

HEALTH, SAFETY & ENVIRONMENT

Loyalist Solar Project

0900653 Stone Mills, Ontario

Traffic Management Plan







PROJECT SPECIFIC HEALTH, SAFETY & ENVIRONMENTPLAN PROJECT TRAFFIC MANAGEMENT PLAN

Loyalist Solar Project 0900653

Prepared By:		Nick Vastano	February 7, 2017						
Reviewed By:		Michelle Morrison	Date:	February 7, 2017					
			Data						
P	Approved By:	Syed Reza	Date:	February 7, 2017					
Tab	le of Contents								
1	INTRODUCTION								
1.1	Report Objectives.			3					
2	PROJECT SPECIFIC	CONSIDERATIONS		3					
2.1	Overview of Const	ruction Activities		4					
2.2	Project Plot Plan			4					
2.3	2.3 Proposed Construction Traffic Routing								
2.3.1 Description of Primary Roadway(s) or Intersection(s) Connected to Project									
2.3.2 Loyalist Traffic Control Mapping									
3 ES	TIMATED VOLUME	AND TRAFFIC TYPES		8					
3.1	Expected Traffic In	ipacts		8					
3.2 Estimated Traffic Volumes									
4 SL	ITABILITY OF PROPO	DSED ROAD ALLOWANCE		9					
4.1	Detour Route Policy			9					
4.2	Permit Requirement	s and Restrictions							
5 TR	AFFIC MITIGATIONS								
5.1	Measures to Ensure	Construction Traffic Use Identified Route	es						
5.2	Measures to Preven	t or Minimize Effects of Construction Tra	ffic						
6 OVERSIZED LOADS, PERMITTING, AND SEASONAL ROAD RESTRICTIONS									
7 TRAFFIC CONTROL DEVICE REQUIREMENTS									
8 TRAFFIC CONTROL SUPERVISION AND MONITORING13									
8.1 PCL (Constructor)									
8.2	Subcontractors			14					
9 SI	TE IDENTIFICATION	AND SECURITY							
10 C	CONNECTION LINE SE	PECIFIC TRAFFIC MANAGEMENT PLAN							
10.1	Specific Road Plans								
11 A	PPENDICES								





1 INTRODUCTION

Loyalist Solar Project is a 54 MW solar project located in the Township of Stone Mills and the County of Lennox and Addington. The solar project will be built on four blocks over six properties and will also include a connection line traveling approximately 12 km north to a substation. The project layout can be found in Figure 1. This document is the proposed Traffic Management Plan and will be adhered to throughout construction. This document will be updated accordingly as construction progresses.

1.1 Report Objectives

As required under the Occupational Health and Safety Act and Regulations for Construction Projects, the Ontario Traffic Manual: Book 7 Temporary Conditions and the Road Use Agreements with both County of Lennox and Addington and the Township of Stone Mills, the Loyalist Solar Project has developed this Traffic Management Plan to:

- Provide protection for workers who may be endangered by vehicular traffic
- Minimize impacts of project related traffic to the surrounding community
- Protect vehicular and/or pedestrian traffic that may travel on the approved haul route that includes portions of County Road 41, Hinch Road, Centreville Road, County Road 27, Marlin Road, Edges Road, Murphy Road and Sheffield Bridge Road
- Provide consideration to the most convenient route for vehicular and/or pedestrian traffic throughout the duration of this project.

A copy of both the OHSA and the Ontario Traffic Manual: Book 7 Temporary Conditions will be available for review at the PCL project office.

2 PROJECT SPECIFIC CONSIDERATIONS

The following section of the Loyalist Solar Project Traffic Management Plan has been developed to outline project specific details including:

- Overview of construction activities
- Project Plot Plan
- Primary Roadway(s) or Intersection(s)
- Proposed construction traffic routing





2.1 Overview of Construction Activities

Through the construction of the Loyalist Solar Project multiple construction activities will take place. They include but are not limited to the following:

- Tree clearing and grubbing
 - Remove trees and brush as specified, remove stumps below grade
- Fence installation
 - Grade area, drill post holes and install fence
- Road construction
 - Grade area, import fill, compact fill, re-grade
- Foundation installation
 - Layout locations, pre-drill rock sockets, excavate spread footing areas, form and pour concrete for spread footings, install piles and secure with concrete
- Racking
 - Piece by piece assembly of module supports
- Module installation
 - o Installation of modules, perform electrical connections and testing
- Trenching and cable installation
 - Excavate or blast trenches, clear debris, lay bedding sand, lay/pull cables through trenches, test and backfill and compact as perdesign
- Overhead/underground pole installation and stringing
 - Clear and grub connection line, install poles, excavate trenches, string cables, test, backfill
- Substation steel erection
 - o Grade and excavate area, establish foundational support, piece by piece assembly
- Tree planting and landscaping
 - Establish desired screening areas, import trees for screening, seed solar field and maintain visual appearance of site

