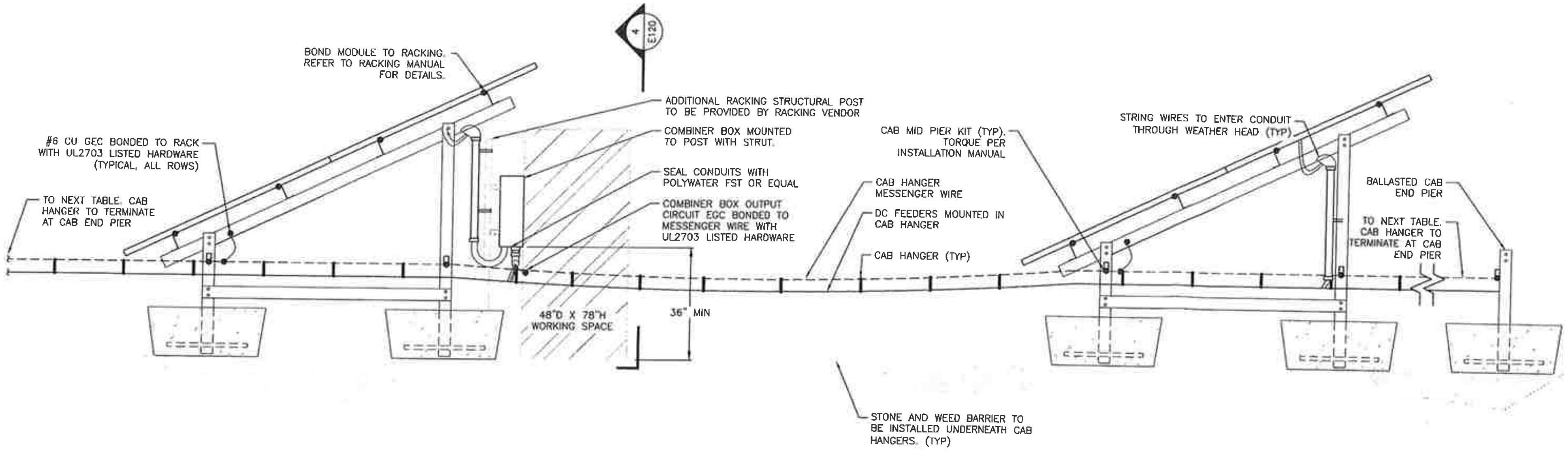
DRAWING #: E110



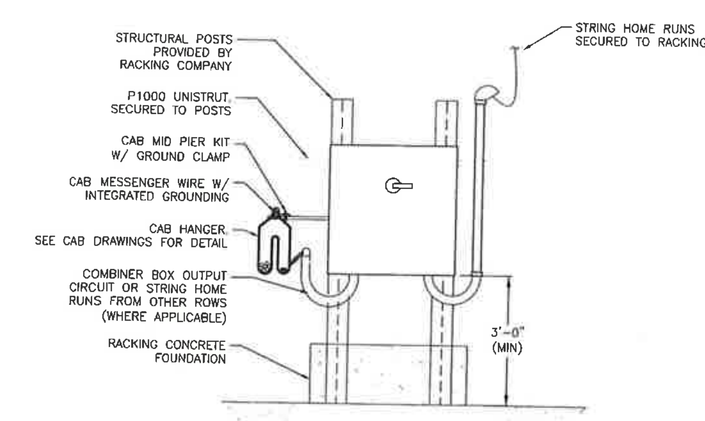
1 E120 TYPICAL EQUIPMENT RACKING ELEVATION – WEST ARRAY – SIDE VIEW
SCALE: 1/2" = 1'-0"



2 E120 TYPICAL COMBINER BOX ELEVATION – WEST ARRAY – FRONT VIEW
SCALE: 1/2" = 1'-0"



3 E120 TYPICAL EQUIPMENT RACKING ELEVATION – EAST ARRAY – SIDE VIEW
SCALE: 1/2" = 1'-0"



4 E120 TYPICAL COMBINER BOX ELEVATION – EAST ARRAY – FRONT VIEW
SCALE: 1/2" = 1'-0"

DATE	REVISION DESCRIPTION	PM	ENG	CHK
09/04/2020	ISSUE FOR PERMIT	BA	SV	MD

PUREPOWER ENGINEERING
5 MARINE VIEW PLAZA HOBOKEN, NJ
WWW.PUREPOWER.COM
RICHARD A. IVINS
ME LICENSE No. 14308

ENGINEER

SYNERGEN SOLAR
600 REISTERTOWN RD, SUITE 310
PIKESVILLE, MD 21208
SYNERGENSOLAR.COM

DEVELOPER
SynerGen Solar

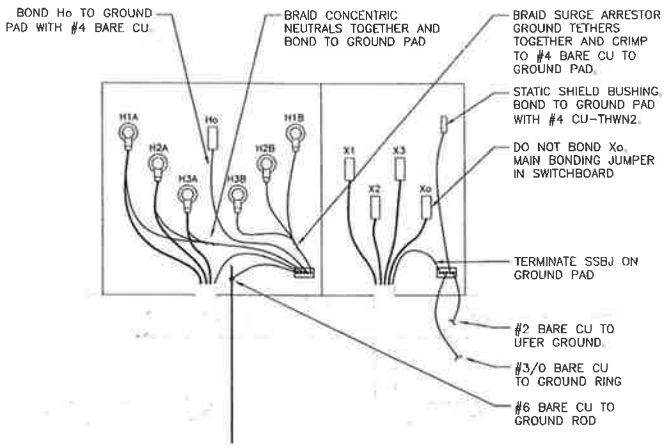
PAGE SIZE: 36" x 24"
PROJECT #: 00342

DC SYSTEM SIZE: 5,980.26 kW
AC SYSTEM SIZE: 4,100.00 kW
MODULE TYPE: JA SOLAR JAM72S10-410/MR
MODULE QUANTITY: 14,586
STRING QUANTITY: 561
ORIENTATION: 25° TILT, AZIMUTH VARIES

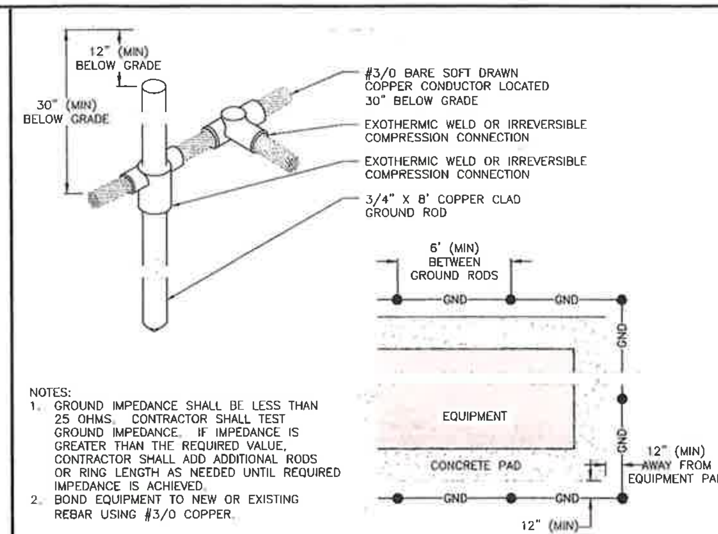
PROJECT
4.10 MWAC SOLAR SYSTEM AT
OGREN ROAD, CARIBOU
MAP 16, LOT 30 & MAP 13, LOT 17
CARIBOU, ME

DRAWING TITLE
EQUIPMENT MOUNTING DETAILS IN ARRAY

DRAWING #
E120



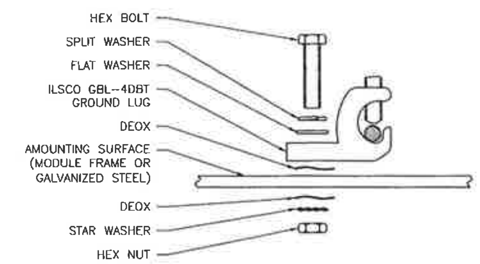
1 / E401 TRANSFORMER GROUNDING: WYE-G/WYE-G
SCALE: NONE



TOP VIEW

NOTES:
1. GROUND IMPEDANCE SHALL BE LESS THAN 25 OHMS. CONTRACTOR SHALL TEST GROUND IMPEDANCE. IF IMPEDANCE IS GREATER THAN THE REQUIRED VALUE, CONTRACTOR SHALL ADD ADDITIONAL RODS OR RING LENGTH AS NEEDED UNTIL REQUIRED IMPEDANCE IS ACHIEVED.
2. BOND EQUIPMENT TO NEW OR EXISTING REBAR USING #3/0 COPPER.

