



ACOUSTIC ASSESSMENT REPORT

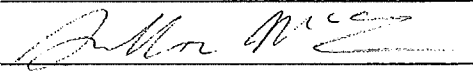
October 2017

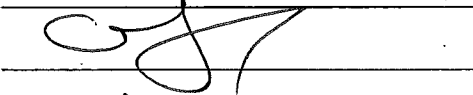
Company Name: Nanticoke Solar LP

Company Address: 700 University Avenue H18 D16
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Location of Facility: 34 Haldimand 55
Nanticoke, Ontario N0A 1L0

The attached Acoustic Assessment Report was prepared in accordance with the guidance in the ministry document "Information to be Submitted for Approval of Stationary Sources of Sound" (NPC 233) dated October 1995 and the minimum required information identified in the check-list on the reverse of this sheet has been submitted.

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ACOUSTIC ASSESSMENT REPORT CHECKLIST

Required Information		Submitted	Explanation/Reference
1.0	Introduction (Project Background and Overview)	<input checked="" type="checkbox"/> Yes	Section 1.0
2.0	Facility Description		
	2.1 Operating hours of facility and significant Noise Sources	<input checked="" type="checkbox"/> Yes	Section 2.1
	2.2 Site Plan identifying all significant Noise Sources	<input checked="" type="checkbox"/> Yes	Figure 4-1
3.0	Noise Source Summary		
	3.1 Noise Source Summary Table	<input checked="" type="checkbox"/> Yes	Table 1
	3.2 Source noise emissions specifications	<input checked="" type="checkbox"/> Yes	Table 1/Appendix B
	3.3 Source power/capacity ratings	<input checked="" type="checkbox"/> Yes	Table 1/Appendix B
	3.4 Noise control equipment description and acoustical specifications	<input checked="" type="checkbox"/> Yes	Appendix B
4.0	Point of Reception Noise Impact Calculations		
	4.1 Point of Reception Noise Impact Table	<input checked="" type="checkbox"/> Yes	Table 4/Table 6
	4.2 Point(s) of Reception (POR) list and description	<input checked="" type="checkbox"/> Yes	Table 2
	4.3 Land-use Zoning Plan	<input checked="" type="checkbox"/> Yes	Appendix A
	4.4 Scaled Area Location Plan	<input checked="" type="checkbox"/> Yes	Figure 1
	4.5 Procedure used to assess noise impacts at each POR	<input checked="" type="checkbox"/> Yes	Section 6.0
	4.6 List of parameters/assumptions used in calculations	<input checked="" type="checkbox"/> Yes	Section 3.0/Section 6.0
5.0	Acoustic Assessment Summary		
	5.1 Acoustic Assessment Summary Table	<input checked="" type="checkbox"/> Yes	Table 6/Table 7
	5.2 Rationale for selecting applicable noise guideline limits	<input checked="" type="checkbox"/> Yes	Section 5.0
	5.3 Predictable Worst Case Impacts Operating Scenario	<input checked="" type="checkbox"/> Yes	Table 7
6.0	Conclusions		
	6.1 Statement of compliance with the selected noise performance limits	<input checked="" type="checkbox"/> Yes	Section 7.0
7.0	Appendices (Provide details such as)	<input type="checkbox"/> Yes	
	Listing of Insignificant Noise Sources	<input type="checkbox"/> Yes	N/A
	Manufacture's Noise Specifications	<input checked="" type="checkbox"/> Yes	Appendix B
	Calculations	<input checked="" type="checkbox"/> Yes	Appendix D
	Instrumentation	<input type="checkbox"/> Yes	N/A
	Meteorology during Sound Level Measurements	<input type="checkbox"/> Yes	N/A
	Raw Data from Measurements	<input type="checkbox"/> Yes	N/A
	Drawings (Facility / Equipment)	<input checked="" type="checkbox"/> Yes	Appendix B

**ACOUSTIC ASSESSMENT REPORT
ONTARIO POWER GENERATION INC.
NANTICOKE GENERATING STATION**

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October 2017

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EXECUTIVE SUMMARY

Nanticoke Solar LP (NSLP) is proposing construction of a 44 megawatts (MW) solar photovoltaic (PV) facility referred to as the Nanticoke Solar Energy Project (the Project) on, and adjacent to, the existing Ontario Power Generation (OPG) Nanticoke Generation Station (GS) site located in Haldimand County, Ontario. The proposed Project is classified as a Class 3 Solar Facility described as follows:

Project Description:	Ground-mounted Solar PV, Class 3
System Nameplate Capacity:	44 MW AC

Although the operation of solar energy generation facilities is limited to daytime hours when the sun's rays are available, the operating hours include the summer night time period with sunrise typically occurring before 7:00 A.M. In this study, it was assumed that the site operates on a 24-hour basis as a worst-case operating condition.

To assess the worst-case scenario for each group of noise receptors identified within 1000 metres from the project site considering the following operation:

- five (5) 2,000 kW inverter clusters, each of which consists of one (1) 2,000 kW inverter and one (1) 2,200 kVA medium-voltage transformer; and
- nine (9) 4,000 kW inverter clusters, each of which consist of two (2) 2,000 kW inverters and one (1) 4,400 kVA medium-voltage transformer; and
- one (1) 50 MVA high-voltage substation transformer.

A total of sixty-eight (68) points-of-reception (PORs) have been identified within one (1) kilometer distance from the solar project site using property survey information, land use information, and information provided by NSLP. Current vacant lots were also included as PORs based on the information provided by NSLP. The ambient noise levels near the noise sensitive receptor locations can be classified as a Class 3 (rural area) in accordance with Ontario Ministry of the Environment and Climate Change (MOECC)'s Noise Pollution Control (NPC) publication NPC-300. For the acoustic assessment, the points with the predictable worst-case noise impacts were considered.

The applicable sound level limit at receptors is *40 dBA* during the evening and night time period from 7 PM to 7 AM as described in the MOECC publication *Technical Guide to Renewable Energy Approvals* (MOECC REA Guide).

The noise impact calculations were performed using a prediction software (CadnaA ver. 4.6) consistent with the ISO 9613-2 standard. The acoustic model disregards site features, such as buildings on the existing Nanticoke GS site and local terrain. Ground factors were established in this model as 0.7 for the soft ground surfaces and zero (0) for water and hard surfaces as described in the MOECC REA Guide.

It was determined that the Site is predicted to comply with the applicable sound levels with the installation of acoustic barriers as a noise control measure.

1.0 INTRODUCTION

1.1 Project Description

Nanticoke Solar LP (NSLP) is proposing construction of a 44 megawatts (MW) solar photovoltaic (PV) facility referred to as the Nanticoke Solar Project (the Project) located on, and adjacent to, the shut down Ontario Power Generation (OPG) Nanticoke Generation Station (GS) site located in Haldimand County, Ontario. The general location of the proposed site is shown in **Figure 1**.

The Project is a renewable energy generation facility which will utilize a solar PV power system to generate electricity. The inverters, and corresponding medium-voltage transformers, convert the generated direct current (DC) electricity to alternating current (AC). The converted AC current is transmitted to the grid through a 230kV transformer which will be located on a transformer substation at the OPG Nanticoke GS site.

The proposed Project is classified as a Class 3 solar facility described as follows:

Project Description:	Ground-mounted Solar PV, Class 3
System Nameplate Capacity:	44 MW AC

This Project requires a Renewal Energy Approval (REA) pursuant to Section 4 of the Ontario Regulation (O. Reg.) 359/09 and O. Reg. 521/10, which identifies the preparation of an Acoustic Assessment Report (AAR). The AAR, and subsequent draft report, is required to be made available to the public (i.e., the local municipality and identified aboriginal communities) at least 60 days prior to the final public consultation meeting.

1.2 Contact Information

NSLP is committed to public and aboriginal consultation and REA processes, and would be pleased to receive any comments, concerns or questions. NSLP contact information is as follows:

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Arcadis Canada Inc. (Arcadis) is the consultant responsible for the preparation of REA related documents, including the AAR. The contact at Arcadis is as follows:

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2.0 FACILITY DESCRIPTION

The existing OPG Nanticoke GS is located in Haldimand County, Ontario, within a heavy industrial zoned land south of Rainham Road, east of Nanticoke Road, and bounded to the south by Lake Erie. The adjacent land, which is the main site for the Project, is located on mixed use of heavy industrial and agricultural zoned land south of Rainham Road, west of Sandusk Road, and bounded to the south by Lake Erie. The Project site being consists of four (4) land parcels: Former Nanticoke GS Coal Yard; West Parcel; Central Parcel and East Parcel. All four (4) land parcels represent the Project site (the Site) including one (1) high-voltage step-up transformer substation, which will be located on the shut down Nanticoke GS, west of Coal Pile Area. The site plan is depicted in **Figure 2**.

The Haldimand County land use official plan designation is attached in **Appendix A** and summarized in the table below:

Table of Official Plan and Zoning Designations

Site	Official Plan
Nanticoke site (former coal yard)	<ul style="list-style-type: none"> • Major Industrial
West Parcel	<ul style="list-style-type: none"> • Major Industrial • Riverine Hazard Lands • Lakeshore Hazard Lands
Central Parcel	<ul style="list-style-type: none"> • Mineral Aggregate Resource Areas • Riverine Hazard Lands • Lakeshore Hazard Lands
Eastern Parcel	<ul style="list-style-type: none"> • Mineral Aggregate Resource Areas • Riverine Hazard Lands • Lakeshore Hazard Lands

The Project will consist of:

- Arrays of solar PV panels mounted to racking, and anchored to the ground;
- Electric inverters to convert generated DC electricity to AC;
- Medium-voltage transformers connected to a high-voltage transformer prior to interconnection to the provincial grid; and
- One (1) high-voltage substation transformer.

2.1 Operating Hours

The operation of solar energy generation facilities is limited to daytime hours when the sun's rays are available. The solar panel system does not generate any electricity after sunset, therefore, it is anticipated that the inverters will not generate any audible noise. With sunrise, typically occurring at 7:00 A.M. during the summer period, the operating hours include the summer night time period. In this acoustic assessment, it was assumed that the Site operates on a 24-hour basis as a worst-case operating condition.

3.0 NOISE SOURCE SUMMARY

The noise sources considered in this acoustic assessment were as follows:

- five (5) 2,000 kW inverter clusters, each of which consists of one (1) 2,000 kW inverter and one (1) 2,200 kVA medium-voltage transformer; and
- nine (9) 4,000 kW inverter clusters, each of which consist of two (2) 2,000 kW inverters and one (1) 4,400 kVA medium-voltage transformer; and
- one (1) 50 MVA high-voltage substation transformer.

The locations of each receptor groups are shown in **Figures 3-1 through 3-6**. The main noise sources are summarized in **Table 1**. The UTM coordinates of each source are provided in **Table 1** and are shown in **Figure 4-1**.

The results and contour plots for each case are described in the following sections.

3.1 Inverter Clusters

The inverter cluster will be an integrated unit consisting of one (1) or two (2) 2,000 kW inverters and one (1) 2,200 kVA or one (1) 4,400 kVA medium-voltage transformer. Details of the sound power level for the cluster units are described below.

The sound power level of the 2,200 kVA and 4,400 kVA medium-voltage transformers was estimated using the NEMA TR 1-2013 rating for corresponding ratings. The spectrums of the transformers were estimated using the NEMA sound level rating and empirical corrections applicable to transformers. The detailed calculations of the sound power levels are attached in **Appendix B**.

The manufacturer specifications for the inverters are provided in **Appendix B**. A 5 dB tonal penalty was applied to the sound power spectrum in accordance with the MOECC REA Guide.

3.2 Substation Transformer (50 MVA)

The sound power level of the 50 MVA high-voltage transformer was calculated using measured data of similar units and adjusted using NEMA factors. The spectrum of the transformer was estimated using the NEMA sound level rating empirical corrections applicable to transformers. A manufacturer e-mail of the sound power levels is attached in **Appendix B**. A 5 dB tonal penalty was applied to the calculated sound

power spectrum in accordance with the MOECC REA Guide. The main noise sources are summarized in **Table 1**.

4.0 NOISE SENSITIVE RECEPTORS

As per MOECC noise guidelines, a POR means any location on a noise sensitive land use where noise from a stationary source is received. Vacant lots were also included as PORs based on the information provided by NSLP. Agriculturally zoned lands east of the Site were not evaluated unless already severed. Section 2.3.4.1 of the Ontario Ministry of Municipal Affairs and Ministry of Housing Provincial Policy Statement discourages lot creation and adjustment in “prime agricultural areas”, which the lands east of the Site are considered to be. The ambient noise levels near the POR locations can be classified as Class 3 (rural area) in accordance with MOECC’s Noise Pollution Control (NPC) publication NPC-300. For the acoustic assessment, the points with the predictable worst-case noise impacts were considered, including the property line near each receptor. The point(s) representing the worst-case noise impact at each facade are summarized in **Table 2**.

A total of sixty-eight (68) PORs have been identified as being representative of the noise sensitive PORs within 1,000 metres distance from the Project Location Boundary using Site survey information, land use information, such as boundaries, satellite imagery, site visits and discussions with OPG’s real estate team, as well as information provided by NSLP. The PORs have been grouped and as labelled as POR Group A, Group B, Group C, Group D, and Group E. The POR Groups are shown in **Figure 3-1**. The receptors in POR Group A are shown in **Figure 3-2**, and include seasonal residences and vacant lots. All of these vacant lots located between the Site and the lake are owned by OPG. The receptors in POR Group B and C are shown in, respectively, **Figure 3-3** and **Figure 3-5**, and include mostly seasonal residences and a few permanent residences. The receptors in POR Group C are shown in **Figure 3-4**, and include camping sites owned by Camp Oneida (a religious bible camp). The receptors in POR Group E are shown in **Figure 3-6**, and include residences on farm land. Individual PORs were evaluated as per Section 2 – Receptors, of the MOECC “Noise Issues for Solar Facilities” document.

5.0 ASSESSMENT CRITERIA

The applicable sound level limit at the receptors is *40 dBA* during the evening and night time period from 7:00 P.M. to 7:00 A.M. as described in the MOECC REA Guide. The exclusion sound limit for this acoustic assessment is summarized in **Table 3**.

6.0 IMPACT ASSESSMENT

The calculated sound power levels of inverter clusters and substation transformer were used as inputs for sound level predictions at the identified receptors. The calculations were performed using prediction software (CadnaA ver. 4.6) consistent with the ISO 9613-2 standard. The model disregards site features, such as buildings on the existing Nanticoke GS site and local terrain. Noise sources associated with the Site operations were placed in the model based on the assumptions described in Section 3. As described in ISO 9613-2, ground absorption factor values that represent the effect of ground absorption on sound levels range between 0 (for acoustically hard surfaces) and 1 (for acoustically absorptive surfaces). As per

the MOECC REA Guide, ground factors were established in this model as 0.7 for soft ground and zero (0) for water and hard surfaces.

6.1 Impact Assessment without Noise Mitigation

The predicted worst-case sound levels at the identified PORs due to night time operation are summarized in **Table 4**. Without any noise mitigation measures, the sound level at some receptors exceeds the assessment criteria of 40dBA.

6.2 Noise Mitigation (Acoustic Barrier)

As described in the section above, noise control measures are required to reduce the noise impact at the PORs. From the analysis, it was determined that the noise from two of the inverter clusters require mitigation. In general, 3-sided, U-shaped acoustic barriers are recommended for each cluster unit. The acoustic barrier should consist of solid material with a minimum surface density of 20 kg/m² or certified in accordance with CAN/CSA-Z107.9-00 (R2004). A description and plan view of the recommended acoustic barriers are summarized in **Appendix C**. **Table 5** provides details of the acoustic barrier. **Table 8** provides the UTM coordinates of the barrier walls.

6.3 Impact Assessment with Noise Mitigation

Table 6 presents the predicted worst-case sound levels at the identified PORs, with the implementation of acoustic barriers. As shown in the tables, all PORs are predicted to comply with the applicable sound levels (i.e., MOECC's performance limits) with proposed acoustic barriers. **Table 7** presents the noise impact contribution of each noise source at the three (3) worst PORs, as well as their associated Outdoor Living Areas (OLAs), following the implementation of the noise barrier walls.

Sample calculations are provided in **Appendix D** for POR23. The electronic modelling files are provided for exclusive use for review by the MOECC in **Appendix E**.

7.0 CONCLUSION

Arcadis was retained by NSLP to prepare an Acoustic Assessment Report for the proposed Nanticoke solar project. It was determined that the Site is expected to comply with the applicable sound levels (i.e., MOECC's performance limits) with the construction of acoustic barriers as described in subsection 6.2.

TABLES

Table 1: Noise Source Summary Table

Source ID	Source Description	Sound Power Level (dBA) ¹	UTM Coordinate of Source		Height (m) ²	Type of Noise Source	Sound Characteristics	Noise Control
			East	North				
Is1	Inverter 1	100.4	578754	4740641	1.75	Point	Tonal	Unmitigated
Is2	Inverter 2	100.4	578761	4740641	1.75	Point	Tonal	Unmitigated
Tx1_2	Inverter 1 and 2 Transformer	84.4	578758	4740641	2.48	Point	Tonal	Unmitigated
Is3	Inverter 3	100.4	578662	4740330	1.75	Point	Tonal	Unmitigated
Tx3	Inverter 3 Transformer	80.4	578665	4740330	2.00	Point	Tonal	Unmitigated
Is4	Inverter 4	100.4	578823	4740323	1.75	Point	Tonal	Unmitigated
Is5	Inverter 5	100.4	578830	4740323	1.75	Point	Tonal	Unmitigated
Tx4_5	Inverter 4 and 5 Transformer	84.4	578827	4740323	2.48	Point	Tonal	Unmitigated
Is6	Inverter 6	100.4	579010	4740323	1.75	Point	Tonal	Unmitigated
Is7	Inverter 7	100.4	579017	4740323	1.75	Point	Tonal	Unmitigated
Tx6_7	Inverter 6 and 7 Transformer	84.4	579014	4740323	2.48	Point	Tonal	Unmitigated
Is8	Inverter 8	100.4	579182	4740323	1.75	Point	Tonal	Unmitigated
Is9	Inverter 9	100.4	579188	4740323	1.75	Point	Tonal	Unmitigated
Ts8_9	Inverter 8 and 9 Transformer	84.4	579185	4740323	2.48	Point	Tonal	Unmitigated
Is10	Inverter 10	100.4	579366	4740323	1.75	Point	Tonal	Unmitigated
Is11	Inverter 11	100.4	579372	4740323	1.75	Point	Tonal	Unmitigated
Tx10_11	Inverter 10 and 11 Transformer	84.4	579369	4740323	2.48	Point	Tonal	Unmitigated
Is12	Inverter 12	100.4	579477	4740400	1.75	Point	Tonal	Unmitigated
Tx12	Inverter 12 Transformer	80.4	579474	4740400	2.00	Point	Tonal	Unmitigated
Is13	Inverter 13	100.4	579589	4740400	1.75	Point	Tonal	Unmitigated
Tx13	Inverter 13 Transformer	80.4	579586	4740400	2.00	Point	Tonal	Unmitigated
Is14	Inverter 14	100.4	579705	4740400	1.75	Point	Tonal	Unmitigated
Tx14	Inverter 14 Transformer	80.4	579702	4740400	2.00	Point	Tonal	Unmitigated
Is15	Inverter 15	100.4	578024	4739460	1.75	Point	Tonal	Unmitigated
Tx15	Inverter 15 Transformer	80.4	578021	4739460	2.00	Point	Tonal	Unmitigated
Is16	Inverter 16	100.4	578033	4739231	1.75	Point	Tonal	Unmitigated
Is17	Inverter 17	100.4	578040	4739231	1.75	Point	Tonal	Unmitigated
Tx16_17	Inverter 16 and 17 Transformer	84.4	578036	4739231	2.48	Point	Tonal	Unmitigated
Is18	Inverter 18	100.4	578202	4739231	1.75	Point	Tonal	Unmitigated
Is19	Inverter 19	100.4	578208	4739231	1.75	Point	Tonal	Unmitigated
Tx18_19	Inverter 18 and 19 Transformer	84.4	578205	4739231	2.48	Point	Tonal	Unmitigated
Is20	Inverter 20	100.4	578361	4739231	1.75	Point	Tonal	Unmitigated
Is21	Inverter 21	100.4	578367	4739231	1.75	Point	Tonal	Unmitigated
Tx20_21	Inverter 20 and 21 Transformer	84.4	578364	4739231	2.48	Point	Tonal	Unmitigated
Is22	Inverter 22	100.4	578510	4739231	1.75	Point	Tonal	Unmitigated
Is23	Inverter 23	100.4	578516	4739231	1.75	Point	Tonal	Unmitigated
Tx22_23	Inverter 22 and 23 Transformer	84.4	578513	4739231	2.48	Point	Tonal	Unmitigated
TF50	HV Transformer - 50MV	101.8	577739	4739090	4.90	Point	Tonal	Unmitigated