2.2 Project Plot Plan

A Project Specific Plot Plan has been developed to communicate the location of key site features to all workers and visitors to the Loyalist Solar Project. The Plot Plans contain the location of the following:

- Adjacent streets or intersections
- Access gates
- Perimeter fencing configuration
- Emergency assembly area(s)/muster point(s)
- PCL project office and Subcontractor offices (if applicable)
- First aid kits
- Spill kit(s)
- Designated storage / laydown area (if applicable) project specific information

A copy of the Project Specific Plot Plan will be posted on the project safety bulletin board. Plot plans for each site are available in Appendix A1 –A3







Figure 1: Project Layout





2.3 Proposed Construction TrafficRouting

23.1 Description of Primary Roadway(s) or Intersection(s) Connected to Project

Street or Road Name:	Designated Access/Egress Gate Involved:
Centreville Road, Rattie Road, Hinch Road, Sharpes Corner	Site A – Centreville Road, Gate#1
Road, Howes Road, Miller Road and County Road 41	Site B – Hinch Road, Gate#2
	Site C – Hinch Road, Gate #3
Stone Mills, Ontario, Canada	Site D – Hinch Road, Gate #4
	Substation - Miller Road
Lane Description:	Direction of TrafficFlow:
Rural gravel road and paved roads	Both ways
Unique Considerations: N/A.	Anticipated Peak Periods of Traffic Volume:
	7 am – 9 am and 3 pm - 5pm
Anticipated Traffic Volume & Lane Descriptions:	
Centreville Road – (10-20 Vehicles per Hour) – Paved Road Su	urface
Rattie Road – (1-5 Vehicles per Hour) – Rural Gravel Road Su	rface
Hinch Road – (5-10 Vehicles per Hour) – Rural Gravel Road Su	urface
Edges Road – (5-10 Vehicles per Hour) – Rural Gravel Road Su	Irface
Sharpes Corner – (5-10 Vehicles per Hour) – Paved Road Surf	face to Rural Gravel Road Surface
Howes Road – (1-5 Vehicles per Hour) – Mix of Paved Road S	urfaces and Gravel Road Surfaces
Miller Road - (5-10 Vehicles per Hour) – Rural Gravel Road Su	rface
County Road 41 – (200 – 300 Vehicles per Hour) – Paved Roa	d Surface
County Road 27 – (25-50 Vehicles per Hour) – Paved Road Su	Irface
Temporary Traffic Control Person(s) Required: SeeAppendixA5	5.
Tools and Equipment Required: See AppendixA4& A6.	
Additional Signage or Delineation Devices Required: See App	endix A4, A6 & A9.
Traffic Control Activity: See Appendix A7 & A8.	
Traffic Control Activity Henrydo, Delivering and Connection Lin	- Construction
I rattic Control Activity Hazards: Deliveries and Connection Lin	le construction.
Creating (Additional TTCD Instructions to Control Haranda, Con	Amondia Addaman AQ
specific / Additional Free instructions to control hazards. See	e Appendix A4 through Ao.
Delivery Routes: These Routes are provided to Suppliers at time	e of Procurement
Delivery Route Site A	
County Road 41> Centreville Road>Entrance	
Delivery Route Site B	
County Road 41> Sharpe's Corners Road> Hinch Road>Fi	ntrance
Delivery Route Site C	
County Road 41> Sharpe's Corners Road> Hinch Road>F	ntrance
Delivery Route Site D	
County Road 41> Sharpe's Corners Road> Hinch Road>Fi	ntrance
Substation Delivery Route	
County Road 41> Howes Road> Miller Road>Entrance	
,	





232 Loyalist Solar Project Traffic Control Mapping

Figure 2 below shows the proposed construction traffic routing. It indicates delivery routes, routes to be used by construction traffic, signage and exclusion fencing. The roads indicated in this mapping will be affected by project construction traffic. This map will be used to help communicate to trades and delivery drivers specific access routes, areas of interest regarding turtles as well as areas of active construction. This map will be posted in PCL's on-site orientation office to ensure proper exposure to all those who arrive on site.

Deliveries will be restricted to the delivery routes shown in Figure 2 on County Road 41, Miller Road, Centreville Road, Hinch Road, Rattie Road and Sharp Corners Road. Site entrances will be clearly marked off these routes. Active construction for the connection line will be taking place along the route labeled in Figure 2. Delivery signage will we posted along routes as indicated to ensure the routes are adhered to.



