

Disproportionate Burden Report

for the:

**Dom-Mar Transfer and Recycling Facility
1118 and 1138 Dolsontown Road
Wawayanda, New York 10940
NYSDEC Permit No. T.B.D.**

July 2024

prepared for:

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1. Introduction

DOM KAM LLC proposes to develop a recycling and transfer facility (Dom-Mar Recycling and Transfer Facility or Facility) on two parcels located along the southside of Dolsontown Road in the Town of Wawayanda, New York. The proposed Facility requires a New York Department of Environmental Conservation (NYSDEC) Part 360 Solid Waste Management Facility (SWMF) Permit. The subject Parcels are located at 1118 Dolsontown Road, approximately 0.6 miles east of the intersection of Dolson Avenue and Dolsontown Road. The proposed Facility location is shown on **Figure 1** Regional Location Map.

The Climate Leadership and Community Protection Act (CLCPA) directs state agencies to determine if the decisions they make are consistent with the Statewide greenhouse gas (GHG) emission limits established by the CLCPA in Environmental Conservation Law (ECL) Article 75. This includes determining if permits issued are consistent with or would interfere with the attainment of the Statewide GHG emission limits in ECL Article 75. Per Section 7(3) of CLCPA and CP-49 policy the NYSDEC is required to ensure that its permitting decisions do not disproportionately burden Disadvantaged Communities and prioritize the reduction of GHG and co-pollutant emissions in Disadvantaged Communities. This Disproportionate Burden Report has been prepared for the proposed Dom-Mar Transfer and Recycling Facility to provide the information and evaluations necessary to address the CLCPA requirements.

2. Disadvantaged Community

Disadvantaged communities in New York State are identified through various indicators that represent the environmental burdens or climate change risks within a community, or population characteristics and health vulnerabilities that can contribute to more severe adverse effects of climate change. The location of DACs are shown on the New York State Interactive Mapper (<https://climate.ny.gov/resources/disadvantaged-communities-criteria>). **Figure 2** shows the location of the DAC relative to the proposed Facility.

The DAC is identified as Census Tract 36071011801 and is located south of the City of Middletown along Interstate 84 within the northern portion of the Town of Wawayanda. This tract is classified as rural and has a population of 4,642.

2.1 Disproportionate Burden Analysis

Existing burdens in the DAC were identified by accessing the Disadvantaged Community Criteria site online. Existing burdens were classified as the DAC indicators potentially related to air quality or air-related health effects with a percentile ranking within the top 70% of all tracts across the State. This ranking is consistent with the Combined Score Percentile Rank of 72.6 that is used to designate a census tract as a DAC (New York State Climate Justice Working Group Draft Disadvantaged Communities Criteria and List Technical Documentation dated March 9, 2022). The relevant DAC Indicator categories include Potential Pollution Exposures, Land Use and Historical Discrimination, and Health Impacts and Burdens. These indicators are consistent with the NYSDEC CLCPA Section 7(3) Disproportionate Burden Analysis Worksheet.

The existing burden evaluation is shown on Table 1 included in Attachment 1. Table 1 lists the relevant DAC indicators, their percentile ranking, if the indicator is relevant to the proposed Facility operation, and if so the potential impact. The indicators that have a relatively high percentile rank above 70% included the following:

- Health Impacts and Burdens- Percentage of people without Health Insurance (70%).
- Land Use and Historic Discrimination – Regulated Management Plan (Chemical) Sites (70%).
- Land Use and Historic Discrimination – Scrap Metal Processing (80%).
- Potential Pollution Exposure – Traffic: Diesel Trucks (92%).

The existing burden that is believed to be most relevant to the proposed project is the potential pollution exposure from diesel truck traffic. The proposed Facility will not be a Regulated Management Plan (chemical) Site, or process scrap metal. The impact of the Facility on the DAC is described in Section 4 of this Report.

3. GHG Emissions Evaluation

The GHG emission sources for the Facility include off-site and on-site sources. The offsite sources include inbound and outbound trucks. The on-site sources include equipment operated onsite for loading, sorting and processing waste materials. The offsite emissions were evaluated within the DAC boundary the Facility is located in.

3.1 Off-Site GHG Emissions

The off-site GHG emissions were evaluated by first determining the annual roundtrip miles within the DAC from the inbound waste collection trucks and the outbound transfer trailer truck routes. The Inbound & Outbound Truck Routes within the DAC are shown on the Truck Route Map included in Attachment 2. The annual miles traveled per vehicle type based on round trip distance for each route is shown on Table 2-1 (Offsite Emission Sources) included in Attachment 2. The estimated emissions of CO₂, CH₄, and N₂O and particulate matter using the EPA emission factors in Tables 2-4 (<https://www.epa.gov/climateleadership/ghg-emission-factors-hub>), and the AFLEET tool (<https://afleet.es.anl.gov/afleet/>) respectively is included on the Onsite Greenhouse Gas Emission (GHG) Analysis shown on Table 2-3 in Attachment 2. The Carbon Dioxide Equivalent GHG Emission Analysis for Onsite and Offsite sources is shown on Table 2-5. The total off-site carbon dioxide equivalent within the DAC was estimated at 470,749 kg.

3.2 On-site GHG Emissions

The sources of emissions that will be operated within the facility and their daily and annual estimated hours of operation are shown on Table 2-2 (Onsite Emission Sources) included in Attachment 2. The equipment includes an excavator with a grapple for loading, wood shredder for non-adulterated wood processing, front wheel loaders for MSW and C&D waste, and recyclable material handling respectively, and a yard goat semi trailer. The operating hours are based on 312 operating days per year, (six days per week, 52 weeks per year). The estimated emissions of CO₂, CH₄, and N₂O and particulate matter using the EPA emission factors in Table 2, and Table 5 from the GHG emission factors hub respectively. The Offsite GHG Emission Analysis is shown on Table 2-4, and the Carbon Dioxide Equivalent GHG Emission Analysis for Onsite and Offsite Sources is shown on Table 2-5. The total onsite carbon dioxide equivalent for onsite equipment was estimated at 242,908 kg.

4. GHG Impact Assessment

4.1 Impact to Disadvantaged Community

The DAC has a relatively high percentile ranking of 92% for the Potential Pollution from Diesel Trucks indicator compared to the rest of the State. The high ranking is believed to be caused in part by Interstate 84 located through the center of the DAC. The primary source of GHG emissions from the proposed Facility is from inbound and outbound diesel trucks, therefore the Facility is expected to have a negative impact on this indicator.

Diesel exhaust exposure has been associated with increased asthma symptoms and attacks and decreases in lung function for children and people with existing respiratory disease. Diesel exhaust exposure has also been associated with cardiovascular effects, including coronary vasoconstriction and premature death from cardiovascular disease (New York State Climate Justice Working Group Draft Disadvantaged Communities Criteria and List Technical Documentation). The DAC associated existing health impacts and burden indicators for Asthma ED visits, COPD ED Visits, Heart Attack Hospitalization, and premature death had comparatively lower percentile rankings of 24%, 31%, 56%, and 63% respectively. The relatively high percentile ranking for potential pollution from diesel trucks does not appear to be resulting in higher percentile rankings for potential related health effects.

Traffic mitigation items to be completed by the project Applicant per the Dolsontown Corridor GEIS and the Facility SEQR Findings Statement is described in Section 5.1 of this Report. These mitigation items are expected to completely mitigate the GHG emissions from the Facility within the DAC.

4.1.1 Public Participation Plan

A Public Participation Plan (PPP) dated March 2022 and last updated in September 2022, was prepared for the proposed Dom-Mar Recycling and Transfer. Implementation of the PPP began in October 2022, the public comment period for the PPP ended on November 18, 2022. A public repository containing physical copies of the proposed Facility Application Documents was set up at the Middletown Thrall Library at 11-19 Depot Street, Middletown, NY. A dedicated website containing electronic copies of the proposed Facility Application Documents was also set up. The website URL and the Library address were included on the Meeting Notification and Project Fact Sheet.

Two public information meetings were held, Meeting #1 occurred on November 1, 2022, at 6:00 PM, and Meeting #2 occurred on November 7, 2022, at 1:00 PM. The meetings were held virtually through Zoom and managed by Tele Town Hall, LLC of Arlington, VA. The Meeting Notifications included a URL and a call-in number available to participate via phone. The meetings included an introduction describing the instructions for commenting, a presentation discussing the permit process, the status of the applications, a description of the Facility and its operations, and the environmental evaluations completed, and a public comment period. The second meeting was conducted over the phone.

After the close of the comment period, an Interim Progress Report, including a Summary of Comments was drafted and submitted to the NYSDEC on November 21, 2022.

The comments received from the PPP implementation were in favor of the proposed project and included the following types:

- Support for the project based on limited capacity at the local waste transfer facilities which are congested, the additional capacity of the proposed Facility will ease wait and travel times.

- Support for Marangi Waste, a local family business that keeps their collection truck fleet well maintained and clean.
- Support for recovery and recycling capability.

Prior to the PPP Public Information Meetings, the Town of Wawayanda Planning Board held two public hearings for the Dolsontown Corridor Draft Generic Environmental Impact Statement (GEIS) on June 8, 2022, and July 13, 2022. Public comments regarding the GEIS were accepted until July 25, 2022. The Dom-Mar Recycling and Transfer Facility as well as other proposed projects along Dolsontown Road were included in the GEIS to evaluate the cumulative impacts on traffic, water and sewer, stormwater, wetlands, threatened and endangered species, and cultural resources. Responses to the comments were included in the Final GEIS submitted by Whiteman Osterman & Hanna LLP, of Albany NY on November 4, 2022.

A Final Progress Report with written certification that the applicant has complied with the PPP was submitted to the NYSDEC in January 2023.

4.2 Project Benefits

The Facility is not expected to result in a net increase in GHG emissions, as the inbound and outbound trucks and processing activities shall be rerouted and moved from existing insufficient local Facilities. The proposed Facility is expected to reduce the number of miles traveled by inbound waste collection trucks. The proposed project is anticipated to reduce the inbound collection truck route mileage by approximately 26% percent or 22,880 miles annually. The annual mileage for inbound trucks prior to the proposed Facility is shown on Table 3-1 in Attachment 3. The GHG Emission Analysis for the inbound collection trucks prior to the proposed Facility is Shown on Table 3-2, and the Carbon Dioxide Equivalent GHG Emission analysis prior to the proposed Facility is shown on Table 3-3 in Attachment 3. As Table 3-3 shows the reduction in mileage will account for a reduction in the GHG emissions of approximately 26%. The reduction in particulate matter is also approximately 26% for PM 2.5, and PM 10. Outbound Transfer Trailer truck miles are not expected to increase from the proposed Facility. The number of truck trips will be a function of the amount of waste material generated in the region.

The proposed Facility will include a residential drop-off area to serve the residents of the Town of Wawayanda, including the DAC. The Facility will provide competitive pricing and needed transportation services in support of solid waste management programs in the service area. The proposed Facility will help widen the market for OCC while reducing transportation costs and efficiently transport recyclable material for processing. Through a screening process, appropriate recyclable materials will be removed from the C&D waste stream and transferred for further processing at approved C&D processing facilities. The operation intends to adapt to meet a variety of market conditions and future opportunities, with a proposed design capacity of 950 tons per day (tpd) based on weekly average comprised of an average of 829 tpd of solid waste (MSW, C&D, and IW combined) and 121 tpd of all combined recyclables.

The proposed Facility is well suited to assist municipalities after severe storm events with debris clearing efforts to help maintain public safety during restoration services. The Facility's conservative design features that provide for on-site waste identification, handling, storage, containment, monitoring, and control can provide a valuable destination for collected debris even during severe weather. The Facilities proposed maximum average waste processing rate allows for upsets in waste stream generation due natural disasters which are reported to generate debris volumes equivalent to five to 15 times the normal generation rates.

5. GHG Mitigation

Per the NYSDEC Commissioners policy CP-49 In considering and issuing permits, the Department shall not disproportionately burden disadvantaged communities. Additionally, the Department shall prioritize reductions of greenhouse gas emissions and co-pollutants in disadvantaged communities. The following sections describe the proposed offsite and onsite GHG mitigation measures and their corresponding GHG reduction within the DAC.

5.1 Offsite Mitigation

The emission reductions within the DAC from the traffic mitigation measures identified in the Dom-Mar Recycling and Transfer Facility GEIS Findings Statement were evaluated. The Traffic Mitigation measures include the following:

- Construct a separate two-way left turn lane for traffic along Dolsontown Road between Route 17M and McVeigh Road.
- For the intersection of Dolsontown Road, Route 17M/James P. Kelly Way, (1) construct a through lane on the Dolsontown Road westbound approach to 17M; (2) construct an additional left turn lane on the Route 17M northbound approach to James P. Kelly Way (with corresponding widening of the 17M southbound approach to accommodate the additional northbound separate left turn lane); (3) construct a separate right turn lane on the Route 17M northbound approach.
- For the intersection of Route 17M and Route 6/Sunrise Park Road, construct a second separate left turn lane on the NYS Route 17M northbound approach and widen the westbound US Route 6 to accommodate a 2-lane receiver; (2) widen the NYS Route 17M southbound approach to accommodate the additional northbound separate left turn lane.
- Coordinate the NYS Route 17M signals at Abe Isseks Drive, Dolsontown Road, and US Route 6.

The Greenhouse Gas Emission mitigation provided by each improvement was determined using the Federal Highway Administration Congestion Mitigation Air Quality (CMAQ) tool. The analysis evaluated the design year of 2032 consistent with the Dolstontown Corridor Traffic Impact Study dated April 11, 2022. Average peak hour traffic volumes, and overall delay times were calculated from the values included in the Dolstontown Corridor Traffic Impact Study. Average Annual Daily Traffic (AADT) values were calculated for 2032 using a growth factor of 0.5%, consistent with the Dolsontown Corridor Traffic Impact Study.

Per the CMAQ Tool the emission mitigation provided by each of the improvements are summarized in Table 4-1. The CMAQ Tool spreadsheets and supporting calculations are included in Attachment 4. Based on the evaluation results the improvements are expected to provide a total annual mitigation of 1,080,540 kg Carbon Dioxide Equivalent. The annual on and off-site facility emissions within the DAC are 713,657 kg Carbon Dioxide Equivalent. Based on the evaluation the traffic mitigation measures are expected to reduce greenhouse gas emissions within the DAC to demonstrate no impact from the Facility. These mitigation measures will improve the following indicators for the DAC Potential Climate Change Risk – Driving Time to Urgent/Critical Care, and Potential Pollution Exposure – Traffic: Diesel Trucks.

The Town of Wawayanda has issued a letter supporting the proposed offsite mitigation measures which is included in Attachment 4.

5.2 Onsite Mitigation

In addition to the Traffic Improvements the Facility GEIS Findings Statement includes the following energy mitigation items that shall be implemented:

- Energy Star approved building materials will be used that help reduce the amount of heat lost during the wintertime and cool air during the summertime.
- Reduced flow water fixtures that limit the amount of water flowing through the tap, thereby diminishing the amount of water used throughout the day will be used.
- Energy efficient light bulbs will reduce the amount of energy required for building and site light while extending the “life” of the lightbulb.
- The roofs of all structures at the Facility shall be designed in accordance with the latest N.Y.S. Building and Energy Codes to support the installation of solar panels in the future.

A layout of the proposed solar panel system on the Facility Roof was prepared by Solar Liberty of Buffalo, New York and is included in Attachment 5. The layout is a 275.5 KW system, the annual MWh production was estimated at 321 MWh. This system was sized to provide the estimated energy needs of the Facility. Based on a New York short-run marginal Emission Factor of 0.55 tons of CO₂ per MWh of electricity generation from the NYSEDA Projected Emission Factors for New York State Grid Electricity White Paper Report Number 22-18, dated August 2022, the additional emission mitigation for a solar panel system on the Facility roof is expected to be about 160,277 kg of Carbon Dioxide annually. Specifications for the proposed solar panels and their connection fitting to the Facility Building's Standing Seam Metal Roof are also included in Attachment 5.

Additional onsite measures to reduce GHG emissions include Trucks not idling longer than five minutes. The Facility shall have sufficient space for trucks to queue along the accessway for the entire expected peak hourly truck traffic. This will keep the trucks from slowing or stopping traffic on Dolsonstown Road. Burning of materials shall also not be permitted at the Facility.

5.3 Commitment and Timeframe

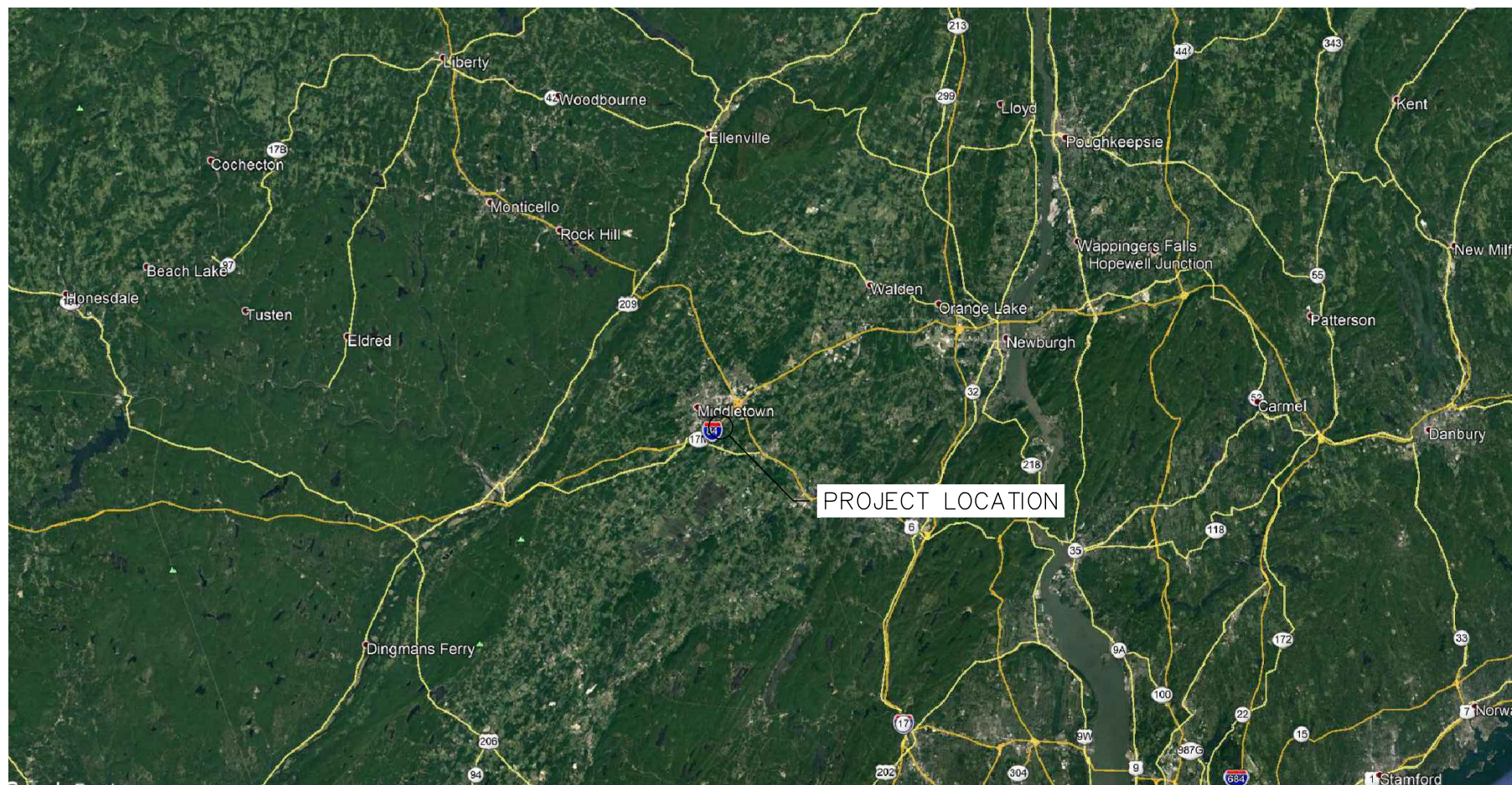
An approved Developers Agreement for providing the Dolsonstown Corridor GEIS mitigation items is required prior to Town of Wawayanda Site Plan and Special Use Approval. The Dolsonstown Corridor Traffic Mitigation items included in the SEQR Findings Statement must be completed before a certificate of occupation is issued by the Town of Wawayanda. Therefore, the Applicant is committed to coordinating and completing these mitigation items before the Facility can begin operation. The draft Checklist of Items to be completed for the Dolsonstown Corridor projects is included in Attachment 6. An Engineering, Procurement and Construction Agreement with Solar Liberty Energy Systems, Inc. of Buffalo, New York for the rooftop solar panel system is also included in Attachment 6. The offsite and onsite mitigation items may also be listed as permit conditions within the NYSDEC Part 360 Solid Waste Management Permit.

6. Conclusion

The proposed Facility is estimated to result in the emission of a total carbon dioxide equivalent of 713,657 kg within the DAC annually. The proposed Facility operation may negatively impact the DAC's potential pollution exposure from diesel truck traffic indicator. The existing relatively high percentile ranking for potential diesel truck traffic does not appear to have resulted in corresponding high health burden indicator rankings for the DAC.

Proposed offsite traffic and onsite energy mitigation measures in accordance with the Dolstontown Corridor GEIS and the SEQR Findings Statement were evaluated. The proposed offsite traffic mitigation measures is estimated to provide a reduction in 1,080,540 kg Carbon Dioxide Equivalent within the DAC annually. Therefore the proposed mitigation is expected to provide no net increase of GHG emissions within the DAC. In addition onsite measures are estimated to provide additional emission mitigation. A solar panel system on the Facility roof is expected to provide a reduction of about 160,277 kg of Carbon Dioxide annually.

The Dolstontown Corridor traffic mitigation measures are expected to improve the existing burden of pollution potential from diesel truck traffic within the DAC. The Applicant is committed to providing the mitigation per the Facility's SEQR Findings Statement. Per the Findings Statement the mitigation items must be completed prior to a certificate of occupancy being issued for the Facility Building. A Developers Agreement to complete the mitigation is also required prior to the issuance of a the Town of Wawayanda Site Plan and Special Use Permit.



NOTES:

1. SOURCE: GOOGLE EARTH IMAGERY ACCESSED
ON 12/29/20.

REGIONAL MAP

DOM-MAR TRANSFER AND RECYCLING FACILITY

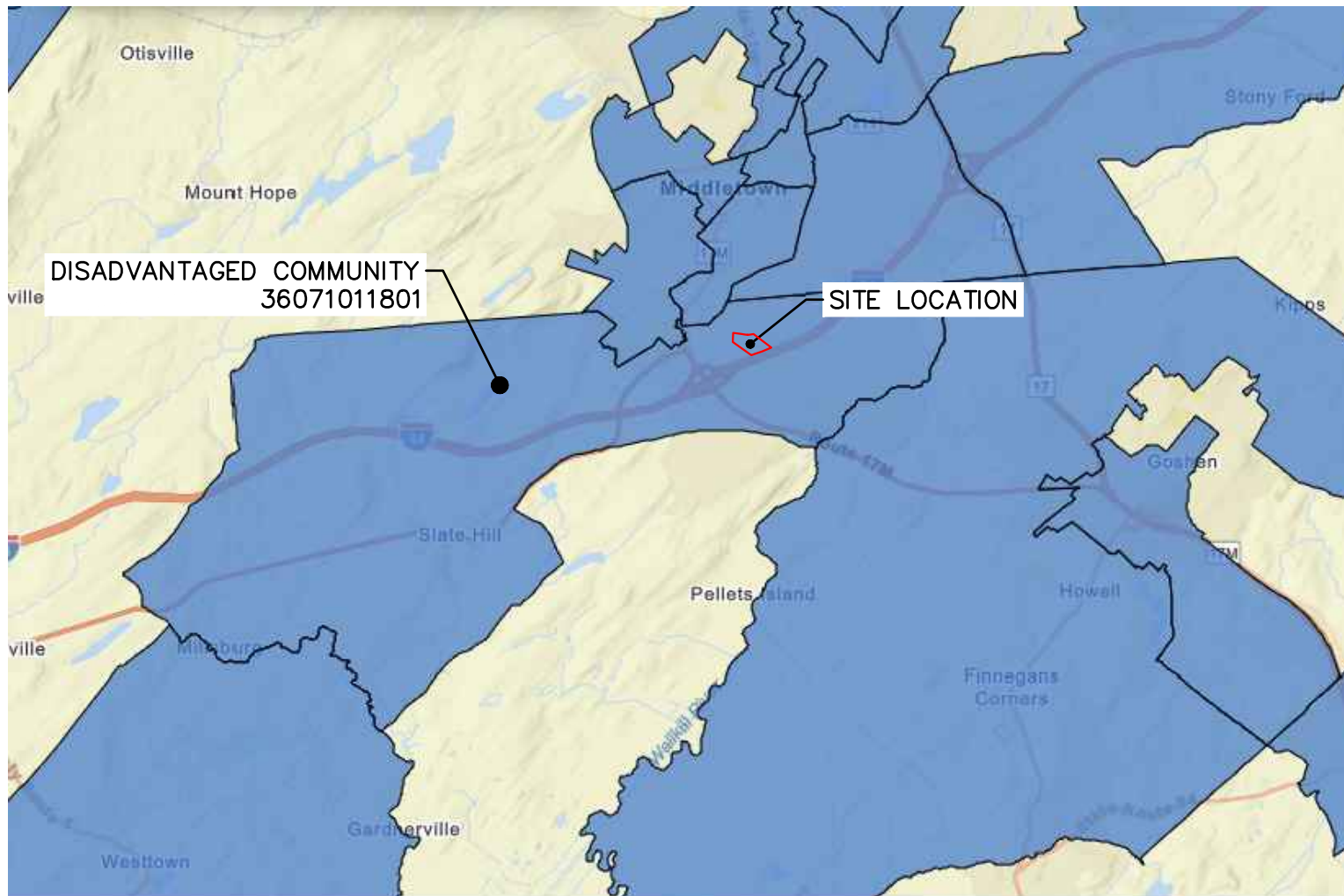
DOM KAM, LLC.



TOWN OF	WAWAYANDA
COUNTY OF	ORANGE
STATE OF	NEW YORK
JULY 2024	
PN: 029-A0001	

FIGURE

1



LEGEND:

- DISADVANTAGED COMMUNITY
- DISADVANTAGED COMMUNITY BOUNDARY
- SITE BOUNDARY

NOTE:

1. PHOTO LOCATIONS SHOULD BE CONSIDERED APPROXIMATE.
2. AERIAL PHOTO SOURCE:
<https://www.nyserda.ny.gov/ny/Disadvantaged-Communities>
 (May 2024)

DISADVANTAGED COMMUNITIES MAP

DOM-MAR RECYCLING AND TRANSFER FACILITY

DOM KAM, LLC.



661 Main St.
 Niagara Falls, NY 14301
 716.285.3920

TOWN OF WAWAYANDA
 COUNTY OF ORANGE
 STATE OF NEW YORK

JULY 2024

PN: 029-A0001

FIGURE

2

Attachment 1

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Disproportionate Burden Analysis

Table 1
Dom-Mar Recycling and Transfer Facility
CLCPA Disproportionate Burden Analysis Summary

Population Characteristics & Vulnerability				
Health Impacts & Burdens				
DAC Indicator⁽¹⁾	%tile⁽²⁾	Relevant?⁽³⁾	Impact?	Discussion
Asthma ED Visits	24%	N	N/A	
COPD ED Visits	31%	N	N/A	
Heart attack (MI) Hospitalization	56%	N	N/A	
Low Birthweight	68%	N	N/A	
Pct Adults Age 65+	26%	N	N/A	
Pct w/ Disabilities	61%	N	N/A	
Pct w/o Health Insurance	70%	N	N/A	Facility will not have an impact on health insurance coverage.
Premature Deaths	63%	N	N/A	
Environmental Burden & Climate Change Risk				
Land Use & Historic Discrimination				
DAC Indicator⁽¹⁾	%tile⁽²⁾	Relevant?⁽³⁾	Impact?	Discussion
Active Landfills	0%	N	N/A	
Housing Vacancy Rate	42%	N	N/A	
Industrial/Manufacturing/Mining Land Use (Zoning)	12%	N	N/A	
Major Oil Storage Facilities	27%	N	N/A	
Municipal Waste Combustors	0%	N	N/A	
Power Generation Facilities	29%	N	N/A	
Regulated Management Plan (Chemical) sites	70%	N	N/A	Facility will not be a Regulated Management Plan (chemical) site.
Remediation Sites	0%	N	N/A	
Scrap Metal Processing	75%	N	N/A	Facility will not process scrap metal
Potential Pollution Exposure				
Benzene Concentration (Modeled)	23%	N	N/A	
Particulate Matter (PM 2.5)	39%	N	N/A	
Traffic: Diesel Trucks	92%	Y	Negative	The Facility operation will include inbound and outbound diesel truck traffic within the DAC. See Section 4.1 regarding the Facility Impact.
Traffic: Number of Vehicles	27%	N	N/A	
Wastewater Discharge	52%	N	N/A	

1) Columns as displayed in CLCPA Section 7(3) Disproportionate Burden Analysis Worksheet.

2) All data is obtained from <<https://climate.ny.gov/Resources/Disadvantaged-Communities-Criteria>>, accessed 5/30/24.

3) Existing burdens were classified as the DAC indicators potentially related to air quality or air-related health effects with a percentile ranking within the top 70% of all tracts across the State. This ranking is consistent with the Combined Score Percentile Rank of 72.6 that is used to designate a census tract as a DAC (New York State Climate Justice Working Group Draft Disadvantaged Communities Criteria and List Technical Documentation dated March 9, 2022).