Note:

1 – The sound power level includes 5dB tonal penalty; Sound power from the calculation, and details of the calculation are in Appendix B

2 - Height includes concrete mounting pad

Table 2: Point of Reception Summary Table

Point of Reception ID	Description	Height (m)	UTM Coordinates	
			x	y
POR01	Residence	1.5	576739	4738913
POR02	Residence	1.5	576739	4738877
POR03	Residence	1.5	576820	4738875
POR04	Vacant Lot	4.5	576827	4738902
POR05	Residence	1.5	576834	4738873
POR06	Vacant Lot	4.5	576836	4738905
POR07	Residence	1.5	576866	4738869
POR08	Residence	1.5	576869	4738905
POR09	Residence	1.5	576882	4738866
POR10	Vacant Lot	4.5	576884	4738897
POR11	Residence	1.5	576936	4738846
POR12	Residence	1.5	576947	4738882
POR13	Residence	1.5	576950	4738841
POR14	Residence	1.5	576990	4738832
POR15	Residence	1.5	577002	4738827
POR16	Residence	1.5	577010	4738824
POR17	Vacant Lot	4.5	577019	4738850
POR18	Residence	1.5	577022	4738820
POR19	Vacant Lot	4.5	577033	4738840
POR20	Residence	1.5	577035	4738817
POR21	Residence	1.5	577043	4738812
POR22	Residence	1.5	579008	4739911
POR23	Vacant Lot	4.5	579398	4740021
POR24	Residence	1.5	579469	4739961
POR25	Vacant Lot	4.5	579521	4739964
POR26	Vacant Lot	4.5	579573	4740067
POR27	Vacant Lot	4.5	579675	4740063
POR28	Vacant Lot	4.5	579742	4739925
POR29	Residence	1.5	579757	4740136
POR30	Vacant Lot	4.5	579757	4740153
POR31	Vacant Lot	4.5	579771	4741093
POR32	Vacant Lot	4.5	579903	4739859
POR33	Residence	1.5	579911	4739938
POR34	Residence	1.5	579921	4739941
POR35	Residence	1.5	579940	4739936
POR36	Residence	1.5	579952	4739941
POR37	Residence	1.5	579961	4739941
POR38	Residence	1.5	579968	4739942
POR39	Residence	1.5	579981	4739941
POR40	Residence	1.5	579994	4739955
POR41	Residence	1.5	580008	4739943
POR42	Residence	1.5	580023	4739912
POR43	Residence	1.5	580044	4739923
POR44	Residence	1.5	580048	4739908
POR45	Residence	1.5	580084	4739897
POR46	Residence	1.5	580094	4739898
POR47	Residence	1.5	580100	4739908

Point of Reception ID	Description	Height (m)	UTM Coordinates	
			x	y
POR48	Residence	1.5	580104	4739892
POR49	Residence	4.5	580109	4741196
POR50	Residence	1.5	580112	4739885
POR51	Residence	1.5	580134	4741164
POR52	Residence	1.5	580131	4739874
POR53	Residence	1.5	580140	4739805
POR54	Residence	1.5	580141	4739848
POR55	Residence	1.5	580169	4741282
POR56	Residence	1.5	580161	4739936
POR57	Residence	1.5	580208	4739816
POR58	Residence	1.5	580222	4739814
POR59	Residence	1.5	580265	4739738
POR60	Residence	4.5	580295	4740660
POR61	Residence	1.5	580325	4739710
POR62	Residence	4.5	580331	4741213
POR63	Residence	1.5	580381	4739685
POR64	Residence	1.5	580394	4741353
POR65	Residence	4.5	580425	4739654
POR66	Residence	1.5	580490	4741261
POR67	Residence	1.5	580558	4739528
POR68	Residence	1.5	580606	4741256

Note:

POR represents the nearest facade for Residence, and at the centre of the property for Vacant lot (if property parcel is less than 10,000m² in area)

Table 3: Performance Limits Summary Table

Point of Reception ID	MOECC Designation	Performance Limit (Leq, dBA)		
		Daytime	Evening	Nighttime
POR01 - POR68	Class 3	45	40	40

Table 4: Acoustic Assessment Summary (Nighttime Operation, Without Noise Controls)

Point of Reception ID	Point of Reception Description	Sound Level at Point of Reception	Verified by Acoustic Audit (Yes/No)	Performance Limit (Leq, dBA)	Compliance with Performance Limit (Yes/No)
POR01	Residence	30	No	40	Yes
POR02	Residence	30	No	40	Yes
POR03	Residence	31	No	40	Yes
POR04	Vacant Lot	34	No	40	Yes
POR05	Residence	31	No	40	Yes
POR06	Vacant Lot	34	No	40	Yes
POR07	Residence	32	No	40	Yes
POR08	Residence	32	No	40	Yes
POR09	Residence	32	No	40	Yes
POR10	Vacant Lot	35	No	40	Yes
POR11	Residence	32	No	40	Yes
POR12	Residence	33	No	40	Yes
POR13	Residence	33	No	40	Yes
POR14	Residence	33	No	40	Yes
POR15	Residence	33	No	40	Yes
POR16	Residence	34	No	40	Yes
POR17	Vacant Lot	37	No	40	Yes
POR18	Residence	35	No	40	Yes
POR19	Vacant Lot	37	No	40	Yes
POR20	Residence	36	No	40	Yes
POR21	Residence	37	No	40	Yes
POR22	Residence	39	No	40	Yes
POR23	Vacant Lot	41	No	40	No
POR24	Residence	38	No	40	Yes
POR25	Vacant Lot	39	No	40	Yes
POR26	Vacant Lot	41	No	40	No
POR27	Vacant Lot	39	No	40	Yes
POR28	Vacant Lot	36	No	40	Yes
POR29	Residence	40	No	40	Yes
POR30	Vacant Lot	40	No	40	No
POR31	Vacant Lot	31	No	40	Yes
POR32	Vacant Lot	33	No	40	Yes
POR33	Residence	33	No	40	Yes
POR34	Residence	33	No	40	Yes
POR35	Residence	33	No	40	Yes
POR36	Residence	33	No	40	Yes
POR37	Residence	33	No	40	Yes
POR38	Residence	33	No	40	Yes
POR39	Residence	32	No	40	Yes
POR40	Residence	32	No	40	Yes
POR41	Residence	32	No	40	Yes
POR42	Residence	32	No	40	Yes
POR43	Residence	32	No	40	Yes
POR44	Residence	31	No	40	Yes
POR45	Residence	31	No	40	Yes
POR46	Residence	31	No	40	Yes
POR47	Residence	31	No	40	Yes
POR48	Residence	31	No	40	Yes
POR49	Residence	28	No	40	Yes
POR50	Residence	30	No	40	Yes
POR51	Residence	27	No	40	Yes
POR52	Residence	30	No	40	Yes
POR53	Residence	30	No	40	Yes
POR54	Residence	30	No	40	Yes
POR55	Residence	26	No	40	Yes
POR56	Residence	30	No	40	Yes
POR57	Residence	29	No	40	Yes
POR58	Residence	29	No	40	Yes
POR59	Residence	28	No	40	Yes
POR60	Residence	30	No	40	Yes
POR61	Residence	28	No	40	Yes
POR62	Residence	27	No	40	Yes
POR63	Residence	27	No	40	Yes
POR64	Residence	25	No	40	Yes
POR65	Residence	28	No	40	Yes
POR66	Residence	25	No	40	Yes
POR67	Residence	25	No	40	Yes
POR68	Residence	24	No	40	Yes

Note:

Nighttime operations are the same as the daytime operations

Table 5: Noise Controls (Acoustic Barriers)

Source ID	Source Description	UTM Coordinate of Sources		Noise Control			
				Acoustic Barrier			
		East	North	Height (m)	Total Length (m)	Distance from Source (m)	Construction
Is10	Inverter 10	579366	4740323	3.25	18	1.5	Minimum surface density 20 kg/m ² ; continuous without any gaps
Is11	Inverter 11	579372	4740323				
Tx10_11	Inverter 10 and 11 Transformer	579369	4740323				
Is14	Inverter 14	579705	4740400	3	12	1.5	
Tx14	Inverter 14 Transformer	579702	4740400				

Table 6: Acoustic Assessment Summary (Nighttime Operation, With Noise Controls)

Point of Reception ID	Point of Reception Description	Sound Level at Point of Reception	Verified by Acoustic Audit (Yes/No)	Performance Limit (Leq, dBA)	Compliance with Performance Limit (Yes/No)
POR01	Residence	30	No	40	Yes
POR02	Residence	30	No	40	Yes
POR03	Residence	31	No	40	Yes
POR04	Vacant Lot	34	No	40	Yes
POR05	Residence	31	No	40	Yes
POR06	Vacant Lot	34	No	40	Yes
POR07	Residence	32	No	40	Yes
POR08	Residence	32	No	40	Yes
POR09	Residence	32	No	40	Yes
POR10	Vacant Lot	35	No	40	Yes
POR11	Residence	32	No	40	Yes
POR12	Residence	33	No	40	Yes
POR13	Residence	33	No	40	Yes
POR14	Residence	33	No	40	Yes
POR15	Residence	33	No	40	Yes
POR16	Residence	34	No	40	Yes
POR17	Vacant Lot	37	No	40	Yes
POR18	Residence	35	No	40	Yes
POR19	Vacant Lot	37	No	40	Yes
POR20	Residence	36	No	40	Yes
POR21	Residence	37	No	40	Yes
POR22	Residence	38	No	40	Yes
POR23	Vacant Lot	39	No	40	Yes
POR24	Residence	36	No	40	Yes
POR25	Vacant Lot	37	No	40	Yes
POR26	Vacant Lot	38	No	40	Yes
POR27	Vacant Lot	37	No	40	Yes
POR28	Vacant Lot	34	No	40	Yes
POR29	Residence	37	No	40	Yes
POR30	Vacant Lot	38	No	40	Yes
POR31	Vacant Lot	31	No	40	Yes
POR32	Vacant Lot	32	No	40	Yes
POR33	Residence	31	No	40	Yes
POR34	Residence	31	No	40	Yes
POR35	Residence	31	No	40	Yes
POR36	Residence	31	No	40	Yes
POR37	Residence	31	No	40	Yes
POR38	Residence	31	No	40	Yes
POR39	Residence	31	No	40	Yes
POR40	Residence	31	No	40	Yes
POR41	Residence	30	No	40	Yes
POR42	Residence	30	No	40	Yes
POR43	Residence	30	No	40	Yes
POR44	Residence	30	No	40	Yes
POR45	Residence	29	No	40	Yes
POR46	Residence	29	No	40	Yes
POR47	Residence	29	No	40	Yes
POR48	Residence	29	No	40	Yes
POR49	Residence	28	No	40	Yes
POR50	Residence	29	No	40	Yes
POR51	Residence	27	No	40	Yes
POR52	Residence	29	No	40	Yes
POR53	Residence	28	No	40	Yes
POR54	Residence	29	No	40	Yes
POR55	Residence	26	No	40	Yes
POR56	Residence	29	No	40	Yes
POR57	Residence	28	No	40	Yes
POR58	Residence	28	No	40	Yes
POR59	Residence	27	No	40	Yes
POR60	Residence	29	No	40	Yes
POR61	Residence	27	No	40	Yes
POR62	Residence	27	No	40	Yes
POR63	Residence	26	No	40	Yes
POR64	Residence	24	No	40	Yes
POR65	Residence	27	No	40	Yes
POR66	Residence	24	No	40	Yes
POR67	Residence	25	No	40	Yes
POR68	Residence	23	No	40	Yes

Note:
Nighttime operations are the same as the daytime operations

Table 7: Point of Reception Impact Table (Nighttime Operations) [3 worst-case PORs]

Source ID	Description	POR22		POR22 OLA		POR23		POR23 OLA		POR26		POR26 OLA	
		Distance	Sound Pressure Level	Distance	Sound Pressure Level	Distance	Sound Pressure Level	Distance	Sound Pressure Level	Distance	Sound Pressure Level	Distance	Sound Pressure Level
		(m)	(Leq, dBA)	(m)	(Leq, dBA)	(m)	(Leq, dBA)	(m)	(Leq, dBA)	(m)	(Leq, dBA)	(m)	(Leq, dBA)
Is1	Inverter 1	773	20	756	21	894	19	866	19	1000	18	974	17
Is2	Inverter 2	771	20	754	21	889	19	861	19	994	18	969	17
Tx1_2	Inverter 1 and 2 Transformer	772	17	755	17	891	16	863	16	997	15	972	15
Is3	Inverter 3	544	25	529	25	799	20	777	20	948	18	929	18
Tx3	Inverter 3 Transformer	542	16	528	16	796	13	774	13	946	11	926	11
Is4	Inverter 4	451	28	434	28	649	23	625	23	792	21	772	20
Is5	Inverter 5	449	28	432	28	643	23	619	23	786	21	765	20
Tx4_5	Inverter 4 and 5 Transformer	450	22	433	22	646	19	622	19	789	17	768	17
Is6	Inverter 6	412	29	394	30	491	27	464	27	618	24	596	24
Is7	Inverter 7	412	29	394	30	486	27	459	27	612	24	590	24
Tx6_7	Inverter 6 and 7 Transformer	412	23	394	23	489	21	462	22	615	19	593	19
Is8	Inverter 8	447	28	431	28	371	31	341	32	467	28	442	28
Is9	Inverter 9	449	28	433	28	367	31	337	32	462	28	437	28
Ts8_9	Inverter 8 and 9 Transformer	448	22	432	22	369	23	339	24	464	21	439	22
Is10	Inverter 10	545	13	532	13	303	18	274	19	329	18	300	19
Is11	Inverter 11	549	13	537	13	303	18	274	19	325	19	296	19
Tx10_11	Inverter 10 and 11 Transformer	547	17	535	17	303	20	274	22	327	20	298	21
Is12	Inverter 12	677	22	665	22	387	30	362	31	347	32	317	33
Tx12	Inverter 12 Transformer	675	14	663	14	386	19	361	20	347	20	318	21
Is13	Inverter 13	759	20	748	21	424	29	405	29	333	32	307	33
Tx13	Inverter 13 Transformer	757	13	746	13	423	18	404	19	333	20	307	21
Is14	Inverter 14	851	10	842	11	488	15	474	15	358	17	338	18
Tx14	Inverter 14 Transformer	849	9	839	9	486	13	472	14	357	15	337	16
Is15	Inverter 15	1082	16	1089	16	1484	13	1484	11	1663	11	1662	10
Tx15	Inverter 15 Transformer	1085	10	1092	10	1487	7	1486	7	1666	6	1664	6
Is16	Inverter 16	1189	15	1198	15	1577	12	1581	11	1752	11	1754	10
Is17	Inverter 17	1184	15	1193	15	1571	12	1575	11	1746	11	1748	10
Tx16_17	Inverter 16 and 17 Transformer	1186	13	1196	13	1574	11	1578	11	1749	10	1751	10
Is18	Inverter 18	1055	17	1066	17	1434	14	1439	13	1606	12	1610	11
Is19	Inverter 19	1050	17	1061	17	1428	14	1434	13	1600	12	1604	11
Tx18_19	Inverter 18 and 19 Transformer	1053	14	1064	14	1431	12	1437	12	1603	11	1607	11
Is20	Inverter 20	939	19	952	18	1304	15	1312	14	1473	14	1478	13
Is21	Inverter 21	935	19	947	18	1299	15	1307	14	1467	14	1473	13
Tx20_21	Inverter 20 and 21 Transformer	937	15	949	15	1301	13	1309	12	1470	12	1475	11
Is22	Inverter 22	843	20	857	20	1189	17	1199	16	1353	15	1360	14
Is23	Inverter 23	840	20	854	20	1184	17	1194	16	1347	15	1355	14
Tx22_23	Inverter 22 and 23 Transformer	841	16	855	16	1186	14	1197	13	1350	13	1357	12
TF50	HV Transformer - 50MV	1511	24	1520	24	1902	25	1906	22	2078	24	2079	21
Total Sound Level (1-hour Leq)			38		38		39		39		38		39

Note:
Nighttime operations are the same as the daytime operations

Table 8: Barrier Wall Locations

Source ID	Description	UTM Coordinates	
		East	North
Is10, Is11, Tx10_11	Inverter 10, Inverter 11, Transformer combination	579706	4740401
		579706	4740398
		579700	4740398
		579700	4740401
Is14, Tx14	Inverter 14 and Transformer	579364	4740324
		579363	4740321
		579373	4740320
		579373	4740324

FIGURES

Figure 1 Scaled Area Location Plan

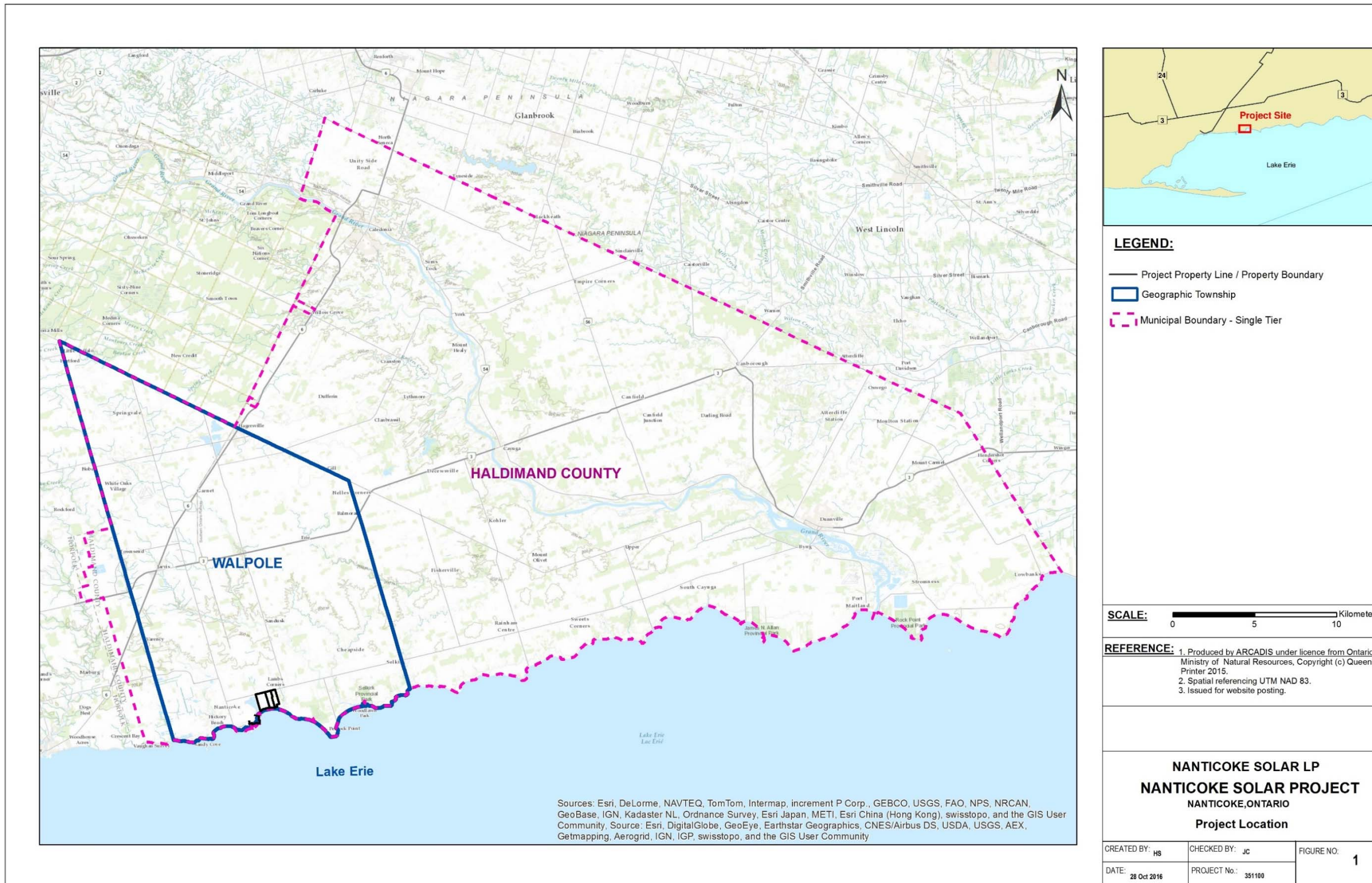


Figure 2 Site Plan





Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- LEGEND:**
- Solar Project Site
 - 1000 m Boundary from Solar Project Site
 - Noise Receptors

