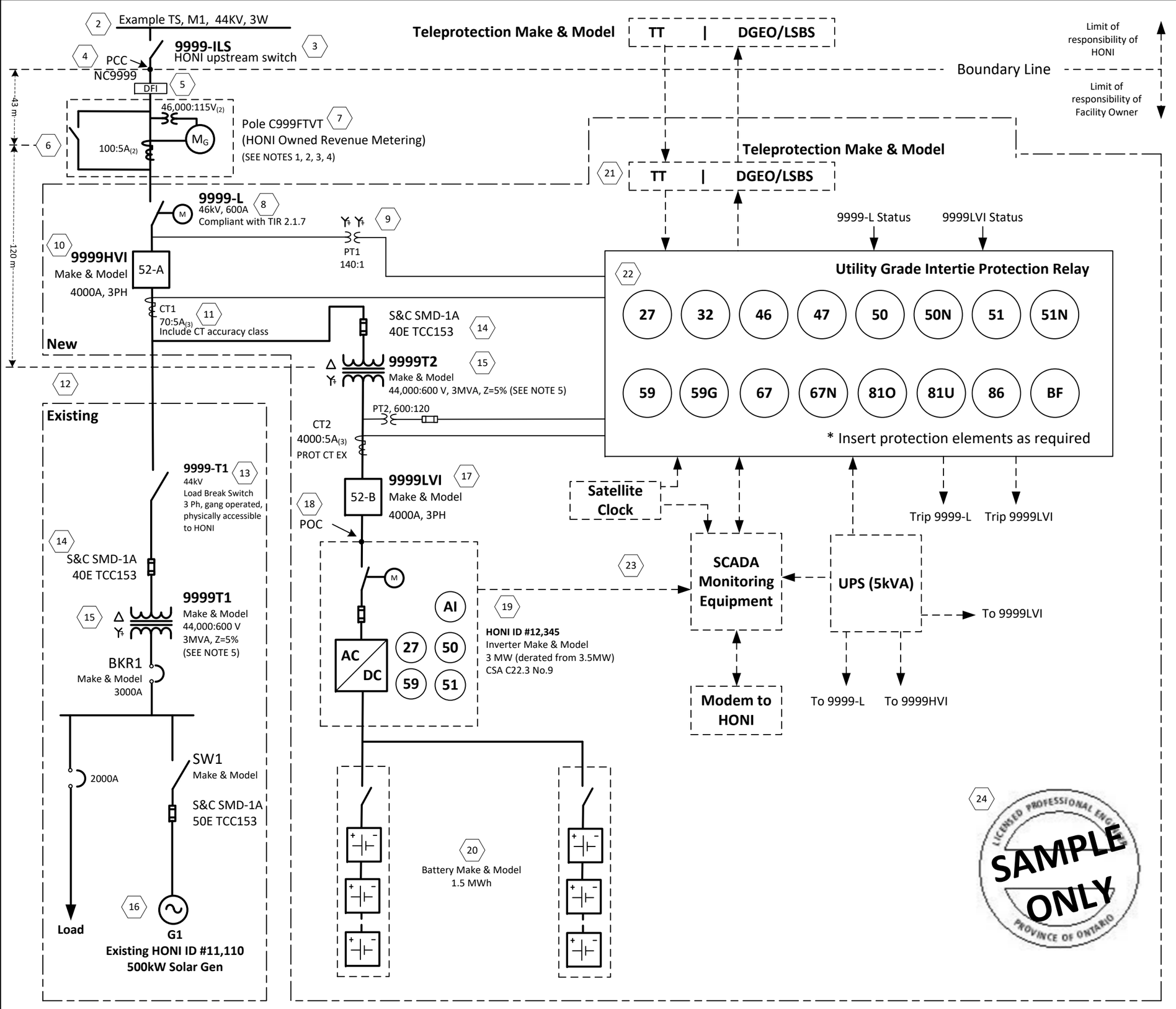

SLD CHECKLIST

1. The legal name of the facility owner, facility address/location, project type/purpose, Hydro One assigned project ID, and revision history should be included in the title block

. . .

X. **See attached table for remaining important items. Note, please <u>do not</u> include the hex markers on the official single line diagram (SLD) submitted to Hydro One Networks. They are shown here for illustration only**

NOTES:

1. Colour code of the revenue metering instrument transformers secondary wiring shall match the overhead phase conductors
2. Quantity: 2, 100:5A, Measurement of Canada approved current transformer AE-1653, 0.15B0.9 CCRF=1.5
3. Quantity:2, 46000:115V Measurement of Canada approved voltage transformer AE-2160r3, 0.3WXY, 250kV BIL
4. Length of wire between instrument transformer and meter
5. Transformer owned by ABC Inc

DISCLAIMER: This sample SLD shall only be used to highlight some of the main information that must be shown on the SLD submitted to Hydro One Networks Inc. (HONI). All design decisions must be made by the proponent and meet the minimum requirement set forth in the "HONI Distributed Generation Technical Interconnection Requirements Interconnections at Voltages 50kV and below" (TIR). Due to limited space, only some of the required items are shown. The rest of the information is indicated in the notes table related to each number.