Figure 2: Proposed Construction Traffic Routing





3 ESTIMATED VOLUME AND TRAFFIC TYPES

3.1 Expected Traffic Impacts

Traffic is expected to be impacted in multiple ways during construction. Local traffic will be impacted by increased traffic volumes of cars, trucks and heavy machinery. During major construction, lane closures and detours will occur periodically throughout the connection line route. Traffic congestion may occur at areas with high vehicle concentrations such as the corner of County Road 41 and Sharpes Corners Road.

3.2 Estimated Traffic Volumes

Traffic volumes and types shall vary throughout the duration of the project and are shown below in *Table 1*. Deliveries for construction as well as construction traffic from workers and equipment will increase the volumes of traffic on roads in the project area.

Initial clearing and grubbing will be limited to approximately 30 workers on site and expected traffic will be minimal. Major site works such as piling, racking and electrical installation is expected to occur from April to August averaging approximately 150 -200 workers on site. Vehicular traffic will be kept to a minimum. Subcontractors shall carpool and use multi passenger vehicles. The nearest carpool location established for the 400-series highway is located at County Road 41 Carpool Lot. Other surrounding carpool locations include Ministry of Transportation (MTO) carpool lot in Odessa, and Hwy 49 Marysville Road carpool lot in Marysville. Moderate work levels are expected from September until project completion with an average of approximately 50 workerson-site.

Construction Activity	Source Location	Planned Delivery Date	Delivery Completion Date	Estimated Traffic Types	Estimated Quantity of Trucks/ Day	Estimated Total Quantity of Trucks	Oversize/ Overweight (Y/N)	Half Load Restrictions
Piles	Harrow, Ontario 200 Clark St., ON, NOR 1GO	April 16, 2018	August 22, 2018	52' Flat Bed Transport Trucks	3	64	N	Y
Racking	2550 Steeles Ave E, Brampton, ON L6T 5R3	May 1, 2018	September 6, 2018	52' Flat Bed Transport Trucks	3	64	N	N
Combiner Boxes	164 The West Mall, Etobicoke, ON	June 8, 2018	July 20, 2018	52' Flat Bed Transport Trucks	2	21	N	N
DC/AC Cables	401 Eastbound	April 16, 2018	July 17, 2018	52' Flat Bed Transport Trucks	1	33	N	Y
Inverter Skids	164 The West Mall, Etobicoke, ON	August 2, 2018	September 14, 2018	52' Flat Bed Transport Trucks	1	22	Y	N
Modules	2860 Innovation Drive London, Ontario N6M-0C5	June 15, 2018	October 24, 2018	52' Flat Bed Transport Trucks	4	66	N	N
Main Substation Equipment	560 Sheldon Dr, Cambridge, ON N1T 0A4	June 1, 2018	November 20, 2018	52' Flat Bed Transport Trucks	1	25	Y	N
Substation Transformer	560 Sheldon Dr, Cambridge, ON N1T 0A4	June 1, 2018	June 1, 2018	52' Flat Bed Transport Trucks	1	1	Y	N
Concrete	Lennox and Addington County Rd 41, Napanee, ON K7R 3L4	April 5, 2018	October 6, 2018	Concrete Trucks	2	92	N	Y
Sand	308 Ridge Road, Prince Edward, ON	May 6, 2018	October 6, 2018	50 Ton Dump Truck	2	77	N	N
Gravel	8243 2, Napanee, ON K7R 3K6	April 5, 2018	October 6, 2018	50 Ton Dump Truck	3	92	N	Y
Backfill	21 Steve Fonyo Dr, Kingston, Ontario, Canada, K7M 8P1	April 5, 2018	October 6, 2018	50 Ton Dump Truck	3	92	N	Y
		Estimated Da	ily Loads expected to increase due	to Half Loading Requirme	nts (March 1st - April 30th)			

Table 1: Estimated Total Delivery Traffic Volumes, Types and Source Locations





4 SUITABILITY OF PROPOSED ROAD ALLOWANCE

As required by the Township of Stone Mills and the County of Lennox and Addington in the respective Road Use Agreements, a Pre-construction road study was completed in April, 2017 to evaluate the existing road conditions within the project limits. A total of 41 km of road was studied and inventoried by Tulloch Engineering Inc. Individual road segments were driven, video logged, and assigned a condition rating in accordance with the MTO Manuals for Condition Rating.

From this study, County Road 41 and County Road 14 were assumed to be of adequate condition to accommodate heavy truck traffic. In general, the hard surface roads within the project limits were rated in good condition, with the exception of the northern section of County Road 27 which was found to be in average condition. Based on the layout of the Loyalist Solar Project and the proposed delivery routes, Centreville road will see the highest amount of heavy truck traffic during construction of all the hard-surfaced roads. Centreville Road was found to be in good condition with excellent drainage and therefor the likelihood of damage is low.

