

The applicant(s) hereby applies to the Land Registrar.

**Properties**

PIN 01547 - 0228 LT  
 Description PT LT 31-36 CON 1 ANDERDON PT 4 12R5308, S/T RESERVATIONS AS IN CE9594 9;  
 S/T A RIGHT OVER PT 7 ON 12R-21155 AS IN CE95949; AMHERSTBURG  
 Address AMHERSTBURG

PIN 01547 - 0229 LT  
 Description PT LT 31-36 CON 1 ANDERDON PT 5 12R5308, S/T RESERVATIONS AS IN CE9594 9,  
 S/T A RIGHT OVER PT 5 ON 12R-21155 AS IN CE95949; AMHERSTBURG  
 Address AMHERSTBURG

**Consideration**

Consideration \$ 0.00

**Applicant(s)**

The notice is based on or affects a valid and existing estate, right, interest or equity in land

Name 1560803 ONTARIO INC.  
 Address for Service c/o Dillon Consulting  
 3200 Deziel Dr., Suite 308  
 Windsor, On  
 N8W 5K8

I, Loris Collavino, President, have the authority to bind the corporation.

This document is not authorized under Power of Attorney by this party.

**Party To(s)**

*Capacity*

*Share*

Name THE CORPORATION OF THE TOWN OF AMHERSTBURG  
 Address for Service 271 Sandwich St. S.  
 Amherstburg, On  
 N9A 2A5

This document is being authorized by a municipal corporation Lory Bratt, AMCT, Planning Coordinator.

This document is not authorized under Power of Attorney by this party.

**Statements**

This notice is pursuant to Section 71 of the Land Titles Act.

This notice is for an indeterminate period

Schedule: See Schedules

**Signed By**

Armando Felice Antonio DeLuca 500-251 Goyeau Street acting for Signed 2009 01 20  
 Windsor Applicant(s)  
 N9A 6V2

Tel 519-258-0615  
 Fax 5192586833

**Submitted By**

MOUSSEAU DELUCA MCPHERSON PRINCE 500-251 Goyeau Street 2009 01 21  
 Windsor  
 N9A 6V2

Tel 519-258-0615  
 Fax 5192586833

The applicant(s) hereby applies to the Land Registrar.

**Fees/Taxes/Payment**

Statutory Registration Fee	\$60.00
Total Paid	\$60.00

**File Number**

Applicant Client File Number :	23684
Party To Client File Number :	23684



**DEVELOPMENT AGREEMENT**

Registered \_\_\_\_\_, 2008.

**THIS AGREEMENT** made in triplicate this 15<sup>th</sup> day of December, 2008.

BETWEEN:

**1560803 ONTARIO INC.**  
hereinafter called the "OWNER"

OF THE FIRST PART;

-and-

**THE CORPORATION OF THE  
TOWN OF AMHERSTBURG**  
hereinafter called the "CORPORATION"

OF THE SECOND PART;

**WHEREAS** the lands affected by this Agreement are described in Schedule "A" attached hereto, and are hereinafter referred to as the "said lands";

**AND WHEREAS** the Owner warrants it is the registered owner of the said lands;

**AND WHEREAS**, in this Agreement the "Owner" includes an individual, an association, a partnership or corporation and, wherever the singular is used therein, it shall be construed as including the plural;

**AND WHEREAS** the Owner intends to develop or redevelop the said lands for a solar energy system in accordance with the Site Plan attached hereto as Schedule "B", and hereinafter referred to as the "Site Plan";

**AND WHEREAS** the Corporation as a condition of development or redevelopment of the said lands requires the Owner to enter into a Development Agreement;

**NOW THEREFORE THIS AGREEMENT WITNESSETH** that in consideration of other goods and valuable consideration and the sum of FIVE (\$5.00) DOLLARS of lawful money of Canada, now paid by each of the parties hereto to each of the other parties hereto, (the receipt of which is hereby acknowledged), the Owner hereby covenants and agrees with the Corporation as follows:

1. The following Schedules, which are identified by the signatures of the parties to this Agreement, and which are attached hereto, are hereby made a part of this Agreement as fully and to all intents and purposes as though recited in full herein:

- SCHEDULE "A" - Legal description of the said lands
  
- SCHEDULE "B" ("B-1" to "B-4") - Site Plan Drawings
  - SCHEDULE "B-1" - General Plan (Drawing 1B)
  - SCHEDULE "B-2" - Detail Area 1 (Drawing 2B)
  - SCHEDULE "B-3" - Detail Area 2 (Drawing 3B)
  - SCHEDULE "B-4" - Detail Area 3 (Drawing 4B)
  
- SCHEDULE "C" ("C-1" to "C-5") - Landscape Plan Drawings
  - SCHEDULE "C-1" - General Landscape Plan (Drawing 5B)
  - SCHEDULE "C-2" - Landscape Detail Area 1 (Drawing 6B)
  - SCHEDULE "C-3" - Landscape Detail Area 2 (Drawing 7B)
  - SCHEDULE "C-4" - Landscape Detail Area 3 (Drawing 8B)
  - SCHEDULE "C-5" - Details- Planting Specifications (Drawing 5D)

- SCHEDULE "D" - Details Substation (Drawing 1D)
- SCHEDULE "E" - Tracker Equipment Pad (Drawing 2D)
- SCHEDULE "F" - Details- Typical Tracker (Drawing 3D)
- SCHEDULE "G" - Detail- Fence and Gate (Drawing 4D)
- SCHEDULE "H" - Drainage Plan (Drawings 8B, 8C & 8D)
- SCHEDULE "I" - Stormwater Management Report
- SCHEDULE "J" - Environmental Impact Assessment dated July 25, 2008 prepared by Dillon Consulting

2. Schedule "A" hereto describes the lands affected by this Agreement.
3. Schedule "B" hereto shows:
  - (a) Site Boundary;
  - (b) Location of proposed tracker units;
  - (c) Location of living fence buffer;
  - (d) Location of tall grass prairie with shrub buffer;
  - (e) Location of tall grass prairie buffer;
  - (f) Location of roadside buffer;
  - (g) Location of fence;
  - (h) Location of access road;
  - (i) Location of inverter;
  - (j) Location of underground electrical wireway;
  - (k) Location of Staging Area.
4. Schedule "C" hereto shows:
  - (a) Landscape Plan and Details
5. Schedule "D" hereto shows:
  - (a) Substation Details
6. Schedule "E" hereto shows:
  - (a) Tracker Equipment Pad Details
7. Schedule "F" hereto shows:
  - (a) Typical Tracker Details
8. Schedule "G" hereto shows:
  - (a) Fence and Gate Details
9. Schedule "H" hereto shows:
  - (a) Drainage Plan
10. Schedule "I" hereto shows:
  - (a) Stormwater Management Report – Stormwater Management Report dated October 2008 together with letter dated December 5, 2008 prepared by C.D. Patten, P.Eng., Dillon Consulting.
11. Schedule "J" hereto shows:
  - (a) Environmental Impact Assessment dated July 25, 2008 prepared by Dillon Consulting

12. The Owner shall be responsible for consulting with and obtaining any necessary approvals from Hydro One regarding any matters that relate to services provided by Hydro One. Further the Owner shall be responsible for any costs associated with the reconstruction, relocation or changes to the hydro system resulting from this development.
13. The Owner shall be responsible for consulting with and obtaining any necessary approval from the Ministry of the Environment and the Essex Region Conservation Authority.

14. Construction and Truck Routes

The Owner agrees and shall be responsible for the construction of all perimeter granular base roads prior to the installation of the solar trackers on the site. The haul route for Site "B" during the entire construction of this development shall use County Road 20, County Road 8 and County Road 3 to North Sideroad. The Owner shall adhere to load restrictions in effect at the time of construction for both County and municipal roads.

Construction will take place on a daily basis between the hours of 7:30 a.m. and 4:30 p.m., Monday to Friday.

The Owner to ensure that trucks and equipment leaving the site are not laden with dirt, mud or debris. The Owner shall keep the highway surfaces clean of any debris and upon notice from the Corporation the Owner must immediately clean any debris off the highway. Failure of the Owner to respond will result in the Corporation arranging for the cleaning and invoicing the Owner which expense may also be recovered on the municipal taxes of the subject property.

If any municipal services or highway surfaces of the Corporation are damaged during the development, such damage shall be repaired or replaced by the Owner to the satisfaction of the Corporation. Failure of the Owner to repair or replace such damage will result in the Corporation arranging for the repair and/or replacement and invoicing the Owner which expense may also be recovered on the municipal taxes of the subject property.

15. Snow Removal

Snow removal from the access roads and within the site shall be the responsibility of the Owner.

16. Driveway Accesses

All new accesses and/or improvement to existing accesses shall be in consultation with and in accordance with the requirements of the Corporation's Public Works Manager and Drainage Superintendent and shall be installed at the expense of the Owner. A new access over a Municipal Drain requires a report prepared by a drainage engineer under the Drainage Act. The Corporation may allow a letter of recommendation for any new access over a municipal drain from a drainage engineer with the new culvert being incorporated into the drain when a future report is required.

17. Stormwater Management

The development of the site requires special measures to deal with stormwater management as follows:

- (a) The Owner shall undertake a site grading plan and a stormwater management analysis as indicated in Schedule "I" to the satisfaction of the Corporation and the Essex Region Conservation Authority.



- (b) The Owner shall install stormwater management measures as approved by the Corporation and the Essex Region Conservation Authority as part of the development of this site, to the satisfaction of the Corporation and the Essex Region Conservation Authority.
- (c) The Owner shall obtain the necessary permits and/or clearance prior to construction activities and/or site alterations.
- (d) The Owner shall conduct regular inspections once every two weeks and after each sizable storm event of all sediment and erosion control measures recommended in the approved stormwater management plan during the construction plan.
- (e) The Owner shall maintain an inspection log which shall be made available for review by the Corporation and the Essex Region Conservation Authority, upon request. The log shall state the name of the inspector, date of the inspection and rectification or replacement measures which were taken to maintain the sediment and erosion control measures. Inspections shall continue until development of the site is complete and approved by the Corporation.
- (f) The Owner acknowledges that this site is affected by both roadside ditches and municipal drains. Roadside ditch maintenance is performed from the road and will not affect this development. Municipal drainage maintenance is performed from the private property side of the drain with the spoils being spread over the adjacent lands. Therefore a twenty (20ft.) foot wide corridor must remain on the private property side of the drain clear of fences, trees and shrubs. Alternatively, the Corporation would allow for a letter of understanding drafted by a drainage engineer, approved by the Owner and acceptable to the Corporation providing that maintenance work would be performed from the road side of the drain and the spoils trucked away. The associated trucking costs for the particular length of drain adjacent to the development would be assessed to the Owner. This letter of understanding will be utilized for maintenance works until such time as a new drainage report is required. This site is affected by the Laura Meloche Drain located on the west side of the 2<sup>nd</sup> Concession North.

18. Any garbage or refuse that is stored outside shall be stored in a non-combustible container and maintained so that garbage or refuse does not blow or fall out of the container.

19. Lighting

Any and all lighting shall be installed and maintained in accordance with the standards set out in the Town's Development Manual so as to not, in the opinion of the Corporation interfere with the use or enjoyment of adjacent properties or with the safe flow of traffic on abutting or adjacent streets.

In addition to the requirement of full cut-off (directional lighting) the type, amount and intensity of lighting will also be a consideration in consultation with the Corporation to prevent undue light pollution.

20. Landscaping

- (a) The Owner shall landscape and maintain in plants and ground cover acceptable to the Corporation those lands so indicated on Schedule "C-1 to C-5" inclusive.
- (b) The Owner agrees that the site will be inspected on an annual basis and any deficiencies as determined by the Corporation will require immediate correction in accordance with the approved site plan.
- (c) The Owner agrees that where there are deficiencies or loss due to natural causes or management related issues in those areas which provide a visual buffer for neighbouring residences those deficiencies or losses will be corrected to the satisfaction of the Corporation. Failure of the Owner to correct the deficiency or loss as determined by the Corporation will result

in the Corporation arranging for the replacement and invoicing the Owner which expense may also be recovered on the municipal taxes of the subject property.

- (d) The Owner agrees that those lands located on this site outside of the solar energy system development shall continue to be cropped and/or planted with an acceptable grass seed mixture to and be maintained free of weeds.
- (e) The Owner agrees that there will be no pesticides utilized in the maintenance of this site unless permission is granted from the Corporation.

21. Fencing

The Owner agrees to construct a fence on those lands indicated on Schedule "B" in accordance with the fence detail forming part of Schedule "G". The Owner agrees that the site will be inspected on an annual basis and any deficiencies as determined by the Corporation will require immediate correction in accordance with the approved site plan.

The Owner also agrees that the fence will be installed to allow for easy movement on and off the site for small wildlife, so that they may take advantage of the diverse environment. This may be in the form of small tunnels or small sections of elevated fence.

22. The Owner agrees to full implementation of the Environmental Impact Assessment dated July 25, 2008 prepared by Dillon Consulting with the addition of the Essex Region Conservation Authority's recommendations as a demonstration of no negative impact for this proposed development.

23. Geo-Technical

The Owner and Corporation acknowledge correspondence dated April 11, 2007 from James D. Rodger, P. Eng. with Golder Associates Ltd. regarding a geo-technical investigation which results indicated that the sub-surface soil conditions appear appropriate to support development of the type proposed for this site.

24. Start Up of the Solar Energy System

- (a) The Owner shall notify the Corporation at least one week prior to the proposed start up date of the solar energy system in order to arrange for a site inspection system to be conducted.
- (b) The Owner shall not start up the solar energy system on the site before the applicable provisions of this Agreement are complied with.
- (c) The Owner shall ensure that the applicable approvals and regulations of Hydro One and all other governing authorities are adhered to.
- (d) The Owner shall ensure that Hydro One will monitor the site's connection point to the electricity system and will be able to identify any major electrical problems associated with the solar energy system, disconnecting it from the grid if necessary.

25. Decommissioning and Indemnification

A. Definition

"Decommissioning" means the process of removing the solar energy systems, including all appliances and appurtenances thereto, and remediating the lands to a condition in compliance with all applicable environmental legislation, regulations, procedures and policies and with the surface of the Lands restored as close as possible to their former condition and use.

B. Indemnification

The Owner shall at all times indemnify and save the Corporation harmless from and against any and all claims, demands, losses, costs, charges expenses, actions and other proceedings (including those in connection with workplace safety and insurance compensation or any similar or successor arrangement) made, brought



against, suffered by, imposed on or incurred by the Corporation in respect of any failure by the Owner to fulfill any of its obligations under this Agreement, including but not limited to the costs associated with decommissioning incurred by or on behalf of the Corporation, as a result of any loss, damage or injury (including injury resulting in death) to any person or property (including, but not limited to, employees, contractors, agents and property of the Corporation) directly arising out of, resulting from or sustained by reason of the Owner's occupation, use or decommissioning of the Lands, or any operation in connection therewith or any fixtures or chattels thereon.

C. Corporations Responsibility

The Corporation shall not under any circumstances be responsible for or be required to decommission the Lands or to incur any costs associated therewith. The Corporation may, in its sole discretion, undertake, in whole or in part, the decommissioning and incur the costs associated therewith, and shall collect those costs as set out herein, which costs shall remain the responsibility of the Owner.

D. Decommissioning Events

In the event that the following events have occurred or in the reasonable opinion of the Corporation are likely to occur, the Owner:

- (a) ceases to carry on business for a period greater than 30 consecutive days;
- (b) gives notice of an intention to cease to carry on business;
- (c) be dissolved;
- (d) makes an assignment, arrangement or composition with or for the benefit of its creditors;
- (e) institutes or is subject to a proceeding in bankruptcy or insolvency, or seek any relief affecting creditor's rights;
- (f) has a resolution passed for its winding up or its liquidation;
- (g) seeks or becomes subject to the appointment of an administrator, provisional liquidator, conservator, receiver, trustee, custodian or other official for it or for all or substantially all of its assets by reason of its insolvency;
- (h) has a secured creditor take possession of all or substantially all its assets or has a distress, execution, attachment, sequestration or other legal process levied, enforced or sued on or against all or substantially all its assets;
- (i) fails to post such security as may be required by the Corporation, including such security as may be required by this Agreement;
- (j) termination of this Agreement and/or the development; or
- (k) takes any step to or permits itself to be restructured, or any act which result in a change of control of the Owner.

The Owner shall commence decommissioning forthwith, and shall complete decommissioning within a reasonable period of time.

E. Default in Decommissioning

In the event that the Owner fails to commence or to complete decommissioning of the Lands as required by this Agreement, the Corporation may take such steps as are necessary to decommission the Lands, as required herein. The Owner shall be responsible for the costs of the decommissioning incurred by or on behalf of the Corporation. The Owner agrees that the cost of decommissioning incurred by or on behalf of the Corporation shall be deemed to be municipal taxes, and shall be a charge upon the lands, premises, fixtures and chattels that are or were located on those lands and premises in the same manner as municipal taxes. Further, the cost of decommissioning shall be collectible and shall have the same priority as municipal taxes. The Owner shall give notice to all secured creditors of the rights of the Corporation hereunder.

F. Representations and Warranties with Respect to the Cost of Decommissioning

The Owner represents and warrants that the costs of the decommissioning of the Lands and as required does not currently and shall not in the future exceed the net recycled values, after the costs of recovery, of the materials contained therein. The Owner shall submit a decommissioning plan upon execution of this Agreement and every three years thereafter on the anniversary date of this Agreement, which the Corporation shall subject to independent peer review.



- G. **Security for Decommissioning**  
In the event that the Owner fails to provide such further assurances or after the independent peer review the costs of decommissioning are deemed to exceed the net recycled values, the Owner shall post such security and in such amount as may be required by the Corporation to ensure that the costs of decommissioning be recoverable by the Corporation in the event that the costs of decommissioning are incurred by the Corporation.
- H. **Responsibility**  
In addition to any other provisions of this Agreement, this Section 25 shall inure to the benefit of and be binding upon the Parties hereto and their respective, heirs, executors, administrators, successors, assigns, secured parties, affiliates, related corporations, provisional liquidators, conservators, receivers, trustees, custodians or other similar officials.
- I. **Entry Upon the Lands**  
In the event that the Corporation deems it necessary to perform any decommissioning of the Lands, the Owner hereby grants to the Corporation, its employees, agents and contractors an irrevocable licence to enter upon the lands and to perform such acts as may be necessary in the opinion of the Corporation to perform any and all acts of decommissioning deemed necessary by the Corporation, without further notice to the Owner.
- J. **Completion of Decommissioning by the Owner**  
Upon decommissioning by the Owner, the Owner shall provide to the Corporation a final report and acknowledged Records of Site Condition. The Owner further acknowledges that it shall perform the decommissioning of the Lands to the strictest environmental standards then applying appropriate to the lands and their use and, if applicable, to the satisfaction of the Ministry of the Environment.
26. All driveways for emergency vehicles shall:
- (1) Be connected with a public thoroughfare;
  - (2) Be designed and constructed to support expected loads imposed by firefighting equipment;
  - (3) Have a clear width of 3 metres at all times;
  - (4) Have an overhead clearance not less than 4.5 metres;
  - (5) Have a change in gradient of not more than 1 in 12.5 over a minimum distance of 15.2 metres; and
  - (6) Have approved signs displayed to indicate the emergency route.
27. If the Ontario Building Code requires that an architect or professional engineer or both shall be responsible for the field review of any new building or extension provided for in this Agreement, the Owner shall not occupy or use or permit to be occupied or used any said new building or extension until after an architect or professional engineer has given to the Corporation a letter addressed to the Corporation and signed by him certifying that all services on or in the said lands, required for this development or redevelopment, newly installed by the Owner in connection with this development or redevelopment and not contained within a building, have been installed and completed in a manner satisfactory to the architect or professional engineer.
28. The Corporation through its servants, officers and agents including its building inspector, plumbing inspector, fire chief, public works head and municipal engineer may from time to time and at any time enter on the premises of the Owner to inspect:
- (1) The progress of development;
  - (2) The state of maintenance as provided for in this Agreement.

29. In the event of any servant, officer or agent of the Corporation determining upon inspection the development is not proceeding in strict accord with the plans and specifications filed, such servant, officer or agent shall forthwith place a notice requiring all work to be stopped upon the premises and forward a copy by registered mail to the Owner at his last address as shown by the revised assessment rolls, and the Owner shall forthwith correct the deficiency or deviation.
30. In the event of any servant, officer or agent of the Corporation upon inspection being of the opinion that the state of maintenance is not satisfactory, such servant, officer or agent shall forthwith forward notice of such opinion to the Owner by registered mail at his last address as shown from the revised assessment rolls, and the Owner shall forthwith correct the deficiency or appeal to Council of the Corporation as hereinafter provided.
31. In the event that an Owner should disagree with the opinion of the servant, officer or agent of the Corporation as to the state of maintenance, such Owner shall appear before Council of the Corporation, which after hearing the Owner, shall express its opinion as to whether the maintenance is satisfactory by resolution, which shall constitute a final determination of the matter.
32. In the event that an Owner should fail to obey a stop work order issued under Section 29 hereof, the Owner recognizes the right of the Corporation to apply to the Court for a restraining order.
33. In the event that an Owner should fail to correct a deviation or deficiency after notice pursuant to Section 30 or after notice of an opinion, which Council of the Corporation determines is correct under Section 31, the Council of the Corporation may by law direct or default of the matter or thing being done by the Owner, under this or any other Agreement between the Corporation and the Owner, after two (2) weeks notice to it by registered mail at the last shown address of the Owner pursuant to the revised assessment rolls of passage of such by-law, that such matter or thing be done by the Corporation at the expense of the Owner, which expense may be recovered by action or like manner as municipal taxes.
34. In the event of an Owner wishing to change at any time any of the buildings, structures or facilities described in the plans annexed or referred to in Section 3 hereof, it shall make application to Council of the Corporation for approval and shall not proceed with such change until approval is given by such Council, or in default by the Ontario Municipal Board, under the procedure set out in Section 41 of the Planning Act, R.S.O. 1990 herebefore referred to.
35. This Agreement and the provisions thereof do not give to the Owner or any person acquiring any interest in the said lands any rights against the Corporation with respect to the failure of the Owner to perform or fully perform any of its obligations under this Agreement or any negligence of the Owner in its performance of the said obligations.
36. In the event that no construction on the said lands has commenced within one (1) year from the date of registration of this Agreement, the Corporation may, at its option, on one month's notice to the Owner, declare this Agreement to be subject to re-negotiation, whereupon the Owner agrees that it will not undertake any construction on the said lands until this Agreement has been re-negotiated.
37. All facilities and matters required by this Agreement shall be provided and maintained by the Owner at its sole risk and expense to the satisfaction of the Corporation and in accordance with the standards determined by the Corporation and in default thereof and without limiting other remedies available to the Corporation, the provisions of Section 446 of the Municipal Act shall apply.



38. Agreement on Title

It is specifically acknowledged and agreed that the burden of this Agreement shall run with the Lands. In this Agreement, "Owner" shall include any Owner of the Lands from time to time.

39. General Responsibility

This Agreement, including all its covenants, provisos, conditions and schedules shall inure to the benefit of and be binding upon the Parties hereto and their respective heirs, executors, administrators, successors and assigns.

40. Financial Securities

A financial guarantee (certified cheque or irrevocable letter of credit - self renewing without burden of proof) for 50% of the value of on-site improvements exclusive of buildings and structures is required as part of the site plan agreement in addition to financial security in the amount of 100% for all off-site works required as part of this development. The Owner's engineer and landscape architect is to provide a certified estimate of the cost of the on-site and off-site work for consideration and approval by the Town's Public Work's Manager. Once the Town has inspected and approved the construction /installation/planting of the on-site and off-site works, the Owner will be required to provide security for a one year maintenance period in the amount of 15% of the cost of on-site and off-site improvements.

**IN WITNESS WHEREOF** the Owner executed this Agreement.

OWNER:  
1560803 ONTARIO INC.

  
\_\_\_\_\_  
President - Loris Collavino

THE CORPORATION OF THE  
TOWN OF AMHERSTBURG

  
\_\_\_\_\_  
Mayor - Wayne Hurst

  
\_\_\_\_\_  
CAO/Clerk - Pamela Malott

Authorized and approved by By-law  
No. 2008-80 enacted the 15<sup>th</sup> day of  
December, 2008.

**SCHEDULE "A"**

The following is a description of the land to which this instrument applies:

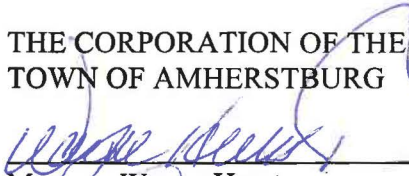
**FIRSTLY:** Part of Lots 31 through 36, Concession 1 (Anderdon), ~~also~~  
designated ~~referred to~~ as Parts 4 and 5, (12R-5308)

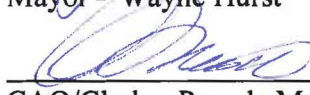
in the Town of Amherstburg,  
County of Essex  
Province of Ontario

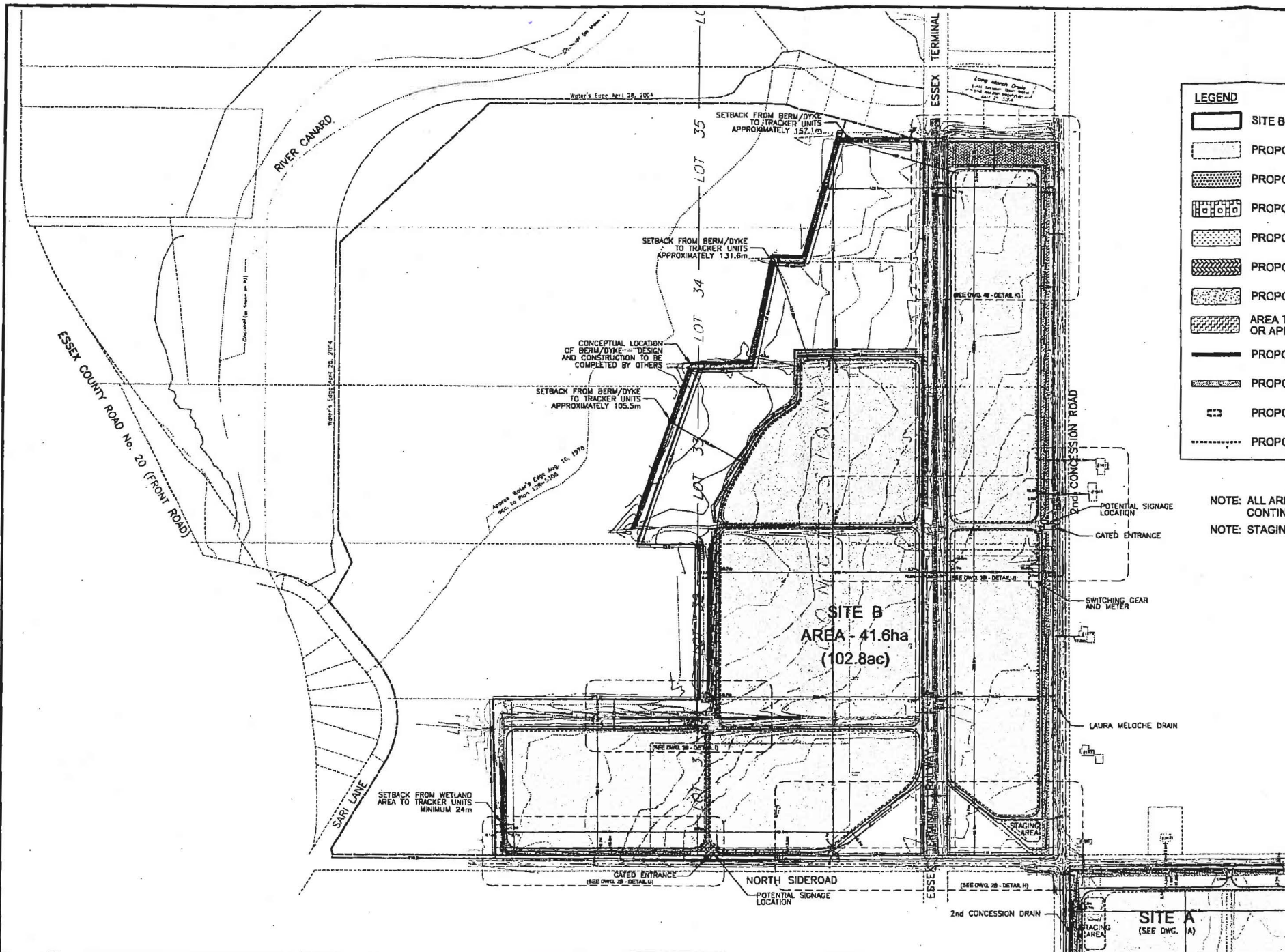
OWNER:  
1560803 ONTARIO INC.

  
\_\_\_\_\_  
President - Lotis Collavino

THE CORPORATION OF THE  
TOWN OF AMHERSTBURG

  
\_\_\_\_\_  
Mayor - Wayne Hurst

  
\_\_\_\_\_  
CAO/Clerk - Pamela Malott



**LEGEND**

- SITE BOUNDARY
- PROPOSED TRACKER UNITS
- PROPOSED LIVING FENCE BUFFER
- PROPOSED TALL GRASS PRAIRIE WITH SHRUB BUFFER
- PROPOSED TALL GRASS PRAIRIE BUFFER
- PROPOSED ROADSIDE BUFFER
- PROPOSED WETLAND BUFFER
- AREA TO REMAIN UNDER AGRICULTURAL PRODUCTION OR APPROPRIATE GROUND COVER
- PROPOSED 2.4m (8') FENCE
- PROPOSED ACCESS ROAD
- PROPOSED INVERTER
- PROPOSED UNDERGROUND ELECTRICAL WIREWAY

NOTE: ALL AREAS NOT OCCUPIED BY TRACKER UNITS WILL CONTINUE TO BE FARMED.  
 NOTE: STAGING AREAS WILL BE REGRADED AND SEEDED.