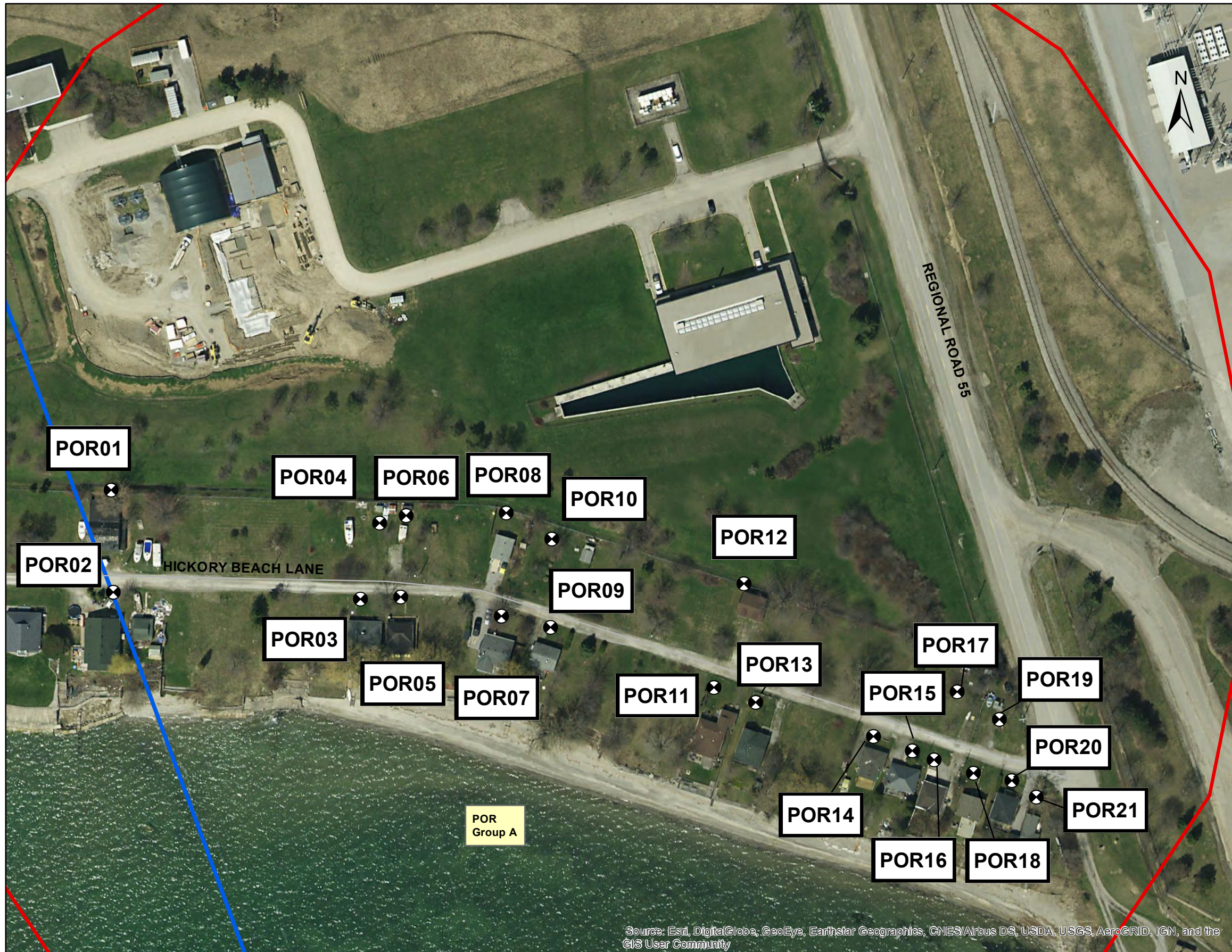


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NANTICOKE SOLAR PROJECT
NANTICOKE, ONTARIO**

Location of Receptors and Solar Project Site

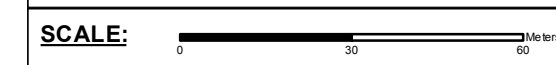
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DATE: 10 May 2017	PROJECT No.: 351100	



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- LEGEND:**
- Solar Project Site
 - 1000 m Boundary from Solar Project Site
 - Noise Receptors



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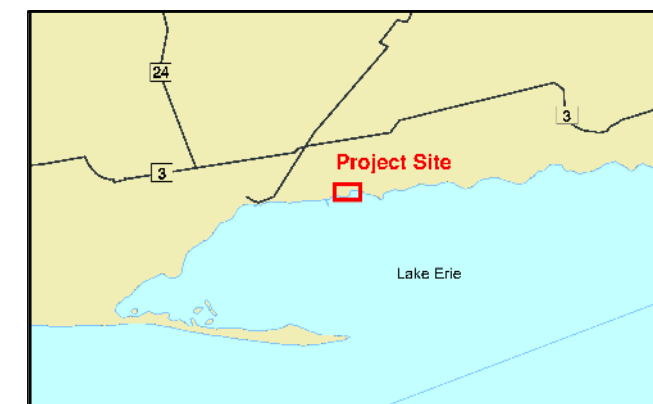
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NANTICOKE, ONTARIO**

Point of Receptions in Group A

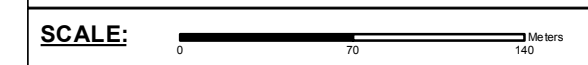
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DATE: 10 May 2017	PROJECT No.: 351100	



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- LEGEND:**
- Solar Project Site
 - 1000 m Boundary from Solar Project Site
 - X Noise Receptors



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Point of Receptions in Group B

CREATED BY: HS	CHECKED BY: SG	FIGURE NO.: 3-3
DATE: 10 May 2017	PROJECT No.: 351100	



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- LEGEND:**
- Solar Project Site
 - 1000 m Boundary from Solar Project Site
 - ⊗ Noise Receptors



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NANTICOKE, ONTARIO**

Point of Receptions in Group C

CREATED BY: HS	CHECKED BY: SG	FIGURE NO: 3-4
DATE: 10 May 2017	PROJECT No.: 351100	



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



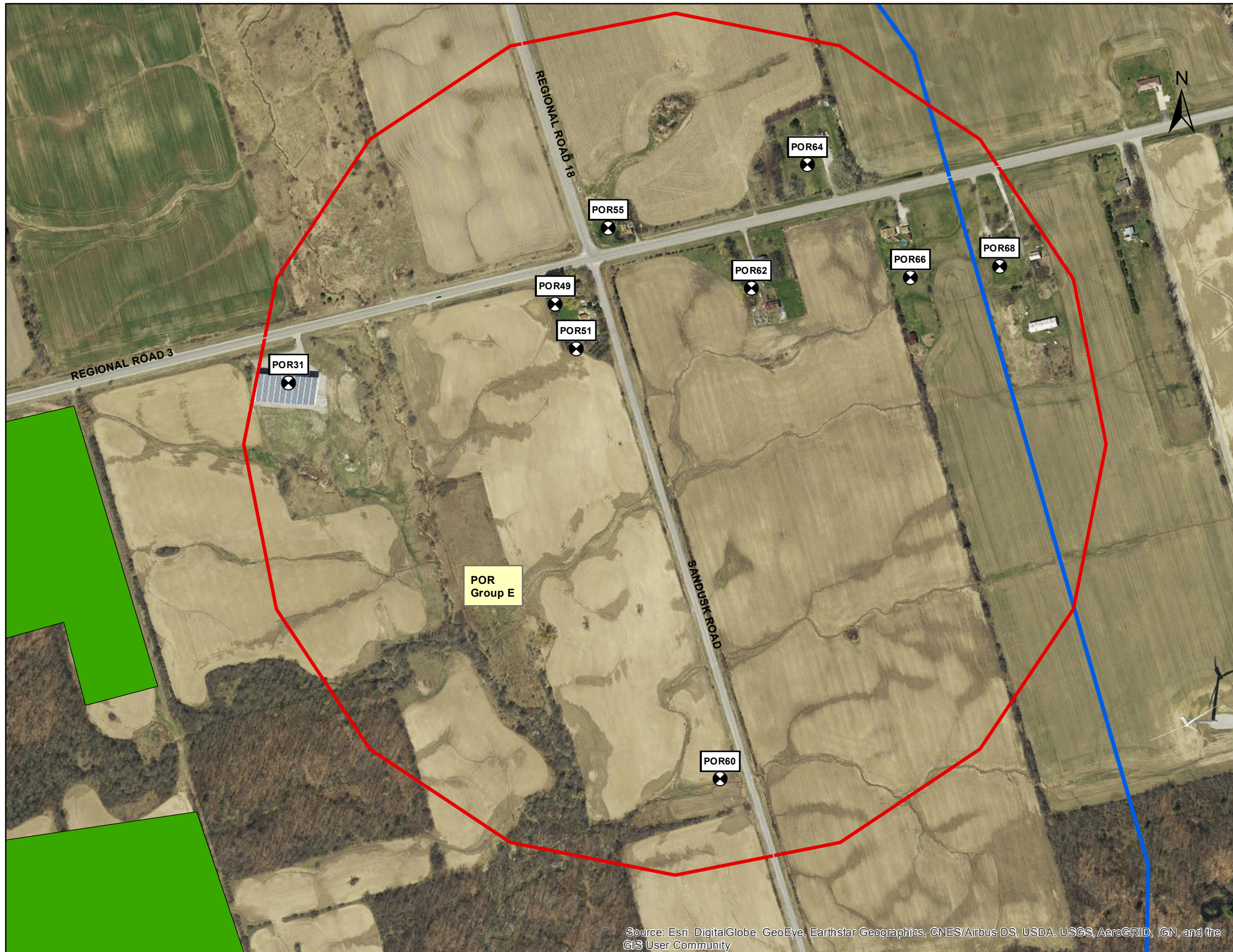
- LEGEND:**
- Solar Project Site
 - 1000 m Boundary from Solar Project Site
 - ⊗ Noise Receptors



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NANTICOKE, ONTARIO
Point of Receptions in Group D**

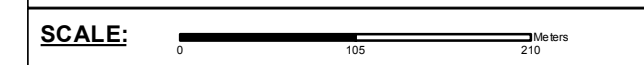
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DATE: 10 May 2017	PROJECT No.: 351100	



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



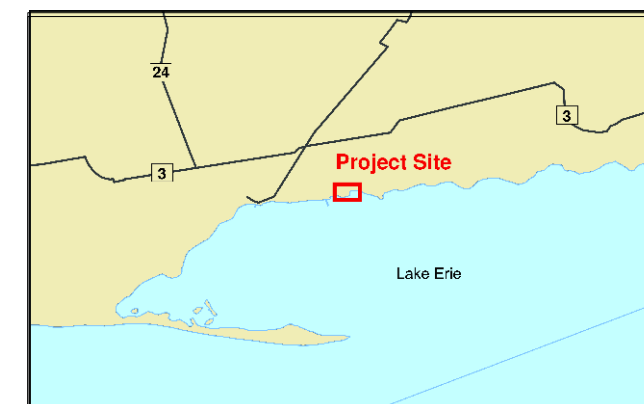
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- Solar Project Site
 - 1000 m Boundary from Solar Project Site
 - X Noise Receptors



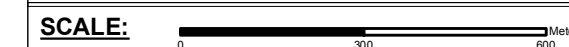
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NANTICOKE, ONTARIO
Point of Receptions in Group E**

CREATED BY: HS	CHECKED BY: SG	FIGURE NO: 3-5
DATE: 10 May 2017	PROJECT No.: 351100	



- LEGEND:**
- + Noise Sources
 - Property Line



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NANTICOKE, ONTARIO
Location of Noise Sources**

CREATED BY: HS	CHECKED BY: SG	FIGURE NO: 4-1
DATE: 24 Oct 2017	PROJECT No.: 351100	



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



LEGEND:

- + Noise Sources
- Noise Receptors
- Property Line

Sound Level (dBA)

- 40 dBA
- 45 dBA
- 50 dBA
- 55 dBA
- 60 dBA
- 65 dBA
- 70 dBA



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NANTICOKE, ONTARIO
Contour Plot of Nighttime Operation
(1.5m High)**

CREATED BY: HS	CHECKED BY: SG	FIGURE NO: 5-1
DATE: 24 Oct 2017	PROJECT No.: 351100	



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



LEGEND:

- + Noise Sources
- Noise Receptors
- Property Line

Sound Level (dBA)

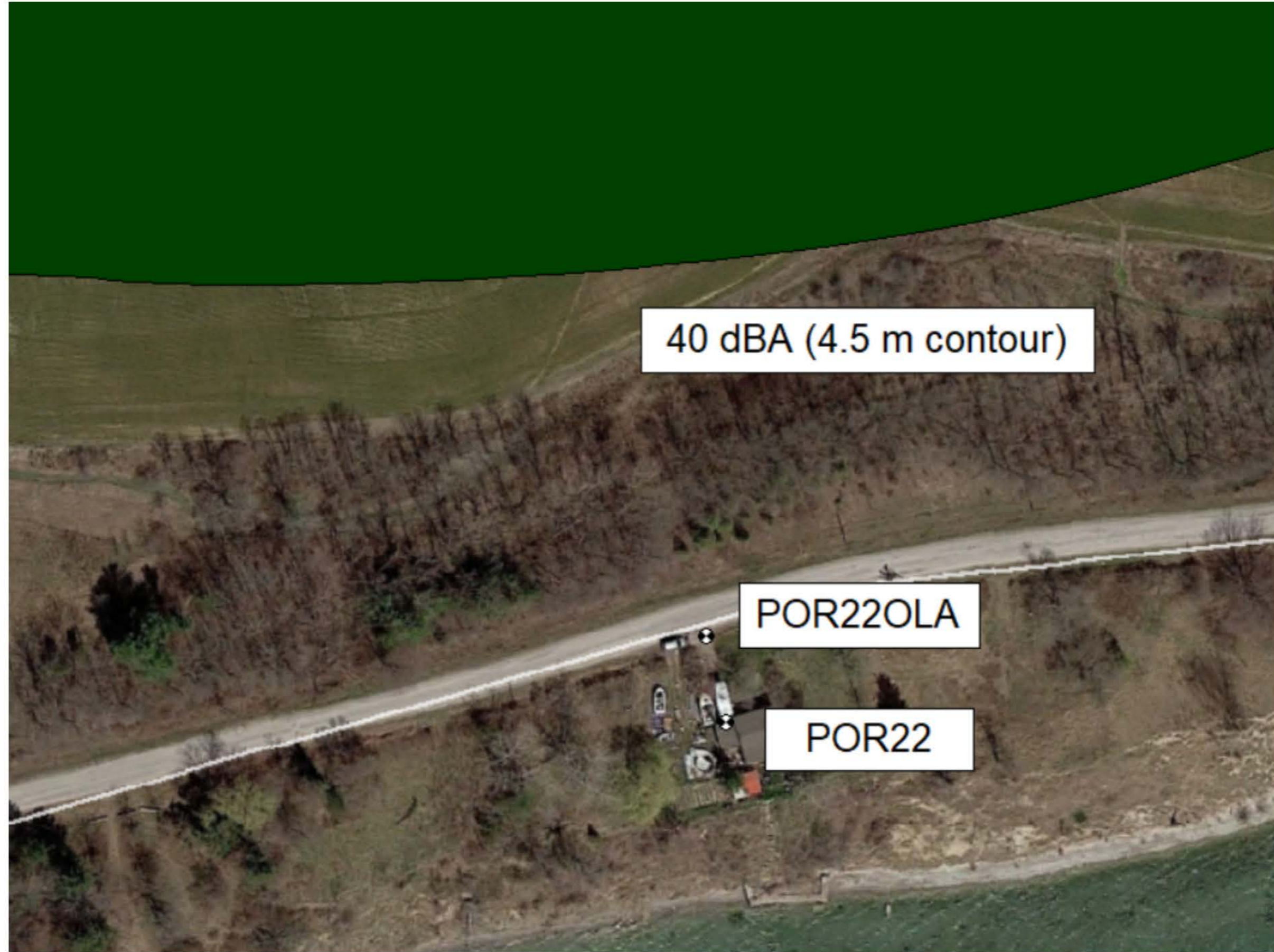
- 40 dBA
- 45 dBA
- 50 dBA
- 55 dBA
- 60 dBA
- 65 dBA
- 70 dBA



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**NANTICOKE SOLAR LP
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NANTICOKE, ONTARIO
Contour Plot of Nighttime Operation
(4.5m High)**

CREATED BY: HS	CHECKED BY: SG	FIGURE NO: 5-2
DATE: 24 Oct 2017	PROJECT No.: 351100	



40 dBA (4.5 m contour)

POR22OLA

POR22



LEGEND:

- + Noise Sources
- ⊗ Noise Receptors

Sound Level (dBA)

- 40 dBA
- 45 dBA
- 50 dBA
- 55 dBA
- 60 dBA
- 65 dBA
- 70 dBA



REFERENCE:

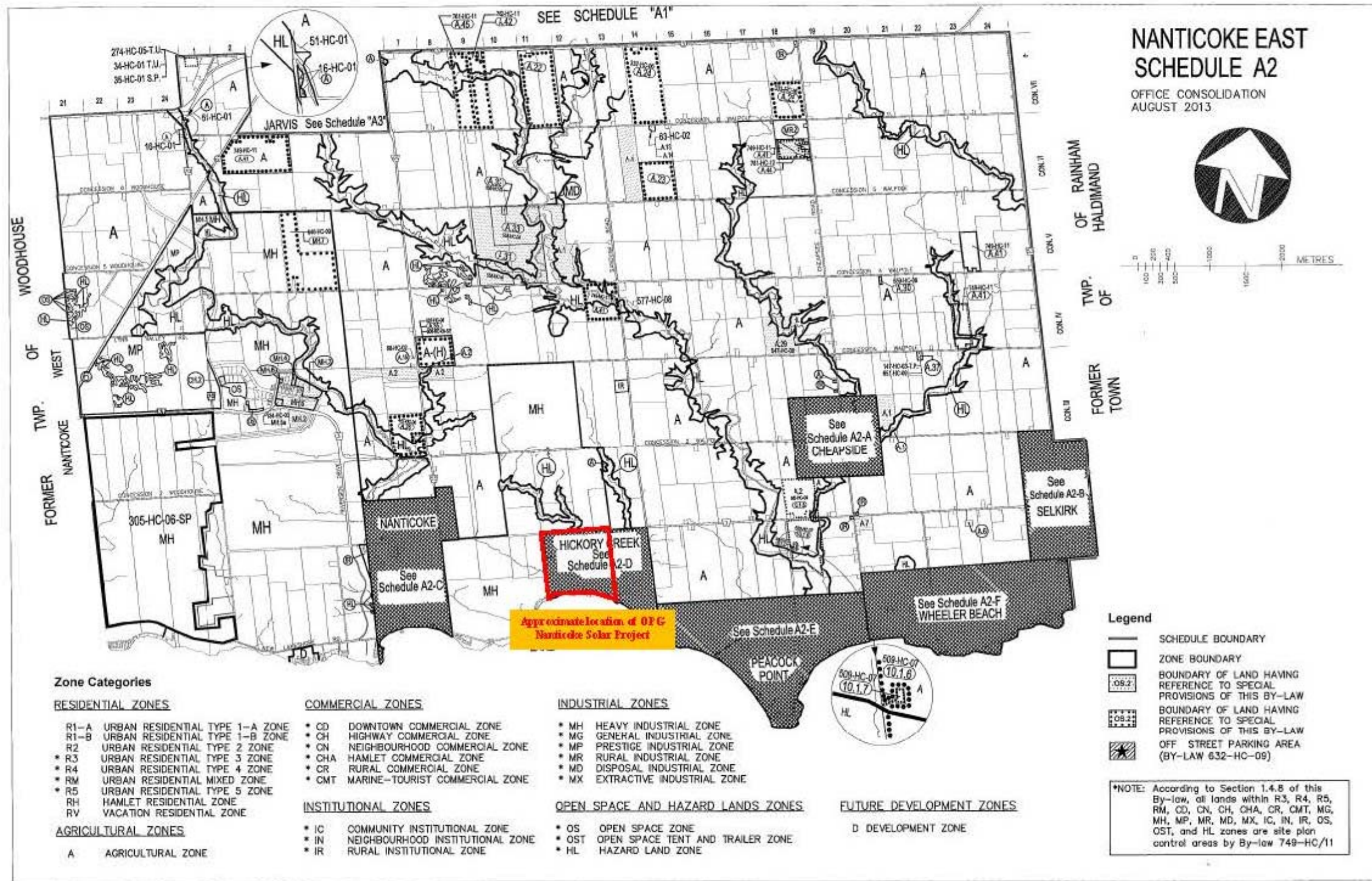
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**NANTICOKE SOLAR LP
NANTICOKE SOLAR PROJECT
NANTICOKE, ONTARIO
POR22 Contour Plot of Nighttime
Operation (4.5m High)**

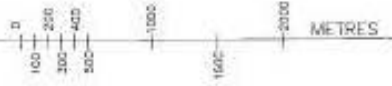
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DATE: 11 May 2017	PROJECT No.: 351100	