Attachment 2

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GHG Emissions Evaluation

Table 2-1
Dom-Mar Recycling and Transfer Facility
Offsite Emission Sources

Inbound/Outbound Truck	Route/Destination	Truck Type	Average Truck Capacity (tons)	% of Material	Tonnage Per Day	No. of Loads per Day	Roundtrip from Facility to Boundary of DAC (miles)	Operating Days	Annual Miles Per Truck Type	Total Annual Miles
Inbound	Collection Truck	Roll-Off Truck	12	33.3%	316	27	1.40	312	437	11,794
	Collection Truck	Rear/Side Loader	12	66.7%	634	53	1.40	312	437	23,150
		Totals:		100.0%	950	80				34,944
Outbound Waste	Keystone Landfill	53-Foot Long Transfer Trailer	22	47.5%	394	18	13.80	312	4,306	77,065
	Allience Landfill	53-Foot Long Transfer Trailer	22	47.5%	394	18	13.80	312	4,306	77,065
	Seneca Meadows	53-Foot Long Transfer Trailer	33	5.0%	41	2	7.00	312	2,184	4,115
		Total:		100.0%	829	38		Sub Total:		158,246
Outbound Recycling	Material Processors, Inc.	53-Foot Long Transfer Trailer	22	-	15	1	5.40	312	1,685	1,149
	Hudson Baylor Recycling Facility	53-Foot Long Transfer Trailer	18	-	75	4	7.00	312	2,184	9,100
	Sun Environmental Corp.	53-Foot Long Transfer Trailer	22	-	15	1	7.00	312	2,184	1,489
	Orange County Metal Recycling	Roll-Off Truck	35	-	10	Not Daily	1.40	89	125	125
	Profex Inc, Construction Services	Roll-Off Truck	35	-	5	Not Daily	7.00	45	312	312
	Casings Inc, Catskill, NY	Roll-Off Truck	4	-	1	Not Daily	7.00	78	546	546
		Sub Totals:		-	121	6				12,721
		Totals:			950	44				170,966

Notes:

1. Collection Truck Operating Days are 6 days per week times 52 weeks per year.
2. Outbound Transfer Trailer Operating Days are 6 days per week times 52 weeks per year, or the daily tonnage multiplied by the max operating days divided by the average truck capacity if the Delivery is not daily.
3. Material Processors, Inc receives source separated organics.
4. Hudson Baylor Recycling Facility receives source separated recyclables and old corrugated cardboard.
5. Sun Environmental Corp. receives product stewardship/ electronic waste.
6. Orange County Metal Recycling receives metals.
7. Profex Inc. Construction Services receives concrete, asphalt, rock, brick, and soil.
8. Casings Inc. receives whole waste tires.

Table 2-2
Dom-Mar Recycling and Transfer Facility
Onsite Emission Sources

Equipment	Daily Usage Rate	Average Daily Hours of Use	Operating Days Per Year	Operating Hours Per Year
Cat 320 Excavator - MSW and C&D	75%	7.5	312	2,340
Impaktor 250 mobile slow speed shredder	15%	1.5	312	468
CAT 980G wheel loader - MSW and C&D	75%	7.5	312	2,340
CAT 980G wheel loader - Recyclable Materials	15%	1.5	312	468
Yard Goat Semi-Tractor	15%	1.5	312	458

Notes:

1. Operating days per year based on 5.5 days per week, and 52 weeks per year.
2. Cat 320 Excavator assumes 10 hours day at a 75% usage rate.
3. Impaktor 250 shredder average hours of use assumes max one 22 ton trailer filled in one day, based on a rate of 15 tons per hour.
4. Cat 980G wheel loader for MSE and C&D average hours of use assumes 10 hours per day at a 75% usage rate per day.
5. Cat 980G wheel loader for Recycling Facility average hours of use is based on approximately 20% of the total materials received.
6. Yard Goat Semi-Tractor average hours is based on 44 trailer loads, and two minutes of switch out time for each.

Table 2-3
Dom-Mar Recycling and Transfer Facility
Onsite Greenhouse Gas Emission Analysis

Equipment	Operating Hours Per Year	Fuel Type	Fuel Consumption (Diesel Gallon Equivalent/HR)	Annual Gallons	CH ₄ Factor (g / gallon)	CH ₄ (g)	N ₂ O Factor (g / gallon)	N ₂ O (g)	kg CO ₂ per gallon	kg CO ₂	PM 2.5 (lb)	PM 10 (lb)
Cat 320 Excavator - MSW and C&D	2,340	Diesel	0.29	679	0.94	637.88	0.87	590.38	10.21	6,928.51	3.1	3.7
Impaktor 250 mobile slow speed shredder	468	Diesel	5.00	2,340	0.94	2,199.60	0.87	2,035.80	10.21	23,891.40	-	-
CAT 980G wheel loader - MSW and C&D	2,340	Diesel	6.94	16,240	0.94	15,265.22	0.87	14,128.45	10.21	165,806.32	2.7	2.7
CAT 980G wheel loader - Recyclable Materials	468	Diesel	6.94	3,248	0.94	3,053.04	0.87	2,825.69	10.21	33,161.26	0.5	0.5
Yard Goat Semi-Tractor	458	Diesel	1.63	746	0.94	701.13	0.87	648.92	10.21	7,615.52	0.4	0.4
Totals:						21,856.89		20,229.25		237,403.00	6.7	7.3

Notes:

1. The CO₂ Factor is from Table 2 Mobile Combustion for Diesel Fuel from <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>. The CH₄ and N₂O Factors are from Table 5 Mobile Combustion for Non Road Construction/Mining Equipment (similar to equipment proposed for the Facility) (<https://www.epa.gov/climateleadership/ghg-emission-factors-hub>).
2. Fuel Consumption values are from AFLEET Tool 2020, Off-Road Equipment Inputs, Large Equipment Information for Excavators, Rubber Tire Loaders, and Terminal Tractors.
3. PM 2.5 and PM 10 total values are from the accompanying AFLEET Tool Spreadsheet, Footprint-Offroad and Footprint Output tabs - Off-Road Fleet Footprint Calculator Output-Energy Use and Emissions (<https://afleet.es.anl.gov/afleet/>).
4. Impaktor 250 Mobile Slow Speed Shredder was assumed to be a diesel trimmer/edger/brush cutter in the AFLEET Tool 2020 Footprint-Offroad Spreadsheet.

Table 2-4
Dom-Mar Recycling and Transfer Facility
Offsite Greenhouse Gas Emission Analysis

Truck Route and Type	Total Annual Miles	Fuel Type	CH ₄ Factor (g / mile)	Total Annual CH ₄ (g)	N ₂ O Factor (g / mile)	Total Annual N ₂ O (g)	Fuel Efficiency (miles/gallon)	Total Annual Gallons	kg CO ₂ per gallon	kg CO ₂	PM 2.5 (lb)	PM 10 (lb)
Inbound Collection Trucks (Refuse Truck)	34,944	Diesel	0.0095	331.97	0.0431	1,506.09	1.7	20,555.29	10.21	209,869.55	1.8	11.4
Outbound Transfer Trailer Trucks (Combination Long-Haul Truck)	170,966	Diesel	0.0095	1,624.18	0.0431	7,368.64	6.8	25,142.08	10.21	256,700.67	11.9	45.8
Totals:				1,956.15		8,874.73		45,697.38		466,570.22	13.70	57.20

Notes:

1. CH₄ Factor, N₂O Factor are from Table 4 Mobile Combustion CH₄ and NO₂ for On Road Diesel and Alternative Fuel Vehicles, Medium and Heavy Duty Vehicles at <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>. CO₂ per gallon factor is from Table 2 Mobile Combustion CO₂, Diesel Fuel (<https://www.epa.gov/climateleadership/ghg-emission-factors-hub>).
2. Fuel Efficiency values are from AFLEET Tool 2020 (<https://afleet.es.anl.gov/afleet/>) Key Vehicle Inputs, Heavy Duty Vehicle Information for Combination Long-Haul Truck, and Refuse Truck for the outbound and inbound truck types respectively.
3. PM 2.5 and PM 10 total values are from the accompanying AFLEET Tool Spreadsheet, Footprint-Onroad and Footprint Output tabs - On-Road Fleet Footprint Calculator Output - Energy Use and Emissions (<https://afleet.es.anl.gov/afleet/>).

Table 2-5
Dom-Mar Recycling and Transfer Facility
Offsite and Onsite Carbon Dioxide Equivalent Greenhouse Gas Emission Analysis

	Onsite Sources	Offsite Sources	Total	CO ₂ Equivalent Value	CO ₂ Equivalent (kg)
Total Annual CH₄ (g)	1,956.15	21,856.89	23,813.03	84	2,000.29
Total Annual NO₂ (g)	20,229.25	8,874.73	29,103.98	264	7,683.45
Total Annual CO₂ (kg)	237,403.00	466,570.22	703,973.23	1	703,973.23
				Total:	713,656.97

Notes:

1. Carbon dioxide equivalent values are from 6 NYCRR Section 496.5.



Emission Factors for Greenhouse Gas Inventories

Last Modified: 1 April 2022

Red text indicates an update from the 2021 version of this document.

Typically, greenhouse gas emissions are reported in units of carbon dioxide equivalent (CO₂e). Gases are converted to CO₂e by multiplying by their global warming potential (GWP). The emission factors listed in this document have not been converted to CO₂e. To do so, multiply the emissions by the corresponding GWP listed in the table below.

Gas	100-Year GWP
CH ₄	25
N ₂ O	298

Source: Intergovernmental Panel on Climate Change (IPCC), Fourth Assessment Report (AR4), 2007. See the source note to Table 11 for further explanation.

Table 1 Stationary Combustion

Fuel Type	Heat Content (HHV) mmBtu per short ton	CO ₂ Factor kg CO ₂ per mmBtu	CH ₄ Factor g CH ₄ per mmBtu	N ₂ O Factor g N ₂ O per mmBtu	CO ₂ Factor kg CO ₂ per short ton	CH ₄ Factor g CH ₄ per short ton	N ₂ O Factor g N ₂ O per short ton
Coal and Coke							
Anthracite Coal	25.09	103.69	11	1.6	2,602	276	40
Bituminous Coal	24.93	93.28	11	1.6	2,325	274	40
Sub-bituminous Coal	17.25	97.17	11	1.6	1,676	190	28
Lignite Coal	14.21	97.72	11	1.6	1,389	156	23
Mixed (Commercial Sector)	21.39	94.27	11	1.6	2,016	235	34
Mixed (Electric Power Sector)	19.73	95.52	11	1.6	1,885	217	32
Mixed (Industrial Coking)	26.28	93.90	11	1.6	2,468	289	42
Mixed (Industrial Sector)	22.35	94.67	11	1.6	2,116	246	36
Coal Coke	24.80	113.67	11	1.6	2,819	273	40
Other Fuels - Solid							
Municipal Solid Waste	9.95	90.70	32	4.2	902	318	42
Petroleum Coke (Solid)	30.00	102.41	32	4.2	3,072	960	126
Plastics	38.00	75.00	32	4.2	2,850	1,216	160
Tires	28.00	85.97	32	4.2	2,407	896	118
Biomass Fuels - Solid							
Agricultural Byproducts	8.25	118.17	32	4.2	975	264	35
Peat	8.00	111.84	32	4.2	895	256	34
Solid Byproducts	10.39	105.51	32	4.2	1,096	332	44
Wood and Wood Residuals	17.48	93.90	7.2	3.6	1,640	126	63
	mmBtu per scf	kg CO ₂ per mmBtu	g CH ₄ per mmBtu	g N ₂ O per mmBtu	kg CO ₂ per scf	g CH ₄ per scf	g N ₂ O per scf
Natural Gas							
Natural Gas	0.001026	53.06	1.0	0.10	0.05444	0.00103	0.00010
Other Fuels - Gaseous							
Blast Furnace Gas	0.000092	274.32	0.022	0.10	0.02524	0.000002	0.000009
Coke Oven Gas	0.000599	46.85	0.48	0.10	0.02806	0.000288	0.000060
Fuel Gas	0.001388	59.00	3.0	0.60	0.08189	0.004164	0.000833
Propane Gas	0.002516	61.46	3.0	0.60	0.15463	0.007548	0.001510
Biomass Fuels - Gaseous							
Landfill Gas	0.000485	52.07	3.2	0.63	0.025254	0.001552	0.000306
Other Biomass Gases	0.000655	52.07	3.2	0.63	0.034106	0.002096	0.000413
	mmBtu per gallon	kg CO ₂ per mmBtu	g CH ₄ per mmBtu	g N ₂ O per mmBtu	kg CO ₂ per gallon	g CH ₄ per gallon	g N ₂ O per gallon
Petroleum Products							
Asphalt and Road Oil	0.158	75.36	3.0	0.60	11.91	0.47	0.09
Aviation Gasoline	0.120	69.25	3.0	0.60	8.31	0.36	0.07
Butane	0.103	64.77	3.0	0.60	6.67	0.31	0.06
Butylene	0.105	68.72	3.0	0.60	7.22	0.32	0.06
Crude Oil	0.138	74.54	3.0	0.60	10.29	0.41	0.08
Distillate Fuel Oil No. 1	0.139	73.25	3.0	0.60	10.18	0.42	0.08
Distillate Fuel Oil No. 2	0.138	73.96	3.0	0.60	10.21	0.41	0.08
Distillate Fuel Oil No. 4	0.146	75.04	3.0	0.60	10.96	0.44	0.09
Ethane	0.068	59.60	3.0	0.60	4.05	0.20	0.04
Ethylene	0.058	65.96	3.0	0.60	3.83	0.17	0.03
Heavy Gas Oils	0.148	74.92	3.0	0.60	11.09	0.44	0.09
Isobutane	0.099	64.94	3.0	0.60	6.43	0.30	0.06
Isobutylene	0.103	68.86	3.0	0.60	7.09	0.31	0.06
Kerosene	0.135	75.20	3.0	0.60	10.15	0.41	0.08
Kerosene-Type Jet Fuel	0.135	72.22	3.0	0.60	9.75	0.41	0.08
Liquefied Petroleum Gases (LPG)	0.092	61.71	3.0	0.60	5.68	0.28	0.06
Lubricants	0.144	74.27	3.0	0.60	10.69	0.43	0.09
Motor Gasoline	0.125	70.22	3.0	0.60	8.78	0.38	0.08
Naphtha (<401 deg F)	0.125	68.02	3.0	0.60	8.50	0.38	0.08
Natural Gasoline	0.110	66.88	3.0	0.60	7.36	0.33	0.07
Other Oil (>401 deg F)	0.139	76.22	3.0	0.60	10.59	0.42	0.08
Pentanes Plus	0.110	70.02	3.0	0.60	7.70	0.33	0.07
Petrochemical Feedstocks	0.125	71.02	3.0	0.60	8.88	0.38	0.08
Propane	0.091	62.87	3.0	0.60	5.72	0.27	0.05
Propylene	0.091	67.77	3.0	0.60	6.17	0.27	0.05
Residual Fuel Oil No. 5	0.140	72.93	3.0	0.60	10.21	0.42	0.08
Residual Fuel Oil No. 6	0.150	75.10	3.0	0.60	11.27	0.45	0.09
Special Naphtha	0.125	72.34	3.0	0.60	9.04	0.38	0.08
Unfinished Oils	0.139	74.54	3.0	0.60	10.36	0.42	0.08
Used Oil	0.138	74.00	3.0	0.60	10.21	0.41	0.08
Biomass Fuels - Liquid							
Biodiesel (100%)	0.128	73.84	1.1	0.11	9.45	0.14	0.01
Ethanol (100%)	0.084	68.44	1.1	0.11	5.75	0.09	0.01
Rendered Animal Fat	0.125	71.06	1.1	0.11	8.88	0.14	0.01
Vegetable Oil	0.120	81.55	1.1	0.11	9.79	0.13	0.01
Biomass Fuels - Kraft Pulp Liquor, by Wood Furnish							
North American Softwood		94.4	1.9	0.42			
North American Hardwood		93.7	1.9	0.42			
Bagasse		95.5	1.9	0.42			
Bamboo		93.7	1.9	0.42			
Straw		95.1	1.9	0.42			

Source:

Federal Register EPA: 40 CFR Part 98; e-CFR, (see link below). Table C-1, Table C-2 (as amended at 81 FR 89252, Dec. 9, 2016), Table AA-1 (78 FR 71965, Nov. 29, 2013).

<https://www.ecfr.gov/cgi-bin/text-idx?SID=ae265d7d6f98ec86fcd8640b9793a3f6&mc=true&nknode=p40.23.98&rgn=div5#p40.23.98.19.1>

Note: Emission factors are per unit of heat content using higher heating values (HHV). If heat content is available from the fuel supplier, it is preferable to use that value. If not, default heat contents are provided.

Table 2 Mobile Combustion CO₂

Fuel Type	kg CO ₂ per unit	Unit
Aviation Gasoline	8.31	gallon
Biodiesel (100%)	9.45	gallon
Compressed Natural Gas (CNG)	0.05444	scf
Diesel Fuel	10.21	gallon
Ethanol (100%)	5.75	gallon
Kerosene-Type Jet Fuel	9.75	gallon
Liquefied Natural Gas (LNG)	4.50	gallon
Liquefied Petroleum Gases (LPG)	5.68	gallon
Motor Gasoline	8.78	gallon
Residual Fuel Oil	11.27	gallon

Source:

Federal Register EPA; 40 CFR Part 98; e-CFR, (see link below), Table C-1 (as amended at 81 FR 89252, Dec. 9, 2016).

https://www.ecfr.gov/cgi-bin/text-id?SID=a265d7d6f98ec86fcd8640b9793a3f6&mc=true&node=p40.23.98&rgn=div5#ap40.23.98_19.1

LNG: The factor was developed based on the CO₂ factor for Natural Gas factor and LNG fuel density from GREET1_2021.xlsx Model, Argonne National Laboratory (Fuel_Specs worksheet).

Table 3 Mobile Combustion CH₄ and N₂O for On-Road Gasoline Vehicles

Vehicle Type	Year	CH ₄ Factor (g / mile)	N ₂ O Factor (g / mile)
Gasoline Passenger Cars	1973-1974	0.1696	0.0197
	1975	0.1423	0.0443
	1976-1977	0.1406	0.0458
	1978-1979	0.1389	0.0473
	1980	0.1326	0.0499
	1981	0.0802	0.0626
	1982	0.0795	0.0627
	1983	0.0782	0.0630
	1984-1993	0.0704	0.0647
	1994	0.0617	0.0603
	1995	0.0531	0.0560
	1996	0.0434	0.0503
	1997	0.0337	0.0446
	1998	0.0240	0.0389
	1999	0.0215	0.0355
	2000	0.0175	0.0304
	2001	0.0105	0.0212
	2002	0.0102	0.0207
	2003	0.0095	0.0181
	2004	0.0078	0.0085
	2005	0.0075	0.0067
	2006	0.0076	0.0075
	2007	0.0072	0.0052
	2008	0.0072	0.0049
	2009	0.0071	0.0046
	2010	0.0071	0.0046
	2011	0.0071	0.0046
	2012	0.0071	0.0046
	2013	0.0071	0.0046
	2014	0.0071	0.0046
	2015	0.0068	0.0042
	2016	0.0065	0.0038
	2017	0.0054	0.0018
	2018	0.0052	0.0016
	2019	0.0051	0.0015
Gasoline Light-Duty Trucks (Vans, Pickup Trucks, SUVs)	1973-1974	0.1908	0.0218
	1975	0.1634	0.0513
	1976	0.1594	0.0555
	1977-1978	0.1614	0.0534
	1979-1980	0.1594	0.0555
	1981	0.1479	0.0660
	1982	0.1442	0.0681
	1983	0.1368	0.0722
	1984	0.1284	0.0764
	1985	0.1220	0.0806
	1986	0.1146	0.0848
	1987-1993	0.0813	0.1035
	1994	0.0646	0.0982
	1995	0.0517	0.0908
	1996	0.0452	0.0871
	1997	0.0452	0.0871
	1998	0.0412	0.0787
	1999	0.0333	0.0618
	2000	0.0340	0.0631
	2001	0.0221	0.0379
	2002	0.0242	0.0424
	2003	0.0221	0.0373
	2004	0.0115	0.0088
	2005	0.0105	0.0064
	2006	0.0108	0.0080
	2007	0.0103	0.0061
	2008	0.0095	0.0036
	2009	0.0095	0.0036
	2010	0.0095	0.0035
	2011	0.0096	0.0034
	2012	0.0096	0.0033
	2013	0.0095	0.0035
	2014	0.0095	0.0033
	2015	0.0094	0.0031
	2016	0.0091	0.0029
	2017	0.0084	0.0018
	2018	0.0081	0.0015
	2019	0.0080	0.0013
Gasoline Heavy-Duty Vehicles	≤1980	0.4604	0.0497
	1981-1984	0.4482	0.0538
	1985-1986	0.4090	0.0515
	1987	0.3675	0.0849
	1988-1989	0.3492	0.0933
	1990-1995	0.3246	0.1142
	1996	0.1278	0.1680
	1997	0.0924	0.1726
	1998	0.0655	0.1750
	1999	0.0648	0.1724
	2000	0.0630	0.1660
	2001	0.0577	0.1468
	2002	0.0634	0.1673
	2003	0.0602	0.1553
	2004	0.0298	0.0164
	2005	0.0297	0.0083
	2006	0.0299	0.0241
	2007	0.0322	0.0015
	2008	0.0340	0.0015
	2009	0.0339	0.0015
	2010	0.0320	0.0015
	2011	0.0304	0.0015
	2012	0.0313	0.0015
	2013	0.0313	0.0015
	2014	0.0315	0.0015
	2015	0.0332	0.0021
	2016	0.0321	0.0061
	2017	0.0329	0.0084
	2018	0.0326	0.0082
	2019	0.0330	0.0091
Gasoline Motorcycles	1960-1995	0.0899	0.0087
	1996-2019	0.0672	0.0069

Source: EPA (2021) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019 (Annexes). All values are calculated from Tables A-90 through A-94.

Table 4 Mobile Combustion CH₄ and N₂O for On-Road Diesel and Alternative Fuel Vehicles

Vehicle Type	Fuel Type	Vehicle Year	CH ₄ Factor (g / mile)	N ₂ O Factor (g / mile)
Passenger Cars	Diesel	1960-1982	0.0006	0.0012
		1983-2006	0.0005	0.0010
		2007-2019	0.0302	0.0192
Light-Duty Trucks	Diesel	1960-1982	0.0011	0.0017
		1983-2006	0.0009	0.0014
		2007-2019	0.0290	0.0214
Medium- and Heavy-Duty Vehicles	Diesel	1960-2006	0.0051	0.0048
		2007-2019	0.0095	0.0431
Light-Duty Cars	Methanol		0.0080	0.0050
	Ethanol		0.0080	0.0050
	CNG		0.0810	0.0050
	LPG		0.0080	0.0050
	Biodiesel		0.0300	0.0190
Light-Duty Trucks	Ethanol		0.0120	0.0090
	CNG		0.1210	0.0090
	LPG		0.0120	0.0120
	LNG		0.1210	0.0090
	Biodiesel		0.0290	0.0210
Medium-Duty Trucks	CNG		4.200	0.0010
	LPG		0.0140	0.0340
	LNG		4.200	0.0010
	Biodiesel		0.0090	0.0430
Heavy-Duty Trucks	Methanol		0.0750	0.0280
	Ethanol		0.0750	0.0280
	CNG		3.70	0.0010
	LPG		0.0130	0.0280
	LNG		3.70	0.0010
	Biodiesel		0.0090	0.0430
Buses	Methanol		0.0160	0.0320
	Ethanol		0.0160	0.0320
	CNG		10.00	0.0010
	LPG		0.0340	0.0170
	LNG		10.00	0.0010
	Biodiesel		0.0090	0.0430

Source: EPA (2021) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019 (Annexes). All values are calculated from Tables A-93 through A-96.

Table 5 Mobile Combustion CH₄ and N₂O for Non-Road Vehicles

Vehicle Type	Fuel Type	CH ₄ Factor (g / gallon)	N ₂ O Factor (g / gallon)
Ships and Boats	Residual Fuel Oil	1.11	0.32
	Gasoline (2 stroke)	4.58	0.08
	Gasoline (4 stroke)	2.24	0.01
	Diesel	6.41	0.17
Locomotives	Diesel	0.80	0.26
Aircraft	Jet Fuel	-	0.30
	Aviation Gasoline	7.06	0.11
Agricultural Equipment ^a	Gasoline (2 stroke)	9.19	0.26
	Gasoline (4 stroke)	3.33	1.83
	Diesel	0.97	0.90
	LPG	0.42	0.60
Agricultural Offroad Trucks	Gasoline	3.33	1.84
	Diesel	0.99	0.92
Construction/Mining Equipment ^b	Gasoline (2 stroke)	12.11	0.34
	Gasoline (4 stroke)	3.03	1.67
	Diesel	0.94	0.87
	LPG	0.44	0.63
Construction/Mining Offroad Trucks	Gasoline	3.03	1.67
	Diesel	0.99	0.92
Lawn and Garden Equipment	Gasoline (2 stroke)	10.21	0.28
	Gasoline (4 stroke)	2.85	1.56
	Diesel	0.93	0.86
	LPG	0.45	0.64
Airport Equipment	Gasoline	3.88	2.13
	Diesel	0.99	0.91
	LPG	0.45	0.64
Industrial/Commercial Equipment	Gasoline (2 stroke)	9.21	0.26
	Gasoline (4 stroke)	3.04	1.67
	Diesel	0.93	0.87
	LPG	0.45	0.64
Logging Equipment	Gasoline (2 stroke)	12.48	0.35
	Gasoline (4 stroke)	2.85	1.57
	Diesel	0.99	0.92
Railroad Equipment	Gasoline	2.87	1.59
	Diesel	0.83	0.78
	LPG	0.43	0.63
Recreational Equipment	Gasoline (2 stroke)	4.27	0.20
	Gasoline (4 stroke)	4.30	2.22
	Diesel	0.80	0.75
	LPG	0.41	0.58

Source: EPA (2021) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019 (Annexes). All values are calculated from Tables A-97 through A-98.

Notes:

CH₄ and N₂O Emission Factors: Updates due to a methodology change.

^a Includes equipment, such as tractors and combines, as well as fuel consumption from trucks that are used off-road in agriculture.

^b Includes equipment, such as cranes, dumpers, and excavators, as well as fuel consumption from trucks that are used off-road in construction.

Attachment 3

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Project Benefit Evaluation

Table 3-1
Dom-Mar Recycling and Transfer Facility
Inbound Truck Route Milage Prior to Proposed Facility

Inbound Collection Truck Type	Average Capacity (tons)	% of Material	Tonnage Per Day	No. of Loads per Day	Average Round Trip Distance (miles)	Operating Days	Total Annual Miles
Roll-Off Trucks	12	33.3%	316	27	230	286	65,780
Rear/Side Loaders	12	66.7%	634	53	80	286	22,880
	Totals:	100.0%	950	80		Sub Totals:	88,660

Notes:

1. Collection Truck Operating Days are 5.5 days per week times 52 weeks per year.

Table 3-2
Dom-Mar Recycling and Transfer Facility
Offsite Greenhouse Gas Emission Analysis Prior to Proposed Facility

Total Annual Miles	Fuel Type	CH ₄ Factor (g / mile)	Total Annual CH ₄ (g)	N ₂ O Factor (g / mile)	Total Annual N ₂ O (g)	Fuel Efficiency (miles/gallon)	Total Annual Gallons	kg CO ₂ per gallon	kg CO ₂	PM 2.5 (lb)	PM 10 (lb)
88,660	Diesel	0.0095	842.27	0.0431	3,821.25	1.7	52,152.94	10.21	532,481.53	4.7	28.9

Notes:

1. CH₄ Factor, N₂O Factor are from Table 4 Mobile Combustion CH₄ and NO₂ for On Road Diesel and Alternative Fuel Vehicles, Medium and Heavy Duty Vehicles at <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>. CO₂ per gallon factor is from Table 2 Mobile Combustion CO₂, Diesel Fuel (<https://www.epa.gov/climateleadership/ghg-emission-factors-hub>).
2. Fuel Efficiency values are from AFLEET Tool 2020 (<https://afleet.es.anl.gov/afleet/>) Key Vehicle Inputs, Refuse Truck.
3. PM 2.5 and PM 10 total values are from the accompanying AFLEET Tool Spreadsheet, Footprint-Onroad and Footprint Output tabs - On-Road Fleet Footprint Calculator Output - Energy Use and Emissions (<https://afleet.es.anl.gov/afleet/>).