SCHEDULE "B-1" TO BY-LAW 2008-80

1560803 ONTARIO INC.

*Loris Collavino*  
 LORIS COLLAVINO

TOWN OF AMHERSTBURG

*Wayne Horst*  
 MAYOR WAYNE HORST

*Pamela Malott*  
 CAO/CLERK - PAMELA MALOTT

**SUNPOWER**  
 Smarter Solar  
**HELIOS ENERGY**  
 78 Richmond St. Amherstburg, ON N0Y 2A5

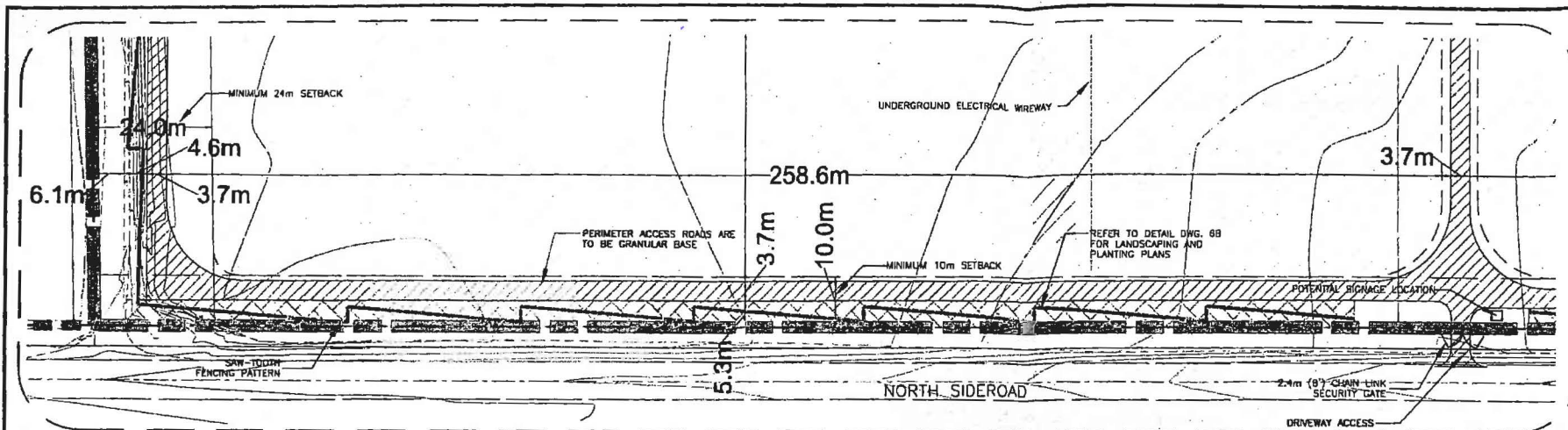
**DILLON CONSULTING**  
 5200 Dixie Drive, Suite 506, Windsor, ON N9B 3K9  
 Phone: (313) 948-5000 Fax: (313) 948-5024

1	SURVEY		
2	DESIGN		
3	DRAWING		
4			
5			
6	REVISED AS PER COUNTY COMMENTS	NOVEMBER 1, 2011	HAL
7	REVISED AS PER COUNTY REQUEST	NOVEMBER 1, 2011	HAL
8	FOR MUNICIPAL REVIEW	OCTOBER 11, 2011	JAN/RYT
9	ISSUED FOR		
10			

SUNPOWER - HELIOS ENERGY  
 PROJECT NO. 08-0915-1000  
 SHEET NO. **1B**

12



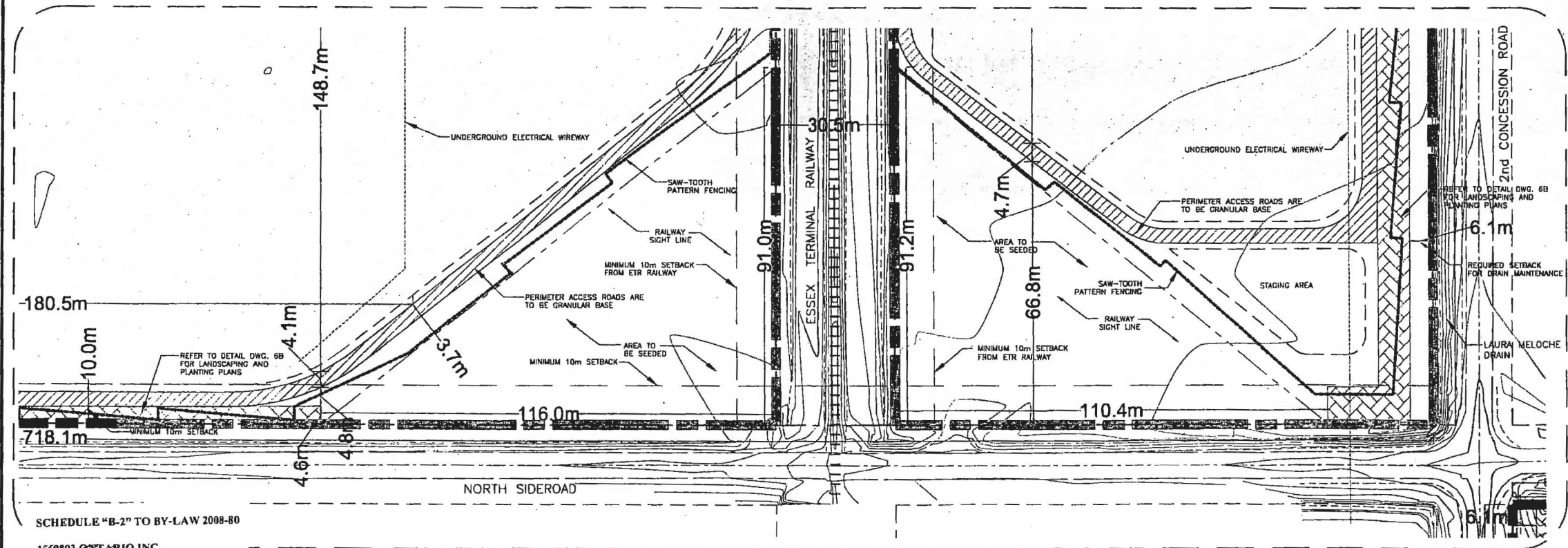


DETAIL G

**LEGEND**

- SITE BOUNDARY
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NOTE: ALL AREAS NOT OCCUPIED BY TRACKER UNITS WILL CONTINUE TO BE FARMED.  
 NOTE: STAGING AREAS WILL BE REGRADED AND SEEDING.



DETAIL H

SCHEDULE "B-2" TO BY-LAW 2008-80

1560803 ONTARIO INC.  
*Loris Corlavo*  
 LORIS CORLAVINO  
 TOWN OF AMHERSTBURG  
*Wayne Hurst*  
 MAYOR WAYNE HURST  
*Pamela Malott*  
 CAO/CLERK PAMELA MALOTT

**SUNPOWER**  
 Smarter Solar  
**HELIOS ENERGY**  
 79 Richmond St. Amherstburg, ON N0V 2A5

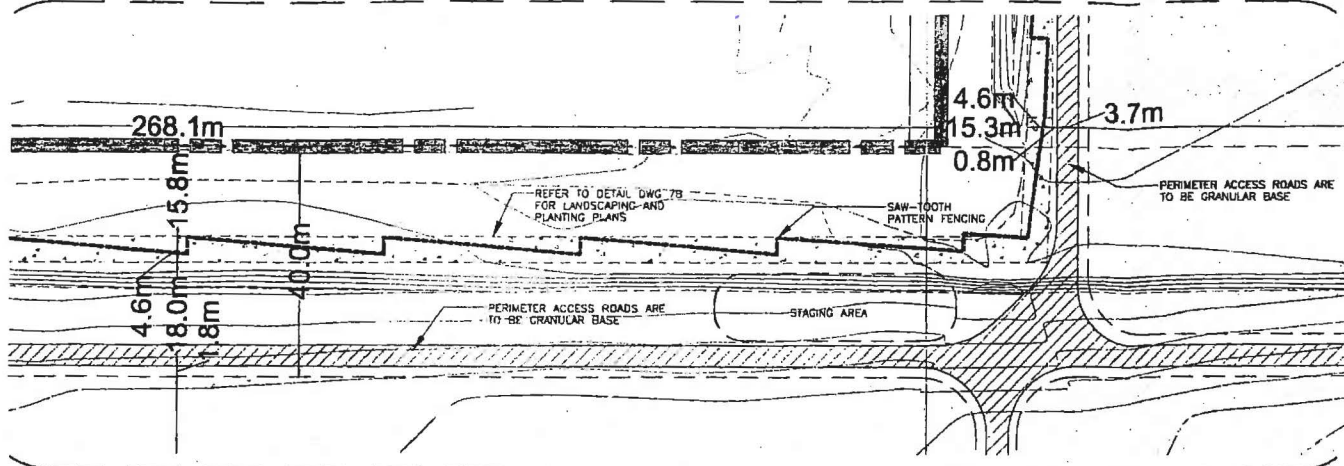
**DILLON CONSULTING**  
 3700 Dearth Drive, Suite 608, Windsor, ON N9W 5M5  
 Phone: (519) 940-5000 Fax: (519) 948-5054

1	ISSUED FOR	DATE	BY
2	REVISED AS PER TOWN COMMENTS	DECEMBER 31/08	HAL
3	REVISED AS PER CLIENTS REQUEST	NOVEMBER 2/08	HAL
4	FOR MUNICIPAL REVIEW	DECEMBER 22/08	JAN/09

SAVED	
DESIGN	
ENGINEER	
PREPARED BY	

SUNPOWER - HELIOS ENERGY  
 PROJECT NO. 08-9915-1000  
**SITE PLAN CONTROL**  
**SITE B - DETAIL AREA 1**  
 SHEET NO. **2B**

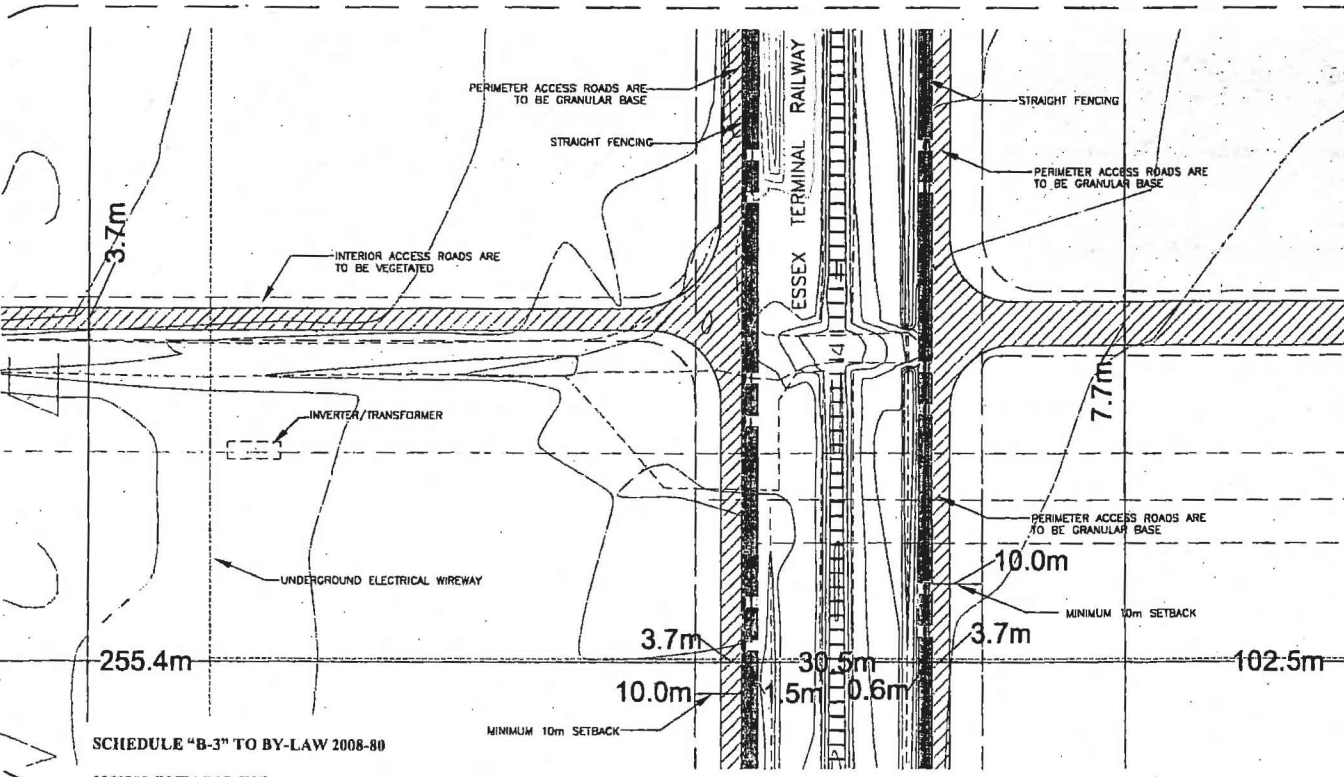




DETAIL I

- LEGEND**
- SITE BOUNDARY
  - PROPOSED TRACKER UNITS
  - PROPOSED LIVING FENCE BUFFER
  - PROPOSED TALL GRASS PRAIRIE WITH SHRUB BUFFER
  - PROPOSED TALL GRASS PRAIRIE BUFFER
  - PROPOSED ROADSIDE BUFFER
  - PROPOSED WETLAND BUFFER
  - AREA TO REMAIN UNDER AGRICULTURAL PRODUCTION OR APPROPRIATE GROUND COVER
  - PROPOSED 2.4m (8') FENCE
  - PROPOSED ACCESS ROAD
  - PROPOSED INVERTER
  - PROPOSED UNDERGROUND ELECTRICAL WIREWAY

NOTE: ALL AREAS NOT OCCUPIED BY TRACKER UNITS WILL CONTINUE TO BE FARMED.  
 NOTE: STAGING AREAS WILL BE REGRADED AND SEEDED.



DETAIL J

SCHEDULE "B-3" TO BY-LAW 2008-80

1560803 ONTARIO INC.  
 FORIS COLLAVINO  
 TOWN OF AMHERSTBURG  
 MAYOR WAYNE HURST  
 CAO/CLERK PAMELA MALOTT

**SUNPOWER**  
 Smarter Solar  
**HELIOS ENERGY**

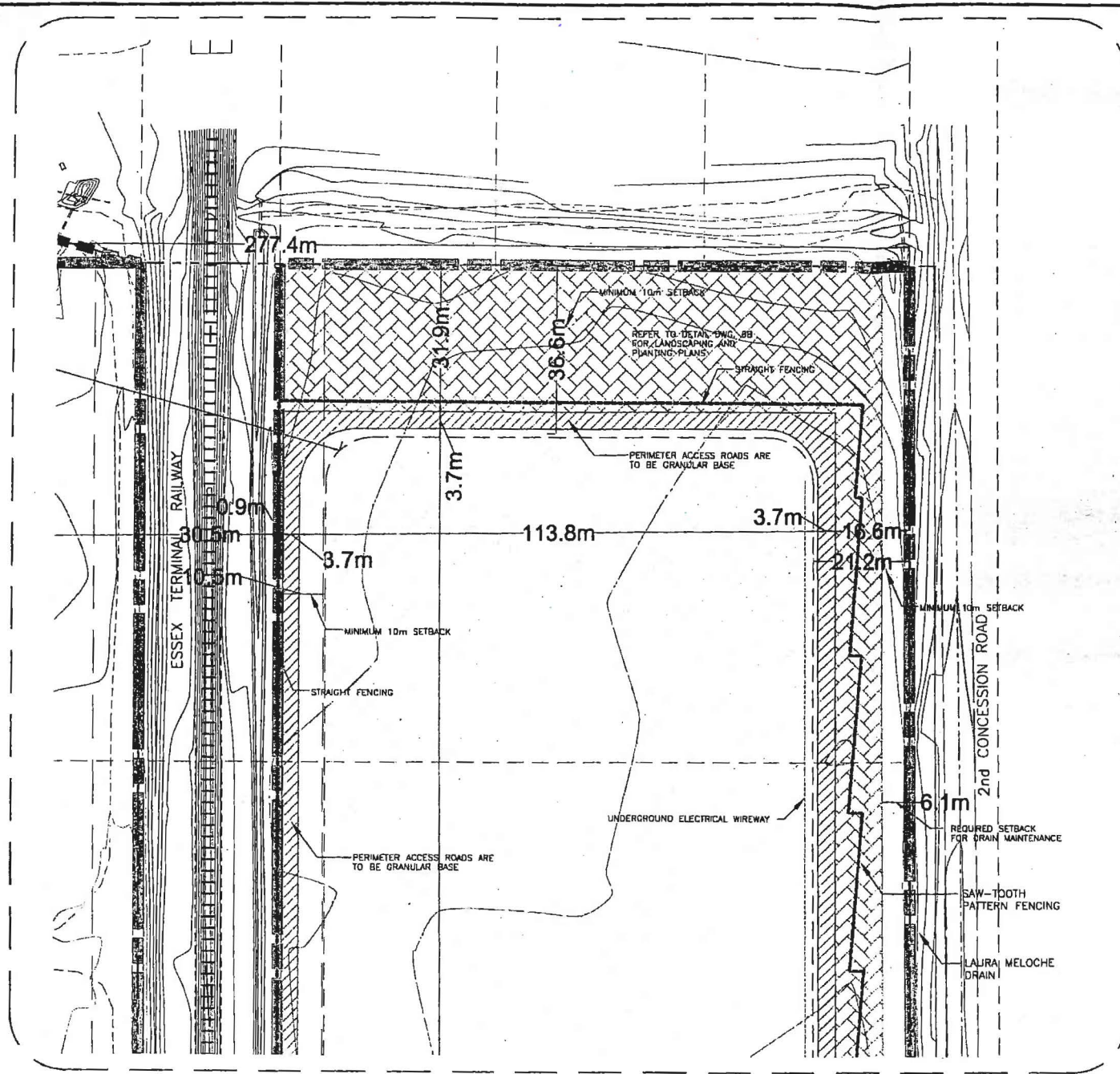
**DILLON CONSULTING**  
 3200 David Drive, Suite 608, Windsor, ON N9W 5K8  
 Phone: (519) 948-5000 Fax: (519) 948-5054

NO.	REVISION	DATE	BY
1	ISSUED FOR PERMITS	NOVEMBER 2018	MM
2	REVISED AS PER TOWN'S COMMENTS	DECEMBER 2018	MM
3	REVISED AS PER CLIENT'S REQUEST	NOVEMBER 2018	MM
4	FOR MUNICIPAL REVIEW	DECEMBER 2018	MM
5	ISSUED FOR	DATE	BY

**SUNPOWER - HELIOS ENERGY**  
 PROJECT NO. 08-9915-1000  
**SITE PLAN CONTROL**  
**SITE B - DETAIL AREA 2**  
 SHEET NO. **3B**

h1





**LEGEND**

- SITE BOUNDARY
- PROPOSED TRACKER UNITS
- PROPOSED LIVING FENCE BUFFER
- PROPOSED TALL GRASS PRAIRIE WITH SHRUB BUFFER
- PROPOSED TALL GRASS PRAIRIE BUFFER
- PROPOSED ROADSIDE BUFFER
- PROPOSED WETLAND BUFFER
- AREA TO REMAIN UNDER AGRICULTURAL PRODUCTION OR APPROPRIATE GROUND COVER
- PROPOSED 2.4m (8') FENCE
- PROPOSED ACCESS ROAD
- PROPOSED INVERTER
- PROPOSED UNDERGROUND ELECTRICAL WIREWAY

NOTE: ALL AREAS NOT OCCUPIED BY TRACKER UNITS WILL CONTINUE TO BE FARMED.  
 NOTE: STAGING AREAS WILL BE REGRADED AND SEEDED.

DETAIL K

SCHEDULE "B-4" TO BY-LAW 2008-80  
 1560803 ONTARIO INC.  
*Loris Collavino*  
 LORIS COLLAVINO  
 TOWN OF AMHERSTBURG  
*Wayne Hurst*  
 MAYOR WAYNE HURST  
*Pamela Malott*  
 CAO/CLERK - PAMELA MALOTT

**SUNPOWER**  
 Smarter Solar  
**HELIOS ENERGY**  
 78 Richmond St. Amherstburg, ON N0V 2A5

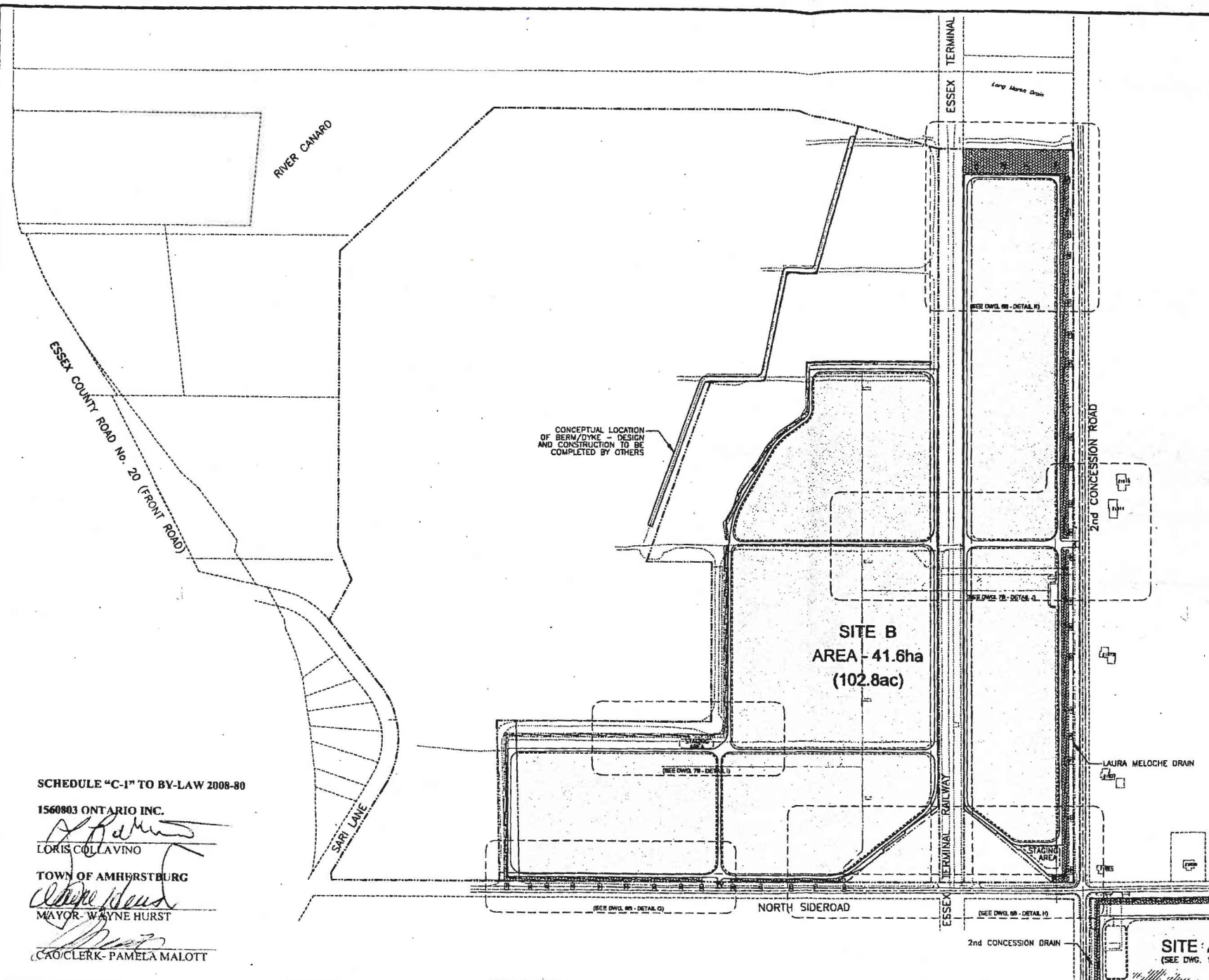
**DILLON**  
 CONSULTING  
 3300 Exeter Court, Suite 628, Windsor, ON N9W 5K6  
 Phone: (519) 244-2000 Fax: (519) 244-5054

NO.	REVISION	DATE	BY
1	ISSUED FOR		
2	REVISED AS PER OWNER'S COMMENTS	DECEMBER 3, 2008	WAL
3	REVISED AS PER CLIENT'S REQUEST	NOVEMBER 12, 2008	WAL
4	FOR MUNICIPAL REVIEW	OCTOBER 27, 2008	JAN/NET

SUNPOWER - HELIOS ENERGY  
**SITE PLAN CONTROL**  
**SITE B - DETAIL AREA 3**

PROJECT NO.  
 08-9915-1000  
 SHEET NO.  
**4B**





- LEGEND**
- SITE BOUNDARY**
  - MANAGED MEADOW**  
(REFER TO MANAGED MEADOW SEED MIXTURE AND SPECIFICATIONS ON PLANTING SPECIFICATIONS DWG. 50)
  - PROPOSED TALL GRASS PRAIRIE BUFFER**  
(REFER TO TALL GRASS SEED MIXTURE AND SPECIFICATIONS ON PLANTING SPECIFICATIONS DWG. 50)
  - PROPOSED TALL GRASS PRAIRIE WITH SHRUB BUFFER**  
(THE TALL GRASS PRAIRIE WITH SHRUB BUFFER IS INTENDED TO BE USED IN AREAS WITHOUT AN EXISTING ABUNDANCE OF VEGETATION DIVERSITY. THESE BUFFERS WILL PROVIDE AN INCREASE IN VEGETATION AND HABITAT DIVERSITY. THEY WILL ALSO CREATE OPPORTUNITIES FOR WILDLIFE UNLAGES.  
SHRUB PLANTING CELL DENSITY = 10% LINEAR COVERAGE  
VINE PLANTING DENSITY = 1 VINE PER 60.0m (TYPICAL)
  - PROPOSED LIVING FENCE BUFFER**  
(THE LIVING FENCE BUFFER IS TO BE USED IN AREAS OF CLOSE PROXIMITY TO RESIDENTIAL HOMES. CURRENTLY, THERE EXISTS ONLY AGRICULTURAL CROPS IN THE FIELDS ADJACENT TO THE HOMEOWNERS' PROPERTY. THE LIVING FENCE BUFFER WILL PROVIDE AN INCREASED LEVEL OF VEGETATION AND WILDLIFE HABITAT DIVERSITY. THESE AREAS WILL ALSO PROVIDE AN ENHANCED VIEWSHED FOR THE NEIGHBOURING HOMEOWNERS THROUGH THE CONSENSUS LOCATION OF CALIPER TREES, SHRUB/WHIP PLANTING CELLS AND VINES.  
CALIPER TREE PLANTING DENSITY = 1 TREE PER 23.8 LINEAR METRES  
SHRUB/WHIP PLANTING CELL DENSITY = 30% LINEAR COVERAGE  
VINE PLANTING DENSITY = 1 VINE PER 30.0m (TYPICAL)
  - PROPOSED ROADSIDE BUFFER**  
(THE ROADSIDE BUFFER IS TO BE USED IN AREAS OF CLOSE PROXIMITY TO LOCAL PERIMETER ROADS. THESE AREAS ARE TYPICALLY ADJACENT TO ROADSIDE DITCHES WITHOUT AN EXISTING ABUNDANCE OR DIVERSITY OF VEGETATION. THE ROADSIDE BUFFER WILL EMPLOY A TALL GRASS PRAIRIE SEED MIXTURE INTEGRATED WITH SHRUB PLANTING CELLS. THE SHRUB PLANTING CELLS WILL INCREASE HABITAT DIVERSITY FOR WILDLIFE AND PROVIDE AN ENHANCED VISUAL TEXTURE TO PASSING MOTORISTS.  
SHRUB PLANTING CELL DENSITY = 15% LINEAR COVERAGE (TYPICAL)  
VINE PLANTING DENSITY = 1 VINE PER 30.0m (TYPICAL)
  - PROPOSED WETLAND BUFFER**  
(REFER TO NATIVE WETLAND SEED MIXTURE AND SPECIFICATIONS ON PLANTING SPECIFICATIONS DWG. 50)
  - AREA TO REMAIN UNDER AGRICULTURAL PRODUCTION OR APPROPRIATE GROUND COVER**
  - PROPOSED 2.4m (8') FENCE**
  - PROPOSED PLANTING CELL/PLANT CELL TYPE**  
(REFER TO LANDSCAPE DETAILS - SHEET 50)
  - PROPOSED CALIPER TREE**
  - PROPOSED VINES**
  - PROPOSED INVERTER**
  - PROPOSED UNDERGROUND ELECTRICAL WIREWAY**

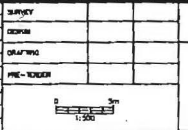
NOTE: ALL AREAS NOT OCCUPIED BY TRACKER UNITS WILL CONTINUE TO BE FARMED.  
NOTE: STAGING AREAS WILL BE REGRADED AND SEEDDED.