APPENDICES

Appendix A: Land Use Zoning Designation Plan



**NANTICOKE EAST
SCHEDULE A2**
OFFICE CONSOLIDATION
AUGUST 2013



Zone Categories

RESIDENTIAL ZONES

- R1-A URBAN RESIDENTIAL TYPE 1-A ZONE
- R1-B URBAN RESIDENTIAL TYPE 1-B ZONE
- R2 URBAN RESIDENTIAL TYPE 2 ZONE
- * R3 URBAN RESIDENTIAL TYPE 3 ZONE
- * R4 URBAN RESIDENTIAL TYPE 4 ZONE
- * RM URBAN RESIDENTIAL MIXED ZONE
- * R5 URBAN RESIDENTIAL TYPE 5 ZONE
- RH HAMLET RESIDENTIAL ZONE
- RV VACATION RESIDENTIAL ZONE

AGRICULTURAL ZONES

- A AGRICULTURAL ZONE

COMMERCIAL ZONES

- * CD DOWNTOWN COMMERCIAL ZONE
- * CH HIGHWAY COMMERCIAL ZONE
- * CN NEIGHBOURHOOD COMMERCIAL ZONE
- * CHA HAMLET COMMERCIAL ZONE
- * CR RURAL COMMERCIAL ZONE
- * CMT MARINE-TOURIST COMMERCIAL ZONE

INSTITUTIONAL ZONES

- * IC COMMUNITY INSTITUTIONAL ZONE
- * IN NEIGHBOURHOOD INSTITUTIONAL ZONE
- * IR RURAL INSTITUTIONAL ZONE

INDUSTRIAL ZONES

- * MH HEAVY INDUSTRIAL ZONE
- * MG GENERAL INDUSTRIAL ZONE
- * MP PRESTIGE INDUSTRIAL ZONE
- * MR RURAL INDUSTRIAL ZONE
- * MD DISPOSAL INDUSTRIAL ZONE
- * MX EXTRACTIVE INDUSTRIAL ZONE

OPEN SPACE AND HAZARD LANDS ZONES

- * OS OPEN SPACE ZONE
- * OST OPEN SPACE TENT AND TRAILER ZONE
- * HL HAZARD LAND ZONE

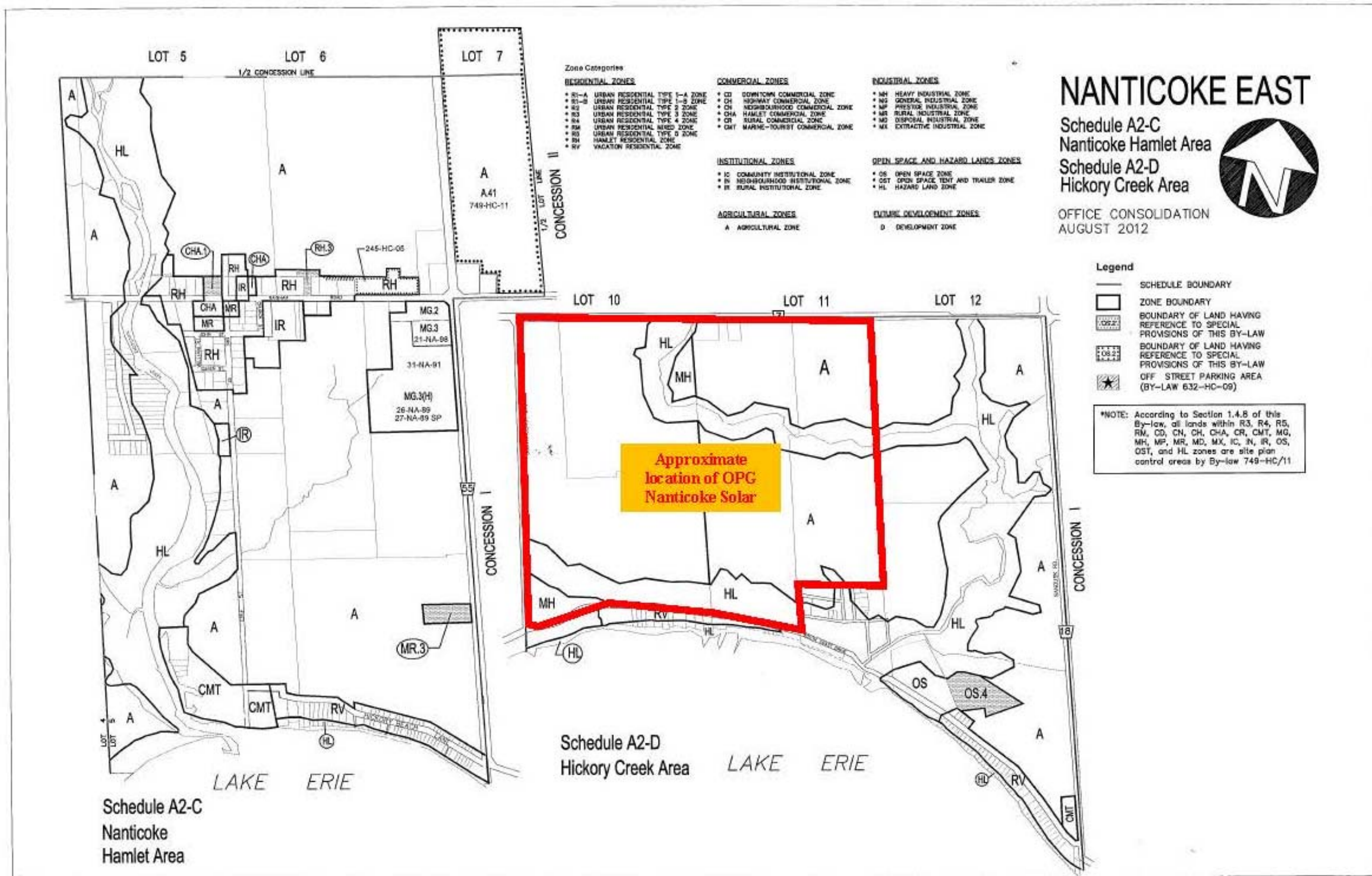
FUTURE DEVELOPMENT ZONES

- D DEVELOPMENT ZONE

Legend

- SCHEDULE BOUNDARY
- ZONE BOUNDARY
- OS.2 BOUNDARY OF LAND HAVING REFERENCE TO SPECIAL PROVISIONS OF THIS BY-LAW
- OS.3 BOUNDARY OF LAND HAVING REFERENCE TO SPECIAL PROVISIONS OF THIS BY-LAW
- OFF STREET PARKING AREA (BY-LAW 632-HC-09)

*NOTE: According to Section 1.4.8 of this By-law, all lands within R3, R4, R5, RM, CD, CN, CH, CHA, CR, CMT, MG, MH, MP, MR, MD, MX, IC, IN, IR, OS, OST, and HL zones are site plan control areas by By-law 749-HC/11



Appendix B: Sound Power Calculation and Manufacturer Data

Table B-1: Frequency Spectra of Sound Power Level used for Acoustic Modeling

Description	Total Sound Power (dBA) ^[1]	Octave-band Centre Frequency (Hz)								Remark	
		31.5	63	125	250	500	1000	2000	4000		8000
50MVA Transformer	97		64.0	97.0	98.0	98.0	88.0	78.0	68.0	58.0	Manufacturer specification ^[2]
2200 kVA Transformer	75	102.8	95.6	87.5	75.0	69.6	60.4	54.2	49.4	44.5	calculated per NEMA standard
4400 kVA Transformer	79	106.8	99.6	91.5	79.0	73.6	64.4	58.2	53.4	48.5	calculated per NEMA standard
2000 kVA Inverter	95		52.5	70.4	81.9	81.8	83.8	82.1	93.4	82.3	Manufacturer specification (Schneider CS2000-2200)

Notes:

[1] - Sound power levels do not include tonal penalty

[2] - a safety factor of 5 dB has been added to account for maximum statistical variability as noted by manufacturer

Table B-2: Estimation of Transformer Sound Power Level (2200 kVA)

Project: Nanticoke Solar Project

Equipment: 2200 kVA High Voltage Transformer

Equipment Parameters

Capacity (kVA)	BIL (kV)	Cooling Type	NEMA SPL (dBA) ^{[3][5]}	Fan (Y/N)	Height (m)	Length (m)	Depth (m)	Measurement Distance (m) ^[1]	Contour Length (m)	Measurement Surface Area (m ²) ^[2]	Area Correction (dB)
2200	below 350	ONAN	62	No	1.75	1.88	1.58	0.3	8.4	22	13

Predicted Sound Power

Method ^[4] : using NEMA Levels Lw = 75 dBA

Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	Total
Correction	-1	5	7	2	2	-4	-9	-14	-21	
Spectrum Cal	74.4	80.4	82.4	77.4	77.4	71.4	66.4	61.4	54.4	86.4
A-weighted Lw	63.4	69.4	71.4	66.4	66.4	60.4	55.4	50.4	43.4	75.4
Linear	102.8	95.6	87.5	75.0	69.6	60.4	54.2	49.4	44.5	103.6

References:

- [1] IEE Std C57.12.90-2015, IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulation Transformers
- [2] IEC 60076-10, Power Transformers - Part 10: Determination of Sound Levels
- [3] NEMA TR 1-2013, Transformers, Step Voltage Regulators and Reactors
- [4] D. A. Bies and C. H. Hansen, Engineering Noise Control, 4th Edition, 2009, Spoon Press, London and New York
- [5] Sound level data for 2500 kVA transformer

Table B-3: Estimation of Transformer Sound Power Level (4400 kVA)

Project: Nanticoke Solar Project

Equipment: 4400 kVA High Voltage Transformer

Equipment Parameters

Capacity (kVA)	BIL (kV)	Cooling Type	NEMA SPL (dBA) ^{[3][5]}	Fan (Y/N)	Height (m)	Length (m)	Depth (m)	Measurement Distance (m) ^[1]	Contour Length (m)	Measurement Surface Area (m ²) ^[2]	Area Correction (dB)
4400	below 350	ONAN	65	No	2.23	2.05	1.58	0.3	8.4	27	14

Predicted Sound Power

Method ^[4] : using NEMA Levels Lw = 79 dBA

Frequency (Hz)	31.5	63	125	250	500	1000	2000	4000	8000	Total
Correction	-1	5	7	2	2	-4	-9	-14	-21	
Spectrum Cal	78.4	84.4	86.4	81.4	81.4	75.4	70.4	65.4	58.4	90.4
A-weighted Lw	67.4	73.4	75.4	70.4	70.4	64.4	59.4	54.4	47.4	79.4
Linear	106.8	99.6	91.5	79.0	73.6	64.4	58.2	53.4	48.5	107.6

References:

- [1] IEE Std C57.12.90-2015, IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulation Transformers
- [2] IEC 60076-10, Power Transformers - Part 10: Determination of Sound Levels
- [3] NEMA TR 1-2013, Transformers, Step Voltage Regulators and Reactors
- [4] D. A. Bies and C. H. Hansen, Engineering Noise Control, 4th Edition, 2009, Spoon Press, London and New York
- [5] Sound level data for 5000 kVA transformer

Table B-4: Calculation of Inverter Sound Power Levels

Frequency (Hz)	Overall	63	80	100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	10000
Manufacturer Sound Power Level (dB)	94.9	49.0	50.0	58.0	68.0	66.0	71.0	81.0	72.0	74.0	78.0	78.0	79.0	79.0	79.0	77.0	77.0	78.0	93.0	82.0	72.0	82.0	67.0	67.0
Center Frequency Sound Power Level (dB)	94.9	52.5 [1]			70.4			81.9			81.8			83.8			82.1			93.4			82.3	
Tonal Penalty (dB)		5.0			5.0			5.0			5.0			5.0			5.0			5.0			5.0	
A-weighted Correction		-26.2			-16.1			-8.6			-3.2			0.0			1.2			1.0			-1.1	
Overall Sound Power Level (dBA)	100.3	31.3			59.3			78.3			83.6			88.8			88.3			99.4			86.2	

Notes:

[1] - Only 63 Hz and 80 Hz were used to estimate the center frequency

Conext SmartGen™ Series Inverter: Audible Noise Report

AP-SG-015
Revision A

Overview

This application note contains the audible noise test results for Conext SmartGen Series inverters. Average sound pressure level data was taken along the AC side, DC side, AC Connection end, Low Voltage (LV) and Communications end, and top of the inverter (see "*Acoustical Images and Discussion*" on page 3). *Table 1* and *Table 2* show the sound power levels and sound pressure levels.

Test Results

Table 1 Sound power levels and sound pressure levels

		1/3rd Octave Center Frequency																								
Side	Total	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1.0 kHz	1.25 kHz	1.6 kHz	2.0 kHz	2.5 kHz	3.15 kHz	4.0 kHz	5.0 kHz	6.3 kHz	8.0 kHz	10.0 kHz	12.5 kHz	16.0 kHz
Sound Power Level Data , PWL in dBA re: 1 pW																										
Overall LwA	95.0	49	50	58	68	66	71	81	72	74	78	78	79	79	79	77	77	78	93	82	72	82	67	67	65	55
Sound Pressure Level Data at 1 m, SPL in dBA re: 20 µPa																										
LV/Comms end	71.7	60	59	59	63	54	55	60	53	53	53	54	57	50	31	42	38	50	70	59	41	58	44	48	47	40
AC side	84.7	59	61	63	70	64	65	68	65	64	64	64	66	64	62	61	60	65	83	71	56	73	58	60	59	51
AC Conn end	79.2	65	54	63	73	67	69	75	68	68	71	69	68	69	68	66	66	65	72	65	61	62	53	52	51	44
DC side	79.6	49	56	63	63	67	71	81	63	62	69	66	64	63	60	60	60	61	76	65	55	65	51	55	55	47
Top	69.6	55	56	59	70	61	64	70	61	60	59	57	56	54	54	49	47	49	65	55	40	53	41	43	41	33

Table 2 Sound pressure levels at 10 m (32.8 ft)

Sound Pressure Level Data at 10 m, SPL in dBA re: 20 µPa	
Side	Total
LV/Communications end	51.7
AC side	64.7
AC Connection end	59.2
DC side	59.6
Top	49.6

Acoustical Images and Discussion

The following images are graphical representations of noise intensity levels. The directionality in the noise generation is modest. The center of the noise generation is at a height of about 1.5 m (4.9 ft). Fan noise is most prominent at the AC side and DC side of the unit (around the exhaust and intake area for the cooling system). The high-frequency switching noise at the 3.15 and 6.3 kHz is higher from the AC side than from the other sides, which indicates that most of the high frequency noise radiates from the lower middle section of the AC side enclosure panels, at a height of about 20 cm (7.9 in).

Figure 1 DC side (250 Hz, fan)

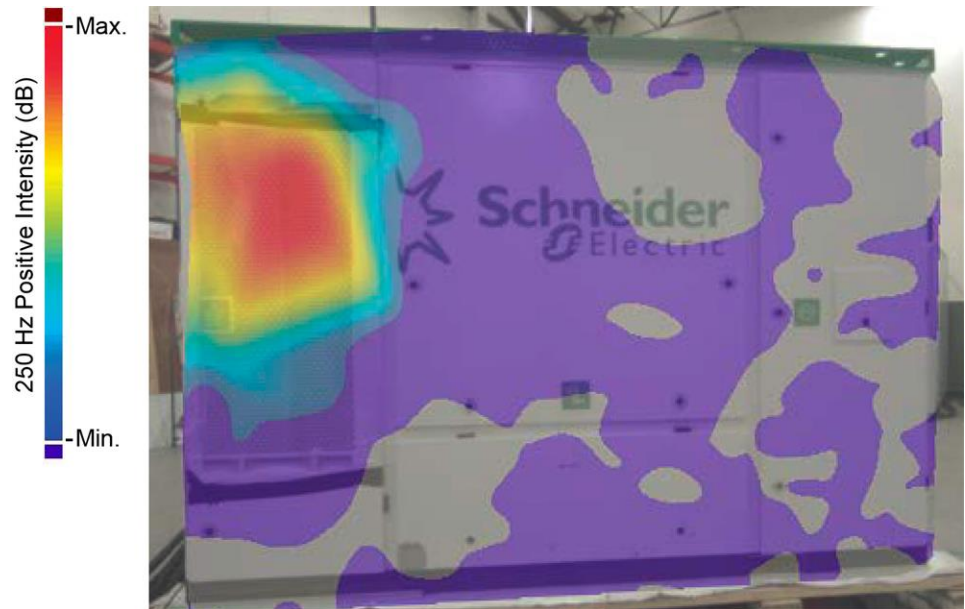


Figure 2 AC Connection end (250 Hz, fan)

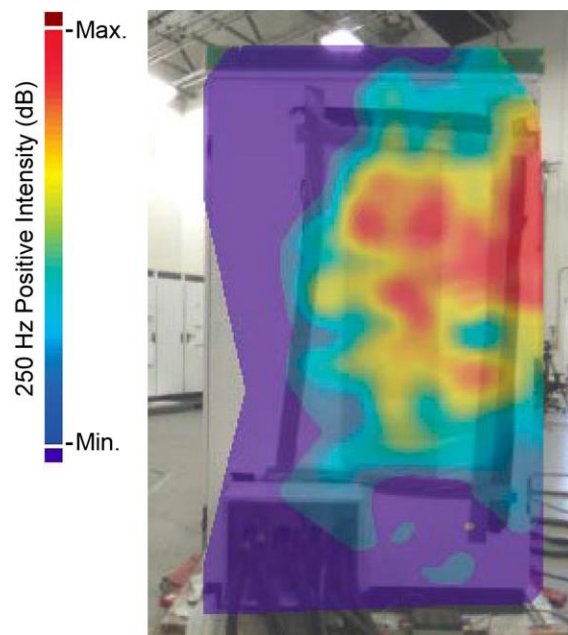
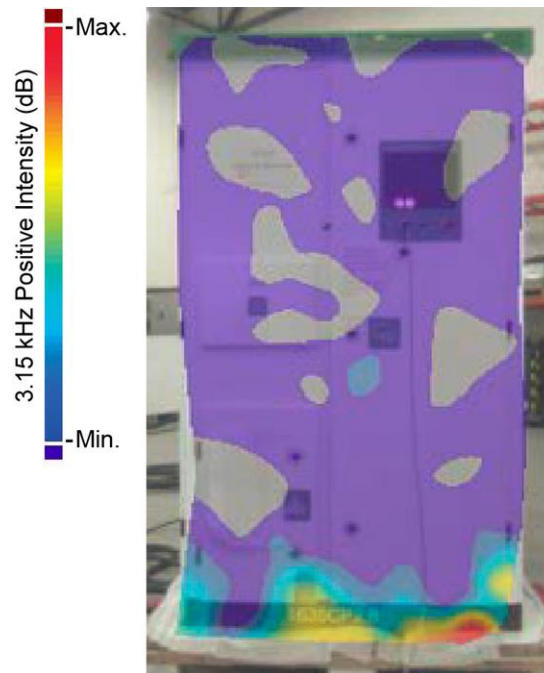


Figure 3 AC side (3.15 kHz, switching frequency)



Figure 4 LV and Communications end (3.15 kHz, switching frequency)



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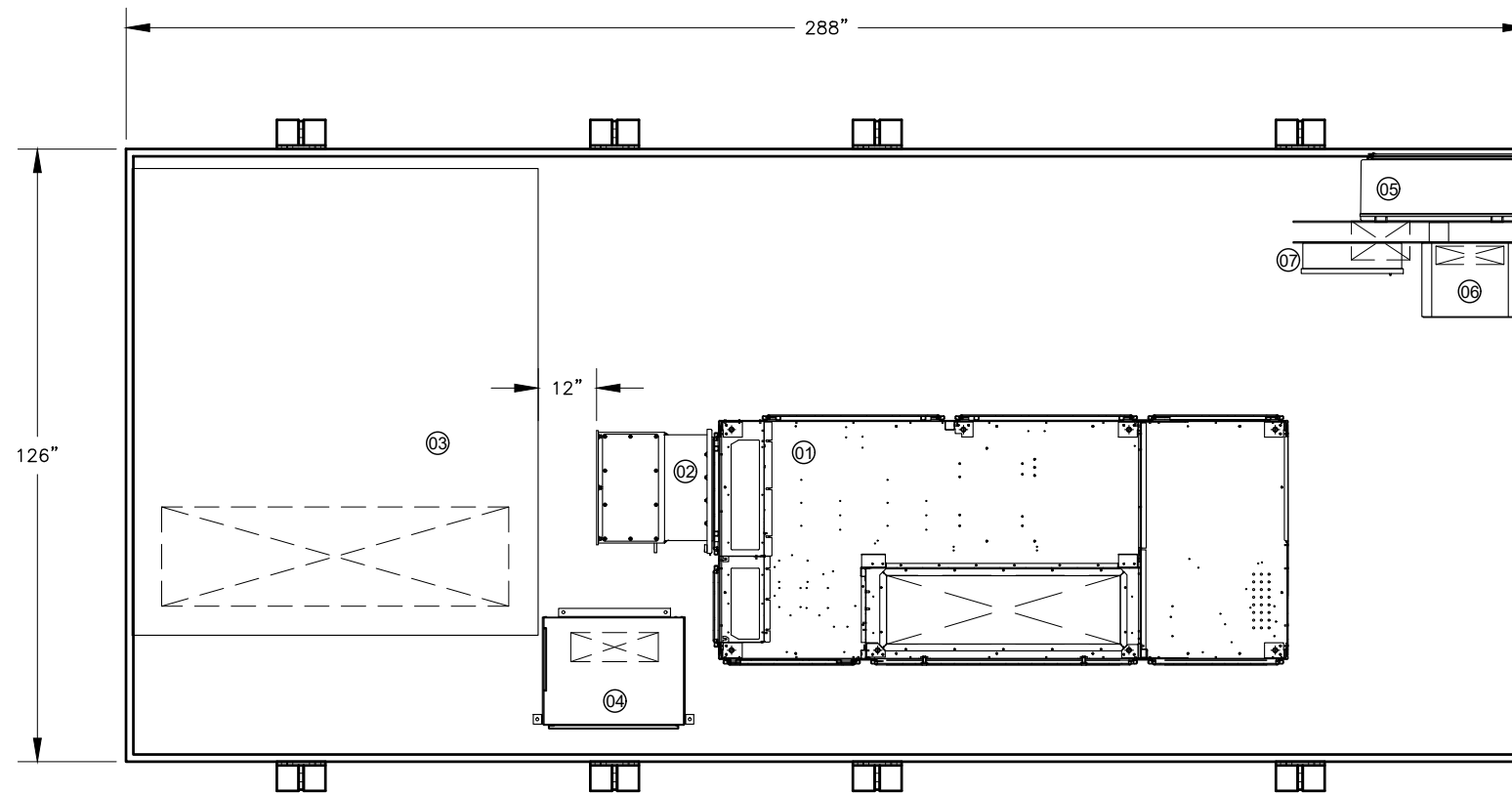
Document Number: AP-SG-015