Table 3-3
Dom-Mar Recycling and Transfer Facility
Carbon Dioxide Equivalent Greenhouse Gas Emission Comparision

	Inbound Trucks Prior to Facility	CO ₂ Equivalent Value	CO ₂ Equivalent (kg)	Inbound Trucks After Facility	CO ₂ Equivalent Value	CO ₂ Equivalent (kg)
Total Annual CH₄ (g)	842	84	71	625	84	52
Total Annual N₂O (g)	3,821	264	1,009	2,835	264	748
Total Annual CO₂ (kg)	532,482	1	532,482	395,067	1	395,067
		Total:	533,561		Total:	395,868

Percent Reduction : 25.81%

Notes:

1. Carbon dioxide equivalent values are from 6 NYCRR Section 496.5.

Attachment 4

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GHG Mitigation Evaluation

Table 4-1
Dom-Mar Recycling and Transfer Facility
Offsite and Onsite Carbon Dioxide Equivalent Greenhouse Gas Emission Analysis
Greenhouse Gas Emission Mitigation

Roadway Improvement	Carbon Dioxide Equivalent Reduction (kg/day)	PM 2.5 Reduction (kg/day)	PM 10 Reduction (kg/day)	Operational Days per year	Annual Carbon Dioxide Equivalent (kg)	Annual PM 2.5 (kg)	Annual PM 10 (kg)
Dolstontown Road Separate Left Turn Lane addition between Route 17 M and McVeigh Road	2,504.93	0.029	0.046	312	781,536.60	9.05	14.35
Dolstontown Road and NYS Route 17M Intersection Improvement	221.51	0.007	0.007	312	69,111.43	2.18	2.18
NYS Route 17M and US Route 6 Intersection Improvement	113.49	0.002	0.002	312	35,409.50	0.62	0.62
Synchronizing the intersections along NYS Route 17M at C.R. 78/Abe Isseks Drive, Dolstontown Road/James P. Kelly Way, and U.S. Route 6/Sunrise Park Road	623.34	0.028	0.157	312	194,482.70	8.74	48.98
Total Emissions Mitigation:					1,080,540.24	20.59	66.14
Facility On and Off-site Emissions:					713,656.97	9.25	29.26
Balance:					366,883.27	11.34	36.89

Notes:

1. Carbon Dioxide Equivalent, PM 2.5, and PM 10 daily emission reduction values are from the accompanying U.S. Department of Transportation Federal Highway Administration CMAQ Emissions Calculator Toolkit.

Dolsontown Road Separate Left Turn Lane Evaluation

Two Way Left Turn Lanes

This calculator will estimate the emission reductions resulting from converting the median of an undivided segment of roadway between two signalized or stop-sign-controlled intersections into a two way left turn lanes.

Navigator

[Intersection Improvements](#)

[Traffic Signal Synchronization](#)

[Roundabouts](#)

[Two Way Left Turn Lanes](#)

INPUT

Evaluation Year	2032
Area Type	Urban
Segment length	1
Number of lanes (both directions)	2
Free flow speed (speed limit)	45 mph
Total peak hours per day (AM+PM)	2 hours

	Direction 1	Direction 2	
Number of access points (outside/right side of direction)	8	14	
Average percent of right turning vehicles per access point	5%	15%	
Average percent of left turning vehicles per access point	15%	5%	
Truck Percentage	3%	3%	
Peak hour traffic volume (each direction)	654	594	vehicles/hour
Annual average daily traffic (AADT, each direction)	4,821	4,811	vehicles

OUTPUT

PERFORMANCE

	Direction 1		Direction 2		
	PEAK-HOUR	OFF-PEAK	PEAK-HOUR	OFF-PEAK	
Volume (all lanes)	654	159.6818182	594	164.6818182	veh/hr
Existing Average Through Vehicle Speed	41	44	42	45	mph
Left Turn Delay Reduction (left turning vehicles)	0.6	1.0	0.8	1.3	s/veh
Travel Time Savings (all vehicles)	144	50	83	38	min/day
Proposed Average Through Vehicle Speed	44	45	44	45	mph

EMISSION REDUCTIONS

Pollutant	Peak-hour Kilograms/day	Off-Peak Kilograms/day	Total Kilograms/day
Carbon Monoxide (CO)	0.473	1.217	1.690
Particulate Matter <2.5 µm (PM _{2.5})	0.009	0.021	0.029
Particulate Matter <10 µm (PM ₁₀)	0.018	0.028	0.046
Nitrogen Oxide (NOx)	0.265	0.471	0.736

Dolstontown Road Separate Left Turn Lane Evaluation

Average Dolsontown Road Peak Hour Traffic Volume - 2032

From Dolstontown Corridor Traffic Impact Study - dated April 11, 2022

Peak Hour	Traffic Source	East Traffic Volume	West Traffic Volume
AM	NYS Route 17M	900	370
	McVeigh Road	420	316
PM	NYS Route 17M	712	1,042
	McVeigh Road	582	646
Average:		654	594

	Traffic Direction	
	East	West
Existing Access Points	5	9
Proposed Additional Access Points - 2032	3	5
Total:	8	14

NYSDOT Average Annual Daily Traffic AADT

$$\text{AADT}(2032) = \text{AADT}(2013) * (1 + ((2032-2013) * \text{Growth Factor}))$$

Growth Factor: 0.50%

Year	East Traffic Volume	West Traffic Volume
2013	4,403	4,394
2032	4,821	4,811

NYS Route 17M /Dolsontown Road Intersection Improvements Evaluation

This calculator will estimate the emission reductions resulting from improving traffic signals at a four-way intersection

INPUT

EXISTING CONDITIONS

Use the table below to estimate delay (HCM 2010, Exhibit 21-1)

Level of Service Reference Table

*LOS F typically indicates that traffic demand has exceeded capacity

PROPOSED CONDITIONS

	Roadway 1	Roadway 2
Number of Left-Turn Lanes to Add (one direction)	1	0
Left-turn Phase	Yes	Yes
Right-turn Phase	Yes	Yes
Ratio of Green Time per Cycle Time	0.5	0.5

OUTPUT

PERFORMANCE

Roadway	1	2	
Roadway Intersection Delay Reduction per day	26.0	19.4	hours
Total Intersection Delay Reduction per day	45.4		hours

EMISSION REDUCTIONS

Pollutant	Peak Hours Kilograms/day	Off-Peak Hours Kilograms/day	Daily Total Kilograms/day
Carbon Monoxide (CO)	0.298	0.000	0.298
Particulate Matter <2.5 µm (PM _{2.5})	0.007	0.000	0.007
Particulate Matter <10 µm (PM ₁₀)	0.007	0.000	0.007
Nitrogen Oxide (NOx)	0.212	0.000	0.212
Volatile Organic Compounds (VOC)	0.086	0.000	0.086
Atmospheric Carbon Dioxide (CO2)	219,767	-0.059	219,708
Carbon Dioxide Equivalent (CO2e)	221,571	-0.059	221,511
Total Energy Consumption (MMBTU)	2.889	-0.001	2.889

NYS Route 17M/Dolstontown Road Intersection Improvement Evaluation

From Dolstontown Corridor Traffic Impact Study - dated April 11, 2022

NYSDOT Annual Average Daily Traffic AADT

$$\text{AADT}(2032) = \text{AADT}(2013) * (1 + ((2032-2013) * \text{Growth Factor}))$$

Growth Factor: 0.50%

Dolstontown Road Both Directions:

Year	AADT
2013	8,797
2032	9,633

$$\text{AADT}(2032) = \text{AADT}(2017) * (1 + ((2032-2017) * \text{Growth Factor}))$$

Growth Factor: 0.50%

NYS Route 17M Both Directions:

Year	AADT
2017	32,174
2032	34,587

NYS Route 17M Average Peak Hour:

Peak Hour	Direction	Traffic Volume	Total both directions
AM	North Bound	1,699	2,586
	South Bound	887	
PM	North Bound	1,706	2,927
	South Bound	1,221	
Ave:			2,757

Dolsontown Road/James P. Kelly Way Average Peak hour

Peak Hour	Direction	Traffic Volume	Total both Directions
AM	East Bound	909	1,279
	West Bound	370	
PM	East Bound	619	1,661
	West Bound	1,042	
Ave:			1,470

NYS Route 17M Existing Delay 2032 No-Build:

Peak Hour	Direction	Overall Delay (s)
AM	North Bound	44
	South Bound	70.3
PM	North Bound	73.4
	South Bound	82.1
Ave:		67

Dolsontown Road/James P. Kelly Way Existing Delay 2032 No-Build:

Peak Hour	Direction	Overall Delay (s)
AM	East Bound	26.3
	West Bound	48.1
PM	East Bound	21.7
	West Bound	76.1
Ave:		43

**NYS Route 17M/US Route 6
Intersection Improvements Evaluation**

This calculator will estimate the emission reductions resulting from improving traffic signals at a four-way intersection

INPUT

EXISTING CONDITIONS

Use the table below to estimate delay
(HCM 2010, Exhibit 21-1)

Level of Service Reference Table

*LOS F typically indicates that traffic demand has exceeded capacity

PROPOSED CONDITIONS

	Roadway 1	Roadway 2
Number of Left-Turn Lanes to Add (one direction)	1	1
Left-turn Phase	Yes	Yes
Right-turn Phase	Yes	Yes
Ratio of Green Time per Cycle Time	0.5	0.5

OUTPUT

PERFORMANCE

	Roadway 1	Roadway 2	
Roadway Intersection Delay Reduction per day	26.0	19.4	hours
Total Intersection Delay Reduction per day	45.4		hours

EMISSION REDUCTIONS

Pollutant	Peak Hours Kilograms/day	Off-Peak Hours Kilograms/day	Daily Total Kilograms/day
Carbon Monoxide (CO)	0.077	0.000	0.077
Particulate Matter <2.5 µm (PM _{2.5})	0.002	0.000	0.002
Particulate Matter <10 µm (PM ₁₀)	0.002	0.000	0.002
Nitrogen Oxide (NOx)	0.054	0.000	0.054
Volatile Organic Compounds (VOC)	0.041	0.000	0.041
Atmospheric Carbon Dioxide (CO ₂)	112,734	0.012	112,736
Carbon Dioxide Equivalent (CO ₂ e)	113,480	0.012	113,492
Total Energy Consumption (MMBtu)	1,484	0.000	1,484

NYS Route 17M/US Route 6 Intersection Improvement Evaluation

From Dolstontown Corridor Traffic Impact Study - dated April 11, 2022

NYSDOT Annual Average Daily Traffic AADT

$$\text{AADT}(2032) = \text{AADT}(2013) * (1 + ((2032-2013) * \text{Growth Factor}))$$

Growth Factor: 0.50%

US Route 6/Sunrise Park Road Both Directions from NYSDOT Traffic Data Viewer:

Year	AADT
2019	9,739
2032	10,372

$$\text{AADT}(2032) = \text{AADT}(2017) * (1 + ((2032-2017) * \text{Growth Factor}))$$

Growth Factor: 0.50%

NYS Route 17M Both Directions:

Year	AADT
2017	32,174
2032	34,587

NYS Route 17M Average Peak Hour

Peak Hour	Direction	Traffic Volume	Total both directions
AM	North Bound	1,760	3,147
	South Bound	1,387	
PM	North Bound	1,697	3,398
	South Bound	1,701	
Ave:			3,273

US Route 6/NYS Route 17M Average Peak Hour

Peak Hour	Direction	Traffic Volume	Total both Directions
AM	East Bound	682	697
	West Bound	15	
PM	East Bound	802	887
	West Bound	85	
Ave:			792

Existing Delay 2032 No-Build:

Peak Hour	Direction	Overall Delay (s)
AM	North Bound	14.8
	South Bound	23.4
PM	North Bound	26.9
	South Bound	74.7
Ave:		35

Existing Delay 2032 No-Build:

Peak Hour	Direction	Overall Delay (s)
AM	East Bound	49.6
	West Bound	67.7
PM	East Bound	55.7
	West Bound	62.2
Ave:		59

NYS Route 17 M Intersection Synchronization Evaluation

Traffic Signal Synchronization

This calculator will estimate the emission reductions resulting from synchronizing the traffic signals along a previously unsynchronized corridor.

Navigator

[Intersection Improvements](#)

[Traffic Signal Synchronization](#)

[Roundabouts](#)

[Two Way Left Turn Lanes](#)

INPUT

Evaluation Year	2032	
Area Type	Urban	
Corridor Length	0.5	miles
Number of Signalized Intersections	3	
Number of Lanes (one direction)	2	
Posted Speed Limit	45	miles per hour (1 - 75 MPH)
Average Cycle Length	104	seconds
Truck Percentage	3%	
Annual Average Daily Traffic (AADT) (both directions)	34,587	veh/day
Peak-hour Volume (both directions)	2,708	veh/hr
Existing Corridor Travel Time	2	minutes
Total peak hours per day (AM+PM)	2	

OUTPUT

PERFORMANCE

	PEAK-HOUR	OFF-PEAK	
Volume (both directions)	2,708	1325.954545	veh/hr
Existing Average Speed	15	20	mph
Travel Time Savings	20	15	min
Proposed Average Speed	18	24	mph

EMISSION REDUCTIONS

Pollutant	Peak-hour Kilograms/day	Off-Peak Kilograms/day	Total Kilograms/day
Carbon Monoxide (CO)	0.343	4.354	4.697
Particulate Matter <2.5 µm (PM _{2.5})	0.005	0.023	0.028
Particulate Matter <10 µm (PM ₁₀)	0.031	0.126	0.157
Nitrogen Oxide (NOx)	0.080	0.353	0.433
Volatile Organic Compounds (VOC)	0.033	0.144	0.177
Atmospheric Carbon Dioxide (CO ₂)	108.697	511.318	620.015
Carbon Dioxide Equivalent (CO ₂ e)	109.350	513.992	623.342
Total Energy Consumption (MMBTU)	1.430	6.725	8.155

NYS Route 17M Intersection Signal Sync. Evaluation

From Dolstontown Corridor Traffic Impact Study - dated April 11, 2022

CR 78/Dolson Ave. Average Peak hour

Peak Hour	Direction	Traffic Volume	Total both directions
AM	North Bound	906	1,762
	South Bound	856	
PM	North Bound	1,214	2,427
	South Bound	1,213	
Ave:			2,095

NYS Route 17M/Dolstontown Road Average Peak hour

Peak Hour	Direction	Traffic Volume	Total both directions
AM	North Bound	1,699	2,586
	South Bound	887	
PM	North Bound	1,706	2,927
	South Bound	1,221	
Ave:			2,757

NYS Route 17M/US Route 6 Average Peak hour

Peak Hour	Direction	Traffic Volume	Total both directions
AM	North Bound	1,760	3,147
	South Bound	1,387	
PM	North Bound	1,697	3,398
	South Bound	1,701	
Ave:			3,273

Intersection Average: 2,708

Dolsontown Road Corridor GEIS Traffic Impact Study Information

NYS DOT VOLUME DATA SUMMARY

ROADWAY: NY 17M
SEGMENT: Middletown C//Wawayanda TL to US6/NY17 Overlap
LOCATION: 520 FT S OF JAMES P KELLY WA
START DATE OF COUNT: Monday, December 04, 2017
NYS DOT COUNT STATION: 830069
FUNCTIONAL CLASS: 16 - URBAN MINOR ARTERIAL
FACTOR GROUP: 30
SEASONAL FACTOR: 1.019

TIME PERIOD		DIRECTIONAL VOLUMES		TOTAL VOLUME
START	FINISH	NORTHBOUND	SOUTHBOUND	
12:00 AM	1:00 AM	147	70	217
1:00 AM	2:00 AM	86	55	141
2:00 AM	3:00 AM	56	63	119
3:00 AM	4:00 AM	57	89	146
4:00 AM	5:00 AM	83	226	309
5:00 AM	6:00 AM	163	524	687
6:00 AM	7:00 AM	420	854	1274
7:00 AM	8:00 AM	1172	1060	2232
8:00 AM	9:00 AM	1266	1032	2298
9:00 AM	10:00 AM	1061	868	1929
10:00 AM	11:00 AM	897	842	1739
11:00 AM	12:00 PM	1048	924	1972
12:00 PM	1:00 PM	1042	1081	2123
1:00 PM	2:00 PM	965	1111	2076
2:00 PM	3:00 PM	1019	1178	2197
3:00 PM	4:00 PM	1261	1372	2633
4:00 PM	5:00 PM	1312	1304	2616
5:00 PM	6:00 PM	1264	1217	2481
6:00 PM	7:00 PM	923	846	1769
7:00 PM	8:00 PM	634	606	1240
8:00 PM	9:00 PM	452	517	969
9:00 PM	10:00 PM	353	378	731
10:00 PM	11:00 PM	271	250	521
11:00 PM	12:00 AM	222	145	367
AVERAGE WEEKDAY DAILY TRAFFIC		16174	16612	32786
AADT		15872	16302	32174

NOTES:

- 1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYS DOT)
TRAFFIC DATA VIEWER AVERAGE WEEKDAY VOLUMES

NYS DOT VOLUME DATA SUMMARY

ROADWAY: DOLSON TOWN ROAD
SEGMENT: WALLKILL T/L TO NY 17M
LOCATION: BIN# 3345370
START DATE OF COUNT: Wednesday, August 14, 2013
NYS DOT COUNT STATION: 836143
FUNCTIONAL CLASS: 19 - URBAN LOCAL ROAD
FACTOR GROUP: 30
SEASONAL FACTOR: 1.093

TIME PERIOD		DIRECTIONAL VOLUMES		TOTAL VOLUME
START	FINISH	NORTHBOUND	SOUTHBOUND	
12:00 AM	1:00 AM	28	40	68
1:00 AM	2:00 AM	12	17	29
2:00 AM	3:00 AM	9	14	23
3:00 AM	4:00 AM	16	10	26
4:00 AM	5:00 AM	22	13	35
5:00 AM	6:00 AM	53	33	86
6:00 AM	7:00 AM	124	57	181
7:00 AM	8:00 AM	242	131	373
8:00 AM	9:00 AM	318	169	487
9:00 AM	10:00 AM	311	193	504
10:00 AM	11:00 AM	328	240	568
11:00 AM	12:00 PM	356	288	644
12:00 PM	1:00 PM	361	324	685
1:00 PM	2:00 PM	376	333	709
2:00 PM	3:00 PM	340	385	725
3:00 PM	4:00 PM	364	407	771
4:00 PM	5:00 PM	361	446	807
5:00 PM	6:00 PM	346	450	796
6:00 PM	7:00 PM	268	352	620
7:00 PM	8:00 PM	211	279	490
8:00 PM	9:00 PM	148	258	406
9:00 PM	10:00 PM	96	174	270
10:00 PM	11:00 PM	75	114	189
11:00 PM	12:00 AM	47	76	123
AVERAGE WEEKDAY DAILY TRAFFIC		4812	4803	9615
AADT		4403	4394	8797

NOTES:

- 1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYS DOT)
TRAFFIC DATA VIEWER AVERAGE WEEKDAY VOLUMES

NYSDOT CLASSIFICATION DATA SUMMARY

ROADWAY: DOLSONTOWN ROAD
SEGMENT: WALLKILL T/L TO NY 17M
LOCATION: BIN# 3345370
START DATE OF COUNT: Wednesday, August 14, 2013
NYSDOT COUNT STATION: 836143
FUNCTIONAL CLASS: 19 - URBAN LOCAL ROAD
FACTOR GROUP: 30

VEHICLE CLASS	DIRECTIONAL VOLUMES		TOTAL VEHICLES	TOTAL AXLES
	NORTHBOUND	SOUTHBOUND		
F1	36	33	69	138
F2	3952	3909	7861	15722
F3	678	585	1263	2526
F4	6	5	11	28
F5	102	95	197	394
F6	7	50	57	171
F7	3	1	4	16
F8	8	8	16	56
F9	1	2	3	15
F10	0	0	0	0
F11	0	0	0	0
F12	0	0	0	0
F13	0	0	0	0
AVERAGE WEEKDAY TOTAL	4793	4688	9481	19066

	NORTHBOUND	SOUTHBOUND	TOTAL
% TRUCKS & BUSES (F3 - F13)	17%	16%	16%
% HEAVY VEHICLES (F4 - F13)	3%	3%	3%
% F3 - F7	2%	3%	3%
% F8 - F13	0%	0%	0%
% F1	1%	1%	1%
% F2	82%	83%	83%
% F3	14%	12%	13%
% F4	0%	0%	0%
% F5 - F7	2%	3%	3%

VEHICLE CLASSIFICATION CODES:

- F1 MOTORCYCLES
- F2 AUTOS (INCLUDING THOSE HAULING TRAILERS)
- F3 2 AXLE, 4-TIRE PICKUPS, VANS, MOTORHOMES (INCLUDING THOSE HAULING TRAILERS)
- F4 BUSES
- F5 2 AXLE, 6-TIRE SINGLE UNIT TRUCKS
- F6 3 AXLE SINGLE UNIT TRUCKS
- F7 4 OR MORE AXLE SINGLE UNIT TRUCKS
- F8 4 OR LESS AXLE VEHICLES, ONE UNIT IS A TRUCK
- F9 5 AXLE DOUBLE UNIT VEHICLES, ONE UNIT IS A TRUCK
- F10 6 OR MORE AXLE DOUBLE UNIT VEHICLES, ONE UNIT IS A TRUCK
- F11 5 OR LESS AXLE MULTI-UNIT TRUCKS
- F12 6 AXLE MULTI UNIT TRUCKS
- F13 7 OR MORE AXLE MULTI-UNIT TRUCKS

NOTES:

- 1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYSDOT) TRAFFIC DATA VIEWER
AVERAGE WEEKDAY VOLUMES

NYS DOT SPEED DATA SUMMARY

ROADWAY: DOLSON TOWN ROAD
SEGMENT: WALLKILL T/L TO NY 17M
LOCATION: BIN# 3345370
START DATE
OF COUNT: Wednesday, August 14, 2013
NYS DOT COUNT STATION: 836143
FUNCTIONAL CLASS: 19 - URBAN LOCAL ROAD
POSTED SPEED LIMIT: 45
FACTOR GROUP: 30

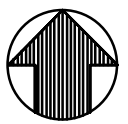
SPEEDS (MPH)	DIRECTIONAL VOLUMES		TOTAL VOLUME
	NORTHBOUND	SOUTHBOUND	
0 - 20.0	3	6	9
20.1 - 25.0	2	4	6
25.1 - 30.0	8	11	19
30.1 - 35.0	63	43	106
35.1 - 40.0	508	334	842
40.1 - 45.0	1735	1401	3136
45.1 - 50.0	1744	2065	3809
50.1 - 55.0	567	782	1349
55.1 - 60.0	106	109	215
60.1 - 65.0	13	9	22
65.1 - 70.0	1	0	1
70.1 - 75.0	0	0	0
75.1 - 80.0	0	0	0
80.1+	0	0	0
UNCLASSIFIED	0	0	0
AVERAGE SPEED (MPH)	45	46	45
50TH PERCENTILE SPEED (MPH)	45	47	46
85TH PERCENTILE SPEED (MPH)	50	51	51

NOTES:

- 1) DATA SOURCE: NEW YORK STATE DEPARTMENT OF TRANSPORTATION (NYS DOT) TRAFFIC DATA VIEWER AVERAGE WEEKDAY VOLUMES



NOTE: LINE DIAGRAM NOT TO SCALE



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REV	DATE	DRAWN BY	DESCRIPTION

**DOLSONTOWN ROAD
GEIS**

**TOWN OF WAWAYANDA
ORANGE COUNTY
NEW YORK**



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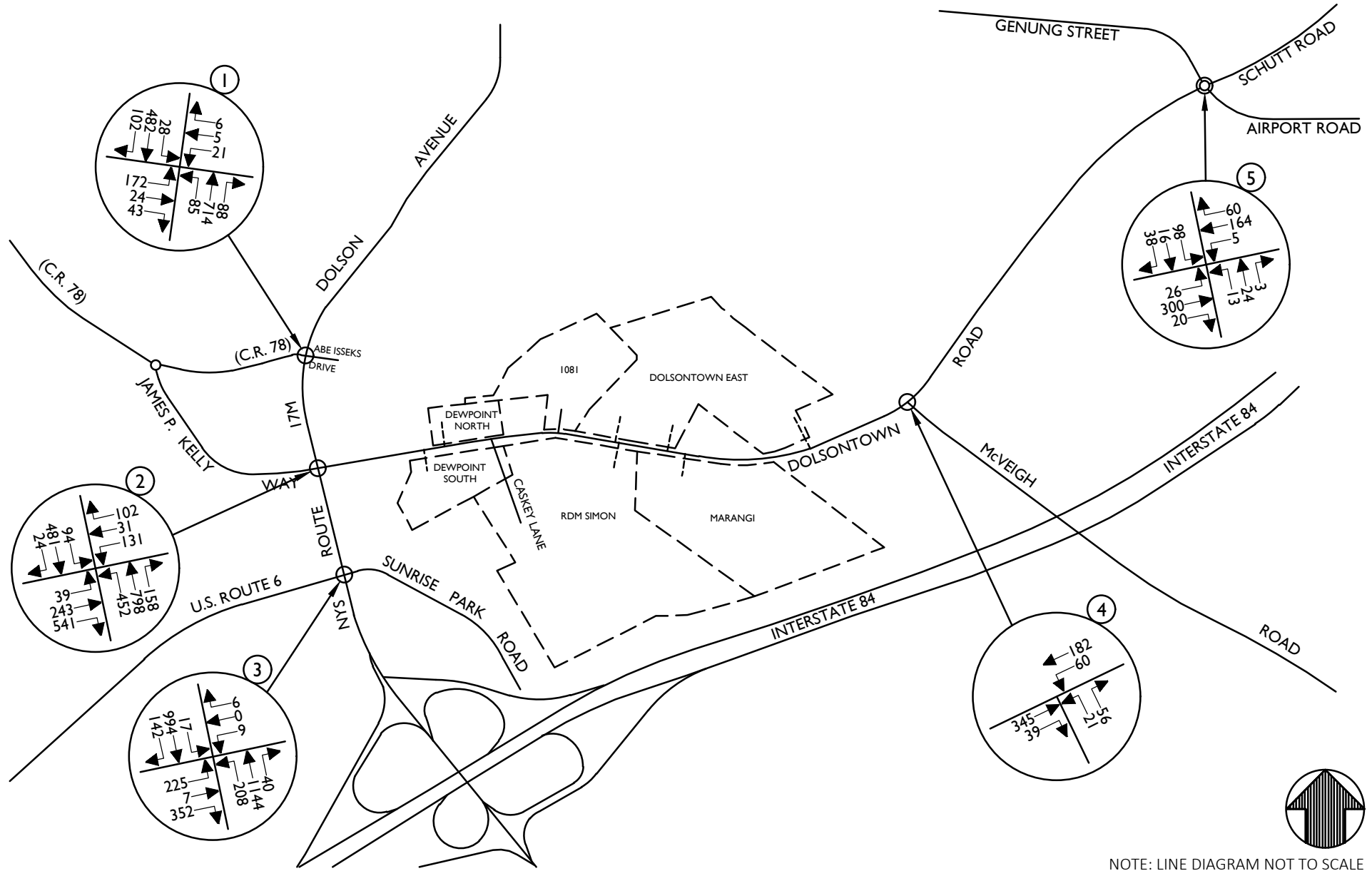
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Valhalla, NY 10595

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TRAFFIC IMPACT STUDY

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	2/1/22	P.W.G.	A.P.R.
PROJECT NUMBER:	20006912C	DRAWING NAME:	220201PWG_FIGURES (1-11A)

SHEET TITLE:
SITE LOCATION MAP
SHEET NUMBER:
1



NOTE: LINE DIAGRAM NOT TO SCALE



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TRAFFIC IMPACT STUDY

SCALE: AS SHOWN	DATE: 2/1/22	DRAWN BY: P.W.G.	CHECKED BY: A.P.R.
--------------------	-----------------	---------------------	-----------------------

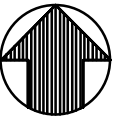
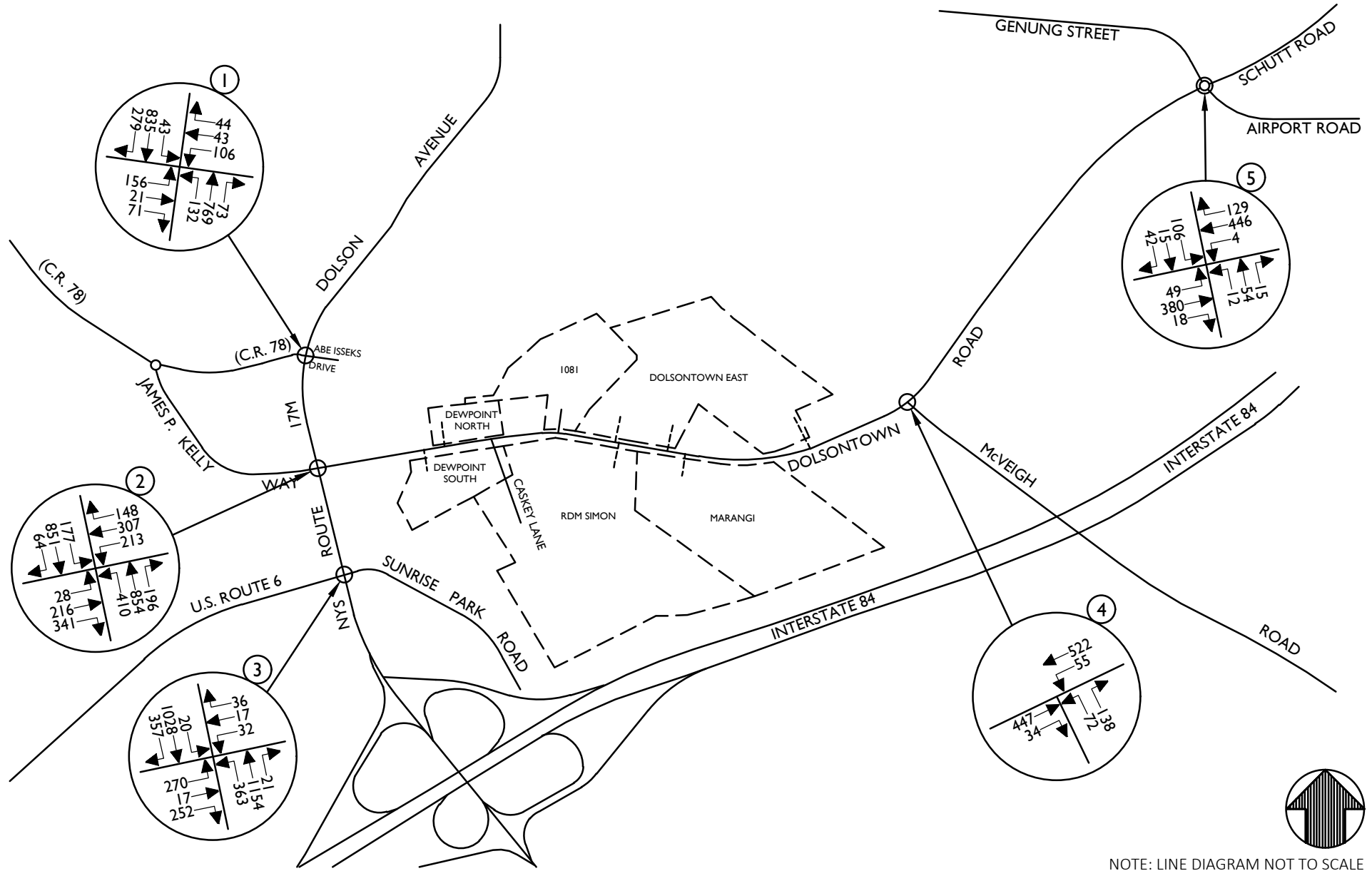
PROJECT NUMBER: 20006912C	DRAWING NAME: 220201PWG_FIGURES (1-11A)
------------------------------	-----------------------------------------------