The condition of the gravel surface roads within the project boundary vary. Roadside drainage ranges from poor to good condition. Based on the layout of the Loyalist Solar Project and the proposed delivery routes, Hinch Road and Rattie Road will see the highest amount of heavy truck traffic during construction of the gravel surface roads. Marlin Road, Edges Road, Murphy Road, Miller Road, and Sheffield Bridge Road will see some heavy truck traffic for the connection line installation and substation deliveries. It is reasonable to assume there may be localized breakup from repetitive trucktraffic. Repairs will be made as needed as required by the Road Use Agreements and securities will be provided. Please refer to the Pre-Construction Road Study performed by Tulloch found in Appendix A10.

4.1 Detour Route Policy

If the need for a detour to site arises, PCL will work with BluEarth Renewables to alert all affected residents and agencies (such as the school board, postal service, and emergency services) at least 5 days prior of expected construction traffic. PCL will work with affected traffic to minimize impacts to everyday activities of surrounding residents. As stated in section 5.4 of the Township Road Use Agreement and Section 4.3a of the County Road Use Agreement, all emergency and school board services will be notified as well during the use of all detours. Additionally, the County and Township shall be informed of all detour routes prior to their use, roads will be reopened to the public during off work hours.





4.2 Permit Requirements and Restrictions

All permits and road restrictions will be accounted for during the entire project duration as follows: Half loading requirements are as follows;

- County Roads (March 1st April 30th, refer to Appendix A11)
- Township Roads (March 1st April 30th, refer to Appendix A11)
- All oversized/overweight permits will be obtained prior to deliveries
- All road maximum loading restrictions shall be abided by and deliveries minimized during these sensitive time periods

All construction activities will be in accordance with the Township and County Road Use Agreements, the relevant by-laws, and the Highway Traffic Act. Please see Section 6 for further information on oversized/overweight deliveries.

5 TRAFFIC MITIGATIONS

5.1 Measures to Ensure Construction Traffic Use Identified Routes

With multiple deliveries a day, construction traffic must be aware of and strictly follow site access routes indicated by PCL. The various controls that will be implemented to minimize traffic effects are listed below:

- Prior to their first arrival on site, all Subcontractors shall review the proper site access routes as shown in Section 2.3.2, Figure 2.
- A control checklist will be managed to track all Subcontractors and confirm the correct route was used for arrival.
- All access routes will be marked with signage to visually confirm for drivers that they are on the correct route.
- County Road 41 will be marked with routing identifiers for all delivery drivers at Sharpe's Corner Road, Centreville Road, Howes Road, and Miller Road.

5.2 Measures to Prevent or Minimize Effects of Construction Traffic

Multiple controls will be implemented to minimize speed, noise, mud, and airborne particulates to ensure all existing traffic and area residents are minimal effected. The following controls will be implemented:

- Maximum speed signs will be utilized to communicate acceptable speeds to all delivery drivers and workers arriving and departing from all sites.
- Visual inspections will be performed on all departing vehicles from site to control the spread of materials from each site.
- Mud matts will be placed at all site entrances and exits to minimize mud spread.
- All work will be performed on average from 7:00am to 5:00pm to eliminate noise during evenings and post-work hours.
- All deliveries will be staggered to reduce congestion on surrounding roads.
- Dust suppression through the use of water and use of calcium chloride spread near site access points in consultation with the Township of Stone Mills and the County of Lennox and Addington
- Snow removal if required will be performed by civil trades using loading machinery
- Daily inspections of the road surfaces and road allowances as per section 4.1c of the Road Use Agreement with the County of Lennox and Addington and section 4.4g of the Road Use Agreement with the Township of Stone Mills.





6 OVERSIZED LOADS, PERMITTING, AND SEASONAL ROAD RESTRICTIONS

An oversize/overweight permit is required when the dimensions or weight of a vehicle(s) exceeds the normal limits permitted by legislation. The following is a breakdown of the weight and dimension limitations as specified in the Highway TrafficAct.

- Max width: 2.6 meters
- Max length: 12.5 meters
- Max Length combination: 23 meters
- Maximum height: 4.15 meters
- Maximum weight: Allowances are determined using axle configurations and spacing. A permit is required if the axle and/or gross vehicle weight exceeds the limits set out in the HTA.

The Province of Ontario issues permits for oversize/overweight vehicles and/or loads when the dimensions and/or weight exceed the limits set out in the Highway Traffic Act. Permits are issued for indivisible vehicles and/or loads when, if separated into smaller loads or vehicles, would:

- Compromise the intended use of the vehicle or load, i.e. make it unable to perform the function for which it was intended;
- Destroy the value of the load or vehicle, i.e. make it unusable for its intended purposes or; and
- Require more than 8 (eight) work hours to dismantle using appropriate resources and equipment.