Revision A

Date: July 2017

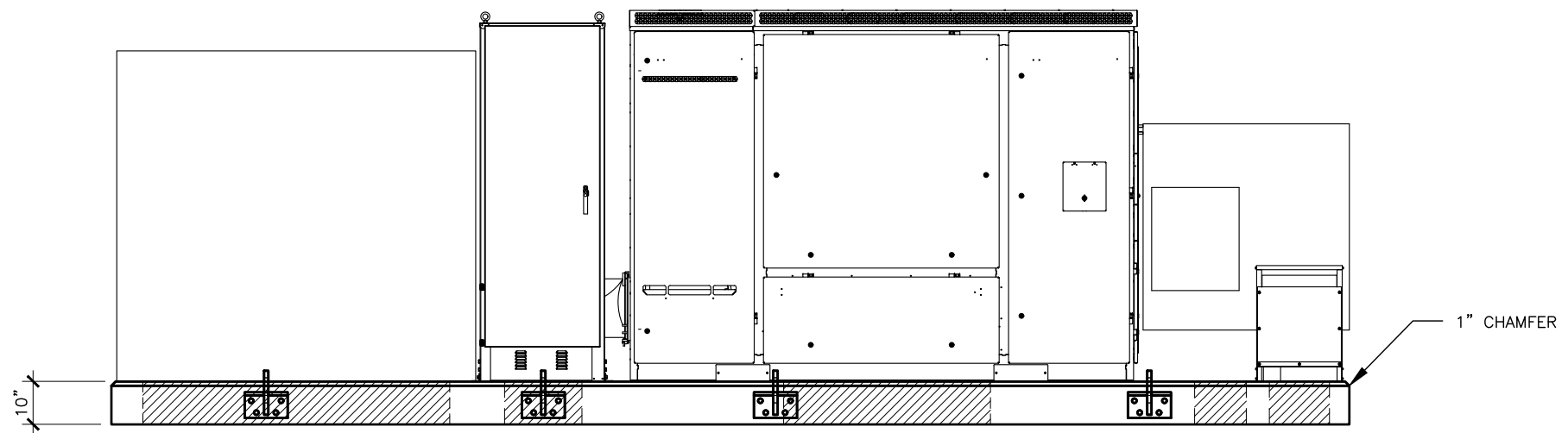
Contact Information

For country-specific details, please contact your local Schneider Electric Sales Representative or visit the Schneider Electric Solar Business website at: <http://solar.schneider-electric.com/>

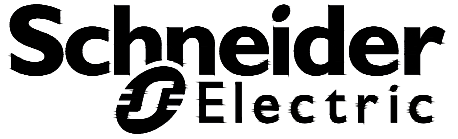



BILL OF MATERIAL - MAJOR COMPONENTS		
ITEM NO	Qty	DESCRIPTION
1	1	SMARTGEN INVERTER CS2000-2200
2	1	BUS DUCT ASSEMBLY
3	1	3-WINDING MV TRANSFORMER
4	1	AUX POWER BOX
5	1	SCADA
6	1	30KVA TRANSFORMER 575V 480V
7	1	480V PANELBOARD

CALCULATED WEIGHT - 54,000 LBS



REVISIONS			
NO.	DESCRIPTION	DATE	BY
1.			
2.			
3.			
4.			
5.			
6.			
7.			



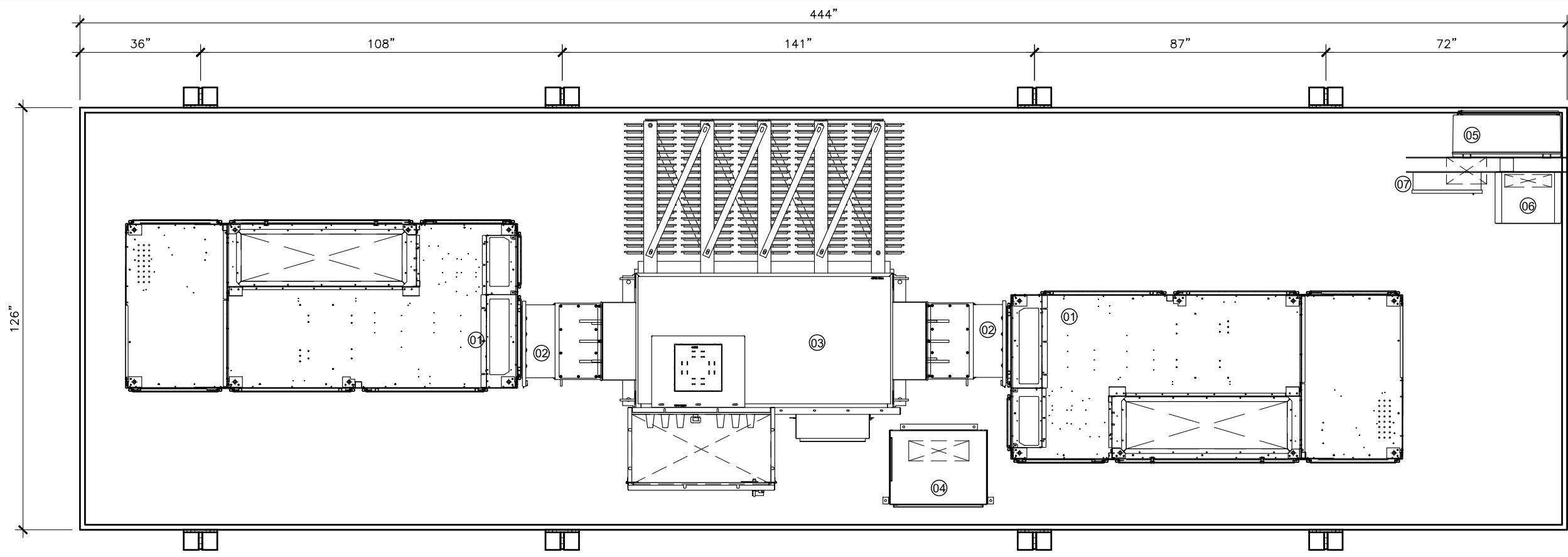


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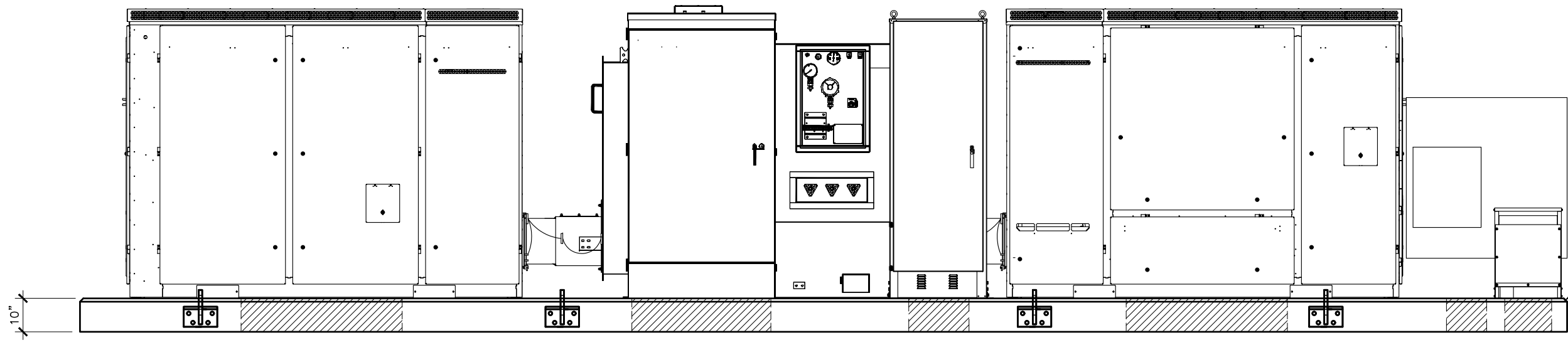
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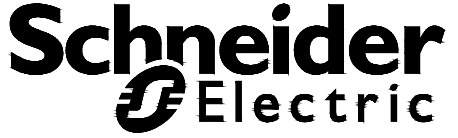

BILL OF MATERIAL - MAJOR COMPONENTS

ITEM NO	Qty	DESCRIPTION
1	2	SMARTGEN INVERTER CS2000-2200
2	2	BUS DUCT ASSEMBLY
3	1	3-WINDING MV TRANSFORMER
4	1	AUX POWER BOX
5	1	SCADA
6	1	45KVA TRANSFORMER 575V 480V
7	1	480V PANELBOARD

CALCULATED WEIGHT - 76,000 LBS



1" CHAMFER

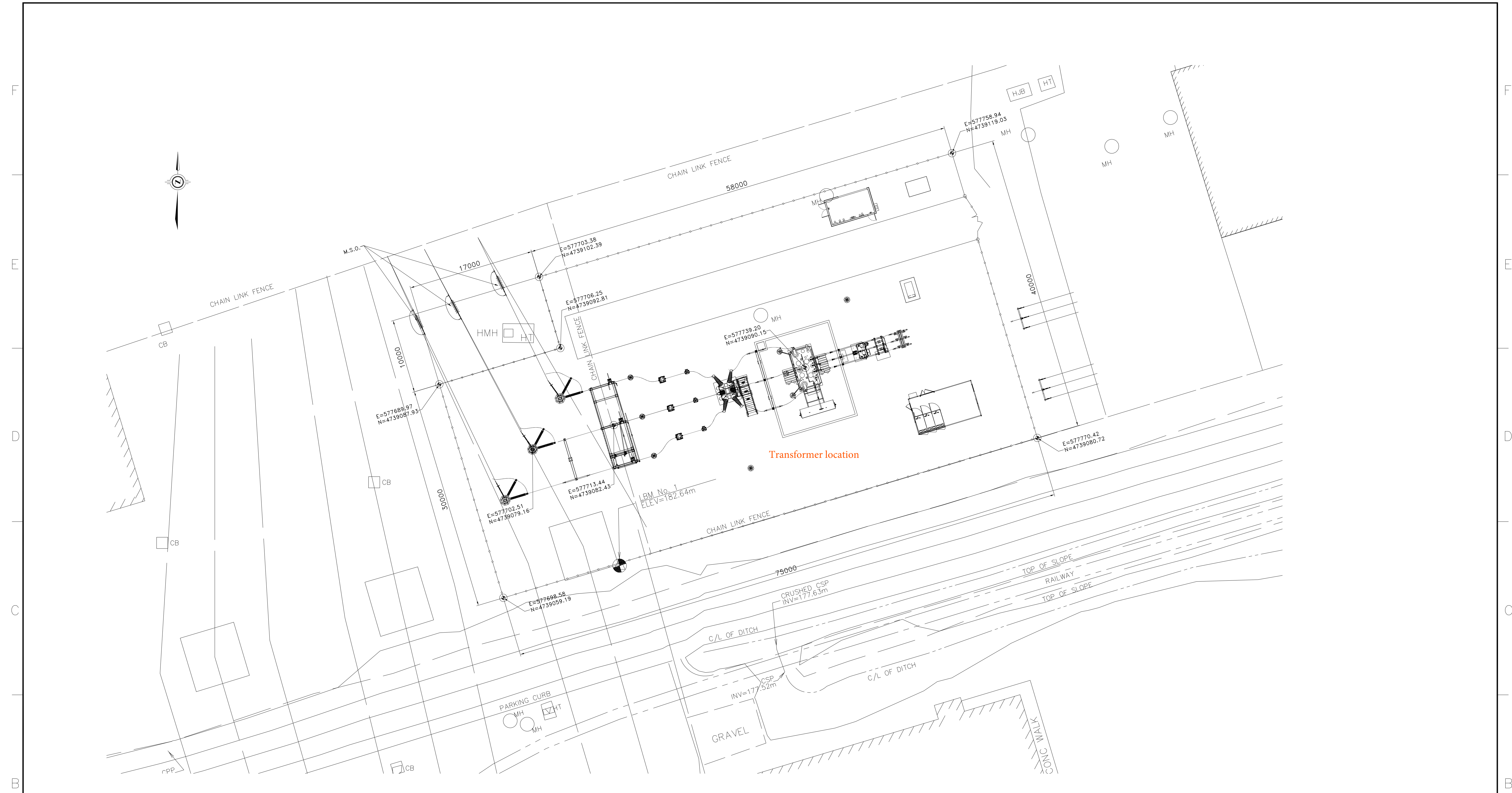
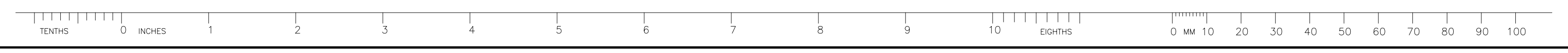
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DCB	LG	NTS	5/22/17	171517	LP-001

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1.			
2.			
3.			
4.			
5.			
6.			
7.			



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 Engineering Company
 3950 Fourteenth Ave. East, Suite 506
 Markham, On., L3R 0A9
 Email: chimax@chimax.ca

APPROVED FOR CONSTRUCTION			
CLIENT PROJECT MGR.	DEPARTMENT MGR.	PROJECT MGR.	AREA
PROJECT PHASE			
PROJECT NO.	ACTIVITY NO.	PACKAGE CODE	SUBJECT
SCALE			N.T.S.
BY		D/M/Y	
DSN. K.WONG		20/09/17	
DRN. E.HO		20/09/17	

CLIENT DWG. NO.	
DRAWING NO.	Q1733-E01
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9													6			
8													5			
7													4			
3													2			
1													1			

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 T: +1 636 239 9300 F: +1 636 239 9395 W: www.cgglobal.com

TECHNICAL SPECS

Date: 7/6/2017
 Quotation Number: 95916869
 Item Number: 20

Customer Line No.:	Quantity:	12
Unit Price:	Extended Price:	,

Three Phase Pad-Mount Transformer(s)		
kVA Rating:	4000 kVA Mineral Oil Immersed	Model #:
		Cooling Class: ONAN
		Frequency: 60 Hz
		Avg. Winding Temp. 65 °C
Primary Voltage:	34500 Delta volts	Secondary Voltage: Dual 575Y volts
Primary BIL Rating:	150 kV	Secondary BIL Rating: 30 kV
HV Winding Matl:	Aluminum	LV Winding Matl: Aluminum
High Voltage Taps:	S Taps - 32085, 33293, 34500, 35708, 36915	
No Load Loss:	4440 Watts	Load Loss: 31360 Watts
Impedance:	6.3 %	Total Loss: 35800 Watts

Tank Enclosure:
 Welded Cover w/(1) Handhole(s) - 14x24
 Cabinet Depth: 24 Inches, Pentahead Security Bolts

Bushings:
 Loop Feed Custom Dimensions
 Dead Front Primary Terminations: Integral Non-Loadbreak Bushings 600 Amp
 Secondary Terminations: Epoxy Bushings w/Non-removable Dual 6 Hole

Protection:
 PRCLF (38kV 200A In Parallel), Weak Link Cartridge (Curve 11)

Accessories:
 Pressure Relief Valve Viat, Cover-Mounted Pressure Relief Device (), Drain valve w/Sampler
 Liquid Level Gauge, Liquid Temperature Gauge, Pressure Vacuum Gauge

4-Winding Double Tier SOLARPAD: Stadium Style Stacked Core Construction with Semi-Round Windings, Reduced Flux Density, Electrostatic Winding Shields, Increased Cooling, Door Gasketing, Hold down anchoring (x4 holes), Drain Valve & Sampler in External Box, Isolated Core Ground, Nitrogen Blanket, Schrader Valve, UL Listed

- DYN11
- 30/40C Ambient
- CEA Ground Bar
- Static Shield & Core Ground Bushing
- Auxillary Bushings 5/8" Copper Stud in flange
- Silver Plated tap changer
- Gauges and MV switch mounted to the tank front
- Unit is designed at 99.2% at 100% Load
- Dual Throated LV connection with drop down bus bar and bus enclosure
- Losses are at 85C core ant 85C winding and are reference only. ANSI tolerances will apply to quoted losses.

Switching:
 Internally Isolated and Floating Secondary Neutral , One ON/OFF Transformer Switch (300 Amps)

Paint Color:
 ASA #70 GRAY (Munsell 5.0BG7.0/0.4), Touch-up Paint Spray Can ,

Standards:
 Quoted in compliance with the latest applicable CSA standards unless otherwise specified by the customer.