NO	REVISION/ISSUE	DATE
02	Added new metering information	2025/12/17
01	Revised as per HONI comments	2020/11/18
00	Initial SLD for HONI review	2020/07/13

PROJECT: 1

Customer Name
Customer Address Line 1
Customer Address Line 2

Project Type/Purpose: Net Metering, Load Displacement, other (please specify)

HONI Project ID: #12,345
Other Info

ABC Inc. LOGO

ABC Inc.

DWG NAME: BEHIND THE METER EXAMPLE SLD

DATE: YYYY/MM/DD	DRAWN:	CHECKED:
2020/07/13	S. Matti	S. Hughes

DWG NO:	SHEET NO:	REV NO:
DG12345_SLD	1 of 1	02

Sample SLD Notes Table

Item Number	Information to Include
1	The title block should include: • The legal name of the facility owner • Facility address/location • Project Type/Purpose: Net Metering, Load Displacement, other (please specify) • HONI assigned project ID • Revision history
2	• State Hydro One Networks Inc (HONI) distribution and transmission facility (station) name(s) • State the name of HONI station feeder to which the generator is connected • State the nominal distribution supply voltage (eg. 44kV) • State the information for the upstream and downstream switches closest to the Point of Common Coupling (PCC) such as nomenclature, type, etc.
3	• HONI to assign nomenclature for this switch. Note: initial submission can have the consultant/customer assigned nomenclature if a HONI designation is not yet available. Later, the customer is assigned a HONI designation, which should be added to the single line diagram (SLD) and resubmitted to HONI before the SLD is considered finalized. The consultant/customer then has the option to replace the initial designation with HONI designation or keep both. Ensure the HONI designation is clearly marked to differentiate it from the consultant/customer designation (bolded, in brackets, etc). Item 3 has an example showing only HONI designation, while item 17 shows an alternate method that shows both designations. HONI only refers to the HONI designation when dealing with the customer. Example, when witnessing the switch used for work protection as per Section 2.1.7 of the "HONI Distributed Generation Technical Interconnection Requirements Interconnections at Voltages 50kV and Below" (TIR). When submitting the new SLD with the changes, a higher revision number of the SLD should be used to track the changes. See SLD example.
4	• PCC demarcation Point. • HONI designated facility operating designation (NCXXXX) • If the nomenclature is not included, the SLD is considered incomplete. Note: The PCC is the point of demarcation between HONI and the Distributed Energy Resource (DER) facility. It is the point where the DER Facility is to connect to HONI's Distribution System
5	• Fault indicators with directional functionality are required for each phase between the PCC and the first pole on the customer owned new line and should be visible from the PCC location • Only required for new customer owned lines • The proponent must submit s directional fault indicator (DFI) specifications for review
6	• For new customer owned line, provide the length(s), ownership, and size(s) of line(s) from PCC to the meter. This data is used for Site Specific Loss Adjustment (SSLA) determination. The metering point is at the location of the current transformers (CTs) and not the physical meter. • To comply with TIR Section 2.1.6
7	• This SLD example shows a primary metering configuration

	• For cases where a secondary metering configuration is used, metering must be located immediately following (downstream of) the service box. For more details, please refer to: https://www.hydroone.com/businessservices_/Documents/Hydro-One-Retail-Metering-Standards-Guide.pdf
8	• HONI designation • Voltage rating • Current rating • Indicate which device is complaint with TIR, Section 2.1.7 Alternatively, switch information can be shown on SLD as per item number 13 Note 1: the motorized switch requirement in TIR Section 2.1.7 (iii) is only required if the device is used for breaker failure (BF) purposes. Note that TIR Section 2.3.4 (ix) exempts DER ≤500kW from BF requirements. Note 2: initial submission can have the proponent assigned nomenclature if a HONI designation is not yet available. Later, the proponent is assigned a HONI designation, which should be added to the SLD and resubmitted to HONI before the SLD is considered finalized. The proponent then has the option to replace the initial designation with HONI designation or keep both. Ensure the HONI designation is clearly marked to differentiate it from the proponent designation (bolded, in brackets, etc). HONI only refers to the HONI designation when dealing with the proponent. Example, when witnessing the switch used for work protection as per Section 2.1.7 of the TIR, HONI staff refer to the switch using HONI nomenclature. When submitting the new SLD with the changes, the SLD revision number must be incremented to track the changes. See SLD example.
9	• Voltages must be detected at PCC as per TIR, Section 2.3.11 (iv)
10	• HONI designation • Manufacturer make/model • Current rating • Single/three-phase
11	• State the number of CTs being used • State the CT ratios including both ratios if they are dual ratio • State the in-use CT ratio if dual ratio • State the ANSI/CSA CT accuracy class information
12	• Clearly identify existing and new facility if applicable • If a new equipment (ex. transformer) is being replaced in an existing facility, it should be indicated • Ensure all existing generators or backup generators are shown
13	• HONI designation must be shown • Voltage rating • Current rating • Type of switch • Single/three-phase • Physically accessible to HONI

	Preferably, switch information can be shown on SLD as per item number 8
14	Fuse information to include: • Fuse rating • Manufacturer make/model • Fuse type on the SLD • Example: S&C SMD-1A 50E TCC153
15	Transformer Information to include: • Transformer winding configuration • Transformer HONI designation • Manufacturer make/model of the transformer • Transformer rating • Transformer ratio • Transformer impedance • Transformer ownership • Please draw the Canadian Standards Association (CSA)/American National Standards Institute (ANSI) symbol for a transformer (do not use a box with label) Note: on a HONI 4-wire distribution system, temporary over-voltage (TOV) that may be caused by the DER facility connection shall not exceed 125% of nominal system voltage (line to neutral) anywhere on the distribution system and under no circumstance shall exceed 130%. HONI may advice an action needed to reduce TOV to limits by requiring a grounding transformer on the HV side. See TIR Section 2.1.10 for more details.
16	• Please detail where the existing Feed-in Tariff (FIT)/micro-FIT generator/meter are connected. • Include HONI ID • Show existing load • Capacity • Type For new generators: • Show the generator(s) connection(s) to the power transformer(s) • Show the operating nomenclature of the generator(s) (e.g. G1, G2, etc.) • State the nameplate capacity of the generator or individual generators, where there is more than one, in kVA/ VA. or kW/MW • For solar, state the size(s) and number of inverter(s) • State the operating power factor (PF) • State connection type (Wye, Delta, etc.) and indicate grounding • State whether the generator is induction or synchronous type
17	• HONI designation • Manufacturer make/model • Current rating • Single/three-phase Note: initial submission can have the consultant/customer assigned nomenclature if a HONI designation is not yet available. Later, the customer is assigned a HONI designation, which should be added to the SLD and resubmitted to HONI before the SLD is considered finalized. The consultant/customer then has the option to replace the initial designation with HONI designation or keep both. Ensure the HONI designation is clearly marked to differentiate it from the consultant/customer designation (bolded, in

	brackets, etc). Item 3 has an example showing only HONI designation, while item 17 shows an alternate method that shows both designations. HONI only refers to the HONI designation when dealing with the customer. Example, when witnessing the switch used for work protection as per Section 2.1.7 of the TIR. When submitting the new SLD with the changes, a higher revision number of the SLD should be used to track the changes. See SLD example.
18	• The Point of DER Connection (POC) is the point where DER unit(s)'s interconnection system connects the DER unit(s) to the DER facility. • Depending on the facility, it can be the same as the PCC
19	• Include HONI Project ID # • Inverter manufacturer make/model • MW rating • IEEE/ANSI protection elements need to be noted for the customer's inverters • Include CSA Certification • Where an inverter is derated, state both the nameplate capacity and the derrated value
20	• Manufacture make/model • MWh rating • Include information for gross load billing where required
21	• Teleprotection equipment make/model • Flow of information/signals
22	• Relay manufacturer make/model • CSA/ANSI Device numbers used • Flow of information signals Note: as per TIR Section 2.3.6 (Table 10, footnote 15): Three-phase DER facilities up to 500kW comprised of a single three-phase inverter unit that is CSA certified and bears certification mark recognized by Ontario Electrical Safety Code (OESC) shall be deemed complaint to Table 10. DER facilities that consist of multiple three-phase inverters or multiple single-phase inverters shall comply with Section 2.3.6 of TIR.
23	Flow of signals between devices
24	Other general information required: • SLD must be stamped and signed by a Registered Professional Engineer (P. Eng) in the Province of Ontario • All information on the SLD must be legible, and of a reasonably sized font for ease of reading • The Connection Impact Assessment provides details regarding the type and configuration of isolation devices required. • The DER facility must comply with all applicable interconnection requirements specified in the TIR.