SCHEDULE "C-1" TO BY-LAW 2008-80  
1560803 ONTARIO INC.  
*Loris Collavino*  
LORIS COLLAVINO  
TOWN OF AMHERSTBURG  
*Wayne Hurst*  
MAYOR WAYNE HURST  
*Pamela Malott*  
CAO/CLERK- PAMELA MALOTT

**SUNPOWER**  
Smarter Solar  
**HELIOS ENERGY**  
79 Richmond St. Amherstburg, ON N3Y 2A5

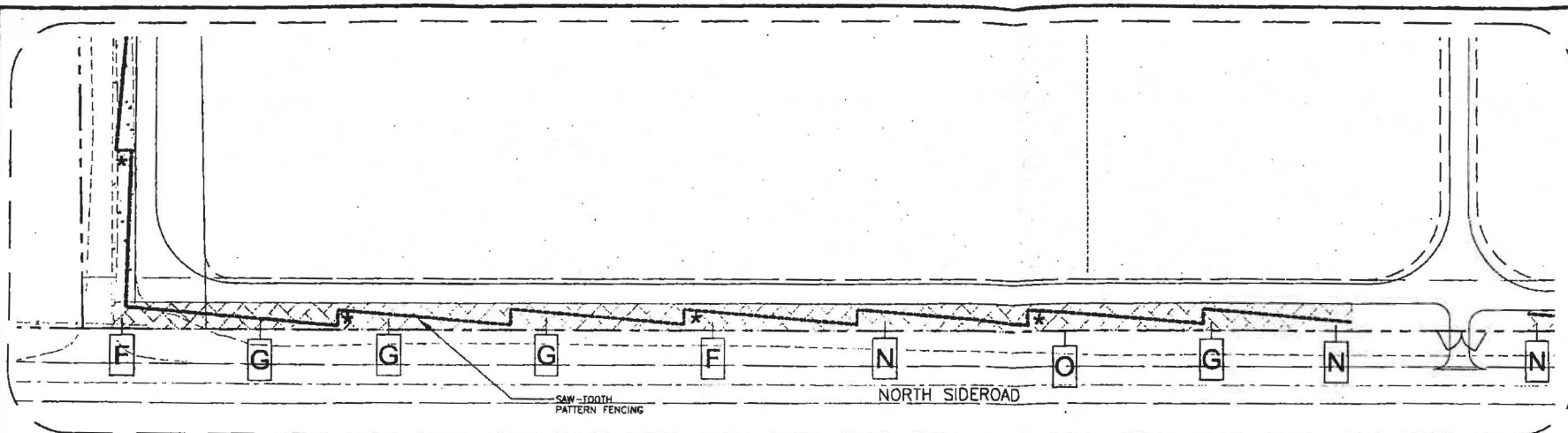
**DILLON CONSULTING**  
3200 Dorval Drive, Suite 805, Windsor, ON N9B 1K8  
Phone: (519) 948-5000 Fax: (519) 948-5054

1	DESIGNED FOR	DATE	BY
2	REVIEWED FOR MUNICIPAL REVIEW	DECEMBER 21/08	HAL
3	REVIEWED AS PER CLIENT'S REQUEST	NOVEMBER 21/08	HAL
4	REVIEWED AS PER TOWN'S COMMENTS	DECEMBER 21/08	HAL
5	DESIGNED FOR	DATE	BY
6	DESIGNED FOR	DATE	BY
7	DESIGNED FOR	DATE	BY
8	DESIGNED FOR	DATE	BY
9	DESIGNED FOR	DATE	BY
10	DESIGNED FOR	DATE	BY



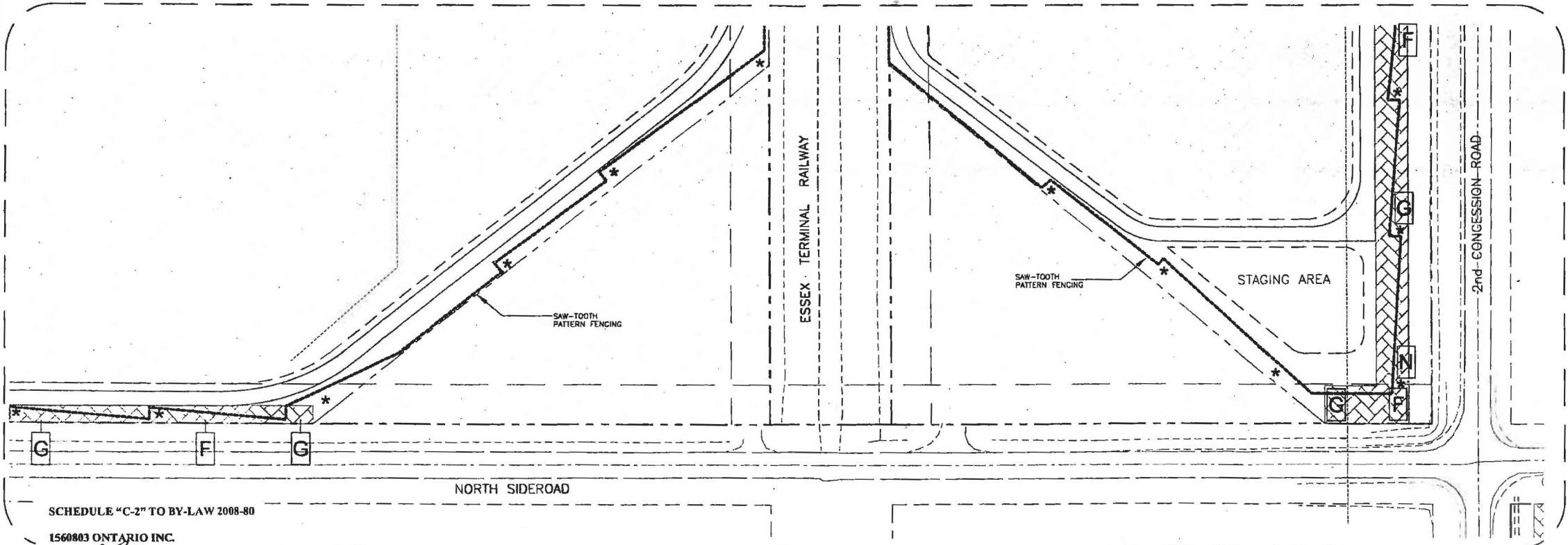
SUNPOWER - HELIOS ENERGY  
PROJECT NO. 08-9915-1000  
SHEET NO. 5B  
SITE PLAN CONTROL  
SITE B - GENERAL LANDSCAPE PLAN





DETAIL G

- LEGEND**
- [Symbol] SITE BOUNDARY
  - [Symbol] MANAGED MEADOW  
REFER TO MANAGED MEADOW WEED TOLERANCE AND SPECIFICATIONS ON PLANTING SPECIFICATIONS SHEET (S-1)
  - [Symbol] PROPOSED TALL GRASS PRAIRIE BUFFER  
REFER TO TALL GRASS PRAIRIE WEED TOLERANCE AND SPECIFICATIONS ON PLANTING SPECIFICATIONS SHEET (S-1)
  - [Symbol] PROPOSED TALL GRASS PRAIRIE WITH SHRUB BUFFER  
THE TALL GRASS PRAIRIE WITH SHRUB BUFFER IS PROPOSED TO BE USED IN AREAS WITHOUT AN EXISTING ABUNDANCE OF VEGETATION DIVERSITY. THESE BUFFERS PROVIDE AN INCREASE IN VEGETATION AND HABITAT DIVERSITY. THEY WILL ALSO CREATE OPPORTUNITIES FOR WILDLIFE USE.  
SHRUB PLANTING CELL DENSITY = 10 PLANTS PER 100 SQ M (TYPICAL)  
TREE PLANTING DENSITY = 1 TREE PER 500 SQ M (TYPICAL)
  - [Symbol] PROPOSED LIVING FENCE BUFFER  
THE LIVING FENCE BUFFER IS TO BE USED IN AREAS OF CLOSE PROXIMITY TO RESIDENTIAL HOMES. CURRENTLY, THESE AREAS ONLY AGRICULTURAL CROPS IN THE FIELDS ADJACENT TO THE HOMEOWNER'S PROPERTY. THE LIVING FENCE BUFFER WILL PROVIDE AN INCREASED LEVEL OF VEGETATION AND WILDLIFE HABITAT DIVERSITY. THESE AREAS WILL ALSO PROVIDE AN INCREASED VISUAL BARRIER TO THE HOME AND WILL PROVIDE AN ENHANCED VISUAL TEXTURE TO THE PROPERTY.  
CALIPER TREE PLANTING DENSITY = 1 TREE PER 100 SQ M (TYPICAL)  
SHRUB PLANTING CELL DENSITY = 20 PLANTS PER 100 SQ M (TYPICAL)  
VINE PLANTING DENSITY = 1 VINE PER 50 SQ M (TYPICAL)
  - [Symbol] PROPOSED WETLAND BUFFER  
THE WETLAND BUFFER IS TO BE USED IN AREAS OF CLOSE PROXIMITY TO NATURAL WETLANDS. THESE AREAS ARE TYPICALLY SUBJECT TO BROWSE CUTTERS WITHOUT AN EXISTING ABUNDANCE OF VEGETATION DIVERSITY. THE WETLAND BUFFER WILL PROVIDE A FULL RANGE OF PLANTING CELL TYPES WITH VINE PLANTING CELLS. THE WETLAND BUFFER WILL PROVIDE AN ENHANCED VISUAL TEXTURE TO THE PROPERTY AND PROVIDE AN ENHANCED VISUAL BARRIER TO THE PROPERTY.
  - [Symbol] PROPOSED WETLAND BUFFER  
REFER TO NATURAL WETLAND WEED TOLERANCE AND SPECIFICATIONS ON PLANTING SPECIFICATIONS SHEET (S-1)
  - [Symbol] AREA TO REMAIN UNDER AGRICULTURAL PRODUCTION OR APPROPRIATE GROUND COVER
  - [Symbol] PROPOSED 2.4M (8') FENCE
  - [Symbol] PROPOSED PLANTING CELL PLANT CELL TYPE  
REFER TO LANDSCAPE DETAILS - SHEET S2
  - [Symbol] PROPOSED CALIPER TREE
  - [Symbol] PROPOSED VINE
  - [Symbol] PROPOSED INVERTER
  - [Symbol] PROPOSED UNDERGROUND ELECTRICAL WIREWAY
- NOTE: ALL AREAS NOT OCCUPIED BY TRACKER UNITS WILL CONTINUE TO BE FARMED.  
NOTE: STAGING AREAS WILL BE REGRADED AND SEEDED.



DETAIL H

SCHEDULE "C-2" TO BY-LAW 2008-80

1560803 ONTARIO INC.  
*Loris Collavino*  
 LORIS COLLAVINO  
 TOWN OF AMHERSTBURG  
*Wayne Hurst*  
 MAYOR WAYNE HURST  
*Pamela Malott*  
 CAO/CLERK - PAMELA MALOTT



1	REVISION AS PER TOWN'S COMMENTS	DECEMBER 1, 2010	SM
2	REVISION AS PER CLIENT'S REQUEST	NOVEMBER 1, 2010	SM
3	FOR MUNICIPAL REVIEW	OCTOBER 22, 2010	AM/PJT
4	ISSUED FOR	DATE	BY

SURVEY	
DESIGN	
DRAWING	
PREPARED BY	
CHECKED BY	
DATE	

SUNPOWER - HELIOS ENERGY  
 SITE PLAN CONTROL  
 SITE B - LANDSCAPE DETAIL AREA 1

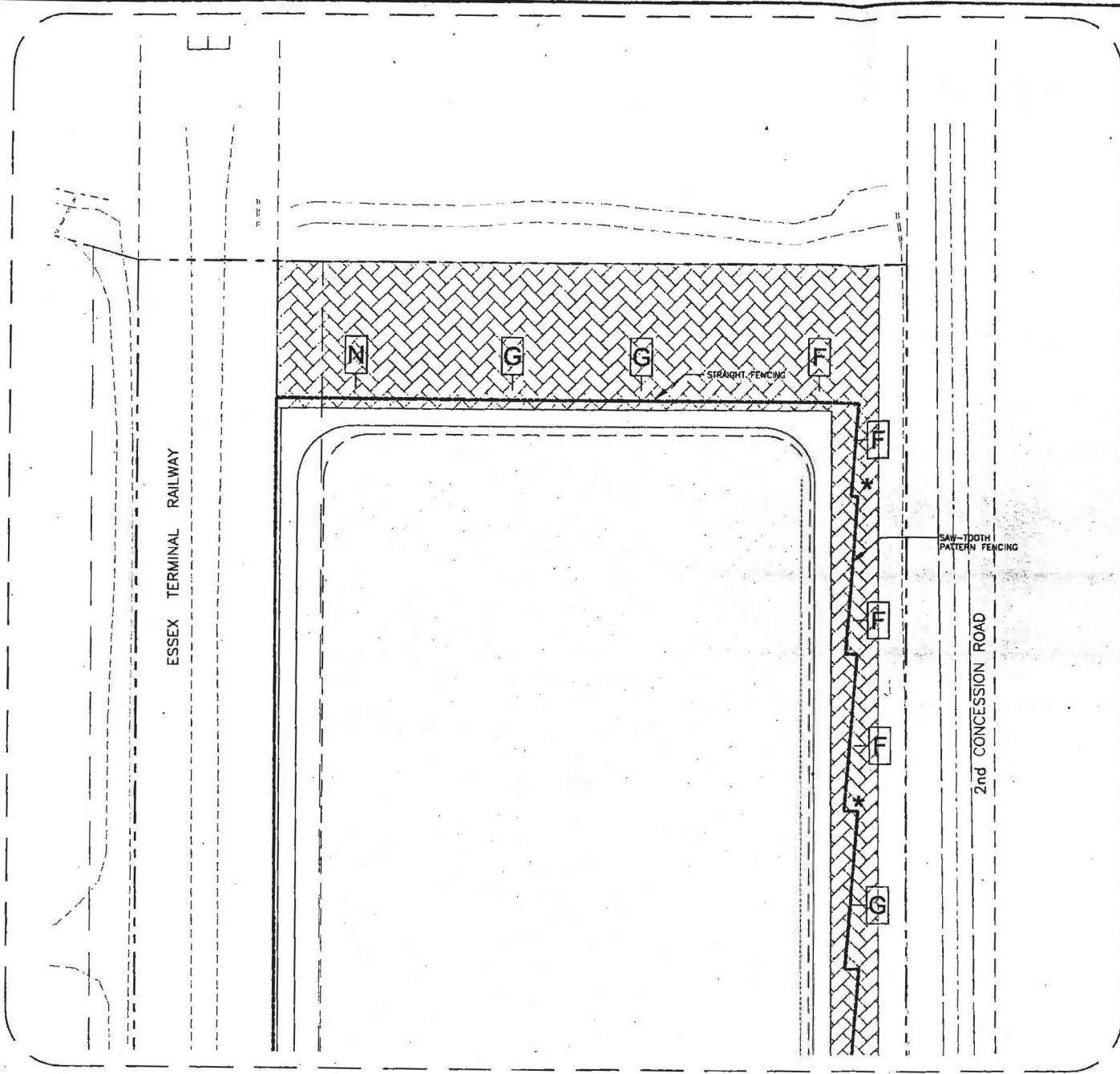
PROJECT NO.  
08-9915-1000  
 SHEET NO.  
6B

Date: 05/20/2008 - 4:30pm © 2008 SunPower Corporation. All rights reserved. SunPower is a registered trademark of SunPower Corporation.

17







DETAIL K

**LEGEND**

- SITE BOUNDARY**
- MANAGED MEADOW**  
(REFER TO MANAGED MEADOW SEED MIXTURE AND SPECIFICATIONS ON PLANTING SPECIFICATIONS DWG. 50)
- PROPOSED TALL GRASS PRAIRIE BUFFER**  
(REFER TO TALL GRASS SEED MIXTURE AND SPECIFICATIONS ON PLANTING SPECIFICATIONS DWG. 50)
- PROPOSED TALL GRASS PRAIRIE WITH SHRUB BUFFER**  
(THE TALL GRASS PRAIRIE WITH SHRUB BUFFER IS INTENDED TO BE USED IN AREAS WITHOUT AN EXISTING ABUNDANCE OF VEGETATION DIVERSITY. THESE BUFFERS WILL PROVIDE AN INCREASE IN VEGETATION AND HABITAT DIVERSITY. THEY WILL ALSO CREATE OPPORTUNITIES FOR WILDLIFE LINKAGES.  
SHRUB PLANTING CELL DENSITY = 10% LINEAR COVERAGE  
VINE PLANTING DENSITY = 1 VINE PER 30.0m (TYPICAL)
- PROPOSED LIVING FENCE BUFFER**  
(THE LIVING FENCE BUFFER IS TO BE USED IN AREAS OF CLOSE PROXIMITY TO RESIDENTIAL HOMES. CURRENTLY, THERE EXISTS ONLY AGRICULTURAL CROPS IN THE FIELDS ADJACENT TO THE HOMEOWNERS' PROPERTY. THE LIVING FENCE BUFFER WILL PROVIDE AN INCREASED LEVEL OF VEGETATION AND WILDLIFE HABITAT DIVERSITY. THESE AREAS WILL ALSO PROVIDE AN ENHANCED VIEWSHED FOR THE NEIGHBOURING HOMEOWNERS THROUGH THE CONSENSUS LOCATION OF CALIPER TREES, SHRUB/WHIP PLANTING CELLS AND VINES.  
CALIPER TREE PLANTING DENSITY = 1 TREE PER 23.0 LINEAR METRES  
SHRUB/WHIP PLANTING CELL DENSITY = 30% LINEAR COVERAGE  
VINE PLANTING DENSITY = 1 VINE PER 30.0m (TYPICAL)
- PROPOSED ROADSIDE BUFFER**  
(THE ROADSIDE BUFFER IS TO BE USED IN AREAS OF CLOSE PROXIMITY TO LOCAL PERIMETER ROADS. THESE AREAS ARE TYPICALLY ADJACENT TO ROADSIDE DITCHES WITHOUT AN EXISTING ABUNDANCE OR DIVERSITY OF VEGETATION. THE ROADSIDE BUFFER WILL EMPLOY A TALL GRASS PRAIRIE SEED MIXTURE INTEGRATED WITH SHRUB PLANTING CELLS. THE SHRUB PLANTING CELLS WILL INCREASE HABITAT DIVERSITY FOR WILDLIFE AND PROVIDE AN ENHANCED VISUAL TEXTURE TO PASSING MOTORISTS.  
SHRUB PLANTING CELL DENSITY = 15% LINEAR COVERAGE (TYPICAL)  
VINE PLANTING DENSITY = 1 VINE PER 30.0m (TYPICAL)
- PROPOSED WETLAND BUFFER**  
(REFER TO NATIVE WETLAND SEED MIXTURE AND SPECIFICATIONS ON PLANTING SPECIFICATIONS DWG. 50)
- AREA TO REMAIN UNDER AGRICULTURAL PRODUCTION OR APPROPRIATE GROUND COVER**
- PROPOSED 2.4m (8') FENCE**
- PROPOSED PLANTING CELL/PLANT CELL TYPE**  
(REFER TO LANDSCAPE DETAILS - SHEET 5D)
- PROPOSED CALIPER TREE**
- PROPOSED VINES**
- PROPOSED INVERTER**
- PROPOSED UNDERGROUND ELECTRICAL WIREWAY**

NOTE: ALL AREAS NOT OCCUPIED BY TRACKER UNITS WILL CONTINUE TO BE FARMED.

NOTE: STAGING AREAS WILL BE REGRADED AND SEEDED. SCHEDULE "C-4" TO BY-LAW 2008-80

1560893 ONTARIO INC.

*Foris Collavino*  
FORIS COLLAVINO

TOWN OF AMHERSTBURG

*Wayne Hurst*  
MAYOR WAYNE HURST

*Pamela Malott*  
CROCLERK PAMELA MALOTT

DWG NO. 2008-08-9915-1000-03-01.dwg DATE: 08/21/08 PROJECT: SUNPOWER - HELIOS ENERGY SITE B - LANDSCAPE DETAIL AREA 3

**SUNPOWER**  
Smarter Solar  
**HELIOS ENERGY**  
19 Richmond St. Amherstburg, ON N0W 2A5

**DILLON CONSULTING**  
3200 Oxford Drive, Suite 505, Amherstburg, ON N0W 2K5  
Phone: (519) 246-3000 Fax: (519) 246-5054

1	REVISED AS PER TOWN COMMENTS	NOVEMBER 12, 2008	JAL
2	REVISED AS PER CLIENT'S REQUEST	NOVEMBER 12, 2008	JAL
3	FOR MUNICIPAL REVIEW	OCTOBER 22, 2008	AM/NSJ
4	ISSUED FOR	DATE	BY

DESIGNED	
CHECKED	
DRAWN	
SCALE	
DATE	
BY	

SUNPOWER - HELIOS ENERGY  
**SITE PLAN CONTROL**  
SITE B - LANDSCAPE DETAIL AREA 3

PROJECT NO.  
08-9915-1000  
SHEET NO.  
**8B**

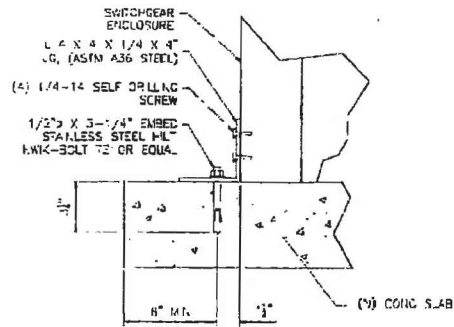
19



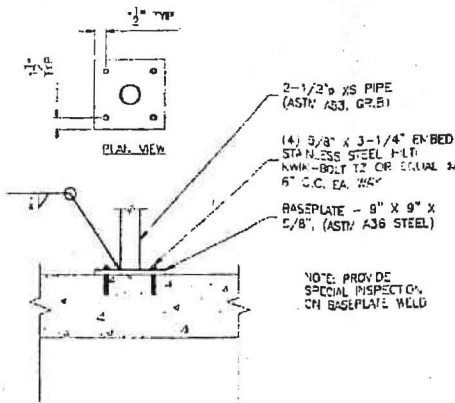




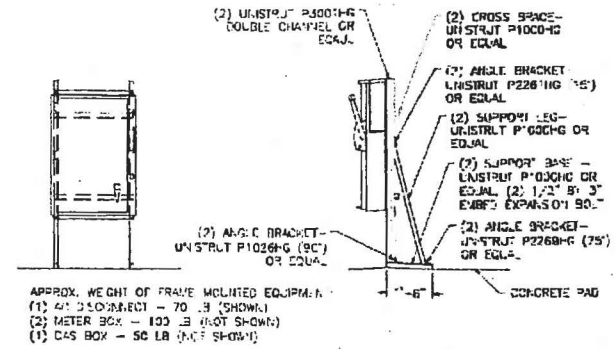




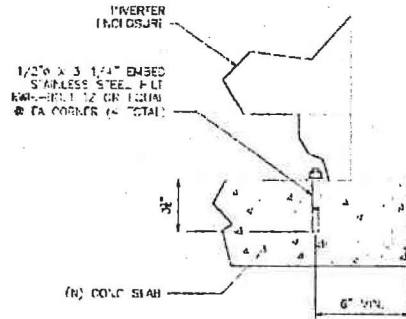
1 SWITCH-GEAR ANCHORAGE  
S-5.0 SCALE: 3/4"=1'-0"



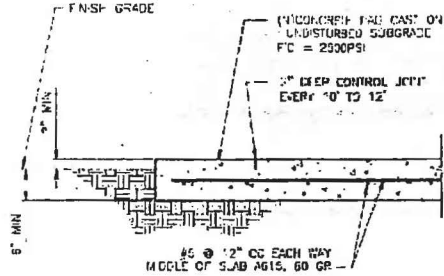
2 FENCE POST DETAIL  
S-5.0 SCALE: 1/2"=1'-0"



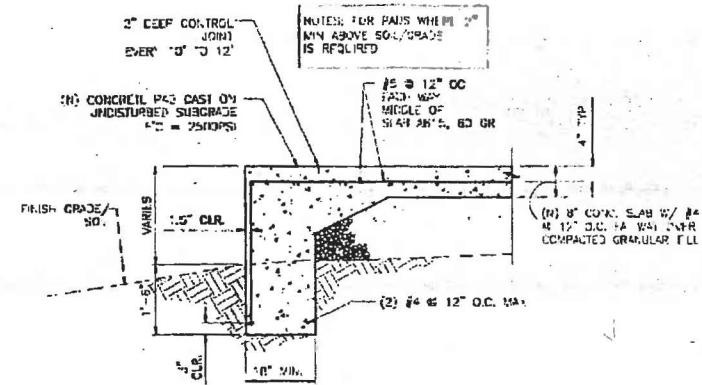
3 LIGHT EQUIPMENT ANCHORAGE  
S-5.0 SCALE: 1/2"=1'-0"



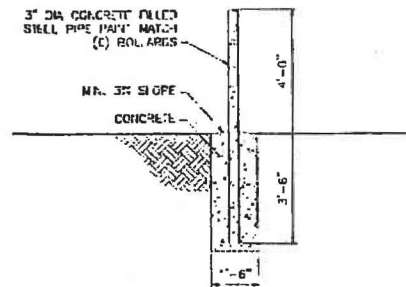
4 INVERTER ANCHORAGE  
S-5.0 SCALE: 3/4"=1'-0"



5 PAD SECTION - FLAT SITE CONDITION  
S-5.0 SCALE: 1"=1'-0"



6 PAD SECTION - HILLY SITE CONDITION  
S-5.0 SCALE: 3/4"=1'-0"



7 BOLLARD FOUNDATION SECTION  
S-5.0 SCALE: 1/2"=1'-0"

NOTES:

CONCRETE: CONSTRUCTION SHALL BE IN ACCORDANCE WITH LATEST EDITION OF ACI 318. ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO A.S.T.M. A-615 GRADE 60. ALL CONCRETE SHALL BE READY MIXED CONCRETE CONFORMING TO A.S.T.M. C-39. CONCRETE SHALL DEVELOP A 2500 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS.

MASONRY: MASONRY CONSTRUCTION AND MATERIALS SHALL CONFORM TO ALL REQUIREMENTS OF "SPECIFICATIONS FOR MASONRY STRUCTURES AND JOINTS/ASCE/TMS-602." BLOCKS SHALL BE NORMAL WEIGHT UNITS CONFORMING TO ASTM C-90 TYPE I. Mortar shall be 1:3:9 (Cement:Sand:Grit) shall conform to the proportion requirements of ASTM C-270. Mortar shall be TYPE S AND SHALL CONFORM TO ASTM 270. HORIZONTAL JOINT REINFORCEMENT SHALL BE PER ASTM A-63. HORIZONTAL JOINT REINFORCEMENT SHALL BE PROVIDED @ 48" O.C. ALL MASONRY SHALL BE Laid RUNNING BOND UNLESS NOTED OTHERWISE. VERTICAL BARS SHALL BE IN FULLY CURVED CORES AND BE CONTINUOUS TO THE FOUNDATION.

SCHEDULE "E" TO BY-LAW 2008-80

1560803 ONTARIO INC.

LORIS COLLAVINO

TOWN OF AMHERSTBURG

MAYOR WAYNE HURST

CAD/CLERK: PAMELA MALOTT

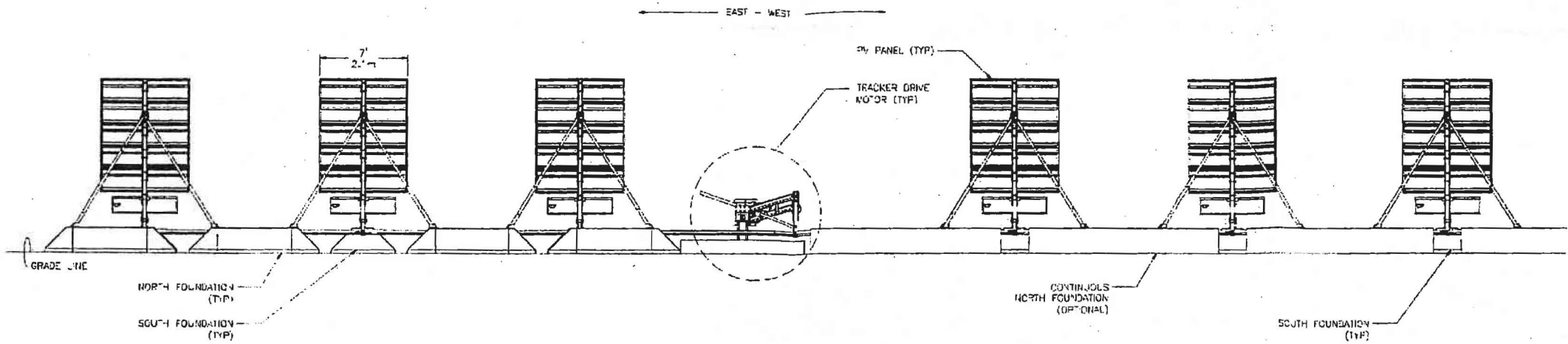
SUNPOWER  
Smarter Solar  
HELIOS ENERGY  
78 Richmond St. Amherstburg, ON N0V 2A5

DILLON  
CONSULTING  
3700 Dorval Drive, Suite 100, Windsor, ON N9W 5K9  
Phone: (519) 948-3000 Fax: (519) 948-3054

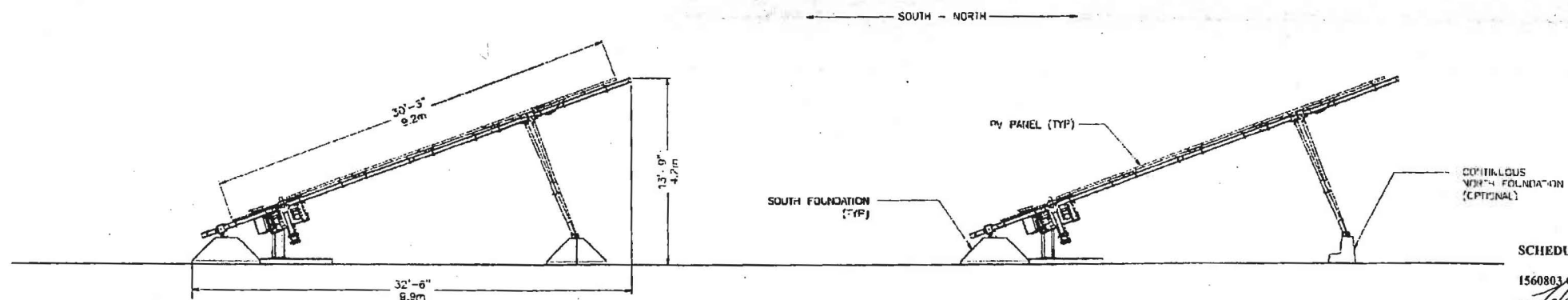
1	DESIGN		
2	DATE		
3	BY		
4	DATE		
5	BY		
6	DATE		
7	REVISIONS FOR CLIENT'S REVIEW	NOVEMBER 2, 2016	ML
8	FOR MUNICIPAL REVIEW	OCTOBER 23/2016	AMH/ST
9	DATE		
10	BY		

SUNPOWER - HELIOS ENERGY  
SITE PLAN CONTROL  
DETAILS - TRACKER EQUIPMENT PAD

PROJECT NO.  
08-9915-1000  
SHEET NO.  
2D



1 TYPICAL TRACKER T20 FOUNDATION LAYOUT (EAST - WEST)  
 5-2.0 SCALE: 1/4" = 1'-0"



2 TYPICAL TRACKER T20 FOUNDATION LAYOUT (NORTH - SOUTH)  
 5-2.0 SCALE: 1/4" = 1'-0"

SCHEDULE "F" TO BY-LAW 2008-80

1560803 ONTARIO INC.

*Lois Collavino*  
 LOIS COLLAVINO

TOWN OF AMHERSTBURG

*Wayne Hurst*  
 MAYOR WAYNE HURST

*Pamela Malott*  
 CAO/CLERK - PAMELA MALOTT

**SUNPOWER**  
 Smarter Solar  
**HELIOS ENERGY**

**DILLON**  
 CONSULTING

3200 Dyer - Drive, Suite 628, Windsor, ON N9W 3K5  
 Phone: (519) 248-1000 Fax: (519) 248-5054

NO.	REVISION	DATE	BY
1	ISSUED FOR PERMITS	NOVEMBER 2, 2010	HAL
2	REVISED AS PER CLIENT'S REQUEST	OCTOBER 22, 2010	HAL
3	FOR MUNICIPAL REVIEW	OCTOBER 22, 2010	HAL
4	ISSUED FOR		

**SUNPOWER - HELIOS ENERGY**

**SITE PLAN CONTROL**  
**DETAILS - TYPICAL TRACKER**

PROJECT NO.  
 08-9915-1000

SHEET NO.  
**3D**



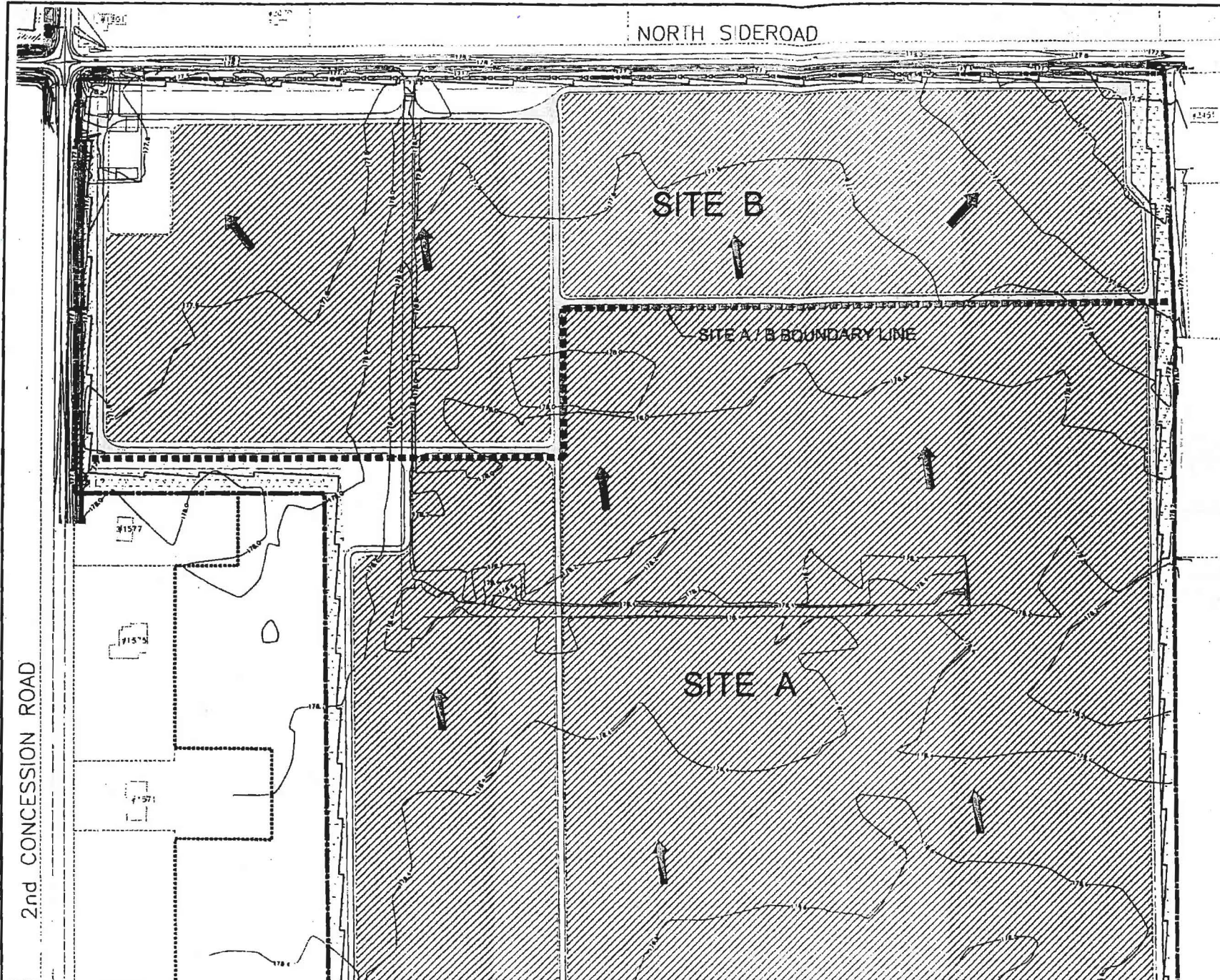




NORTH SIDEROAD



2nd CONCESSION ROAD



**LEGEND**

- SITE BOUNDARY
- PROPOSED TRACKER UNITS
- PROPOSED TALL GRASS PRAIRIE BUFFER
- PROPOSED TALL GRASS PRAIRIE WITH SHRUB BUFFER
- PROPOSED LIVING FENCE BUFFER
- PROPOSED ROADSIDE BUFFER
- PROPOSED 2.4m (8') FENCE
- PROPOSED ACCESS ROAD
- DRAINAGE ROUTE

- GENERAL NOTES:**
1. PROVIDE SILT FENCE AS NECESSARY TO INTERCEPT SURFACE DRAINAGE BEFORE ENTERING EXISTING DRAINS OR DITCHES
  2. PROPOSED ROADS TO MATCH EXISTING GRADING TO PERMIT SURFACE DRAINAGE AS SHOWN

SCHEDULE "H" TO BY-LAW 2008-80

1560803 ONTARIO INC.

*[Signature]*  
CHRIS COLLAVINO

TOWN OF AMHERSTBURG

*[Signature]*  
MAYOR WAYNE HURST

*[Signature]*  
CAG/CLERK PAMELA MALOTT

**SUNPOWER**  
Smarter Solar  
**HELIOS ENERGY**

**DILLON**  
CONSULTING

DATE	
SCALE	
PROJECT	
CLIENT	
DESIGNER	
CHECKER	
APPROVER	










SUNPOWER - HELIOS ENERGY

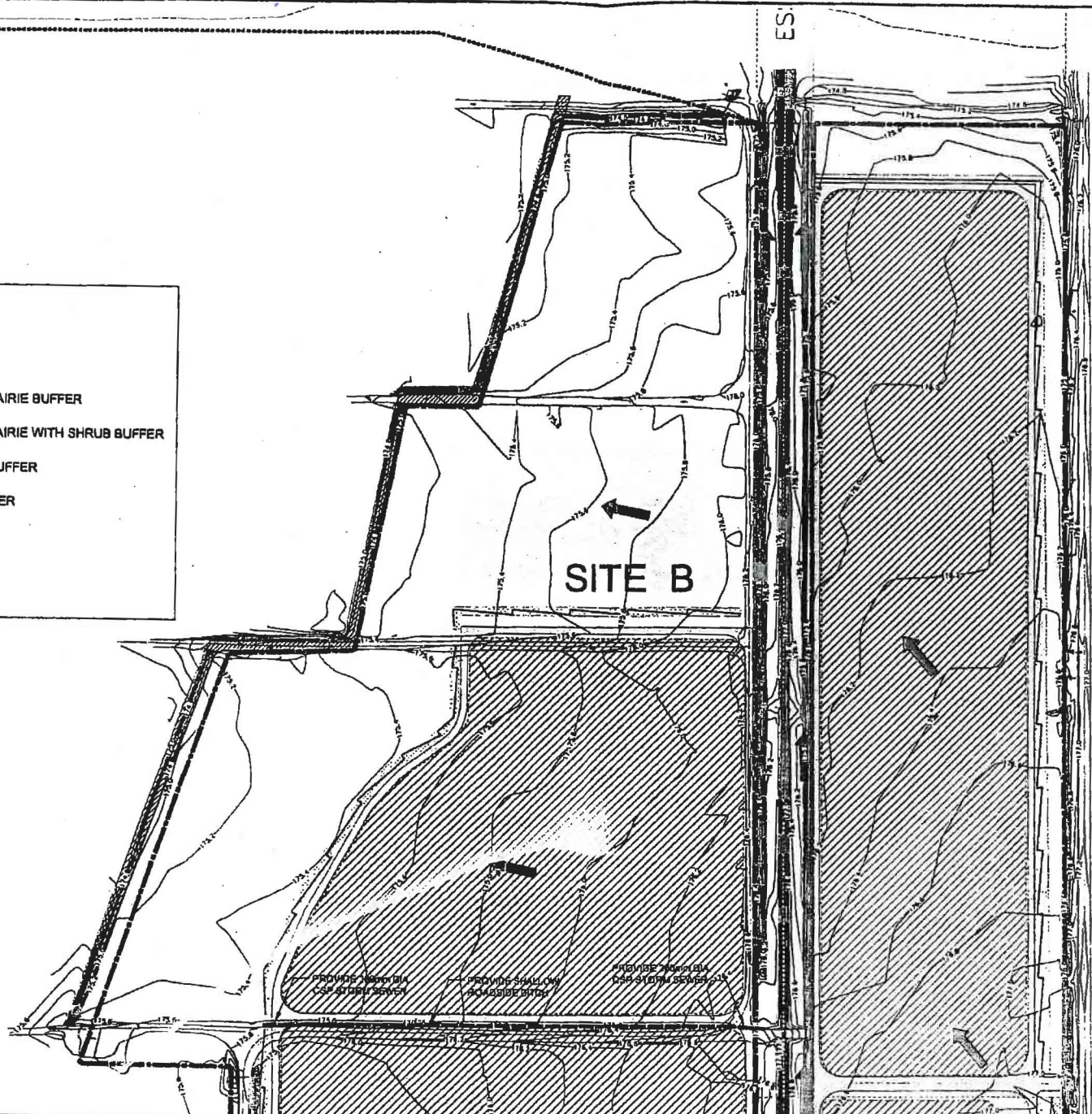
**SITE PLAN CONTROL**  
**SITE A AND B - DRAINAGE PLAN**

PROJECT NO: 08-9915-1000  
SHEET NO: 8B



**LEGEND**

-  SITE BOUNDARY
-  PROPOSED TRACKER UNITS
-  PROPOSED TALL GRASS PRAIRIE BUFFER
-  PROPOSED TALL GRASS PRAIRIE WITH SHRUB BUFFER
-  PROPOSED LIVING FENCE BUFFER
-  PROPOSED ROADSIDE BUFFER
-  PROPOSED 2.4m (8') FENCE
-  PROPOSED ACCESS ROAD
-  DRAINAGE ROUTE



- GENERAL NOTES:**
1. PROVIDE S/L FENCE AS NECESSARY TO INTERCEPT SURFACE DRAINAGE BEFORE ENTERING EXISTING DRAINS OR DITCHES
  2. PROPOSED ROADS TO MATCH EXISTING GRADING TO PERMIT SURFACE DRAINAGE AS SHOWN

SCHEDULE "H" TO BY-LAW 2008-80 CONTINUED

1560803 ONTARIO INC.

*Loris Collavino*  
LORIS COLLAVINO

TOWN OF AMHERSTBURG

*Wayne Hurst*  
MAYOR WAYNE HURST

*Pamela Malott*  
EAO/CLERK - PAMELA MALOTT

**SUNPOWER**  
Smarter Solar  
**HELIOS ENERGY**  
23 Richmond St. Amherstburg, ON N9W 2A5

**DILLON CONSULTING**  
3320 Cecil Drive, Suite 108, Amherstburg, ON N9W 2M5  
Phone: (416) 948-3000 Fax: (416) 948-5056

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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SUNPOWER - HELIOS ENERGY

08-9915-1000

SITE PLAN CONTROL  
SITE B - DRAINAGE PLAN

8C

26







SCHEDULE "I" TO BY-LAW 2008-80

1560803 ONTARIO INC.

  
LORIS COLLAVINO

TOWN OF AMHERSTBURG

  
MAYOR WAYNE HURST

  
CAO/CLERK- PAMELA MALOTT

**Sunpower  
Helios Energy  
Stormwater Management  
Report  
Town of Amhestburg  
County of Essex**

**Final Report**

October 2008

08-9915-1000

Submitted By

**Dillon Consulting Limited**

3200 Deziel Drive, Suite 608  
Windsor, Ontario N8W 5K8  
Telephone: (519) 948-5000  
Facsimile: (519) 948-5054  
E-mail: windsor@dillon.ca



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## **1.0 INTRODUCTION**

Solar farm developments are proposed on three vacant parcels of land totalling 193.96 hectares in size. A location map for the 3 sites is shown in Figure 1.0. The three sites (Site A, Site B, and Site C) are shown in Figures 2.0, 3.0, and 4.0, and are located in the Town of Amherstburg, within the County of Essex.

### **1.1 Topography**

#### Site A

Site A is located near the southeast corner of North Side Road and Concession 2 North. The total site area is 38.7 hectares.

The site is relatively flat, with a gradual slope from south to north towards North Side Road. An existing ditch on the south side of North Side Road conveys runoff to River Canard.

#### Site B

Site B is bounded by Concession 2 North to the east, North Side Road to the south, and River Canard to the northwest. The Essex Terminal Railway extends through the site from south to north.

The total site area is 93.6 hectares. The majority of the site (80.7 Ha) is at the northwest corner of the North Side Road and Concession 2 North intersection. A small portion of Site B (12.9 Ha) is located at the southeast corner of the same intersection, adjacent to Site A.

The site is relatively flat with a gradual slope to the northwest, towards River Canard.

#### Site C

The site is located on the east side of 3<sup>rd</sup> Concession North, north of Alma Street. The total site

area is 61.6 hectares.

The site is relatively flat, generally sloping from the north east to the south west towards an open drain that runs west across the southern part of the property.

## **1.2 Soil Conditions**

A geotechnical investigation was completed on all three of the proposed sites. A total of 28 boreholes were drilled in March 2008. In general, the soils consist of a layer of topsoil, ranging from 240mm to 610mm in thickness, overlaying a thick layer of firm to very stiff silty clay till. (See Appendix A for the Geotechnical Summary Letter).

## **1.3 Drainage**

Presently, runoff generated from each site is conveyed overland following the contours of the terrain and is intercepted by shallow swales running toward local drains or ditches. Ultimately, Sites A and B flow into River Canard, while Site C flows into Lake Erie.

## **2.0 PHYSICAL LAND ALTERATIONS RESULTING FROM DEVELOPMENT**

In general, the proposed development will not alter the existing site grades. The solar panels will be installed in rows, placed on site creating little if any impact on the overall drainage patterns of the various sites. Each panel will be mounted on two concrete footing bases. The area of the two bases for each panel total 3.87 m<sup>2</sup>. The panels will be elevated with native ground cover in and around the panel. See Figures 5.0 and 6.0 for details of the panels and the bases.

Rain water will land on the solar collector panels and runoff directly onto the ground below the individual panels. Minimal erosion is anticipated beneath each solar panel. However, the overall effects of the runoff generated from the various solar panels within the watershed will be minimal as the proposed site ground cover, comprised of dense grasses, will enhance the infiltration characteristics of the soil as compared to current conventional agricultural practices.



*Stormwater Management Plan  
For Sunpower – Helios Energy  
In the Town of Amherstburg*

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In addition to the panels and bases, each site will have the following site features:

- One 15m x 9m concrete pad accommodating the switchgear, meter pad and building,
- One 9m x 3m concrete equipment pad associated with each of the 335 solar panels.
- One control box associated with each of the 8 solar panels.
- Existing gravel road network will be altered and enhanced to facilitate vehicle movement around each site.
- A staging area for use during construction that may remain a gravel surface.

### 3.0 STORMWATER ASSESSMENT

A summary and assessment of the various impacts associated with the installation of the solar panels and associated equipment for each site is as follows:

#### Site A

Number of Panels .....	3641
Total Panel Base Area (3.87m <sup>2</sup> / panel) .....	1.41 Ha
Number of Equipment Pads .....	11
Total Area of Concrete Equipment Pads (27.87m <sup>2</sup> / pad).....	0.031 Ha
Number of Control Boxes.....	408
Total Area of Control Boxes (7.43m <sup>2</sup> / box).....	0.303 Ha
Switchgear and Meter .....	1
Total Area of Switchgear and Meter (250.80m <sup>2</sup> / box).....	0.025 Ha
Gravel Road Area.....	1.06 Ha
Gravel Staging Area.....	0.36 Ha

Total Site Area (A<sub>t</sub>) = 38.70 Ha

Total Equipment Area (A<sub>e</sub>) = 1.75 Ha

Total Gravel Area (A<sub>g</sub>) = 1.42 Ha

*Stormwater Management Plan  
For Sunpower – Helios Energy  
In the Town of Amherstburg*

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Using the Rational Method, the increase in impervious area will be analysed. The Rational Method C Factor is a weighted coefficient that provides an indication of the overall imperviousness of a site.

The existing sites have been used for farming. The ground cover is a tilled field that, depending on the time of year, may have planted crops or be barren. A C Factor of 0.40 is typically used for agricultural fields in the area. The proposed ground cover is a natural prairie grass, growing up to 600mm in height. Although runoff from the proposed ground cover is expected to be slower, with a potential for greater infiltration a conservative C Factor value of 0.40 has been used. Gravel areas have a C factor of 0.60, and all impervious surfaces have a C factor of 0.95.

$$C = \frac{[(A_e \times 0.95) + (A_g \times 0.60) + ((A_t - A_e - A_g) \times 0.40)]}{A_t}$$

Using this formula, the existing and proposed C factors were calculated.

**Existing C Factor = 0.40**  
**Proposed C Factor = 0.43**

The same approach is used for the two (2) remaining sites:

Site B

Number of Panels .....	3657
Total Panel Base Area (3.87m <sup>2</sup> / panel) .....	1.41 Ha
Number of Equipment Pads .....	10
Total Area of Concrete Equipment Pads (27.87m <sup>2</sup> / pad).....	0.028 Ha
Number of Control Boxes.....	422
Total Area of Control Boxes (7.43m <sup>2</sup> / box).....	0.314 Ha
Switchgear and Meter .....	1
Total Area of Switchgear and Meter (250.80m <sup>2</sup> / box).....	0.025 Ha
Gravel Road Area.....	2.74 Ha



*Stormwater Management Plan  
For Sunpower – Helios Energy  
In the Town of Amherstburg*

---

Gravel Staging Area.....0.28 Ha

Total Site Area ( $A_t$ ) = 93.64 Ha

Total Equipment Area ( $A_e$ ) = 1.73 Ha

Total Gravel Area ( $A_g$ ) = 3.02 Ha

**Existing C Factor = 0.40**

**Proposed C Factor = 0.42**

Site C

Number of Panels ..... 5000

Total Panel Base Area ( $3.87\text{m}^2$  / panel) .....1.94 Ha

Number of Equipment Pads .....15

Total Area of Concrete Equipment Pads ( $27.87\text{m}^2$  / pad).....0.042 Ha

Number of Control Boxes.....626

Total Area of Control Boxes ( $7.43\text{m}^2$  / box).....0.46 Ha

Switchgear and Meter ..... 1

Total Area of Switchgear and Meter ( $250.80\text{m}^2$  / box).....0.025 Ha

Gravel Road Area.....1.53 Ha

Gravel Staging Area.....0.20 Ha

Total Site Area ( $A_t$ ) = 61.62 Ha

Total Equipment Area ( $A_e$ ) = 2.47 Ha

Total Gravel Area ( $A_g$ ) = 1.73 Ha

**Existing C Factor = 0.40**

**Proposed C Factor = 0.43**

In general, the total area of all three sites is 193.96 Ha. A total of 6.02 Ha is being converted to concrete, or 3.1% of the overall land area. This should not have an adverse impact to the sites, the downstream swales and ditches, or the eventual outlets.

The grading of the new roads should follow the existing topography to permit overland drainage. Any alteration of existing drainage patterns will be addressed during and post construction. The sites will be monitored to ensure that existing overland drainage routes are maintained.

Due to the relatively flat nature of the majority of the sites, some water ponding may presently occur. However, given the nature of the proposed development, localized short duration ponding will not adversely affect the site.

#### **4.0 STORMWATER POLLUTION**

As the sites are not expected to generate any local pollution, no on-site pollution abatement controls are proposed on the sites. The extensive use of surface drainage allows for runoff peak flow attenuation and allows removal of suspended solids during flow over grassed areas.

#### **5.0 CONSTRUCTION PERIOD MEASURES**

To minimize the potential for impairment of the quality of receiving waters during construction, an erosion abatement control plan will be implemented during construction. The plan will consist of the following:

- i) Straw bale barriers and/or filter cloth barriers will be installed in existing swales, drains, or at critical downstream flow points to intercept suspended solids carried by overland flow and to prevent the runoff from directly entering existing watercourses.
- ii) Topsoil will be stripped only from areas necessary for installation of concrete pads, services and construction of roads.

#### **6.0 SUMMARY**

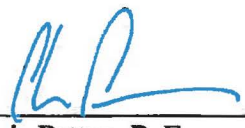
Changes to existing topography and imperviousness are minimal, thus no storm water quantity controls are proposed. Once the site has been fully restored, the total runoff from the site may be



*Stormwater Management Plan  
For Sunpower – Helios Energy  
In the Town of Amherstburg*

---

reduced due to the proposed dense grass coverage. To satisfy the requirements of stormwater management for this development, it is proposed to implement qualitative protection measures during construction only. Once the grass planting and restoration have germinated, the water quality protection measures may be removed.



---

Chris Patten, P. Eng.  
Project Engineer

Sunpower - Helios Energy  
Drainage Report  
in the Town of Amherstburg

FIGURE 1.0  
Location Map

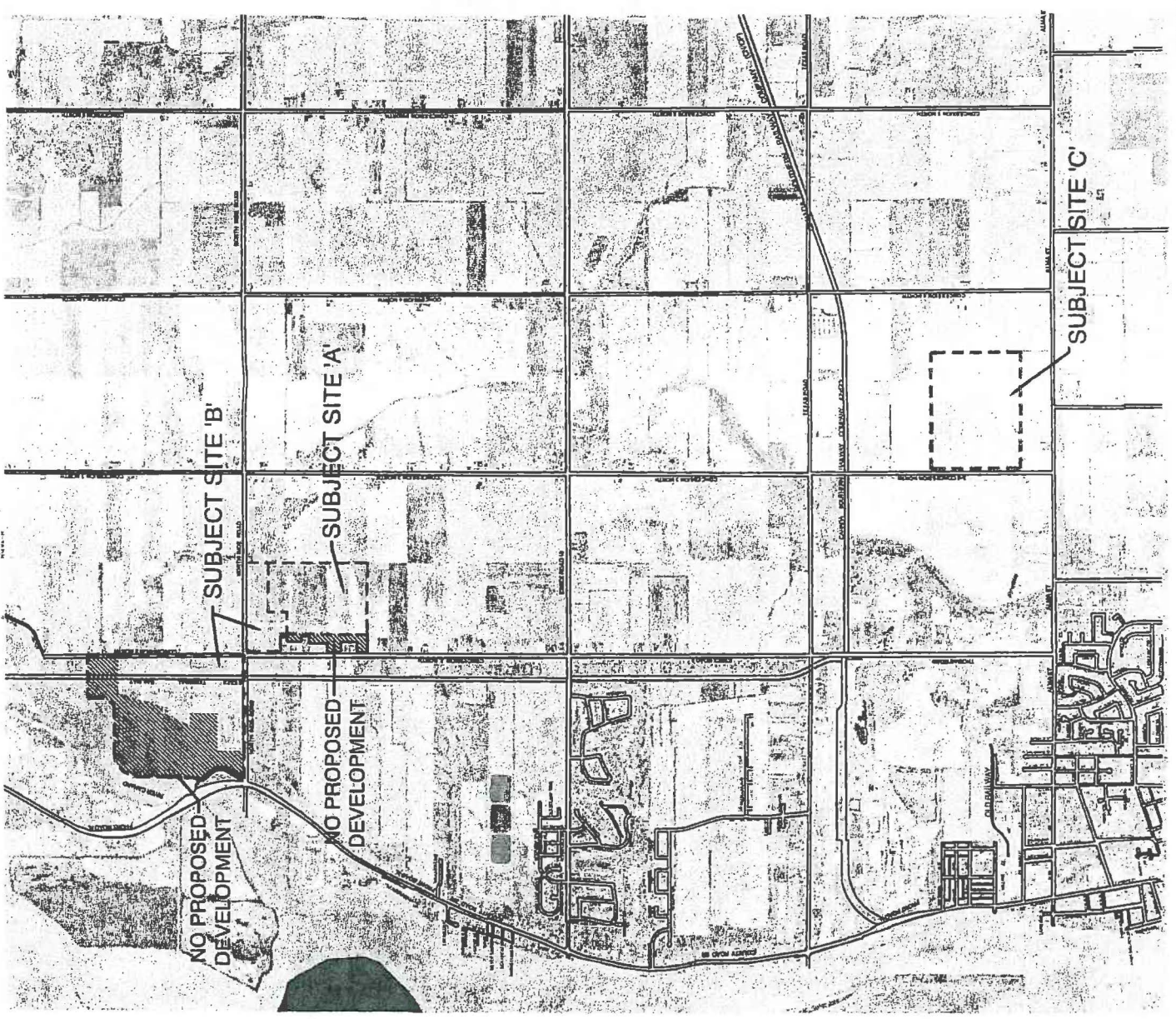
SUNPOWER  
Energy Solutions

HELIOS ENERGY



October 2008  
Project No. 08-9915-1000

□ SUBJECT SITE



SCALE: NOT TO SCALE




**SUNPOWER**  
Sustainable Energy

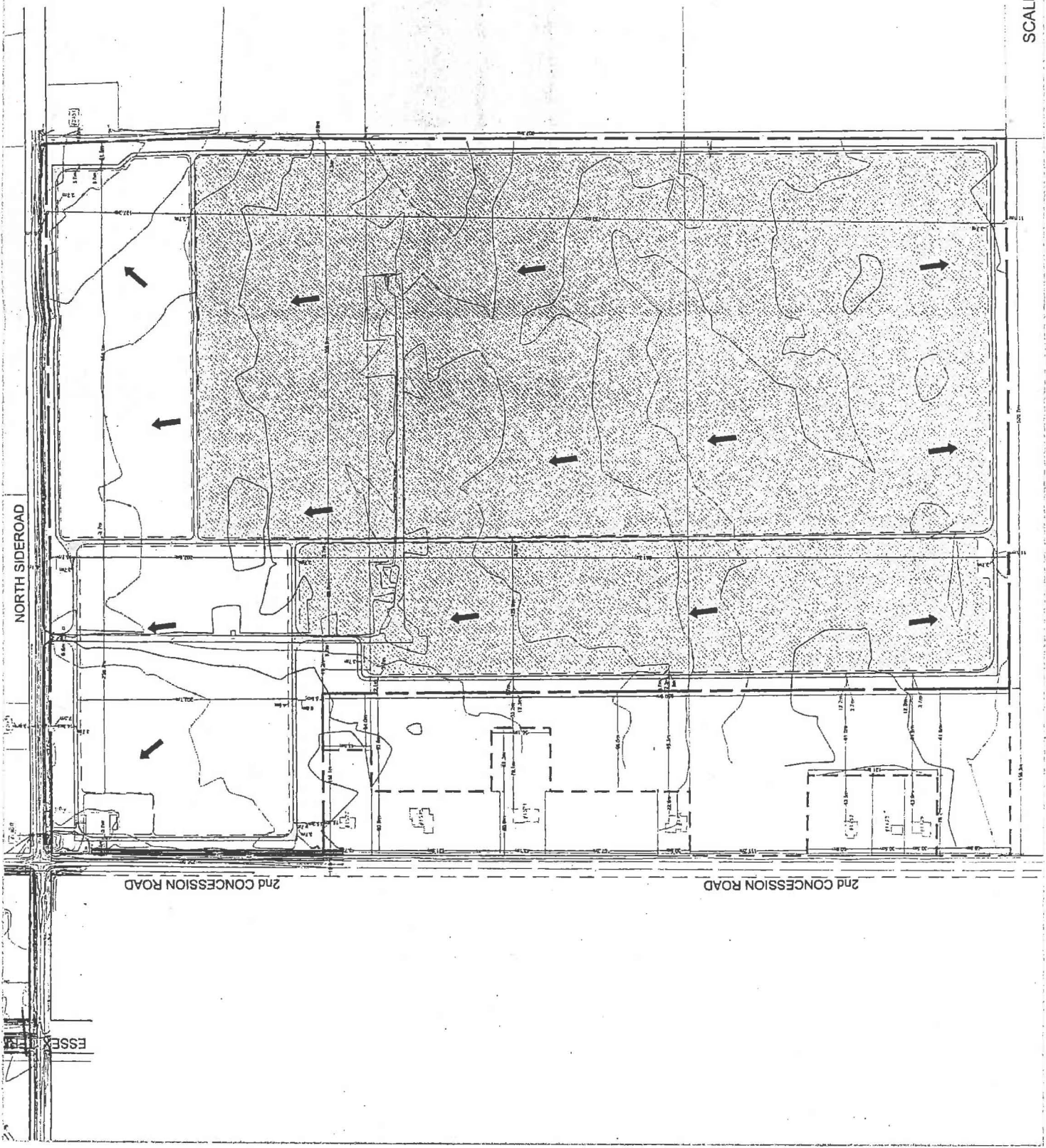
**HELIOS ENERGY**

**DILLON**  
LOCAL ENGINEERS

October 2008  
Project No. 08-9915-1000

**LEGEND**

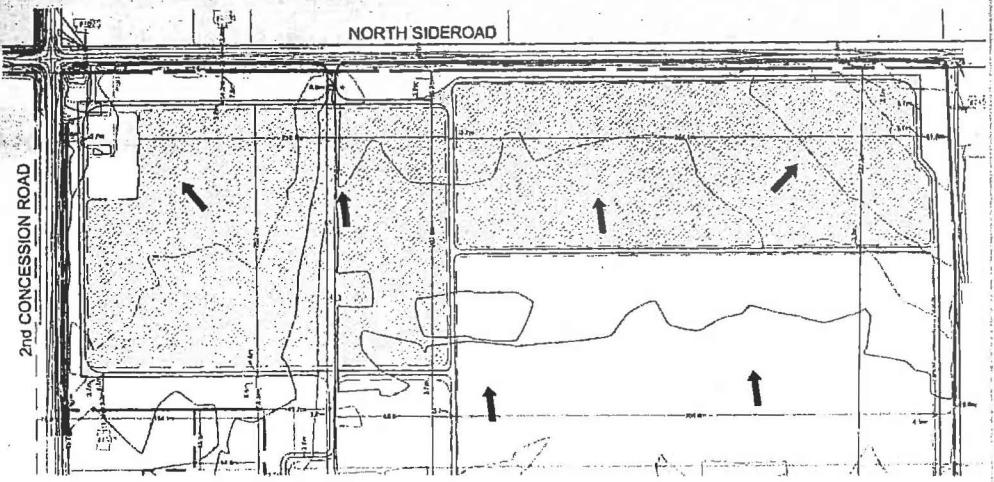
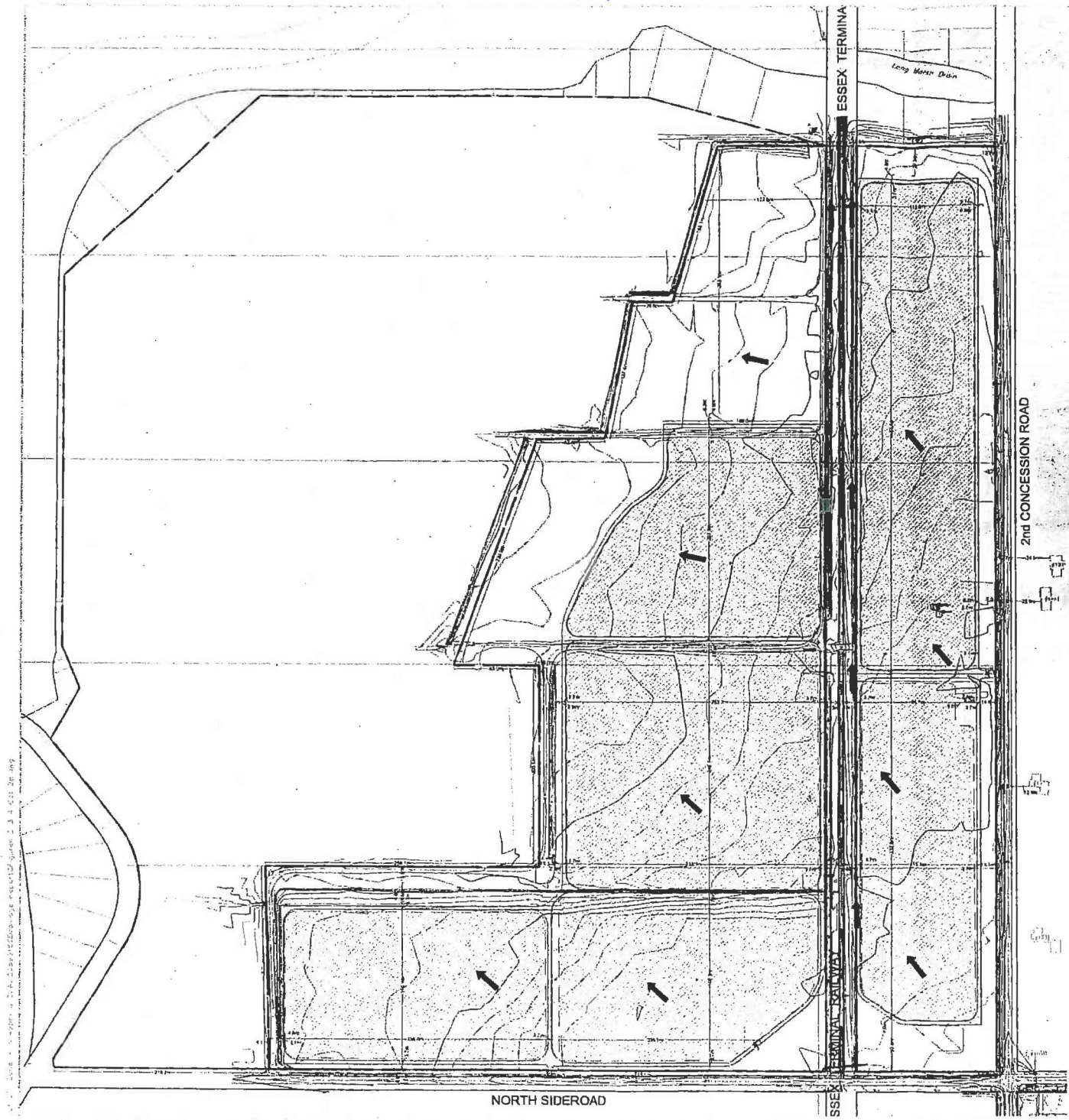
-  SITE BOUNDARY
-  PROPOSED TRACKER UNITS
-  PROPOSED ACCESS ROAD
-  DRAINAGE ROUTE







SCALE: NOT TO SCALE

NOT TO SCALE - 2008-09-24 10:00 AM





**LEGEND**

-  SITE BOUNDARY
-  PROPOSED TRACKER UNITS
-  PROPOSED ACCESS ROAD
-  DRAINAGE ROUTE



2008-10-08 10:00 AM 2-Dimensional Project of 2-D 10/08/08

**SUNPOWER**  
 Smarter Solar  
**HELIOS ENERGY**  
  
**DILLON**  
 CONSULTING  
 October 2008  
 Project No.08-9915-1000

Sunpower - Helios Energy  
 Drainage Report  
 in the Town of Amherstburg

**FIGURE 3.0**  
 Site B - Site Plan

SCALE: NOT TO SCALE



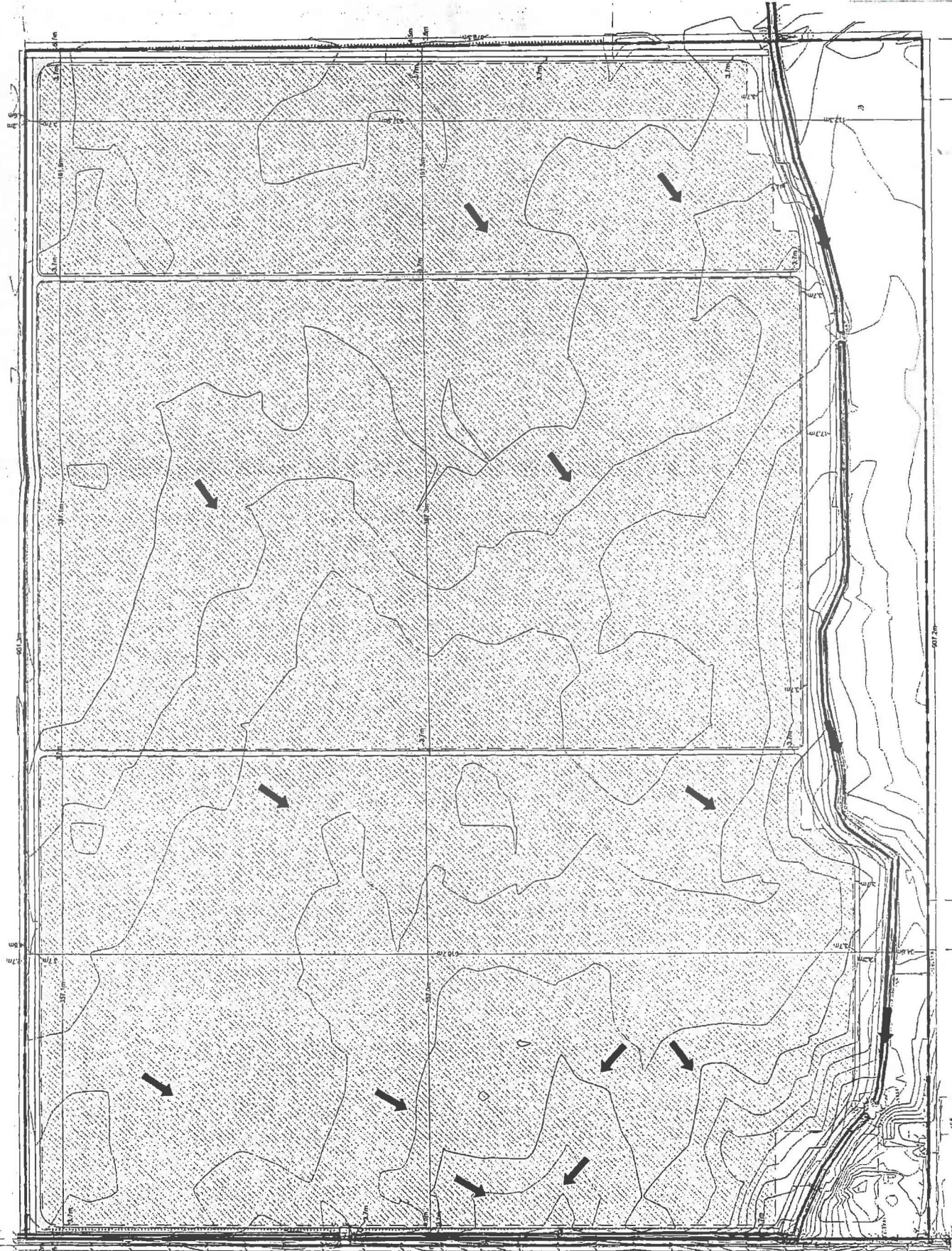
**SUNPOWER**  
Smart Solar

**HELIOS ENERGY**

**DILLON CONSULTING**  
October 2008  
Project No. 08-9915-1000

**LEGEND**

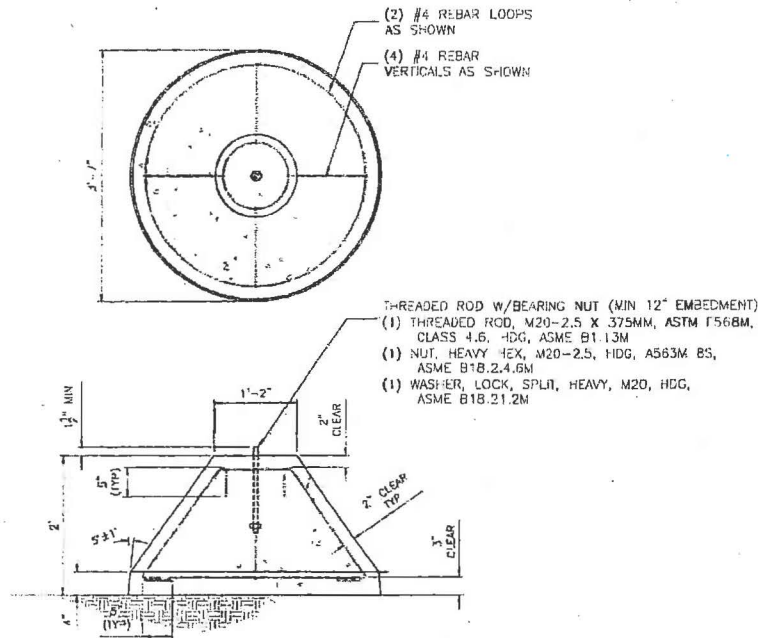
- SITE BOUNDARY
- PROPOSED TRACKER UNITS
- PROPOSED ACCESS ROAD
- DRAINAGE ROUTE



3rd CONCESSION NORTH

SCALE: NOT TO SCALE

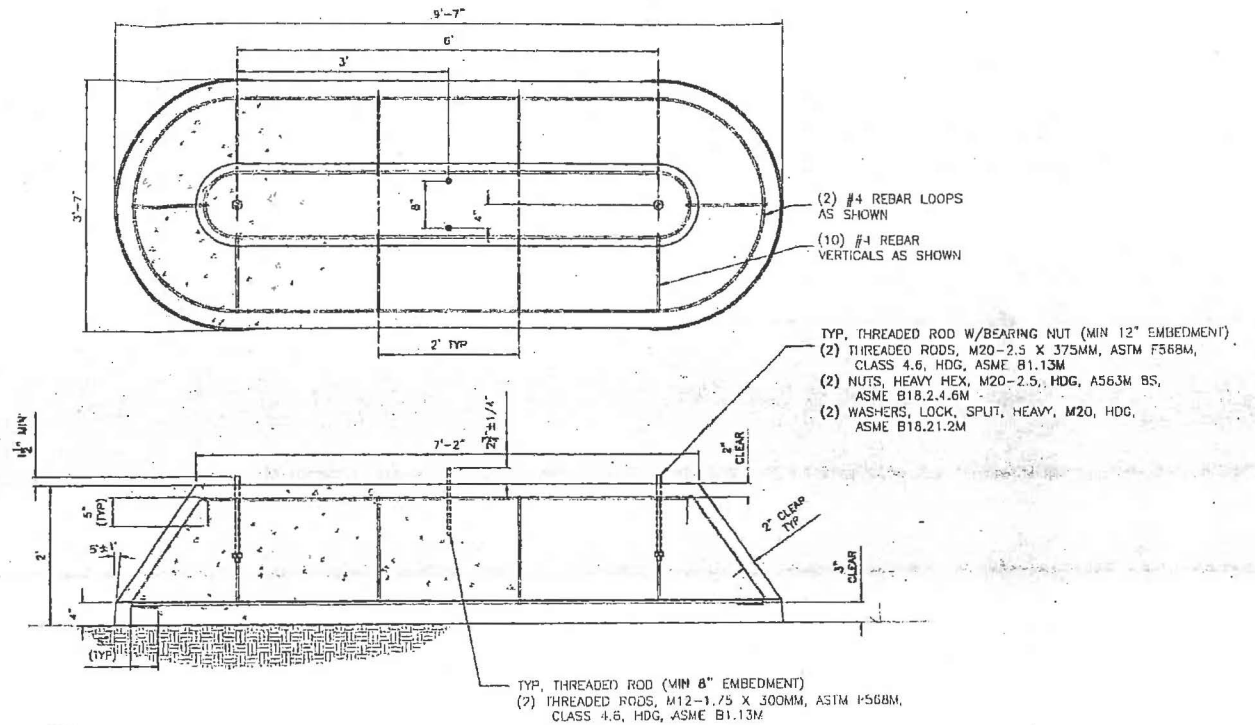




NOTES:

1. SEE STRUCTURAL NOTES (S1.0) FOR CONCRETE SPECS.

1 T20 TRACKER CAST-IN-PLACE SOUTH FOUNDATION  
 SCALE: 1" = 1'0"



NOTES:

1. SEE STRUCTURAL NOTES (S-0.0) FOR CONCRETE SPECS.

2 T20 TRACKER CAST-IN-PLACE NORTH FOUNDATION  
 SCALE: 1" = 1'0"

SCALE: NOT TO SCALE

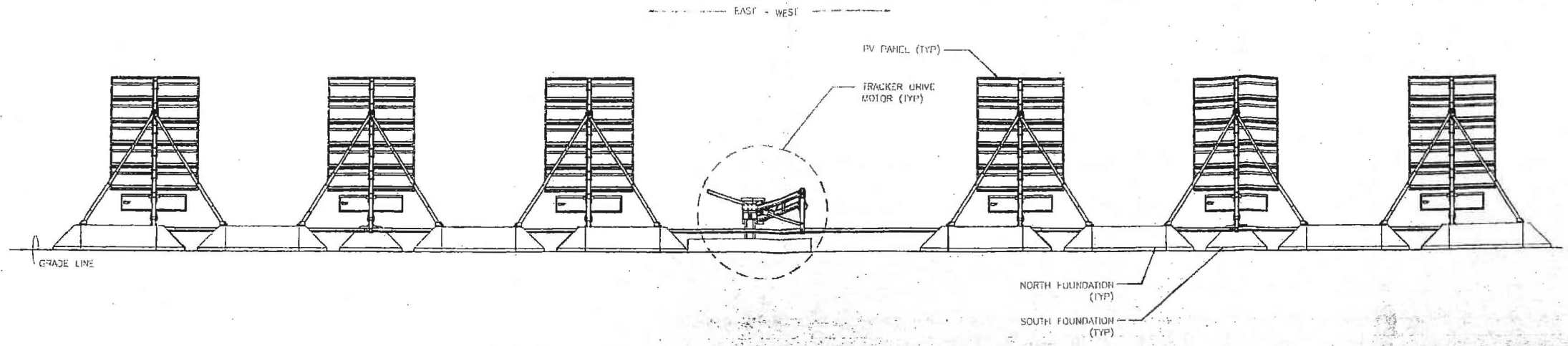
**SUNPOWER**  
 Premier Solar  
**HELIOS ENERGY**

**DILLON**  
 CONSULTING  
 October 2008  
 Project No.08-9915-1000

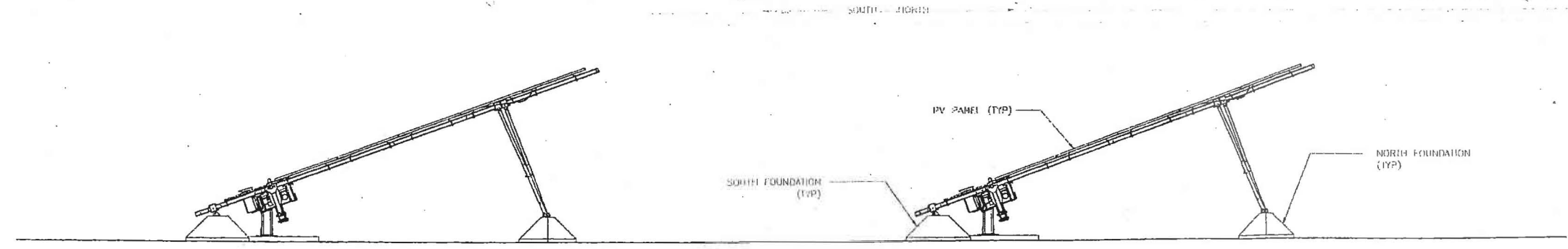
Sunpower - Helios Energy  
 Drainage Report  
 in the Town of Amherstburg

**FIGURE 5.0**  
 Solar Panel Foundation Details





1 TYPICAL TRACKER T20 FOUNDATION LAYOUT (EAST - WEST)  
 6-2.0 SCALE: 1/4" = 1'-0"



2 TYPICAL TRACKER T20 FOUNDATION LAYOUT (NORTH - SOUTH)  
 6-2.0 SCALE: 1/4" = 1'-0"

SCALE: NOT TO SCALE

	Sunpower - Helios Energy Drainage Report In the Town of Amherstburg
	<b>FIGURE 6.0</b> Solar Panel Structural Elevations
October 2008 Project No. 08-9915-1000	

**APPENDIX 'A'**

**GEOTECHNICAL SUMMARY LETTER**



**Golder Associates Ltd.**

2465 McDougall Street, Suite 100  
Windsor, Ontario, Canada N8X 3N9  
Telephone 519-250-3733  
Fax 519-250-6452



April 11, 2007

07-1140-0248

SunPower Corporation Systems  
700 South Clinton Avenue  
Trenton, New Jersey  
08611

Attention: Mr. David Eisenbub

**RE: GEOTECHNICAL INVESTIGATION  
THREE DEVELOPMENT SITES  
TOWN OF AMHERSTBURG, ONTARIO**

Dear Sirs:

Golder Associates Ltd. carried out a geotechnical investigation on three sites proposed for development by SunPower Corporation in the Town of Amherstburg, Ontario. Two of the sites are located near the intersection of Northside Road and 2<sup>nd</sup> Concession Road and one near the intersection of Alma Street and 3<sup>rd</sup> Concession Road (Fox Road). The sites vary in size from about 45 to 60 hectares (110 to 150 acres).

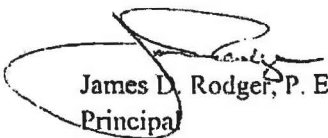
Twenty eight (28) boreholes were advanced at the three sites in early March 2008. The subsurface conditions encountered in the boreholes at each of the sites were similar, generally consisting of topsoil overlying an extensive deposit of firm to very stiff silty clay till to the depths investigated.

Based on the results of the investigation, the subsurface soil conditions appear appropriate to support development of the type proposed for this site.

We trust this letter is sufficient for the present purpose. Should you have any questions regarding this letter, do not hesitate to contact this office.

Yours truly,

**GOLDER ASSOCIATES LTD.**

  
James D. Rodger, P. Eng.  
Principal

JDR/BG:sm

N:\ACTIVE\2007\1140-0248\07-1140-0248 SUNPOWER SITES ABURG\DOCUMENTS\041108-LET-EISENBUB-SM.DOC



45

Our File: 08-9951



December 5, 2008

Corporation of the Town of Amherstburg  
271 Sandwich St. South  
Amherstburg, Ontario  
N9V 2A5

Attention: Ms. Lory Bratt and Mr. Dwayne Grondin  
Planning Coordinator and Coordinator of Developmental Services

**Stormwater Management  
Helios Solar Star H-1  
Sites 'A', 'B' and 'C'  
Town of Amherstburg**

3300  
Dundas St. W.  
Suite 308  
Windsor, Ontario  
Canada  
N9M 5K8  
Telephone  
(519) 662-5000  
Fax  
(519) 662-5050

Dear Ms. Bratt and Mr. Grondin:

On behalf of our client, Helios Solarstar H-1 Company LP, the following stormwater measures will be implemented during and post construction for the three properties in the Town of Amherstburg.

- During construction, stormwater Best Management Practices including silt fences and straw bales will be used to limit sediment from entering into adjacent roadside ditches and drains. Where feasible, perimeter swales will be installed prior to construction to direct site runoff to point source outlets to the existing drains. The outlets will include sediment forebays and rock weirs to permit settlement of sediment and particles prior to discharge;
- The sediment control measure will be monitored regularly during construction and repaired or bolstered as required; and
- The perimeter ditches will be seeded for use as permanent site drainage systems. The swales and outlets will be reviewed and cleaned following construction to ensure their continued functionality.

The Owner will work with the Town of Amherstburg and the Essex Region Conservation Authority to provide construction and post construction measures will be satisfactory to both.

...continued



Corporation of the Town of Amherstburg  
Page 2  
December 5, 2008

Should you require further details regarding this request, please contact the undersigned.

Yours sincerely,

**DILLON CONSULTING LIMITED**



Chris Patten, P.Eng.  
Project Engineer

- cc: Mr. Tim Byrne - Essex Region Conservation Authority
- Mr. D. Eisenbud - SunPower Corp.
- Mr. D. Anderson - Helios
- Mr. G. Brandt - Sunpower Corp.

CDP:dt

SCHEDULE "J" TO BY-LAW 2008-80

1560803 ONTARIO INC.

  
LORIS COLLAVINO

TOWN OF AMHERSTBURG

  
MAYOR- WAYNE HURST

  
CAO/CLERK- PAMELA MALOTT

**Environmental Impact  
Assessment for "Site B" of  
the Helios Solar Star A-1  
Proposal**

*July 25, 2008*

08-8758-1300

*Submitted by*

**Dillon Consulting  
Limited**



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## 1.0 INTRODUCTION

Helios Solar Star A-1 has submitted Official Plan Amendment & Zoning By-Law Amendment Applications for a planned "Solar Energy System", which is to be located at the northwest corner of North Side Road and Concession 2 North in the Town of Amherstburg. The proposed Solar Energy System is to be located in an area that is currently utilized for agricultural production but is adjacent to a former Brine Well field that, at present, is under water and is adjacent to River Canard. The former brine well field is presently considered a wetland by the Ontario Ministry of Natural Resources (OMNR) and as part of this application the Essex Region Conservation Authority (ERCA) is requiring a Full Environmental Impact Assessment (EIA). A Scoped EIA was initially prepared and submitted to the Town & ERCA in June 2008.

For the reader's knowledge, this EIA follows the Terms of Reference for a Full EIA that was provided to Dillon Consulting Limited (DCL) by ERCA (Lebedyk, pers comm.)

## 2.0 DESCRIPTION

### 2.1 Proponents name and full contact information

Helios Solar Star A-1  
250 The Esplanade, Suite 400  
Toronto, ON M5A 1J2  
Contact: David Eisenbud, Sr. Project Development Manager

### 2.2 Purpose of the Proposal

*Discussion* - The proposed development of Site "B" for a Solar Energy System will allow for the transfer of the existing wetland area to the appropriate authority, Essex Region Conservation Authority (ERCA) or Ducks Unlimited (DU), and permit the redevelopment of the former brine well site as a "managed wetland". The current condition of the wetland portion of the site has been degraded due to growth of non-native and invasive species. The proposed Official Plan and Zoning Bylaw Amendment will allow for the proper management of the wetland portion of the site through rehabilitation. To facilitate the redevelopment of the wetland, it is necessary to first address the farmed portion of the property that is adjacent to the existing wetland area.

Therefore, the purpose of this report is to address the items as described in the Terms of Reference for a Full EIA, as issued by ERCA.

### 2.3 Statement of Rationale for the Undertaking

*Discussion* - Helios Solar Star A-1 was offered three Standard Offer Contracts from the Ontario Power Authority (OPA) in January 2008 and a fourth contract in April 2008. The need for renewable energy has been set forth through the Ministry of Energy, through the OPA. The Renewable Energy Standard Offer Program, for which the applicants have qualified for and are currently implementing, are specifically designed for renewable energy forms such as wind power, solar power, and biomass energy. The applicants have applied for the program, qualified,

and are attempting to implement the initiative through the proposed solar energy system developments.

Furthermore, according to the Town of Amherstburg's Official Plan, Section 2.18 Smart Growth Policies, the Town encourages development that addresses the principals of Smart Growth:

*The Ontario Smart Growth Initiative identified six strategic directions for the Western Zone of Ontario in which Amherstburg is located. The six strategic directions include: identify and invest in a system of service nodes and sectoral networks; protect the natural environment and resources and quality of life through more effective planning, co-ordination and co-operation across the zone; support a strong and viable agricultural sector; facilitate more efficient movement of people, goods and information; ensure a sustainable, reliable and affordable supply of energy; and promote a strong and vibrant economy.*

Through the development of the proposed solar energy systems, the Town of Amherstburg would essentially be providing its residents with a form of sustainable, reliable, and affordable energy. This direction, as noted above, is outlined in the Ontario Smart Growth Initiative.

#### **2.4 Alternative Forms that the Development Might Take**

Not applicable.

#### **2.5 Subject property location description (municipality, lot, concession, etc.) and maps**

*Discussion* – Site 'B' is located at the northwest corner of the intersection at North Side Road and Concession 2 (refer to **Figure 1.1 – Subject Site 'B'**). Site 'B' is more specifically described as Part of Lots 31, 32, 33, 35 and 36, Concession 1 in the former Township of Anderdon, designated as Parts 4 and 5 on Plan 12R-5308, Town of Amherstburg, County of Essex (refer to **Figure 1.2 – Site 'B' Legal Plan**).

#### **2.6 Identification of all significant natural heritage designations or identifications (Environmentally Significant Area (ESA), Area of Natural and Scientific Interest (ANSI), Provincially Significant Wetland (PSW), etc)**

*Discussion* – Oldham (1983) described the majority of the site as ESA Site #14 (Allied Chemical Brine Wells) in a Background Report to the Essex Region Conservation Plan. The site description was described as "an open, disturbed area adjacent to Highway 18, and bounded on the north by the Canard River, on the west by the Detroit River, and on the east by the Essex Terminal Railway Line." This report also indicates that "the site has been extensively modified by man, and evidence of human disturbance (including active brine well, dirt access roads, ditches and pools of saline water are found on parts of the site). A recently constructed dyke in the northern portion of the site has encroached upon marshland near the mouth of the Canard River". In Prince, Silani and Associates Ltd. (1999), Figure 11 identifies the site as the Allied Chemical Brine Wells, but the ESA number has been changed to #31.



DCL did contact ERCA regarding this ESA discrepancy. ERCA indicated that technically, any old fields; naturalized areas along the railway, and the wetland on the western portion of the property would be considered as part of the ESA, but any farmed or disturbed areas area would not have this identification.

As noted, the western portion of the property has been identified by the Ontario Ministry of Natural Resources (OMNR):Chatham District to be within the boundaries of the Canard River Marshes described as "a provincially significant, coastal wetland complex, made up of two individual wetlands, composed of only one wetland type (100% marsh) (Parker 1984)". Based on a wetland boundary site meeting held on May 8, 2008, with officials from OMNR and Essex Region Conservation Authority (ERCA), DCL and the proponent, the proposed "solar farm" proposal will be adjacent to the wetland, as it will be located on lands that are presently being cropped on the eastern portion of the property.

## 2.7 Site Plans (including representations of alternative methods of development)

*Discussion* – The proposed development plan for Site 'B' includes 52 solar panel rows on approximately 140 acres (57 hectares) (refer to **Figure 2.0 - Site 'B' Conceptual Site Plan**).

## 2.8 Existing Land Uses

*Discussion* – The surrounding land uses at Site 'B' are depicted in **Figure 3.0 – Site 'B' Existing Land Use** and described in the following list:

North (to North Townline Road):

- Agricultural land uses;
- Existing residential uses, including low profile, single detached dwellings;
- Provincially significant wetlands; and
- Open space land uses.

East (to Concession 3):

- Agricultural land uses;
- Existing residential uses, including low profile, single detached dwellings; and
- Open space land uses.

South (to Essex Road 10):

- Agricultural land uses;
- Existing residential uses, including low profile, single detached dwellings; and
- Open space land uses.

West (to Front Road):

- Agricultural land uses;
- Existing residential uses, including low profile, single detached dwellings;
- Provincially significant wetlands; and
- Open space land uses.

## 2.9 Existing Ownership Patterns

*Discussion* – The solar energy system is proposed on an industrial-zoned property previously owned by General Chemical of Canada and currently owned by Mr. Loris Collavino (1710690 Ontario Inc.), (1560803 Ontario Inc.), (1681351 Ontario Inc.).

## 2.10 Existing Official Plan Designations and Zoning

*Discussion* – Site 'B' is currently designated Extractive Industrial, Wetland and Natural Environment in Schedule 'A', Land Use Plan for the existing Town of Amherstburg Official Plan (refer to **Figure 4.1 - Site 'B' Official Plan Designations**). Site 'B' is to be designated Extractive Industrial in Schedule 'B-1', Land Use Plan to the Town of Amherstburg's New Official Plan (refer to **Figure 4.2 – Site 'B' New Official Plan Designations**).

The following zoning categories in the Town of Amherstburg Zoning By-Law 2006-61 make up Site 'B': "Holding Recreation/Extractive Industrial 2" (h-RE/EI-2), "Environmental Protection" (EP), "Wetland" (W), and "Agricultural" (A) (refer to **Figure 4.3 – Site 'B' Existing Zoning By-Law**).

## 2.11 Description of Alternative Developments for Subject Lands

*Discussion* – The land use policies for the Extractive Industrial Designation of the Town of Amherstburg Official Plan are found in Section 3:

*The predominant use of land designated Extractive Industrial shall be the extraction of minerals such as sand, gravel, and limestone together with the ancillary uses of aggregate storage, stone crushing plant, overburden storage, administrative offices, scales and accessory uses. Agriculture is also a permitted use.*

In addition, according to the Zoning By-Law 2006-61, the "Extractive Industrial 2" (EI-2) zoning category states:

*Notwithstanding any provisions of this By-Law to the contrary, uses permitted shall be limited to facilities for the extraction of brine and use accessory to the extraction of brine. Agricultural uses are also permitted.*

## 2.12 Proposed Official Plan Designations and Zoning

*Discussion* – The applicant is seeking the following planning approvals for Site 'B':

- A site-specific amendment to the Town of Amherstburg Official Plan to permit a solar energy system as a permitted use under the "Extractive Industrial" designation; and
- A site-specific amendment to Town of Amherstburg Zoning By-law to permit a solar energy system as a permitted use under the "h-RE/EI-2, Holding Recreation/Extractive Industrial 2", "EP, Environmental Protection", "A, Agricultural", and "W, Wetland" zoning designations.



## 2.13 Description of Alternative Developments for Subject Lands

Not applicable.

## 3.0 NATURAL FEATURES/ECOLOGICAL FUNCTIONS

### 3.1 Complete Biological Description of Natural Area

a) Complete plant species inventory spanning the appropriate number of seasons based on recommendations from the relevant Conservation Authority and MNR (taxonomy consistent with Natural Heritage Information Centre (NHIC) database.

*Discussion* – Initial inventories were conducted on and adjacent to the Site by OMNR in 1981 (Oldham, 1983) when brine extraction was underway. Oldham indicated that “*the brine fields at this site contained one of the best assemblages of halophytic (salt-tolerant) plants in southern Ontario. Such associations of halophytes are unusual in inland locations, and there are few in southern Ontario*”.

According to Lansink (2008), the western portion of the subject site was modified by Allied Chemical and a series of internal gravel roads, ditches and a large gravel berm was constructed adjacent to the River Canard, so that the underlying sodium chloride mineral reserve could be extracted. While the sodium chloride extraction ceased in 1999, and the mines were capped in 2003, most of the internal gravel roads (**Appendix A - Photo 1**) and the berm still remain, but the area east and south of the berm has become naturalized.

Open water areas do exist immediately east and adjacent to the berm (**Appendix A - Photo 2**), but as water levels become shallower to the east, the vegetation cover is dominated by a large Common Reed Mineral Shallow Marsh community (**Appendix A - Photo 3**), that is dominated with common reed grass (*Phragmites australis*), with purple loosestrife, Canada thistle, purple vervain, smooth perennial sow thistle, and occasional shrubs of grey dogwood.

Agricultural cropping (**Appendix A - Photo 4**) occurred directly east of the wetland limit, which includes portions of Lots 32 to 35, east to South Riverview Drive/2<sup>nd</sup> Concession Road. The eastern portion of the site is also severed by the Essex Terminal Railway that is approximately 120 to 320 metres from the edge of the wetland.

In 2008, vegetation inventories on-site of the marsh, old field and farmland communities were conducted on May 08 and July 22, respectively. The results of these inventories are shown in **Table 1 – Helios Solar Star Site ‘B’ 2008 Plant List**.

Table 1 – Helios Solar Star Site 'B' 2008 Plant List

Family	Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	Global GRank	COSEWIC	COSSARO	SRank	Native/ Introduced
<b>PTERIDOPHYTES</b>									
EQUISETACEAE	<i>Equisetum arvense</i>	Field Horsetail	0	0	G5	NAR	NAR	S5	N
<b>ANGIOSPERMS - MONOCOTYLEDONS</b>									
CYPERACEAE	<i>Butomus umbellatus</i>	Flowering-rush	0	-5	G5	NAR	NAR	SE5	I
	<i>Cyperus esculentus</i>	Field Nut Sedge	1	-3	G5	NAR	NAR	S5	N
	<i>Juncus torreyi</i>	Torrey's Rush	3	-3	G5	NAR	NAR	S5	N
	<i>Scirpus atrovirens</i>	Black Bulrush	3	-5	G5?	NAR	NAR	S5	N
LEMNACEAE	<i>Lemna minor</i>	Lesser Duckweed	2	-5	G5	NAR	NAR	S5	N
LILIACEAE	<i>Asparagus officinalis</i>	Asparagus	0	3	G5?	NAR	NAR	SE5	I
POACEAE	<i>Agrostis gigantea</i>	Redtop Grass	0	0	G4G5	NAR	NAR	SE5	I
	<i>Bromus inermis ssp. inermis</i>	Smooth Brome	0	5	G4G5	NAR	NAR	SE5	I
	<i>Dactylis glomerata</i>	Orchard Grass	0	3	G?	NAR	NAR	SE5	I
	<i>Echinochloa crusgalli</i>	Barnyard Grass	0	-3	G?	NAR	NAR	SE5	I
	<i>Elymus repens</i>	Quack Grass	0	3	G5	NAR	NAR	SE5	I
	<i>Hordeum jubatum ssp. jubatum</i>	Squirrel-tail Grass	0	-1	G5	NAR	NAR	SE5	I
	<i>Phragmites australis</i>	Common Reed	0	-4	G5	NAR	NAR	S5	N
	<i>Schizachyrium scoparium</i>	Little Bluestem	7	3	G5	NAR	NAR	S4	N
	<i>Setaria pumila</i>	Yellow Foxtail	0	0	G?	NAR	NAR	SE5	I
TYPHACEAE	<i>Typha angustifolia</i>	Narrow-leaved Cattail	3	-5	G5	NAR	NAR	S5	N
<b>ANGIOSPERMS - DICOTYLEONS</b>									
ACERACEAE	<i>Acer negundo</i>	Manitoba Maple	0	-2	G5	NAR	NAR	S5	N
	<i>Acer rubrum</i>	Red Maple	4	0	G5	NAR	NAR	S5	N
	<i>Acer saccharinum</i>	Silver Maple	5	-3	G5	NAR	NAR	S5	N
ANACARDIACEAE	<i>Rhus radicans ssp. rydbergii</i>	Western Poison-ivy	0	0	G5	NAR	NAR	S5	N
	<i>Rhus typhina</i>	Staghorn Sumac	1	5	G5	NAR	NAR	S5	N
APIACEAE	<i>Daucus carota</i>	Wild Carrot	0	5	G?	NAR	NAR	SE5	I
	<i>Pastinaca sativa</i>	Wild Parsnip	0	5	G?	NAR	NAR	SE5	I

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Family	Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	Global GRank	COSEWIC	COSSARO	SRank	Native/ Introduced
APOCYNACEAE	<i>Apocynum cannabinum</i>	Indian Hemp	3	0	G5	NAR	NAR	S5	N
ASCLEPIACEAE	<i>Asclepias incarnata</i> <i>ssp. incarnata</i>	Swamp Milkweed	6	-5	G5	NAR	NAR	S5	N
	<i>Asclepias syriaca</i>	Common Milkweed	0	5	G5	NAR	NAR	S5	N
ASTERACEAE	<i>Ambrosia artemisiifolia</i>	Common Ragweed	0	3	G5	NAR	NAR	S5	N
	<i>Ambrosia trifida</i>	Giant Ragweed	0	-1	G5	NAR	NAR	S5	N
	<i>Cichorium intybus</i>	Chicory	0	5	G?	NAR	NAR	SE5	I
	<i>Cirsium arvense</i>	Canada Thistle	0	3	G?	NAR	NAR	SE5	I
	<i>Cirsium vulgare</i>	Bull Thistle	0	4	G5	NAR	NAR	SE5	I
	<i>Conyza canadensis</i>	Horseweed	0	1	G5	NAR	NAR	S5	N
	<i>Erigeron strigosus</i>	Lesser Daisy Fleabane	0	1	G5	NAR	NAR	S5	N
	<i>Eupatorium maculatum</i> <i>ssp. maculatum</i>	Spotted Joe-pye-weed	3	-5	G5	NAR	NAR	S5	N
	<i>Eupatorium perfoliatum</i>	Common Boneset	2	-4	G5	NAR	NAR	S5	N
	<i>Hieracium sp</i>	Hawkweed Species				NAR	NAR		N
	<i>Lactuca serriola</i>	Prickly Lettuce	0	0	G?	NAR	NAR	SE5	I
	<i>Ratibida pinnata</i>	Gray-headed Coneflower	9	5	G5	NAR	NAR	S2S3	N
	<i>Solidago altissima</i> <i>var. altissima</i>	Tall Goldenrod	1	3	G?	NAR	NAR	S5	N
	<i>Solidago sempervirens</i>	Seaside Goldenrod	0	-2	G5	NAR	NAR	SE2	I
	<i>Sonchus arvensis</i> <i>ssp. arvensis</i>	Field Sow-thistle	0	1	G?	NAR	NAR	SE5	I
<i>Taraxacum officinale</i>	Common Dandelion	0	3	G5	NAR	NAR	SE5	I	
<i>Vernonia gigantea</i>	Ironweed	7	0	G5	NAR	NAR	S3	N	
BALSAMINIACEAE	<i>Impatiens capensis</i>	Spotted Touch-me-not	4	-3	G5	NAR	NAR	S5	N

Family	Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	Global GRank	COSEWIC	COSSARO	SRank	Native/ Introduced
CAPRIFOLIACEAE	<i>Sambucus canadensis</i>	Common Elderberry	5	-2	G5	NAR	NAR	S5	N
CARYOPHYLLACEAE	<i>Saponaria officinalis</i>	Bouncing Bet	0	3	G?	NAR	NAR	SE5	I
CHENOPODIACEAE	<i>Atriplex patula</i>	Spearscale	0	-2	G5	NAR	NAR	S5	N
	<i>Chenopodium album</i> var. <i>album</i>	Lamb's Quarters	0	1	G5	NAR	NAR	SE5	I
CONVOLVULACEAE	<i>Convolvulus arvensis</i>	Field Bindweed	0	5	G?	NAR	NAR	SE5	I
CORNACEAE	<i>Cornus foemina</i> ssp. <i>racemosa</i>	Grey Dogwood	2	-2	G5	NAR	NAR	S5	N
	<i>Cornus stolonifera</i>	Red-osier Dogwood	2	-3	G5	NAR	NAR	S5	N
DIPSACECEAE	<i>Dipsacus fullonum</i> ssp. <i>sylvestris</i>	Common Teasel	0	5	G?	NAR	NAR	SE5	I
ELAEAGNACEAE	<i>Elaeagnus umbellata</i>	Autumn Olive	0	3	G?	NAR	NAR	SE3	I
FABACEAE	<i>Coronilla varia</i>	Trailing Crown-vetch	0	5	G?	NAR	NAR	SE5	I
	<i>Glycine max</i>	Soybean	0	5	G?	NAR	NAR	SE2	I
	<i>Lotus corniculatus</i>	Bird's-foot Trefoil	0	1	G?	NAR	NAR		I
	<i>Medicago lupulina</i>	Black Medick	0	1	G?	NAR	NAR	SE5	I
	<i>Medicago sativa</i> ssp. <i>sativa</i>	Alfalfa	0	5	G?	NAR	NAR	SE5	I
	<i>Melilotus alba</i>	White Sweet-clover	0	3	G5	NAR	NAR	SE5	I
	<i>Melilotus officinalis</i>	Yellow Sweet-clover	0	3	G?	NAR	NAR	SE5	I
	<i>Robinia pseudo-acacia</i>	Black Locust	0	4	G5	NAR	NAR	SE5	I
	<i>Trifolium pratense</i>	Red Clover	0	2	G?	NAR	NAR	SE5	I
GENTIANACEAE	<i>Centaurium erythraea</i>	Common Centaury	0	-4	G?	NAR	NAR	SE3	I
LAMIACEAE	<i>Lycopus uniflorus</i>	Northern Water-horehound	5	-5	G5	NAR	NAR	S5	N
	<i>Nepeta cataria</i>	Catnip	0	1	G?	NAR	NAR	SE5	I
	<i>Prunella vulgaris</i> ssp. <i>lanceolata</i>	Heal-all	5	5	G5	NAR	NAR	S5	N

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Family	Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	Global GRank	COSEWIC	COSSARO	SRank	Native/ Introduced
LYTHRACEAE	<i>Lythrum salicaria</i>	Purple Loosestrife	0	-5	G5	NAR	NAR	SE5	I
MALVACEAE	<i>Abutilon theophrasti</i>	Velvetleaf	0	4	G?	NAR	NAR	SE5	I
	<i>Hibiscus trionum</i>	Flower-of-an-hour	0	5	G?	NAR	NAR	SE4	I
MORACEAE	<i>Morus alba</i>	White Mulberry	0	0	G?	NAR	NAR	SE5	I
NELUMBONACEAE	<i>Nelumbo lutea</i>	American Lotus	10	-5	G4	NAR	NAR	S2	N
ONAGRACEAE	<i>Gaura biennis</i>	Biennial Gaura	4	4	G5	NAR	NAR	S2	N
	<i>Oenothera biennis</i>	Common Evening-primrose	0	3	G5	NAR	NAR	S5	N
OXALIDACEAE	<i>Oxalis stricta</i>	Upright Yellow Wood-sorrel	0	3	G5	NAR	NAR	S5	N
PLANTAGINACEAE	<i>Plantago lanceolata</i>	Ribgrass	0	0	G5	NAR	NAR	SE5	I
	<i>Plantago major</i>	Common Plantain	0	-1	G5	NAR	NAR	SE5	I
POLYGONACEAE	<i>Polygonum persicaria</i>	Lady's Thumb	0	-3	G?	NAR	NAR	SE5	I
	<i>Rumex crispus</i>	Curly Dock	0	-1	G?	NAR	NAR	SE5	I
PRIMULACEAE	<i>Anagallis arvensis</i>	Scarlet Pimpernel	0	4	G?	NAR	NAR	SE4	I
RANUNCULACEAE	<i>Ranunculus sceleratus</i> var. <i>sceleratus</i>	Cursed Crowfoot	2	-5	G5	NAR	NAR	S5	N
ROSACEAE	<i>Fragaria virginiana</i> ssp. <i>virginiana</i>	Common Strawberry	2	1	G5	NAR	NAR	S5	N
	<i>Geum laciniatum</i>	Rough Avens	4	-3	G5	NAR	NAR	S4	N
	<i>Potentilla recta</i>	Rough-fruited Cinquefoil	0	5	G?	NAR	NAR	SE5	I
	<i>Prunus virginiana</i> ssp. <i>virginiana</i>	Choke Cherry	2	1	G5	NAR	NAR	S5	N
	<i>Rubus allegheniensis</i>	Common Blackberry	2	2	G5	NAR	NAR	S5	N
	<i>Rubus idaeus</i> ssp. <i>melanolasius</i>	Wild Red Raspberry	0	-2	G5	NAR	NAR	S5	N
SALICACEAE	<i>Populus deltoides</i> ssp. <i>deltoides</i>	Eastern Cottonwood	4	-1	G5	NAR	NAR	S5	N
	<i>Populus tremuloides</i>	Trembling Aspen	2	0	G5	NAR	NAR	S5	N
	<i>Salix alba</i>	White Willow	0	-3	G5	NAR	NAR	SE4	I
	<i>Salix exigua</i>	Sandbar Willow	3	-5	G5	NAR	NAR	S5	N

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Family	Scientific Name	Common Names	Coefficient Conservation	Coefficient Wetness	Global GRank	COSEWIC	COSSARO	SRank	Native/ Introduced
SCROPHULARIACEAE	<i>Verbascum thapsus</i>	Common Mullein	0	5	G?	NAR	NAR	SE5	I
SOLANACEAE	<i>Solanum dulcamara</i>	Bittersweet Nightshade	0	0	G?	NAR	NAR	SE5	I
ULMACEAE	<i>Ulmus americana</i>	White Elm	3	-2	G5?	NAR	NAR	S5	N
	<i>Ulmus pumila</i>	Siberian Elm	0	5	G?	NAR	NAR	SE3	I
VERBENACEAE	<i>Verbena hastata</i>	Blue Vervain	4	-4	G5	NAR	NAR	S5	N
VITACEAE	<i>Parthenocissus inserta</i>	Thicket Creeper	3	3	G5	NAR	NAR	S5	N
	<i>Vitis aestivalis</i>	Summer Grape	7	3	G5	NAR	NAR	S4	N
	<i>Vitis riparia</i>	Riverbank Grape	0	-2	G5	NAR	NAR	S5	N

Coefficient of Conservatism: Numeric value between 0 and 10 which indicates the degree of faithfulness a plant displays to a specific habitat or set of environmental conditions. Conservative plant species, such as those which are only found in relatively pristine natural habitats such as bogs or prairies, are assigned a high coefficient of conservatism; other plant species which grow in a wide variety of habitats and can tolerate high levels of cultural disturbance are assigned low values.

Coefficient Wetness: Lower negative numbers imply greater correlation with wetland conditions whereas higher positive numbers imply greater correlation with upland conditions.

Global Rank: [Global ranks](#) are assigned by a consensus of the network of CDCs, scientific experts, and [The Nature Conservancy](#) to designate a rarity rank based on the range-wide status of a species, subspecies or variety.

COSSARO: The Committee on the Status of Species-at-Risk in Ontario. COSSARO is the Ministry of Natural Resources (MNR) committee that evaluates the conservation status of species occurring in Ontario, and leads or cooperates in recovery work for species-at-risk in Ontario.

COSEWIC: Committee on the Status of Endangered Wildlife in Canada is a committee of experts that assesses and designates which wild species are in some danger of disappearing from Canada.

SRank: Provincial ranks used by the Natural Heritage Information Centre to set protection priorities for rare species and natural communities. By comparing the provincial ranks, the status, rarity, and the urgency of conservation, needs can be ascertained. [S1 – Critically imperiled in Ontario; S2 – Imperiled in Ontario; S3 – Vulnerable in Ontario; S4 – Apparently secure in Ontario; S5 – Secure in Ontario; SE – Exotic]

5-9



b) Vegetation community description and mapping (consistent with the Ontario Ministry of Natural Resources Ecological Land Classification (ELC) protocols to the vegetation type level.

*Discussion* – General description of Site – OMNR has recently completed wetland mapping for the Canard River Marsh Wetland Complex (CRMWC), and most areas are generically described as marsh. OMNR described the plant communities as a variety of robust emergents, narrow leaved emergents, floating and submergent vegetation forms that line the River Canard coastline (NHIC, 2008). DCL has now completed a more detailed inspection of the Site and the vegetation communities are shown of **Figure 5.0 – ELC Community Mapping**. A brief description of the wetland and upland communities are as follows:

#### *Wetland Communities*

Three distinctive wetland communities occur on the Helios Solar Star site, these include: an open water aquatic community (**Appendix A - Photo 2**), a common reed mineral shallow marsh (**Appendix A - Photo 3**) and a Grey Dogwood Mineral Deciduous Thicket Swamp. A fourth wetland community (i.e. American Lotus floating-leaved shallow aquatic community (**Appendix A - Photo 5**)) occur along the River Canard shorelines to the west and north of the berm.

The Open Water Aquatic Community is well defined in the northwestern corner of the property, but some smaller open water areas also occur immediately adjacent to the access roads. The water depth is at least one metre near the shoreline, and increases to more than two metres in some areas. Submerged vegetation in this area is dominated by stonewort (Chara sp).

As described above, the Common Reed Mineral Shallow Marsh dominates the wetland community which limits the establishment of other species. In areas where the gravel from the access roads had been removed, stolons (i.e. aboveground runners) had begun to establish new plants in areas even where there is no soil.

The Grey Dogwood Mineral Deciduous Thicket Swamp is located to the northwest of the main driveway to the north and south of the "boot-shaped" pond. Grey dogwood (Cornus racemosa) is the dominant shrub, but staghorn sumach (Rhus typhina), common elderberry (Sambucus canadensis), and prickly ash (Zentoxylum americanum) also occur. Herbaceous material is dominated by seaside goldenrod (Solidago sempervirens), purple loosestrife (Lythrum salicaria), common reed grass, Canada thistle (Cirsium arvense) and teasel (Dipsacus sylvestris).

#### *Upland Communities*

Only two small natural communities exist, and these are described in Figure 2 as an Open Mixed Forb Meadow. These are located within the rail right-of-way and in the southeast corner. An inspection of the railway right-of-way found that it is mown on a regular basis; however, in uncut areas it consists of a variety of common agricultural weeds including white clover (Trifolium repens), wild carrot (Daucus carota), teasel, blueweed (Echium vulgare) yellow rocket (Barbarea vulgaris), garlic mustard (Alliaria petiolata), curled dock (Rumex crispus), twitch grass (Agropyron repens), wire-stemmed muhly (Muhlenbergia frondosa), fall panicum (Panicum dichotomiflorum), giant foxtail (Setaria faberii) and red top (Agrostis gigantea). A few

prairie species were also found including Canada bluejoint (*Calamagrostis canadensis*), Little bluestem (*Schizachyium scoparium*) ironweed (*Vernonia gigantea*), and grey-headed coneflower (*Ratibidia pinnata*).

*Agricultural areas* – In 2007 soybean was grown, and in 2008 the winter wheat crop had been recently harvested. These fields were inspected for wildlife activity, but very little was found.

c) Complete faunal inventory (taxonomy consistent with Natural Heritage Information Centre (NHIC) database.

*Birds* – (**Table 2** shows the birds that were observed during site visits).

During site visits approximately twenty-eight species of birds were recorded with most species found within the Common Reed Mineral Marsh or Open Water Communities. While red-winged blackbirds appeared to be the most prevalent species, the Open Water Community appeared to be favoured by many of the water fowl including mallards, mute swan, great blue heron, great egret and yellow-crowned night heron as it provided a large expanse of water that was protected by the berm.



Environmental Impact Assessment  
 "Site B" of the Helios Solar Star A-1 Proposal

**Table 2 – Bird species observed within the Helios Solar Star Site 'B' study area**

Scientific Name	Common Name	Notes	COSEWIC	COSSARO	Grank	Srank
<i>Actitis macularia</i>	Spotted Sandpiper	Observed (6+) - wetland	NAR	NAR	G5	S5B, SZN
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	Many individuals (50+)	NAR	NAR	G5	S5B, SZN
<i>Anas platyrhynchos</i>	Mallard	Observed (2) pair	NAR	NAR	G5	S5B, SZN
<i>Ardea herodias</i>	Great Blue Heron	Within wetland (2)	NAR	NAR	G5	S5B, SZN
<i>Branta canadensis</i>	Canada Goose	Observed (2) pair	NAR	NAR	G5	S5B, SZN
<i>Cardinalis cardinalis</i>	Northern Cardinal	Calling (1) - wetland	NAR	NAR	G5	S5
<i>Carduelis tristis</i>	American Goldfinch	Observed (6) - field	NAR	NAR	G5	S5B, SZN
<i>Casmerodius albus</i>	Great Egret	Observed (2) - Wetland	NAR	NAR	G5	S2B, SZN
<i>Charadrius vociferus</i>	Killdeer	Observed (5+) - field	NAR	NAR	G5	S5B, SZN
<i>Cistothorus palustris</i>	Marsh Wren	Calling (2) - wetland	NAR	NAR	G5	S5B, SZN
<i>Columba livia</i>	Rock Dove	Fly over (2)	NAR	NAR	G5	SE
<i>Cygnus olor</i>	Mute Swan	Observed (10+) - wetland	NAR	NAR	G5	SE
<i>Falco sparverius</i>	American Kestrel	Observed (1) - field	NAR	NAR	G5	S5B, SZN
<i>Hirundo rustica</i>	Barn Swallow	Flyover, wetland (10+)	NAR	NAR	G5	S5B, SZN
<i>Melospiza melodia</i>	Song Sparrow	Calling (2) - field	NAR	NAR	G5	S5B, SZN
<i>Molothrus ater</i>	Brown-headed Cowbird	Observed (2) - wetland	NAR	NAR	G5	S5B, SZN
<i>Nyctanassa violacea</i>	Yellow-crown Night Heron	Observed (2) - Wetland	NAR	NAR	G5	SZB?, SZN
<i>Passer domesticus</i>	House sparrow	Many individuals (20+)	NAR	NAR	G5	SE
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	Observed (1) - flyover	NAR	NAR	G5	S4B, SZN
<i>Picoides pubescens</i>	Downy Woodpecker	Observed (1) - berm	NAR	NAR	G5	S5
<i>Sayornis phoebe</i>	Eastern Phoebe	Within wetland (2), calling	NAR	NAR	G5	S5B, SZN
<i>Scolopax minor</i>	American Woodcock	Within wetland (1)	NAR	NAR	G5	S5B, SZN
<i>Spizella passerina</i>	Chipping Sparrow	Calling, observed (5)	NAR	NAR	G5	S5B, SZN
<i>Tachycineta bicolor</i>	Tree Swallow	Flyover, wetland (5+)	NAR	NAR	G5	S5B, SZN
<i>Tringa solitaria</i>	Solitary Sandpiper	Observed (1) - wetland	NAR	NAR	G5	S4B, SZN
<i>Turdus migratorius</i>	American Robin	Observed (1) - field	NAR	NAR	G5	S5B, SZN
<i>Zenaida macroura</i>	Mourning Dove	Nesting (6) - entire site	NAR	NAR	G5	S5B, SZN
<i>Geothlypis trichas</i>	Common Yellowthroat	Calling (1)	NAR	NAR	G5	S5B, SZN

**Mammals** – (Table 3 shows mammals observed during site visits).

From the two DCL site visits, five mammal species were recorded with all five showing activity near or within the wetland, however, deer and raccoon tracks were found along the railway and near the "boot-shaped" pond. According to Dobbyn (1994), all species encountered on-site are quite common. An inspection of the common reed community in early May, found that there were many "trails" that had been formed by deer from the previous winter. It is DCL's opinion that the relatively tall grass may provide some protection to the deer during the winter months.

**Table 3 – Mammal species observed within the Helios Solar Star Site 'B' study area**

Scientific Name	Common Name	Notes	COSEWIC	COSSARO	Grank	Srank
<i>Mustela vison</i>	Mink	Observed	NAR	NAR	G5	S5
<i>Odocoileus virginianus</i>	White-tailed Deer	Tracks	NAR	NAR	G5	S5
<i>Ondatra zibethicus</i>	Muskrat	Tracks, burrow, feeding activity	NAR	NAR	G5	S5
<i>Procyon lotor</i>	Raccoon	Scat	NAR	NAR	G5	S5
<i>Sylvilagus floridanus</i>	Eastern Cottontail	Observed	NAR	NAR	G5	S5

**Reptiles** – (Table 4 shows reptiles observed during site visits).

During field work, DCL did conduct reptile searches by turning over rocks, abandoned building materials and old logs. While these searches did find any new species, the species observed were found basking within the open areas of the wetland and along the berm.

**Table 4 – Reptile species observed within the Helios Solar Star Site 'B' study area**

Scientific Name	Common Name	Notes	COSEWIC	COSSARO	Grank	Srank
<i>Chrysemys picta marginata</i>	Painted Turtle	Observer (2)	NAR	NAR	G5T5	S5
<i>Nerodia sipedon</i>	Novethern Water Snake	Observed	NAR	NAR	G5	S5

**Amphibians** – (Table 5 shows amphibians observed during site visits).

Amphibian activity was very active within the Common Reed Mineral marsh as at least three frog species were heard calling. Several leopard frogs were found foraging along the access roads as well as within the Grey dogwood mineral deciduous thicket swamp. Their main prey appeared to be nymphal grasshoppers that were very abundant, especially along the access road and along the berm.

**Fish** – In discussions with ERCA, it was discussed that as the wetland area within the Helios Site is hydrologically separated from the Canard River by a larger earthen dyke, and that the network of drains around the wetland site are controlled by a series of valves. Therefore, these control measures would impede the movement of fish between the River Canard and this particular marsh area.



**Table 5 – Amphibian species observed within the Helios Solar Star Site 'B' study area**

Scientific Name	Common Name	Notes	COSEWIC	COSSARO	Grank	Srank
<i>Rana catesbeiana</i>	American Bull Frog	Calling	NAR	NAR	G5	S4
<i>Rana clamitans</i>	Green Frog	Calling, Observed	NAR	NAR	G5	S5
<i>Rana pipiens</i>	Northern Leopard Frog	Calling, Observed	NAR	NAR	G5	S5

An inspection of the open water areas did show that fish were present, Species observed included pumpkin seed, bluegill and green sunfish.

Other – While information on butterflies and dragonflies were not requested by ERCA, DCL has presented a list of these insects in **Table 6** and **Table 7**.

d) Documentation of rare flora, fauna and vegetation communities (rarity status as per Natural Heritage Information Centre (NHIC) database) including a detailed map of the location and distribution of these communities.

*Discussion* – Several significant species were recorded by Oldham during site visits in 1981. This list is present in **Table 8**. Those species that were seen during DCL site visits are shown in bold.

e) Description of soil type (s) for the subject property to the standard of the ELC using Ontario Institute of Pedology (1985) and Ontario Centre for Soil Resource Evaluation (1993) information or other more recent guidelines as recommended by the Conservation Authority or Ministry of Natural Resources.

*Discussion* – According to Richards et al (1939), two soil types occur on the Helios site. The Brookston Clay occurs within the area that is currently farmed, while the Toledo Clay occurs in the wetland area. The Brookston Clay is described as a dark clay over mottled clay with few stones. It has poor natural drainage, but will support many different crops when drained. Currently winter wheat is being grown in the farmed areas.

The Toledo Clay has very similar properties as the BC, but currently is not being farmed due to excessive water.

Soil investigations took places during the July 22, 2008 visit. Several auger samples were taken within the agricultural fields. In general, the topsoil layer was approximately 45 cm deep with light mottles and had a silty clay texture. The subsoil had a similar texture, but had small pebbles and mottling throughout. Free moisture was not encountered within the auger holes which were approximately 100 to 120 cm deep.

**Table 6 – Butterfly species observed within the Helios Solar Star Site 'B' study area**

Scientific Name	Common Name	Notes	COSEWIC	COSSARO	Grank	Srank
<i>Colias philodice</i>	Common Sulphur	Observed (5+)	NAR	NAR	G5	S5
<i>Danaus plexippus</i>	Monarch	Observed (5+)	SC	SC	G4	S4
<i>Everes comyntas</i>	Eastern Tailed Blue	Observed (5+)	NAR	NAR	G5	S5
<i>Papilio glaucus</i>	Tiger Swallowtail	Observed (3)	NAR	NAR	G5	S4S5
<i>Papilio polyxenes</i>	Black Swallowtail	Observed (3)	NAR	NAR	G5	S5
<i>Papilio troilus</i>	Spicebush Swallowtail	Observed (1)	NAR	NAR	G5	S4
<i>Phyciodes pascoensis</i>	Northern Crescent	Observed (5+)	NAR	NAR	G5	S5
<i>Pieris rapae</i>	Cabbage White	Observed (10+)	NAR	NAR	G5	SE

**Table 7 – Dragonfly and damselfly species observed within the Helios Solar Star Site 'B' study area**

Scientific Name	Common Name	Notes	COSEWIC	COSSARO	Grank	Srank
<i>Anax junius</i>	Common Green Darner	Observed (4)	NAR	NAR	G5	S5
<i>Celithemis eponina</i>	Halloween Pennent	Observed (20+)	NAR	NAR	G5	S3
<i>Erythemis simplicicollis</i>	Eastern Pondhawk	Observed (10+)	NAR	NAR	G5	S5
<i>Ischnura verticalis</i>	Eastern Forktail	Observed (10+)	NAR	NAR	G5	S5
<i>Libellula luctuosa</i>	Widow Skimmer	Observed (10+)	NAR	NAR	G5	S5
<i>Libellula pulchella</i>	Twelve-spotted Skimmer	Observed (5)	NAR	NAR	G5	S5
<i>Pachydiplax longipennis</i>	Blue Dasher	Observed (20+)	NAR	NAR	G5	S5
<i>Tramea lacerata</i>	Black Saddlebags	Observed (5)	NAR	NAR	G5	S4

Global Rank: [Global ranks](#) are assigned by a consensus of the network of CDCs, scientific experts, and [The Nature Conservancy](#) to designate a rarity rank based on the range-wide status of a species, subspecies or variety.

COSSARO: The Committee on the Status of Species-at-Risk in Ontario. COSSARO is the Ministry of Natural Resources (MNR) committee that evaluates the conservation status of species occurring in Ontario, and leads or cooperates in recovery work for species-at-risk in Ontario.

COSEWIC: Committee on the Status of Endangered Wildlife in Canada is a committee of experts that assesses and designates which wild species are in some danger of disappearing from Canada.

SRank: Provincial ranks used by the Natural Heritage Information Centre to set protection priorities for rare species and natural communities. By comparing the provincial ranks, the status, rarity, and the urgency of conservation, needs can be ascertained. [S1 – Critically imperiled in Ontario; S2 – Imperiled in Ontario; S3 – Vulnerable in Ontario; S4 – Apparently secure in Ontario; S5 – Secure in Ontario; SE – Exotic]



**Table 8: Significant Species within Allied Chemical Brine Wells (Oldham, 1983)**

Scientific Name	Common Name	Status*	Found During DCL Investigation
<b>Reptiles</b>			
<i>Thamnophis butleri</i>	Butler's Garter Snake	RC,RO	
<i>Elaphe vulpine gloydi</i>	Eastern fox snake	RC,RO	
<b>Amphibians</b>			
<i>Acris crepitans blanchardi</i>	Blanchard's cricket frog	RC,RO,RE	
<b>Vascular Plants #</b>			
<i>Zannichellia palustris</i>	Horned Pondweed	RO,RE	
<i>Najas minor</i>	Smaller Naiad	RE	
<i>Sagittaria rigida</i> (only Essex County location)	Sessile-fruited Arrow-head	RE	
<i>Echinochloa walteri</i>	Saltmarsh Cockspur Grass	RO	
<i>Puccinellia distans</i>	Alkali Grass	RE	
<i>Sporobolus asper</i>	Tall dropseed	RC,RO,RE	
<i>Carex molesta</i>	Sedge	RC	
<i>Cyperus diandrus</i>	Low cyperus	RE	
<i>Cyperus engelmannii</i>	Sedge	RC	
<i>Cyperus ferruginescens</i>	Sedge	RC	
<i>Scirpus acutus</i>	Hardstem bulrush	RE	
<i>Spergularia marina</i>	Sand spurrey	RE	
<i>Nelumbo lutea</i>	American lotus	RC,RO,RE	Yes, adjacent to site
<i>Nuphar advena</i>	Yellow pond lily	RC,RO	
<i>Geum laciniatum</i>	Rough avens	RO	
<i>Strophostyles helvola</i>	Trailing wild bean	RC,RO	
<i>Vicia Americana</i>	Purple vetch	RE	
<i>Euphorbia obtusata</i>	Blunt-leaved spurge	RC,RO,RE	
<i>Gaura biennis</i>	Biennial gaura	RC,RO,RE	
<i>Myriophyllum verticillatum</i>	Whorled water-milfoil	RE	
<i>Anagallis arvensis</i>	Scarlet pimpernel	RE	Yes
<i>Centaureum pulchellum</i>	Branched centaury	RE	
<i>Asclepias verticillata</i>	Whorled Milkweed	RO,RE	
<i>Verbena bracteata</i>	Blue vervain	RO,RE	
<i>Lycopus asper</i>	Western water-horehound	RE	
<i>Aster subulatus</i>	Annual salt-marsh aster	RC,RO,RE	
<i>Bidens coronata</i>	Tickseed sulflower	RC,RO,RE	
<i>Pluchea purpurascens</i>	Salt-marsh fleabane	RE	
<i>Ratibada pinnata</i>	Gray-haired coneflower	RC,RO,RE	Yes
<i>Solidago sempervirens</i>	Seaside goldenrod	RO,RE	Yes

# Both native and introduced rare species are considered here, since the site has been extensively altered by man, and the majority of the significant species are recent introductions.

\*RC = rare in Canada

RE = rare in Essex (see appendices for definitions

RO = rare in Ontario

and criteria)

f) Description of hydrological function of the natural area.

*Discussion* – As Oldham has indicated, the site has been highly disturbed due to brine extraction and the construction of internal roads, creation of ditches and most importantly, the construction of a large berm along the east bank of the River Canard. In discussion with ERCA, it has been agreed that the hydrologic function of this site is isolated from other areas.

g) Documentation of social and economic uses of the natural area (including hunting, trapping, fishing, education, nature appreciation and research studies.

*Discussion* – As indicated, the site was used by Allied Chemicals to extract sodium chloride, but these wells are now capped (Lansink, 2008). As this property is in private ownership and “No trespassing” signs are posted, there are presently no opportunities for hunting, fishing, education, nature appreciation and research studies.

## 4.0 IMPACTS

### 4.1 An explanation of the methods used to determine the effects of the proposed development on the natural features or ecological functions for which the area is identified

Section 5.7 of the *Helios Solar Star A-1 Planning Justification Report (June 2008)* (PJR) discusses possible Technical Considerations that may be of concern. This includes: reflection from solar panels, Noise, Site Servicing, Operation Management Plan, Geotechnical Support, Property Values and others.

### 4.2 Possible aerial extent of the natural area to be affected by the development (indirectly or directly)

*Discussion* – As indicated above, the siting of the proposed “solar energy system” will not be within the wetland, but within the adjacent lands (i.e. 120 metres) to the east of the wetland boundary which are currently being used for agriculture. The only natural area that will be affected will be a small, cultural meadow at the southeastern corner of the site. The conceptual site plan, as depicted in *Figure 2.0 – Site ‘B’ Conceptual Site Plan* will cover approximately 140 acres, and will be divided into 9 areas that will contain approximately 4740 tracker units.

Each tracker unit consists of primary and secondary precast concrete base that is position on-site, and then a series of tilting solar panels is attached. The only excavation will be for the cables that transmit captured energy to the transformer. Several access roads will be required to link the 9 areas, but these will be constructed from gravel. More details can be found on Page 3 of the PJR.

In order to provide flood protection to the proposed “solar energy system”, a new berm will be constructed along the eastern boundary of the wetland. This berm will not interfere with the wetland function, but will provide several benefits that are outlined in the next section (i.e.1.6).



**4.3 Possible environmental effects of the development with emphasis on the natural features or ecological functions for which the area is identified**

Site specific impacts – Currently, the agricultural field provides barrier free access for white-tailed deer and mammals that can travel across the property to forage within the extensive areas of common reed grass within the wetland and with no access barrier.

As indicated earlier, the western wetland portion of the Helios Solar Star Site 'B' has been identified as a significant wetland by OMNR, and as shown in *Figure 5.0 – ELC Community Mapping* would include those communities described as the common reed marsh, open aquatic areas and the grey dogwood thicket mineral marsh. However, it should be noted, that this site has been extensively modified by man and evidence of human disturbance, including an interior road network, is found throughout Site 'B' and the existing berm that forms the west and northern wetland boundary.

It should also be noted that ERCA has indicated that this site, including the wetland communities, are hydrologically isolated from the River Canard. DCL is of the opinion that this long term isolation has also had an influence on its biological communities.

For example, while an extensive community of water lotus does extend to the north and south shores of the River Canard, there was no sign of this species within the open aquatic area on the Helios Solar Star Site 'B'. The water levels in the River Canard also appear to fluctuate, while within the open aquatic areas, the water levels appear to be lower and more stable, thus allowing the adjacent common reed community to thrive and eventually invade shallow water areas.

In order to create a direct negative impact to the wetland, the development would have to destroy or disrupt the wetland community. Wetlands can be destroyed in a number of ways including infilling with subsoil or clean fill; draining through the installation of tile drains; permanent removal of wetland vegetation by grubbing or a combination of all three methods. Measurement of these effects is quite straightforward as measurement and ground truthing of the various wetland communities can be compared from year to year to see if the overall area of the wetland community has decreased.

Indirect negative impacts are usually harder to detect as they may take longer to be noticed in a wetland community. Sometimes, changes may be caused by natural causes such as a beaver increasing the water levels within a swamp community thus causing water tolerant species like white cedar, white birch and red ash to slowly die. However, siting a storm water pond adjacent to a swamp community may also have a similar effect to a treed community especially in late summer when flushes of storm water can upset the ecological balance within the wetland caused by mid summer storms.

As shown in *Figure 1.1 - Subject Site 'B'*, the proposed development will not require the infilling, draining or permanent removal of wetland vegetation.

*Discussion* – For this Impact, DCL will describe how this proposal may affect flora and fauna that currently use the site including the wetland area. DCL has examined the Provincial Policy Statement (PPS) and discussed this in the Helios Solar Star A-1 Planning Justification Report (June 2008).

**4.4 Evaluation of possible future impacts of the proposed development; including subsequent demand that may be generated by the approval of this proposal**

Not applicable.

**4.5 Potential conflicts with existing site-specific habitat management practices.**

Not applicable. (No existing site-specific habitat management practices.)

**4.6 A description of the opportunities on-site to replace restore or create natural features and functions**

As described by Oldham (1983), the activity associated by brine extraction has resulted in a network of access roads and in some areas alkaline soils that favoured the growth of a unique halophytic community. Since 2003 when the wells were capped, surface water has flooded the areas adjacent to the well heads and created marsh communities that are populated with narrow-leaved cattails and stonewort. Many of these ponded areas support waterfowl nesting sites for mute swans and are also being used by green and leopard frogs for breeding habitat. DCL site visits also found that some of the gravel roads adjacent to the wetland community were in the process of being removed.

Perhaps the largest opportunity to recreate a natural feature will be within the agricultural fields to the east of the wetland. While the proposed development will be erected in these fields, the construction practice will not require extensive excavation of topsoil for tracker unit foundations. Tracker units will be placed within the field in a series of rows, but the soil surrounding these units will remain, thus providing opportunities to renaturalize the area with low growing plant material such as old field grasses and forbs, prairie species or low growing shrubs. **Appendix B – Planting Design Conceptual Framework** provides an example of some of the plant species that will be considered among many others. The intention of the matrix is to guide a team of experts, including those at ERCA and the Ministry Natural Resources, towards a planting plan with maximum ecological potential, minimal maintenance, and cultural benefit.

As indicated in Section 1 (g), there are presently no documented social and economic uses of the adjacent wetland area (i.e. hunting, trapping, fishing, education, nature appreciation or research studies) as the site is privately owned and “no trespassing” signs have been posted on the property. The development of the solar farm would provide some opportunities for some social uses such as fishing, education, nature appreciation and research studies on the property as a dedicated trail would be placed on top of the new berm which would be constructed along the western boundary of the proposed solar energy system. This trail would be linked to the trail that is found on the existing berm adjacent to the River Canard. Easy access to fishing could occur within the Open Aquatic areas on the Site ‘B’ property and along the River. Nature appreciation



would include the entire site as many animals including grassland birds would be attracted to the new habitat formed around the tracker units. Education opportunities would also be possible through the establishment of a nature kiosk, viewing platforms around the property and signage.

*Discussion* – As noted above, the area where solar panels will be installed presently consists of crop fields. It should be noted that the construction of the berm to the west of the farm field would provide some topographical relief to an area that is very flat, and provide new microhabitat for wildlife species that require a combination of upland and wetland habitat to complete their lifecycle. Various Carolinian species of trees and shrubs could be planted along each side, and a walking trail could be placed along the top so that hikers and nature enthusiasts could access the western wetland area.

With regard to the potential impact of the solar tracker units on the surrounding environment including the wetland, there will be some disturbance to the soils during the construction period, but all soils under the tracker units will be replanted with low growing vegetation which will require minimal maintenance, and would not require the use of agricultural pesticides and fertilizers that are currently being applied to this area for cropping purposes. For example, this area could be replanted using a prairie seed mix that provides foraging and breeding habitat for a variety of wildlife that frequent this part of Essex County.

#### **4.7 Actions necessary to prevent, change, mitigate or remedy the effects of**

**The Development** – *Discussion* – As noted above, the proposed solar energy system will be located within an agricultural field, and the only natural community that will be replaced will be a cultural forb meadow located at the southeast corner of the property. In terms of barriers to the movement of wildlife, the existing site has been fenced along North Road and the 2<sup>nd</sup> Concession. New fences may be erected, but these will not interfere with animal movement as wildlife species will easily be able to move under, around, or over them.

**The alternative methods to carry out development (such as scheduling the project at a different time of year)** – *Discussion* – The preferred time of year to prepare the site for solar panel installation will be within the summer months when the site is dry. This would reduce the amount of compaction within the soils and allow for easy cultivation of the soil in preparation for the seeding or installation of shrubs and trees.

**The alternatives to the form of the proposed development** – *Discussion* – No alternatives to the proposed development are proposed.

## **5.0 SUMMARY**

### **5.1 Potential Impacts in Relation to the Criteria Outlined Above**

*Discussion* – As indicated above, the proposed solar energy system will be sited within the agricultural fields that are east of the significant wetland. The proposal will not destroy wetland vegetation, therefore, the birds, mammals, reptiles, amphibians and fish within the wetland will

not be impacted. However, the change in vegetation type from agricultural crops (i.e. winter wheat and soybean) to native grasses and forbs should provide improved habitat potential for terrestrial species.

## **5.2 Potential advantages and disadvantages of the preferred development**

*Discussion* – As indicated above and within the Helios Solar Star A-1 Planning Justification Report (June 2008), the advantages of this proposal are numerous. These include, but are not limited to,:

- Production of a green energy source that could supply 5,000 homes or 59% of all homes in the Town of Amherstburg;
- Re-naturalization of farmland which is adjacent to a significant wetland; and
- Opportunities for recreational uses including fishing, education, nature appreciation and research studies.

The disadvantages include – Removal of farmland. (This is considered temporary as the construction method used will not require extensive removal of topsoil. Therefore, the soil capability of this land will still remain). As discussed in earlier sections, the farmland is, in fact, designated "Extractive Industrial" according to the Town's Official Plan.

## **5.3 Alternative methods of carrying out the proposed development**

*Discussion* – No alternative methods are planned.

## **5.4 Mitigation measures**

*Discussion* – Standard mitigation measures during construction will include the installation of silt fencing and straw bale check dams to prevent the migration of sediment towards the wetland. This measure will be key during the construction of the new berm adjacent to the wetland.

To avoid long-term erosion of the soils, all areas of the site, including the berm and area under the tracker units, will be vegetated with a mix of native plant material (see *Appendix B*).

## **6.0 REFERENCE**

Richards, N.R., A.G. Caldwell and F.F. Morwick. 1939. Soil Survey of Essex County: Report No.11 of the Ontario Soil Survey. OMAF

Prince, Silani & Associates Ltd. 1999. County of Essex Official Plan: Discussion Paper No.2.



Lansink, B. 2008. Full "Narrative" Report Current Market Value Estimate as of January 7, 2008, for the real property E/S Sari Lane, Community of Anderton, Municipality of Amherstburg, Ontario.

Oldham, M. J. 1983. Environmentally Significant Areas of the Essex Region. Essex Region Conservation Authority.

## 7.0 CONCLUSION

We trust that the above information is sufficient in meeting the Essex Region Conservation Authority's requirements for a Full Environmental Impact Assessment.

Should you require any additional information, please do not hesitate to contact the undersigned at your convenience.

Yours sincerely,

### **DILLON CONSULTING LIMITED**

Tom Young, B.Sc.Agr. P.Ag  
Senior Terrestrial Biologist

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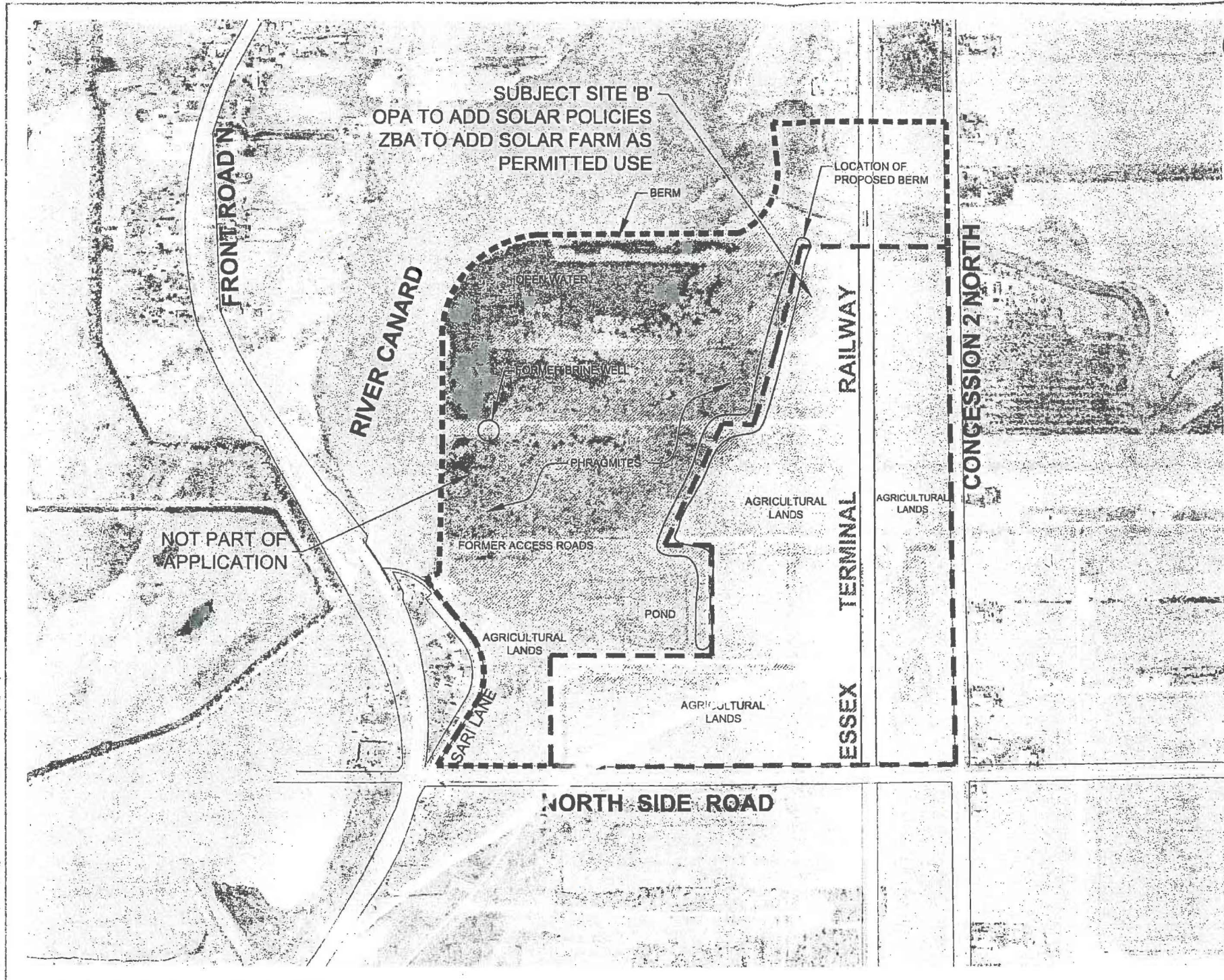
**FIGURES**

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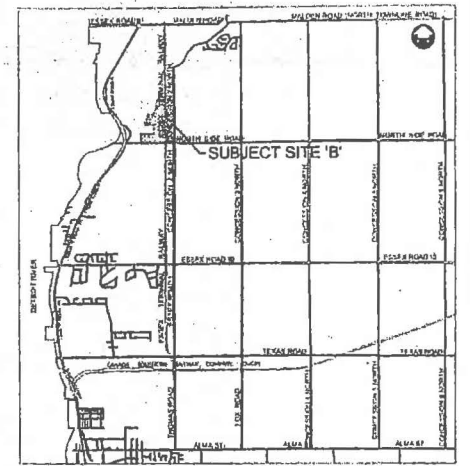
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7V



7



**LEGEND**

-  PROPOSED SOLAR ENERGY SYSTEM
-  PROPOSED MANAGED WETLAND
-  SUBJECT SITE
-  AREA TO BE MAINTAINED AS WETLANDS/BUFFER

**SUNPOWER**  
 Siner Solar

**HELIOS ENERGY**

**EDITION**  
 July 2008  
 Project No. 08-875It-1300

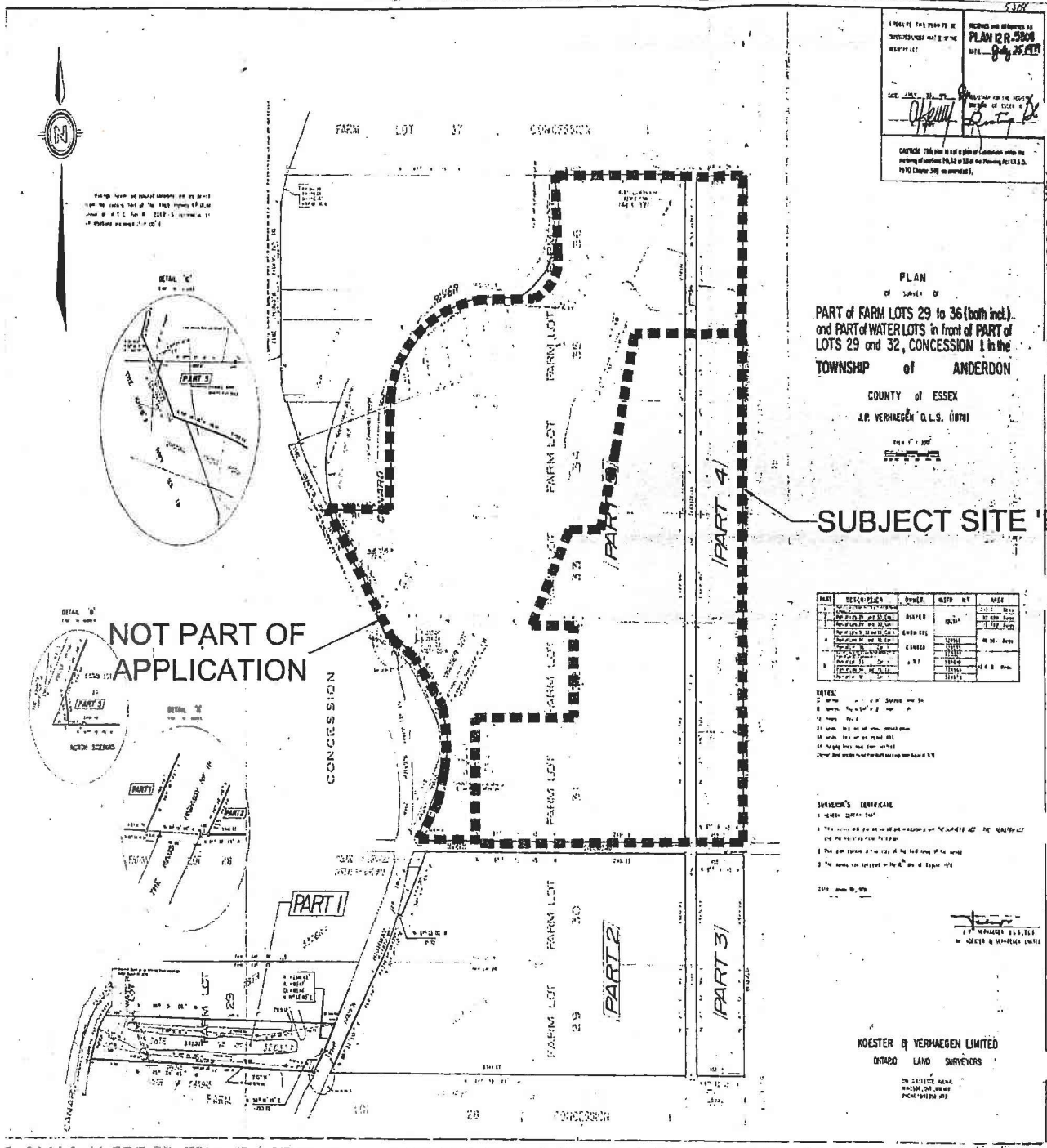
Helios Solar Star A-1

Full Environmental Impact Assessment for Site 'B' in the Town of Amherstburg

**FIGURE 1.1**  
 Subject Site 'B'



75



NOT PART OF APPLICATION

5374  
 RECEIVED AND RECORDED AS  
**PLAN R-3908**  
 DATE: **04/25/08**  
 RECEIVED BY THE COUNTY  
 CLERK OF COURTS  
 OF ESSEX  
 COUNTY OF ESSEX  
 J.P. VERHAEGEN O.L.S. (1971)  
 1110 DUNDAS ST. W. TORONTO, ONT. M6H 1B5

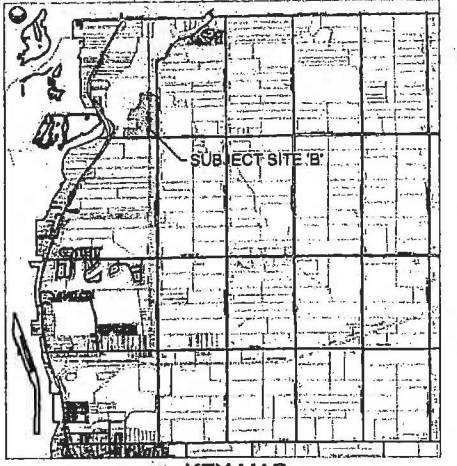
PLAN  
 OF LOTS 29 TO 36 (both incl.)  
 and PART of WATER LOTS in front of PART of  
 LOTS 29 and 32, CONCESSION 1 in the  
 TOWNSHIP of ANDERDON  
 COUNTY of ESSEX  
 J.P. VERHAEGEN O.L.S. (1971)

PART	DESCRIPTION	OWNER	WATER	WET	AREA
1	Part of Farm Lot 29	Private	None	None	0.00
2	Part of Farm Lot 30	Private	None	None	0.00
3	Part of Farm Lot 31	Private	None	None	0.00
4	Part of Farm Lot 32	Private	None	None	0.00
5	Part of Farm Lot 33	Private	None	None	0.00
6	Part of Farm Lot 34	Private	None	None	0.00
7	Part of Farm Lot 35	Private	None	None	0.00
8	Part of Farm Lot 36	Private	None	None	0.00

NOTES:  
 1. The area shown on this plan is the area of the subject site.  
 2. The area shown on this plan is the area of the subject site.  
 3. The area shown on this plan is the area of the subject site.  
 4. The area shown on this plan is the area of the subject site.  
 5. The area shown on this plan is the area of the subject site.

SURVEYOR'S CERTIFICATE  
 I, J.P. VERHAEGEN, O.L.S. (1971),  
 a duly qualified and licensed Surveyor of the Province of Ontario,  
 do hereby certify that the above is a true and correct copy of the  
 original plan as filed in my office on the 25th day of April, 2008.  
 J.P. VERHAEGEN O.L.S. (1971)

KOESTER & VERHAEGEN LIMITED  
 ONTARIO LAND SURVEYORS



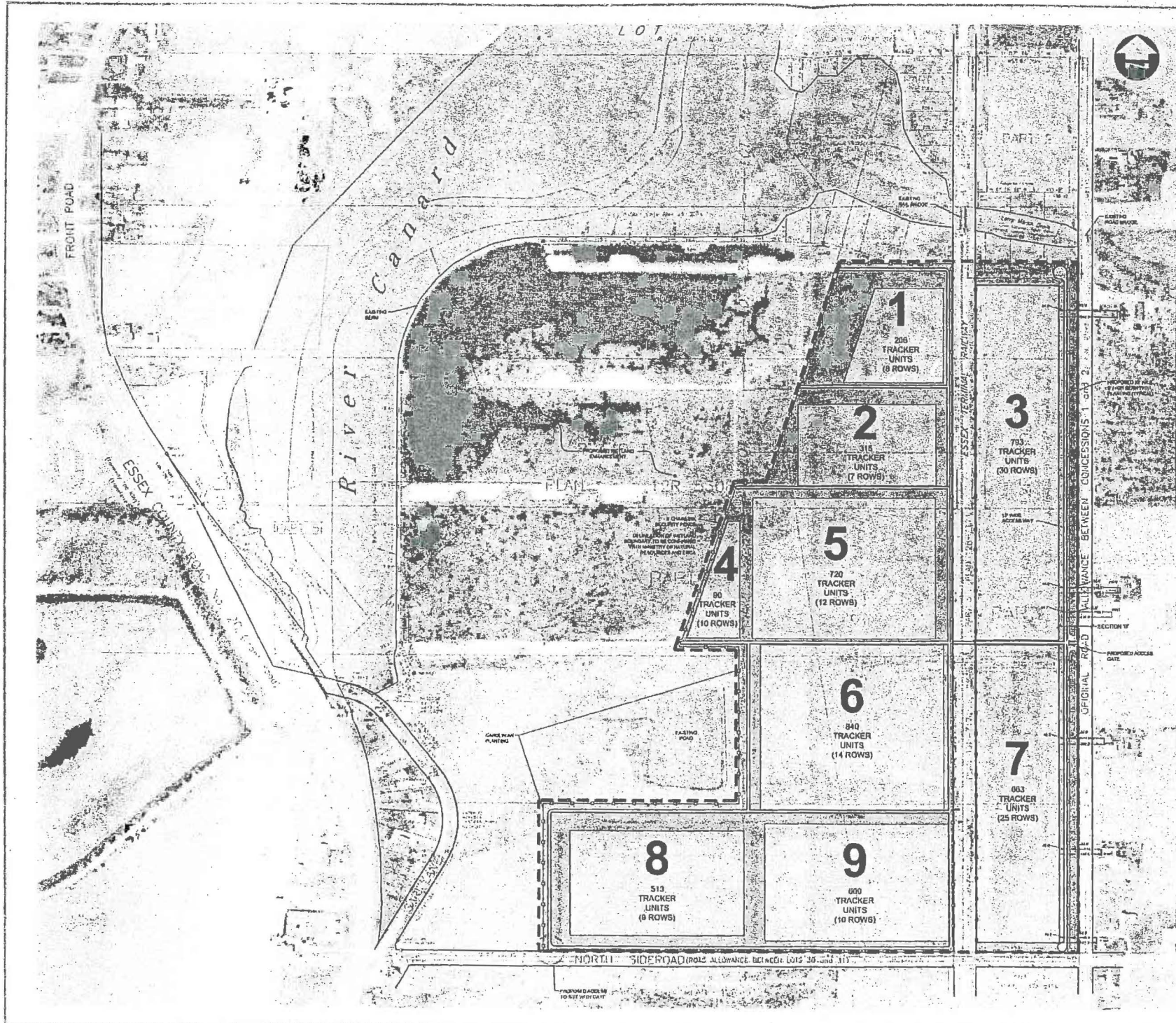
SUBJECT SITE  
 AREA TO BE MAINTAINED AS WETLANDS/BUFFER

**SUNPOWER**  
 HELIOS ENERGY  
  
 DILLON  
 JULY 2008  
 Project No. 08-8758-1300

Helios Solar Star A-1  
 Full Environmental  
 Impact Assessment for Site 'B'  
 in the Town of Amherstburg  
**FIGURE 1.2**  
 Legal Plan  
 Subject Site 'B'



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SUBJECT SITE

SITE STATISTICS

SITE AREA: 57ha (140 acres)  
NO. OF TRACKER UNITS: APPROX 4740 UNITS

Jun 23, 2008 - 1:47pm C:\CAD\080728\01\ EIA\080728\01\ Site Plan - Site B Fig 2\_0.dwg

**SUNPOWER**  
SOLAR SOLUTIONS

**HELIOS ENERGY**

**DILLON**  
CONSULTANTS

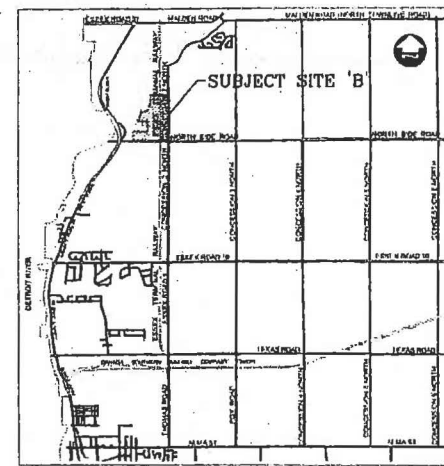
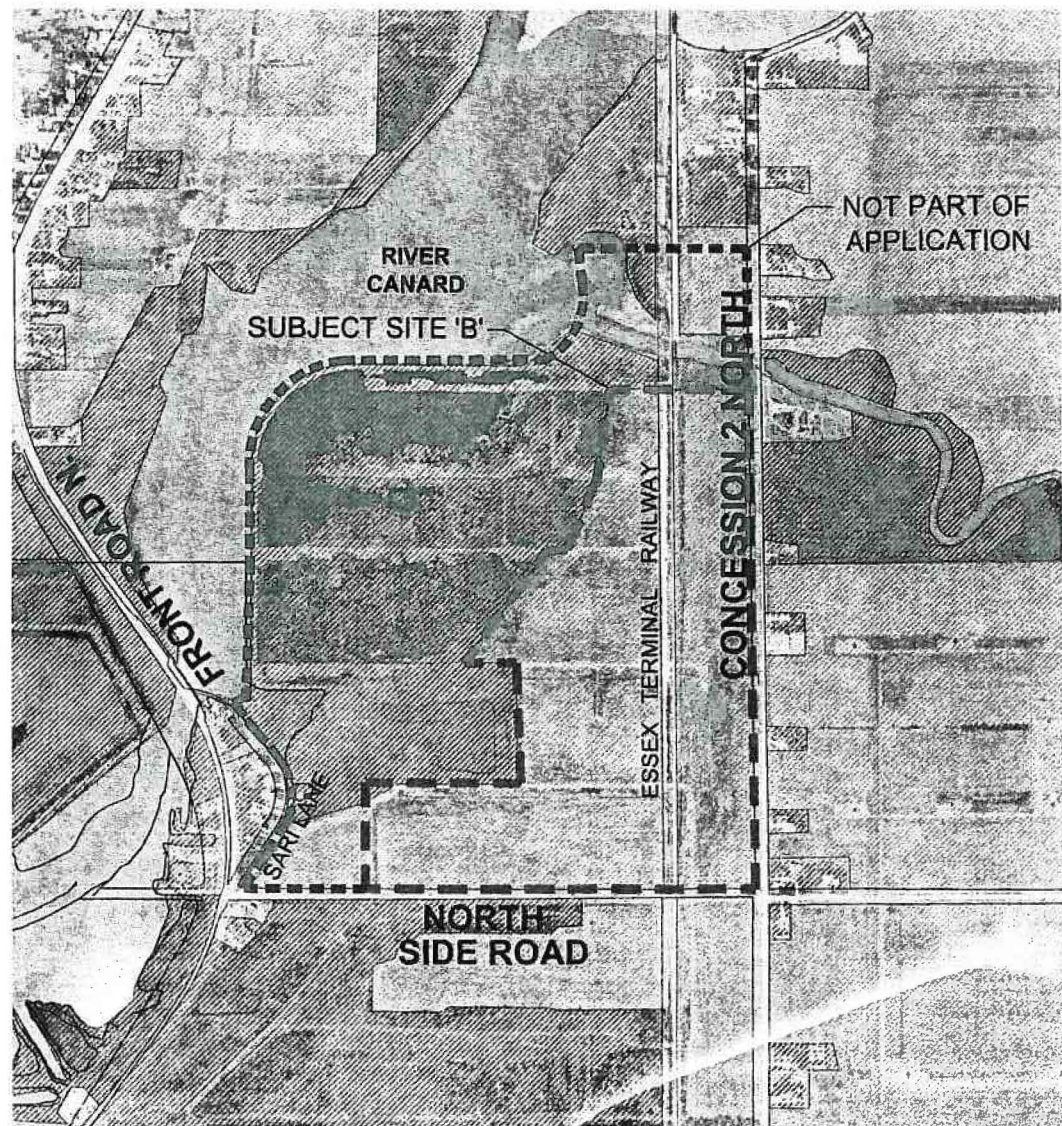
July 2008  
Project No. 08-8758-1300

Helios Solar Star A-1

Full Environmental  
Impact Assessment for Site 'B'  
in the Town of Amherstburg

**FIGURE 2.0**  
Conceptual Site Plan  
Subject Site 'B'





KEY PLAN  
NTS

**LEGEND**

	RESIDENTIAL		INSTITUTIONAL
	COMMERCIAL		AGRICULTURAL
	INDUSTRIAL		OPEN SPACE
	SUBJECT SITE		VACANT
	AREA TO BE MAINTAINED AS WETLANDS/BUFFER		

**SUNPOWER**  
Smarter Solar

**HELIOS ENERGY**

**DILLON**  
CONSULTANTS

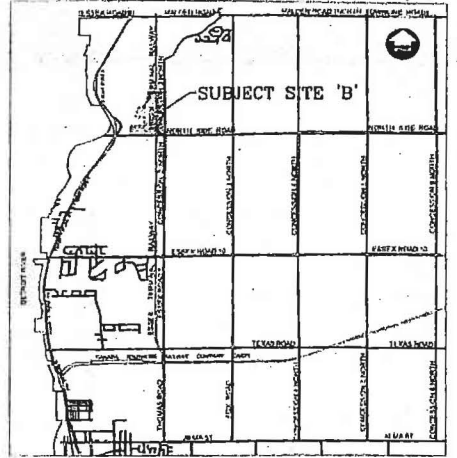
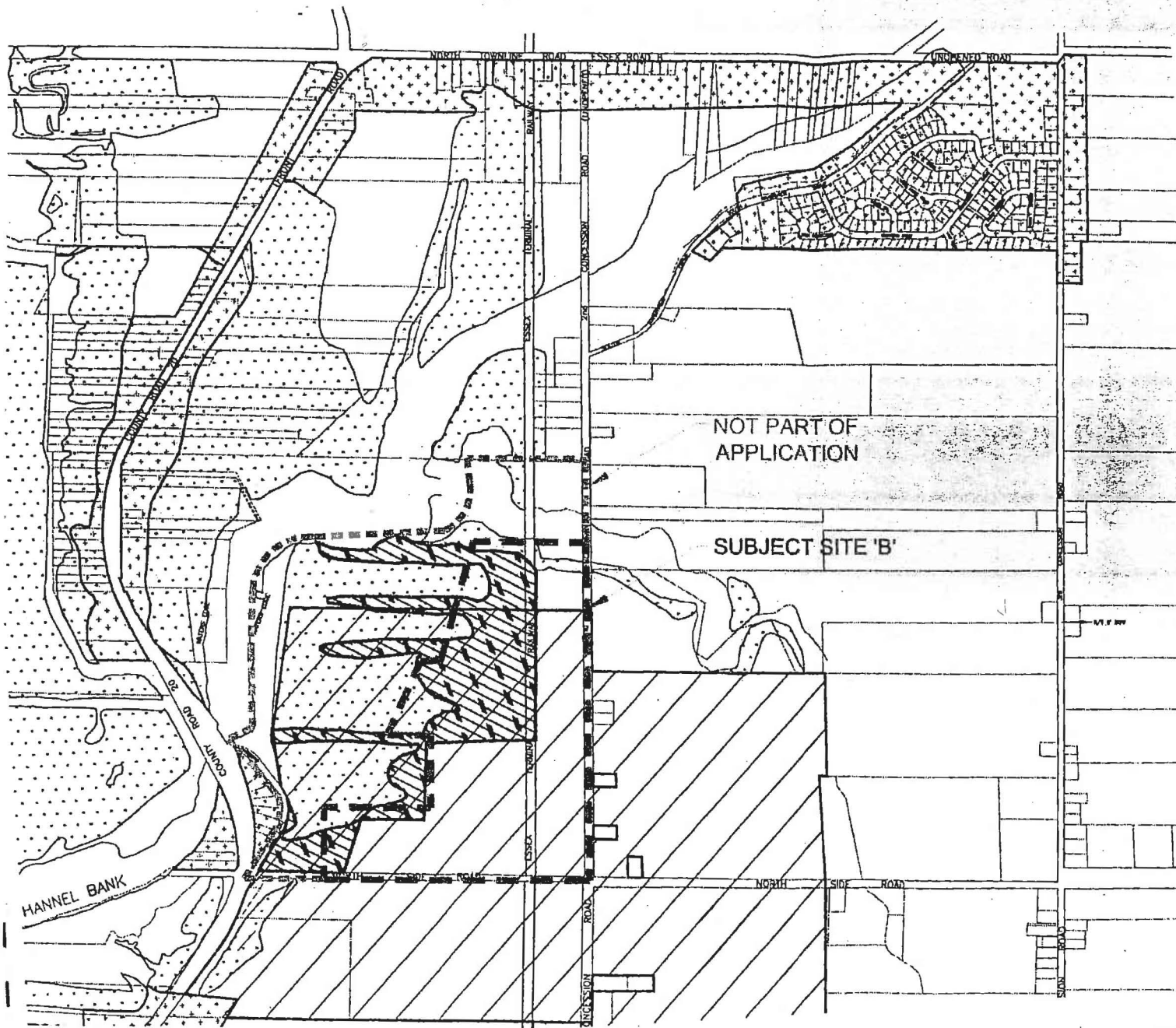
July 2008  
Project No.08-8758-1300

Helios Solar Star A-1

Full Environmental  
Impact Assessment for Site 'B'  
In the Town of Amherstburg

**FIGURE 3.0**  
Existing Land Use  
Subject Site 'B'





KEY MAP

**LEGEND**

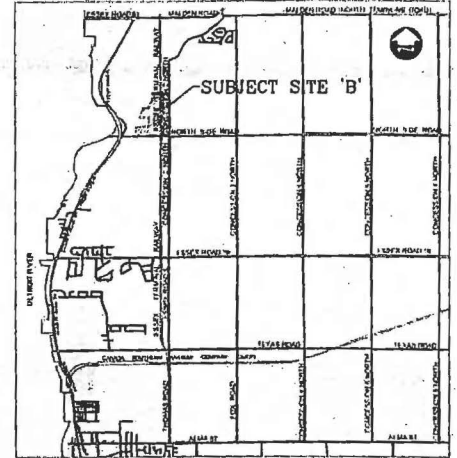
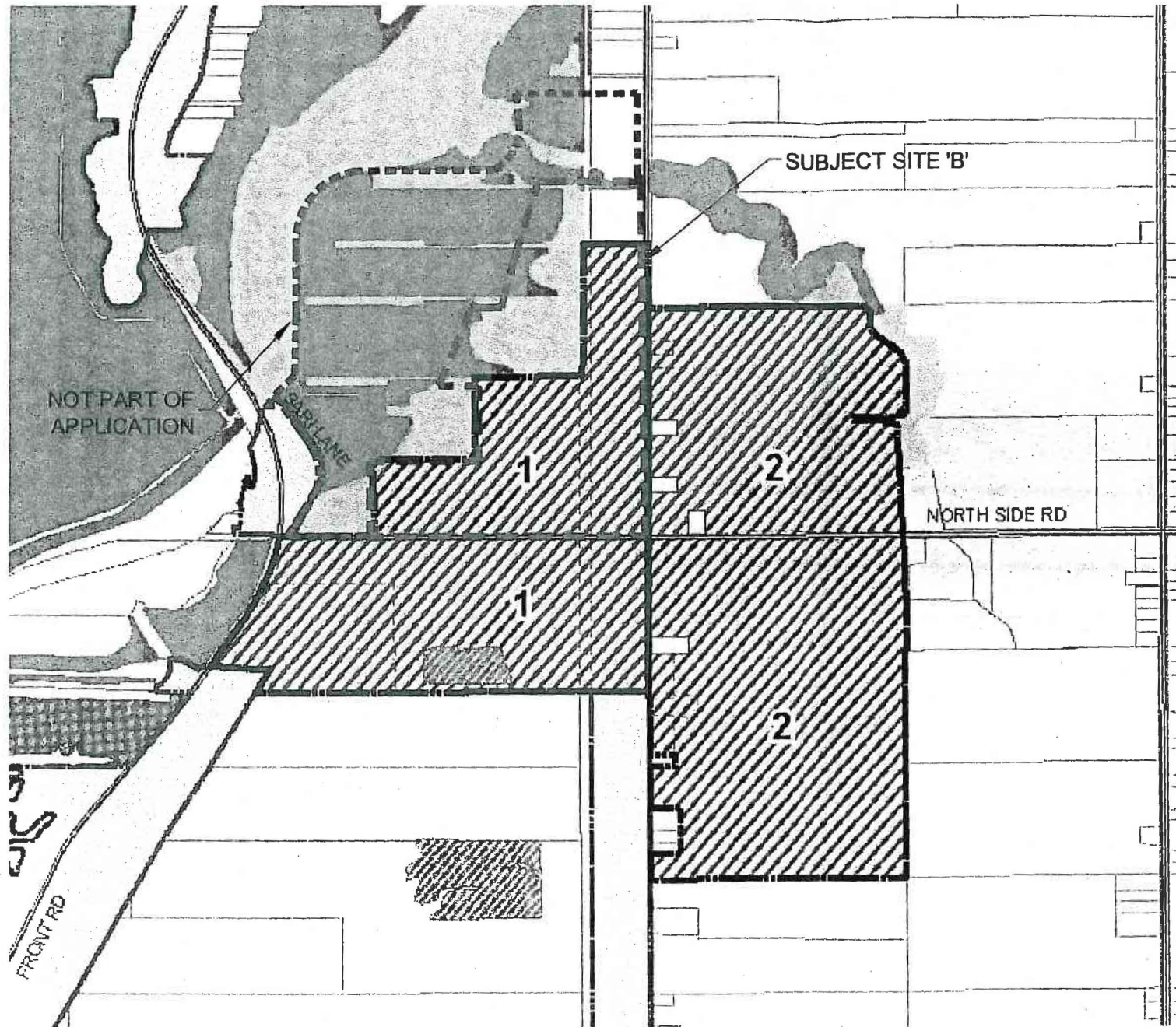
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[Symbol]	RECREATIONAL DEVELOPMENT
[Symbol]	SEWAGE LAGOON
[Symbol]	SUBJECT SITE
[Symbol]	AREA TO BE MAINTAINED AS WETLANDS/BUFFER

Source: Town of Amherstburg Official Plan Schedule 'B-3'

**SUNPOWER**  
 A Division of  
**HELIOS ENERGY**  
 A Division of  
**DILLON**  
 July 2008  
 Project No. 08-8758-1300

Helios Solar Star A-1  
 Full Environmental  
 Impact Assessment for Site 'B'  
 In the Town of Amherstburg  
**FIGURE 4.1**  
 Official Plan Designation  
 Subject Site 'B'





KEY MAP

**Legend**

- Agricultural
- Settlement Area Boundary
- Provincially Significant Wetlands
- Natural Environment
- Woodlots
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Office Residential
- Heritage Residential
- Modular Home Residential
- Neighbourhood Commercial
- General Commercial
- Special Industrial
- Light Industrial
- Heavy Industrial
- Extractive Industrial
- Institutional
- Recreational Development
- Open Space
- Special Policy
- Closed Landfill Site
- Open Landfill Site
- Sewage Treatment Facility

SUBJECT SITE

AREA TO BE MAINTAINED AS WETLANDS/BUFFER

Source: Town of Amherstburg Official Plan Schedule 'B-1'

**SUNPOWER**  
SOLAR ENERGY

**HELIOS ENERGY**

**DILLON**  
CONSULTANTS

July 2008  
Project No. 08-8758-1300

Helios Solar Star A-1

Full Environmental  
Impact Assessment for Site 'B'  
In the Town of Amherstburg

**FIGURE 4.2**  
New Official Plan Designation  
Subject Site 'B'







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File Name: g:\can\03875006758 195.dwg July, 25, 2008 10:31 AM



- Legend:**
- MASM1-12: Common Reed Mineral Shallow March
  - A: Agriculture
  - OAO: Open Water Aquatic
  - SWTM2-3: Gray Dogwood Mineral Deciduous Thicket Swamp
  - SAF1-2: American Lotus Floating - Leaved Shallow Aquatic
  - MEFM4-1: Open Mixed Forb Meadow

Photo Location

Helios Solar Site "B"  
ELC COMMUNITY MAPPING

Proj. Manager:	TPY	Drawn By:	SHZ
Scale:	NOT TO SCALE	Checked By:	TPY
Date Issued:	July 23, 2008	Project No.:	08-8758

Figure No.  
**5.0**



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**APPENDIX A**

**PHOTOS**

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Photo 1 - View of gravel access road adjacent to wetland area.



Photo 2 - View of open aquatic areas.





Photo 3 - View of common reed mineral shallow marsh community adjacent to open aquatic areas.



Photo 4 - View of recently harvested agricultural field.



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Photo 5 - View of extensive mats of American lotus growing within river Canard shoreline.



Photo 6 - View of railway showing mown areas adjacent to taller unmanaged areas.





Photo 7 - View of ironweed (*Vernonia gigantea*).

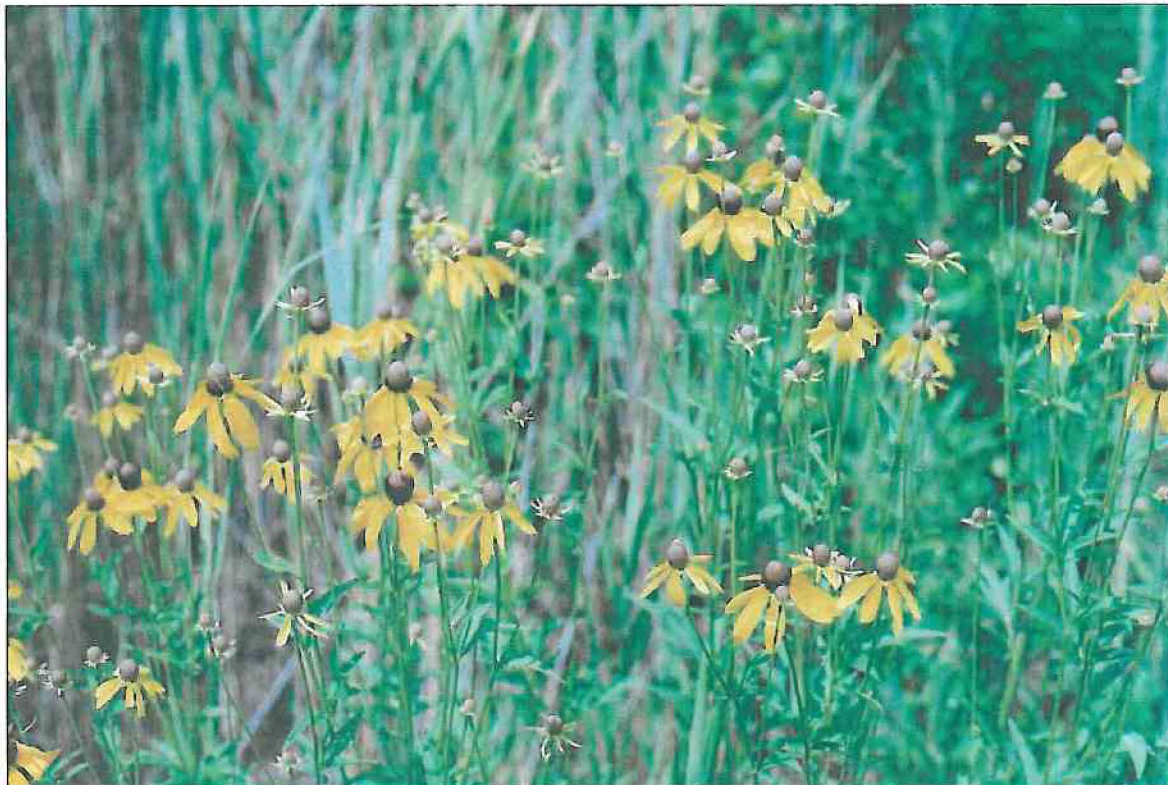


Photo 8 - View of grey-headed coneflower (*Ratibida pinnata*).

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**APPENDIX B**

**PLANTING CONCEPTUAL DESIGN FRAMEWORK**

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HELIOS STAR/SUNPOWER

PLANTING DESIGN CONCEPTUAL FRAMEWORK

LOCATION	GUIDING HABITAT TYPE	SPECIES EXAMPLE	NAME	NATIVE	GROWTH	SOIL/WATER	TOLERANCE	EROSION CONTROL	SUPPORTS	NOTES	FOLIAGE	PLANTING TIMES	MANAGEMENT	TIMES: YEAR 1-5	YEAR 5-30	
UNDER T20	GRASSLAND	ELYMUS CANADENSIS	CANADA WILD RYE	YES	90 TO 150 CM	CLAY, SAND	DROUGHT, SALT	YES	BIRDS	BUNCHGRASS PROVIDES GOOD NESTING, BROOD, WINTER AND ESCAPE COVER FOR BIRDS. GOOD FORAGE FOR OTHER MAMMALS	SEED HEAD: GOLDEN BROWN SOMETIMES PURPLE-TINGED; FALL	SEED	1 MONTH PRECONSTRUCTION, FALL SEASON POST CONSTRUCTION	BI-ANNUAL YEAR ONE/TWO; ANNUAL YEAR 2-5	SELECTIVE MOWING AS NEEDED.	
		HYSTRIX PATULA	ELYMUS HYSTRIX	YES	100 TO 150 CM	LOAM	DROUGHT		BIRDS							
										BUTTERFLIES	SUN/PARTIAL SHADE; DOES WELL ON DISTURBED SITES.	WHITE/CREAM FLOWER HEAD WITH AMBER SEEDS				
SHORT GRASS PRAIRIE	AQUILEGIA CANADENSIS	WILD COLUMBINE	YES	30-90 CM	LOAM		PARTIAL SHADE/DEER	HUMMINGBIRDS, BUTTERFLIES, BIRDS	HOST FOR COLUMBINE DUSKYWING (ERYNNIS LUCILIUS), REPORTED THAT NATIVE PEOPLES RUBBED THE CRUSHED SEEDS ON THE HANDS OF MEN AS A LOVE CHARM. INCREASES RAPIDLY BY SELF SEEDING.	YELLOW, RED/PINK FLOWER [APRIL TO JUNE]	SEED					
	ALKALI MEADOW	SCHIZACHYRIUM SCOPARIUM PUCCINELLA DISTANS	LITTLE BLUESTEM ALKALI GRASS	YES?	45-135 CM	SAND, LOAM	DROUGHT/DEER	BIRDS, BUTTERFLIES	BUTTERFLY LARVAE: SKIPPERS SUCH AS OTTOE, CROSSLINE, AND DUSTED SKIPPER	WHITE CREAM FLOWER HEAD, PURPLE SEED, [AUG-OCT]						
PERIMETER T20	GRASSLAND	PANICUM VIRGATUM	SWITCHGRASS	YES	40-200 CM	ALL	SUN	BUTTERFLY	HOST FOR DELAWARE SKIPPER [ANATRYTONE LOGAN], LACY SPRAYS WITH SMALL SEEDS	PURPLE STIGMAS AT FLOWERING TIME [AUG-OCT]						
SHORT GRASS PRAIRIE	MONARDA FISTULOSA	BEEBALM, WILD BERGAMOT	YES	60-120 CM	CLAY, SAND, LOAM		SUN	BIRDS, HUMMINGBIRDS, BUTTERFLIES	BUTTERFLIES: TIGER SWALLOWTAIL, GREAT SPANGLED FRITILLARY, WOOD NYMPH, MONARCH. GROWS WILD ACROSS FIELDS IN SOUTHERN ON. OIL FROM LEAVES USED TO TREAT RESPIRATORY AILMENTS.	PINK [JUNE-SEP]						
	ALKALI MEADOW	ECHINOCHLOA WALTERI	SALT MARSH COCKSPUR GRASS													
WET MEADOW	SAGITTARIA RIGIDA CAREX MOLESTA	FRUITED ARROW-HEAD SEDE														
ALONG FENCE	SHORT GRASS PRAIRIE	RUDBECKIA HIRTA	BLACK-EYED SUSAN	YES	30-100 CM	SAND	SUN/PARTIAL SHADE	BUTTERFLY HOST	GORGONE CHECKERSPOT BUTTERFLY [CHLOSZYNE GORGONE] PROVIDES HABITAT FOR BUTTERFLIES: DOCUS COPPER, CORAL HAIRSTREAK, SWAMP METAL MARK, GREAT SPANGLED FRITILLARY, MEADOW FRITILLARY, MILBERTS TORTOISE SHELL.	YELLOW [JUNE TO OCT] LONG LASTING						
	WILDFLOWER MEADOW	DESMODIUM CANADENSE	CANADA TICK-TREFOIL	YES	60-180 CM	SAND	SUN/PARTIAL SHADE	HUMMINGBIRDS, BUTTERFLY LARVAE	HOST FOR EASTERN TAILED BLUE, SILVER-SPOTTED SKIPPER BUTTERFLY, HOARY EDGE	PURPLE, PINK [MAR-AUG]						

UPLAND MEADOW	ANDROPOGON GERARDII	BIG BLUESTEM	YES	.9-2.5M	SAND, LOAM	DROUGHT
	SORGHASTRUM NUTANS	INDIAN GRASS	YES	.9 TO 2.4 M	CLAY, SAND	DROUGHT/COMPACT

SHRUB EDGE WITH SMALL TREES VINE

VISITORS CENTER WILDFLOWER MEADOW BERRIES ORCHARDS

LARVAL HOST FOR DELAWARE SKIPPER (ANATRYTONE LOGAN), DUSTED SKIPPER (ATRYTONOPS HIANNA) EXCELLENT FORAGE: GROWS INTO LATE SUMMER AND FALL. PRAIRIE CHICKENS AND SOME SONGBIRDS EAT GRASS.

SILVERY RED TURKEYS FOOT FLOWERS, BRONZE FALL FOLIAGE RICH GOLD AND PURPLE SPRAYS OF FLOWERS AND SEEDS IN FALL.

BUTTERFLY HOST SKIPPER BUTTERFLIES: GOOD FOR DEER

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 CAROLINE BIRIBAUER, FRIENDS OF WATERSHED ORGANIZER WITH ESSEX CONSERVATION AUTHORITY

[HTTP://WWW.CAROLINIAN.ORG/SPECIESHABITATS\\_TGPANDSAVANNA.HTM](http://www.carolinian.org/specieshabitats_tgpandsavanna.htm)  
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