SHEET TITLE:

**2032 PROJECTED TRAFFIC VOLUMES
PEAK AM HOUR**

SHEET NUMBER:

4



NOTE: LINE DIAGRAM NOT TO SCALE



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REV	DATE	DRAWN BY	DESCRIPTION

DOLSONTOWN ROAD
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TOWN OF WAWAYANDA
ORANGE COUNTY
NEW YORK



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DOING BUSINESS AS MASER CONSULTING
ENGINEERING & LAND SURVEYING

TRAFFIC IMPACT STUDY

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	2/1/22	P.W.G.	A.P.R.
PROJECT NUMBER:	20006912C	DRAWING NAME:	220201PWG_FIGURES (1-11A)

SHEET TITLE:
2032 PROJECTED TRAFFIC VOLUMES
PEAK PM HOUR

SHEET NUMBER:
5

Table No. 2
Level of Service Summary Table
Weekday Peak AM Hour

				2022 Existing			2032 No-Build			2032 Build			Change in Delay	
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	No-Build to Build	
1	NYS Route 17M & C.R. 78/Abe Isseks Drive			Signalized										
	C.R. 78	EB	LT	0.62	D	44.1	0.83	E	57.1	0.83	E	57.1	0.0	
				0.15	C	33.2	0.20	C	33.9	0.20	C	33.9	0.0	
				-	D	42.1	-	D	53.1	-	D	53.1	0.0	
	Abe Isseks Drive	WB	LT	0.08	C	32.1	0.16	C	33.2	0.16	C	33.2	0.0	
				0.02	C	31.5	0.03	C	31.5	0.03	C	31.5	0.0	
				-	C	32.0	-	C	33.0	-	C	33.0	0.0	
	NYS Route 17M	NB	L	0.22	C	29.3	0.23	C	29.4	0.23	C	29.4	0.0	
				0.71	C	32.3	0.75	C	34.2	0.77	D	35.0	0.8	
				-	C	32.0	-	C	33.8	-	C	34.5	0.7	
	NYS Route 17M	SB	L	0.07	C	27.3	0.07	C	27.3	0.07	C	27.3	0.0	
				0.51	C	26.1	0.66	C	30.1	0.75	C	33.8	3.7	
				-	C	26.2	-	C	30.0	-	C	33.6	3.6	
				Overall	-	C	31.3	-	D	35.3	-	D	36.8	1.5
2	NYS Route 17M & Dolsontown Road/James P. Kelly Way			Signalized										
	James P. Kelly Way	EB	L	0.14	C	33.8	0.19	C	34.3	0.20	C	33.7	-0.6	
				0.81	D	49.7	0.85	E	56.6	0.97	F	80.8	24.2	
				0.68	A	7.1	0.78	B	11.7	0.77	B	11.4	-0.3	
				-	C	20.9	-	C	26.3	-	D	36.3	10.0	
	Dolsontown Road	WB	L	0.61	D	37.2	0.83	E	59.8	1.12	F	141.0	81.2	
				0.43	C	34.8	0.53	D	36.5	0.58	D	37.8	1.3	
				-	D	36	-	D	48.1	-	F	89.9	41.8	
				-	C	31.5	1.01	F	72.3	1.02	F	77.6	5.3	
	NYS Route 17M	NB	L	0.71	C	31.5	1.01	F	72.3	1.02	F	77.6	5.3	
				0.63	C	24.2	0.72	C	28.8	0.86	D	39.0	10.2	
				-	C	26.5	-	D	44.0	-	D	50.8	6.8	
				-	C	24.2	0.72	C	28.8	0.86	D	39.0	10.2	
	NYS Route 17M	SB	L	0.52	D	40.6	0.63	D	42.5	1.20	F	169.9	127.4	
				0.86	D	52.1	0.96	E	75.5	0.98	F	80.7	5.2	
				-	D	50.3	-	E	70.3	-	F	102.8	32.5	
				-	C	30.5	-	D	46.0	-	E	63.1	17.1	
	With Additional WB Through Lane													
	James P. Kelly Way	EB	L	-	-	-	0.16	C	34.0	0.17	C	33.4	-0.6	
				-	-	-	0.85	E	56.6	0.97	F	80.8	24.2	
				-	-	-	0.78	B	11.7	0.77	B	11.4	-0.3	
				-	-	-	-	C	26.3	-	D	36.3	10.0	
	Dolsontown Road	WB	L	-	-	-	0.83	E	59.8	1.12	F	141.0	81.2	
				-	-	-	0.38	D	35.1	0.41	D	35.0	-0.1	
				-	-	-	-	D	47.1	-	F	88.2	41.1	
				-	-	-	1.01	F	72.3	1.02	F	77.6	5.3	
	NYS Route 17M	NB	L	-	-	-	0.72	C	28.8	0.86	D	39.0	10.2	
				-	-	-	-	D	44.0	-	D	50.8	6.8	
				-	-	-	0.63	D	42.5	1.20	F	169.9	127.4	
				-	-	-	0.96	E	75.5	0.98	F	80.7	5.2	
	NYS Route 17M	SB	L	-	-	-	-	E	70.3	-	F	102.8	32.5	
				-	-	-	-	D	45.9	-	E	62.9	17.0	
				With Additional WB Through Lane & Additional NB Left Turn Lane Additional NB Right Turn Lane										
				James P. Kelly Way	EB	L	-	-	-	-	-	-	0.13	C
	-	-	-				-	-	-	0.86	D	52.4	-4.2	
	-	-	-				-	-	-	0.89	C	20.8	9.1	
	-	-	-				-	-	-	-	C	32.3	6.0	
	Dolsontown Road	WB	L	-	-	-	-	-	-	0.75	D	38.8	-21.0	
				-	-	-	-	-	-	0.14	C	29.1	-6.0	
				-	-	-	-	-	-	-	C	33.7	-13.4	
				-	-	-	-	-	-	0.32	D	49.3	-23.0	
	NYS Route 17M	NB	L, L	-	-	-	-	-	-	0.84	D	38.2	9.4	
				-	-	-	-	-	-	0.65	C	28.8	-	
				-	-	-	-	-	-	-	D	39.7	-4.3	
				-	-	-	-	-	-	0.79	D	50.1	7.6	
	NYS Route 17M	SB	L	-	-	-	-	-	-	0.89	D	52.8	-22.7	
-				-	-	-	-	-	-	D	52.0	-18.3		
-				-	-	-	-	-	-	D	40.2	-5.7		
-				-	-	-	-	-	-	D	40.2	-5.7		

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				2022 Existing			2032 No-Build			2032 Build			Change in Delay	
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	No-Build to Build	
3	NYS Route 17M & U.S. Route 6/Sunrise Park Road			Signalized										
	U.S. Route 6	EB	LT	0.66	C	33.3	-	-	-	-	-	-	-	
			R	0.00	A	0.0	-	-	-	-	-	-	-	
		EB Overall		-	C	33.3	-	-	-	-	-	-	-	
	Sunrise Park Road	WB	LTR	0.04	C	26.3	-	-	-	-	-	-	-	
			WB Overall		-	C	26.3	-	-	-	-	-	-	-
	NYS Route 17M	NB	L	0.55	B	11.6	-	-	-	-	-	-	-	-
			T, TR	0.53	A	9.2	-	-	-	-	-	-	-	-
		NB Overall		-	A	9.5	-	-	-	-	-	-	-	-
	NYS Route 17M	SB	L	0.06	B	12.2	-	-	-	-	-	-	-	-
			T, T	0.59	B	15.1	-	-	-	-	-	-	-	-
		R	0.00	A	0.0	-	-	-	-	-	-	-	-	-
		SB Overall		-	B	15	-	-	-	-	-	-	-	-
		Overall		-	B	13.8	-	-	-	-	-	-	-	-
	With Additional EB Left Turn Lane													
	U.S. Route 6	EB	L, LT	-	-	-	0.77	D	49.6	0.80	D	49.7	0.1	
			R	-	-	-	0.00	A	0.0	0.00	A	0.0	0.0	
		EB Overall		-	-	-	-	D	49.6	-	D	49.7	0.1	
	Sunrise Park Road	WB	LTR	-	-	-	0.57	E	67.7	0.56	E	67.9	0.2	
			WB Overall		-	-	-	-	E	67.7	-	E	67.9	0.2
	NYS Route 17M	NB	L	-	-	-	0.90	C	34.2	0.90	C	34.4	0.2	
			T, TR	-	-	-	0.56	A	9.4	0.62	B	11.2	1.8	
		NB Overall		-	-	-	-	B	14.8	-	B	15.9	1.1	
	NYS Route 17M	SB	L	-	-	-	0.08	B	15.1	0.09	B	17.3	2.2	
			T, T	-	-	-	0.70	C	23.5	0.71	C	23.6	0.1	
		R	-	-	-	0.00	A	0.0	0.00	A	0.0	0.0		
		SB Overall		-	-	-	-	C	23.4	-	C	23.5	0.1	
		Overall		-	-	-	-	C	21.2	-	C	22.0	0.8	
	With Additional EB Left Turn Lane & Additional NB Left Turn Lane													
	U.S. Route 6	EB	L, LT	-	-	-	-	-	-	0.78	D	42.3	-7.3	
			R	-	-	-	-	-	-	0.00	A	0.0	0.0	
		EB Overall		-	-	-	-	-	-	-	D	42.3	-7.3	
	Sunrise Park Road	WB	LTR	-	-	-	-	-	-	0.54	E	58.5	-9.2	
			WB Overall		-	-	-	-	-	-	E	58.5	-9.2	
	NYS Route 17M	NB	L, L	-	-	-	-	-	-	0.80	D	42.3	8.1	
			T, TR	-	-	-	-	-	-	0.65	B	12.0	2.6	
		NB Overall		-	-	-	-	-	-	-	B	18.1	3.3	
	NYS Route 17M	SB	L	-	-	-	-	-	-	0.09	B	18.0	2.9	
			T, T	-	-	-	-	-	-	0.79	C	25.8	2.3	
		R	-	-	-	-	-	-	0.00	A	0.0	0.0		
		SB Overall		-	-	-	-	-	-	-	C	25.7	2.3	
		Overall		-	-	-	-	-	-	-	C	23.2	2.0	
4	Dolsontown Road & McVeigh Road			Unsignalized										
	Dolsontown Road	EB	TR	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.0	
	Dolsontown Road	WB	LT	0.05	A	8.3	0.06	A	8.4	0.06	A	8.5	0.1	
	McVeigh Road	NWB	LR	0.16	B	13.6	0.19	C	15.2	0.20	C	16.0	0.8	
	With Signalization			Signalized										
	Dolsontown Road	EB	TR	-	-	-	0.62	A	6.5	0.62	A	6.5	0.0	
	Dolsontown Road	WB	LT	-	-	-	0.40	A	5.5	0.47	A	5.7	0.2	
	McVeigh Road	NWB	LR	-	-	-	0.32	A	9.1	0.33	A	9.2	0.1	
		Overall		-	-	-	-	A	6.4	-	A	6.4	0.0	
5	Dolsontown Road/Schutt Road & Genung Street/Airport Road			Roundabout										
	U.S. Route 6	EB	LTR	0.36	A	6.7	0.41	A	7.4	0.41	A	7.5	0.1	
	Sunrise Park Road	WB	LTR	0.22	A	5.0	0.29	A	5.8	0.35	A	6.4	0.6	
	NYS Route 17M	SEB	LTR	0.17	A	5.0	0.19	A	5.4	0.20	A	5.9	0.5	
	NYS Route 17M	NWB	LTR	0.06	A	5.1	0.07	A	5.7	0.07	A	5.7	0.0	
		Overall		-	A	5.8	-	A	6.4	-	A	6.8	0.4	

Table No. 2
Level of Service Summary Table
Weekday Peak AM Hour

				2022 Existing			2032 No-Build			2032 Build			Change in Delay No-Build to Build
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	
6	Dolsontown Road & Dewpoint South Driveway	Unsignalized											
	Dolsontown Road	EB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dolsontown Road	WB	L	-	-	-	-	-	-	0.01	A	10.0	-
	Dewpoint South Driveway	NB	LR	-	-	-	-	-	-	0.02	C	17.4	-
7	Dolsontown Road & Dewpoint North Driveway	Unsignalized											
	Dolsontown Road	EB	L	-	-	-	-	-	-	0.01	A	8.0	-
	Dolsontown Road	WB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dewpoint North Driveway	SB	LR	-	-	-	-	-	-	0.00	B	10.0	-
8	Dolsontown Road & 1081 Driveway	Unsignalized											
	Dolsontown Road	EB	L	-	-	-	0.06	A	7.9	0.06	A	8.1	0.2
	Dolsontown Road	WB	TR	-	-	-	0.00	A	0.0	0.00	A	0.0	0.0
	1081 Driveway	SB	LR	-	-	-	0.02	B	10.1	0.02	B	10.8	0.7
9	Dolsontown Road & Dolsontown East Lot 1 Car Driveway	Unsignalized											
	Dolsontown Road	EB	L	-	-	-	-	-	-	0.10	A	8.2	-
	Dolsontown Road	WB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dolsontown East Lot 1 Car Driveway	SB	LR	-	-	-	-	-	-	0.03	B	11.1	-
10	Dolsontown Road & Dolsontown East Lot 1 Truck Driveway	Unsignalized											
	Dolsontown Road	EB	L	-	-	-	-	-	-	0.01	A	9.3	-
	Dolsontown Road	WB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dolsontown East Lot 1 Truck Driveway	SB	LR	-	-	-	-	-	-	0.01	B	11.8	-
11	Dolsontown Road & Dolsontown East Lot 2 Driveway	Unsignalized											
	Dolsontown Road	EB	L	-	-	-	-	-	-	0.02	A	8.0	-
	Dolsontown Road	WB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dolsontown East Lot 2 Driveway	SB	LR	-	-	-	-	-	-	0.01	B	10.0	-
12	Dolsontown Road & RDM Simon Driveway	Unsignalized											
	Dolsontown Road	EB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dolsontown Road	WB	L	-	-	-	-	-	-	0.02	A	9.0	-
	RDM Simon Driveway	NB	LR	-	-	-	-	-	-	0.04	B	14.3	-
13	Dolsontown Road & Marangi Driveway	Unsignalized											
	Dolsontown Road	EB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dolsontown Road	WB	L	-	-	-	-	-	-	0.01	A	8.9	-
	Marangi Driveway	NB	LR	-	-	-	-	-	-	0.04	C	16.5	-

NOTES:

- 1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH OF THE UNSIGNALIZED INTERSECTIONS AS WELL AS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS. SEE APPENDIX "C" FOR A DESCRIPTION OF THE LEVELS OF SERVICE.

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Level of Service Summary Table
Weekday Peak PM Hour

				2022 Existing			2032 No-Build			2032 Build			Change in Delay
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	No-Build to Build
1	NYS Route 17M & C.R. 78/Abe Isseks Drive			Signalized									
	C.R. 78	EB	LT	0.51	D	40.5	0.66	D	46.4	0.66	D	46.4	0.0
			R	0.22	C	34.1	0.25	C	34.5	0.25	C	34.5	0.0
			EB Overall	-	D	38.7	-	D	43.4	-	D	43.4	0.0
	Abe Isseks Drive	WB	LT	0.41	D	37.6	0.69	D	47.5	0.69	D	47.5	0.0
			R	0.15	C	33.2	0.16	C	33.4	0.16	C	33.4	0.0
			WB Overall	-	D	36.6	-	D	45.1	-	D	45.1	0.0
	NYS Route 17M	NB	L	0.30	C	30.5	0.32	C	30.7	0.32	C	30.7	0.0
			T, TR	0.65	C	30.0	0.81	D	37.9	0.89	D	45.6	7.7
			NB Overall	-	C	30	-	D	37	-	D	43.9	6.9
	NYS Route 17M	SB	L	0.09	C	27.5	0.09	C	27.6	0.09	C	27.6	0.0
			T, TR	0.82	D	37.9	0.89	D	44.1	0.91	D	47.2	3.1
			SB Overall	-	D	37.3	-	D	43.1	-	D	46.0	2.9
			Overall	-	C	34.6	-	D	40.9	-	D	44.8	3.9
2	NYS Route 17M & Dolsontown Road/James P. Kelly Way			Signalized									
	James P. Kelly Way	EB	L	0.22	C	34.6	0.35	C	34.6	0.35	C	34.6	0.0
			T	0.58	D	38.6	0.58	D	38.9	0.61	D	39.8	0.9
			R	0.49	A	8.3	0.52	A	8.9	0.52	A	8.9	0.0
			EB Overall	-	C	20.8	-	C	21.7	-	C	22.3	0.6
	Dolsontown Road	WB	L	0.60	C	31.6	0.78	D	42.8	1.27	F	180.0	137.2
			TR	0.94	E	61.4	1.05	F	93.8	1.38	F	222.6	128.8
			WB Overall	-	D	51.9	-	E	76.1	-	F	205.9	129.8
	NYS Route 17M	NB	L	0.87	E	55.4	1.14	F	125.8	1.14	F	125.8	0.0
			T, TR	0.76	D	35.4	0.93	D	53.0	0.97	E	59.8	6.8
			NB Overall	-	D	41.0	-	E	73.4	-	E	77.5	4.1
	NYS Route 17M	SB	L	0.69	D	41.1	0.80	D	50.3	0.90	E	67.9	17.6
			T, TR	0.92	E	58.1	1.04	F	88.3	1.04	F	88.3	0.0
			SB Overall	-	E	55.1	-	F	82.1	-	F	84.6	2.5
			Overall	-	D	43.9	-	E	68.9	-	F	101.1	32.2
	With Additional WB Through Lane												
	James P. Kelly Way	EB	L	-	-	-	0.20	C	34.3	0.25	C	34.7	0.4
			T	-	-	-	0.79	D	43.2	0.80	D	44.7	1.5
			R	-	-	-	0.57	A	9.5	0.57	A	9.4	-0.1
			EB Overall	-	-	-	-	C	23.6	-	C	24.5	0.9
	Dolsontown Road	WB	L	-	-	-	0.91	E	64.1	1.46	F	262.1	198.0
			T, TR	-	-	-	0.66	D	35.4	0.84	D	45.1	9.7
			WB Overall	-	-	-	-	D	45.2	-	F	129.2	84.0
	NYS Route 17M	NB	L	-	-	-	1.07	F	97.9	1.07	F	100.6	2.7
			T, TR	-	-	-	0.88	D	41.4	0.92	D	46.8	5.4
			NB Overall	-	-	-	-	E	57.2	-	E	61.3	4.1
	NYS Route 17M	SB	L	-	-	-	0.75	D	41.9	0.85	D	54.5	12.6
			T, TR	-	-	-	0.98	E	67.0	0.98	E	69.1	2.1
			SB Overall	-	-	-	-	E	62.8	-	E	66.4	3.6
			Overall	-	-	-	-	D	51.8	-	E	73.1	21.3
	With Additional WB Through Lane & Additional NB Left Turn Lane Additional NB Right Turn Lane												
	James P. Kelly Way	EB	L	-	-	-	-	-	0.22	C	34.7	0.4	
			T	-	-	-	-	-	0.81	D	47.0	3.8	
			R	-	-	-	-	-	0.64	B	11.5	2.0	
			EB Overall	-	-	-	-	-	-	C	26.5	2.9	
	Dolsontown Road	WB	L	-	-	-	-	-	1.26	F	170.7	106.6	
			T, TR	-	-	-	-	-	0.75	D	38.0	2.6	
			WB Overall	-	-	-	-	-	-	F	89.4	44.2	
	NYS Route 17M	NB	L, L	-	-	-	-	-	0.82	D	51.1	-46.8	
			T, T	-	-	-	-	-	0.78	C	32.6	-8.8	
			R	-	-	-	-	-	0.36	B	16.7	-	
			NB Overall	-	-	-	-	-	-	D	35.3	-21.9	
	NYS Route 17M	SB	L	-	-	-	-	-	0.80	D	46.2	4.3	
			T, TR	-	-	-	-	-	0.93	D	54.8	-12.2	
			SB Overall	-	-	-	-	-	-	D	53.2	-9.6	
			Overall	-	-	-	-	-	-	D	51.2	-0.6	

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Weekday Peak PM Hour

				2022 Existing			2032 No-Build			2032 Build			Change in Delay		
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	No-Build to Build		
3	NYS Route 17M & U.S. Route 6/Sunrise Park Road	Signalized													
			U.S. Route 6	EB	LT	0.72	D	35.1	-	-	-	-	-	-	
					R	0.00	A	0.0	-	-	-	-	-	-	
				EB Overall		-	D	35.1	-	-	-	-	-	-	
			Sunrise Park Road	WB	LTR	0.20	C	26.5	-	-	-	-	-	-	
				WB Overall		-	C	26.5	-	-	-	-	-	-	
			NYS Route 17M	NB	L	0.90	C	34.6	-	-	-	-	-	-	
					T, TR	0.54	B	10.8	-	-	-	-	-	-	
				NB Overall		-	B	16.4	-	-	-	-	-	-	
			NYS Route 17M	SB	L	0.08	B	16.2	-	-	-	-	-	-	
					T, T	0.75	C	25.1	-	-	-	-	-	-	
					R	0.00	A	0.0	-	-	-	-	-	-	
				SB Overall		-	C	24.9	-	-	-	-	-	-	
				Overall		-	C	21.5	-	-	-	-	-	-	
			With Additional EB Left Turn Lane												
			U.S. Route 6	EB	L, LT	-	-	-	0.85	E	55.7	0.86	E	56.6	0.9
					R	-	-	-	0.00	A	0.0	0.00	A	0.0	0.0
				EB Overall		-	-	-	-	E	55.7	-	E	56.6	0.9
			Sunrise Park Road	WB	LTR	-	-	-	0.80	E	62.2	0.80	E	62.4	0.2
				WB Overall		-	-	-	-	E	62.2	-	E	62.4	0.2
			NYS Route 17M	NB	L	-	-	-	0.95	E	62.7	0.95	E	63.5	0.8
			T, TR	-	-	-	0.61	B	15.5	0.63	B	16.3	0.8		
		NB Overall		-	-	-	-	C	26.9	-	C	27.4	0.5		
	NYS Route 17M	SB	L	-	-	-	0.11	C	26.8	0.12	C	27.2	0.4		
			T, T	-	-	-	1.05	F	75.5	1.17	F	122.1	46.6		
			R	-	-	-	0.00	A	0.0	0.00	A	0.0	0.0		
		SB Overall		-	-	-	-	E	74.7	-	F	120.6	45.9		
		Overall		-	-	-	-	D	48.0	-	E	65.9	17.9		
	With Additional EB Left Turn Lane & Additional NB Left Turn Lane														
	U.S. Route 6	EB	L, LT	-	-	-	-	-	0.85	D	52.0	-3.7			
			R	-	-	-	-	-	0.00	A	0.0	0.0			
		EB Overall		-	-	-	-	-	-	D	52.0	-3.7			
	Sunrise Park Road	WB	LTR	-	-	-	-	-	0.79	E	57.3	-4.9			
		WB Overall		-	-	-	-	-	-	E	57.3	-4.9			
	NYS Route 17M	NB	L, L	-	-	-	-	-	0.92	E	66.6	3.9			
			T, TR	-	-	-	-	-	0.65	B	16.5	1.0			
		NB Overall		-	-	-	-	-	-	C	28.4	1.5			
	NYS Route 17M	SB	L	-	-	-	-	-	0.11	C	24.7	-2.1			
			T, T	-	-	-	-	-	0.99	D	51.0	-24.5			
			R	-	-	-	-	-	0.00	A	0.0	0.0			
		SB Overall		-	-	-	-	-	-	D	50.5	-24.2			
		Overall		-	-	-	-	-	-	D	40.8	-7.2			
4	Dolsontown Road & McVeigh Road	Unsignalized	Dolsontown Road	EB	TR	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	
			Dolsontown Road	WB	LT	0.05	A	8.6	0.06	A	8.8	0.06	A	9.0	0.2
			McVeigh Road	NWB	LR	0.75	E	47.3	0.99	F	101.2	1.11	F	143.3	42.1
		With Signalization		Signalized											
		Dolsontown Road	EB	TR	-	-	-	0.63	A	7.1	0.67	A	7.3	0.2	
		Dolsontown Road	WB	LT	-	-	-	0.68	A	7.6	0.69	A	7.7	0.1	
		McVeigh Road	NWB	LR	-	-	-	0.71	B	15.3	0.72	B	16.4	1.1	
			Overall		-	-	-	-	A	8.6	-	A	8.8	0.2	
		5	Dolsontown Road/Schutt Road & Genung Street/Airport Road	Roundabout	U.S. Route 6	EB	LTR	0.37	A	6.5	0.43	A	7.5	0.48	A
Sunrise Park Road	WB				LTR	0.47	A	7.9	0.53	A	8.9	0.54	A	9.1	0.2
NYS Route 17M	SEB				LTR	0.19	A	6.2	0.22	A	7.1	0.22	A	7.2	0.1
NYS Route 17M	NWB				LTR	0.10	A	5.6	0.11	A	6.1	0.12	A	6.5	0.4
	Overall				-	A	7.0	-	A	8.0	-	A	8.4	0.4	

Table No. 2
Level of Service Summary Table
Weekday Peak PM Hour

				2022 Existing			2032 No-Build			2032 Build			Change in Delay No-Build to Build
				v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	
6	Dolsontown Road & Dewpoint South Driveway	Unsignalized											
	Dolsontown Road	EB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dolsontown Road	WB	L	-	-	-	-	-	-	0.00	A	9.2	-
	Dewpoint South Driveway	NB	LR	-	-	-	-	-	-	0.17	C	22.3	-
7	Dolsontown Road & Dewpoint North Driveway	Unsignalized											
	Dolsontown Road	EB	L	-	-	-	-	-	-	0.01	B	11.1	-
	Dolsontown Road	WB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dewpoint North Driveway	SB	LR	-	-	-	-	-	-	0.04	C	19.6	-
8	Dolsontown Road & 1081 Driveway	Unsignalized											
	Dolsontown Road	EB	L	-	-	-	0.01	A	8.8	0.01	A	9.8	1.0
	Dolsontown Road	WB	TR	-	-	-	0.00	A	0.0	0.00	A	0.0	0.0
	1081 Driveway	SB	LR	-	-	-	0.14	B	14.2	0.20	C	18.8	4.6
9	Dolsontown Road & Dolsontown East Lot 1 Car Driveway	Unsignalized											
	Dolsontown Road	EB	L	-	-	-	-	-	-	0.03	A	9.5	-
	Dolsontown Road	WB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dolsontown East Lot 1 Car Driveway	SB	LR	-	-	-	-	-	-	0.35	C	20.2	-
10	Dolsontown Road & Dolsontown East Lot 1 Truck Driveway	Unsignalized											
	Dolsontown Road	EB	L	-	-	-	-	-	-	0.01	B	11.4	-
	Dolsontown Road	WB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dolsontown East Lot 1 Truck Driveway	SB	LR	-	-	-	-	-	-	0.05	C	17.9	-
11	Dolsontown Road & Dolsontown East Lot 2 Driveway	Unsignalized											
	Dolsontown Road	EB	L	-	-	-	-	-	-	0.01	A	9.3	-
	Dolsontown Road	WB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dolsontown East Lot 2 Driveway	SB	LR	-	-	-	-	-	-	0.05	B	14.1	-
12	Dolsontown Road & RDM Simon Driveway	Unsignalized											
	Dolsontown Road	EB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dolsontown Road	WB	L	-	-	-	-	-	-	0.00	A	9.2	-
	RDM Simon Driveway	NB	LR	-	-	-	-	-	-	0.33	C	22.3	-
13	Dolsontown Road & Marangi Driveway	Unsignalized											
	Dolsontown Road	EB	TR	-	-	-	-	-	-	0.00	A	0.0	-
	Dolsontown Road	WB	L	-	-	-	-	-	-	0.00	B	10.3	-
	Marangi Driveway	NB	LR	-	-	-	-	-	-	0.14	C	18.9	-

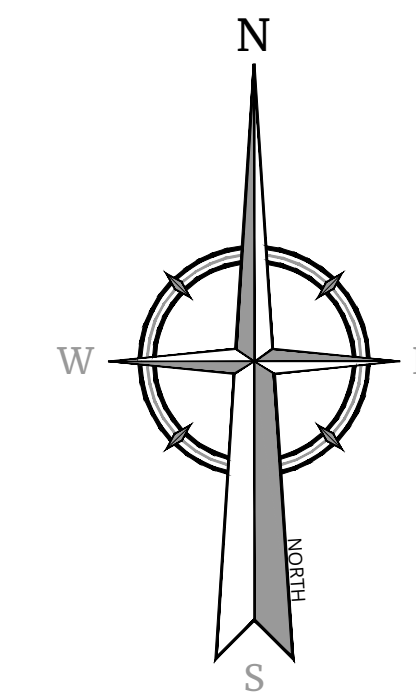
NOTES:

- 1) THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH OF THE UNSIGNALIZED INTERSECTIONS AS WELL AS FOR EACH APPROACH AND THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTIONS. SEE APPENDIX "C" FOR A DESCRIPTION OF THE LEVELS OF SERVICE.