Shipment: Per mutually agreed upon schedule

Table 1
AUDIBLE SOUND LEVELS FOR OIL-IMMERSED POWER TRANSFORMERS

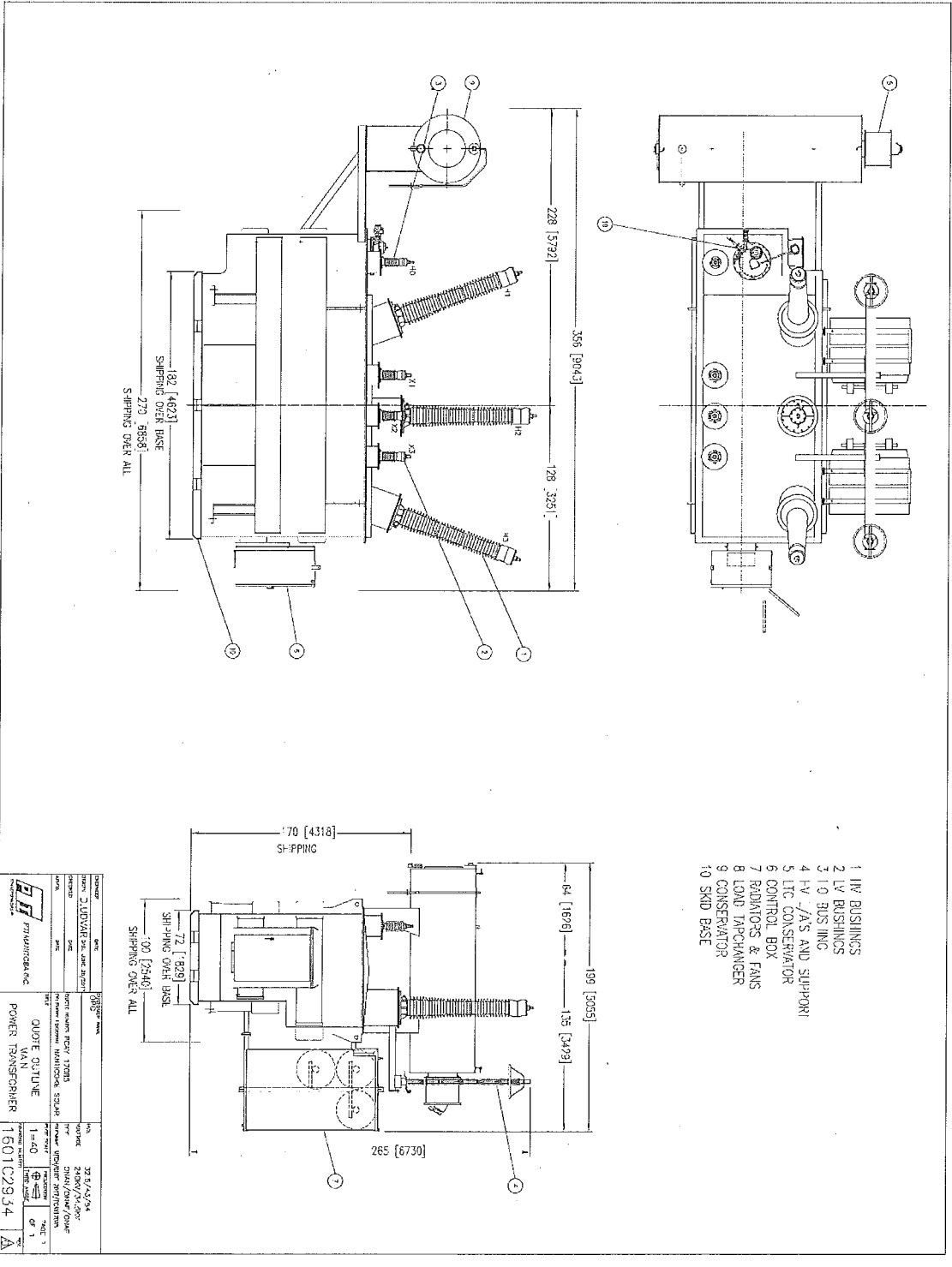
Average Sound Level tt. Decibels	Equivalent Two-Winding Rating*																	
	350 kV BIL and Below			450, 550, 650 kV BIL			750 and 825 kV BIL			900 and 1050 kV BIL			1175 kV BIL			1300 kV BIL. and Above		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
57	700																	
58	1000																	
59				700														
60	1500			1000														
61	2000																	
62	2500			1500														
63	3000			2000														
64	4000			2500														
65	5000			3000														
66	6000			4000			3000											
67	7500	6250▲▲		5000	3750▲▲		4000	3125▲▲										
68	10000	7500		6000	5000		5000	3750										
69	12500	9375		7500	6250		6000	5000										
70	15000	12500		10000	7500		7500	6250										
71	20000	16667		12500	9375		10000	7500										
72	25000	20000	20800	15000	12500		12500	9375										
73	30000	26667	25000	20000	16667		15000	12500		12500								
74	40000	33333	33333	25000	20000	20800	20000	16667		15000			12500					
75	50000	40000	41687	30000	26667	25000	25000	20000	20800	20000	16667		15000				12500	
76	60000	53333	50000	40000	33333	33333	30000	26667	25000	25000	20000	20800	20000	16667			15000	
77	80000	66687	66667	50000	40000	41667	40000	33333	33333	30000	26667	25000	25000	20000	20800	20000	16667	
78	100000	80000	83333	60000	53333	50000	50000	40000	41667	40000	33333	33333	30000	26667	25000	25000	20000	20800
79		106667	100000	80000	66667	66667	60000	53333	50000	50000	40000	41667	40000	33333	33333	30000	26667	25000
80		133333	133333	100000	60000	83333	80000	66667	66667	60000	53333	50000	50000	40000	41667	40000	33333	33333
81			166667		106667	100000	100000	80000	83333	80000	66667	66667	60000	53333	50000	50000	40000	41667
82			200000		133333	133333		106867	100000	100000	80000	83333	80000	66667	66667	60000	53333	50000
83			250000			166667		133333	133333		10686	100000	100000	80000	83333	80000	66667	68667
84			300000			200000			166667		133333	133333		106667	100000	100000	80000	83333
85			400000			250000			200000			166667		133333	133333		106667	100000
86						300000			250000			200000			166667		133333	133333
87						400000			300000			250000			200000			168667
88									400000			300000			250000			200000
89												400000			300000			250000
90															400000			300000
91																		400000

Column 1 • Class*ONAN, ONWN and OFWF Rating*
 Column 2 • Class* ONAF and ODAF First stage Auxiliary Cooling"t
 Column 3 • Straight OFAF Ratings, ONAF * and ODAF * Second stage Auxiliary Cooling"t
 Classes of cooling, see section 5.1 IEEE Std.. C57.12-2010

"First- and second stage auxiliary cooling, see section 4 Table 1 of IEEE Std.. C57-12-2010
 f For column 2 and 3 ratings, the sound levels are with the auxiliary cooling equipment in operation.
 f For intermediate kVA ratings, use the average sound level of the next larger kVA rating.
 ▲ The equivalent two-winding 55°C or 65°C rating is defined as one-half the sum of the kVA rating of all windings
 ▲▲ Sixty-seven decibels for all kVA ratings equal to this or smaller.

Sound Level: The transformer shall be designed that the average sound level will not exceed the values given in Table 1 through Table 2 of NEMA TR 1-2013 titled "Transformers, Step Voltage Regulators and Reactors", when measured at the factory in accordance with the conditions outlines in IEEE Standard C57-12-2015 titled "IEEE Standard Test Code for Liquid-Immersed Distribution, Power and Regulating Transformers".		(65/68/70 Sound Pressure) (86/89/91 Sound Power)	dB
32.5 CALCULATED PERFORMANCE			
1) No Load Loss at Rated Voltage		22.7	kW
Impedance			
HV - LV (Base:	32.5	MVA, tap position 1)	8.18 %
HV - LV (Base:	32.5	MVA, tap position 16)	7.82 %
HV - LV (Base:	32.5	MVA, tap position 17)	7.82 %
HV - LV (Base:	32.5	MVA, tap position 18)	7.82 %
HV - LV (Base:	32.5	MVA, tap position 33)	7.83 %
Excitation Current			
Input voltage of 1.0 pu		0.1%	A
Input voltage of 1.082 pu		0.3%	A
TRANSFORMER MASS, DIMENSIONS & OIL VOLUME			
1) Shipping Dimensions			
Length		6858	mm
Width		2540	mm

	Height	4318	mm
Installed Dimensions			
	Length	9043	mm
	Width	5055	mm
	Height	6730	mm
Mass			
	Shipping	53,408	kg
	Core & Windings	35,474	kg
	Oil	24,759	kg
	Total Installed	83,831	kg
Oil Volume			
	Main Tank	25,071	L
	Total Oil	28,854	L
MISCELLANEOUS INFORMATION			
1) Transformer will be shipped in dry air/oil?		AIR	OIL
Are there any features in this design which have not been used on previous similar designs built for Ontario Power Generation? If YES, please specify below:		YES	NO
HV Under-Load Tap-Changer			
Type	VMIII 300Y 72.5C 1835 3W Vacuum In-tank type		
Make	MR Germany		
Rated Amps	300		



- 1. HV BUSHINGS
- 2. LV BUSHINGS
- 3. 10 BUS INCL
- 4. HV /FAS AND SUPPORT
- 5. LTC CONSERVATOR
- 6. CONTROL BOX
- 7. RADATORS & FANS
- 8. LOAD TAPCHANGER
- 9. CONSERVATOR
- 10. SKID BASE

		POWER TRANSFORMER	
MODEL: QUOTE C2934 DATE: 2014/04/04	QUOTE C2934 VAN	33 B.A./A.P.M. 24KV/24KV 24KV/24KV/24KV	1601 C2934
POWER TRANSFORMER		1601 C2934	

Grozev, Slavi

From: U Ernie -CBUSDEV&STRT <ernest.u@opg.com>
Sent: Wednesday, October 11, 2017 10:27 AM
To: Grozev, Slavi
Subject: FW: EXTERNAL - RE: Proposal Clarification 3- NSLP-TA201706-02 MP Main Output Transformer for Nanticoke Solar Project

FYI

From: Daniel Boyd [mailto:dboyd@partnertechnologies.net]
Sent: Tuesday, October 10, 2017 5:28 PM
To: U Ernie -CBUSDEV&STRT <ernest.u@opg.com>
Subject: RE: EXTERNAL - RE: Proposal Clarification 3- NSLP-TA201706-02 MP Main Output Transformer for Nanticoke Solar Project

Hi Ernie,

The sound level data is based of measured sound pressure results, then the surface area of the transformer envelope is utilized to calculated the sound power values per IEEE method.

Regards,



Dan BOYD
Product Sales Manager



PTI Manitoba Inc.
101 Rockman Street, Winnipeg, MB R3T 0L7 Canada
T: +1 204 474 5704 M: +1 204 781 0387
E: dboyd@partnertechnologies.net
W: www.partnertechnologies.net
Save the environment. Please print only if essential.

From: U Ernie -CBUSDEV&STRT [mailto:ernest.u@opg.com]
Sent: Tuesday, October 10, 2017 3:16 PM
To: Daniel Boyd <dboyd@partnertechnologies.net>
Subject: RE: EXTERNAL - RE: Proposal Clarification 3- NSLP-TA201706-02 MP Main Output Transformer for Nanticoke Solar Project

Dan,
The Acoustic Engineer has the following question.

“ I see that this includes the fan data. One thing to clarify though. I see the word “calculated”. Can you check if this factors in NEMA surface area adjustments? If not, it will bump up the numbers a bit. Typically reported numbers account for this, but I just want to make sure. “

Thanks
Ernie

From: Daniel Boyd [mailto:dboyd@partnertechnologies.net]
Sent: Tuesday, October 10, 2017 3:47 PM

To: U Ernie -CBUSDEV&STRT <ernest.u@opg.com>

Cc: Gary Kitchen <gkitchen@partnertechnologies.net>

Subject: RE: EXTERNAL - RE: Proposal Clarification 3- NSLP-TA201706-02 MP Main Output Transformer for Nanticoke Solar Project

Hi Ernie,

Just had the info come through from engineering over lunch.

Sound level at different frequencies depends on natural frequency of the unit. Analytical methods to estimate these would involve extensive modelling and calculations using special programs. In the absence of such programs, it is normal practice to estimate the numbers based on test results of similar units. Accordingly, we have estimated the sound power numbers based on test results of similar units.

OPG Nanticoke -Sound power data
Top rating 54MVA with ONAF cooling

Frequency Hz	Calculated Sound power dB
63	59
125	92
250	93
500	93
1000	83
2000	73
4000	63
8000	53

Best regards,



Dan BOYD
Product Sales Manager

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W: www.partnertechnologies.net

Save the environment. Please print only if essential.



From: U Ernie -CBUSDEV&STRT [mailto:ernest.u@opg.com]

Sent: Tuesday, October 10, 2017 2:08 PM

To: Daniel Boyd <dboyd@partnertechnologies.net>

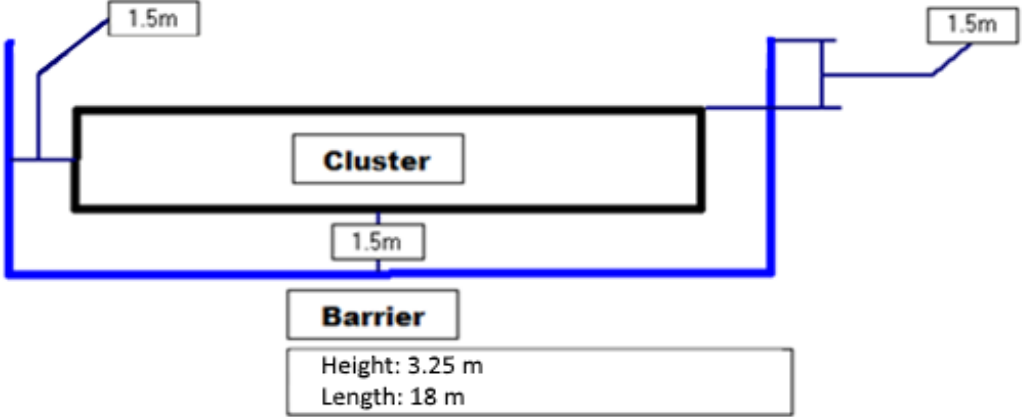
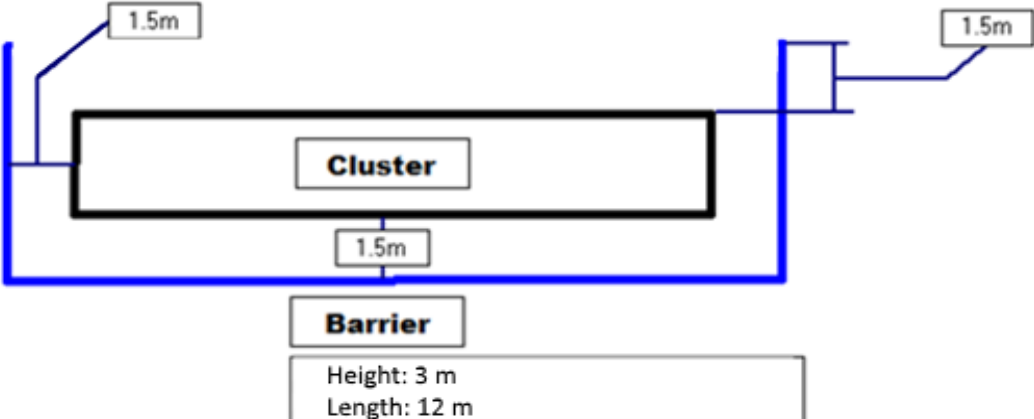
Cc: Gary Kitchen <gkitchen@partnertechnologies.net>

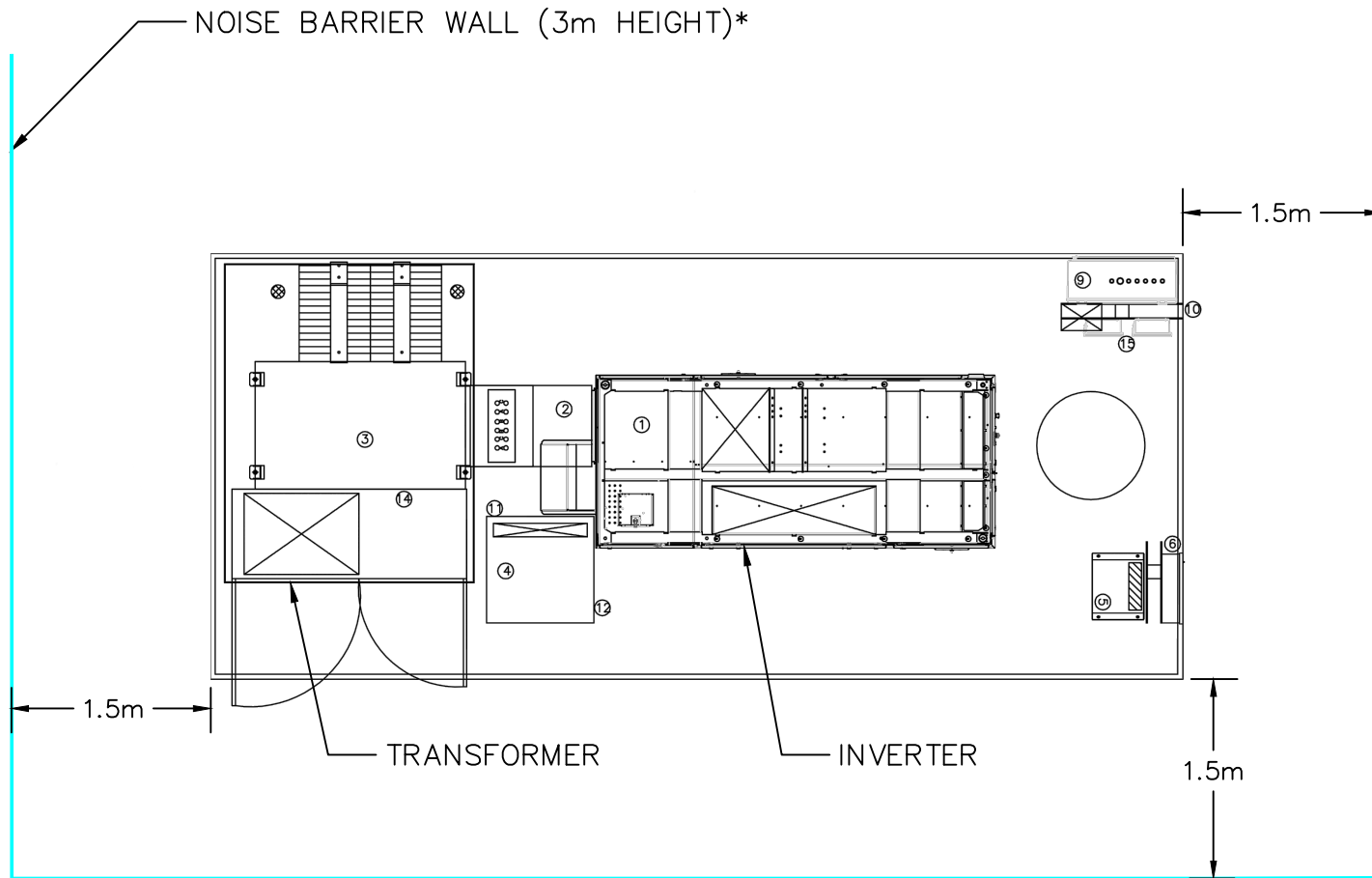
Subject: RE: EXTERNAL - RE: Proposal Clarification 3- NSLP-TA201706-02 MP Main Output Transformer for Nanticoke Solar Project

Dan,

When do I see the acoustic profile?

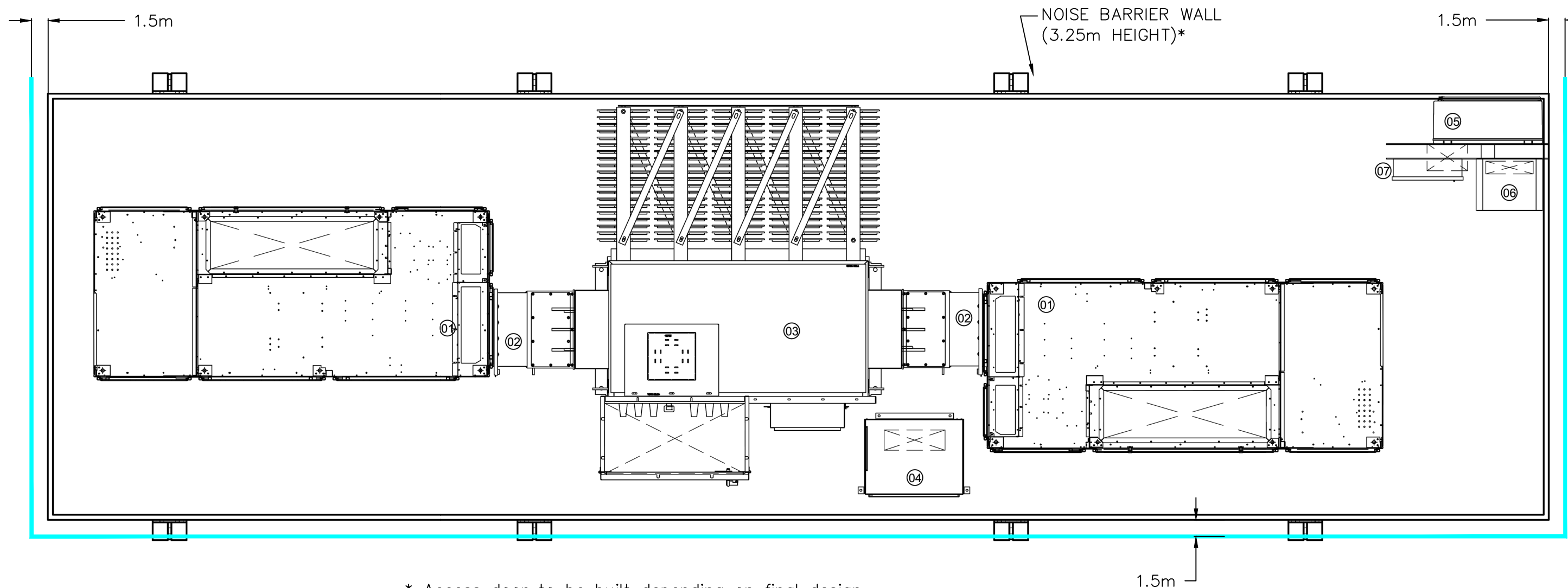
Appendix C: Description of Barrier Construction

Acoustic Barrier	Plan View	Construction	Material	Height	Distance from unit
Is10, Is11, Tx10_11 Cluster	 <p data-bbox="841 561 1349 689">Barrier Height: 3.25 m Length: 18 m</p>			3.25 m	1.5 m maximum distance from the vertical surface of unit, and the barrier on open side should be extended same amount
Is14, Tx14 Cluster	 <p data-bbox="833 1239 1349 1301">Barrier Height: 3 m Length: 12 m</p>	Continuous solid material without any gap	20kg/m ² of Minimum surface density	3 m	1.5 m maximum distance from the vertical surface of unit, and the barrier on open side should be extended same amount



NANTICOKE SOLAR LP NANTICOKE SOLAR PROJECT NANTICOKE, ONTARIO Transformer/Inverter Cluster (Ts14, Tx14)		
CREATED BY: ISZ	CHECKED BY: SG	FIGURE NO: B-1
DATE: October 2017	PROJECT No.: 351100	

C:\projects\351100\351100 Figure B-1_Oct 2017.dwg LAYOUT: B-2 SAVER: 10/12/2017 11:20 PM PLOTTED: 10/13/2017 9:12 AM BY: IZABELA ZIBA



* Access door to be built depending on final design.

NANTICOKE SOLAR LP NANTICOKE SOLAR PROJECT NANTICOKE, ONTARIO		
Transformer/Inverter Cluster (Is10, Is11, Tx10_11)		
CREATED BY: ISZ	CHECKED BY: SG	FIGURE NO: B-2
DATE: October 2017	PROJECT No.: 351100	

Appendix D: Sample Calculation POR23

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (m)	4000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (m)	1000.00
Min. Length of Section (m)	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	60.00
Reference Time Night (min)	60.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	6.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rcvr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (°C)	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (m/s)	3.0
Roads (TNM)	
Railways (Schall 03 (1990))	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receiver

Name: Vacant Lot

ID: POR23

X: 579398.00

Y: 4740021.00

Z: 4.50

Point Source, ISO 9613, Name: "Inverter 11", ID: "Is11"

Nr.	X (m)	Y (m)	Z (m)	Refl.	DEN	Freq. (Hz)	Lw dB(A)	l/a dB	Optime dB	K0 (dB)	Dc (dB)	Adiv (dB)	Aatm (dB)	Agr (dB)	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	Lr dB(A)
712	579372.17	4740322.69	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	60.6	0.0	-4.1	0.0	0.0	5.3	0.0	0.0	-30.5
712	579372.17	4740322.69	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	60.6	0.1	2.2	0.0	0.0	5.0	0.0	0.0	-8.6
712	579372.17	4740322.69	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	60.6	0.3	4.3	0.0	0.0	4.9	0.0	0.0	8.2
712	579372.17	4740322.69	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	60.6	0.6	1.1	0.0	0.0	10.1	0.0	0.0	11.2
712	579372.17	4740322.69	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	60.6	1.1	-1.0	0.0	0.0	13.7	0.0	0.0	14.4
712	579372.17	4740322.69	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	60.6	2.9	-1.2	0.0	0.0	16.5	0.0	0.0	9.5
712	579372.17	4740322.69	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	60.6	9.9	-1.2	0.0	0.0	19.4	0.0	0.0	10.7
712	579372.17	4740322.69	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	60.6	35.4	-1.2	0.0	0.0	19.8	0.0	0.0	-28.4

Point Source, ISO 9613, Name: "Inverter 10", ID: "Is10"

Nr.	X (m)	Y (m)	Z (m)	Refl.	DEN	Freq. (Hz)	Lw dB(A)	l/a dB	Optime dB	K0 (dB)	Dc (dB)	Adiv (dB)	Aatm (dB)	Agr (dB)	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	Lr dB(A)
717	579365.61	4740322.69	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	60.6	0.0	-4.1	0.0	0.0	5.4	0.0	0.0	-30.6
717	579365.61	4740322.69	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	60.6	0.1	2.2	0.0	0.0	5.2	0.0	0.0	-8.8
717	579365.61	4740322.69	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	60.6	0.3	4.3	0.0	0.0	5.2	0.0	0.0	7.9
717	579365.61	4740322.69	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	60.6	0.6	1.1	0.0	0.0	10.5	0.0	0.0	10.8
717	579365.61	4740322.69	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	60.6	1.1	-1.0	0.0	0.0	14.2	0.0	0.0	13.9
717	579365.61	4740322.69	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	60.6	2.9	-1.2	0.0	0.0	17.0	0.0	0.0	8.9
717	579365.61	4740322.69	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	60.6	9.9	-1.2	0.0	0.0	19.7	0.0	0.0	10.4
717	579365.61	4740322.69	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	60.6	35.5	-1.2	0.0	0.0	19.8	0.0	0.0	-28.5

Point Source, ISO 9613, Name: "Inverter 9", ID: "Is9"

Nr.	X (m)	Y (m)	Z (m)	Refl.	DEN	Freq. (Hz)	Lw dB(A)	l/a dB	Optime dB	K0 (dB)	Dc (dB)	Adiv (dB)	Aatm (dB)	Agr (dB)	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	Lr dB(A)
721	579188.41	4740322.69	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	62.3	0.0	-4.5	0.0	0.0	0.0	0.0	0.0	-26.6
721	579188.41	4740322.69	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	62.3	0.2	2.4	0.0	0.0	0.0	0.0	0.0	-5.6
721	579188.41	4740322.69	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	62.3	0.4	4.2	0.0	0.0	0.0	0.0	0.0	11.4
721	579188.41	4740322.69	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	62.3	0.7	1.1	0.0	0.0	0.0	0.0	0.0	19.5
721	579188.41	4740322.69	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	62.3	1.3	-1.1	0.0	0.0	0.0	0.0	0.0	26.3
721	579188.41	4740322.69	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	62.3	3.6	-1.3	0.0	0.0	0.0	0.0	0.0	23.8
721	579188.41	4740322.69	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	62.3	12.0	-1.3	0.0	0.0	0.0	0.0	0.0	26.4
721	579188.41	4740322.69	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	62.3	42.9	-1.3	0.0	0.0	0.0	0.0	0.0	-17.7

Point Source, ISO 9613, Name: "Inverter 8", ID: "Is8"

Nr.	X (m)	Y (m)	Z (m)	Refl.	DEN	Freq. (Hz)	Lw dB(A)	l/a dB	Optime dB	K0 (dB)	Dc (dB)	Adiv (dB)	Aatm (dB)	Agr (dB)	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	Lr dB(A)
726	579181.85	4740322.69	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	62.4	0.0	-4.5	0.0	0.0	0.0	0.0	0.0	-26.7
726	579181.85	4740322.69	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	62.4	0.2	2.5	0.0	0.0	0.0	0.0	0.0	-5.7
726	579181.85	4740322.69	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	62.4	0.4	4.2	0.0	0.0	0.0	0.0	0.0	11.3
726	579181.85	4740322.69	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	62.4	0.7	1.0	0.0	0.0	0.0	0.0	0.0	19.4
726	579181.85	4740322.69	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	62.4	1.4	-1.1	0.0	0.0	0.0	0.0	0.0	26.2
726	579181.85	4740322.69	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	62.4	3.6	-1.3	0.0	0.0	0.0	0.0	0.0	23.7
726	579181.85	4740322.69	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	62.4	12.2	-1.3	0.0	0.0	0.0	0.0	0.0	26.2
726	579181.85	4740322.69	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	62.4	43.4	-1.3	0.0	0.0	0.0	0.0	0.0	-18.2

Point Source, ISO 9613, Name: "Inverter 12", ID: "Is12"

Nr.	X (m)	Y (m)	Z (m)	Refl.	DEN	Freq. (Hz)	Lw dB(A)	l/a dB	Optime dB	K0 (dB)	Dc (dB)	Adiv (dB)	Aatm (dB)	Agr (dB)	Afol (dB)	Ahous (dB)	Abar (dB)	Cmet (dB)	RL (dB)	Lr dB(A)
730	579476.50	4740399.88	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	62.8	0.0	-4.5	0.0	0.0	0.0	0.0	0.0	-27.0
730	579476.50	4740399.88	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	62.8	0.2	2.5	0.0	0.0	0.0	0.0	0.0	-6.1
730	579476.50	4740399.88	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	62.8	0.4	4.2	0.0	0.0	0.0	0.0	0.0	11.0
730	579476.50	4740399.88	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	62.8	0.7	1.0	0.0	0.0	0.0	0.0	0.0	19.1
730	579476.50	4740399.88	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	62.8	1.4	-1.1	0.0	0.0	0.0	0.0	0.0	25.8
730	579476.50	4740399.88	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	62.8	3.7	-1.4	0.0	0.0	0.0	0.0	0.0	23.2
730	579476.50	4740399.88	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	62.8	12.7	-1.4	0.0	0.0	0.0	0.0	0.0	25.3
730	579476.50	4740399.88	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	62.8	45.2	-1.4	0.0	0.0	0.0	0.0	0.0	-20.4

Point Source, ISO 9613, Name: "Inverter 13", ID: "Is13"																				
Nr.	X	Y	Z	Ref.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
734	579588.82	4740399.88	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	63.6	0.1	-4.7	0.0	0.0	0.0	0.0	0.0	-27.6
734	579588.82	4740399.88	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	63.6	0.2	2.7	0.0	0.0	0.0	0.0	0.0	-7.1
734	579588.82	4740399.88	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	63.6	0.4	4.1	0.0	0.0	0.0	0.0	0.0	10.2
734	579588.82	4740399.88	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	63.6	0.8	1.0	0.0	0.0	0.0	0.0	0.0	18.2
734	579588.82	4740399.88	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	63.6	1.6	-1.2	0.0	0.0	0.0	0.0	0.0	24.9
734	579588.82	4740399.88	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	63.6	4.1	-1.4	0.0	0.0	0.0	0.0	0.0	22.1
734	579588.82	4740399.88	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	63.6	13.9	-1.4	0.0	0.0	0.0	0.0	0.0	23.3
734	579588.82	4740399.88	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	63.6	49.6	-1.4	0.0	0.0	0.0	0.0	0.0	-25.5

Point Source, ISO 9613, Name: "Inverter 7", ID: "Is7"																				
Nr.	X	Y	Z	Ref.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
750	579017.01	4740322.69	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	64.7	0.1	-4.8	0.0	0.0	0.0	0.0	0.0	-28.6
750	579017.01	4740322.69	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	64.7	0.2	3.0	0.0	0.0	0.0	0.0	0.0	-8.6
750	579017.01	4740322.69	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	64.7	0.5	4.1	0.0	0.0	0.0	0.0	0.0	9.0
750	579017.01	4740322.69	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	64.7	0.9	0.9	0.0	0.0	0.0	0.0	0.0	17.0
750	579017.01	4740322.69	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	64.7	1.8	-1.2	0.0	0.0	0.0	0.0	0.0	23.5
750	579017.01	4740322.69	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	64.7	4.7	-1.5	0.0	0.0	0.0	0.0	0.0	20.3
750	579017.01	4740322.69	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	64.7	15.9	-1.5	0.0	0.0	0.0	0.0	0.0	20.2
750	579017.01	4740322.69	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	64.7	56.8	-1.5	0.0	0.0	0.0	0.0	0.0	-33.9

Point Source, ISO 9613, Name: "Inverter 14", ID: "Is14"																				
Nr.	X	Y	Z	Ref.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
753	579704.86	4740399.88	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	64.8	0.1	-4.8	0.0	0.0	4.3	0.0	0.0	-33.0
753	579704.86	4740399.88	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	64.8	0.2	3.0	0.0	0.0	3.2	0.0	0.0	-11.8
753	579704.86	4740399.88	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	64.8	0.5	4.1	0.0	0.0	3.7	0.0	0.0	5.2
753	579704.86	4740399.88	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	64.8	0.9	0.9	0.0	0.0	8.6	0.0	0.0	8.4
753	579704.86	4740399.88	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	64.8	1.8	-1.2	0.0	0.0	11.8	0.0	0.0	11.6
753	579704.86	4740399.88	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	64.8	4.7	-1.5	0.0	0.0	14.5	0.0	0.0	5.8
753	579704.86	4740399.88	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	64.8	16.0	-1.5	0.0	0.0	17.3	0.0	0.0	2.8
753	579704.86	4740399.88	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	64.8	57.0	-1.5	0.0	0.0	19.7	0.0	0.0	-53.8

Point Source, ISO 9613, Name: "Inverter 6", ID: "Is6"																				
Nr.	X	Y	Z	Ref.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
755	579010.45	4740322.69	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	64.8	0.1	-4.9	0.0	0.0	0.0	0.0	0.0	-28.7
755	579010.45	4740322.69	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	64.8	0.2	3.0	0.0	0.0	0.0	0.0	0.0	-8.7
755	579010.45	4740322.69	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	64.8	0.5	4.1	0.0	0.0	0.0	0.0	0.0	8.9
755	579010.45	4740322.69	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	64.8	0.9	0.9	0.0	0.0	0.0	0.0	0.0	16.9
755	579010.45	4740322.69	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	64.8	1.8	-1.2	0.0	0.0	0.0	0.0	0.0	23.4
755	579010.45	4740322.69	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	64.8	4.7	-1.5	0.0	0.0	0.0	0.0	0.0	20.2
755	579010.45	4740322.69	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	64.8	16.1	-1.5	0.0	0.0	0.0	0.0	0.0	19.9
755	579010.45	4740322.69	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	64.8	57.4	-1.5	0.0	0.0	0.0	0.0	0.0	-34.6

Point Source, ISO 9613, Name: "Inverter 5", ID: "Is5"																				
Nr.	X	Y	Z	Ref.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
759	578830.05	4740322.69	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	67.2	0.1	-5.1	0.0	0.0	0.0	0.0	0.0	-30.8
759	578830.05	4740322.69	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	67.2	0.3	3.6	0.0	0.0	0.0	0.0	0.0	-11.7
759	578830.05	4740322.69	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	67.2	0.7	4.0	0.0	0.0	0.0	0.0	0.0	6.5
759	578830.05	4740322.69	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	67.2	1.2	0.9	0.0	0.0	0.0	0.0	0.0	14.3
759	578830.05	4740322.69	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	67.2	2.4	-1.3	0.0	0.0	0.0	0.0	0.0	20.6
759	578830.05	4740322.69	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	67.2	6.2	-1.5	0.0	0.0	0.0	0.0	0.0	16.5
759	578830.05	4740322.69	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	67.2	21.1	-1.5	0.0	0.0	0.0	0.0	0.0	12.7
759	578830.05	4740322.69	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	67.2	75.2	-1.5	0.0	0.0	0.0	0.0	0.0	-54.6

Point Source, ISO 9613, Name: "Inverter 4", ID: "Is4"																				
Nr.	X	Y	Z	Ref.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
764	578823.49	4740322.69	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	67.2	0.1	-5.1	0.0	0.0	0.0	0.0	0.0	-30.9
764	578823.49	4740322.69	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	67.2	0.3	3.6	0.0	0.0	0.0	0.0	0.0	-11.8
764	578823.49	4740322.69	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	67.2	0.7	4.0	0.0	0.0	0.0	0.0	0.0	6.4
764	578823.49	4740322.69	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	67.2	1.3	0.9	0.0	0.0	0.0	0.0	0.0	14.2
764	578823.49	4740322.69	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	67.2	2.4	-1.3	0.0	0.0	0.0	0.0	0.0	20.5
764	578823.49	4740322.69	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	67.2	6.3	-1.5	0.0	0.0	0.0	0.0	0.0	16.3

Point Source, ISO 9613, Name: "Inverter 20", ID: "Is20"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
784	578360.58	4739230.83	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	73.3	0.5	3.4	0.0	0.0	0.0	0.0	0.0	-17.9
784	578360.58	4739230.83	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	73.3	1.4	2.6	0.0	0.0	0.0	0.0	0.0	1.0
784	578360.58	4739230.83	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	73.3	2.5	-0.5	0.0	0.0	0.0	0.0	0.0	8.3
784	578360.58	4739230.83	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	73.3	4.8	-2.7	0.0	0.0	0.0	0.0	0.0	13.4
784	578360.58	4739230.83	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	73.3	12.6	-2.9	0.0	0.0	0.0	0.0	0.0	5.3
784	578360.58	4739230.83	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	73.3	42.7	-2.9	0.0	0.0	0.0	0.0	0.0	-13.7
784	578360.58	4739230.83	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	73.3	152.4	-2.9	0.0	0.0	0.0	0.0	0.0	-136.6

Point Source, ISO 9613, Name: "Inverter 22", ID: "Is22"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
798	578509.61	4739230.83	1.75	0	N	63	26.3	0.0	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	-40.8
798	578509.61	4739230.83	1.75	0	N	125	54.3	0.0	0.0	0.0	0.0	72.5	0.5	3.1	0.0	0.0	0.0	0.0	0.0	-21.8
798	578509.61	4739230.83	1.75	0	N	250	73.3	0.0	0.0	0.0	0.0	72.5	1.2	2.4	0.0	0.0	0.0	0.0	0.0	-2.8
798	578509.61	4739230.83	1.75	0	N	500	78.6	0.0	0.0	0.0	0.0	72.5	2.3	-0.8	0.0	0.0	0.0	0.0	0.0	4.6
798	578509.61	4739230.83	1.75	0	N	1000	83.8	0.0	0.0	0.0	0.0	72.5	4.3	-2.9	0.0	0.0	0.0	0.0	0.0	9.9
798	578509.61	4739230.83	1.75	0	N	2000	83.3	0.0	0.0	0.0	0.0	72.5	11.5	-3.1	0.0	0.0	0.0	0.0	0.0	2.5
798	578509.61	4739230.83	1.75	0	N	4000	94.4	0.0	0.0	0.0	0.0	72.5	39.0	-3.1	0.0	0.0	0.0	0.0	0.0	-13.9
798	578509.61	4739230.83	1.75	0	N	8000	81.2	0.0	0.0	0.0	0.0	72.5	139.0	-3.1	0.0	0.0	0.0	0.0	0.0	-127.1

Point Source, ISO 9613, Name: "Inverter 19", ID: "Is19"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
803	578208.21	4739230.83	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	74.1	0.2	-5.6	0.0	0.0	0.0	0.0	0.0	-37.4
803	578208.21	4739230.83	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	74.1	0.6	3.6	0.0	0.0	0.0	0.0	0.0	-19.0
803	578208.21	4739230.83	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	74.1	1.5	2.8	0.0	0.0	0.0	0.0	0.0	-0.1
803	578208.21	4739230.83	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	74.1	2.8	-0.3	0.0	0.0	0.0	0.0	0.0	7.1
803	578208.21	4739230.83	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	74.1	5.2	-2.5	0.0	0.0	0.0	0.0	0.0	12.0
803	578208.21	4739230.83	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	74.1	13.8	-2.7	0.0	0.0	0.0	0.0	0.0	3.1
803	578208.21	4739230.83	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	74.1	46.8	-2.7	0.0	0.0	0.0	0.0	0.0	-18.8
803	578208.21	4739230.83	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	74.1	166.9	-2.7	0.0	0.0	0.0	0.0	0.0	-152.1

Point Source, ISO 9613, Name: "Inverter 18", ID: "Is18"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
807	578201.65	4739230.83	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	74.1	0.2	-5.6	0.0	0.0	0.0	0.0	0.0	-37.4
807	578201.65	4739230.83	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	74.1	0.6	3.6	0.0	0.0	0.0	0.0	0.0	-19.0
807	578201.65	4739230.83	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	74.1	1.5	2.9	0.0	0.0	0.0	0.0	0.0	-0.2
807	578201.65	4739230.83	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	74.1	2.8	-0.3	0.0	0.0	0.0	0.0	0.0	7.0
807	578201.65	4739230.83	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	74.1	5.2	-2.5	0.0	0.0	0.0	0.0	0.0	11.9
807	578201.65	4739230.83	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	74.1	13.9	-2.7	0.0	0.0	0.0	0.0	0.0	3.0
807	578201.65	4739230.83	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	74.1	47.0	-2.7	0.0	0.0	0.0	0.0	0.0	-19.0
807	578201.65	4739230.83	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	74.1	167.6	-2.7	0.0	0.0	0.0	0.0	0.0	-152.8

Point Source, ISO 9613, Name: "Inverter 15", ID: "Is15"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
810	578024.39	4739459.94	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	74.4	0.2	-5.6	0.0	0.0	0.0	0.0	0.0	-37.7
810	578024.39	4739459.94	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	74.4	0.6	4.2	0.0	0.0	0.0	0.0	0.0	-20.0
810	578024.39	4739459.94	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	74.4	1.5	3.5	0.0	0.0	0.0	0.0	0.0	-1.1
810	578024.39	4739459.94	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	74.4	2.9	0.3	0.0	0.0	0.0	0.0	0.0	6.0
810	578024.39	4739459.94	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	74.4	5.4	-1.9	0.0	0.0	0.0	0.0	0.0	10.8
810	578024.39	4739459.94	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	74.4	14.3	-2.1	0.0	0.0	0.0	0.0	0.0	1.6
810	578024.39	4739459.94	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	74.4	48.6	-2.1	0.0	0.0	0.0	0.0	0.0	-21.6
810	578024.39	4739459.94	1.75	0	DEN	8000	86.2	0.0	0.0	0.0	0.0	74.4	173.4	-2.1	0.0	0.0	0.0	0.0	0.0	-159.6

Point Source, ISO 9613, Name: "Inverter 17", ID: "Is17"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
813	578039.71	4739230.83	1.75	0	DEN	63	31.3	0.0	0.0	0.0	0.0	74.9	0.2	-5.6	0.0	0.0	0.0	0.0	0.0	-38.2
813	578039.71	4739230.83	1.75	0	DEN	125	59.3	0.0	0.0	0.0	0.0	74.9	0.6	3.7	0.0	0.0	0.0	0.0	0.0	-20.0
813	578039.71	4739230.83	1.75	0	DEN	250	78.3	0.0	0.0	0.0	0.0	74.9	1.6	2.9	0.0	0.0	0.0	0.0	0.0	-1.2
813	578039.71	4739230.83	1.75	0	DEN	500	83.6	0.0	0.0	0.0	0.0	74.9	3.0	-0.2	0.0	0.0	0.0	0.0	0.0	5.9
813	578039.71	4739230.83	1.75	0	DEN	1000	88.8	0.0	0.0	0.0	0.0	74.9	5.7	-2.4	0.0	0.0	0.0	0.0	0.0	10.5
813	578039.71	4739230.83	1.75	0	DEN	2000	88.3	0.0	0.0	0.0	0.0	74.9	15.2	-2.6	0.0	0.0	0.0	0.0	0.0	0.8
813	578039.71	4739230.83	1.75	0	DEN	4000	99.4	0.0	0.0	0.0	0.0	74.9	51.5	-2.6	0.0	0.0	0.0	0.0	0.0	-24.4

Point Source, ISO 9613, Name: "Inverter 12 Transformer", ID: "Tx12"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahours	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
840	579473.55	4740399.88	2.00	0	DEN	32	68.4	0.0	0.0	0.0	0.0	62.7	0.0	-4.5	0.0	0.0	0.0	0.0	0.0	10.1
840	579473.55	4740399.88	2.00	0	DEN	63	74.4	0.0	0.0	0.0	0.0	62.7	0.0	-4.5	0.0	0.0	0.0	0.0	0.0	16.1
840	579473.55	4740399.88	2.00	0	DEN	125	76.4	0.0	0.0	0.0	0.0	62.7	0.2	2.6	0.0	0.0	0.0	0.0	0.0	10.9
840	579473.55	4740399.88	2.00	0	DEN	250	71.4	0.0	0.0	0.0	0.0	62.7	0.4	3.8	0.0	0.0	0.0	0.0	0.0	4.4
840	579473.55	4740399.88	2.00	0	DEN	500	71.4	0.0	0.0	0.0	0.0	62.7	0.7	0.2	0.0	0.0	0.0	0.0	0.0	7.7
840	579473.55	4740399.88	2.00	0	DEN	1000	65.4	0.0	0.0	0.0	0.0	62.7	1.4	-1.3	0.0	0.0	0.0	0.0	0.0	2.5
840	579473.55	4740399.88	2.00	0	DEN	2000	60.4	0.0	0.0	0.0	0.0	62.7	3.7	-1.3	0.0	0.0	0.0	0.0	0.0	-4.7
840	579473.55	4740399.88	2.00	0	DEN	4000	55.4	0.0	0.0	0.0	0.0	62.7	12.7	-1.3	0.0	0.0	0.0	0.0	0.0	-18.7
840	579473.55	4740399.88	2.00	0	DEN	8000	48.4	0.0	0.0	0.0	0.0	62.7	45.2	-1.3	0.0	0.0	0.0	0.0	0.0	-58.2

Point Source, ISO 9613, Name: "Inverter 4 and 5 Transformer", ID: "Tx4_5"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahours	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
844	578826.78	4740322.69	2.48	0	DEN	32	72.4	0.0	0.0	0.0	0.0	67.2	0.0	-5.0	0.0	0.0	0.0	0.0	0.0	10.2
844	578826.78	4740322.69	2.48	0	DEN	63	78.4	0.0	0.0	0.0	0.0	67.2	0.1	-5.0	0.0	0.0	0.0	0.0	0.0	16.1
844	578826.78	4740322.69	2.48	0	DEN	125	80.4	0.0	0.0	0.0	0.0	67.2	0.3	3.5	0.0	0.0	0.0	0.0	0.0	9.4
844	578826.78	4740322.69	2.48	0	DEN	250	75.4	0.0	0.0	0.0	0.0	67.2	0.7	2.9	0.0	0.0	0.0	0.0	0.0	4.6
844	578826.78	4740322.69	2.48	0	DEN	500	75.4	0.0	0.0	0.0	0.0	67.2	1.2	-0.9	0.0	0.0	0.0	0.0	0.0	7.9
844	578826.78	4740322.69	2.48	0	DEN	1000	69.4	0.0	0.0	0.0	0.0	67.2	2.4	-1.5	0.0	0.0	0.0	0.0	0.0	1.3
844	578826.78	4740322.69	2.48	0	DEN	2000	64.4	0.0	0.0	0.0	0.0	67.2	6.2	-1.5	0.0	0.0	0.0	0.0	0.0	-7.5
844	578826.78	4740322.69	2.48	0	DEN	4000	59.4	0.0	0.0	0.0	0.0	67.2	21.2	-1.5	0.0	0.0	0.0	0.0	0.0	-27.5
844	578826.78	4740322.69	2.48	0	DEN	8000	52.4	0.0	0.0	0.0	0.0	67.2	75.5	-1.5	0.0	0.0	0.0	0.0	0.0	-88.8

Point Source, ISO 9613, Name: "Inverter 13 Transformer", ID: "Tx13"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahours	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
849	579585.87	4740399.88	2.00	0	DEN	32	68.4	0.0	0.0	0.0	0.0	63.5	0.0	-4.6	0.0	0.0	0.0	0.0	0.0	9.5
849	579585.87	4740399.88	2.00	0	DEN	63	74.4	0.0	0.0	0.0	0.0	63.5	0.1	-4.6	0.0	0.0	0.0	0.0	0.0	15.4
849	579585.87	4740399.88	2.00	0	DEN	125	76.4	0.0	0.0	0.0	0.0	63.5	0.2	2.7	0.0	0.0	0.0	0.0	0.0	10.0
849	579585.87	4740399.88	2.00	0	DEN	250	71.4	0.0	0.0	0.0	0.0	63.5	0.4	3.8	0.0	0.0	0.0	0.0	0.0	3.6
849	579585.87	4740399.88	2.00	0	DEN	500	71.4	0.0	0.0	0.0	0.0	63.5	0.8	0.2	0.0	0.0	0.0	0.0	0.0	6.9
849	579585.87	4740399.88	2.00	0	DEN	1000	65.4	0.0	0.0	0.0	0.0	63.5	1.5	-1.3	0.0	0.0	0.0	0.0	0.0	1.6
849	579585.87	4740399.88	2.00	0	DEN	2000	60.4	0.0	0.0	0.0	0.0	63.5	4.1	-1.4	0.0	0.0	0.0	0.0	0.0	-5.8
849	579585.87	4740399.88	2.00	0	DEN	4000	55.4	0.0	0.0	0.0	0.0	63.5	13.9	-1.4	0.0	0.0	0.0	0.0	0.0	-20.6
849	579585.87	4740399.88	2.00	0	DEN	8000	48.4	0.0	0.0	0.0	0.0	63.5	49.4	-1.4	0.0	0.0	0.0	0.0	0.0	-63.2

Point Source, ISO 9613, Name: "Inverter 14 Transformer", ID: "Tx14"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahours	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
852	579701.91	4740399.88	2.00	0	DEN	32	68.4	0.0	0.0	0.0	0.0	64.7	0.0	-4.8	0.0	0.0	3.1	0.0	0.0	5.3
852	579701.91	4740399.88	2.00	0	DEN	63	74.4	0.0	0.0	0.0	0.0	64.7	0.1	-4.8	0.0	0.0	4.1	0.0	0.0	10.3
852	579701.91	4740399.88	2.00	0	DEN	125	76.4	0.0	0.0	0.0	0.0	64.7	0.2	3.0	0.0	0.0	2.6	0.0	0.0	5.9
852	579701.91	4740399.88	2.00	0	DEN	250	71.4	0.0	0.0	0.0	0.0	64.7	0.5	3.7	0.0	0.0	3.1	0.0	0.0	-0.7
852	579701.91	4740399.88	2.00	0	DEN	500	71.4	0.0	0.0	0.0	0.0	64.7	0.9	0.1	0.0	0.0	8.1	0.0	0.0	-2.4
852	579701.91	4740399.88	2.00	0	DEN	1000	65.4	0.0	0.0	0.0	0.0	64.7	1.8	-1.3	0.0	0.0	10.3	0.0	0.0	-10.0
852	579701.91	4740399.88	2.00	0	DEN	2000	60.4	0.0	0.0	0.0	0.0	64.7	4.7	-1.4	0.0	0.0	12.7	0.0	0.0	-20.3
852	579701.91	4740399.88	2.00	0	DEN	4000	55.4	0.0	0.0	0.0	0.0	64.7	15.9	-1.4	0.0	0.0	15.4	0.0	0.0	-39.3
852	579701.91	4740399.88	2.00	0	DEN	8000	48.4	0.0	0.0	0.0	0.0	64.7	56.8	-1.4	0.0	0.0	18.3	0.0	0.0	-90.0

Point Source, ISO 9613, Name: "Inverter 1 and 2 Transformer", ID: "Tx1_2"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahours	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
861	578757.70	4740641.27	2.48	0	DEN	32	72.4	0.0	0.0	0.0	0.0	70.0	0.0	-5.3	0.0	0.0	0.0	0.0	0.0	7.7
861	578757.70	4740641.27	2.48	0	DEN	63	78.4	0.0	0.0	0.0	0.0	70.0	0.1	-5.3	0.0	0.0	0.0	0.0	0.0	13.6
861	578757.70	4740641.27	2.48	0	DEN	125	80.4	0.0	0.0	0.0	0.0	70.0	0.4	4.1	0.0	0.0	0.0	0.0	0.0	6.0
861	578757.70	4740641.27	2.48	0	DEN	250	75.4	0.0	0.0	0.0	0.0	70.0	0.9	2.8	0.0	0.0	0.0	0.0	0.0	1.6
861	578757.70	4740641.27	2.48	0	DEN	500	75.4	0.0	0.0	0.0	0.0	70.0	1.7	-1.0	0.0	0.0	0.0	0.0	0.0	4.7
861	578757.70	4740641.27	2.48	0	DEN	1000	69.4	0.0	0.0	0.0	0.0	70.0	3.3	-1.6	0.0	0.0	0.0	0.0	0.0	-2.3
861	578757.70	4740641.27	2.48	0	DEN	2000	64.4	0.0	0.0	0.0	0.0	70.0	8.6	-1.6	0.0	0.0	0.0	0.0	0.0	-12.6
861	578757.70	4740641.27	2.48	0	DEN	4000	59.4	0.0	0.0	0.0	0.0	70.0	29.2	-1.6	0.0	0.0	0.0	0.0	0.0	-38.2
861	578757.70	4740641.27	2.48	0	DEN	8000	52.4	0.0	0.0	0.0	0.0	70.0	104.2	-1.6	0.0	0.0	0.0	0.0	0.0	-120.2

Point Source, ISO 9613, Name: "Inverter 22 and 23 Transformer", ID: "Tx22_23"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahours	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
900	578512.91	4739230.83	2.48	0	DEN	32	72.4	0.0	0.0	0.0	0.0	72.5	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	5.3

Point Source, ISO 9613, Name: "Inverter 22 and 23 Transformer", ID: "Tx22_23"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
900	578512.91	4739230.83	2.48	0	DEN	63	78.4	0.0	0.0	0.0	0.0	72.5	0.1	-5.5	0.0	0.0	0.0	0.0	0.0	11.2
900	578512.91	4739230.83	2.48	0	DEN	125	80.4	0.0	0.0	0.0	0.0	72.5	0.5	2.8	0.0	0.0	0.0	0.0	0.0	4.7
900	578512.91	4739230.83	2.48	0	DEN	250	75.4	0.0	0.0	0.0	0.0	72.5	1.2	1.3	0.0	0.0	0.0	0.0	0.0	0.4
900	578512.91	4739230.83	2.48	0	DEN	500	75.4	0.0	0.0	0.0	0.0	72.5	2.3	-2.6	0.0	0.0	0.0	0.0	0.0	3.2
900	578512.91	4739230.83	2.48	0	DEN	1000	69.4	0.0	0.0	0.0	0.0	72.5	4.3	-3.1	0.0	0.0	0.0	0.0	0.0	-4.3
900	578512.91	4739230.83	2.48	0	DEN	2000	64.4	0.0	0.0	0.0	0.0	72.5	11.5	-3.1	0.0	0.0	0.0	0.0	0.0	-16.4
900	578512.91	4739230.83	2.48	0	DEN	4000	59.4	0.0	0.0	0.0	0.0	72.5	38.9	-3.1	0.0	0.0	0.0	0.0	0.0	-48.8
900	578512.91	4739230.83	2.48	0	DEN	8000	52.4	0.0	0.0	0.0	0.0	72.5	138.7	-3.1	0.0	0.0	0.0	0.0	0.0	-155.6

Point Source, ISO 9613, Name: "Inverter 3 Transformer", ID: "Tx3"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
905	578664.66	4740330.21	2.00	0	DEN	32	68.4	0.0	0.0	0.0	0.0	69.0	0.0	-5.3	0.0	0.0	0.0	0.0	0.0	4.6
905	578664.66	4740330.21	2.00	0	DEN	63	74.4	0.0	0.0	0.0	0.0	69.0	0.1	-5.3	0.0	0.0	0.0	0.0	0.0	10.6
905	578664.66	4740330.21	2.00	0	DEN	125	76.4	0.0	0.0	0.0	0.0	69.0	0.3	4.0	0.0	0.0	0.0	0.0	0.0	3.0
905	578664.66	4740330.21	2.00	0	DEN	250	71.4	0.0	0.0	0.0	0.0	69.0	0.8	3.6	0.0	0.0	0.0	0.0	0.0	-2.0
905	578664.66	4740330.21	2.00	0	DEN	500	71.4	0.0	0.0	0.0	0.0	69.0	1.5	-0.0	0.0	0.0	0.0	0.0	0.0	0.9
905	578664.66	4740330.21	2.00	0	DEN	1000	65.4	0.0	0.0	0.0	0.0	69.0	2.9	-1.5	0.0	0.0	0.0	0.0	0.0	-5.0
905	578664.66	4740330.21	2.00	0	DEN	2000	60.4	0.0	0.0	0.0	0.0	69.0	7.7	-1.6	0.0	0.0	0.0	0.0	0.0	-14.7
905	578664.66	4740330.21	2.00	0	DEN	4000	55.4	0.0	0.0	0.0	0.0	69.0	26.1	-1.6	0.0	0.0	0.0	0.0	0.0	-38.1
905	578664.66	4740330.21	2.00	0	DEN	8000	48.4	0.0	0.0	0.0	0.0	69.0	93.0	-1.6	0.0	0.0	0.0	0.0	0.0	-112.1

Point Source, ISO 9613, Name: "Inverter 20 and 21 Transformer", ID: "Tx20_21"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
909	578363.87	4739230.83	2.48	0	DEN	32	72.4	0.0	0.0	0.0	0.0	73.3	0.0	-5.5	0.0	0.0	0.0	0.0	0.0	4.6
909	578363.87	4739230.83	2.48	0	DEN	63	78.4	0.0	0.0	0.0	0.0	73.3	0.2	-5.5	0.0	0.0	0.0	0.0	0.0	10.5
909	578363.87	4739230.83	2.48	0	DEN	125	80.4	0.0	0.0	0.0	0.0	73.3	0.5	3.0	0.0	0.0	0.0	0.0	0.0	3.5
909	578363.87	4739230.83	2.48	0	DEN	250	75.4	0.0	0.0	0.0	0.0	73.3	1.4	1.6	0.0	0.0	0.0	0.0	0.0	-0.8
909	578363.87	4739230.83	2.48	0	DEN	500	75.4	0.0	0.0	0.0	0.0	73.3	2.5	-2.3	0.0	0.0	0.0	0.0	0.0	1.9
909	578363.87	4739230.83	2.48	0	DEN	1000	69.4	0.0	0.0	0.0	0.0	73.3	4.8	-2.9	0.0	0.0	0.0	0.0	0.0	-5.8
909	578363.87	4739230.83	2.48	0	DEN	2000	64.4	0.0	0.0	0.0	0.0	73.3	12.6	-2.9	0.0	0.0	0.0	0.0	0.0	-18.6
909	578363.87	4739230.83	2.48	0	DEN	4000	59.4	0.0	0.0	0.0	0.0	73.3	42.6	-2.9	0.0	0.0	0.0	0.0	0.0	-53.7
909	578363.87	4739230.83	2.48	0	DEN	8000	52.4	0.0	0.0	0.0	0.0	73.3	152.1	-2.9	0.0	0.0	0.0	0.0	0.0	-170.1

Point Source, ISO 9613, Name: "Inverter 18 and 19 Transformer", ID: "Tx18_19"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
914	578204.95	4739230.83	2.48	0	DEN	32	72.4	0.0	0.0	0.0	0.0	74.1	0.0	-5.6	0.0	0.0	0.0	0.0	0.0	3.8
914	578204.95	4739230.83	2.48	0	DEN	63	78.4	0.0	0.0	0.0	0.0	74.1	0.2	-5.6	0.0	0.0	0.0	0.0	0.0	9.7
914	578204.95	4739230.83	2.48	0	DEN	125	80.4	0.0	0.0	0.0	0.0	74.1	0.6	3.3	0.0	0.0	0.0	0.0	0.0	2.4
914	578204.95	4739230.83	2.48	0	DEN	250	75.4	0.0	0.0	0.0	0.0	74.1	1.5	1.8	0.0	0.0	0.0	0.0	0.0	-2.0
914	578204.95	4739230.83	2.48	0	DEN	500	75.4	0.0	0.0	0.0	0.0	74.1	2.8	-2.1	0.0	0.0	0.0	0.0	0.0	0.6
914	578204.95	4739230.83	2.48	0	DEN	1000	69.4	0.0	0.0	0.0	0.0	74.1	5.2	-2.7	0.0	0.0	0.0	0.0	0.0	-7.3
914	578204.95	4739230.83	2.48	0	DEN	2000	64.4	0.0	0.0	0.0	0.0	74.1	13.8	-2.7	0.0	0.0	0.0	0.0	0.0	-20.9
914	578204.95	4739230.83	2.48	0	DEN	4000	59.4	0.0	0.0	0.0	0.0	74.1	46.9	-2.7	0.0	0.0	0.0	0.0	0.0	-58.9
914	578204.95	4739230.83	2.48	0	DEN	8000	52.4	0.0	0.0	0.0	0.0	74.1	167.3	-2.7	0.0	0.0	0.0	0.0	0.0	-186.3

Point Source, ISO 9613, Name: "Inverter 16 and 17 Transformer", ID: "Tx16_17"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
919	578036.44	4739230.83	2.48	0	DEN	32	72.4	0.0	0.0	0.0	0.0	74.9	0.1	-5.6	0.0	0.0	0.0	0.0	0.0	3.0
919	578036.44	4739230.83	2.48	0	DEN	63	78.4	0.0	0.0	0.0	0.0	74.9	0.2	-5.6	0.0	0.0	0.0	0.0	0.0	8.9
919	578036.44	4739230.83	2.48	0	DEN	125	80.4	0.0	0.0	0.0	0.0	74.9	0.6	3.4	0.0	0.0	0.0	0.0	0.0	1.5
919	578036.44	4739230.83	2.48	0	DEN	250	75.4	0.0	0.0	0.0	0.0	74.9	1.6	1.8	0.0	0.0	0.0	0.0	0.0	-3.0
919	578036.44	4739230.83	2.48	0	DEN	500	75.4	0.0	0.0	0.0	0.0	74.9	3.0	-2.0	0.0	0.0	0.0	0.0	0.0	-0.6
919	578036.44	4739230.83	2.48	0	DEN	1000	69.4	0.0	0.0	0.0	0.0	74.9	5.8	-2.6	0.0	0.0	0.0	0.0	0.0	-8.7
919	578036.44	4739230.83	2.48	0	DEN	2000	64.4	0.0	0.0	0.0	0.0	74.9	15.2	-2.6	0.0	0.0	0.0	0.0	0.0	-23.2
919	578036.44	4739230.83	2.48	0	DEN	4000	59.4	0.0	0.0	0.0	0.0	74.9	51.6	-2.6	0.0	0.0	0.0	0.0	0.0	-64.5
919	578036.44	4739230.83	2.48	0	DEN	8000	52.4	0.0	0.0	0.0	0.0	74.9	184.0	-2.6	0.0	0.0	0.0	0.0	0.0	-203.9

Point Source, ISO 9613, Name: "Inverter 15 Transformer", ID: "Tx15"																				
Nr.	X	Y	Z	Refl.	DEN	Freq.	Lw	l/a	Optime	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	Lr
	(m)	(m)	(m)			(Hz)	dB(A)	dB	dB	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)
923	578021.44	4739459.94	2.00	0	DEN	32	68.4	0.0	0.0	0.0	0.0	74.4	0.0	-5.6	0.0	0.0	0.0	0.0	0.0	-0.5
923	578021.44	4739459.94	2.00	0	DEN	63	74.4	0.0	0.0	0.0	0.0	74.4	0.2	-5.6	0.0	0.0	0.0	0.0	0.0	5.4

Appendix E: Electronic Modelling Files
(In separate file)