The Ministry of Transportation issues four types of permits: Annual, Project, Single Trip and Special Vehicle Configuration. Each permit will have specific conditions attached and these must be strictly adhered to. The permit may be terminated for breach of any condition and the permit holder may be subject to prosecution. Oversize permits are required from the County of Lennox and Addington as well. The Road Manager will be given at least ten (10) day's notice of the anticipated date of each Oversize and/or Overweight Delivery.

Permits must be carried and produced on demand by a police officer or an officer appointed for carrying out the provisions of the Highway Traffic Act. Permit holders accept responsibility for any and all damage that may be caused to overhead wires, structures, highways, encroachments or railway right of ways. Permits may be terminated at the discretion of the Registrar of Motor Vehicles for the breach of permit conditions.

A project permit is issued to allow contractors to move similar loads, objects and structures over the same specified route for a period of up to, and including, 6 months, depending on the duration of the contract.

Road reductions from March 1st – April 30th impose restrictions on vehicle load weight and size. This will usually include limitations on vehicle length, axle load and spread, and the total loaded mass of vehicles and vehicle combinations. On average, 50 – 90% reductions are imposed on carriers during spring thaw; the exact limits are determined based on highway class, annual frost, and road tolerance testing. Although primary highway networks are excluded from regulations, it is not uncommon for highways to be temporarily re-classified during this period and subjected to seasonal load limits.





7 TRAFFIC CONTROL DEVICE REQUIREMENTS

The specific measures to be implemented during the construction phase of the Project will follow and incorporate the principles and guidelines of the Ontario Traffic Manual (OTM) Book 7 Temporary Conditions. Documents TL-3, TL-20A, TC-31L, TC-31A, TC-20At, and the work zone component dimensions for long and short duration work is located below in the Appendix A7 and Appendix A8. Per Ontario Traffic Manual, Book 7 (Temporary Conditions), very short duration work is 30 minutes or less, short duration work is 30 minutes to 24 hours, and long duration work is over 24 hours.

Where required, temporary illumination shall be provided at key points where it is deemed necessary to provide increased level of safety as per guidelines in OTM Book7. OTM Book 7 traffic control measures (barriers, barrels, signage, etc.) will be used for working on the "shoulder" and for temporary lane closures. Where restriction to a single lane of traffic is required, single lane restrictions will be permitted during daylight hours only. Traffic will be controlled by flag-persons in continual radio communication with each other. All signage shall be covered when not in use. All temporary lanes shall be clearly delineated and comply with the minimum lane width specified, per the typical layout (TL) drawings in OTM Book7.

Applicable signage and warning of an approaching work zone and the need to reduce the posted speed (OTM Book 7 – TL3) will be provided including:

Typical signage for shoulder work (OTM Book 7 – TL6);

Typical signage for on-road work requiring a lane closure (OTM Book 7 – TL19 and TL20A) Typical signage for construction site access, trucks approaching (OTM Book 7 - TC31L and TC31R)

Maintenance and monitoring will follow recommendations detailed in OTM Book 7. Flag persons will be equipped with a Stop/Slow paddle as per OTM Book 7 – Traffic Control Sign (Stop/Slow Paddle - TC22) and two-way radios for continuous and uninterrupted communication between pairs of flag persons. All construction vehicle drivers shall be made aware of the potential for conflicts with local traffic on a route-specific basis and be advised of potential hazards such as locations with limited sight distance, areas with high entrance density, tight turns, and narrow roadway widths. Signage will be installed as per OTM Book 7 as appropriate and where it can mitigate hazards related to construction activities, with care to avoid negative effects from over-signage. Regular oversight shall continue as outlined in OTM Book 7 and performed by qualified traffic management personnel, which includes checking for hazards and maintaining signs and traffic control devices in a good condition.





8 TRAFFIC CONTROL SUPERVISION AND MONITORING

The purpose of this section is to define the responsibilities of PCL, Subcontractor Supervision and any workers who will directly over see or perform any temporary traffic control operations on this project. It is the responsibility of PCL Project Management, PCL Supervision, and Subcontractor Supervision to ensure that all workers in their respected areas have been oriented to this plan.

8.1 PCL(Constructor)

As outlined in the Construction Regulations:

67.(4) Every **employer** shall develop in writing and implement a traffic protection plan for the employers' workers at a project if any of them may be exposed to a hazard from vehicular traffic.

67.(5) The traffic protection plan;

shall specify the vehicular traffic hazards and the measures described in subsection (2) to be used to protect workers; and shall be kept at the project and made available to an inspector or a worker on request.

104.(1) Every project shall be planned and organized so that vehicles, machines and equipment are not operated in reverse or are operated in reverse as little as possible.

104.(2) Vehicles, machines and equipment at a project shall not be operated in reverse unless there is no practical alternative to doing so.

104.(3) Operators of vehicles, machines and equipment shall be assisted by signalers if either of the following applies:

The operator's view of the intended path of travel is obstructed. A person could be endangered by the vehicle, machine or equipment or by its load.

104.(4) Subsection (3) also applies to shovels, backhoes and similar excavating machines and to cranes and similar hoisting devices.

104.(5) The operator and the signaler shall;

jointly establish the procedures by which the signaler assists the operator; and follow those procedures.

104.(6) If subsection (3) applies to the project and it is not possible to carry out the project without some operation of vehicles and equipment in reverse, signs shall be posted at the project in conspicuous places warning workers of the danger.





8.2 Subcontractors

Subcontractor supervision shall be knowledgeable of this project specific Traffic Management Plan and ensure that all workers in their respective areas have been oriented to this plan. As outlined in the Occupational Health and Safety Act a supervisor shall ensure that a worker, works in the manner and with the protective devices, measures and procedures required by the Act and the regulations; and uses or wears the equipment, protective devices or clothing that the worker's employer requires to be used or worn.

Without limiting the duty imposed by subsection (1), a supervisor shall,

- advise a worker of the existence of any potential or actual danger to the health or safety of the worker of which the supervisor is aware;
- where so prescribed, provide a worker with written instructions as to the measures and procedures to be taken for protection of the worker; and
- take every precaution reasonable in the circumstances for the protection of a worker. R.S.O. 1990, c. O.1, s.27.

Subcontractor supervision is responsible for, but not limited to:

- Ensuring any workers who are performing work as a Temporary Traffic Control Person (TTCP) under their supervision comply with this project specific Traffic Protection Plan;
- Immediately report to the Project Superintendent any contravention(s) or concern(s) with the project specific Traffic Protection Plan; and
- Provide upon request by PCL Project Management/Supervision or an Inspector:
 - Proof of training records for all personnel involved with temporary traffic control operations;
 - Proof that this project specific Traffic Protection Plan has been reviewed with all workers who will be performing work as a Temporary Traffic Control Person.





9 SITE IDENTIFICATION AND SECURITY

The Loyalist Solar Project will be constructed on five (5) separate sites. The five (5) sites are shown below in Appendix A1, A2, and A15 as: Substation, Site A, Site B, Site C and Site D. The four (4) sites A through D are primarily located on Hinch Road between County Road 27 and County Road 41. The substation is located off Miller Road near Sheffield Bridge Road.

Each site shall be marked and identified with signage posted at all site entrances. All civic addresses will be in place at entrances. Additionally, signage will include but will not be limited to:

- Project Name
- Site identification number
- Truck exit and enter signs
- Emergency contact information

Security for all sites will be maintained with multiple controls. Strategies to maximize site security are listed below. In order to effectively maintain site security each of these items must be followed at all times:

- Security cameras with 24-hour video recording with video surveillance monitoring from 6:00pm to 7:00am
- Sign-In and Sign-Out required for all visitors to track on-site attendance
- Fences and gates at entrances are installed during preliminary stages of construction to ensure perimeter security
- Potential lighting at night to deter trespassing and theft
- Visual inspections of the site to ensure security has not been compromised





10 CONNECTION LINE SPECIFIC TRAFFIC MANAGEMENT PLAN

Connection Line construction will incorporate the majority of all lane closures and traffic impacts for this project. Dundas Power Line (DPL) has extensive experience in Connection Line work throughout North America and will be constructing the overhead and underground Connection Line from the Generation sites to the Substation. DPL will use management strategies noted in this TMP to minimize traffic effects for all areas of construction. DPL will have trained personnel specifically tasked with controlling traffic for the entire duration of their scope.

10.1 Specific Road Plans

Hinch Road:

DPL plans to have a single lane closure, with yield to on-coming traffic signs in place where sightlines allow. There is enough room on this road to get off to one side. When sightlines are not sufficient flag men will be used to allow the lane closure. DPL plans to use traffic plans TL-19 orTL-6 as seen in Appendix 9.

Centreville Road:

DPL plans to have a single lane closure, with yield to on-coming traffic signs in place where sightlines allow. There is enough room on this road to get off to one side. When sightlines are not sufficient flag men will be used to allow the lane closure. DPL plans to use traffic plans TL-19 orTL-6 as seen in Appendix 9.

County Road 27:

DPL plans to have a single lane closure, with yield to on-coming traffic signs in place where sightlines allow. There is enough room on this road to get off to one side. When sightlines are not sufficient flag men will be used to allow the lane closure. DPL plans to abide by the County and Township RUA's.

Marlin Road:

Marlin Road will require road closures with detour signs as the road is not wide enough to accommodate construction vehicles. DPL plans to detour traffic west where County Road 27 & Marlin Road meet. Traffic will be required to go north on County Road 27 to County Road 14, then east on County Road 14. Traffic would then have the option to go north on Edges Road, continue to County Road 14, or go south on Edges Road. Road closure and detour signs will be put in place in order to direct traffic around the temporarily closed section of Marlin Road. Please refer to the detour map in AppendixA16.

EdgesRoad:

DPL plans to have a single lane closure, with yield toon-coming traffic signs in place where sightlines allow. For overhead work, traffic plans TL-19 or TL-6 will be utilized. When sightlines are not sufficient flag men will be used to allow the lane closure. In some instances, Edges Road may require full road closures, depending on type of construction. If road closures are required, DPL will only close one section of Edges Road at a time. This will allow traffic to detour East via County Road 4, or West via County Road 27. Please refer to the detour map in Appendix A17.





Murphy Road:

DPL plans to have a single lane closure, with yield to on-coming traffic signs in place where sightlines allow. Where possible, DPL will utilize TL-19 or TL-6. When sightlines are not sufficient flag men will be used to allow the lane closure. Murphy Road will require road closures with detour signs as the road is not wide enough to accommodate construction vehicles in some areas. If road closures are required on Murphy Road between County Road 14 and Haggerty Road, traffic can be detoured East or West on County Road 14, traveling North on Miller Road or County Road 4, and onto Haggerty Road, then continuing North on Murphy Road. If a road closure is required on Murphy Road between Haggerty Road and Sheffield Bridge Road, traffic can be detoured East or West on County Road. 14 and then North on Miller Rd. (For East detour) or North on County Road 4 (For West detour). Please see Appendix 18 for a detour map.

Sheffield Bridge Road:

DPL plans to have a single lane closure, with yield to on-coming traffic signs in place where sightlines allow (East of the bridge). DPL would utilize traffic plans TL-19 or TI-6 as shown in Appendix 9. When sightlines are not sufficient flag men will be used to allow the lane closure. Sheffield Bridge Road will require road closures with detour signs as the road is not wide enough to accommodate construction vehicles in some areas such as the West side of the bridge. If full road closures are required on Sheffield Bridge Road, traffic can be directed South to County Road 14, and back North on either Miller Road or Murphy Road. Please see Appendix 19 for a detour map.

11 APPENDICES

APPENDIX NUMBER

APPENDIX TITLE

A1	Individual Site Plot Plans (Sites A&B)
Α2	Individual Site Plot Plans (Sites D)
A3	Individual Site Plot Plans (Sites C)
A4	Reduced Speed Zone Signing (TL-3)
A5	Lane Closed with Traffic Control Persons (TL-20A)
A6	Truck Entrance Signs
Α7	Work Zone Component Dimensions (Short Work Duration)
A8	Work Zone Component Dimensions (Long Work Duration)
A9	Book 7 TL-6 andTL-19
A10	Pre-construction Road Study
A11	Contractor Furnished Permits
A12	County Road Reduced Load Restrictions
A13	Overall Block Map
A14	Generation Sites Area Map
A15	Substation Site Area Map
A16	Marlin Road Detour
A17	Edges Road Detour
A18	Murphy Road Detour
A19	Sheffield Bridge Route Detour

A1 – Individual Site Plot Plans (Sites A & B)



A2 – Individual Site Plot Plans (Site D)



A3 – Individual Site Plot Plans (Site C)



A4 – Reduced Speed Zone Signing (TL-3)



A5 – Lane Closed with Traffic Control Persons (TL-20A)

A6 – Truck Entrance Signs



Truck Entrance Signs

Purpose:

The TRUCK ENTRANCE signs must be used when trucks are using an entrance from a work zone into a live lane (turn or crossing movement). The signs may also be used when the temporary condition limits the vision of an existing crossing that is heavily used by trucks (see OTM Book 6 – Warning Signs for sight distance criteria).

The TC-31 sign must be installed in advance of the crossing at the distance specified in the appropriate table (Table A, B, or C: 5*).

The truck entrance sign illustrates the truck entering the roadway, not the work area. If the truck entrance is on the left, the TC-31L sign that is shown above must be used. The TC-31R sign which has the reverse symbol must be used when the truck entrance is on the right.

A7 – Work Zone Component Dimensions (Short Work Duration)

		Normal Posted Regulatory Speed Limit **						
	Dimension	50 km/h or lower	60 km/h	70 km/h	80 km/h	90 km/h		
1a*	Taper length for full lane closure (m)	10 - 15	20 - 30	30 - 40	50 - 60	70 - 80		
1b*	Taper length for roadside work (m) ***	3 - 5	5-7	7 - 10	10 - 12	15 - 20		
2*	Longitudinal buffer area (LBA) (m)****	(30)	(40)	50	60	75		
utor.	Maximum distance between markers (m)*****	4 - 6	4 - 6	8 - 10	8 - 10	10 - 12		
3*	Minimum number of markers for taper	at least 4 markers	at least 5 markers	at least 5 markers	at least 7 markers	at least 8 markers		
4*	Minimum tangent between tapers (m)	30	30	60	60	80		
5*	Distance between construction signs (m) *****	20 - 30	20 - 30	50 - 60	50 - 60	70 - 80		

Work Zone Component Dimensions: Very Short and Short Duration Work (Non-freeways)

* Table A distances are based on good visibility, and should be increased if visibility is poor.

** The regulatory maximum speed posted on a highway applies under normal conditions; that is, when no construction zone or work activity is present. Guideline provisions required in OTM Book 7 are based on normal posted regulatory speed, and not on temporarily reduced construction zone regulatory or advisory speeds.

*** Roadside work includes shoulder work and roadway edge work.

**** LBAs are optional at speeds of 60 km/h or lower, but should be used for closed lanes on multi-lane roads if space permits.

***** Markers are channelizing devices. Application guidelines are shown in Table F. Cones with reflective collars may be used for daytime or night-time operations on non-freeways.

****** 5* also refers to the required distance for the placement of a TC Warning Sign ahead of the hazard where referenced in section 6.3.5 for the individual signs.

A8 – Work Zone Component Dimensions (Long Work Duration)

		Normal Posted Regulatory Speed Limit**						
	Dimension	50 km/h or lower	60 km/h	70 km/h	80 km/h	90 km/h		
1a*	Taper length for full lane closure (m)	LV: 15 - 25 HV: 30 - 50	40 - 60	60 - 80	100 - 120	140 - 160		
1b*	Taper length for roadside work (m)***	LV: 5 - 8 HV: 9 - 15	10 - 15	15 - 20	20 - 25	30 - 40		
2*	Longitudinal buffer area (LBA) (m)****	(30)	(40)	50	60	75		
	Maximum distance between markers (m)*****	6-8	8 - 10	8 - 10	10 - 12	12 - 14		
3	Minimum number of markers for taper	at least 5 markers	at least 7 markers	at least 9 markers	at least 11 markers	at least 13 markers		
4*	Minimum tangent between tapers (m)	55	100	120	140	160		
5*	Distance between construction signs (m) ******	40 - 50	90 - 100	110 - 120	130 - 140	150		

Work Zone Component Dimensions: Long Duration Work (Non-freeways)

* Table B distances are based on good visibility, and should be increased if visibility is poor.

** The regulatory maximum speed posted on a highway applies under normal conditions, that is, when no construction zone or work activity is present. Guideline provisions required in OTM Book 7 are based on normal posted regulatory speed, and not on temporarily reduced construction zone regulatory or advisory speeds.

*** Roadside work includes shoulder work and roadway edge work.

**** LBAs are not a requirement at speeds of 60 km/h or lower, but should be used for closed lanes on multi-lane roads if space permits.

***** Markers are channelizing devices. Application guidelines are shown in Table F. Cones with reflective collars may be used for daytime or night-time operations on non-freeways.

****** 5* also refers to the required distance for the placement of a TC Warning Sign ahead of the hazard where referenced in section 6.3.5 for the individual signs.

LV = Low Volume

HV = High Volume

LV is defined as the average daily traffic volume with less than 3000 vehicles per day (combined traffic for both directions). This figure can be obtained from the local road authority or estimated by counting the number of vehicles that pass the work site in 3 minutes and multiplying this figure by 300. The count may be taken in off-peak or peak traffic periods, corresponding to the period during which the work operations will be carried out.

Example: 20 cars in 3 minutes x 300 = 6000 vehicles per day (this would be an HV road).

A9 - Book 7 TL-6 and TL-19





iv) A work vehicle with a TC-12 may replace cones for Short Duration work.



A10 – Pre-Construction Road Study

Please See Attached (TMP Appendix A10 – Pre-construction Road Study) PDF

A11 - Contractor Furnished Permits

Please See Attached (TMP Appendix A11 –Contractor Permits) PDF



A12 - County Road Reduced LoadRestriction

Appendix A13 – Overall Project Map





SUBSTATION AREA MAP

A15- Substation Site Area Map



Created: 2018-02-07

Meters



Created: 2018-02-07



Legend

Detour Route Road Closure

A18 - Murphy Road Detour Loyalist Photovoltaic Project

BluEarth
 0 22

220 440 880 Meters Coord. System: NAD 1983 UTM Zone 18N Projection: Transverse Mercator Datum: North American 1983 Units: Meter



Created: 2018-02-07