- ## SUMMARY OF IMPROVEMENTS

1. RESTRIPE NYS ROUTE 17M TO CREATE A CONTINUOUS LANE FOR THE I-84 WB OFF RAMP TO NYS ROUTE 17M NB (COMPLETED BY SLATE HILL COMMERCE CENTER)
2. ADD AN ADDITIONAL NB LEFT TURN LANE TO NYS ROUTE 17M AND WIDEN EB ROUTE 6 APPROACH TO PROVIDE RECEIVING LANES
3. ADD AN ADDITIONAL EB LEFT TURN LANE TO U.S. ROUTE 6 AND WIDEN NYS ROUTE 17M NORTH OF THE INTERSECTION TO PROVIDE RECEIVING LANES (COMPLETED BY SLATE HILL COMMERCE CENTER)
4. REPLACE TRAFFIC SIGNAL
5. CONSTRUCT A SEPARATE RIGHT TURN LANE AND AN ADDITIONAL LEFT TURN LANE ON NYS ROUTE 17M NB
6. RECONSTRUCT EB RIGHT TURN LANE TO SHIFT SOUTH AND REALIGN EB APPROACH WITH RECEIVING LANE ON DOLSONTOWN ROAD
7. CONSTRUCT A SEPARATE APPROACH LANE ON DOLSONTOWN ROAD APPROACH
8. REPLACE TRAFFIC SIGNAL



Engineering
& Design

www.colliersengineering.com

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Doing Business as **MASERATI**
CONTRIBUTOR



Know what's below. _____
Call before you dig. _____
 FOR STATE SPECIFIC DIRECT PHONE NUMBERS
 VISIT: WWW.CALL811.COM

[illegible]

Philip John Grealy
NEW YORK LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: 059858-1
COLLIERS ENGINEERING & DESIGN CT, P.C.
N.Y. C.O.A.#: 0017609

CONCEPT PLAN
FOR
DOLSONTOWN GEIS

TOWN OF WAWAYANDA
ORANGE COUNTY
NEW YORK

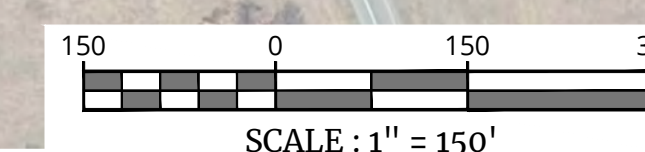


**Engineering
& Design**

SCALE: AS SHOWN	DATE: 8/19/22	DRAWN BY: P.W.G.	CHECKED BY: A.P.R.
PROJECT NUMBER: 20006912C		DRAWING NAME: R-CNPT-LAYT	

SHEET TITLE:
ROUTE 17M CONCEPTUAL
IMPROVEMENTS

SHEET NUMBER: 1A



NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Town of Wawayanda Letter

TOWN OF WAWAYANDA
SLATE HILL, NEW YORK 10973

Denise F. Quinn
SUPERVISOR

80 RIDGEBURY HILL ROAD
SLATE HILL, NY 10973



Tel: (845) 355-5700

July 10, 2024

Mr. David Lenox
EnSol Inc.
661 Main Street
Niagara Falls, NY 14301
dlenox@ensolinc.com

Re: Dom-Mar Transfer and Recycling Facility CLCPA Mitigation Proposals

Dear Mr. Lenox:

I am writing on behalf of the Town of Wawayanda regarding the proposed mitigation plans for the Dom-Mar Transfer and Recycling Transfer. We wish to inform you that the Town of Wawayanda takes no exception to the proposed mitigation measures, provided they meet all the requirements set forth by the Department of Environmental Conservation (DEC).

Our primary concern is to ensure that the mitigation efforts are comprehensive and fully compliant with DEC standards. It is imperative that these measures effectively address any potential environmental and community impacts associated with the operation of the transfer and recycling facility.

We appreciate the effort and consideration that has gone into the preparation of these proposals and trust that Dom-Mar Transfer and Recycling Facility will continue to work diligently to adhere to all regulations and guidelines.

Thank you for your attention to this matter. Should you have any questions or require further clarification, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "Denise F. Quinn". The signature is stylized with a large, flowing "D" and "Q".

Denise F. Quinn
Town Supervisor

cc:

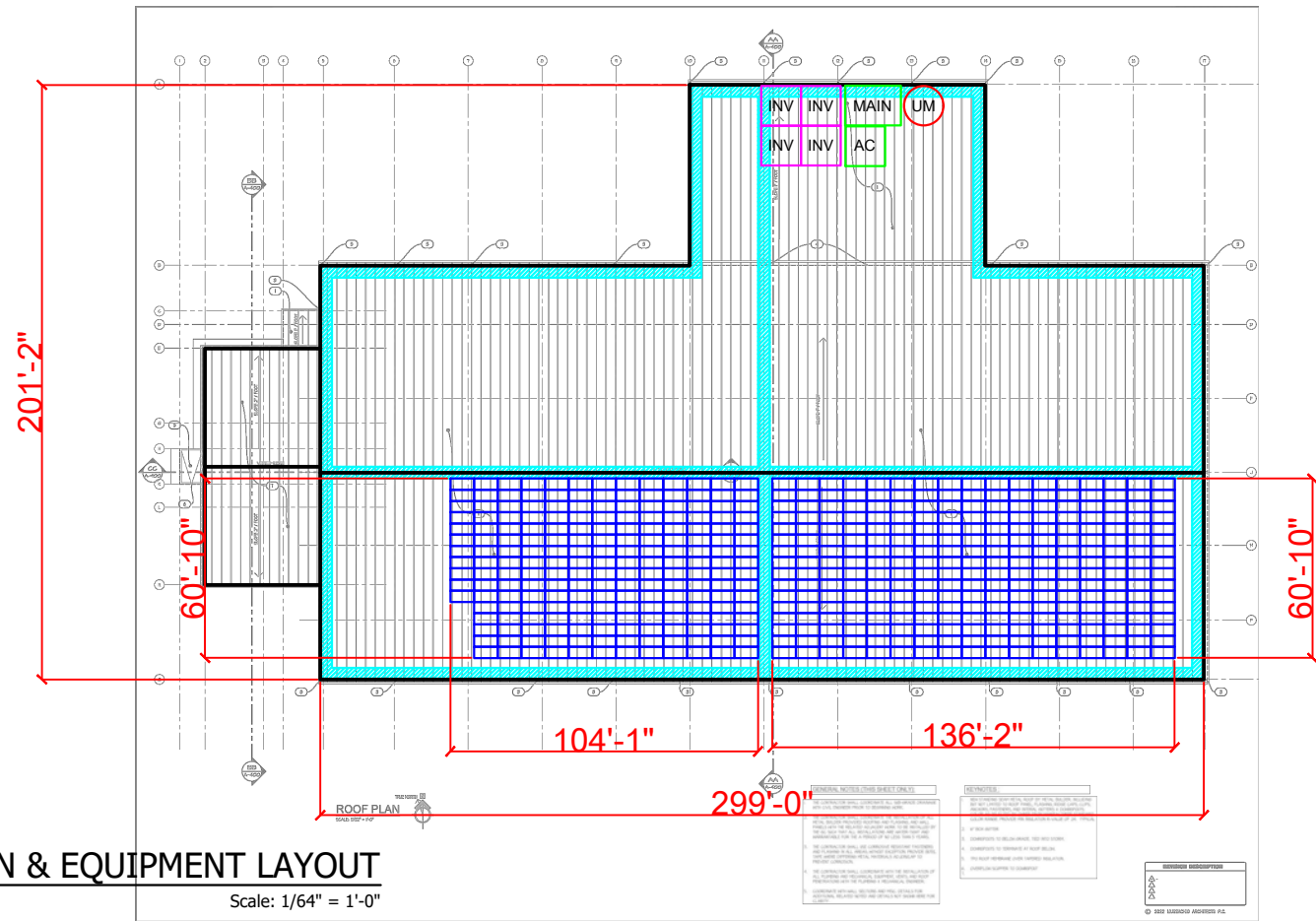
Stacey Daly-Wilkins (Town of Wawayanda Planning Board Secretary)
Michael Marangi (DOM KAM LLC)
John Battaglia, PE (EnSol Inc.)

Attachment 5

EnSol, Inc.

ENGINEERING + ENVIRONMENTAL

Roof Top Solar Panel Plan and Specifications



NOTES: 1. EQUIPMENT LOCATION TO BE FIELD VERIFIED
2. SITE COMPLIANCE WITH APPROPRIATE STATE AND LOCAL CODES TO BE VERIFIED BY AUTHORITY HAVING JURISDICTION

General Notes

THE INSTALLATION OF PV SYSTEM SHALL BE IN ACCORDANCE WITH THE MOST RECENT NATIONAL ELECTRIC AND BUILDING CODES AND STANDARDS, AS AMENDED BY JURISDICTION

ELECTRICAL STAMP AREA

THIS INFORMATION IS CONFIDENTIAL AND PROPRIETARY TO SOLAR LIBERTY ENERGY SYSTEMS, INC. PLEASE DO NOT SHARE THIS WITH ANYONE UNLESS THERE IS A WRITTEN APPROVAL FROM SOLAR LIBERTY.

2	Further Downsize	02/07/24
1	Downsize	10/23/23
0	Original Site Plan	10/11/23
No.	Revision/Issue	Date



6500 Sheridan Drive
Suite 120
Buffalo, NY 14221
866-80-RENEW



Project Name and Address

Ensol Inc
318 Dolsontown Road
Middletown, NY 10940

Drawn By AK	Checked By EV
Date 02/07/2024	Date 02/07/2024
Scale AS NOTED	Sheet PV-S1

1

SITE PLAN & EQUIPMENT LAYOUT

Scale: 1/64" = 1'-0"

PV SYSTEM SUMMARY

TOTAL STC DC SYSTEM SIZE	275.5 kW
SOLAR MODULE MODEL	QPEAK DUO XLG11.3 BFG
SOLAR MODULE STC DC RATING	580 W
SOLAR MODULE INFO	95.1" x 44.65" x 1.37", 75.8 lbs
SOLAR MODULE COUNT	475
STRING SIZE	[16M x 25S], [15M x 5S]
RACKING SYSTEM	S-5! CLAMP
PITCH OF ARRAY	1:12
INVERTER MODEL	3 x CHINT CPS SCA60KTL-DO 1 x CHINT CPS SCA36KTL-DO
ARRAY AZIMUTH	198°
EAVE HEIGHT	29'
INTERCONNECTION VOLTAGE	480V/3Φ

LEGEND

	SOLAR MODULE
	INVERTER
	AC COMBINER BOX
	UTILITY METER
	MAIN BREAKER PANEL
	ELECTRICAL TRENCH
	VENTING AND PATHWAYS
	AC DISCONNECT

INTERCONNECTION RUN

APPROXIMATE LOCATION
OF NEW BUILDING.
PV ARRAY TO BE LOCATED
ON ROOF.

AERIAL VIEW

Scale: N.T.S.

2

PV SYSTEM OVERVIEW

Scale: N.T.S.

3

S-5![®]

The Right Way![®]

S-5-S Clamp

The S-5-S clamp was created specifically for popular snap-together profiles—including residential profiles by Taylor Metals and Easy Lock Standing Seam. For horizontal seams under .540 inches (like the Firestone UC4) the S-5-S or S-5-S Mini can be used to avoid the necessity of crimping the seam.

Its simple design and size make it perfect for use with S-5![®] snow retention products and other heavy-duty applications. Installation is as simple as setting the patented round-point setscrews into the clamp, placing the clamp on the seam, and tightening them to the specified tension. Then, affix ancillary items using the bolt provided with the product. Go to www.S-5.com/tools for information and tools available for properly attaching and tensioning S-5! clamps.

S-5-S Mini Clamp

The S-5-S Mini is a bit shorter than the S-5-S and has one setscrew rather than two. The mini is the choice for attaching all kinds of rooftop accessories: signs, walkways, satellite dishes, antennas, rooftop lighting, lightning protection systems, solar arrays, exhaust stack bracing, conduit, condensate lines, mechanical equipment—just about anything!*

*S-5! mini clamps are not compatible with, and should not be used with S-5! SnoRail™/SnoFence™ or ColorGard® snow retention systems.



The S-5-S clamp was created specifically for popular snap-together profiles.

S-5-S and S-5-S Mini

888-825-3432 | www.S-5.com

The right way to attach almost anything to metal roofs!

S-5!®

The Right Way!®

The concept of combining photovoltaic arrays with standing seam metal roofing is growing—and for good reasons. A standing seam metal roof has a life expectancy consistent with that of framed PV modules—a 30-year power source on a 40-year roof, along with zero-penetration technology, creates the most sustainable roof system available with alternative power generation, all without compromising the roof manufacturer's warranty! PVKIT® 2.0 is also a great solution for attaching PV modules directly to many exposed fastener roofs when paired with S-5! brackets.

S-5! has introduced a new and improved PVKIT, boasting an improved installation experience for PV mounting technology. The kit comes preassembled with either the MidGrab or EdgeGrab for easier and more efficient installation. The kits were designed with thread lock on the standoff bolt so that the grab will seat to the PV Module frame by using one tool to drive the top bolt, eliminating a step required in the previous PVKIT. The PVKIT 2.0 features bonding teeth, which are more aggressive to secure a better ground path. No lugs or wire required except to connect one string of modules to another and to ground the system.

The S-5 PVKIT 2.0 is built to save you time and money —
The Right Way® to install solar to your metal roof.

PVKIT 2.0 Features:

Pre-assembled kit saves time and money

Only **one tool** needed for installation

Bolt head uses standard hex bit tip
which is provided

Improved single piece EdgeGrab installs
with ease

Low profile bolt head provides a sleek and clean finish

Also available in black by special order only

MidGrab leaves 1" gap between modules, allowing
reduction per ASCE7

UL 2703 Listed

PVKIT 2.0 EdgeGrab Assembly

PVKIT® 2.0 MidGrab or EdgeGrab



888-825-3432 | www.S-5.com |



PVKIT® 2.0: New Design



The PVKIT 2.0 is furnished with the hardware shown at right, excluding the attachment clamp, which is supplied separately. The PVKIT 2.0 is compatible with most common metal roofing materials, including copper.

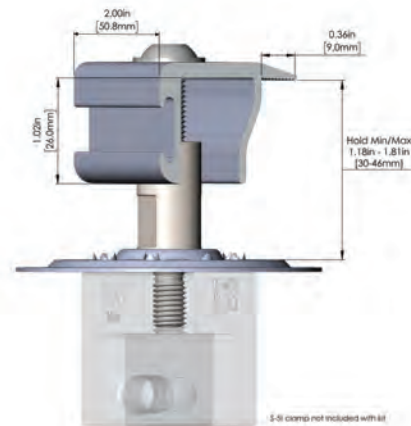
The Module Placement Bevel Guide makes the module placement easier. The mounting disk is multi-directional and rails are not required. The PV grab ears, holding the solar panels in place, are broader to allow for ease of installation and precise module engagement.

Accommodating module thicknesses between 30 and 46mm, the PVKIT 2.0 fits the majority of solar panels on the market. Using the S-5! mini clamps, it fits most standing seam metal roofs. When paired with other S-5! products, the PVKIT 2.0 and EdgeGrab or MidGrab will also work on most exposed fastener including corrugated metal roofs. The MidGrab is designed to fit mid conditions (two adjacent panels), while the new EdgeGrab is designed specifically for end conditions.

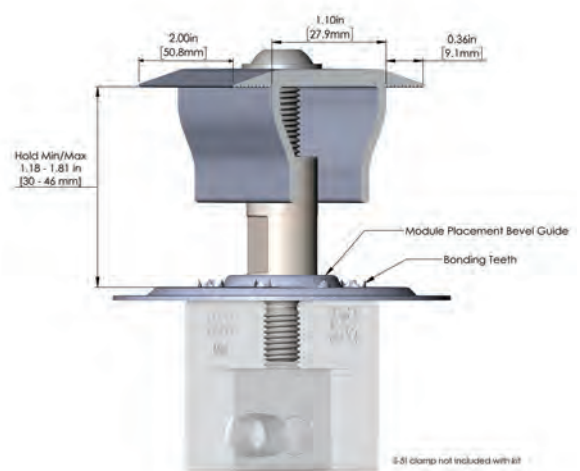
Wind dynamics are complex; thus, each system should be reviewed by a qualified licensed professional who understands wind effects prior to purchase and installation. For more detailed information including specifications, installation instructions, and CAD drawings, visit www.S-5.com or your PVKIT 2.0 distributor.

The PVKIT 2.0 continues to be the easiest, most cost-effective way to install solar panels directly to standing seam and exposed fastener metal roofs, remaining the most popular choice worldwide.

PVKIT 2.0 EdgeGrab



PVKIT 2.0 MidGrab



Certain components featured in illustration may not be UL listed. Due to the variety of attachment needs, S-5-PVKIT 2.0 are sold separately from S-5! clamps.

S-5!® Warning! Please use this product responsibly!

The independent lab test data found at www.S-5.com can be used for load-critical designs and applications.

Products are protected by multiple U.S. and foreign patents. For published data regarding holding strength, fastener torque, patents, and trademarks, visit the S-5! website at www.S-5.com. Copyright 2021, Metal Roof Innovations, Ltd. S-5! products are patent protected.

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Distributed by:

powered by

Q.ANTUM DUO Z

Q.PEAK DUO XL-G11.3 / BFG 570-585

BIFACIAL DOUBLE GLASS MODULE
WITH EXCELLENT RELIABILITY
AND ADDITIONAL YIELD



BIFACIAL ENERGY YIELD GAIN OF UP TO 20%

Bifacial Q.ANTUM solar cells make efficient use of light shining on the module rear-side for radically improved LCOE.



LOW ELECTRICITY GENERATION COSTS

Q.ANTUM DUO Z combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology for higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 21.5%.



INNOVATIVE ALL-WEATHER TECHNOLOGY

Optimal yields, whatever the weather with excellent low-light and temperature behavior.



ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID and Anti PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.Q™.



FRAME FOR VERSATILE MOUNTING OPTIONS

High-tech aluminum alloy frame protects from damage, enables use of a wide range of mounting structures and is certified regarding IEC for high snow (5400 Pa) and wind loads (2400 Pa).



A RELIABLE INVESTMENT

Double glass module design enables extended lifetime with 12-year product warranty and improved 30-year performance warranty².



THE IDEAL SOLUTION FOR:



Ground-mounted
solar power plants

¹ APT test conditions according to IEC / TS 62804-1:2015 method B (-1500 V, 168 h) including post treatment according to IEC 61215-1-1 Ed. 2.0 (CD)

² See data sheet on rear for further information.

Attachment 6

EnSol, Inc.

ENGINEERING + ENVIRONMENTAL

Mitigation Commitment

Draft Dolsontown Corridor Public Improvement Checklist

DOLSONTOWN CORRIDOR
PUBLIC IMPROVEMENT CHECKLIST

GENERAL DOCUMENTS

<i>Document/Item</i>	<i>Parties</i>	<i>Status</i>	<i>Govt. Approval Required</i>
Single Source Procurement	<ul style="list-style-type: none">• Town of Wawayanda	<i>Outstanding</i>	Town Board
Developer's Agreement	<ul style="list-style-type: none">• Real Deal Management ("RDM")• Town of Wawayanda ("Town")	Draft	Town Board
Cost Sharing & Construction License Agreement	<ul style="list-style-type: none">• RDM• Dewpoint Development LLC and GDBP 2171 LLC ("Dewpoint South")• Dewpoint North LLC ("Dewpoint North")• Dolsontown Road East LLC ("Dolsontown East")• Mid Dolsontown, LLC ("Mid Dolsontown")• 366 Highland DMI, LLC ("Highland")• Dom Kam LLC ("Dom Kam")	Draft	None

DRAFT - 4/17/24

<u>WORK SPECIFIC DOCUMENTS & PERMITS</u>			
<i>Intersection of Dolsontown Road, Route 17M and James P. Kelley Way</i>			
<ul style="list-style-type: none">a. Construct a through lane on the Dolsontown Road westbound approach to NYS Route 17M.b. Construct an additional left turn lane on NYS Route 17M northbound approach to James P. Kelley Way (with corresponding widening of the NYS Route 17M southbound approach to accommodate the additional northbound separate left turn lane).c. Construct a separate right turn lane on NYS Route 17M northbound approach.d. Realign the James P. Kelley Way eastbound separate right turn lane approach to NYS Route 17M to align with the Dolsontown Road eastbound lane; widen the James P. Kelley Way two westbound lanes to receive the NYS Route 17M northbound double left turn lanes.e. Replace traffic signal at Dolsontown Road, NYS Route 17M and James P. Kelley Way intersection.			
<i>Document/Item</i>	<i>Parties / Notes</i>	<i>Status</i>	<i>Govt. Approval Required</i>
Plans / Specs	<ul style="list-style-type: none">• DOT• Town	<ul style="list-style-type: none">• Submitted to DOT for review• Submitted to Town for review	<ul style="list-style-type: none">• DOT• Town Engineer
Permits	<ul style="list-style-type: none">• DOT• Town	<ul style="list-style-type: none">• Outstanding	
DOT Performance Bond	<ul style="list-style-type: none">• In favor of DOT• Amount – [\$]	<ul style="list-style-type: none">• Outstanding	<ul style="list-style-type: none">• DOT
Town Performance Bond	<ul style="list-style-type: none">• In favor of Town• Amount – [\$]	<ul style="list-style-type: none">• Outstanding	<ul style="list-style-type: none">• Town Engineer / Town Board
Town Maintenance Bond	<ul style="list-style-type: none">• In favor of Town• Amount –[\$]	<ul style="list-style-type: none">• Outstanding	<ul style="list-style-type: none">• Town Engineer / Town Board
<i>Coordinate the NYS Route 17M signal at Abe Isseks Drive, Dolsontown Road and US Route 6</i>			
<i>Document/Item</i>	<i>Parties / Notes</i>	<i>Status</i>	<i>Govt. Approval Required</i>
Coordination with DOT programming	<ul style="list-style-type: none">• RDM• DOT	TBD	DOT
<i>Install a traffic signal at the intersection of Dolsontown Road and McVeigh Road to provide Level of Service “A”.</i>			
<i>Document/Item</i>	<i>Parties / Notes</i>	<i>Status</i>	<i>Govt. Approval Required</i>
Plans/Specs	<ul style="list-style-type: none">• Town	<ul style="list-style-type: none">• Submitted for Review	<ul style="list-style-type: none">• Town Engineer
Permits	<ul style="list-style-type: none">• Town	<ul style="list-style-type: none">• Outstanding	<ul style="list-style-type: none">• Town Highway Superintendent
Town Performance Bond – traffic signal	<ul style="list-style-type: none">• In favor of Town• Amount – [\$]	<ul style="list-style-type: none">• Outstanding	<ul style="list-style-type: none">• Town Engineer / Town Board
Town Maintenance Bond – traffic signal	<ul style="list-style-type: none">• In favor of Town• Amount –[\$]	<ul style="list-style-type: none">• Outstanding	<ul style="list-style-type: none">• Town Engineer / Town Board

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Maintenance Easement Agreement <i>TP-584</i> or Maintenance Fee Agreement <i>TP-584</i>	<ul style="list-style-type: none">• Dewpoint South• Dewpoint North• Dolsontown East• Mid Dolsontown• Highland• Dom Kam• Town	<ul style="list-style-type: none">• <i>To be discussed with Town</i>	<ul style="list-style-type: none">• <i>Town Board</i>
Bill of Sale	<ul style="list-style-type: none">• RDM• Town	<ul style="list-style-type: none">• <i>Outstanding</i>	<ul style="list-style-type: none">• <i>Town Board</i>
			
<i>Construct a separate left turn lane / two-way left turn lane on Dolstontown Road for entering traffic at each proposed driveway location consistent with the concept plans included in the FGEIS</i>			
<i>Document/Item</i>	<i>Parties / Notes</i>	<i>Status</i>	
Plans/Specs	<ul style="list-style-type: none">• Town	<ul style="list-style-type: none">• <i>Submitted for review</i>	<ul style="list-style-type: none">• <i>Town Engineer</i>
Permits	<ul style="list-style-type: none">• Town	<ul style="list-style-type: none">• <i>Outstanding</i>	<ul style="list-style-type: none">• <i>Town Highway Superintendent</i>
SWPPP for Dolsontown Road work ¹ <i>MS4 Approval</i> <i>5-acre waiver</i>	<ul style="list-style-type: none">• In favor of Town	<ul style="list-style-type: none">• <i>Outstanding</i>	<ul style="list-style-type: none">• <i>Town Engineer</i>
Town Performance Bond – road construction	<ul style="list-style-type: none">• In favor of Town• Amount – [\$_____]	<ul style="list-style-type: none">• <i>Outstanding</i>	<ul style="list-style-type: none">• <i>Town Engineer / Town Board</i>
Town Maintenance Bond – road construction	<ul style="list-style-type: none">• In favor of Town• Amount –[\$_____]	<ul style="list-style-type: none">• <i>Outstanding</i>	<ul style="list-style-type: none">• <i>Town Engineer / Town Board</i>
ROW Dedication Map	<i>Need to show new ROW, as well as location of water & sewer lines to be installed</i>	<ul style="list-style-type: none">• <i>Outstanding</i>	<ul style="list-style-type: none">• <i>Town Engineer</i>
Offer of Dedication Dewpoint North <ul style="list-style-type: none">• <i>Offer</i>• <i>Deed</i>• <i>Title report</i>• <i>Survey</i>• <i>Legal Description</i>• <i>TP-584</i>• <i>RP-5217</i>	<ul style="list-style-type: none">• In favor of Town	<ul style="list-style-type: none">• <i>Outstanding</i>	<ul style="list-style-type: none">• <i>Town Board</i>
Offer of Dedication Dolsontown East	<ul style="list-style-type: none">• In favor of Town	<i>Outstanding</i>	<ul style="list-style-type: none">• <i>Town Board</i>

¹ Includes stormwater basins on Mid Dolsontown and Dom Kam.