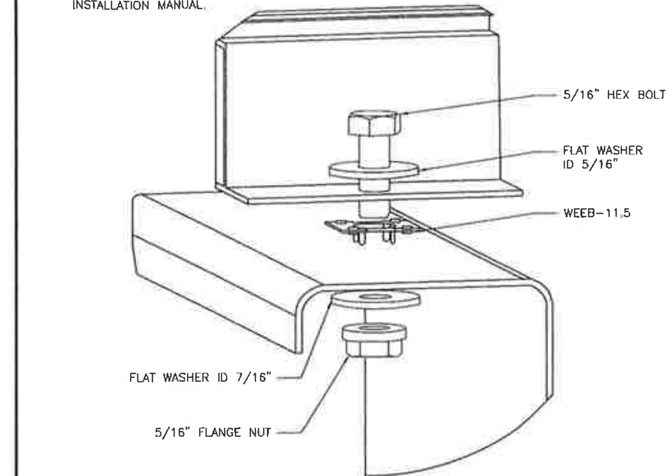
2 / E401 GROUND RING DETAIL
SCALE: NONE



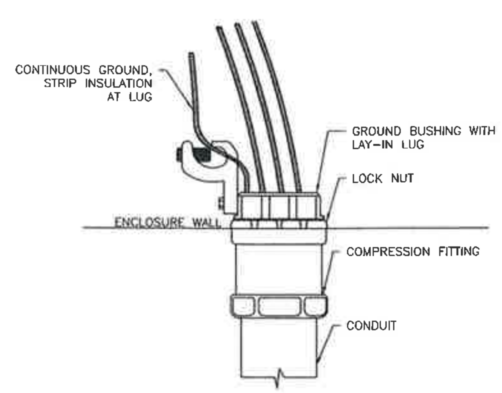
NOTES
1. ALL HARDWARE TO BE STAINLESS STEEL.
2. REFER TO ILSCO MANUAL FOR ADDITIONAL REQUIREMENTS AND TORQUE VALUES

3 / E401 GROUND LUG DETAIL – ILSCO
SCALE: NONE

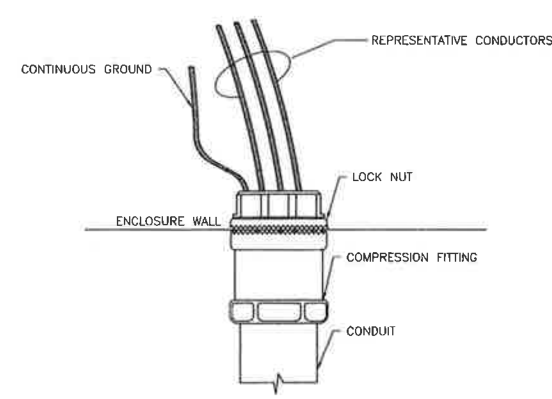
NOTES:
1. CONTRACTOR TO REVIEW PROPER INSTALLATION METHODS FROM THE RACKING INSTALLATION MANUAL.



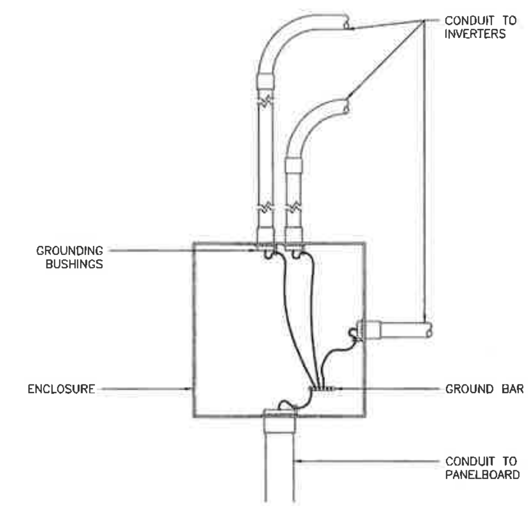
4 / E402 MODULE GROUNDING ON RACK
SCALE: NONE



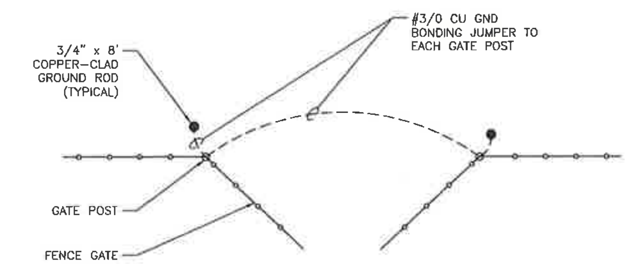
5 / E401 CONDUIT CONNECTOR BONDING DETAIL
SCALE: NONE



6 / E401 MYER'S HUB BONDING DETAIL
SCALE: NONE



7 / E401 PULL BOX/TROUGH GROUNDING DETAIL
SCALE: NONE



8 / E401 FENCE GATE GROUNDING DETAIL
SCALE: NONE

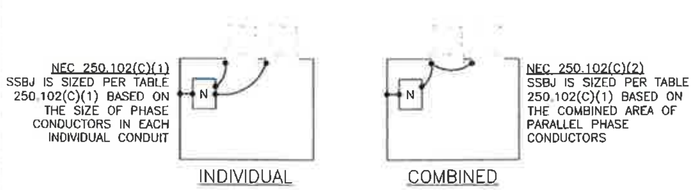


TABLE 250.102(C)(1)

SIZE OF LARGEST UNGROUNDED CONDUCTOR OR EQUIVALENT AREA FOR PARALLEL CONDUCTORS (AWG/KCMIL)		SIZE OF GROUNDED CONDUCTOR OR BONDING JUMPER (AWG/KCMIL)	
COPPER	ALUMINUM OR COPPER-CLAD ALUMINUM	COPPER	ALUMINUM OR COPPER-CLAD ALUMINUM
2 OR SMALLER	1/0 OR SMALLER	8	6
1 OR 1/0	2/0 OR 3/0	6	4
2 OR 2/0	4/0 OR 250	4	2
OVER 3/0 THROUGH 350	OVER 250 THROUGH 500	2	1/0
OVER 350 THROUGH 600	OVER 500 THROUGH 900	1/0	3/0
OVER 600 THROUGH 1100	OVER 900 THROUGH 1750	2/0	4/0
OVER 1100	OVER 1750	REFER TO NOTES IN NEC TABLE 250.102(C)(1)	

9 / E401 SUPPLY SIDE BONDING JUMPERS (SSBJ)
SCALE: NONE

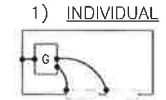
A) FOR CONCENTRIC KNOCKOUTS, USE BONDING JUMPERS AS FOLLOWS:

