



CMA ENGINEERS, INC.  
CIVIL/ENVIRONMENTAL ENGINEERS

March 13, 2015

Mr. Doug Kemp  
Solid Waste Management Bureau  
New Hampshire Department of Environmental Services  
29 Hazen Drive, P.O. Box 95  
Concord, New Hampshire 03302-0095

35 Bow Street  
Portsmouth,  
New Hampshire  
03801-3819

Phone: 603/431-6196  
Fax: 603/431-5376

E-mail: [info@cmaengineers.com](mailto:info@cmaengineers.com)

**RE: Town of Milton Closed Municipal Landfill  
Type I-B Modification for Solar Panel Array Installation  
DES-SW-TP-94-051  
CMA #928-C**

Dear Mr. Kemp:

On behalf of the Town of Milton, CMA Engineers, Inc. is submitting the enclosed Type I-B Modification for Solar Panel Array Installation on the closed Milton Municipal Landfill. Please find enclosed one copy of the application for your review. The complete document has also been submitted electronically through the NHDES Onestop database. A check for \$100 is enclosed for the Type IB Permit Modification application fee.

Submitted with this application are Design Drawings and material specifications, and supporting calculations.

If you have any questions, please do not hesitate to contact me at (603) 431-6196.

Very truly yours,  
CMA ENGINEERS, INC.

Robert J. Grillo, P.E.  
Project Engineer

RJG:ams

Enclosures

*Solid Waste Management Facility Permit – Type I-B Modification for Solar Panel Array Installation  
Type I-B Permit Modification Check (\$100)*

cc: NHDES Onestop  
Elizabeth Dionne, Town of Milton  
Andrew Kellar, NH Solar Garden

928-Milton-DL-150313-Type IB Transmittal-RJG

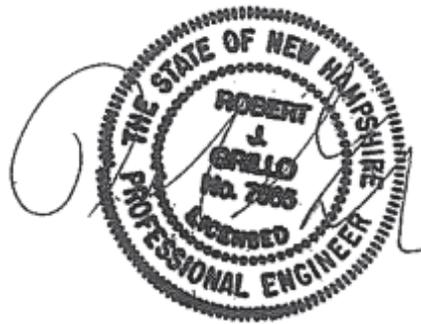
*Town of Milton, NH*  
*Permit Number: DES-SW-TP-94-051*

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**Solid Waste Management Facility Permit**  
**Type I-B Modification for Solar Panel Array Installation**

Applications to NH Department of Environmental Services:  
Type I-B Modification to Solid Waste Management Facility Permit

March 2015



*Submitted by:*

The Town of Milton, New Hampshire

*Prepared by:* CMA Engineers, Inc.  
Civil and Environmental Engineers  
35 Bow Street  
Portsmouth, New Hampshire 03801

**Town of Milton, NH**  
**Installation of Solar Photovoltaic Panel Array**  
**On Landfill Cover**  
**Type I-B Permit Modification**

*Milton, New Hampshire*  
March 2015

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Check (\$100)

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*Part I*  
***TYPE I-B PERMIT MODIFICATION APPLICATION FORM***

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INSTRUCTIONS  
for obtaining a

# Type I Modification To Solid Waste Management Facility Permit

pursuant to  
RSA 149-M and New Hampshire Administrative Solid Waste Rule Env-Sw 315

Read these instructions before completing the attached form. For additional assistance contact the NH Department of Environmental Services (DES), Permitting & Design Review Section (P&DRS) at (603) 271-2925 or the below noted mailing address or TDD Access: Relay NH 1-800-735-2964.

**Note:** All references on this form beginning with “Env-Sw” are citations from the New Hampshire Solid Waste Rules. To obtain a copy of the Rules, contact the DES Public Information & Permitting Office at (603) 271-2975 or above noted TDD Access. The Rules are also available on the Internet at <http://www.des.nh.gov/rules> .

Complete the attached form to obtain either a “type I-A” or “type I-B” permit modification pursuant to Env-Sw 315.02(b) or (c), respectively. **Before completing the form, be certain the proposed facility modification falls within the definition of either a type I-A or type I-B modification.** [If unfamiliar with how to make this determination, refer to the worksheet on the reverse side of this instruction sheet and/or contact the P&DRS for assistance.]

All requested information must be provided as specified. Do **NOT** skip any question, unless instructed to do so. Do **NOT** mark any question “not applicable.” If you need more room than provided on the form to answer a particular question and are using a paper copy of the form, attach additional pages as necessary; mark each page clearly to show both the applicant name and the question being answered; and indicate on the form that the additional pages are attached.

Submit **THREE** copies of the completed form, **EACH bearing ORIGINAL signatures**. Applications may be submitted to the department electronically. If an applicant chooses to submit an application electronically, a single paper copy of the application shall also be submitted to the department to the following address:

NH Department of Environmental Services (DES)  
Waste Management Division (WMD)  
Permitting & Design Review Section (P&DRS)  
29 Hazen Drive, PO Box 95  
Concord, NH 03302-0095

Include the required fee, as determined from the following table. Make checks or money orders payable to “TREASURER, State of New Hampshire”:

Type I-A Modification, without a capacity increase	\$1500
Type I-A Modification, with a capacity increase	See Env-Sw 310.07(a)(2) for formula to calculate or contact the P&DRS for assistance, at (603) 271-2925
Type I-B Modification	\$100

Your application will be processed by DES in accordance with Env-Sw 304 and Env-Sw 305. If your application is correctly filed (i.e., you submit the right number of copies, each with original signatures, and the required fee), your application will be accepted for processing. Within 60 days of receipt, and earlier whenever possible, you will be notified whether the application is complete (i.e., whether the application provides all information required to support a full technical review and determine whether the proposed modification meets all requirements of the Rules). If incomplete, you will be given instructions for correcting the deficiencies. If complete, you will be notified in writing and the agency will undertake a technical review of the application to determine whether the proposal meets all requirements of the Rules. In addition, for certain type I-A modifications, the agency must also hold a public hearing within the host municipality during the technical review process. Following the close of the technical review process and the hearing, if held, DES will make a final decision to issue or deny the requested modification. You will be notified in writing, as will the host municipality and host solid waste management district.

## WORKSHEET FOR DETERMINING MODIFICATION TYPE

**STEP 1:** In order to correctly use and complete the attached application form, you must first confirm that your proposed facility modification is a "type I" modification (as opposed to being either a "type II" through "type V" modification). If your response to each of the following questions is "FALSE," your proposed facility modification most likely falls within the scope of a "type I" modification:

True  False The proposed change is required by a condition of my permit which requires me to submit final plans for DES approval based on preliminary plans provided to DES on an earlier date. (Note: If this statement is "TRUE," your proposed modification is most likely a "type II" modification and you need to file your application by completing a "Type II Permit Modification Application Form.")

True  False The proposed change is one of the following **AND** I am able to certify compliance with each of the statements provided in Section X of this application form:

— A change in facility operating hours between the hours of 6 AM and 6 PM or within alternative limits specified in my permit, or for a private facility managing only on-site generated waste, within limits allowed by local ordinance.

— A change in a key above-ground site feature, for instance a facility structure or appurtenance, which will not alter the permitted function(s) of the facility, change the basis of the approved facility design or violate any applicable siting criteria specified in the Rules, and which is merely a change to improve facility operations within the limits specified in my permit.

— For a facility permitted to collect recyclable materials, a change in the type of select recyclable materials (paper, cardboard, glass, plastic, metal or textiles) to be collected which does not increase the facility's approved storage capacity or require a change in the approved financial assurance plan of record for the facility.

— For landfills, a change in the type of cover material to be used at the facility, pursuant to Env-Sw 806.03.

— A name change for the permittee or facility that does not constitute a change in ownership or operational control of the facility.

— A change in organizational structure, including a change in the individuals/entities holding 10% or more of the permittee's equity or debt and/or a change in officers, directors, partners or key employees, that does not constitute a change in ownership or operational control of the facility.

(Note: If you respond "TRUE" to the above statement, your proposed modification is most likely a "type III" modification and you need to file your application by completing a "Type III Permit Modification Application Form.")

True  False The proposed change is to transfer my permit or otherwise authorize a change in the ownership or operational control of the facility. (Note: If you respond "TRUE" to this statement, your proposed modification is most likely a "type IV" modification and you need to file your application by completing a "Type IV Permit Modification Application Form.")

True  False The proposed change is to authorize the destruction or relocation of facility records. (Note: If you respond "TRUE" to this statement, your proposed modification is most likely a "type V" modification and you need to file your application by completing a "Type V Permit Modification Application Form.")

**STEP 2:** If your response to each of the above is "FALSE," you may assume that the proposed modification is a type I modification. You must now determine whether the proposed change is a "type I-A" or "type I-B" modification, as defined by Env-Sw 315.02(b) or (c).

A "type I-A" modification is one that will change facility operations in a manner having the potential to adversely affect the state's ability to establish and maintain an integrated system of facilities which: (1) will assist in achieving the waste reduction/recycling goals in RSA 149-M:2; (2) is consistent with the hierarchy in RSA 149-M:3; and (3) will provide a substantial public benefit pursuant to RSA 149-M:11. Therefore, if any of the following statements are TRUE relative to the change you are proposing at your facility, the change falls within the definition of a "type I-A" modification.

True  False The proposed modification will increase the approved design capacity of the facility.

True  False The proposed modification will extend the expiration date of the permit.

True  False The proposed modification will reduce the operating life expectancy of a NH landfill without a comparable reduction in the permitted capacity of the landfill, as by directly or indirectly increasing the quantity of waste which will be received daily at a New Hampshire landfill.

True  False The proposed modification will expand the permitted service area of the subject facility.

True  False The proposed modification will change the subject facility service type from a "limited service" area facility (one which can accept waste from only certain sources specified in the permit) to an "unlimited service" area facility (one which can accept waste from any source).

True  False The proposed modification will change facility operations to include a waste management method less preferred in the RSA 149-M:3 hierarchy. The methods, in order of descending preference as specified in RSA 149-M:3 are: source reduction; recycling and reuse; composting; waste-to-energy technologies (including incineration); incineration without resource recovery; and landfilling.

If you answer "FALSE" to each of the above statements, your proposed modification is most likely a "type I-B" modification, i.e., a modification which is unlikely to have an adverse effect on the state's ability to establish and maintain an integrated system of facilities which (1) will assist in achieving the waste reduction/recycling goals in RSA 149-M:2; (2) is consistent with the hierarchy in RSA 149-M:3; and (3) provides a substantial public benefit pursuant to RSA 149-M:11.



Waste Management Division

<b>For Office Use Only:</b>	
WMD Log #:	_____
Date Rec'd.:	_____
No. of Copies:	_____
Fee: \$ _____	/Check # _____

## APPLICATION FORM FOR TYPE I MODIFICATION TO SOLID WASTE MANAGEMENT FACILITY PERMIT

pursuant to  
RSA 149-M and New Hampshire Administrative Solid Waste Rule Env-Sw 315

### SECTION I. FACILITY IDENTIFICATION

(1)	Facility name: Milton Municipal Landfill
(2)	Functional classification: <input type="checkbox"/> collection/storage/transfer <input type="checkbox"/> processing/treatment <input checked="" type="checkbox"/> landfill
(3)	Mailing address: 424 White Mountain Highway, P.O. Box 310, Milton, NH 03851
(4)	Permit number: DES-SW-TP-94-051
(5)	Location, by street address and municipality: 803 White Mountain Highway, Milton, NH

### SECTION II. PERMITTEE IDENTIFICATION

(1)	Permittee/applicant name: Town of Milton, NH		
(2)	Mailing address: 424 White Mountain Highway, P.O. Box 310, Milton, NH 03851		
(3)	Telephone number: 603-652-4501		
(4)	If different than above, identify the individual associated with and designated by the permittee/applicant to be the contact individual for matters concerning this application:		
	(a) Name: Tom Gray	(b) Title: Selectman	
	(c) Mailing address:		
	(d) Telephone number:	(e) E-Mail: tgray@metrocast.net	

### SECTION III. DESCRIPTION OF PROPOSED MODIFICATION

Describe the proposed modification by answering each of the following questions. Use additional paper as necessary.

(1)	Provide a <b>BRIEF</b> description of the proposed modification. [Check box if response is provided on separate paper <input checked="" type="checkbox"/>		
(2)	Identify whether the proposed modification is a "type I-A" or "type I-B" modification. (If uncertain, use the worksheet provided with the instructions for this form): <input type="checkbox"/> Type I-A <input checked="" type="checkbox"/> Type I-B		
(3)	Identify, either below or on separate paper, each written permit condition that will require amendment to effect the proposed modification and provide draft language for the same. [Check box if response is provided on separate paper <input type="checkbox"/>		
(4)	Identify, below, each "last approved plan of record" identified in the permit which will be affected by the proposed modification and will therefore require amendment/revision:		
	<b>Check here if affected</b>	<b>TYPE OF PLAN</b>	<b>DES APPROVAL DATE</b>
	<input checked="" type="checkbox"/>	Facility design plans/specifications	May 30, 2002
	<input type="checkbox"/>	Facility operating plan	
	<input type="checkbox"/>	Facility closure plan	
	<input type="checkbox"/>	Facility financial assurance plan	
	<input type="checkbox"/>	Other plan (specify):	
			<b>WMD LOG #</b> (Find this number on your copy of the approval)

(5)	Submit, on separate paper, the proposed amendments/revisions for each document identified pursuant to (4) above, based on the below listed instructions. (Note: The revisions may be presented in the form of replacement pages ready for substitution into the last approved plan of record, each page being clearly marked to show the date of revision. In the event there is no last approved plan of record for any of the following, you must prepare and submit a full plan, including the proposed modification(s), in accordance with the applicable cited Rules.)	
	<input checked="" type="checkbox"/>	Facility design plans must be prepared in accordance with Env-Sw 1103.05.
	<input type="checkbox"/>	Facility operating plans must be prepared in accordance with Env-Sw 1105.11.
	<input type="checkbox"/>	Facility closure plans must be prepared in accordance with Env-Sw 1106.04.
	<input type="checkbox"/>	Financial assurance plans must be prepared as specified in Env-Sw 1400 and must include all related draft financial assurance documents required to effect the proposed modification.
(6)	In order for DES to approve the proposed modification, the agency must be able to conclude from the information provided in this application that the proposed modification meets all applicable requirements of the Rules. Therefore, for any aspect of the proposed modification where it may not be self-evident that the proposed change meets all applicable requirements of the Rules, you should explicitly provide such information. Provide your response below and/or use separate paper as necessary. (Check box if response is attached on separate paper <input type="checkbox"/> )	

<b>SECTION IV. SCHEDULE</b>	
Provide a proposed schedule for implementing the modification. Use separate paper if necessary. (Check box if response is attached on separate paper <input type="checkbox"/> )	
	2015 Construction

<b>SECTION V. STATEMENT OF NEED</b>	
Provide a statement of need describing why the proposed change is necessary or desirable. Use separate paper if necessary. (Check box if response is attached on separate paper <input type="checkbox"/> )	
	Generation of electricity on the landfill cover using a solar photovoltaic panel array.

<b>SECTION VI. IMPACT EVALUATION</b>	
On separate paper, identify all impacts, both positive and adverse, which the proposed modification will have, including each of the below listed considerations.	
(1)	The effect the modification will have on facility function, capacity, life expectancy, service type and service area.
(2)	The effect the modification will have on the environment, public health and safety.
(3)	The effect the modification will have on the state's ability to achieve the goals and objectives specified in RSA 149-M:2, namely achieving a 40% minimum weight reduction in the solid waste stream on a per capita basis by the year 2000 and avoiding the disposal of recyclable materials in a lined landfill with a leachate collection system.
(4)	The effect the modification will have on establishing and maintaining integrated waste management systems consistent with the hierarchy of waste management methods in RSA 149-M:3 [the methods, in descending order of preference as specified in RSA 149-M:3, are: source reduction; recycling and reusing; composting; waste-to-energy technologies (including incineration), incineration without resource recovery; and landfilling].
(5)	Consistency with the state solid waste management plan and the applicable district plan, pursuant to RSA 149-M:12,I(b). If necessary, contact the P&DRS at (603) 271-2925 for plan information.

<b>SECTION VII. PUBLIC BENEFIT DEMONSTRATION</b>	
Provide a "demonstration of public benefit" based on the below listed instructions. Check which one of the listed instructions applies to your particular application.	
<input type="checkbox"/>	For a type I-A modification of a standard permit, provide a "demonstration of public benefit" in accordance with RSA 149-M:11 and in conformance with the provisions of Env-Sw 1005.05. Prepare and submit the demonstration on separate paper.
<input type="checkbox"/>	For a type I-A modification of an emergency permit or a research and development permit, or a permit-by-notification, there is a presumption of public benefit, provided that the proposed modification meets all requirements of the Rules. Therefore, you may skip this section and go to Section VIII.
<input checked="" type="checkbox"/>	For a type I-B modification, there is a presumption of public benefit, provided that the proposed modification meets all requirements of the Rules. Therefore, you may skip this section and go to Section VIII.

## SECTION VIII. OTHER PERMITS

Complete the following table to identify and provide the status of all other permits or approvals necessary to effect the proposed modification.

Type of Permit/Approval Required	Date the Application was/will be Submitted	Status/Comments

## SECTION IX. LEGAL NOTICES

Submit proof of having provided certain legal notifications and filings, as follows:

- (1) You must send by certified mail, or deliver in hand, a complete copy of this application to the host municipality, host solid waste management district and other affected entities, with a "notice of filing," as specified by Env-Sw 303.
- (2) For a type I-A modification, you must send by certified mail, or deliver in hand, a "notice of filing" to each owner of property abutting the facility site, as specified by Env-Sw 303. If the applicant/permittee or the owner of the facility site owns any abutting parcel of land, the "notice of filing" must be sent to the owner(s) of the next parcel(s) not owned by the permittee/applicant or facility site owner.
- (3) You must also provide a "notice of filing" to the New Hampshire Department of Justice/Office of the Attorney General (NH DoJ/AGO) if, pursuant to Section X(2) of this form, you are required to submit business and personal disclosure information.
- (4) You must attach to this application "proof" that notification has been provided as required by (1) through (3) above. Therefore, attach a copy of the notice(s) of filing and the signature(s) of all required recipients, acknowledging receipt.

## SECTION X. CERTIFICATION OF COMPLIANCE/COMPLIANCE REPORT

All applications for permit modification must be submitted with either certification of compliance or a compliance report, as follows:

- (1) If you are ABLE to certify that each of the statements numbered (1) - (8) below are true, do so by your signature.
- (2) If you are UNABLE to certify that each of the statements numbered (1) - (8) below are true, you must:
  - Prepare and submit a separate Compliance Report as specified by Env-Sw 303.15; and
  - If the proposed modification involves a change in organizational structure, or a change in individuals/entities holding 10% or more of the permittee's debt or equity, or a change in officers, directors, partners or key employees, none of which constitutes a change in operational control of the facility or a change in ownership per Env-Sw 315.02(f), also submit completed "business and personal disclosure forms" for each non-compliant individual and entity involved in the change. Obtain the required forms from the P&DRS at (603) 271-2925. Submit the completed forms, with the notice of filing referenced by Section IX(3) of this form and a copy of the Compliance Report, direct to the New Hampshire Department of Justice/Office of Attorney General, Environmental Protection Bureau, 33 Capitol Street, Concord, NH 03301-6397. [Note: Copies of the completed disclosure forms should NOT be attached to this application when it is submitted to DES or to the host municipality, host solid waste management district and other effected entities, pursuant to Section IX(1) above. Only the NH DoJ/AGO should receive copies of the disclosure forms].

## COMPLIANCE STATEMENT

The applicant shall certify that each of the statements listed in (1)-(8) below are true for each of the following individuals and entities:

- The applicant, and
- The facility owner, and
- The facility operator, and
- All individuals and entities holding 10% or more of the applicant's debt or equity, and
- All of the applicant's officers, directors, and partners, and
- All individuals and entities having managerial, supervisory or substantial decision making authority and responsibility for the management of the facility operations or the activity(s) for which approval is being sought.

(1)	No individual or entity listed above has been convicted of or plead guilty or no contest to a felony in any state or federal court during the 5 years before the date of the application.
(2)	No individual or entity listed above has been convicted of or plead guilty or no contest to a misdemeanor for a violation of environmental statutes or rules in any state or federal court during the 5 years before the date of the application.
(3)	No individual or entity listed above has owned or operated any hazardous or solid waste facility which has been the subject of an administrative or judicial enforcement action for a violation of environmental statutes or rules during the 5 years before the date of the application.

- (4) No individual or entity listed above has been the subject of any administrative or judicial enforcement action for a violation of environmental statutes and rules during the 5 years before the date of the application;
- (5) All hazardous and solid waste facilities owned or operated in New Hampshire by any individual or entity listed above are in compliance with either.
  - (a) All applicable environmental statutes, rules, and DES permit requirements; or
  - (b) A DES approved schedule for achieving compliance therewith.
- (6) All individuals and entities listed above are in compliance with all civil and criminal penalty provisions of any outstanding consent agreement, settlement, or court order to which DES is a party.
- (7) All individuals and entities listed above have paid, or are in compliance with the payment schedule for any administrative fine assessed by DES.
- (8) All individuals and entities listed above are in compliance with all terms and conditions under every administrative order, court order or settlement agreement relating to programs implemented by DES.

Signature of the permittee/applicant certifying the above statements are true:

Permittee/Applicant Name (Print Clearly or Type) Tom Gray

Permittee/Applicant Signature *Tom P Gray*

Date 3-5-15

**SECTION XI. PERMITTEE/APPLICANT SIGNATURE REQUIREMENTS**

The permittee/applicant must sign the following statement prior to submitting this application. All copies of the application filed with DES must bear the permittee's/applicant's ORIGINAL signature. If the permittee/applicant is not an individual, an individual duly authorized by the permittee/applicant shall sign the application.

To the best of my knowledge and belief, the information and material submitted herewith is correct and complete. I understand that any approval granted by DES based on false and/or incomplete information shall be subject to revocation or suspension, and that administrative, civil or criminal penalties may also apply. I certify that this application is submitted on a complete and accurate form, as provided by DES, without alteration of the text.

Permittee/Applicant Name (Print Clearly or Type) Tom Gray

Permittee/Applicant Signature *Tom P Gray*

Date 3-5-15

**SECTION XII. PROPERTY OWNER SIGNATURE**

If the permittee and property owner are not the same, the property owner must also sign this form as follows. All copies of the application filed with DES must bear the property owner's ORIGINAL signature. If the property owner is not an individual, an individual duly authorized by the property owner shall sign the application.

- (1) I hereby affirm that the permittee/applicant has the legal right to occupy and use the property on which the subject facility is or will be located for the purposes specified in this application.
- (2) I hereby affirm that I shall grant access to the property for closure and post-closure monitoring of the subject facility and site as required by RSA 149-M and the New Hampshire Solid Waste Rules (Env-Sw 100 - 300 and Env-Sw 400 - 2000), as amended.

Property Owner Name (Print Clearly or Type) \_\_\_\_\_

Property Owner Signature \_\_\_\_\_

Date \_\_\_\_\_



### **Section III (1). Brief Description of Proposed Modification**

This Type I-B permit modification is sought to modify the Milton Municipal Landfill Solid Waste Permit to construct a solar array on the closed landfill. The project involves the installation of 2790 solar photovoltaic panels that would generate 865 kW of electricity. Design drawings showing the panel array layout and installation details are included in Part II of the application.

#### **Array Layout and Access**

As shown on Sheet 1 of the design drawings, the solar panels are arranged in 45 rows on the top, flatter portion of the landfill. The rows contain between 18 and 90 panels each. The panels are located to avoid gas vents, settlement monuments, and monitoring/observation wells. On an attached figure, the panel array layout is superimposed on an aerial photograph to demonstrate the panels are not located over rip rap lined drainage swales.

During and after installation, the panels will be accessed through a gate in the landfill perimeter fence at the northern end of the landfill. All of the panels are located within the perimeter fencing. The gate is accessed by existing site roadways in an area that is separate from the Transfer Station activities and traffic.

#### **Construction**

Installation of the panel arrays involves light construction and the in-place assembly of the panels, metal frames racks, and small plastic concrete ballasted footing pads. All equipment used in construction will be reviewed to ensure added wheel load or track pressures 12 inches above the cap geomembrane are less than 4.5 pounds per square inch (psi). A description of the construction tasks and sequence is included in an attached letter from the project developer, NhSolarGarden.com (NHSG), and in notes on the drawings. Any damage to the cap or wear of the vegetative layer that occurs during construction will be repaired at that time.

#### **Cap Impacts**

The solar panels and support structures are light and add only a nominal additional dead weight to the cap. Any cap settlement under the weight of the panel array therefore should be small. As shown on the design drawings, the panel array is relatively compact and dense, so that any

settlement will be uniform and without large differential settlements that could be detrimental to the cap integrity.

The most critical design loading condition is when the panels are exposed to hurricane level winds. Attached calculations prepared by GameChange Racking indicate the panels are stable under these loads with respect to overturning and sliding. The design wind speed imposes additional loading on the edges of the footings. The maximum calculated footing pressure under these hurricane conditions is 3.5 psi at the ground surface and 24 inches above the geomembrane, a value that is below the 4.5 psi design value measured from only 12 inches above the geomembrane.

### **Maintenance and Decommissioning**

The attached NHSG letter discusses how the cap will be mowed and snow removed during operations. As discussed in the attached letter, NHSG is responsible for removing all equipment and support structures at the end of the contract with the Town, and to restore the landfill to its original condition.

## Section VI – Impact Evaluation

Per the Type I Permit Modification form, the following responses are given to the five enumerated considerations.

- (1) **The effect the modification will have on facility function, capacity, life expectancy, service type, and service area.**

The modification request proposes no change to the facility function, capacity, life expectancy, service type, and service area.

- (2) **The effect the modification will have on the environment, public health, and public safety.**

The proposed modification will have no effect on the environment, public health, and public safety.

- (3) **The effect the modification will have on the state's ability to achieve the goals and objectives specified in RSA 149-M:2, namely achieving a 40% minimum weight reduction in the solid waste stream on a per capita basis by the year 2000 and avoiding the disposal of recyclable materials in a lined landfill with a leachate collection system.**

The proposed modification will not affect the state's ability to achieve the goals and objectives specified in RSA 149-M:2.

- (4) **The effect the modification will have on establishing and maintaining integrated waste management systems consistent with the hierarchy of waste management methods in RSA 149:M (the methods, in descending order of preference as specified in RSA 149-M:3, are: source reduction; recycling and reusing; composting; waste-to-energy (including incineration), incineration without energy recovery; and landfilling.**

The proposed modification does not impact establishing and maintaining integrated waste management systems consistent with the hierarchy of waste management methods in RSA 149:M.

- (5) **Consistency with the state solid waste management plan and the applicable district plan, pursuant to RSA 149-M12 I(b).**

The proposed modification does not impact the state solid waste management plan and the applicable district plan, pursuant to RSA 149-M12 I(b).





February 26, 2015

To whom it may concern,

NhSolarGarden.com, LLC (NHSG) and their development partners are seeking to construct an 861 kW solar array on the Milton Town Landfill, in Milton NH.

The process to install this equipment is detailed in the racking company's layout, included in this package, but the process includes installing a bed of crushed stone on top of the existing grass, so not to impact the soil or cap below the soil cover. Then a plastic "pour in place" concrete form will be placed on the crushed stone to level off the foundation. This form is attached to the racking equipment, which is then connected to the solar panels. Once the forms & racking is set, the concrete is poured into the forms (with a skidsteer that meets the caps equipment tolerances) at the proper amounts to support the calculations provided to meet the snow, wind & landfill cap loads. All this work is performed by the racking company's installation crew, who has years of experience on other landfills along with our New Hampshire-based electrician who will be wiring all the equipment together (above grade in rigid conduits meeting local and national electrical codes) and connecting to PSNH's poles & transformers off the landfills footprint.

NHSG will be responsible for annual maintenance around the panels, which will include mowing the grass at least 2-3 times a year and cleaning the panels (if needed once a year). The Town will continue to mow the rest of the area not being used for the solar installation. Snow removal would only include snowblowing a clean row at the base of the panels so the snow can shed off and not back up on the panels and affect production during the winter months.

At the end of the contract, the owner of the array is legally responsible to remove all equipment and ballast blocks (including crushed stone) and put the landfill back its original state so the Town can continue to maintain it with its annual mowing requirements.

We are happy to provide any additional information for the State to understand this development.

Regards,

Andrew Kellar  
Founder/Manager  
[andrew@nhsolargarden.com](mailto:andrew@nhsolargarden.com)  
603-81-1175



## Calculation package for GameChange Racking PIP system

Project: NH Solar  
Address: Milton NH

### General information:

PIP	1UP	
Setup	Continuous	
Tilt	25	degree
Clearance	30	in
Loading code	ASCE7-10	
Risk category	I	
Exposure Category	C	
Site Class	D	
Assumed load bearing capacity of soil	1	KSF
Dead load:	3	PSF
ground Snow load (Pg)	80	PSF
Basic Wind Speed	105	mph
Panel length	77.01	in
Panel width	39.06	in
panels supported per post (mid)	3.50	
panels supported per post (edges)	2.50	

# 1. Loading calculations

## 1.1 Snow load

Pg (psf)	80.00
Ce	0.90
Ct	1.20
Is	0.80
Cs	0.82

$P_s = C_s * P_g = 39.59 \text{ psf}$

## 1.2 Wind load

V (MPH)	105.00
Kd	0.85
Kz	0.85
Kzt	1.00

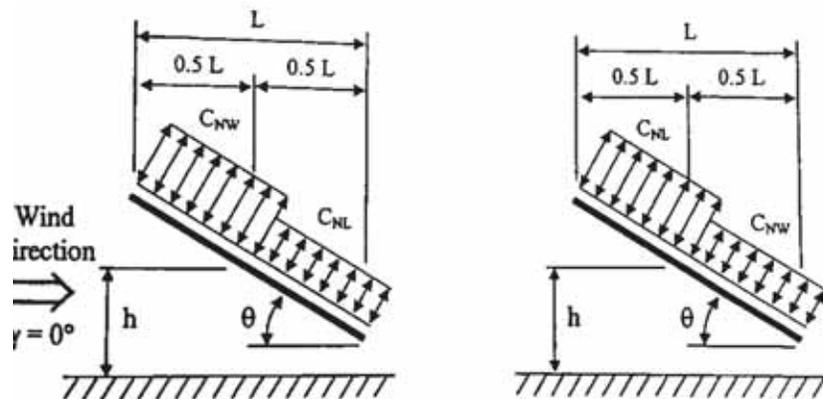
$q_h = 20.39$

Wind pressure on the open roof according to ASCE7-5:

$P = q_h G C_N$

G	0.85
Iw	1.00

CN are given in the following Fig.



	CASE B		CASE A	
Windward	GCW	2.33	GCW	1.83
	GCN	0.80	GCN	1.90
Leeward	GCW	-2.43	GCW	-1.60
	GCN	-0.37	GCN	-1.67

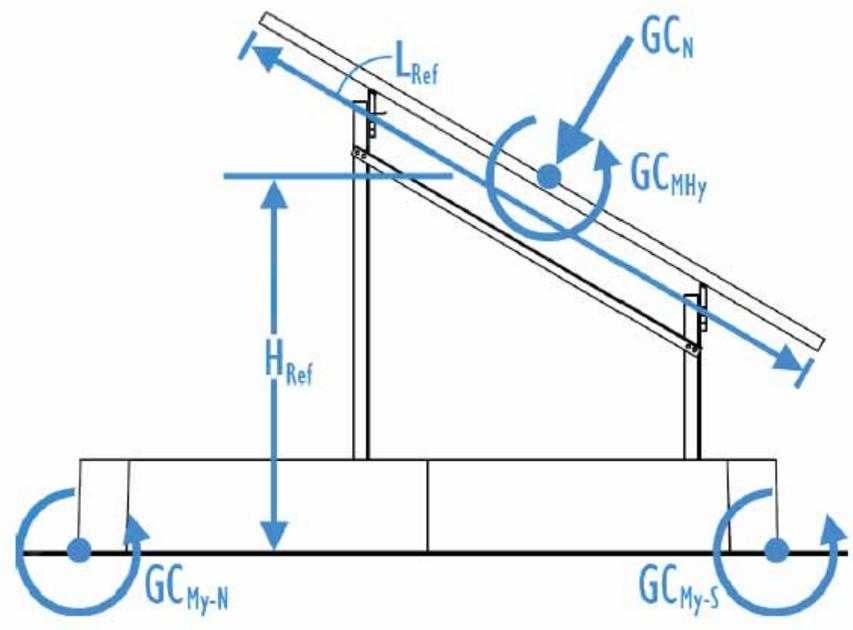
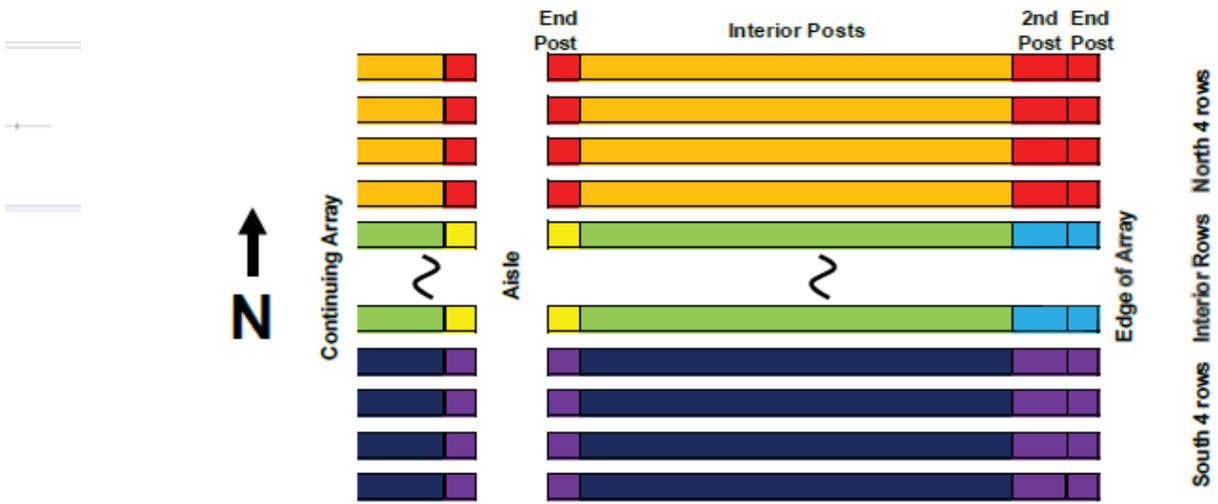
## 2.0 Foundation

The results of wind load factors including normal and overturning moments provided by CPP are located in the calculation sheets. The results are given for two opposite directions of wind which causes upward and downward wind forces calculated based on worst case design wind loads.

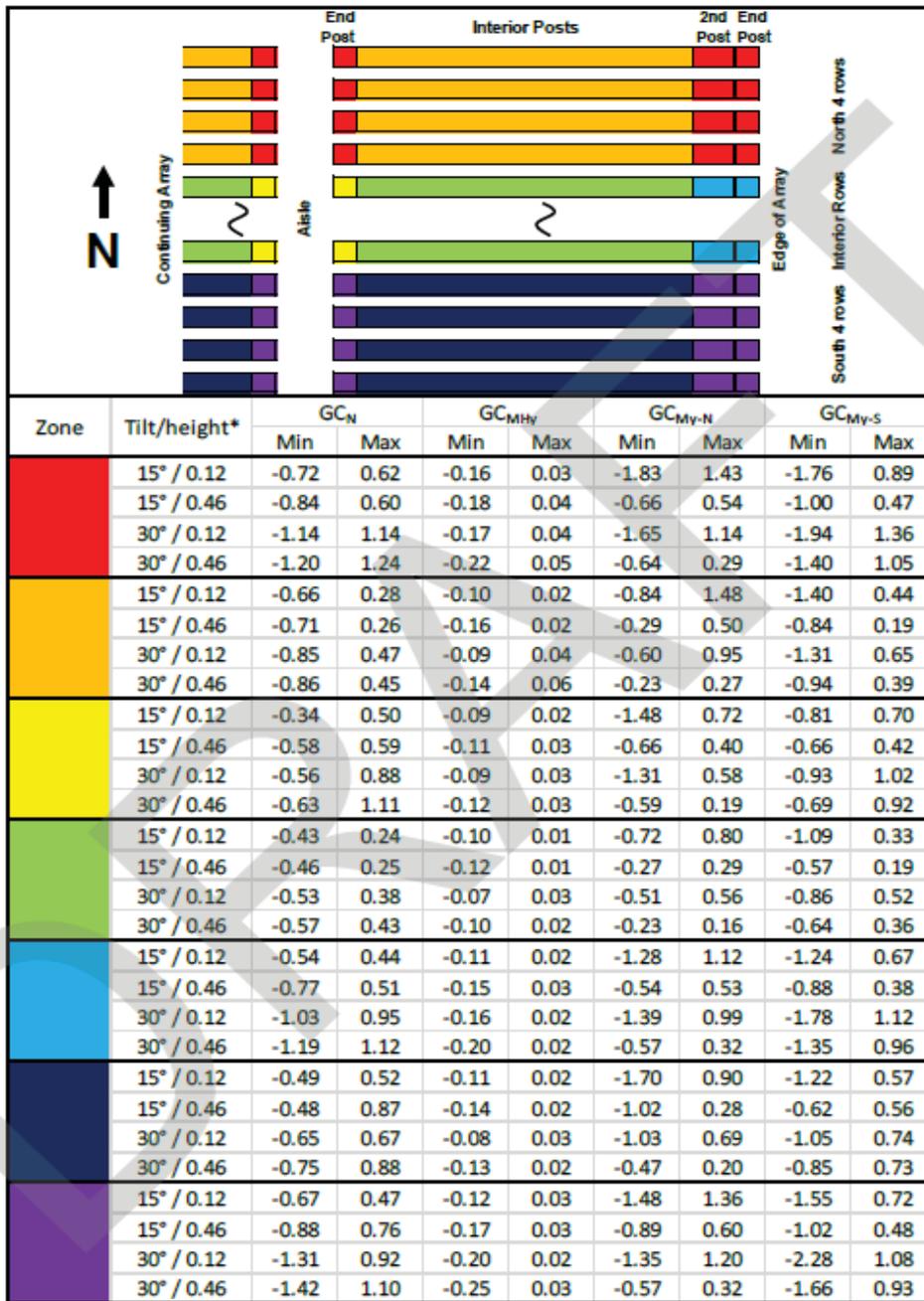
GCN is the normal force factor, GC-My-N is the moments about northern pivot point and GC-My-S is the moment about southern pivot point. As it is apparent and highlighted in worksheets, the overturning moment about the southern point due the wind forces in upward direction is the critical case. Northern interior posts receive the highest upward force.

The factor of safety is calculated based on the worst case scenario, when the dead load and full wind loads are present. The resisting ballast weight and moments (about the southern pivot point) are calculated based on the superstructure and tub weight as given in the worksheet.





Schematic of wind load coefficients – PourInPlace System



\* Height is expressed as the ratio of the gap from the ground to the low edge of the PV divided by the c  
Interpolation between configurations is allowed

Figure 5: Peak wind load coefficients – Pour-in-Place System

GC_N Factors (Pour-In-Place)								
		North Row Ends	North Row Mid	Mid Aisles	Mid Row Mid	Mid Row Ends	South Row Mid	South Row Ends
Tilt	H* Ratio	Min	Min	Min	Min	Min	Min	Min
15	0.12	-0.72	-0.66	-0.34	-0.43	-0.54	-0.49	-0.67
15	0.46	-0.84	-0.71	-0.58	-0.46	-0.77	-0.48	-0.88
30	0.12	-1.14	-0.85	-0.56	-0.53	-1.03	-0.65	-1.31
30	0.46	-1.2	-0.86	-0.63	-0.57	-1.19	-0.75	-1.42
25	0.39	-1.063	-0.805	-0.587	-0.526	-1.011	-0.647	-1.210
Pressure (psf)	0	-13	-10	-7	-6	-12	-8	-15
Uplift per Panel	0	-272	-206	-150	-134	-258	-165	-309
Uplift (vertical)	0	-246	-186	-136	-122	-234	-150	-280
Horizontal force	0	-115	-87	-63	-57	-109	-70	-131
Number of panels	0	2.50	3.50	2.50	3.50	2.50	3.50	2.50
Total uplift (k)	0	-616	-653	-340	-426	-586	-524	-701
Total horizontal	0	-287	-304	-158	-199	-273	-244	-327

GC_My-S Factors (Pour-In-Place)								
		North Row Ends	North Row Mid	Mid Aisles	Mid Row Mid	Mid Row Ends	South Row Mid	South Row Ends
Tilt	H* Ratio	Min	Min	Min	Min	Min	Min	Min
15	0.12	-1.76	-1.4	-0.81	-1.09	-1.24	-1.22	-1.55
15	0.46	-1	-0.84	-0.66	-0.57	-0.88	-0.62	-1.02
30	0.12	-1.94	-1.31	-0.93	-0.86	-1.78	-1.05	-2.28
30	0.46	-1.4	-0.94	-0.69	-0.64	-1.35	-0.85	-1.66
25	0.39	-1.396	-0.998	-0.724	-0.684	-1.279	-0.844	-1.571
g moment		-1377	-985	-715	-675	-1262	-832	-1550
Number of panels supported		2.50	3.50	2.50	3.50	2.50	3.50	2.50
Overturning g moment		-3443	-3447	-1787	-2363	-3155	-2913	-3875

**Uplift, overturning, and sliding control:**

Friction coefficient	0.45
Safety factor	1.67
Dead load on post (lb)	188

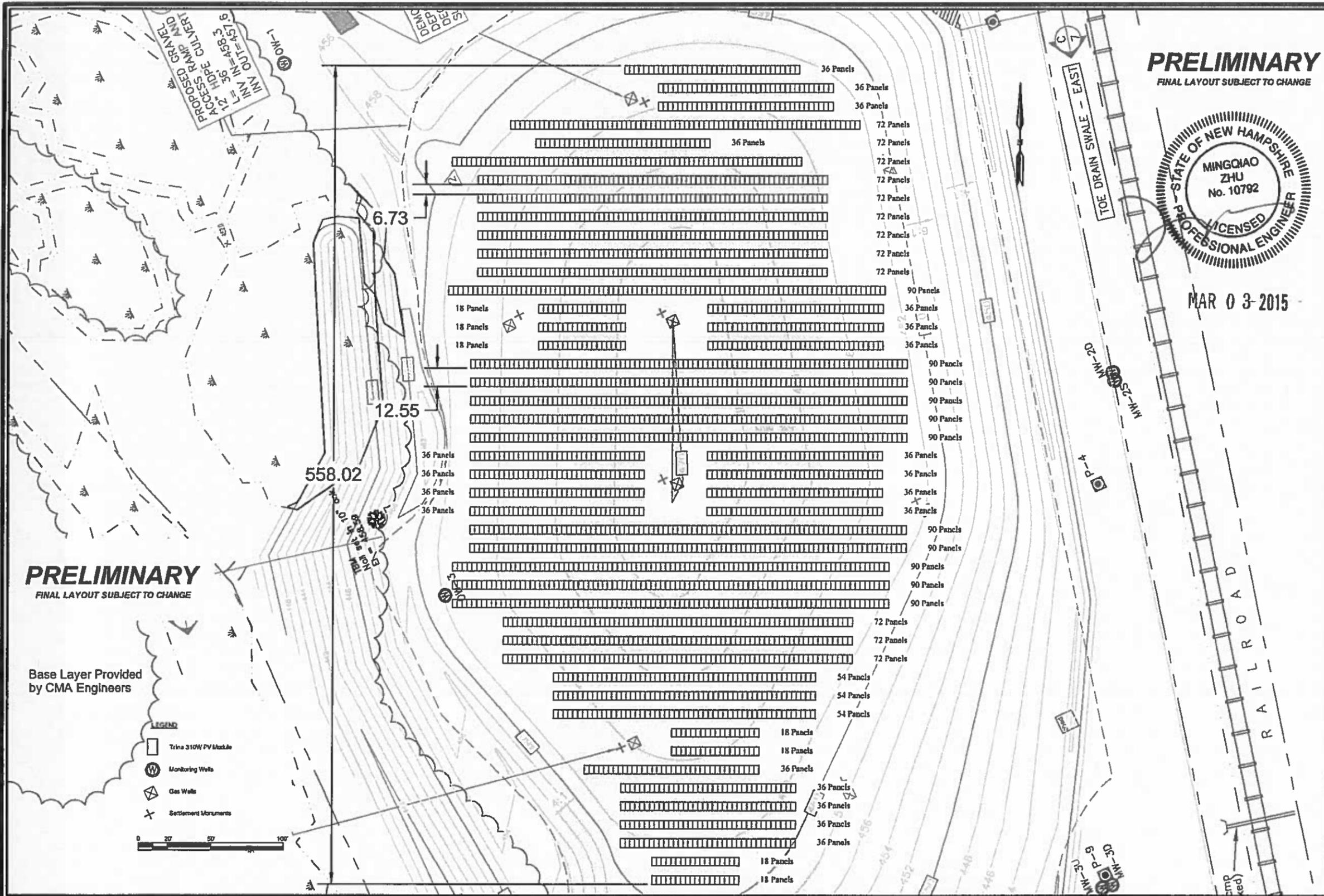
	Combination	North Row Ends	North Row Mid	Mid Aisles	Mid Row Mid	Mid Row Ends	South Row Mid	South Row Ends
Total uplift vertical (lb)	W	-616	-653	-340	-426	-586	-524	-701
Effective weight on tubs (lb)	0.6D(post)+W	-503	-540	-227	-313	-473	-411	-588
Total Horiz. force *lb)	W	287	304	158	199	273	244	327

Min tub weight based on assumed safety factor (lb)		North Row Ends	North Row Mid	Mid Aisles	Mid Row Mid	Mid Row Ends	South Row Mid	South Row Ends
	<b>Criteria</b>							
	Friction control	1786	1900	935	1201	1693	1504	2048
	Uplift control	840	902	379	523	790	687	982
	Overturning control	1728	1730	806	1127	1568	1433	1969
	Maximum needed	<b>1786</b>	<b>1900</b>	<b>935</b>	<b>1201</b>	<b>1693</b>	<b>1504</b>	<b>2048</b>

Soil pressure control on the tub edge

		North Row Ends		North Row Mi		Mid Aisles		Mid Row Mid		Mid Row Ends		South Row Mid		South Row Ends	
Vertical force	D+0.75W+0.75S (or0.45W)	2917	3820	3566	4293	2273	2918	3037	3577	2847	3672	3266	4160	3116	4050
Moment (lb-ft)		-1146	647	-1151	464	-637	542	-806	333	-1048	516	-991	671	-1264	561
e/L		0.39	0.17	0.32	0.11	0.28	0.19	0.27	0.09	0.37	0.14	0.30	0.16	0.41	0.14
Soil Stress (ksf)		0.19	0.49	0.26	0.52	0.18	0.38	0.24	0.43	0.20	0.46	0.25	0.53	0.20	0.50
Soil Stress (psi)		1.34	3.38	1.83	3.60	1.24	2.62	1.69	2.96	1.36	3.17	1.72	3.65	1.40	3.49
Vertical force (lb)	0.6D+0.6W (or0.45W)	1283	2486	1360	2330	708	1568	888	1608	1220	2320	1093	2284	1460	2705
Moment (lb-ft)		-1528	863	-1535	619	-850	722	-1075	444	-1397	688	-1322	895	-1686	748
e/L		1.19	0.35	1.13	0.27	1.20	0.46	1.21	0.28	1.14	0.30	1.21	0.39	1.15	0.28
Soil Stress (ksf)		0.31	0.36	0.32	0.32	0.17	0.25	0.22	0.22	0.29	0.33	0.27	0.35	0.34	0.38
Soil Stress (psi)		2.15	2.53	2.20	2.23	1.19	1.73	1.50	1.55	1.99	2.28	1.85	2.40	2.39	2.61
Max soil pressure (KSF)		0.53		< 1Ksf Ok											
Max Soil Stress (psi)		3.65		< 7 Psi Ok											

Tub bottom dimensions (ft)                      1.53    \*    6



**PRELIMINARY**  
FINAL LAYOUT SUBJECT TO CHANGE



MAR 03-2015



**Array Information**

	PV Modules	Racking
Manufacturer	Trina	Gamechange Racking
Model	TSM-PD14 310W	25-Degree Pour-in-Place
Dimensions	77.01" x 39.06" x 1.57"	
Weight	60.8 lbs	
Quantity	2790	

2790 modules at 310W

**864.9 MW**

**Design Information**

Building Occupancy Category	1
Wind Exposure Category	C
Design Wind Speed	105 mph ASCE7-10
Design Snow Load	80 psf
Area of Array	2.957 acres
No. of rows	50

- GENERAL NOTES**
- The layout shown herein is based on site layout geometry provided to GameChange Racking by the customer.
  - Any changes to the site that may affect the solar PV arrays depicted herein shall be notified to GameChange Racking.
  - GameChange Racking is a custom design layout for provided PV modules only. Refer to Array Information table.
  - GameChange racking cannot be responsible for errors during installation caused by changes that impact the layout as shown

Issue:	By:	Date:	Description:
1	EM	12-22-2014	Original Layout
2	IS	02-27-2015	Adjusted Layout

**GAMECHANGE RACKING LLC**

730 Fifth Avenue, 16th Floor  
New York, NY 10019  
Tel: 212-359-0205  
www.gamechangeracking.com



Customer: **New Hampshire Solar Garden**

Project: **Milton Landfill**

Location: **43°25'58.37"N 70°59'26.59"W**

**SITE PLAN**

Sheet #: **1 of 3**

**TOP TIPS:**

1. Use vertical adjustability provided to make Mounting Rails level, and the site install look great.
2. Use multiple hoops around plywood when pouring concrete into tubs, so the tubs look great after poured.
3. If pouring concrete in areas with freezing winters make sure to use freeze thaw additives, and use frost blankets if possible.
4. If pouring concrete in below freezing temperatures make sure to use accelerators that are NOT calcium chloride based

1) Take North Post and install Angle Stand to the bottom of the North Post using 3/8-16 x 3/4" hex bolts and flange nuts. With "U" shape of North Post facing north and "L" shape of Angle Stand facing north. Torque to specifications.

2) Place South Post south of the North Post with "U" shape facing north. Then install the Horizontal Beam to the lower section of the North Post and South Post. Use 3/8-16 x 3/4" hex bolts and flange nuts to attach. Make sure bolt head is on the outside and flange nut on the inside. Torque to specifications.

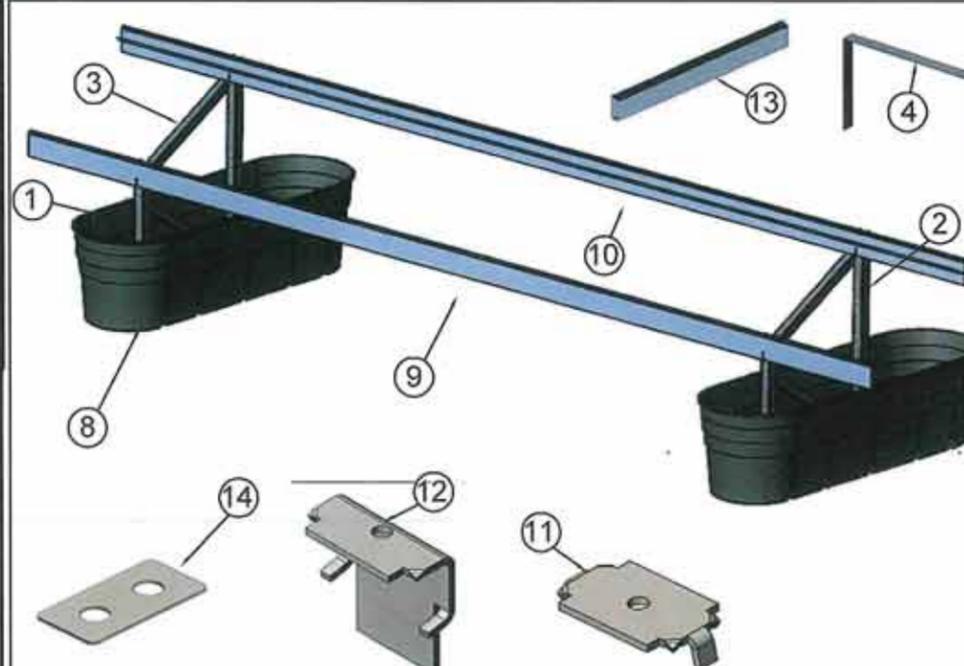
3) Install Angled Beam to the top ends of the North and South Post. Install Brace Beam below Angled Beam. Use 3/8-16 x 3/4" hex bolts and flange nuts to attach, with bolt head on the outside. Torque to specifications. Rail Support Assembly is complete.

4) Place first GC Tubs in locations specified per site layout and ensure ground is level.

5) Place Rail Support Assembly inside of Tub. The Angled Stand and Horizontal Beam will aid in proper positioning inside the Tub, 1" tolerance. Align southern edge of the Tub with the string line. Make sure horizontal beam is level.

6) If Horizontal Beam is not level, then raise one Post and support with pile of 1" gravel underneath until till is correct.

7) Repeat Rail Support Assembly and installation for adjacent Tubs. Position Rail Support Assembly and Tubs to the appropriate distance apart as required by layout.



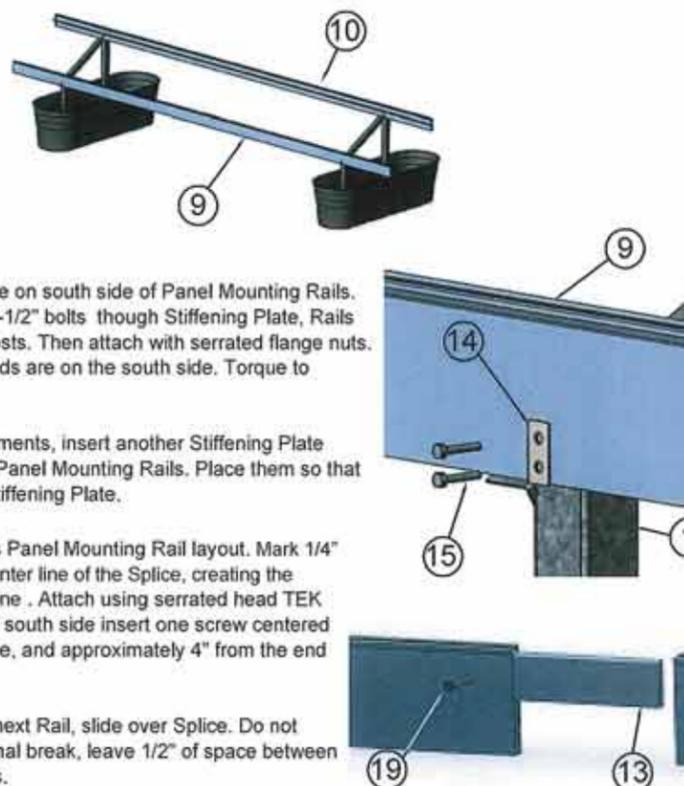
8) Install Panel Mounting Rails to the tops of the Posts, on the south side. The Panel Mounting Rail Upper (with tray) is installed on the North Posts. The Panel Mounting Rail Lower is to be installed on the South Posts. Rails will be installed through middle slots on Posts, to enable future vertical adjustment. Hardware for attaching the Rails will be 3/8-16 x 1-1/2" hex bolts and flange nuts.

9) Place Stiffening Plate on south side of Panel Mounting Rails. Insert the 3/8-16 x 1-1/2" bolts through Stiffening Plate, Rails and then through Posts. Then attach with serrated flange nuts. Make sure bolts heads are on the south side. Torque to specifications.

In corrosive Environments, insert another Stiffening Plate between Posts and Panel Mounting Rails. Place them so that bolts pass through Stiffening Plate.

10) If using a continuous Panel Mounting Rail layout. Mark 1/4" to each side of the center line of the Splice, creating the thermal expansion zone. Attach using serrated head TEK screws 3/4" long. On south side insert one screw centered vertically on the splice, and approximately 4" from the end of the Rail.

When attaching the next Rail, slide over Splice. Do not attach. At each thermal break, leave 1/2" of space between Panel Mounting Rails.



**PARTS LIST**

Item No.	Description	Part No.	Material
1	South Post	GC271	Galvanized, 12 gauge G90 St.
2	North Post	GC272	Galvanized, 12 gauge G90 St.
3	Angled Beam	GC276	Galvanized, 12 gauge G90 St.
4	Tub Straps	GC298	Galvanized, 12 gauge G90 St.
5	Angled Stand	GC277	Galvanized, 16 gauge G90 St.
6	Horizontal Beam	GC275	Galvanized, 16 gauge G90 St.
7	Brace Beam	GC278	Galvanized, 12 gauge G90 St.
8	GC Tub	GC Tub	Styrofoam / HMNPE
9	Panel Mounting Rail Lower	GC263	Al Alloy
10	Panel Mounting Rail Upper	GC263T	Al Alloy
11	Panel Mid Clip	GC315T	Al Alloy 6005A-T61
12	Panel End Clip	GC314T	Al Alloy 6005A-T61
13	Splice	GC251	Al Alloy at 0.10" thick
14	Stiffening Plate	GC255	Stainless Steel 304 at 0.063" thick
15	Hex Bolts		Magnacoated: 3/8-16 x 3/4" and 1-1/2"
16	Carriage T-Bolts		Stainless Steel 1/4-20
17	Flange Nuts		Magnacoated: serrated
18	Serrated hex head TEK Screws		Stainless Steel / Magnacoated, 1/4" dia. x 1-1/4" / 1-1/2" long
19	Serrated hex head TEK Screws		Stainless Steel / Magnacoated, 1/4" dia. x 3/4" long

**GC Pour-in-Place System**

- Use only GameChange parts. Use of other parts to complete the installation as substitutes may void the warranty.
- Make sure the ground structure (notably in the case of a capped landfill) is inspected and can support the loading resulting from the GC Pour-in-Place Ground System and provided PV modules.
- Follow all safety instructions that are required by relevant local, regional and national organizations and procedures as outlined in this install manual, both for mechanical and electrical aspects of the solar PV array installation.
- When encountering undocumented or unexpected obstacles requiring a work around, they should be noted on working drawings and notified to supervisor for evaluation. Work should then be completed in a manner that ensures that the remainder of the array is not affected.
- Customers are responsible for grade variations and making sure slope tolerances support GameChange System. GC Pour-in-Place Ground System ideally should be installed on flat, level and pre-compacted ground. This is to avoid system settlement over time. Topsoil with loam content and organics should be removed, and soil scraped down to subsoil level. If the system is installed on new fill, the soil should be compacted with a compacting roller prior to installation. However, due to vertical adjustability of the Rails on the Posts, the GC Pour-in-Place System may be erected on less than ideally prepared grounds when site conditions preclude removal of topsoil. In that scenario, the rails should be adjusted to appropriate heights on Posts during periods of operation and maintenance visits.
- Customers are responsible for grade variations.
- Reference Install Manual for installation. Not following Install Manual may result in voiding warranty.
- Ballast molds are provided for each site by GameChange. Recommended to use concrete mixtures with freeze thaw additive which are weather and UV resistant if in areas with required additive.
- Pour concrete immediately if heavy wind is expected, as it may blow assembled module Mounting Rails and assembly over.

**Tool Required**

- 7/16" Deep and Short Sockets (1/4" bolts)
- 9/16" Deep and Short Sockets (3/8" bolts)
- 7/16" and 9/16" Wrenches
- Torque Wrench
- Suggested finish torques:
  - 1/4" hardware use 8 ft lbs
  - 3/8" x 1.5" hardware (Aluminum Rail joint hardware) use 12 ft lbs
  - 3/8" x .75" Hardware (Post Assembly joint hardware) use 15 ft lbs
- String Line
- Impact drill with interchangeable drivers
- 1/2" Drill Bit
- Must use anti-seize such as Loctite for bolts used to mount modules (most bolts come pre-d with anti-seize)
- Tape Measure
- Concrete mixture (weather and UV Resistant if required) per GameChange ballast plan
- 48 inch long level
- Rack assembly jig made of plywood and 2"x4" wood.

**Preventative Maintenance**

- After installation, installer must annually monitor for any surface rust that may occur over time. Identify any rust areas, wire brush area to remove rust, and spray area with 70%+ zinc rich paint.
- Clips must be checked annually and after storms with severe winds to make sure their installation and torque settings remain correct.
- Annual inspection must be done for mechanical movement due to any reason including thermal expansion and contraction. Any mechanical movement must be rectified.
- Torque settings must be checked for all hardware.
- All Clips must be checked to make sure there is no gap between side of Clip and module.
- Proper preventative maintenance must be conducted or warranty may be voided.



MAR 03 2015

Issue:	By:	Date:	Description:
1	EM	12-22-2014	Original Layout
2	IS	02-27-2015	Adjusted Layout

**GAMECHANGE RACKING LLC**

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www.gamechangeracking.com



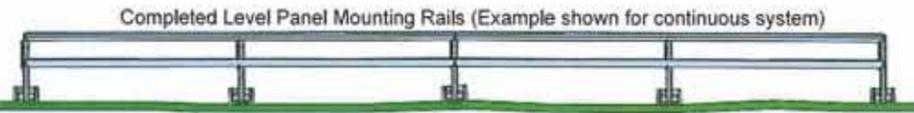
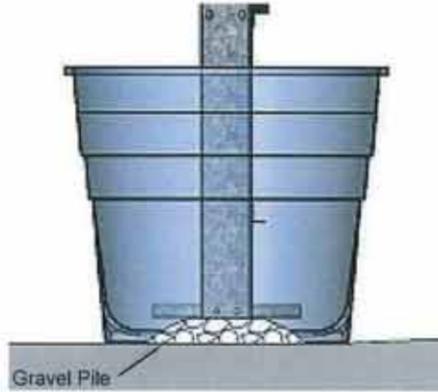
Customer:	New Hampshire Solar Garden
Project:	Milton Landfill
Location:	43°25'58.37"N 70°59'26.59"W

Sheet #:	2 of 3
<b>Pour In Place System</b>	

11) Vertical adjustability is set prior to pouring concrete, and this is in addition to moving Rails higher or lower on Posts. After Rail installation is complete run a string along Upper and Lower Rails, in the east west direction. Evaluate Rails.

12) Place small piles of 1" gravel under the Rail Support Assembly until Rails touch the string.

Keep Horizontal Beam level at all times. Horizontal Beam must not get closer than 5" from the top of the Tub and must stay 2" above the ground.



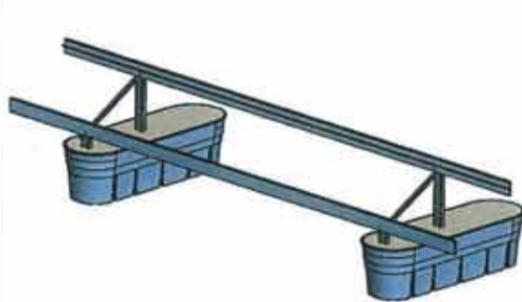
13) Place plywood pieces along long side of Tubs. Then place Tub Straps on the top (wrapping around sides) of the Tubs before pouring concrete. Use three Straps minimum for HMWPE Tubs. Follow GameChange ballast plan.

14) Concrete should first be poured in the center of the Tub, then use shovels to push to the ends. Once filled, true up Posts and Rails, and check Angled Beams to make sure system is at correct tilt. Pound on one Post to correct tilt. This should all be done before concrete settling. Use vibrator rod to follow industry standards, and magnesium trowel to towel wash around Posts so precipitation does not collect.

- Mixture should be for:
  - High strength (4000 psi minimum)
  - Normal weight of 4000 lbs/yd<sup>3</sup>

- Bobcat with gravity feed bucket, or concrete pump should be used when there are weight constraints on the land or rows are narrow.
- 5" slump for concrete
- Allow concrete to set for 1-2 day before removing Straps and plywood.

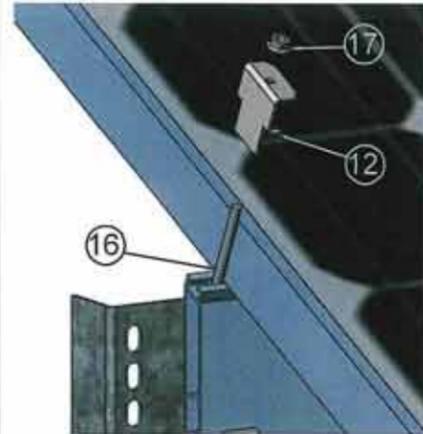
15) At least three days after concrete is poured, drill four inch (4") diameter weep holes on each long side of the Tub walls, centered 2" above the ground level, centered on wall of Tub the long way. This enables water to drain out.



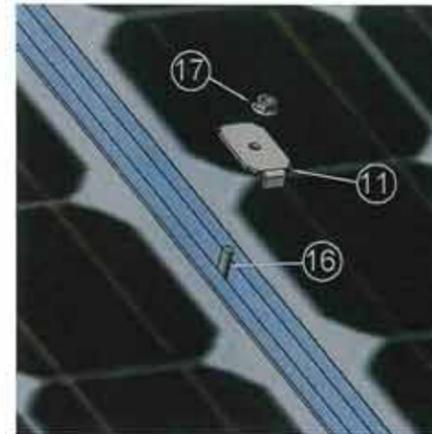
16) Insert t-bolt (or carriage bolt) into slot on Panel Mounting Rail, approximately 1/2" from the end of the Panel Mounting Rail. Place panel on Rail next to bolt. Then place End Clip over bolt and slide panel under the End Clip. Leave a 1/2" spacing from the edge of the End Clip to the end of the Rail. Make sure panel is snug against End Clip. Fasten using flange nut and torque as required.

17) Repeat steps when using Mid Clips in between panels. Insert t-bolts (carriage bolts) into Rails between panels and place Mid Clips over T-bolts. Make sure panel is snug against Mid Clip. Fasten using flange nut and torque as required.

18) When end of Panel Mounting Rail is reached or thermal break is required, then finish with End Clip. Remember to continue to leave 1/2" spacing from the edge of the End Clip to the end of the Rail.



End Clip

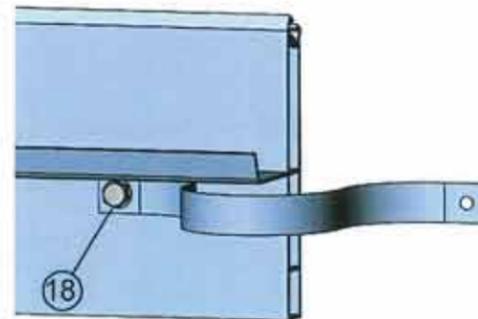


Mid Clip

19) After panels have been installed on a row of Rails, go across Rails and adjust to the proper height where required. Panel Mounting Rails are to be at the same level height. Height differences may have occurred due to ground deviations. Proper ground preparation should eliminate need for this step.

20) Panels and Panel Mounting Rails are all bonded together East/ West, so that each row forms one single structure. A jumper (GC provided strip or WEEB-6.7) is required at thermal breaks to continue the bonding/grounding. Install jumpers by using a serrated head TEK screw 1-1/4-1-1/2" length within the third rail chamber up and approximately 1" in from the rail edge so as not to interfere with the rail to Post joint or the Splice installation. Game Change recommends 16 strings may be grounded together using 8 gauge copper wire.

The entire system needs to be grounded from a single point to an appropriate grounding source.



Depiction of banded jumper installation



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- Customers are responsible for grade variations.
- Reference install Manual for installation. Not following install Manual may result in voiding warranty.
- Ballast molds are provided for each site by GameChange. Recommended to use concrete mixtures with freeze thaw additive which are weather and UV resistant if in areas with required additive.
- Pour concrete immediately if heavy wind is expected, as it may blow assembled module Mounting Rails and Assembly over and cause damage.

#### Tool Required

- 7/16" Deep and Short Sockets (1/4" bolts)
- 9/16" Deep and Short Sockets (3/8" bolts)
- 7/16" and 9/16" Wrenches
- Torque Wrench
- Suggested finish torques:
  - 1/4" hardware use 8 ft lbs
  - 3/8" x 1.5" hardware (Aluminum Rail joint hardware) use 12 ft lbs
  - 3/8" x .75" Hardware (Post Assembly joint hardware) use 15 ft lbs
- String Line
- Impact drill with interchangeable drivers
- 3/4" Drill Bit
- Must use anti-seize such as LocTite for bolts used to mount modules (most bolts come pre-dip with anti-seize)
- Tape Measure
- Concrete mixture (weather and UV Resistant if required) per GameChange ballast plan
- 48 inch long level
- Rack assembly jig made of plywood and 2"x4" wood.

#### Preventative Maintenance

- After installation, installer must annually monitor for any surface rust that may occur over time. Identify any rust areas, wire brush area to remove rust, and spray area with 70%+ zinc rich paint.
- Clips must be checked annually and after storms with severe winds to make sure their installation and torque settings remain correct.
- Annual inspection must be done for mechanical movement due to any reason including thermal expansion and contraction. Any mechanical movement must be rectified.
- Torque settings must be checked for all hardware.
- All Clips must be checked to make sure there is no gap between side of Clip and module.
- Proper preventative maintenance must be conducted or warranty may be voided.

Issue:	By:	Date:	Description:
1	EM	12-22-2014	Original Layout
2	IS	02-27-2015	Adjusted Layout

#### GAMECHANGE RACKING LLC

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Customer:	New Hampshire Solar Garden
Project:	Milton Landfill
Location:	43°25'58.37"N 70°59'26.59"W

Pour In  
Place  
System

Sheet #:  
3 of 3