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<ul style="list-style-type: none">• <i>Offer</i>• <i>Deed</i>• <i>Title Report</i>• <i>Survey</i>• <i>Legal Description</i>• <i>TP-584</i>• <i>RP-5217</i>			
Offer of Dedication Dewpoint South <ul style="list-style-type: none">• <i>Offer</i>• <i>Deed</i>• <i>Title Report</i>• <i>Survey</i>• <i>Legal Description</i>• <i>TP-584</i>• <i>RP-5217</i>	<ul style="list-style-type: none">• In favor of Town	<ul style="list-style-type: none">• <i>Outstanding</i>	<ul style="list-style-type: none">• <i>Town Board</i>
Offer of Dedication Mid Dolsontown <ul style="list-style-type: none">• <i>Offer</i>• <i>Deed</i>• <i>Title Report</i>• <i>Survey</i>• <i>Legal Description</i>• <i>TP-584</i>• <i>RP-5217</i>	<ul style="list-style-type: none">• In favor of Town	<i>Outstanding</i>	<ul style="list-style-type: none">• <i>Town Board</i>
Offer of Dedication Highland <ul style="list-style-type: none">• <i>Offer</i>• <i>Deed</i>• <i>Title Report</i>• <i>Survey</i>• <i>Legal Description</i>• <i>TP-584</i>• <i>RP-5217</i>	<ul style="list-style-type: none">• In favor of Town	<ul style="list-style-type: none">• <i>Outstanding</i>	<ul style="list-style-type: none">• <i>Town Board</i>
Offer of Dedication Dom Kam <ul style="list-style-type: none">• <i>Offer</i>• <i>Deed</i>• <i>Title Report</i>• <i>Survey</i>• <i>Legal Description</i>• <i>TP-584</i>• <i>RP-5217</i>	<ul style="list-style-type: none">• In favor of Town	<ul style="list-style-type: none">• <i>Outstanding</i>	<ul style="list-style-type: none">• <i>Town Board</i>

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Town Performance Bond – Dom Kam stormwater basin construction	<ul style="list-style-type: none"> • In favor of Town • Amount – [\$_____] 	<ul style="list-style-type: none"> • <i>Outstanding</i> 	<ul style="list-style-type: none"> • <i>Town Engineer / Town Board</i>
Town Maintenance Bond – Dom Kam stormwater basin construction	<ul style="list-style-type: none"> • In favor of Town • Amount –[\$_____] 	<ul style="list-style-type: none"> • <i>Outstanding</i> 	<ul style="list-style-type: none"> • <i>Town Engineer / Town Board</i>
Town Performance Bond – Mid Dolsontown stormwater basin construction	<ul style="list-style-type: none"> • In favor of Town • Amount – [\$_____] 	<ul style="list-style-type: none"> • <i>Outstanding</i> 	<ul style="list-style-type: none"> • <i>Town Engineer / Town Board</i>
Town Maintenance Bond – Mid Dolsontown stormwater basin construction	<ul style="list-style-type: none"> • In favor of Town • Amount –[\$_____] 	<ul style="list-style-type: none"> • <i>Outstanding</i> 	<ul style="list-style-type: none"> • <i>Town Engineer / Town Board</i>
Stormwater Easement – Dom Kam <i>TP-584</i> <i>Survey</i> <i>Legal Description</i>	<ul style="list-style-type: none"> • Dom Kam • Town 	<ul style="list-style-type: none"> • <i>Outstanding</i> 	<ul style="list-style-type: none"> • <i>Town Board</i>
Stormwater Maintenance Agreement – Dom Kam <i>TP-584</i>	<ul style="list-style-type: none"> • Dom Kam • Town 	<ul style="list-style-type: none"> • <i>Outstanding</i> 	<ul style="list-style-type: none"> • <i>Town Board</i>
Stormwater Easement – Mid Dolsontown <i>TP-584</i> <i>Survey</i> <i>Legal Description</i>	<ul style="list-style-type: none"> • Mid Dolsontown • Town 	<ul style="list-style-type: none"> • <i>Outstanding</i> 	<ul style="list-style-type: none"> • <i>Town Board</i>
Stormwater Maintenance Agreement – Mid Dolsontown <i>TP-584</i>	<ul style="list-style-type: none"> • Mid Dolsontown • Town 	<ul style="list-style-type: none"> • <i>Outstanding</i> 	<ul style="list-style-type: none"> • <i>Town Board</i>
O&R Approval of relocation of Utility Lines	<ul style="list-style-type: none"> • TBD 	<ul style="list-style-type: none"> • <i>Outstanding</i> 	<ul style="list-style-type: none"> • <i>O&R</i>
Utility Easement <i>TP-584</i> <i>Survey</i> <i>Legal Description</i>	<ul style="list-style-type: none"> • O&R • TBD Dolsontown Corridor Owners 	<ul style="list-style-type: none"> • <i>Outstanding</i> 	<ul style="list-style-type: none"> • <i>O&R</i>
			
<i>Construction of water lines in the Dolsontown right of way</i>			

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<i>Document/Item</i>	<i>Parties / Notes</i>	<i>Status</i>	<i>Govt. Approval Required</i>
Plans/Specs	<ul style="list-style-type: none">TownDOH	<ul style="list-style-type: none"><i>Submitted for review to Town</i><i>Submitted for review to DOH</i>	<ul style="list-style-type: none"><i>Town Engineer</i><i>DOH</i>
Permits	<ul style="list-style-type: none">TownDOH	<ul style="list-style-type: none"><i>Outstanding</i>	<ul style="list-style-type: none"><i>Town</i><i>DOH</i>
Town Performance Bond – water lines	<ul style="list-style-type: none">In favor of TownAmount – [\$]	<ul style="list-style-type: none"><i>Outstanding</i>	<ul style="list-style-type: none"><i>Town Engineer / Town Board</i>
Town Maintenance Bond – water lines	<ul style="list-style-type: none">In favor of TownAmount –[\$]	<ul style="list-style-type: none"><i>Outstanding</i>	<ul style="list-style-type: none"><i>Town Engineer / Town Board</i>
Offer of Dedication – Water Lines <i>TP-584</i> <i>Survey</i> <i>Bill of Sale</i>	<ul style="list-style-type: none">RDMTown	<ul style="list-style-type: none"><i>Outstanding</i>	<ul style="list-style-type: none"><i>Town Board</i>
			
<i>Construction of sewer lines and force main along south side of Dolsontown Road</i>			
<i>Document/Item</i>	<i>Parties / Notes</i>	<i>Status</i>	<i>Govt. Approvals Required</i>
Plans/Specs	<ul style="list-style-type: none">TownDEC	<ul style="list-style-type: none"><i>Submitted</i>	<ul style="list-style-type: none"><i>Town Engineer</i><i>DEC</i>
Permits	<ul style="list-style-type: none">TownDEC	<ul style="list-style-type: none"><i>Outstanding</i>	<ul style="list-style-type: none"><i>Town</i><i>DEC</i>
Town Performance Bond – sewer lines	<ul style="list-style-type: none">In favor of TownAmount – [\$]	<ul style="list-style-type: none"><i>Outstanding</i>	<ul style="list-style-type: none"><i>Town Engineer / Town Board</i>
Town Maintenance Bond – sewer lines	<ul style="list-style-type: none">In favor of TownAmount –[\$]	<ul style="list-style-type: none"><i>Outstanding</i>	<ul style="list-style-type: none"><i>Town Engineer / Town Board</i>
Offer of Dedication – Sewer Lines <i>TP-584</i> <i>Bill of Sale</i>	<ul style="list-style-type: none">RDMTown	<ul style="list-style-type: none"><i>Outstanding</i>	<ul style="list-style-type: none"><i>Town Board</i>
Utility Easement <i>TP-584</i> <i>Survey</i> <i>Legal Description of Easement Area</i>	<ul style="list-style-type: none">Mid DolsontownHighlandDom KamTown	<ul style="list-style-type: none"><i>Outstanding</i>	<ul style="list-style-type: none"><i>Town Board</i>

**Rooftop Solar Panel Engineering,
Procurement and Construction
Agreement**

ENGINEERING, PROCUREMENT AND CONSTRUCTION AGREEMENT

This Engineering, Procurement and Construction Agreement (together with all Schedules hereto, and as may be amended, supplemented, restated or otherwise modified from time to time in accordance with the terms hereof, the “Agreement”) is made effective as of [Effective Date], (the “Effective Date”), by and between Solar Liberty Energy Systems, Inc., a New York corporation having its principal place of business at 6500 Sheridan Drive, Suite 120, Buffalo, New York 14221 (“Contractor”), and Dom Kam LLC, a New York limited liability company having its principal place of business at 366 Highland Ave Ext. Middletown, New York 10940 (“Owner”).

WHEREAS, Owner wishes to purchase a certain turn-key solar photovoltaic system (“System”) to be installed and constructed at 1118 Dolsontown Road, Middletown, NY 10940 (the “Site”), which Site will be owned by Owner at the time of issuance of the Notice to Proceed, and Contractor desires to engineer, develop, procure, construct, and sell the System to Owner (collectively, the “Project”);

WHEREAS, Owner desires to retain Contractor to perform all design, engineering, procurement, permitting, construction, commissioning, testing, interconnection, and related services with respect to the System on the Site (collectively, the “Services”), all on the terms and conditions set forth herein, and Contractor has the technical capabilities to and desires to provide the Services to Owner.

NOW THEREFORE, for good and valuable consideration the receipt and sufficiency of which are hereby acknowledged, Contractor and Owner hereby agree as follows:

TERMS OF PROJECT AND PAYMENT

1. DEFINITIONS

- 1.1. **“Acceptance Test”** means any tests required by the Utility, including commissioning testing or under this Agreement for the purposes of determining whether the System has achieved an acceptable level of performance and is ready to be commissioned interconnection and Commercial Operation according to the Utility.
- 1.2. **“Applicable Laws”** means all vested, timely and applicable laws, ordinances, rules, regulations, judgments, and decrees by a Governmental Authority that has applicability to the conduct or performance of the Parties, the construction and operation of the System, zoning laws, labor laws, interconnection laws and rules and environmental laws.
- 1.3. **“Certificate of Final Completion”** means a certificate issued by Owner to Contractor to certify as conclusive evidence that all requirements of Final Completion have been achieved by Contractor.
- 1.4. **“Certificate of Substantial Completion”** means as certificate issued by Owner to Contractor to certify that all requirements of Substantial Completion has been deemed by Owner to have been achieved by Contractor.

- 1.5. **“Change in Law”** means (i) the enactment, adoption, promulgation, modification or repeal after the Effective Date of any applicable law or regulation; (ii) the imposition of any material conditions on the issuance or renewal of any applicable permit after the Effective Date; or (iii) a change in any utility rate schedule or tariff approved by any Governmental Authority which in the case of any of (i), (ii) or (iii), establishes requirements affecting owning, supplying, constructing, installing, operating or maintaining the System, or other performance of the Contractor’s obligations hereunder.
- 1.6. **“Change Order”** is a mandate issued by Owner to Contractor to document changes to (1) Construction Schedule of Schedule 8, (2) Scope of Work, and (3) Contract Price to conclusively determine the acceptance of changes to this Agreement in the form of a signed document or verified email from an authorized representative of Owner.
- 1.7. **“Commercial Operation”** means the status of achievement by Contractor of permission or agreement by Utility to interconnect the System to the electrical power distribution grid of the Utility for continuous generation of electricity for commercial purposes or consumption of the electricity or related credits by Owner.
- 1.8. **“Commissioning Engineer”** means the Engineer selected by Contractor to perform the Acceptance Test and Commissioning Tests.
- 1.9. **“Commissioning Test”** means the test required by the Utility to determine readiness of the System to interconnection.
- 1.10. **Contractor Indemnitee** means Contractor and Contractor’s officers, employees, agents and Subcontractors.
- 1.11. **“Construction Schedule”** shall mean the construction schedule attached hereto as Schedule 8 and made a part hereof.
- 1.12. **“Effective Date”** shall have the meaning set forth in the Preamble.
- 1.13. **“Equipment”** means, with respect to the System, (a) the Photovoltaic modules, the inverters, switchgear, connector boxes, transformers, protective equipment, monitoring and data capture systems, and balance of system including wiring, conduit, connectors, fasteners, (b) parts or components thereof, (c) all manuals and records (other than rental records) with respect to the System, (d) all substitutions and replacements of any and all thereof that are permitted hereunder, including, but not limited to, any replacement equipment which may from time to time be substituted for the equipment sold hereunder, as approved by Owner, and (e) all additions and alterations, together in each case with any and all parts permanently incorporated or installed in or attached thereto or any and all parts temporarily removed therefrom.
- 1.14. **“Event of Default”** has the respective meanings applicable to Owner and Contractor, as set forth in Section 13.
- 1.15. **“Final Completion”** shall mean a status of the Project achieved when the Owner has received final lien waivers from the Contractor and all Subcontractors and determines that

Contractor has (i) achieved Substantial Completion of the Work in accordance with the Scope of Work; (ii) completed all Punch List items under this Agreement and any Amendments or Change Orders; and (iii) remedied any deficiencies identified in the Commissioning Engineer's report.

- 1.16. **"Force Majeure Event"** means any circumstance or event that arises after the Effective Date not within the reasonable control, directly or indirectly, of the Party claiming or asserting a Force Majeure Event, which will actually, demonstrably and adversely affect in a material respect a Party's ability to perform its obligations in accordance with the terms of this Agreement, but only if and to the extent that (a) such circumstance or event, despite the exercise of due diligence, cannot be or be caused to be prevented, avoided or removed by such Party, (b) such circumstance or event is not due to such Party's negligence, recklessness or intentional misconduct, (c) such circumstance or event is not the result of any failure of such Party to perform any of its obligations under this Agreement, (d) such Party has given the other Party reasonably prompt notice describing such circumstance or event, the effect thereof and the actions being taken to comply with this Agreement. Without limiting the generality of the foregoing, Force Majeure Events may include strikes or other labor disputes, acts of God, natural phenomena such as floods, hurricanes, earthquakes, volcanoes, tornadoes, fire and explosions, epidemics, quarantine, war, riot or civil unrest, terrorism, and acts of a Governmental Authority (other than in respect of a Party's compliance with Applicable Laws and obtaining or complying with Governmental Approvals in accordance with Good Industry Practice), but shall not include any inability to make any payments that are due hereunder or to any third party, to procure insurance required to be procured hereunder, or economic downturns in the economy, including recessions and depressions.
- 1.17. **"Good Industry Practice"** means the practices, methods and acts engaged in by a significant portion of the solar energy industry in the United States at a particular time, in the exercise of reasonable judgment in light of the facts known at the time a decision was made, would have been expected to accomplish the desired result in a manner consistent with Applicable Laws, reliability, safety, environmental protection, economy and expedience in the context of a cost-competitive business model, provided however, that "Good Industry Practice" excludes any of the foregoing that violates the terms of this Agreement.
- 1.18. **"Governmental Approvals"** means (a) any authorizations, consents, approvals, licenses, rulings, permits, tariffs, rates, certifications, filings, variances, orders, judgments, decrees by or with a relevant governmental authority and (b) any required notice to, any declaration of, or with, or any registration by, or with, any relevant Governmental Authority.
- 1.19. **"Governmental Authority"** means any national (United States of America or foreign), state or local government, any political subdivision or any governmental, quasi-governmental, judicial, public, or statutory instrumentality, authority, agency, body, central bank, or other Person exercising executive, legislative, judicial, taxing, regulatory or administrative power or functions of or pertaining to government and having jurisdiction over the Project, Site, System, and/or Parties. Without limiting the foregoing, Governmental Authority shall include all authorities involved in the permitting process,

including, where applicable, US Army Corps of Engineers, NYS Department of Environment and Conservation, the local municipality, the US Federal Aviation Administration, any interconnection authority including the Utility and the New York Public Service Commission, and any governmental authority participating in the process established by NY State Environmental Quality Review Act.

- 1.20. **“Hazardous Substances”** means any hazardous or toxic substances, materials and wastes which are regulated or are classified as hazardous or toxic by any Governmental Authority having jurisdiction over the Site, including, but not limited to, those substances included in the definitions of “Hazardous Substances,” “Hazardous Materials,” “Toxic Substances,” “Hazardous Waste,” “Solid Waste,” “Pollutant,” or “Contaminant” in any federal, state, local or other Applicable Laws pertaining to public or worker health, welfare or safety or the environment.
- 1.21. **“Incentive Application”** means the application for any Incentive Program.
- 1.22. **“Incentive Programs”** means (i) NY-Sun Commercial/Industrial Incentive Program (PON 3082) (“NY-Sun”) and (ii) the PILOT.
- 1.23. **“Indemnitor”** means any Party that has an obligation to indemnify, hold harmless, release, and defend the other Party or the other Party’s officers, employees, agents, guarantors, affiliates, and Lender of the other Party.
- 1.24. **“Insolvency Event”** means with respect to Owner or Contractor (i) if a receiver shall be appointed to take over the business of such Party; (ii) if a Party makes a general assignment for the benefit of creditors; (iii) if a Party shall take or suffer any action under any insolvency or bankruptcy act; or (iv) if a Party is placed in an involuntary bankruptcy and does not vacate same within sixty (60) days from the date of filing of such insolvency or bankruptcy action.
- 1.25. **“Interconnection Agreement”** shall mean the New York State Standardized Contract for Interconnection of New Distributed Generation Units and/or Energy Storage Systems for the System entered between Owner and the Utility.
- 1.26. **“Interconnection Costs”** shall mean all costs charged by the Utility to the Customer for the purpose of interconnection of the System including costs outlined in the SIR or reconciliations thereof..
- 1.27. **“Interconnection Feasibility Study Period”** shall mean thirty (30) days following receipt of the Final Interconnection Study from the Utility that includes a commitment from the Utility of the Interconnection Cost.
- 1.28. **“Lender”** shall mean any Person providing financing to Owner to fund the construction of the System or purchase of the System through debt or equity investment in the System.
- 1.29. **“Manufacturer Warranty(ies)”** means each Manufacturer warranty set forth in Schedule 4 hereto.

- 1.30. **“Monthly Invoice”** means an invoice for the work performed during the previous month as a fraction of the total work based upon the Schedule of Values.
- 1.31. **“Notice to Proceed”** means written instruction by Owner to Contractor to commence construction of the Project.
- 1.32. **“NYSERDA”** means the New York State Energy and Research Development Authority.
- 1.33. **“NYSERDA Addendum”** means the NYSERDA – NY Sun Competitive PV Program addendum that is effective as of the Effective Date which may be in the form attached hereto as Schedule 9.
- 1.34. **“Owner-Caused Delay”** means any period of delay that materially impacts the ability of Contractor to perform the Work caused by (A) Owner’s failure to approve, disapprove, decide, or otherwise respond to Contractor with respect to a particular item for which Owner’s response is required hereunder, or (B) Owner’s disruption or interference with Contractor’s performance of the Work without having the right to do so under this Agreement, provided however, that Owner-Caused Delay shall not include a delay caused by (i) an act of Owner that is specifically permitted under this Agreement, or (ii) a Force Majeure event.
- 1.35. **“Owner Indemnitee”** means Owner and Owner’s officers, employees, agents, guarantors, affiliates, Subcontractors, and its Lender.
- 1.36. **“Party” or “Parties”** shall mean Owner and/or Contractor.
- 1.37. **“Person”** means any individual, corporation, general or limited partnership, limited liability company, joint venture, estate, trust, association or organization, governmental entity or any other entity of any kind or nature.
- 1.38. **“PILOT”** shall mean a payment in lieu of real property taxes under NY Real Property Tax Law (RPTL) Section 487 or any other New York PILOT law applicable to the investment relative to the construction of this System.
- 1.39. **“Proprietary Information”** means all information owned by a Party including inventions, processes, know-how, trade secrets, patents, trademarks, confidential information, technical expertise, and other intellectual property.
- 1.40. **“Punchlist”** shall be a list of items work to be completed after Substantial Completion that are identified in the Scope of Work, Drawings or Specifications but are not yet complete at the time of Substantial Completion.
- 1.41. **“Purchase Price”** means the fixed price agreed upon between the Contractor and Owner to construct the system in the amount set forth in Schedule 1 of this Agreement.
- 1.42. **“Scope of Work”** means the Work to be performed by Contractor or Contractor’s Subcontractors under this Agreement, as more specifically described in Schedule 1: System Description, Schedule 2: Specifications and Schedule 5: Scope of Work, as may be

amended by approved Change Orders, and in accordance with the terms and conditions of this Agreement.

- 1.43. “**Services**” has the meaning set forth in the Recitals herein.
- 1.44. “**Service Warranty**” Contractor warrants that the System will be free from defects in materials and workmanship and warrants the System against breakdown or degradation in electrical output of more than 10% from the original rated electrical output covering Owner’s normal use and normal service of the System (the “Service Warranty”) for a period of three (3) years following Commercial Operation (the “Warranty Period”).
- 1.45. “**Site**” is the location of the System on the Premises as defined by (1) the part of the Premises accessed by Contractor and its employees and prior to commencement of construction, (2) the area used from commencement of construction to Commercial Operation of the System; and (3) the area within the System perimeter fence and is shown for illustrative purposes in the Site Plan of Schedule 7.
- 1.46. “**Subcontractor**” means each subcontractor, consultant or supplier of materials and Equipment directly employed by Contractor with respect to the System, Work and Services or otherwise in connection with the Work.
- 1.47. “**Substantial Completion**” is a status that is achieved when Contractor has substantially completed the System so that it is capable of safely being interconnected to the grid and has prepared and submitted to Owner a Punch List item of tasks that are needed to achieve Final Completion.
- 1.48. “**Substantial Completion Date**” is the earliest date that Substantial Completion is achieved.
- 1.49. “**System**” has the meaning set forth in the Recitals herein and shall include all Equipment, facilities and materials comprising the solar photovoltaic system(s), including without limitation the photovoltaic modules, all sub-systems, monitoring equipment, wiring, meters, tools, and any other property to be installed by Contractor as part of the Work, all as further described in Schedule 1.
- 1.50. “**Term**” has the meaning set forth in the Preamble.
- 1.51. “**Utility**” means the applicable electric utility which serves the geographic area encompassing the Site, and for this agreement it means [Name of Utility].
- 1.52. “**Work**” means all the work or other duties or obligations that are to be performed by Contractor or carried out by or at the direction of Contractor pursuant to this Agreement, including, without limitation, the Scope of Work and the engineering, procurement, installation, construction, interconnection, and commission of the System.

2. PURCHASE PRICE AND PAYMENTS

- 2.1. Purchase Price. Contractor shall perform and complete the Work and Services and supply the System to Owner for the Purchase Price and in accordance with the terms and conditions of this Agreement, Applicable Laws, Governmental Approvals and Good Industry Practice. Owner shall pay Contractor for the System, the Work, and the Services at a fixed price of the Purchase Price. This amount is exclusive of all the incentives the parties expect to be paid by NYSERDA under the Incentive Programs; and Contractor shall be entitled, but not obligated to collect One Hundred Percent (100%) of all incentives to be paid by NYSERDA for the Project. Such Purchase Price shall be invoiced on a monthly progress basis, as the Work is performed in accordance with the schedule of values set forth in Schedule 3.
- 2.2. Once the first NYSERDA Incentive Payment becomes due, Contractor may, at its sole discretion, (i) invoice NYSERDA for the initial NYSERDA Incentive Payment, and (ii) at the time of the invoice, instruct NYSERDA to pay all future NYSERDA Incentive Payments to Owner, and provide all necessary forms or documentation required by NYSERDA to authorize NYSERDA to pay the NYSERDA Incentive Payments to Owner.
- 2.3. Turnkey Project. The Parties hereto agree that this Agreement is a turnkey contract and Contractor's obligation is to provide Owner with a fully operational System meeting the specifications set forth on Schedule 1 for the Purchase Price and completed in accordance with the terms of this Agreement, Applicable Laws, Governmental Approvals and Good Industry Practice. Owner is relying upon the expertise of Contractor to furnish a complete System in accordance with this Agreement and Contractor acknowledges Owner's reliance thereon subject to Force Majeure Events.
- 2.4. Monthly Progress Payments. Unless disputed by Owner in accordance with this Agreement, Owner shall make progress payments monthly within thirty (30) days of receipt of an invoice from Contractor, as the Work is performed in accordance with the schedule of values set forth in Schedule 3.
- 2.5. Final Payment. Upon Final Completion and acceptance of the System by Owner, Owner shall pay the balance of the Purchase Price, including any amounts withheld by Owner.
- 2.6. Invoice and Payments. Contractor shall issue a Monthly Invoice each month. The invoice shall be accompanied by AIA forms G702 and G703 which shall include an itemization of the amount invoiced, related to the various elements of work performed and procured Equipment and materials for the period to be covered by the payment requested. Unless agreed otherwise, Owner shall make all payments by wire transfer to the account specified by Contractor. Owner shall cooperate with Contractor and resolve all disputed amounts promptly and without unreasonable delay.
- 2.7. Taxes. Contractor shall be responsible for and shall pay (or cause to be paid) all taxes imposed upon its net income and all payroll taxes of Contractor. To the extent sales taxes or VAT taxes are charged for the Project, such taxes shall be the responsibility of Contractor and shall be included in the Purchase Price set forth in Section 2.1 above. All other taxes, fees, levies, or other governmental charges of any kind arising in connection with the Work and any Equipment or materials supplied hereunder shall be the exclusive

responsibility of the Owner. Contractor shall remit all sales tax paid by Owner in connection with the purchase of the System to the appropriate taxing authority.

- 2.8. Provided that the full Purchase Price has been paid to Contractor, Contractor shall be entitled to a refund of any amounts paid by NYSERDA or any other party to Contractor under any Incentive Program. Owner shall own and be entitled to all other economic benefits of the Project, including among other benefits, financial rebates, environmental incentives, and tax benefits.

3 KEY MILESTONES

- 3.1 Start of Design: Upon execution of this Agreement, Contractor will commence System design and preparation in accordance with the specifications set forth on Schedule 1. Contractor will prepare and submit the design documents and the terms and conditions of any permit approvals required for the System to Owner for review and approval ("Design Documents"). Owner's approval of the Design Documents shall not relieve the Contractor of any obligations set forth in this Agreement.
- 3.2 Start of Construction: Upon (i) Owner's approval of the Design Documents, such approval to be provided within ten (10) business days of Owner's receipt of the Design Documents and (ii) upon receipt of all required Governmental Approvals, Owner shall promptly provide the Notice to Proceed. Within thirty (30) business days of Notice to Proceed, Contractor will commence the construction of the System in accordance with the Design Documents (the "Construction Commencement Date").
- 3.3 Construction Schedule. Contractor shall make a commercially reasonable effort to follow the Construction Schedule and to achieve Substantial Completion of the Work not later than the Substantial Completion Date, subject to any adjustments detailed in any Change Orders.
- 3.4 Upon Final Completion, Contractor shall provide copies of the "as-built" drawings, specifications, and blueprints and the operations and maintenance manual for the System to Owner. Title to all drawings, specifications, documents and engineering and other data furnished or to be furnished by Contractor in connection with the Work shall pass to Owner upon Contractor's receipt of the Purchase Price.
- 3.5 Owner shall be responsible for all Interconnection Costs. The Purchase Price in this Agreement assumes an Interconnection Cost up to and including \$0.10 per Watt DC. If Interconnection Costs as quoted in a final interconnection study exceeds \$0.10, Owner shall have the Interconnection Feasibility Study Period to assess whether the construction of the System is cost effective in view of any Interconnection Costs more than \$0.10 per Watt DC. Should Owner provide timely Notice to Contractor within the Interconnection Feasibility Study Period, then Owner shall be able to cancel this Agreement without any responsibility to Contractor except according to the Termination provisions of this Agreement.

- 3.6 In addition to the Purchase Price, Owner shall pay all Interconnection Costs including application fees and interconnection fees that exceed in their sum the amount of \$0.10 per Watt DC payable in the monthly progress payment due in the payment cycle following the time the interconnection cost that exceed \$0.10 per Watt DC are incurred.
- 3.7 Start of Design The term of this Agreement shall commence upon the Effective Date and shall extend through Final Completion, unless terminated earlier in accordance with the provisions herein (the "Term"). The Warranties under Schedule 4 shall survive termination of this Agreement for the period specified therein if different than the Term.

4 CONTRACTOR'S REPRESENTATIONS

4.1 Contractor represents and warrants that:

4.1.1 Contractor is a corporation, duly organized, validly existing and in good standing under the laws of the State of New York and has all requisite corporate power and authority to carry on its business in the manner presently conducted and is duly qualified to conduct business in the jurisdictions in which such qualification is required by law.

4.1.2 Contractor has all requisite corporate power and authority to execute and deliver, and perform its obligations under, this Agreement and to consummate the transactions contemplated hereby. The execution, delivery and performance by Contractor of this Agreement and the consummation of the transactions contemplated hereby have been duly and validly authorized by all necessary corporate action required on the part of Contractor.

4.1.3 The execution, delivery and performance of this Agreement and the consummation of the transactions contemplated hereby do not and will not contravene the certificate of incorporation or by-laws of Contractor.

4.1.4 All Governmental Approvals required in connection with the execution, delivery and performance of this Agreement by Contractor have been obtained or will be obtained in due course.

4.1.5 This Agreement constitutes the legal and binding obligation of Contractor, enforceable against it in accordance with its terms (except, in any case, as such enforceability may be limited by applicable bankruptcy, insolvency, reorganization or similar laws affecting creditors' rights generally and by principles of equity).

5 OWNER'S REPRESENTATIONS

5.1.1 Owner makes the following representations as of the date hereof:

5.1.2 Owner is a limited liability company, duly organized, validly existing and in good standing under the laws of the State of New York and has all requisite

corporate power to carry on its business in the manner presently conducted and is duly qualified to conduct business in the jurisdictions in which such qualification is required by law.

5.1.3 Owner has all requisite corporate power and authority to execute and deliver, and perform its obligations under, this Agreement and to consummate the transactions contemplated hereby. The execution, delivery and performance by Owner of this Agreement and the consummation of the transactions contemplated hereby and thereby, have been duly and validly authorized by all necessary corporate action required on the part of Owner.

5.1.4 The execution, delivery and performance of this Agreement and the consummation of the transactions contemplated hereby do not and will not contravene the articles of organization or operating agreement of Owner.

5.1.5 Owner shall have cooperated, or will cooperate in due course, with Contractor in obtaining all Governmental Approvals, required in connection with the execution, delivery, and performance of this Agreement to be obtained in the name of Owner, if any, and all other rights and easements required in connection with the execution, delivery and performance of this Agreement by Owner shall have been obtained or will be obtained in due course.

5.1.6 Owner is the owner in fee of all right, title and interest in the Site or has obtained a leasehold interest in the Site sufficient in scope of its right, title and interest in and to the land as well as a duration sufficient for the development, construction of the System and for the duration of the Warranty Period. Owner will maintain its fee interest until the end of the Warranty Period. The Site in its entirety has no title defects or deed restrictions that would prevent the construction and use of the System.

5.1.7 This Agreement constitutes the legal and binding obligation of Owner, enforceable against it in accordance with its terms (except, in any case, as such enforceability may be limited by applicable bankruptcy, insolvency, reorganization or similar laws affecting creditors' rights generally and by principles of equity).

5.1.8 Owner is a private Person and is producing electricity for itself, other private parties, and shall not sell electricity to a Person in a manner that will render Contractor's work a Public Work under New York Labor Law.

5.1.9 Owner is not aware, after reasonable investigation, of any storage or dumping of Hazardous Substances in any area where Contractor shall perform Work including staging areas, work site, and personal facilities. If the Work is on or near an occupied structure with restroom facilities on Site, Owner agrees to permit Contractor's personal reasonable access to restroom facilities.

5.1.10 To Owner's knowledge, there have been no pending or threatened third-party claims related to any Hazardous Substances located on, emanating from, or associated with the Site that have not been fully adjudicated, resolved or settled.

5.1.11 Owner has not failed to perform or suffered any act which would give rise to, or has otherwise incurred, material liability to any person (including, but not limited to, any Governmental Authority) under any Environmental Law or Governmental Approval, with respect to the Site.

- 6 **INSURANCE**. With respect to the System and the provision of Work and Services, Contractor will procure and maintain, at its sole expense, and require all its Subcontractors to procure and maintain, insurance of the kind and in the amounts set forth in Schedule 6. Contractor and its Subcontractors will also comply with the insurance requirements set forth in Schedule 6.