TABLE 250.122

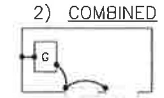
OVERCURRENT DEVICE CIRCUIT NOT EXCEEDING (AMPERES)	SIZE (AWG OR KCMIL)	
	COPPER	ALUMINUM
15	14	12
20	12	10
60	10	8
100	8	6
200	6	4
300	4	2
400	3	1
500	2	1/0
600	1	2/0
800	1/0	3/0
1000	2/0	4/0
1200	3/0	250
1600	4/0	350
2000	250	400
2500	350	600
3000	400	600
4000	500	750

FOR PARALLEL FEEDERS – NEC 250.102(D)
EQUIPMENT BONDING JUMPER IS SIZED PER TABLE 250.122, REGARDLESS IF COMBINED OR INDIVIDUAL BONDING JUMPERS ARE USED

1) INDIVIDUAL



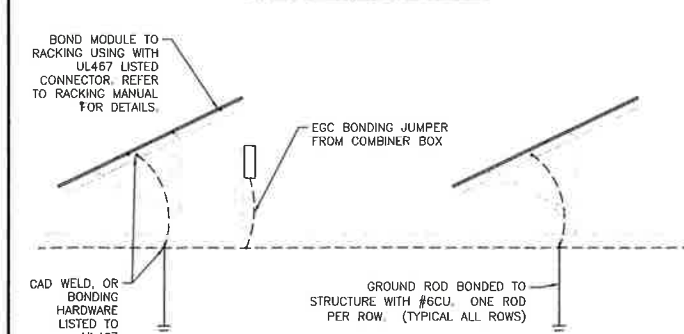
2) COMBINED



B) FOR NON-CONCENTRIC KNOCKOUTS, THE FOLLOWING METHODS SHALL BE PERMITTED (PER NEC 250.97)
1) THREADLESS COUPLINGS AND CONNECTORS FOR CABLES WITH METAL SHEATS
2) TWO LOCKNUTS, ON RIGID METAL CONDUIT OR INTERMEDIATE METAL CONDUIT, ONE INSIDE AND ONE OUTSIDE OF BOXES AND CABINETS
3) FITTINGS WITH SHOULDERS THAT SEAT FIRMLY AGAINST THE BOX OR CABINET, SUCH AS ELECTRICAL METALLIC TUBING CONNECTORS, FLEXIBLE METAL CONDUIT CONNECTORS, AND CABLE CONNECTORS, WITH ON LOCKNUT ON THE INSIDE OF BOXES AND CABINETS
4) LISTED FITTINGS (SUCH AS MEYERS HUB)

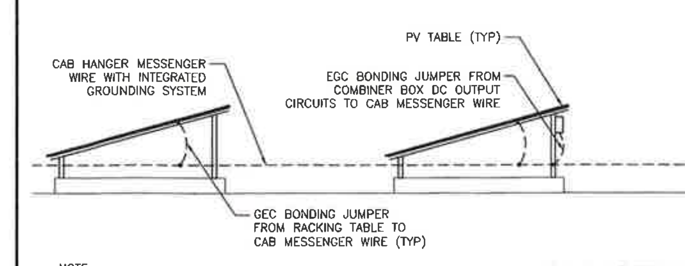
10 / E401 LOAD SIDE EQUIPMENT BONDING JUMPER
SCALE: NONE

GROUND MOUNT ONLY
(SYSTEM A, WEST ARRAY)



11 / E401 RACKING GROUNDING DIAGRAM
SCALE: NONE

LANDFILL ONLY
(SYSTEM B, EAST ARRAY)



NOTE:
PER NEC 250.121, A WIRE-TYPE EQUIPMENT GROUNDING CONDUCTOR INSTALLED IN COMPLIANCE WITH 250.6(A) AND THE APPLICABLE REQUIREMENTS FOR BOTH THE EQUIPMENT GROUNDING CONDUCTOR AND THE GROUNDING ELECTRODE CONDUCTOR SHALL BE PERMITTED TO SERVE AS BOTH AN EGC AND A GEC.

12 / E401 RACKING & CAB HANGER GROUNDING DIAGRAM
SCALE: NONE

DATE	REVISION DESCRIPTION	PM	ENG	CHK
09/04/2020	ISSUE FOR PERMIT	BA	SV	MD

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RICHARD A. IVINS
ME LICENSE No. 14308

SYNERGEN SOLAR
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PIKESVILLE, MD 21208
SYNERGENSOLAR.COM

DEVELOPER

PAGE SIZE: 36" x 24"
PROJECT #: 00342

DC SYSTEM SIZE: 5,980.26 kW
AC SYSTEM SIZE: 4,100.00 kW
MODULE TYPE: JA SOLAR JAM72S10-410/MR
MODULE QUANTITY: 14,586
STRING QUANTITY: 561
ORIENTATION: 25° TILT, AZIMUTH VARIES

PROJECT
4.10 MWAC SOLAR SYSTEM AT
OGREN ROAD, CARIBOU
MAP 16, LOT 30 & MAP 13, LOT 17
CARIBOU, ME

DRAWING TITLE
GROUNDING DETAILS

DRAWING #
E401

RULER IN INCHES:

RULER IN INCHES:

PLOT DATE: 9/4/2020 1:03 PM

GENERAL NOTES FOR LABELS:

1. LABEL SCALE 1:2 UNLESS NOTED
2. LETTERING ON SIGNS SHALL BE CAPITAL LETTERS
3. CLEARLY LABEL ALL CIRCUIT BREAKERS IN THE PANELBOARD(S). THE LABEL SHALL INDICATE THE NAME OF THE DEVICE IT SERVES.

LABEL FORMAT NOTES:

1. FORMAT 1: ENGRAVED MELAMINE, WHITE TEXT ON RED BACKGROUND. TEXT HEIGHT: TITLES 3/8", ALL OTHER TEXT 5/32".
2. FORMAT 2: ENGRAVED MELAMINE, BLACK TEXT ON WHITE BACKGROUND. TEXT HEIGHT: 3/8".
3. FORMAT 3: REFLECTIVE UV RATED LABEL. RED BACKGROUND WITH WHITE CAPITAL LETTERS AT LEAST 3/8" TALL. LABELS SHALL BE SUITABLE FOR THE ENVIRONMENT IN WHICH THEY ARE INSTALLED.
4. FORMAT 4: ENGRAVED MELAMINE, WHITE TEXT ON RED BACKGROUND. TEXT HEIGHT: TITLES 5/32", ALL OTHER TEXT 3/32".

PER 2014 NEC 690.31(B)(1)&(2), PV SOURCE CIRCUITS, PV OUTPUT CIRCUITS AND INVERTER INPUT AND OUTPUT CIRCUITS SHALL BE IDENTIFIED AT ALL POINTS OF TERMINATION, CONNECTION, AND SPLICES.

1. STRING HOMERUNS AT ARRAY
2. DC INPUT TERMINALS OF COMBINER BOX
3. DC OUTPUT TERMINALS OF COMBINER BOX
4. DC INPUT TERMINAL OF INVERTER
5. AC OUTPUT TERMINALS OF INVERTER
6. AC INPUT & OUTPUT TERMINALS OF EACH SUCCESSIVE DEVICE (WHERE APPLICABLE)

4" × 1"

NFPA1 11.12.2.1.5, INSTALL ON MAIN PV SYSTEM DISCONNECT, FORMAT 4

6 1/2" × 1"

WARNING: PHOTOVOLTAIC POWER SOURCE

NEC 690.31(G)(3)(4), NFPA11.12.2.1.3.2, HELLERMANNTYTON #: 596-00206 OR EQUAL, FORMAT 3. SHALL BE PERMANENTLY AFFIXED ON ALL DC EXPOSED RACEWAYS, CABLE TRAYS, PULL BOXES, AND JUNCTION BOXES. LABELS SHALL BE SPACED NO GREATER THAN 10 FEET APART.

4" × 2"

⚠WARNING

ARC FLASH AND SHOCK HAZARD

Appropriate PPE and Tools Required when working on this equipment.

OUTDOOR RATED STICKER MOUNTED ON ALL EQUIPMENT

6 1/2" × 1 1/2"

HIGH VOLTAGE
AUTHORIZED PERSONNEL ONLY

(7) 6" × 3"

SOLAR SYSTEM AC DISCONNECT

WARNING:
PHOTOVOLTAIC POWER SOURCE.
DO NOT RELOCATE THIS OVERCURRENT DEVICE

OPERATING CURRENT: 208.3A
NOMINAL VOLTAGE: 12.47kV

NEC 2020 690.54, 705.12(B)(3)(2)
NFPA 11.12.2.1.1, FORMAT 1

(8) 5" × 3 1/4"

SOLAR AC SWITCHBOARD A

WARNING: SUPPLIED BY UTILITY & PV SOURCES.

OPERATING CURRENT: 2,286A
OPERATING VOLTAGE: 600V

DO NOT CONNECT NON-SOLAR LOADS TO THIS PANEL

FORMAT 1

(9) 6" × 3"

SOLAR MAIN CIRCUIT BREAKER A

WARNING:
PHOTOVOLTAIC POWER SOURCE.
DO NOT RELOCATE THIS OVERCURRENT DEVICE

OPERATING CURRENT: 2,286A
NOMINAL VOLTAGE: 600V

NEC 2020 690.54, 705.12(B)(3)(2)
NFPA 11.12.2.1.1, FORMAT 1

(12)

SOLAR TRANSFORMER A

PRIMARY & SECONDARY DISCONNECTING MEANS LOCATION:

PRIMARY: UTILITY SOLAR SYSTEM DISCONNECT SWITCH LOCATED ON UTILITY POLE

SECONDARY: SOLAR MAIN CIRCUIT BREAKER A LOCATED ADJACENT TO TRANSFORVER

TYPICAL FOR INVERTER(S):
A1–A19, B1–B14 (17 STRINGS)

8" × 3 1/4"

INVERTER A1

DC DISCONNECT		AC DISCONNECT	
MAXIMUM CURRENT:	222A	MAXIMUM AC OPERATING CURRENT:	120.3A
MAXIMUM VOLTAGE:	1499V	NOMINAL AC OPERATING VOLTAGE:	600V

NEC 2017 690.53, 690.54, NFPA 11.12.2.1.1
FORMAT 1

(10) 5" × 3 1/4"

SOLAR AC SWITCHBOARD B

WARNING: SUPPLIED BY UTILITY & PV SOURCES.

OPERATING CURRENT: 1,684A
OPERATING VOLTAGE: 600V

DO NOT CONNECT NON-SOLAR LOADS TO THIS PANEL

FORMAT 1

(11) 6" × 3"

SOLAR MAIN CIRCUIT BREAKER B

WARNING:
PHOTOVOLTAIC POWER SOURCE.
DO NOT RELOCATE THIS OVERCURRENT DEVICE

OPERATING CURRENT: 1,684A
NOMINAL VOLTAGE: 600V

NEC 2020 690.54, 705.12(B)(3)(2)
NFPA 11.12.2.1.1, FORMAT 1

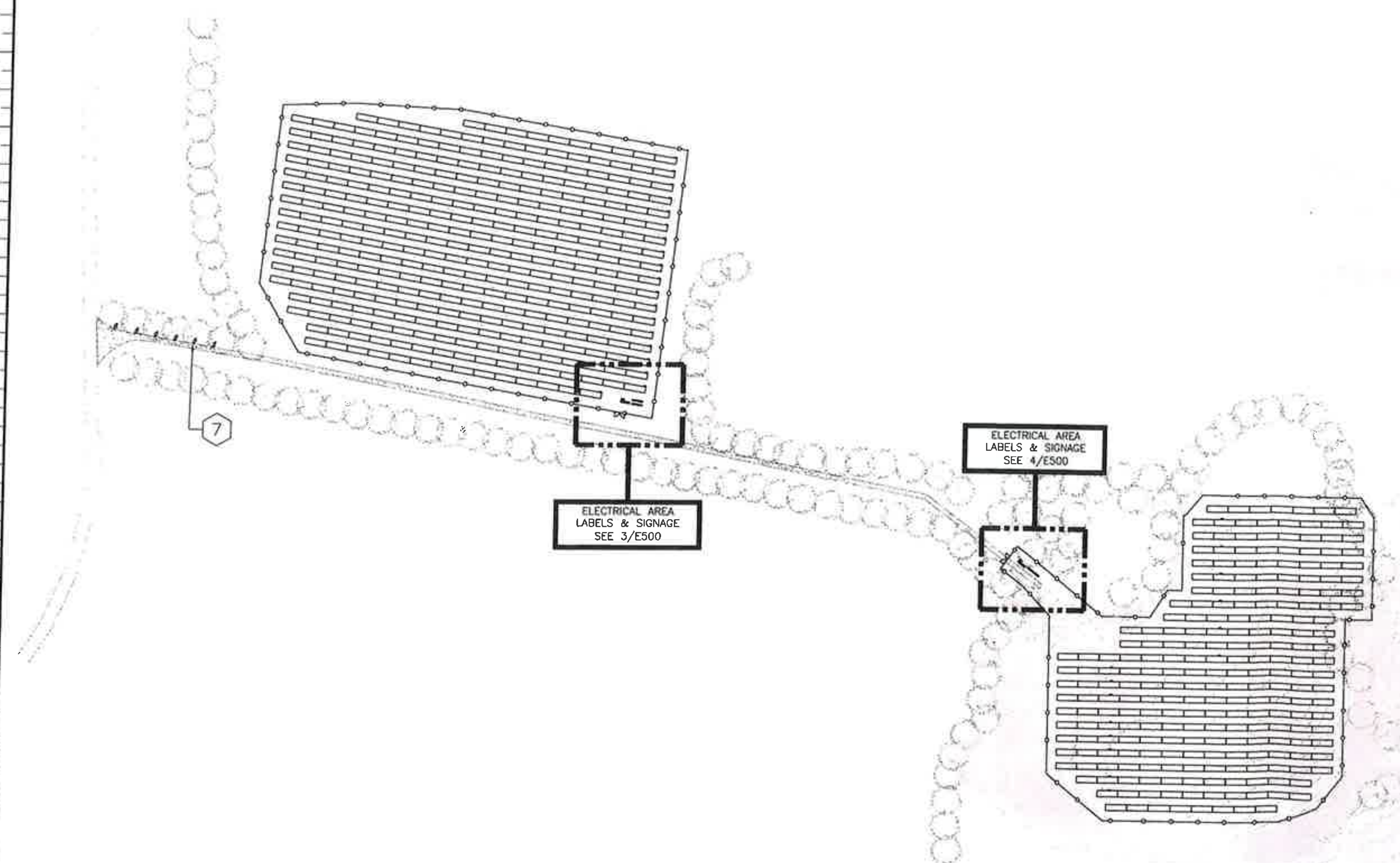
(13)

SOLAR TRANSFORMER B

PRIMARY & SECONDARY DISCONNECTING MEANS LOCATION:

PRIMARY: UTILITY SOLAR SYSTEM DISCONNECT SWITCH LOCATED ON UTILITY POLE

SECONDARY: SOLAR MAIN CIRCUIT BREAKER B LOCATED ADJACENT TO TRANSFORMER

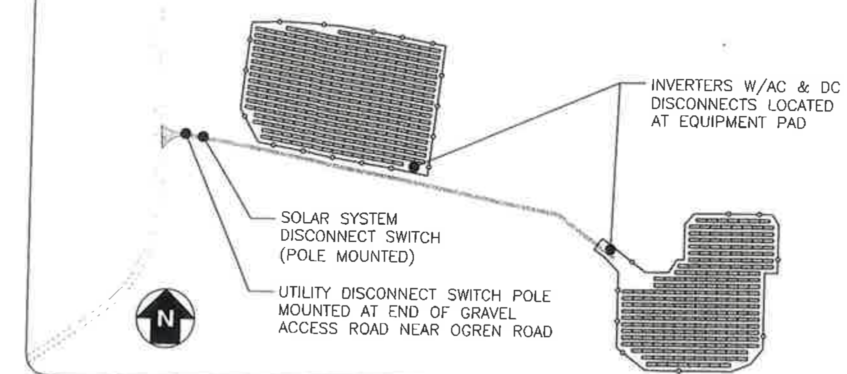


(1/E500) LABELS & SIGNAGE
SCALE: 1" = 150'-0"

(1) 10" × 6"

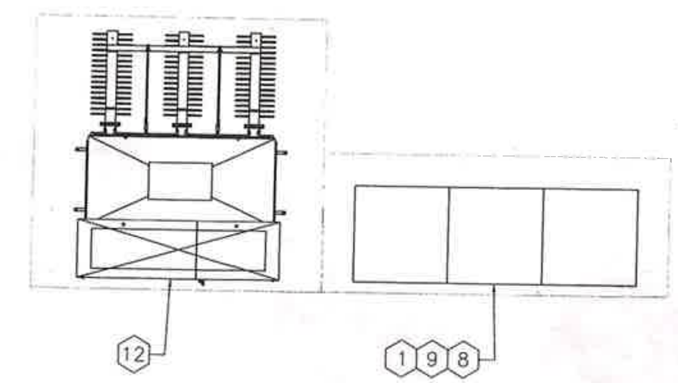
WARNING:

MULTIPLE POWER SOURCE ARE CONNECTED TO THIS SERVICE WITH DISCONNECTS AS SHOWN:

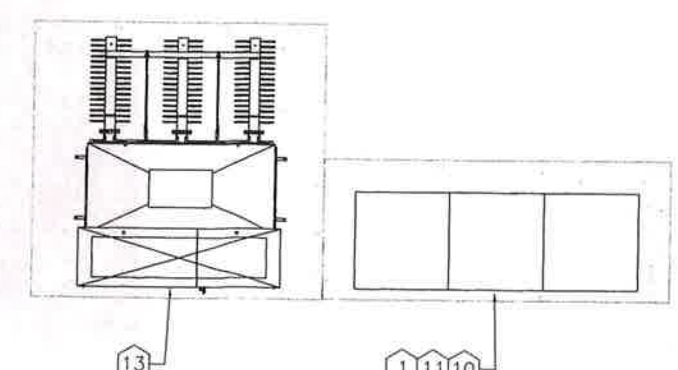


NEC 705.10 & 690.56(B)
INSTALL AT MAIN DISCONNECT OF ALL POWER SOURCES. ENGRAVED MELAMINE, WHITE TEXT ON RED BACKGROUND, TITLE MIN. 1/2", DESCRIPTION 5/16", ALL OTHER TEXT 1/8"

(2/E500) DIRECTORY LABEL
SCALE: 1:1



(3/E500) ELECTRICAL AREA – LABELS & SIGNAGE – WEST ARRAY
SCALE: 3/8" = 1'-0"



(4/E500) ELECTRICAL AREA – LABELS & SIGNAGE – EAST ARRAY
SCALE: 3/8" = 1'-0"

DATE	REVISION DESCRIPTION	PM	ENG	CHK
09/04/2020	ISSUE FOR PERMIT	BA	SV	MO

ENGINEER: PUREPOWER ENGINEERING
5 MARINE VIEW PLAZA HOBOKEN, NJ
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RICHARD A. IVINS
ME LICENSE No. 14308

SYNERGEN SOLAR
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SYNERGENSOLAR.COM

DEVELOPER: SynerGen Solar

PAGE SIZE: 36" x 24"
PROJECT #: 00342

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AC SYSTEM SIZE:	4,100.00 kW
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STRING QUANTITY:	561
ORIENTATION:	25° TILT, AZIMUTH VARIES

PROJECT: 4.10 MWAC SOLAR SYSTEM AT OGREN ROAD, CARIBOU
MAP 16, LOT 30 & MAP 13, LOT 17
CARIBOU, ME

DRAWING TITLE: LABELS & SIGNAGE

DRAWING #: E500

36

PLOT DATE: 9/4/2020 1:04 PM

1500 VDC Disconnect Combiners

SOLAR BOS

SolarBOS Disconnect Combiners for 1500 VDC photovoltaic systems are ETL listed to UL-1741. They provide direct cost savings by increasing the number of modules per source circuit(s), resulting in fewer circuits and fewer BOS components. The combiners feature load break disconnect switches up to 400A and can be customized to fit the solar integrators' specific needs.

PRODUCT FEATURES

- ETL listed to UL-1741
- Up to 36 input circuits
- 75/90C terminals
- NEMA 3R, 4 & 4X enclosures

AVAILABLE OPTIONS

- Transient surge suppression
- Provisions for compression lugs
- Dual output lugs
- Floating / Bi-polar configurations
- Pre-terminated input conductors
- Touch safe cover over live parts
- Breather and drain vents
- Padlockable enclosures

SolarBOS Floating Disconnect Combiner, 1500VDC 275A disconnect, 15 input circuits, transient surge protection, NEMA 4X fiberglass enclosure

Disconnect Amperage	275A / 320A / 400A		
Maximum Number of Input Circuits	15	36	36
Input Conductor Size (AWG)	#14 - 8	#14 - 8	#14 - 8
Max Fuse Size (Amps)	30	30	30
Max Rated Current (ADC Continuous)*	275 / 320 / 400		
Number of Output Conductors (Per Polarity)	1 or 2	1 or 2	1 or 2
Output Conductor Size Range (AWG)*	[illegible] to 350	[illegible] to 600	#1 to 600
Steel Enclosure Internal Dimensions (Inches)*	24x24x8	30x24x8	35x30x8
Approx. Weight - Powder Coated or Stainless Steel (Pounds)*	55	65	95
Fiberglass Enclosure Internal Dimensions (Inches)*	24x24x6	30x24x8	36x30x8
Approx. Weight - Fiberglass (Pounds)*	50	60	90
Enclosure NEMA Ratings	3R / 4 / 4X	3R / 4 / 4X	3R / 4 / 4X

* Other options available upon request. Please note dimensions and weight may vary for any custom solutions. Contact SolarBOS for details

SolarBOS, Inc | T: 925-456-7744 | sales@solarbos.com | www.solarbos.com

Harvest the Sunshine

Mono

420W MBB Half-Cell Module

JAM72S10 400-420/MR

Introduction

- Higher output power
- Lower LCOE
- Less shading and lower resistive loss
- Better mechanical loading tolerance

Superior Warranty

- 12-year product warranty
- 25-year linear power output warranty

JA Linear Power Warranty ■ Industry Warranty

Comprehensive Certificates

- IEC 61215, IEC 61730
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- OHSAS 18001: 2007 Occupational health and safety management systems
- IEC TS 62941: 2016 Terrestrial photovoltaic (PV) modules - Guidelines for increased confidence in PV module design qualification and type approval

JA SOLAR

100/125kW, 1500Vdc String Inverters for North America

CPS SCH100/125KTL-DO/US-600

The 100 & 125kW high power CPS three phase string inverters are designed for ground mount applications. The units are high performance, advanced and reliable inverters designed specifically for the North American environment and grid. High efficiency at 99.1% peak and 98.5% CEC, wide operating voltages, broad temperature ranges and a NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The CPS 100/125kW products ship with the Standard or Centralized Wire-box, each fully integrated and separable with AC and DC disconnect switches. The Standard Wire-box includes touch safe fusing for up to 20 strings. The CPS Flex Gateway enables communication, controls and remote product upgrades.

Key Features

- NFPA 70, NEC 2014 and 2017 compliant
- Touch safe DC Fuse holders adds convenience and safety
- CPS Flex Gateway enables remote FW upgrades
- Integrated AC & DC disconnect switches
- 1 MPPT with 20 fused inputs for maximum flexibility
- Copper and Aluminum compatible AC connections
- NEMA Type 4X outdoor rated, tough tested enclosure
- Advanced Smart-Grid features (CA Rule 21 certified)
- kVA Headroom yields 100kW @ 0.9PF and 125kW @ 0.95PF
- Generous 1.87 and 1.5 DC/AC Inverter Load Ratios
- Separable wire-box design for fast service
- Standard 5 year warranty with extensions to 20 years

100/125KTL Standard Wire-box

100/125KTL Centralized Wire-box

JA SOLAR JAM72S10 400-420/MR

MECHANICAL DIAGRAMS

SPECIFICATIONS

ELECTRICAL PARAMETERS AT STC

TYPE

ELECTRICAL PARAMETERS AT NOCT

OPERATING CONDITIONS

CHARACTERISTICS

Premium Cells, Premium Modules

CPS

Model Name	CPS SCH100KTL-DO/US-600	CPS SCH125KTL-DO/US-600
DC Input		
Max. PV Power	187.5kW	
Max. DC Input Voltage	1500V	
Operating DC Input Voltage Range	860-1450Vdc	
Start-up DC Input Voltage / Power	900V / 250W	
Number of MPP Trackers	1	
MPPT Voltage Range	870-1300Vdc	
Max. PV Input Current (Isc x1.25)	275A	
Number of DC Inputs	20 PV source circuits, pos. & neg. fused (Standard Wire-box); 1 PV output circuit, 1-2 terminations per pole, non-fused (Centralized Wire-box)	
DC Disconnection Type	Load-rated DC switch	
DC Surge Protection	Type II MOV (with thermomechanical signaling), Up=2.5kV, In=20kA (8/20uS)	
AC Output		
Rated AC Output Power	100kW	125kW
Max. AC Output Power	100kVA (111kVA @ PF>0.9)	125kVA (132kVA @ PF>0.95)
Rated Output Voltage	600Vac	
Output Voltage Range	528-660Vac	
Grid Connection Type	3Φ / PE / N (Neutral optional)	
Max. AC Output Current @600Vac	96.2/106.8A	120.3/127.2A
Rated Output Frequency	60Hz	
Output Frequency Range	57-63Hz	
Power Factor	>0.99 (±0.8 adjustable)	>0.99 (±0.8 adjustable)
Current THD	<3%	
Max. Fault Current Contribution (1-cycle RMS)	41.47A	
Max. OCPD Rating	150A	175A
AC Disconnection Type	Load-rated AC switch	
AC Surge Protection	Type II MOV (with thermomechanical signaling), Up=2.5kV, In=20kA (8/20uS)	
System		
Topology	Transformerless	
Max. Efficiency	99.1%	
CEC Efficiency	98.5%	
Stand-by / Night Consumption	<4W	
Environment		
Enclosure Protection Degree	NEMA Type 4X	
Cooling Method	Variable speed cooling fans	
Operating Temperature Range	-22°F to +140°F / -30°C to +60°C (derating from +113°F / +45°C)	
Non-Operating Temperature Range	-40°F to +158°F / -40°C to +70°C maximum	
Operating Humidity	0-100%	
Operating Altitude	8202ft / 2500m (no derating)	
Audible Noise	<60dBA @ 1m and 25°C	
Display and Communication		
User Interface and Display	LED Indicators, WiFi + APP	
Inverter Monitoring	Modbus RS485	
Site Level Monitoring	CPS Flex Gateway (1 per 32 inverters)	
Modbus Data Mapping	SunSpec/CPS	
Remote Diagnostics / FW Upgrade Functions	Standard / (with Flex Gateway)	
Mechanical		
Dimensions (WxHxD)	45.28x24.25x9.84in (1150x616x250mm) with Standard Wire-box; 39.37x24.25x9.84in (1000x616x250mm) with Centralized Wire-box	
Weight	Inverter: 121lbs / 55kg; Wire-box: 55lbs / 25kg (Standard Wire-box); 33lbs / 15kg (Centralized Wire-box)	
Mounting / Installation Angle	15 - 90 degrees from horizontal (vertical or angled)	
AC Termination	M10 Stud Type Terminal Block (3Φ) (Wire range: 1/0AWG - 500kcmil CU/AL, Lugs not supplied); Screw Clamp Terminal Block (N) (#12 - 1/0AWG CU/AL)	
DC Termination	Screw Clamp Fuse Holder (Wire range: #12 - #6AWG CU) - Standard Wire-box; Busbar, M8 PEM Inserts (Wire range: #1AWG - 250kcmil CU/AL, Lugs not supplied) - Centralized Wire-box	
Fused String Inputs	15A or 20A fuses provided (Determined by product SKU)	
Safety		
Safety and EMC Standard	UL1741-SA-2016, CSA-C22.2 NO.107.1-01, IEEE1547a-2014; FCC PART15	
Selectable Grid Standard	IEEE 1547a-2014, CA Rule 21, ISO-NE	
Smart Grid Features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified PF, Volt-VAr, Freq-Watt, Volt-Watt	
Warranty		
Standard	5 years	
Extended Terms	10, 15 and 20 years	

REVISION DESCRIPTION	DATE	PM	ENG	CHK
ISSUE FOR PERMIT	09/04/2020	BA	SV	MD

PUREPOWER ENGINEERING
5 MARINE VIEW PLAZA HOBOKEN, NJ
WWW.PUREPOWER.COM
RICHARD A. IVINS
ME LICENSE No. 14303

ENGINEER

DEVELOPER
SYNERGEN SOLAR
600 REISTERTOWN RD, SUITE 310
PIKESVILLE, MD 21208
SYNERGENSOLAR.COM

PAGE SIZE: 36" x 24"
PROJECT #: 00342

DC SYSTEM SIZE: 5,980.26 kW
AC SYSTEM SIZE: 4,100.00 kW
MODULE TYPE: JA SOLAR JAM72S10-410/MR
MODULE QUANTITY: 14,586
STRING QUANTITY: 561
ORIENTATION: 25° TILT, AZIMUTH VARIES

PROJECT
4.10 MWAC SOLAR SYSTEM AT
OGREN ROAD, CARIBOU
MAP 16, LOT 30 & MAP 13, LOT 17
CARIBOU, ME

DRAWING TITLE
EQUIPMENT DATA SHEETS

DRAWING #
E600

RULER IN INCHES:

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CAB SOLAR

Cable Management for Solar Power

SAFE, STRONG, DURABLE SUPPORT

Proven Performance for over 40 Years in Electrical & Utility Industries

NEW
Integrated Grounding Solution

Important Advantages Compared to Trenching or Cable Tray

- ✓ Large Cost Savings
- ✓ Quicker Installation
- ✓ Standardized Cable Management Cuts Engineering Costs

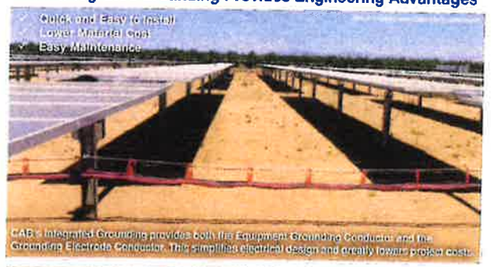
inter solar award 2014 finalist PHOTOVOLTAICS

pv magazine #14 - 50 Array-changing technologies

Intertek

2018 NECA Show Stopper AWARD

New Integrated Grounding Provides Engineering Advantages



CAB's Integrated Grounding provides both the Equipment Grounding Conductor and the Grounding Electrode Conductor. This simplifies electrical design and greatly lowers project cost.

CAB's Integrated Grounding Cable is ETL Safety Listed by Intertek to UL 2703

CAB's easy installation simplifies cable management. It provides a far more practical cost than cable tray or trenching.

CAB's new Integrated Grounding System eliminates the need to run a separate grounding conductor and grounding jumpers to all mid piers. The design includes a custom engineered messenger wire, clamps and mid pier brackets. CAB's system provides both the Equipment Grounding Conductor (EGC) and the Grounding Electrode Conductor (GEC). Meets NEC, UL and IEEE standards per 2017 HDR Electrical Report, and is ETL Listed by Intertek to UL 2703.

CAB Solar Hangers are manufactured from class 3 galvanized, high tensile strength spring steel for maximum strength and corrosion resistance. They have a strong, durable PVC coating for added safety and protection of cables. The coating is flame retardant, chemical resistant, high dielectric grade and UV stabilized for long service life.

CAB's 80 mil (2mm) thick PVC coating has a dielectric breakdown strength of 400 volts per mil (.025mm). The high performance coating is applied on 100% of the surface which makes CAB' Hangers totally insulated and durable in highly corrosive environments. It is available in two standard colors: gray and high-visibility safety orange.

White Paper by Bill Brooks, Brooks Engineering:

"Using purpose-built products like CAB Cable Rings and Saddles for exposed cable management in a PV array is well substantiated by NEC and industry installation standards. Multiple hanger systems, such as those in various configurations of CAB Cable Rings and Saddles, create effective separation of conductors that allow for DC, AC, and communication cables to be supported with a single ring type."

RBI SOLAR

Ballasted Landfill Solutions | GM-BL

Our commitment to testing and innovation allows us to develop stronger, more cost-effective mounting solutions that can handle even the toughest site conditions. Non-penetrating ground mount solutions are now available as a precast foundation or cast-in-place. Pre-assembled post foundations and pre-assembled top chords reduce the amount of field connections to reduce installation labor time and costs.

Why choose RBI Solar:

Ballasted Landfill Ground Mount Solution Features

Foundation and racking design	Site wind speeds 170+ mph and ground snow loads 90+ psf
Signed and sealed drawings	Available in all 50 states
Proprietary on-site testing	Engineered for site specific coefficient of friction
Pre-assembled parts	On-site labor reduction
Variable slope	Accommodates slopes up to 30% (with topographic site map)
20-yr standard warranty	Proven rack reliability and bankability
G115 minimum galvanized coating	Exceeds ASTM and UL standards for 30% extended life
Post options	Cost-effective cee channel or I-beam posts
Driven post refusal alternative	Ability to address challenging soils or impenetrable sites
Module configurations	Portrait, landscape (all module types)
Raised purlins	Integrated bonding and grounding to UL 2703
Corrosion class	System available for all corrosion classes
Wire management and electrical	Integrated wire management and auxiliary mounting options

Precast Solution

- No weather delays and less susceptible to freeze/thaw cycles
- Reduces on-site man hours, ability to relocate or re-use
- Vast network of RBI Solar precasters
- Cleaner sites! Eliminates concrete trucks washout areas
- No risk for hidden costs such as accelerators, retarders, curing requirements, concrete pumps, or winter mixes

Cast-in-Place Solution

- Reduced initial lead time
- Independent of precaster's capacity or costs
- Heavy transportation equipment not required
- Option for remote areas or for international projects
- RBI Solar can assist in concrete mix design, QA/QC, and inspections to validate concrete meets ACI/ASTM standards

Contact us at info@rbisolar.com or (513) 247-2051

DESIGN ENGINEERING MANUFACTURING INSTALLATION

RBI SOLAR

RBI SOLAR

Fixed-Tilt Ground Mount Solution | GM-2

When EPCs and project developers across the USA need dependable, low-maintenance ground mount racking, they turn to RBI Solar. As a single-source provider, we take responsibility for the Design, Engineering, Manufacturing, and Installation of PV mounting solutions. When you choose RBI Solar for your next ground mount, you're choosing peace of mind that your project is in the hands of the most trusted solar racking team in the industry.

Why choose RBI Solar:

GM-2 Solution Features

Foundation and racking design	Site wind speeds 170+ mph and ground snow loads 90+ psf
Signed and sealed drawings	Available in all 50 states
Proprietary on-site testing	Pull testing & corrosion testing – no geotechnical report required
Pre-assembled parts	Reduction in installation time
Variable slope	Accommodates slopes up to 30% (with topographic site map)
20-yr standard warranty	Proven rack reliability and bankability
G115 minimum galvanized coating	Exceeds ASTM and UL standards for 30% extended life
Driven posts	Cost-effective cee channel or I-beam post options available
Up to 24' long post driving	Ability to address challenging soils or elevate array structure
Module configurations	Portrait, landscape (all module types)
Raised purlins	Integrated bonding and grounding to UL 2703
Corrosion class	System available for all corrosion classes
Wire management and electrical	Integrated wire management solution and inverter mounting

Contact us at info@rbisolar.com or (513) 242-2051

DESIGN ENGINEERING MANUFACTURING INSTALLATION

RBI SOLAR

DATE	REVISION DESCRIPTION	PM	ENG	CHK
09/24/2020	ISSUE FOR PERMIT	BA	SW	MD

DEVELOPER: SynerGen Solar

PURE POWER ENGINEERING
5 MARINE VIEW PLAZA HOBOKEN, NJ
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RICHARD A. WHS
ME LICENSE No. 14308

SYNERGEN SOLAR
600 REISTERTOWN RD. SUITE 310
PIKESVILLE, MD 21208
SYNERGENSOLAR.COM

PROJECT: 410 MMAC SOLAR SYSTEM AT OGREN ROAD, CARIBOU
MAP 16, LOT 30 & MAP 13, LOT 17
CARIBOU, ME

DC SYSTEM SIZE: 5,980.26 kW
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PAGE SIZE: 36" x 24"
PROJECT #: 00342

DRAWING TITLE: EQUIPMENT DATA SHEETS

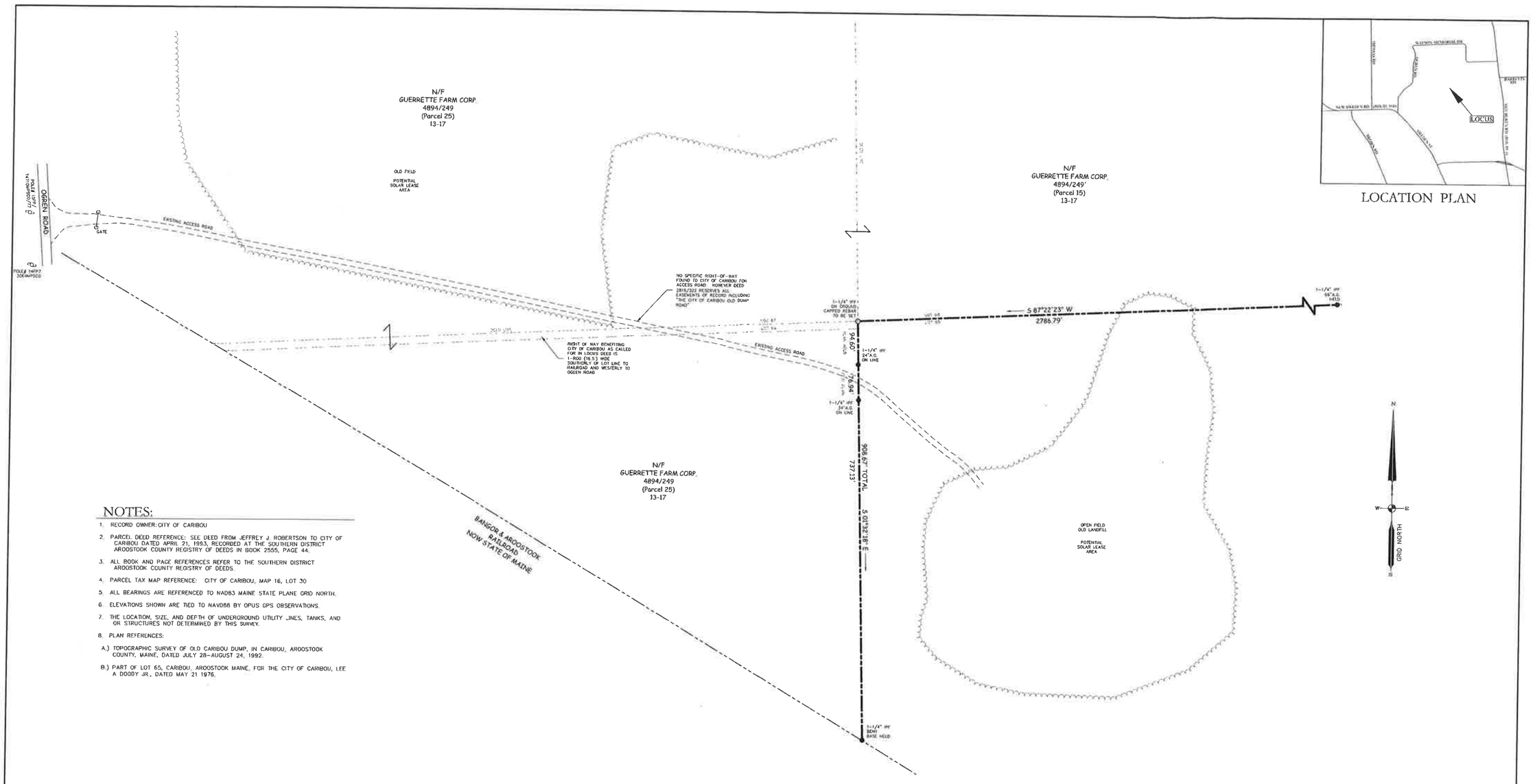
DRAWING #: E601

38

PLOT DATE: 9/4/2020 1:04 PM

RULER IN INCHES: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

PARTIAL BOUNDARY SURVEY PLAN



LOCATION PLAN

NOTES:

1. RECORD OWNER: CITY OF CARIBOU
2. PARCEL DEED REFERENCE: SEE DEED FROM JEFFREY J. ROBERTSON TO CITY OF CARIBOU DATED APRIL 21, 1993, RECORDED AT THE SOUTHERN DISTRICT AROOSTOOK COUNTY REGISTRY OF DEEDS IN BOOK 2555, PAGE 44.
3. ALL BOOK AND PAGE REFERENCES REFER TO THE SOUTHERN DISTRICT AROOSTOOK COUNTY REGISTRY OF DEEDS.
4. PARCEL TAX MAP REFERENCE: CITY OF CARIBOU, MAP 16, LOT 30
5. ALL BEARINGS ARE REFERENCED TO NAD83 MAINE STATE PLANE GRID NORTH.
6. ELEVATIONS SHOWN ARE TIED TO NAVD88 BY OPUS GPS OBSERVATIONS.
7. THE LOCATION, SIZE, AND DEPTH OF UNDERGROUND UTILITY LINES, TANKS, AND OR STRUCTURES NOT DETERMINED BY THIS SURVEY.
8. PLAN REFERENCES:

A.) TOPOGRAPHIC SURVEY OF OLD CARIBOU DUMP, IN CARIBOU, AROOSTOOK COUNTY, MAINE, DATED JULY 28–AUGUST 24, 1992.

B.) PART OF LOT 65, CARIBOU, AROOSTOOK MAINE, FOR THE CITY OF CARIBOU, LEE A DOODY JR., DATED MAY 21 1976.

LEGEND

	SUBJECT BOUNDARY LINE
	ABUTTER OR RIGHT OF WAY LINE
	TREELINE
N/F	NOW OR FORMERLY
000/000	DEED BOOK PAGE REFERENCE
000-000	TAX MAP AND LOT NUMBER
	DECIDUOUS / CONIFEROUS TREE
⊏ MF	GRANITE MONUMENT FOUND
● IPF/IRF/RBF	IRON PIPE/ROD/REBAR FOUND
◉ DHF	DRILL HOLE FOUND
○ CRBS	5/8" REBAR W/ CAP TO BE SET
	UTILITY POLE

GRAPHIC SCALE

0 50 100 200

1 inch = 100 ft

CERTIFICATION:

I HEREBY CERTIFY THAT THIS BOUNDARY SURVEY CONFORMS TO THE STATE OF MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS, STANDARDS OF PRACTICE (CHAPTER 90, SECTIONS 1 & 2). EXCEPTION: PARTIAL BOUNDARY ONLY

Michael A. Hartman

MICHAEL A. HARTMAN, P.L.S. #2433
FOR JONES ASSOCIATES INC.

STATE OF MAINE · MICHAEL A HARTMAN · NO. 2433 · PROFESSIONAL LAND SURVEYOR

PARTIAL BOUNDARY SURVEY OF LAND OF

CITY OF CARIBOU

OGREN ROAD
CARIBOU, MAINE

PREPARED FOR:
SYNERGEN SOLAR
600 REISTERSTOWN, SUITE 310
PIKESVILLE, MARYLAND

PREPARED BY:
JONES ASSOCIATES INC.
Planners, Surveyors And Environmental Consultants
280 POLAND SPRING ROAD, AUBURN, MAINE 04210
(207) 241-0233

RECORD OWNERS:
CITY OF CARIBOU
25 HIGH STREET
CARIBOU, MAINE

PLAN DATE:
JULY 22, 2020

SCALE: 1"=100'

PROJ. #: 20-019CU

EROSION CONTROL PLAN

EROSION CONTROL PLAN FOR THE SYNERGEN CARIBOU SOLAR PROJECT:

Disturbed areas during and after construction shall be stabilized to control soil erosion and sedimentation. Seeding, mulching, and silt fence will be the major controls to provide appropriate measures to manage possible sedimentation and erosion problems from this project. Thus, this plan includes a list of construction activities, as well as temporary and permanent erosion control measures.

Construction Phase -- Erosion & Sedimentation Measures:

In order to protect the soil within and surrounding the project area, only necessary areas to reconstruct and stabilize the soils shall be disturbed. Any soil disturbance when the ground is frozen or saturated shall be minimized to the greatest extent possible.

The following actions are recommended:

1) Areas undergoing actual construction will be left in an untreated or unvegetated condition for a minimum amount of time.

2) Silt fence shall be utilized for construction activities in close proximity to natural resources. This is an additional erosion and sedimentation control measure to compliment mulching. Refer to the following section on temporary and permanent erosion/sedimentation control measures for silt fence specifications and installation details.

Permanent -- Erosion & Sedimentation Measures:

Upon completion of each and every phase of construction, all disturbed areas will be graded, smoothed, and prepared for seeding as follows:

1) If needed four (4) inches of loam will be spread over slopes and raked smooth.

2) Following seedbed preparation, 5lbs per 1000 sq. ft. of a locally sourced conservation mix will be broadcast.

3) Hay mulch will be applied to the new seeding to hasten germination and to protect the new seedbeds from erosion during the establishment period. Mulch application rate will be 2 tons per acre.

4) Seeding will be inspected after any significant rainfall and/or at least every thirty days to insure establishment. Any seeding failures will be immediately re-seeded using the above procedures.