7 **CONTRACTOR OBLIGATIONS**

- 7.1 Contractor shall be solely responsible for the performance and supervision of the Work and Services and shall be solely responsible and liable, as between Contractor and Owner, for the conduct of the Work at the Site, including all personnel, employees, agents, representatives and Subcontractors, access to and from the Site and all safety requirements at the Site or otherwise. Unless otherwise expressly provided in this Agreement, the means and methods of construction shall be the Contractor's responsibility and such as the Contractor may choose. Contractor's performance of the Work and Services shall include the provision of all necessary safety devices required by Applicable Laws, Governmental Approvals, and any insurers, and Work performed, and Equipment provided will comply in all material respects with every aspect of such requirements.
- 7.2 Contractor shall ensure that the Work and Services shall comply in all material respects with all Applicable Laws, Government Approvals, Good Industry Practice, and applicable Incentives. On Owner's behalf and for itself, Contractor shall obtain and pay for all Government Approvals necessary for Contractor to perform the Work and Services (including, without limitation, all Governmental Approvals required for the ordinary conduct of its business as contemplated by this Agreement) and for all engineering, procurement, installation, and operation of the System. Without limiting the foregoing, Contractor shall obtain on behalf of Owner all building permits, site plan approval, and permits required under the Interconnection Agreement between Owner and Utility relating to this Site. If required by any Governmental Authority, Contractor shall inform Owner of any specific request or requirement and shall coordinate with Owner in supplying evidence of all requisite rights in land, water and access, or other documentation required or requested thereof. Contractor shall be responsible for coordinating with Governmental Authorities, test laboratories or any other Persons, as necessary, for the administration of any testing or the taking of any action to demonstrate the System's or Work's required compliance with all Governmental Approvals and Applicable Laws. All Governmental Approvals obtained that relate to the ownership and operation of the System shall vest in, obtain and/or be owned and controlled by Owner.
- 7.3 Owner, upon reasonable advance notice and subject to reasonable Site safety requirements, shall have reasonable access to the System and the Site to observe the Work. Such access by Owner shall not unreasonably interfere with the progress of the Work by Contractor. Unless agreed by Owner otherwise, Contractor shall confine Contractor's machinery, the

Equipment, the storage of materials, and the operations of Contractor's workmen to the Site, a designated temporary parking area and temporary staging ground as well as any further limits indicated by Applicable Laws, this Agreement, and the Government Approvals. Contractor shall cooperate with Owner to coordinate the activities of Contractor and Contractor's Subcontractors and suppliers with those of Owner, and their respective employees, agents, and contractors. Upon Substantial Completion, Contractor shall restore the designated temporary parking area and staging ground to rough grade condition to the reasonable satisfaction of Owner and clean the Site in accordance with Good Industry Practice.

- 7.4 Contractor shall offer a full and transferable warranty to the Owner for the System installed under this Agreement for a period of three (3) years after Contractor has completed the installation and NYSERDA's final approval has been provided according to the terms set forth in this section. This warranty covers all components of the System against breakdown or degradation in electrical output of more than ten percent from their original rated electrical output. This warranty covers the full cost, including labor and repair or replacement of defective components or equipment. Assignment of any rights or obligation under this Agreement shall not serve to invalidate or limit this Warranty.
- 7.5 If a battery back-up is installed under this Agreement, Contractor shall offer a full warranty to the purchaser for the battery system for a period of one (1) year after installation. This warranty covers the battery system against breakdown and covers the full costs, including labor and repair or replacement of the battery. After the battery warranty period of one-year expires, the Warranty for the Battery shall be solely determined by the manufacturer's warranty. In no event, shall this agreement be construed to warrant that the batteries shall supply power for a specific load for a particular length of time.
- 7.6 Owner agrees to operate the System in accordance with the Manufacturer's Warranty for each part or component including the racking system, photovoltaic panels, inverters, transformers, switchgear, and combiner boxes. Any exclusion or limitation in the Manufacturer Warranty of a part or component of the System shall serve as an exclusion or limitation for such part or component in the Service Warranty.
- 7.7 Contractor shall cause each Manufacturer Warranty to be assigned to, and for the benefit of, Owner, its successors and permitted assigns, effective upon full payment of the Purchase Price. Contractor shall not take any action that could release, void, impair or waive any such warranties prior to assignment.
- 7.8 **No Representations or Further Obligation.** EXCEPT AS OTHERWISE AGREED IN WRITING BETWEEN THE PARTIES OR EXPLICITLY STATED HEREIN, CONTRACTOR DOES NOT MAKE, NOR SHALL IT BE DEEMED TO HAVE MADE, ANY PROMISES, REPRESENTATIONS, WARRANTIES, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE SUBJECT MATTER OF THIS AGREEMENT INCLUDING THE PARTS, EQUIPMENT, SYSTEM OR SERVICES TO BE PROVIDED UNDER THIS AGREEMENT.

- 7.9 Contractor shall control, supervise, and direct the Work at the Site in accordance with the terms of this Agreement and using such skill and attention customary with Good Industry Practices for the Work. Contractor shall be solely responsible for the means, methods, techniques, sequences or procedures or safety precautions or programs and for coordinating all portions of the Work. Contractor and its Subcontractors (if any) shall be responsible for all loss or damages to their owned or rented property or property of their employees, agents, or representatives (including all individuals hired as temporary labor) of whatever kind or nature except any loss or damage arising out of the negligence or other acts or omissions of Owner.
- 7.10 Contractor shall provide all labor and qualified personnel required for the proper performance of the Work.
- 7.11 Contractor shall perform, provide, or procure all Services, tools and Equipment required for the performance of the Work and shall perform all Services related to such procurement including inspection, expediting, shipping, unloading, receiving, inventory, customs clearance and claims of all such Equipment.
- 7.12 Contractor shall construct and commission the System in accordance with the terms herein and in accordance with the terms of the Interconnection Agreement. Contractor shall obtain all Utility documents necessary for the interconnection and net metering of the System, including, without limitation, any documents ancillary to the Interconnection Agreement, and shall be responsible for interconnecting (or causing to be interconnected) the System to the electrical power grid.
- 7.13 For purposes of this Agreement, provided that the full Purchase Price has been paid, Owner shall be entitled to a refund of any amounts paid by NYSERDA to Contractor under NYSERDA Incentive program. Owner shall own and be entitled to all other economic benefits relating to environmental attributes, financial rebates and incentives, and tax attributes relating to the System, subject to NYSERDA's interest in any SRECs associated with the System's energy production.
- 7.14 Contractor warrants that the System will satisfy the Service Warranty for the Warranty Period. The Service Warranty is limited to repair or replacement of defective components or parts of the System by Contractor or its Subcontractors. The components of the System covered include all Equipment apart from any consumable items.
- 7.15 The Service Warranty does not cover intentional or accidental damage, malfunctions, or service failures that are (i) not the result of Contractor's negligence, willful misconduct, or a breach by Contractor of any of its obligation under this Agreement, or (ii) the result of acts of God, floods, storms, lightning, fires, or actions by any federal, state, or local governmental authority. The Service Warranty does not extend the Manufacturer's Warranty Period of any Equipment or parts, or any part thereof that has either been repaired or replaced by Contractor.
- 7.16 Contractor shall cause title to all the material, supplies, and Equipment incorporated or to be incorporated into the System to pass to Owner free and clear of all liens, claims, security

interests or encumbrances and Contractor warrants and shall defend such title, at its sole expense, against the claims of third parties.

- 7.17 Contractor is an independent contractor, and nothing contained herein shall be construed as creating (i) any relationship between Contractor and Owner as anything other than that of a purchaser and independent contractor or (ii) any relationship between Owner and Contractor's or any Subcontractor's employees, agents, or representatives. Contractor has sole responsibility to employ, discharge and otherwise control its employees.
- 7.18 Acceptance Testing and Performance Standards. Contractor is responsible for performing all Acceptance Tests on the System. Contractor shall give Owner notice at least ten (10) days in advance of the time it expects to conduct the Acceptance Tests. Contractor shall conduct the Acceptance Tests until the System meets an acceptable level of performance in view of the System performance requirements and the System design. Contractor shall provide to Owner a written report of the results of the Acceptance Tests and proof of performance compliance from the Commissioning Engineer.
- 7.19 Representations, Warranties and Covenants Related to Financing. To the same extent that Owner is required to so represent, warrant and covenant to Lender in its loan documents, Contractor hereby represents, warrants, and covenants to Owner that all information supplied by Contractor to Owner with respect to each item of "Equipment" was accurate at the time given and Contractor is not aware of any aspect of the condition or design of any item of "Equipment," or its intended use, that is inconsistent therewith.

8 OWNER OBLIGATIONS

- 8.1 Owner shall make the Site available to Contractor during the hours of 7:00 A.M. until 6:00 P.M. on Monday through Friday, excluding national holidays, upon issuance of the Notice to Proceed and through completion of the performance of the Work and Services. If permitted according to Applicable Laws, Owner shall make the Site available to Contractor, within forty-eight (48) hours prior notice from Contractor to Owner (i) on Saturday and Sunday and (ii) on weekdays between the hours of 6:00 P.M. and 12:00 A.M., during the performance of the Work and Services. Owner shall otherwise cooperate with Contractor in a commercially reasonable manner so that Contractor can accomplish the Work in accordance with the System Descriptions and Specifications contained in Schedule 1.
- 8.2 Owner shall cooperate with Contractor and provide all reasonably required information and documentation and promptly reimburse Contractor for the cost of any fees in connection with Contractor's obligation under this Agreement to obtain Government Approvals, which are included in the Purchase Price and shall be invoiced and paid in accordance with the terms set forth Article 2 above.
- 8.3 Unless Owner has engaged Contractor to maintain the System for the life of the Manufacturer's Warranty, Owner agrees to maintain and operate the System in accordance with the Manufacturer's Warranty for each part or component including the racking system, photovoltaic panels, inverters, transformers, switchgear, and combiner boxes. Any

exclusion or limitation in a Manufacturer Warranty of a part or component of the System shall serve as an exclusion or limitation for such part or component in the Service Warranty. During the Warranty Period, Owner shall promptly report any malfunction in the System as soon as it is noticed to Contractor.

9 CHANGES IMPACTING PROJECT OR SCOPE OF WORK

- 9.1 At any time after approval by Owner of the Design Documents and prior to Final Completion, either Contractor or Owner may suggest to the other that a change is desirable or required to the Scope of Work of the System. In either case, Contractor shall submit to Owner an estimate of the difference between the cost of the Work as originally planned and as required by the alteration or change. Contractor shall also submit an estimate of the changes to costs caused by such alteration or change. Should Contractor and Owner agree to such change, the cost difference shall, as applicable, be added to or deleted from the Purchase Price. Any such agreed changes shall be documented in writing in a change order signed by both Contractor and Owner prior to implementation of a Change Order.
- 9.2 If Contractor discovers anything requiring changes to the Purchase Price (including previously undisclosed conditions concerning the Site or other material aspects of the Work that (i) is outside of Contractor's control, (ii) is outside the Scope of the Work, and (iii) was not reasonably foreseeable by Contractor based on information provided to Contractor by Owner), Contractor will provide a Change Order to Owner for approval. A Change Order shall contain full particulars of the required change and any adjustment to the Purchase Price, including an increase or decrease, if any, in the cost to complete the Work, together with the basis for such estimate. Before the Contractor can proceed with any changes pursuant to a Change Order, the Owner must consent in writing to the proposed Change Order.
- 9.3 When Contractor considers that Contractor has achieved Substantial Completion, Contractor shall submit the Punchlist to Owner for Owner's review and determination that the Work remaining in the Punchlist is a complete list of outstanding items to achieve Final Completion.
- 9.4 Upon receipt of notice from Owner that the Substantial Completion has not occurred or that the Punchlist needs modifications, Contractor will complete any incomplete items, remedy defective items, or make such modifications to the Punchlist (as applicable), after which Contractor shall submit a revised application for Substantial Completion, together with the Punchlist (revised as necessary). Owner shall re-inspect all Work completed or remedied by Contractor. Once the Owner believes that Contractor has achieved Substantial Completion, Owner shall deliver a Certificate of Substantial Completion to Contractor. A fully executed Certificate of Substantial Completion shall be conclusive evidence that Substantial Completion has been achieved.
- 9.5 When Contractor considers that Contractor has achieved Final Completion, Contractor will notify Owner that the Work is ready for final inspection. Owner may inspect the Work (at the Owner's sole cost and expense) to verify the status of Final Completion within five (5) business days after its receipt of Contractor's certification that the Work is ready for

inspection. If Owner determines that any Work is incomplete or defective, Owner shall promptly notify Contractor in writing of such incomplete or defective items, itemizing and describing such remaining items with reasonable particularity. Contractor will complete any incomplete items provided that the items are within the Scope of Work or remedy defective items after which Contractor shall provide written notice to Owner that the Work is fully complete. At Owner's election, the Owner may re-inspect all work completed or remedied by Contractor within five (5) business days of Contractor's notice that the Work is fully complete. When Owner believes that Contractor has achieved Final Completion, Owner shall issue to Contractor a Certificate of Final Completion. A fully executed Certificate of Final Completion shall be conclusive evidence that Final Completion has been achieved.

- 9.6 Change In Law. If there is a Change in Law subsequent to the Effective Date (including any such change related to Owner's ability to claim state, federal or local tax exemptions or obtain PILOTS) this Agreement shall remain in effect, and the Party affected shall be responsible for the burden and/or shall be permitted to retain the benefit of such Change in Law; provided, however, that nothing herein shall prevent the Parties from negotiating, in good faith, modifications to this Agreement in response to a Change in Law.

10 SUBCONTRACTORS

- 10.1 Contractor may employ Subcontractors in the performance of the Work or Services in connection with the System, but Contractor shall remain responsible to Owner for the performance any Work by the Subcontractors.
- 10.2 Contractor shall pay when due all amounts payable to its Subcontractors for labor and materials furnished in the performance of this Agreement. Contractor shall use its best efforts to ensure that the System and the Site remain free of any liens arising through Contractor or the Subcontractors that are not the result of Owner's failure to pay Contractor any amounts when due hereunder. Contractor will procure a warranty from all Subcontractors providing materials and equipment and services as part of the Work. At the end of the Warranty Period, Contractor will assign to Owner its rights under all such Subcontractor warranties that continue past the end of the Warranty Period. Contractor will secure such assignment from each Subcontractor, and Contractor will deliver to Owner copies of all Subcontracts providing for warranties enforceable by Owner. Contractor will not, and Contractor will ensure that Contractor's personnel do not, take any action which could release, void, impair or waive any Subcontractor warranties. To the extent that any such warranty would be voided by reason of Contractor's negligence or other fault in incorporating materials or equipment into the Work, Contractor shall be responsible for correcting such negligence or other fault and shall in any event be responsible pursuant to the Service Warranty. If Contractor utilizes Subcontractors in the performance of the Work or the Services, then each Subcontractor shall be required to maintain insurance identical to that which is required of Contractor pursuant to Schedule 6.

11 FORCE MAJEURE

- 11.1 A Party shall not be in default in the performance of any obligation under this Agreement (other than an obligation to make payments) when such failure to perform is due to a Force Majeure Event that prevents the affected Party's performance or makes such performance materially more onerous or costly. The Party suspending performance due to a Force Majeure Event shall (i) give written notice of such fact to the other Party promptly after suspending performance and (ii) exercise commercially reasonable efforts to mitigate or remediate the impacts of the Force Majeure Event. Neither Party shall be relieved of its obligation to perform if such failure is due to causes arising out of its own negligence or due to removable or remediable causes which it fails to remove or remedy within a reasonable time through commercially reasonable efforts.

12 TECHNICAL RIGHTS

- 12.1 It is acknowledged that Contractor possesses certain Proprietary Information, all of which have been independently developed without the benefit of any of Owner's information, all of which is owned and controlled by Contractor.
- 12.2 Nothing in this Agreement is intended to grant Owner any rights to acquire, own, use or practice any of Contractor's Proprietary Information other than as set forth herein.
- 12.3 Upon payment of the Purchase Price, Contractor grants to Owner a fully paid up, perpetual, non-exclusive, non-sublicensable, non-transferrable license to use any of Contractor's Proprietary Information developed under this Agreement exclusively at the Site.

13 DEFAULT; LIMITATIONS OF LIABILITY

- 13.1 Events of Default by Owner. Each of the following events or conditions shall constitute an "Event of Default" by Owner:
- 13.1.1 any failure by Owner to perform or comply with the terms and conditions of this Agreement (other than a payment default), including breach of any covenant contained herein, if such failure continues for thirty (30) calendar days after notice to Owner demanding that such failure to perform be cured; provided that if such cure cannot be effected in thirty (30) calendar days, then such thirty (30) calendar day period shall be extended for a reasonable period of time, so long as (i) any such failure or breach is reasonably susceptible to being cured within 30 days and (ii) Owner has commenced to cure such failure within the initial 30-day period and diligently and continuously prosecutes such cure to completion;
- 13.1.2 any representation or warranty made by Owner in this Agreement was false or misleading in any material respect when made, subject to Owner's right to cure within thirty (30) calendar days after being notified by Contractor of such false or misleading statement;

13.1.3 any failure by Owner to pay any amount due and payable to Contractor which is not paid within thirty (30) business days of written notice from Contractor that the amount is past due; or

13.1.4 the occurrence of an Insolvency Event with respect to Owner.

13.2 Events of Default by Contractor. Each of the following events or conditions shall constitute an “Event of Default” by Contractor:

13.2.1 Any failure by Contractor to perform or comply with the terms and conditions of this Agreement (other than a payment default), including breach of any covenant contained herein, if such failure continues for thirty (30) calendar days after notice to Contractor demanding that such failure to perform be cured; provided, that if such cure cannot be effected in thirty (30) calendar days, then such thirty (30) calendar day period shall be extended for a reasonable period of time, so long as (i) any such failure or breach is reasonably susceptible to being cured within 30 days and (ii) Contractor has commenced to cure such failure within the initial 30-day period and diligently and continuously prosecutes such cure to completion.

13.2.2 [Reserved]

Contractor abandons or discontinues the Work on the Site for at least three (3) continuous weeks for any reason other than an Owner Caused Delay or Force Majeure.

13.3 No Personal Liability. No officer, manager, shareholder, partner, director, member, employee, or other principal, agent or representative (whether disclosed or undisclosed) of a breaching Party shall be personally liable to a non-breaching Party hereunder for a breaching Party’s payment obligations or any other obligation or liability of a breaching Party arising out of or related to this Agreement, and a non-breaching Party hereby agrees to look solely to the breaching Party for the satisfaction of any liability of the breaching Party hereunder.

14 TERMINATION

14.1 Loss of NYSERDA Incentive. If the awarded NYSERDA incentive is less than the amounts provided in Schedule 1 hereto, Owner may, prior to the start of the installation, terminate this Agreement as a Termination for Infeasibility within ten (10) business days following notice to Owner of the amount of NYSEDA incentive application awarded as a Termination for Infeasibility.

14.2 Excessive PILOT or Real Property Taxes. In the event that System is not granted an exemption from real property taxes under Section 487 of the New York Real Property Tax Law by each Governmental Authority having taxing jurisdiction over the System, or one or more payment in lieu of taxes (“PILOT”) agreement(s) is not entered into for the System that includes annual tax payments in amounts that are acceptable to Owner, Owner shall have ten (10) business days from the date of notice by a municipality to terminate this Agreement as a Termination for Infeasibility.

14.3 Excessive Interconnection Costs. Owner can terminate this Agreement at any time prior to the end of the Interconnection Feasibility Study Period if the Utility determines that the Project is not technically feasible or if in the sole judgement of Owner, the additional costs set forth in the Interconnection Study cost estimates renders the Project infeasible from a cost/benefit standpoint as a Termination for Infeasibility according to the Termination Policy for Infeasibility.

14.4 Termination by Owner before Notice to Proceed. Owner may terminate this Agreement with no further liability under this Agreement if such Notice of Termination occurs prior to the earliest of (i) Owner providing Notice to Proceed to Contractor, or (ii) five (5) days following Contractor providing Notice to Owner that Contractor has obtained all required Permits and Approvals.

14.5 Termination Policy. Neither Party shall Terminate the Agreement except as explicitly provided according to this Agreement. The Policy regarding refund of any fees paid by Owner or Reimbursement of Costs by Contractor are set forth as follows:

14.5.1 Termination for Infeasibility. Should Owner terminate this Agreement by reason of Termination for Infeasibility specifically outlined above in Sections 14.1, 14.2 and 14.3, and not for Default by Contractor, Owner shall compensate Contractor for Contractor's out of pocket costs including the cost of the Interconnection Study, any out-of-pocket Interconnection Costs, Third Party engineering costs invoiced, and any application fees paid by Contractor for interconnection applications, permits, NYSERDA applications and fees of other Governmental Authorities as of the date of Termination by Owner less any amounts paid by Contractor. Contractor shall return any amounts that have been paid by Owner to Contractor more than its out-of-pocket costs as of the date of Termination.

14.5.2 Termination at Owner's Discretion Prior to Notice to Proceed. Should Owner Terminate this Agreement pursuant to Section 14.4 for any reason other than Termination for Infeasibility under Sections 14.1, 14.2, and 14.3 or is not a Default by Contractor and such Notice of Termination is provided prior to Notice to Proceed, Contractor shall have ten (10) business days to provide to Owner a final invoice (A) for all items that had not been invoiced but have been incurred prior to the Notice of Termination; and (B) for all additional expenses and out of pocket costs that Contractor incurred directly for this project.

14.5.3 Termination at Owner's Discretion After Notice to Proceed. Should Owner terminate this Agreement after Notice to Proceed for any reason that is not a Default by Contractor and Owner is not in Default, Contractor shall have the right but not obligation to recover any equipment it chooses to recover from the Site and have the right and obligation to recover from a Governmental Authority any amounts that can be recovered from such Governmental Authority. Contractor shall be entitled to provide a final invoice to Owner equal to: (A) the cumulative amount invoiced to Owner by Contractor less any amounts paid by Owner to Contractor pursuant to such Invoices prior to the date of termination;

(B) the total cost of all work performed but not invoiced at the time of Invoice by Contractor at a cost of labor, material and out of pocket costs plus 20 percent thereof for overhead and lost profits prior to the date of termination ; (C) all financial obligations, damages or penalties that Contractor has incurred prior to the date of termination that cannot be mitigated including damages under subcontracts, penalties and permit fees remaining due and payable to any Governmental Authority prior to the date of termination; and (D) loss of any incentives for which Contractor may be accountable to a Governmental Authority, and inspection fees that may be assessed after the Notice Of Termination; (E) all fees that Contractor must incur to restore the Site in accordance with the bonding requirements, and Good Industry Practices and Applicable Law including the cost of labor, equipment and materials multiplied by 1.20% for overhead and lost profits; and (F) the amount of any retainage accumulated under the Agreement prior to the date of termination.

14.5.4 Termination by Owner for Default by Contractor: If an Event of Default by Contractor occurs and is continuing following Notice of Default and relevant cure period (which cure period if not explicitly stated shall be 45 days), Owner shall be entitled to terminate this Agreement. In case of termination, Contractor shall be entitled to payment for that portion of the Work which has been completed and all Equipment supplied in accordance with the terms and conditions of the Agreement prior to the date of termination less any damages incurred by Owner for its breach. Upon termination of this Agreement following an Event of Default by Contractor, Owner may continue and complete the Work or any part thereof, by contract or otherwise. Contractor shall be liable to Owner for all reasonable costs incurred by Owner in removing the Equipment, Contractor's materials and debris from the Site. Contractor shall withdraw from the Site at Contractor's expense, shall assign to Owner such of Contractor's Subcontracts as Owner may request, and shall license, in the manner provided herein, to Owner all Intellectual Property Rights (to the extent not previously licensed in accordance with the terms hereof) of Contractor related to the Work reasonably necessary to permit Owner to complete or cause the completion of the Work.

15 LIENS AND CLAIMS

- 15.1 If at any time any notices of lien are filed for labor performed or product manufactured, furnished, or delivered to or for the Work, Contractor shall within fifteen (15) business days of the date of the filing of such notice of lien, discharge or remove or bond such lien. If the notice of lien is not discharged or removed or bonded within the fifteen (15) business days, the Owner shall have the right to retain from any moneys payable hereunder an amount reasonably appropriate to satisfy such liens and pay the cost and expenses, including attorneys' fees, of defending any actions brought to enforce the same or incurred in connection therewith or by reason thereof until Contractor has discharged, removed or bonded the lien.

- 15.2 If at any time there are any claims for which Contractor is or may be liable or responsible hereunder, Contractor shall promptly settle, bond in an amount reasonably satisfactory to the Owner, or otherwise dispose of the same, and until such claims are settled, so bonded, or disposed of, Owner may retain from any moneys which would otherwise be payable hereunder so much thereof as, in its reasonable judgment, it may deem appropriate to settle or otherwise dispose of such claim and to pay the costs and expenses of the defending any actions brought to enforce such claims, or incurred in connection therewith or by reason thereof.
- 15.3 Owner may, upon ten (10) business days' notice to Contractor, apply any moneys retained hereunder to reimburse itself for reasonable and direct costs and expenses incurred in any way and chargeable to Contractor because of Contractor's failure to comply with this Mechanic's Lien provision.

16 INDEMNIFICATION.

- 16.1 Indemnification by Contractor. Contractor shall fully indemnify, hold harmless, release and defend Owner Indemnitee from and against any and all actions, claims, demands, damages, disability, losses, expenses (including, but not limited to, reasonable attorneys' fees and other defense costs) and liabilities of any nature (including, but not limited to property damage and personal and bodily injury, sickness and disease, claims by a Governmental Authority) that may be imposed on, incurred by or asserted against any Owner Indemnitee and in any way relating to or arising out of (i) Contractor's breach of any obligation, representation or warranty contained herein, (ii) Contractor's negligence, gross negligence or willful misconduct (including any such breach, negligence, gross negligence or willful misconduct by Contractor or its officers, employees, Subcontractors and agents), (iii) violation by Contractor or its officers, employees, Subcontractors and agents of any Applicable Law or Governmental Approval, (iv) any claims with respect employer's liability or worker's compensation filed by any employee of Contractor or any of its personnel or by any employee of a Subcontractor or any of its personnel, or (v) Contractor's breach of a subcontract. The indemnification obligations in this Section shall survive the expiration or termination of this Agreement.
- 16.2 Indemnification by Owner. Owner shall fully indemnify, hold harmless, release and defend Contractor Indemnitee from and against any and all actions, claims, demands, damages, disability, losses, expenses (including, but not limited to, reasonable attorneys' fees and other defense costs) and liabilities of any nature (including, but not limited to property damage and personal and bodily injury, sickness and disease) to the extent caused by Owner's (i) breach of any obligation, representation or warranty contained herein, or (ii) negligence, gross negligence or willful misconduct (including any such breach, negligence, gross negligence or willful misconduct by Owner's officers, employees and agents). The indemnification obligations in this Section shall survive the expiration or termination of this Agreement.
- 16.3 Owner Environmental, Law and Permit Indemnity. Owner shall defend, indemnify and hold harmless Contractor and Contractor's officers, employees, and agents from and against any and all actions, claims, demands, damages, disability, losses, expenses (including, but not

limited to, reasonable attorneys' fees and other defense costs) and liabilities of any nature (including, but not limited to property damage and personal and bodily injury, sickness and disease) arising out of: (i) any and all environmental related liability or cost arising from or related to Hazardous Substances on the Site (other than environmental related liability or cost arising from or related to any environmental hazards or Hazardous Substances brought to the Site by Contractor or any of its Subcontractors or suppliers); or (ii) on account of any violation of any Applicable Laws or Governmental Approval to be complied with by Owner hereunder.

- 16.4 Contractor Environmental, Law and Permit Indemnity. Contractor shall defend, indemnify and hold harmless Owner Indemnitees from and against any and all actions, claims, demands, damages, disability, losses, expenses (including, but not limited to, reasonable attorneys' fees and other defense costs) and liabilities of any nature (including, but not limited to property damage and personal and bodily injury, sickness and disease) arising out of (a) any and all environmental related liability or cost arising from or related to the environmental hazards or Hazardous Substances brought to the Site by Contractor or any of its Subcontractors or suppliers; or (b) on account of any violation of any Applicable Laws or Governmental Approval to be complied with by Contractor hereunder.

17 MISCELLANEOUS

- 17.1 This Agreement shall be binding upon and shall inure to the benefit of, and shall be enforceable by, the Parties hereto and their respective successors and assigns as permitted by and in accordance with the terms hereof.
- 17.2 If any provision of this Agreement is held to be illegal, invalid, or unenforceable, the legality, validity, and enforceability of the remaining provisions of this Agreement shall not be affected or impaired thereby. The invalidity of a provision in a particular jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.
- 17.3 This Agreement and the rights and obligations of the Parties hereunder shall in all respects be governed by, and construed in accordance with, the laws of the State of New York (without regard to the conflict of laws principles).
- 17.4 Unless otherwise expressly specified or permitted by the terms hereof, all communications and notices provided for herein shall be in writing, by facsimile or by electronic mail and/or portable data format (PDF), and any such notice shall become effective: (i) upon overnight mail or courier service; (ii) in the case of notice by United States mail, certified or registered, postage prepaid, return receipt requested, upon receipt thereof; or (iii) in the case of notice by facsimile or electronic mail, upon confirmation of receipt thereof, provided such transmission is promptly further confirmed by any of the methods set forth in clauses (i) or (ii) above, in each case addressed to each Party hereto at its address set forth below or, in the case of any such Party hereto, at such other address as such Party may, from time to time, designate by written notice to the other Parties hereto:

If to CONTRACTOR:
Solar Liberty Energy Systems, Inc.
6500 Sheridan Dr. Suite 120

Buffalo, NY 14221
email: akrizzo@solarliberty.com
Attention: Adam Rizzo, President

If to OWNER:
Dom Kam LLC.
366 Highland Ave Ext.
Middletown, New York 10940
email: mmarangi@ensol.com
Attention: Michael Marangi, Chief Executive Officer

- 17.5 No term, covenant, agreement, or condition of this Agreement may be terminated, amended or compliance therewith waived (either generally or in a particular instance, retroactively or prospectively) except by an instrument or instruments in writing executed by each Party against which enforcement of the termination, amendment or waiver is sought.
- 17.6 This Agreement and all rights hereunder are intended for the sole benefit of the Parties hereto and shall not imply or create any rights or cause of action on the part of, or obligations to, any other Person.
- 17.7 All warranties, representations, indemnities, and covenants made by any Party hereto, herein or in any certificate or other instrument delivered by any such Party or on the behalf of any such Party under this Agreement, shall be considered to have been relied upon by each other Party hereto and shall survive the consummation of the transactions contemplated hereby regardless of any investigation made by any such Party or on behalf of any such Party.
- 17.8 This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Any signature page of any such counterpart, or any electronic or facsimile thereof, may be attached or appended to any other counterpart to complete a fully executed counterpart of this Agreement, and any telecopy, .pdf-format or other facsimile transmission of any signature of a Party hereto shall be deemed an original and shall bind such Party.
- 17.9 BOTH CONTRACTOR AND OWNER WAIVES ANY CLAIM AGAINST THE OTHER FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, PUNITIVE OR SPECIAL DAMAGES FOR ANY MATTER ARISING UNDER OR WITH RESPECT TO THIS AGREEMENT, THE SYSTEM, THE WORK OR THE SERVICES ARISING OUT OF THIS AGREEMENT, UNDER ANY THEORY OF LAW, WHETHER IN CONTRACT, TORT OR OTHERWISE.
- 17.10 The Parties hereto acknowledge that Contractor is a NYSERDA Eligible Installer and is eligible to receive the NYSERDA incentive rebate reflected in the relevant documentation of the NYSERDA Incentive program. Contractor is responsible for submitting all applications and all other information to NYSERDA, on Contractor's behalf, necessary to seek all incentives available for the System from the NYSERDA Incentive program. All incentive amount payments received from the NYSERDA Incentive program by Contractor with respect to the System shall be paid directly to Contractor or assigned to Contractor in accordance with the terms of the NYSERDA Incentive program. Contractor does not warrant or guaranty the

amount of the NYSERDA incentive rebate and shall have no liability to Owner if the amount awarded shall be less than that set forth in Schedule 1.

17.11 NYSERDA's website <http://ny-sun.ny.gov/> contains information on NYSERDA and NYSERDA Incentive program under which support for this System will be requested. Owner and Contractor agree to execute and be bound by the NYSERDA Addendum.

17.12 This Agreement, all Schedules attached hereto, and the executed NYSERDA Addendum is the entire agreement between the Parties and supersedes all other oral and written communications and representations. In the event of a conflict between terms of this Agreement (including all attachments hereto and amendments thereof) and the terms of the NYSERDA Addendum, the terms of the NYSERDA Addendum shall control.

17.13 Assignment. Neither Party shall assign this Agreement or any of its rights hereunder without the prior written consent of the other Party, which consent shall not be unreasonably withheld or delayed, provided however, that Owner may assign this Agreement to an affiliate or successor-in-interest to title to the Site, the Project and/or the System, as applicable, upon written notice to Contractor, but at Owner's sole discretion.

17.14 All non-public information (including the terms of this Agreement) provided by either Party to the other or which is identified by the disclosing Party in writing as confidential or proprietary information shall be treated in a confidential manner and shall not be disclosed to any third party without the prior written consent of the non-disclosing Party, which consent shall not be unreasonably withheld. Notwithstanding the foregoing, Owner hereby gives Contractor permission to take images (including motion picture or still photographs) of the System at the Site solely for advertising, promotion, and marketing purposes of Contractor.

17.15 Notwithstanding the preceding paragraph, this Section and the restrictions herein contained shall not apply to any data or documentation which is:

17.15.1 Disclosed or required to be disclosed pursuant to state or federal law, an order or requirements of a regulatory body or a court, provided the disclosing Party provides ten (10) days' notice of such intended disclosure to the non-disclosing Party;

17.15.2 Disclosed by a Party to an affiliate of such Party or in connection with an assignment permitted hereunder, provided such affiliate or assignee agrees in writing to comply with the terms of this Section 17.16; or

17.15.3 Is, as of the time of disclosure, public knowledge without the fault of the disclosing Party.

[signature page to follow]

INTENDING TO BE LEGALLY BOUND, Owner and Contractor have signed this Agreement through their duly authorized representatives effective as of the Effective Date.

CONTRACTOR: SOLAR LIBERTY ENERGY SYSTEMS, INC.

By: _____

Name: Adam K. Rizzo

Title: President

OWNER: DOM KAM LLC.

By: _____

Name: Michael Marangi

Title: Chief Executive Officer

SCHEDULE 1: SYSTEM DESCRIPTIONS

A. System Description

1. Site: The roof at 1118 Dolsontown Road, Middletown, NY 10940
2. System Size (DC KW) 275.5 kW DC Capacity
3. Estimated System Cost Breakdown:

Description	Line Total
Photovoltaic Modules	\$240,350.33
Inverter	\$80,116.78
Power Storage/Battery	\$0.00
Battery Charging Stations	\$0.00
Balance of System	\$213,644.74
Purchase Price (Before NYSERDA Incentive)	\$534,111.85

4. DC Wattage for the System:

Number of PV Panels	(x) Standard Rating (DC Watts)	Total (Nominal) DC Watts
475	580	275500

5. NYSERDA Incentive:

NYSERDA Incentive Rate	(x) Total System DC Watts	Total NYSERDA Incentive
0.250/W up to 750 kW 0/W after 750 kW	275,500	(\$68,875.00)

6. Utility Incentive For Chargers:

<u>Utility Incentive for Battery Charging Stations</u>		
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7. System Cost After NYSERDA Incentive:

Purchase Price	(-) NYSERDA Incentive	Total Net System Cost
\$534,111.85	-68,875.00	\$465,236.85

8. Proposed System:

System Type	Net Metering	Battery	Mounting Type
Grid Tied	Net Metered	No	Roof mounted

9. Major Equipment Proposed:

Brand of PV Modules	Q-CELL	Model of PV Modules	QPEAK Duo XLG 11.3 BFG
Brand of Inverter	CHINT	Model of Inverter	SCA60KTL-DO SCA36KTL-DO
Brand of Optimizers		Model of Optimizer	

Brand of Mounting Equipment	TBD	Model of Mounting Equipment	TBD
Brand of Power Storage/Battery	N/A	Model of Power Storage/Battery	N/A
Estimated minimum hours a fully charged battery may power a total of ____ amp circuit load.			hours
Battery Operates During Power Outages			(Yes/No)
Additional Equipment	BOS		

10. Equipment Location:

Location of Inverter and PV System Meter	As shown on site plan (“ Site Plan ”) attached as Appendix A.
Location of DC Disconnect	As shown on the Site Plan attached as Appendix A
Location of Utility Lockable AC Disconnect	Exact Location TBD

11. Estimated Annual Output:

Customer understands that the System output is dependent upon climatic conditions which are naturally variable, and therefore the actual output of the System over any consecutive twelve (12) month period may be higher or lower than the Estimated Annual Output stated below:

Estimated First Year Annual Output in kWh (Based Upon a Daily Solar Radiation of 3.88 kWh/m ² /day)	321,230 kWh
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SCHEDULE 2:
SYSTEM SPECIFICATIONS

1. The System shall be designed for an expected lifetime of 25 years. All System components are intended to have appropriate finish to limit the effects of corrosion consistent with this expected lifetime. This expected lifetime of the System assumes regular maintenance and repair and/or replacement of some components of the System.
2. The System shall be designed in recognition of the wind loads, snow loads, seismic loads, temperature, and humidity extremes which would normally be expected to occur at the specified sites during the System's design lifetime.
3. The System's designs shall comply in all material respects with the requirements of the applicable local building codes as defined by the Governmental Authority having jurisdiction over the Site where the Work is to be performed.
4. The System's nominal power rating will be the specified nameplate power rating of the Photovoltaic modules times the number of modules in the System at the time of commissioning of the System.
5. Subject to the constraints imposed by Site conditions landowner, Contractor will design, locate and install the System with the intent of optimizing the kWh output of the System over its lifetime.
6. Photovoltaic modules shall be listed by Underwriter's Laboratories for compliance with UL1703. Modules shall comply with the requirements of IEC 1215.
7. The inverter(s) shall be listed by Underwriter's Laboratories for compliance with UL1741. Inverters shall comply with the requirements of IEEE 929.
8. All field installed wiring shall comply with the requirements of Articles 690 and 250 of the US National Electric Code.

SCHEDULE 3: SCHEDULE OF VALUES

Benchmark Task	Value of Benchmark as a % of Project Budget	Schedule of Values Total (\$)
Project Budget (Purchase Price)	100%	\$534,111.85
a. Equipment Advance	20%	\$106,822.37
b. Notice to Proceed Issued by Owner	10%	\$53,411.19
c. Delivery of Racking	10%	\$26,705.59
d. Delivery of Panels	10%	\$26,705.59
e. Installation of 100% Racking	10%	\$53,411.19
f. Installation of 100% Panels	10%	\$53,411.19
g. Mechanical Completion	10%	\$106,822.37
h. Substantial Completion	15%	\$80,116.78
i. Retainage Paid at Final Completion	5%	\$26,705.59

SCHEDULE 4: MANUFACTURER WARRANTIES

Attached hereto are the manufacturers' warranties for the following Equipment:

Module Warranty

Inverter Warranty

Mounting System Warranty

SCHEDULE 5: SCOPE OF WORK

1. Design and installation of System described in Schedule 1 at the Site.
2. Design. Contractor will design the System according to Work Description and Specifications in this Schedule 3 and the System Description and Specifications listed in Schedule 1. The System drawings will be stamped by licensed electrical, structural, and mechanical engineers as appropriate. Where required by law, Contractor shall retain the services of a qualified engineers licensed under New York law.
3. Fabrication and Integration. Contractor will fabricate or purchase all necessary System components and integrate these components to meet the System Description of Schedule 1 and Specifications listed in Schedule 2.
4. Installation. Contractor will complete or manage through sub-contracts all required trenching, mechanical and electrical work required for installation of the System in accordance with this Schedule 5.
5. Commissioning. Contractor will conduct the following activities to support commissioning of the System:
 - 5.1. Conduct the Acceptance Test(s), prepare, and supply reports for the Acceptance Tests, and provide handover documents to Owner.
 - 5.2. Provide two (2) days of a one (1) day training session for the person identified by Owner to become the System Manager, covering the operational and maintenance tasks described in the Operation and Maintenance Manual of the System.

SCHEDULE 6: INSURANCE

1. General Insurance Coverage. Upon execution of this Agreement, and prior to Contractor's commencing any work or services with regard to the Project, Contractor shall carry the following commercial general liability insurance on ISO form CG 00 01 10 01 (or a substitute form providing equivalent coverage) and Contractor shall provide Owner with a Certificate of Insurance and Additional Insured Endorsement on ISO form CG 20 10 11 85 (or a substitute form providing equivalent coverage) or on the combination of ISO forms CG 20 10 10 01 and CG 20 37 10 01 (or substitute forms providing equivalent coverage) naming Owner as an additional insured party thereunder. Additional insured coverage shall apply as primary insurance with respect to any other insurance afforded to Owner.
2. Coverage Limits. The coverage available to Owner, as an additional insured party, shall not be less than:
 - i. Employers' Liability Insurance - \$1,000,000 Bodily Injury by Accident;
 - ii. Business Automobile Liability Insurance - \$1,000,000 per accident;
 - iii. Commercial General Liability Insurance - \$1,000,000 Bodily Injury per event, \$1,000,000 Property Damage per occurrence, \$2,000,000 aggregate coverage per project, and \$2,000,000 completed operations aggregate coverage per project; and
 - iv. Umbrella Liability Insurance - \$1,000,000 per project. Employers' Liability, Business Automobile Liability and Commercial General Liability coverage required under this Paragraph may be arranged under a single policy for the full limits required or by a combination of underlying policies with the balance provided by Excess or Umbrella Liability policies.
3. Scope and Quality of Coverage. Such insurance shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal and advertising injury, and liability assumed under an insured contract (including the tort liability of another assumed in a business contract). There shall be no endorsement or modification of the Commercial General Liability form arising from pollution, explosion, collapse, underground property damage or work performed by Contractor. All coverage shall be placed with an insurance company duly admitted in the State of New York and shall be reasonably acceptable

to Owner. All Contractor insurance carriers must maintain an A.M. Best rating of “A-“ or better. Coverage shall be afforded to the additional insured parties whether or not a claim is in litigation. The insurance coverage required under this Section shall be of sufficient type, scope, and duration to ensure coverage for Owner for liability related to any manifestation date within the applicable statutes of limitation and/or repose which pertain to any work performed by or on behalf of Owner in relation to the Project. Contractor agrees to maintain the above insurance for the benefit of Owner for a period of ten years, or the expiration of the Statute of Limitations pursuant to Code of Civil Procedure, Section 337.15, whichever is later. Each Certificate of Insurance shall provide that the insurer must give Owner at least thirty (30) days’ prior written notice of cancellation and termination of Owner’s coverage thereunder. Not less than two weeks prior to the expiration, cancellation or termination of any such policy, Contractor shall supply Owner with a new and replacement Certificate of Insurance and Additional Insured endorsement as proof of renewal of said original policy. Said new and replacement endorsements shall be similarly endorsed in favor of Owner as set forth above.

4. Certificate of Insurance. Additionally, and prior to commencement of the Work, Contractor shall provide Owner with a Certificate of Insurance showing liability insurance coverage for Contractor and any employees, agents, or subcontractors of Contractor (“Subcontractors”) for any Workers’ Compensation, Employer’s Liability and Automobile Liability. In the event that any of these policies are terminated, Certificates of Insurance showing replacement coverage shall be provided to Owner.
5. Subrogation of Rights. Contractor shall obtain from each of its insurers a waiver of subrogation on Commercial General Liability in favor of Owner with respect to Losses arising out of or in connection with the Work.
6. Labor Law Exclusion. Notwithstanding anything to the contrary in this Agreement or this Schedule, none of the policies set forth above shall include any labor law exclusions.

SCHEDULE 7: SITE PLAN

See attached Site Plan.

**SCHEDULE 8:
CONSTRUCTION SCHEDULE**

See Attached

SCHEDULE 9: NYSERDA ADDENDUM

ADDENDUM TO CUSTOMER AGREEMENT NY-Sun Incentive Program



Please check appropriate box below.

 This Agreement is related to a PV project receiving incentive funding under the NY-Sun Residential & Nonresidential Incentive Program

 This Agreement is related to a PV project receiving incentive funding under the NY-Sun Commercial & Industrial Incentive Program

All Participating Contractors must incorporate this Addendum into the agreement between the Contractor and Customer (Agreement) for each PV project receiving incentives.

The following terms will apply to all NY-Sun supported PV projects under the Residential & Nonresidential Program or Commercial & Industrial Program:

Attorney Consultation: The Agreement to which this Addendum is attached and made part is a legally binding document; you may wish to consult with an attorney before signing.

Conflicting Terms: In the event of a conflict between the terms in any other contractual instrument between the Contractor and Customer and the terms of this Addendum, the terms of this Addendum shall control.

Assumption of Responsibilities: Should the Contractor or owner of the PV System, including any associated energy storage system installed under the NY-Sun Program, sell or transfer ownership of the PV System, including, if applicable, the associated energy storage system, during the term of the Agreement, the Contractor/owner agrees that it will alert Customer in advance of such transfer or sale, and that, during the duration of the term of the Agreement, either: (1) the Contractor will remain responsible to the Customer for all obligations and responsibilities stated herein, or (2) under the agreement of sale the buyer will assume all responsibilities to Customer stated herein, if applicable.

Incentives: Incentives are only available for the installation of new grid-connected PV Systems and energy storage systems that have not been installed (partially or completely) prior to the Project Application achieving a status of "Approved," as determined by NYSERDA. Incentives are reserved at the incentive level designated in the MW block in effect at the time of application submission. Incentives will not be provided directly to Customers but are paid to the Contractor, who must apply the entire approved amount to the Customer's cost via a corresponding reduction in Customer's Total System Cost or total payments. The Contractor is required to disclose the full amount of the NYSERDA incentive to the end-use customer. The Contractor is not permitted to collect the value of the incentive upfront and reimburse the customer upon completion of the project, or upon receipt of the NYSERDA incentive. Nonresidential projects may request a payment be made to another entity at time of application submission only. The Project Invoice will be submitted by the Contractor or Builder once the system has been installed and interconnected.

Customer Agreement: If the Agreement includes an energy storage system, such Agreement must contain a provision whereby Contractor describes how the Storage System will perform in the event of a power outage and how the Storage System will provide backup power. At a minimum, the Agreement shall include a statement that the Storage System will not power the customer's entire home in the event of a power outage and shall describe: (1) the percentage of charge the Storage System will draw from a paired PV System; (2) how many electrical circuits or appliances the Storage System can provide backup

ADDENDUM TO CUSTOMER AGREEMENT

NY-Sun Incentive Program



power for and at what amperages; (3) any reserve levels Contractor will establish for the Storage System; and (4) whether and how the Contractor may or will administer and operate the Storage System to optimize the customer's home energy production and consumption and/or for demand response or other utility-based programs.

Inspection/Reporting/Commissioning: For quality control purposes, all parties including the Customers must provide NYSERDA or its representative with reasonable access to the PV System, including any associated energy storage system installed under the NY-Sun Program, in order to conduct site inspections or remote monitoring services. Final incentive payment may be contingent on NYSERDA inspection of the installed PV System and/or energy storage system.

Publicity and Site Events: Customers and Contractors are required to collaborate with NYSERDA's Director of Communications should they prepare any press release or plan any news conference related to the PV System and if applicable, the energy storage system. NYSERDA is authorized to use PV System and energy storage system photographs in brochures, on its website, and in other print materials.

Tax Incentives: Customers are encouraged to consult the Internal Revenue Service (See www.irs.gov), the NYS Department of Taxation and Finance (See www.tax.ny.gov) and with an accountant/tax adviser for details on eligibility for the credit provided in the law, regardless of whether the Builder/Contractor has provided information regarding the expected tax benefits (real property, federal or state tax incentives, or sales and use tax exemptions).

Net Metering: Customers may consult with their local utility regarding eligibility for net metering and applicable monthly Customer Benefit Contribution Charge for on-site renewable energy projects installed after January 1, 2022.

Consumer Information: New York consumers and customers are encouraged to consult the New York State Office of the Attorney General web site for consumer information: www.ag.ny.gov

The NYS Consumer Protection Board offers additional information with the following publications: www.dos.ny.gov/consumerprotection/publications.html

Customer authorizes NYSERDA to add Customer to the mailing lists and to share Customer's information with New York State government and other entities doing business on NYSERDA's behalf. Customer reserves the right to unsubscribe at any time.

Communication with Customer: Contractor and Customer agree that NYSERDA may, at NYSERDA's discretion, communicate by voice and/or written format with any PV System Customer with respect to any matter relevant to a proposed or installed PV System and if applicable, a proposed or installed energy storage system. Such communications may be in reply to an inquiry from a Customer or at NYSERDA's initiation.

Disclaimer: The Customer understands that neither NYSERDA nor the State of New York: (1) endorse any Contractor; or (2) guarantee, warranty, or in any way represent or assume liability for any work proposed or carried out by a Contractor or Installer. Additionally, NYSERDA is not responsible for assuring that the design, engineering and construction of the project or installation of any solar electric generation system, including if applicable, any energy storage system, is proper or complies with any particular laws, regulations, codes, licensing, certification and permit requirements, or industry standards. NYSERDA does

ADDENDUM TO CUSTOMER AGREEMENT NY-Sun Incentive Program



not make any representations of any kind regarding the results to be achieved by the solar generation systems, including if applicable, any energy storage system, or the adequacy or safety of such measures.

Quality Solar Installer (QSI) Designation: NYSERDA's Quality Solar Installer designation is solely based on field inspected projects during the previous calendar year and the Gold Status is based on the Quality Solar Installer designation for previous three years. The Quality Solar Installer Designation and the Gold Status should not be construed as NYSERDA's endorsement, guarantee, or warranty of any particular manufacturer, product, the Builder, or the Contractor. NYSERDA does not endorse, guarantee, or warrant any particular manufacturer, product, the Builder, or the Contractor, and NYSERDA disavows and provides no warranties, expressed or implied, for any product or services that may be rendered by participating contractor or builder.

Cost Estimate/Total System Price: The Customer has relied upon the Contractor to include any and all costs associated with the complete installation of the proposed PV system, including if applicable, any energy storage system, in the Agreement. If additional costs are sought from the Customer, the Agreement may be cancelled without penalty and the customer may seek a full refund of any deposit paid to Contractor or costs the Customer incurred under the Agreement, less any reasonable site visit fees charged by the Contractor.

Incentive Estimate: If the Contractor does not submit a completed Project Application to NYSERDA, or if the Project Application (a) is not approved by NYSERDA or (b) if NYSERDA approves a lower incentive, the Customer may terminate the Agreement without penalty and seek a full refund of any deposit paid to Contractor or costs he or she incurred under the Agreement, less any reasonable site visit fees charged by the Contractor.

Approved System Design: NYSERDA may review the design of the PV System, including if applicable, any energy storage system, considering issues including, but not limited to, system layout, orientation, shading, expected output, etc. NYSERDA approval of the Project Application is contingent on adherence to the proposed system design. Contractors/Builders must receive approval from NYSERDA for any material modification of the proposed system or its components, or the incentive may be revoked.

System Warranty for Purchase Agreements: The Contractor shall offer a full, transferable warranty to the purchaser of the PV System installed under this Customer Purchase Agreement for a period of five (5) years after the Contractor has completed the installation and NYSERDA's final approval has been provided. This warranty covers all components of the generating system against breakdown or degradation in electrical output of more than 10% from the original rated electrical output. This warranty shall cover the full cost, including labor, repair, and replacement of defective components or systems. The contractor shall provide warranty coverage in a timely manner regardless of the level of support from the equipment manufacturer. Warranty service requests shall be responded to within 72 hours and repairs shall be completed within 30 days. Storage equipment must consist of commercial products carrying at least a 10-year manufacturer warranty. The warranty must cover the entire energy storage system including ancillary equipment and power electronics. The Contractor shall provide the customer with information on any additional or extended warranties that may be applicable.

Production Warranty for PPA/Leases: The Contractor shall offer a production guarantee to the Customer for the initial term of this Agreement, at a minimum. This production guarantee will provide the Customer with compensation if the system produces less than the guaranteed output as specified in the

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PPA or lease agreement. Guaranteed output may not allow cumulative degradation in electrical output of more than 1% per year from the original rated electrical output for the initial term of this agreement. Under no circumstance will the Customer be responsible for any labor and repair or replacement costs of defective components or systems over the initial term of this Agreement. Should the Customer sell the property at which the solar facility is located, the production guarantee is fully transferrable to a new lessee, consistent with the terms of the lease or PPA.

The following term will apply ONLY to NY-Sun supported PV projects under the Commercial & Industrial Program:

Commercial & Industrial Energy Assessment: The Contractor will provide building owners with information on benchmarking tools, such as ENERGY STAR's portfolio manager benchmarking tool or other equivalent tool. If requested by the building owner, the Contractor or Builder will help input utility bill information in the tool in order calculate an energy use index and, where applicable, an ENERGY STAR score. Customers will not be required to benchmark or implement energy efficiency upgrades as a pre-requisite for receiving the standard NY-Sun incentive.

PV System Completion/Commissioning: The Contractor agrees to complete the installation of the PV system, and request all necessary inspections, within 912 days of NYSERDA's approval of the Project Application. Unless written approval of an extension has been issued by NYSERDA, the Contractor will be required to return any and all incentive payments to NYSERDA if this milestone is not met.

The following terms will apply ONLY to NY-Sun supported PV projects under the Residential & Nonresidential Program:

System Losses: All potential system output losses (after all equipment losses are applied) associated with shading, system orientation, tilt angle, etc. may not exceed 20% of optimal system output to receive the full incentive. Such losses must be detailed in each application package using industry accepted shading and orientation tools, verifiable assumptions and calculations. Systems with losses greater than 20% of optimal output due to shading and orientation issues may be considered on a case-by-case basis. However, any available incentives for these systems will be prorated by output loss. In cases where trees or any other obstruction must be removed or moved in order to meet the program rules, incentive payments will not be made until a new shading analysis and photos, verifying that the obstruction(s) have been removed are reviewed and approved by NYSERDA. Any trees or obstructions must be clearly labeled in the site map.

Green Jobs Green New York (GJGNY) Financing: Should an eligible residential customer who chooses to access GJGNY financing for their PV system project be unable to proceed with installation of the PV system, due to either the system not meeting the Program's eligibility requirements, or the customer is denied low-interest financing through GJGNY, the customer may terminate the Agreement without penalty and seek a full refund of any deposit paid to /Contractor or costs he or she incurred under the Agreement, less any reasonable site visit fees charged by the /Contractor.

PV system completion/commissioning: The Contractor agrees to complete the installation of the PV system, and request all necessary inspections, within 365 days of NYSERDA's approval of the Project Application. Unless written approval of an extension has been issued by NYSERDA, the Contractor will

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be required to return any and all incentive payments to NYSERDA if this milestone has not been met.

Residential Clipboard Energy Efficiency Assessment: The Contractor agrees to complete a clipboard energy efficiency assessment consisting of two main components: an interview of the home owners to determine energy-use habits, and identify energy-saving opportunities, especially low- and no-cost measures that could reduce the electricity load of the residence. The Participating Contractor will review assessment results with the homeowner and provide the homeowner with a copy of the assessment report. Customers will not be required to implement energy efficiency upgrades as a pre-requisite to receiving the standard NY-Sun incentive.

Nonresidential Energy Assessment: The Contractor will provide building owners with information on benchmarking tools, such as ENERGY STAR's portfolio manager benchmarking tool or other equivalent tool. If requested by the building owner, the Contractor or Builder will help input utility bill information in the tool in order calculate an energy use index and, where applicable, an ENERGY STAR score. Customers will not be required to benchmark or implement energy efficiency upgrades as a pre-requisite for receiving the standard NY-Sun incentive .

Affordable Solar Incentive – Contract Requirements: Contracts for PPA/lease projects receiving the Affordable Solar additional incentive shall not contain price escalators over the life of the agreement, and all projects receiving this incentive shall provide a cost savings to the customer over the life of the agreement, as documented by the Affordable Solar Residential Project Screening Tool included in the incentive application.

Contracts for PPA/lease projects participating in the TPO Pilot must reflect that the following requirements are met:

- The project is financed through a fully prepaid lease or PPA, with no outstanding financial obligation to the customer beyond the GJGNY loan.
- The project must provide annual customer cost savings of at least 50% per kWh for the lifetime of the GJGNY loan, as documented in the GJGNY pro-forma tool submitted with the incentive application.
- TPO Pilot projects must not exceed a GJGNY loan size of \$6,000.

General Business Law: If this Agreement is deemed to be a Home Improvement Contract under the NYS General Business Law §770, et seq., Customer is entitled to various notices. A description and explanation of this law can be accessed at <http://www.dec.ny.gov/lands/5341.html>. This Agreement may also be subject to the federal Consumer Leasing Act (15 USC 1667 et. seq). <http://www.federalreserve.gov/boarddocs/supmanual/cch/leasing.pdf>

Statement of Acknowledgement: By signing, all parties acknowledge that they have read and understand all of the above information and requirements and agree to abide by them.

Contractor: By signing below, the Contractor confirms that there is a fully-executed Agreement to install the PV project, and if applicable, the energy storage system, that has been signed by both Contractor and Customer and that the costs and incentives stated on the NYSERDA approved application for incentive funding are complete and accurate. The Contractor is responsible for keeping this document on file. NYSERDA may request, at any time, that a signed copy of this addendum be provided. Contractor further attests that the customer signature appearing below is the true and genuine signature of the customer and that it was affixed to this document on the date indicated.

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Print Customer Name _____

Customer Signature _____ **Date** _____

Contractor Company Name _____

Contractor Name (Print) _____

Contractor Signature _____ **Date** _____

SCHEDULE 10:

FORM OF AGREEMENT CHANGE ORDER

This Change Order relates to and changes the scope of work in the Engineering Procurement and Construction Agreement dated the Effective Date between the Owner and Contractor identified below:

OWNER:	CONTRACTOR: SOLAR LIBERTY ENERGY SYSTEMS, INC.
THE PREMISES:	CHANGE ORDER No.
EFFECTIVE DATE OF THE CONTRACT:	EFFECTIVE DATE OF CHANGE ORDER:
The Contractor is hereby directed to make the following changes in the Contract Documents.	
Description:	
Reason for Change Order:	
Attachments: (List documents supporting change and justifying cost and time)	
CHANGE IN CONTRACT PRICE: Original Contract Price: \$	CHANGE IN CONTRACT SCHEDULE: All dates in the work schedule shall be continued and extended by no less than [##] business days including the following: [Estimated Installation Effective Date:] [DATE]
Net changes from previous C.O.'s No. _____ to _____ \$	Net changes from previous C.O.'s No. _____ to _____ (calendar days)
Contract Price Prior to this Change Order: \$	Contract Times prior to this Change Order: (calendar days or dates)
Net Increase (decrease) of this Change Order: \$	Net Increase (decrease) of this Change Order: (calendar days)
Contract Price with all Approved Charge Orders: \$	Contract Times with all Approved Change Orders: (calendar days or dates.) [Estimated Installation Effective Date:] [DATE]
By SOLAR LIBERTY ENERGY SYSTEMS, INC. _____ By: Adam K. Rizzo, President Date:	Accepted and agreed to: (Owner) _____ By: Date: