



**Electrical
Safety
Authority**

Guideline for Third Party Attachments

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Electrical Distribution Safety

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1.0 General

1.1 Purpose of Guideline.

This guideline has been prepared to provide guidance to *distributors* on how to comply with section 7 “Approval of plans, drawings and specifications for installation work” and section 8 “Inspection and approval of construction” of Ontario Regulation 22/04 Electrical Distribution Safety. Specifically this guideline addresses all third party *attachments* to the *distribution systems* of licensed *distributors*.

This guideline is to be read in conjunction with Regulation 22/04. As a condition to using its *distribution systems*, each *distributor* will need to engage an auditor on an annual basis to prepare an audit report and demonstrate compliance with sections 4, 5, 7 and 8 of the *Regulation*, related to third party *attachments*.

This guideline along with the *Regulation* and other appropriate standards form the basis on which the ESA will assess the safety of the electrical distribution installations within the Province of Ontario.

Notes within this document are not to be considered any different from any other information in this guideline.

1.2 Condition of Attachment.

All companies who wish to place *attachments* on a *distributor’s structure* should have an agreement that allows the “*attacher*” to request these same *attachments*.

1.3 Definitions

1.3.1 “**accounted for**” means something that can be demonstrated by the original plans, approved standards and work instructions leaving provisions (e.g. loading, clearances and separations) for future attachments. Where the plans, approved standards and work instructions are not available, installed infrastructure may demonstrate they were *accounted for*, such as extra ducts for underground or brackets installed on structures for overhead.

Note: Definition relates to “Working with Previous Editions of the Overhead and Underground Standards”.

1.3.2 “**attacher**” means the party making or applying for permission to attach to the *distributor’s* supporting structure (such as a pole or anchor).

1.3.3 “**attachment**” means a single connection of the *attacher’s* equipment to the *distributor’s supporting structure* that has a direct or indirect influence on the performance, appearance, and safety of the *supporting structure* or the *distributor’s* ability to access and maintain it. The *attacher* may have multiple attachments to a *supporting structure* (such as a pole or anchor).

1.3.4 “**certificate**” means a certificate issued by a *professional engineer*, ESA or a *qualified person* identified in the *distributor’s* construction verification program, that the construction meets the safety standards set out in Section 4 of the *Regulation*.

1.3.5 “**certificate of approval**” means the document issued by a *professional engineer* or ESA confirming that a *plan* or *standard design* meets the safety standards set out in section 4 of the *Regulation* and provided to the *distributor*.

1.3.6 “**certificate of deviation**” means the document issued by a *professional engineer* confirming that part of the safety standard set out in section 4 of the *Regulation*, is not met and that failure to meet the identified standard(s) will not materially affect the safety of any persons or property.

- 1.3.7 “**construction verification**” means the inspection, approval and documentation of any new construction or repairs to *distribution systems* including replacements of part or portion of a *distribution system*, *like-for-like replacements*, and *legacy construction* replacement with respect to the safety standards set out in Section 4 of the *Regulation*.
- 1.3.8 “**competent person**” means a person who,
- a) is qualified because of knowledge, training and experience,
 - (i) to perform specific work, or
 - (ii) to organize work and its performance,
 - b) has knowledge of any potential or actual danger to health or safety in the workplace in relation to the work, and
 - c) is familiar with section 113 of the Act and the regulations made under it, and with the Occupational Health and Safety Act and the regulations made under that Act, that apply to the work. O. Reg.22/04;
- 1.3.9 “**distribution system**” means a system for distributing electricity, and includes any *structures*, *equipment* or other things used for that purpose.
- 1.3.10 “**distributor**” means a person who owns or operates a *distribution system* in the service territory defined in the electricity distribution license issued by the Ontario Energy Board (OEB).
- Note: Where a *distributor* is also an *attacher*, that *distributor* is considered to only be an *attacher* for the purposes of this guideline.
- 1.3.11 “**equipment**” means any apparatus, device, material used for the distribution of electricity or communication, including materials that are non-electric in origin.
- 1.3.12 “**Good Utility Practice**” means any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry in North America during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts

known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in North America (OEB).

1.3.13 **“legacy construction”** means existing construction built in accordance with *Good Utility Practice*, that does not meet current *standard designs*.

1.3.14 **“like-for-like replacement”** means the replacement of one piece of electrical *equipment* (one assembly) under all conditions, or a part or portion of a line under emergency conditions, on an existing *distribution system* that maintains as a minimum the characteristics and functionalities of the original installation.

Note: See Subsection 2.3 regarding “Like-for-Like Replacement for Attachments” for more information.

1.3.15 **“make-ready work”** consists of the practice of rearranging, installing or removing *equipment* in order to safely accommodate additional infrastructure.

1.3.16 **“materially insignificant”** work that consists of any replacement, alteration, upgrades or addition of new structural loads that does not materially change the existing electrical installations, as determined by the *distributor* (typically relating to forces on poles & strength of poles).

1.3.17 **“no undue hazard”** for the purpose of *construction verification* of an electrical installation where indicated in this guideline means that:

- metal parts that are not intended to be energized and that are accessible to unauthorized persons are adequately grounded,
- live parts are adequately insulated or barriered,
- the installation meets the minimum CSA clearances from buildings, signs and ground or barriers are installed to protect,
- the *structure* has adequate strength

where adequate means in accordance with *Good Utility Practice*.

1.3.18 “**plan**” means the drawings and instructions that are prepared for the construction of new or modified *distribution system* that have been reviewed and approved by a *professional engineer* or ESA.

1.3.19 “**professional engineer**” means a person who holds a license or temporary license under the Professional Engineers Act (Reg. 22/04)

Note: This includes all licensed engineering practitioners.

1.3.20 “**qualified person**” means a person identified in a *construction verification* program developed by the *distributor* and approved by ESA for the purpose of inspection and approval of construction;

1.3.21 “**record of inspection**” means a record prepared by a *professional engineer*, ESA, or a *qualified person* identified in the *distributor’s construction verification* program, detailing the inspection of a constructed or repaired portion of an electrical *distribution system* with respect to the safety standards set out in section 4 of the *Regulation*.

1.3.22 “**Regulation**” means the Ontario Regulation 22/04 – Electrical Distribution Safety.

1.3.23 “**review**” means it is expected that the *plan* or *work instruction* will be examined by the *distributor* to ensure that the “Minimum Review Document Requirements for Proposed *Attachments* on Distributor Structures” exist on the approved *plan* or *work instruction*. More information on the drawing requirements can be found in Appendix A. The examination of a project’s *plan* or *work instruction* does not require re-engineering. For example engineering work, such as loading calculations, are not required to be confirmed/calculated by the *distributor*.

Note: Re-engineering is not required; however it is the *distributor* that determines the process for undertaking a *review* of *attacher* developed *plan* or

work instruction. The *distributor* shall examine to ensure the *plan* or *work instruction* meets the requirements of the *Regulation* and the *certificate of approval* covers all of the proposed construction.

1.3.24 “**service drop**” means a small light-weight single communication cable or wire between a *structure* and customer's residence or place of business. The cable or wire shall be affixed to a *structure* or existing messenger, constructed per the engineered "service drop" standard.

Note: The *distributor should* establish a maximum lateral load to the *structure*.

1.3.25 “**should**” means a recommendation that is advised but not required.

1.3.26 “**standard designs**” means the standards such as standard design drawings, standard design specifications, technical specifications, and construction standards that have been reviewed and approved by a *professional engineer* or ESA for use by an *distributor* or *attacher* and that the *distributor* or *attacher* has authorized for use on an ongoing basis for the construction, operation, and maintenance of its plant in relation to the *distribution system*.

1.3.27 “**structure**” — the main supporting unit for a supply line and/or communication line. Note: A *structure* can be

- a) a pole made of wood, concrete, fibre-reinforced composite, or metal;
- b) a lattice steel tower; or
- c) a cable suspension system.

1.1.28 “**support**” — a pole, tower, foundation, guy, crossarm, pin- or post-type insulator, fastening, or other component used to support wire or cable attachments.

1.1.29 “**supporting structure**” — a *structure* and its *supports*.

1.3.30 “**where practicable**” means that it is not intended to provide an opportunity for not meeting this guideline, but indicates the preferred clearance

or method. Where an alternative is not specified, the engineering solution that most closely adheres to the preferred method *should* be used.

- 1.3.31 “**work instruction**” means the assembly of *standard designs* into drawings and instructions prepared by a *competent person* in accordance with the *distributor’s* or *attacher’s* job planning process used for the installation of the *attacher’s* new or modified *equipment* on the *distributor’s supporting structure*.

2.0 Third Party Attachment Process.

2.1 What is required under section 7 of Regulation 22/04?

Starting February 11, 2005 under section 7 of the *Regulation*, before beginning work on a *distribution system* (new, repairs, alterations or extensions) a *distributor* shall ensure that installation work is based on,

- a *plan* that has been reviewed and approved by a *professional engineer* or ESA and a *certificate of approval* provided to the *distributor*, or
- a *work instruction* that has been based on *standard designs* that have been reviewed and approved by a *professional engineer* or ESA and for which *certificates of approval* have been provided to the *distributor*.

After approval, the *Regulation* allows the *attacher* to utilize *standard designs* for work on *distribution systems* without further design approvals being required by a *professional engineer* or ESA. *Standard designs* shall be maintained to current requirements (e.g. CSA C22.3, OESC). At the time of approving a *standard design* the *professional engineer* must have a Licence Status of “Permitted to practice” with the Professional Engineers of Ontario (PEO), additional information may be found in ESA guidelines or bulletins. The *attacher* may prepare *work instructions* using its own *standard designs* in accordance with its job planning process.

2.2 Exemption of *Service Drops* from Audit Requirements.

The installation and removal of *service drops* are exempted from the audit requirements of section 7 and section 8 of the *Regulation*. *Service drops* are not exempt from sections 4,5,7 or 8 of the *Regulation* and as such, must meet CSA C22.3, No. 1 Overhead Systems or C22.3, No.7 Underground Systems.

2.3 Like-for-Like Replacement for Attachments.

Like-for-like replacement, line repair or replacement work of the *attacher's equipment* done under emergency conditions (i.e. trouble calls), transfer of *equipment* or *attacher* maintenance programs are exempted from the requirements of section 7 of the *Regulation*. However, such work is to be inspected by a *qualified person* to confirm that it presents *no undue hazards*. When a transfer of *equipment* is proposed by a *distributor* or an *attacher* it shall be considered a *like-for-like replacement* and shall be subject to the process for completing *records of inspection* and *certificate* (sometimes accomplished through a statement of *no undue hazards*), as identified in the *distributor's* Construction Verification Program.

2.4 Additional Guideline References to Third Party Attachment.

Further references to third party *attachments* can be found in the Technical Guideline for Section 7 and the Technical Guideline for Section 8.

2.5 Design – Approval of Plans or Work Instructions

Starting February 11, 2005 under section 7 of the Regulation, before beginning work on a third party *attachment* or effecting repairs (other than *like-for-like replacement* and maintenance with *legacy construction* subject to authorization by a *professional engineer*), alterations or extensions of an existing third party *attachment*

- a *plan* must be reviewed and approved by a *professional engineer* or ESA and a *certificate of approval* provided to the *distributor*,
- or**
- a *work instruction* must be based on *standard designs* that have been reviewed and approved by a *professional engineer* or ESA and for which *certificates of approval* have been provided to the *distributor*.

After approval, the *Regulation* allows the utilization of *standard designs* for work without further design approvals being required by a *professional engineer* or ESA. *Work instructions* may be prepared using the approved *standard designs* in accordance with a job planning process.

Any complete or portion of a *plan* or *work instruction* completed by an attacher is to be *reviewed* by the *distributor*. The *review* is of both the *plans/work instruction* and the *certificate of approval*. When the *distributor* is satisfied with the *plans/work instruction* and *certificate of approval*, permission is granted to proceed with construction.

The *attacher* shall satisfy the *distributor* as to the qualifications of its *competent person*, if requested by the *distributor*.

See Appendix A for examples of what information may be required to be provided to prepare the *plan* or *work instruction*. If both parties agree, different levels of information may be required and provided than identified in Appendix A.

2.5.1. Working with Previous Editions of the Overhead and Underground Standards

For designs the following numbered bullets are direction that apply to all work deemed non-emergency work (for additional information see the ESA Guideline for Regulation 22/04 Section 7) or not *materially significant* work (see paragraph 2.5.2).

For examples of the numbered bullets below, please see Appendix B.

1. Existing overhead and underground lines that have been constructed in compliance with a prior version of the Standards, may remain in service in the event of subsequent revisions of the Standards, and need not be

- modified to comply with the current Standard editions or the Standard editions identified in Regulation 22/04.
2. New line sections shall comply with the current Standard editions or the Standard editions identified in Regulation 22/04.
 3. Replacement or alteration of existing non-*structure equipment* (including conductors, insulators and other equipment), for the repair or replacement of failed or failing components, is permitted to meet the edition of the Standard in force at the time of the line's original design, and need not be modified to comply with current Standard editions.
 4. Replacement of existing *distributor structures*, meeting the *like-for-like replacement* definition (e.g. maximum limit of 1 dressed pole – see Technical Guideline Section 7 for more information), for the repair or replacement of failed or failing components, is permitted to meet the edition of the Standard in force at the time of the line's original design, and need not be modified to comply with current Standard editions. All other replacements of *structures* shall comply with the current Standard editions or the Standard editions identified in Regulation 22/04.
 5. Altering or adding new structural loads to a *structure* that were *accounted for* by the original design and that meet the requirements of the edition of the Standard in force at the time of the line's original design, is permitted (contingent on the approval from the *structure* owner) to meet the edition of the Standard in force at the time of the line's original design and need not be modified to comply with current Standard editions. All other alterations or additions of new structural loads to a *structure* shall comply with the current Standard editions or the Standard editions identified in Regulation 22/04.
 6. Altering or adding new structural loads to a *structure* that were *un-accounted for* by the original design shall comply with the current Standard editions or the Standard editions identified in Regulation 22/04.

7. Non-*structure* upgrades, such as voltage conversions, where the original design meets the edition of the Standard in force at the time of the line's original design, is permitted to use the edition of the Standard in force at the time of the line's original design.

2.5.2. Materially Insignificant Work

The *distributor* determines if the proposed work is deemed *materially insignificant*.

A *certificate of approval* signed by a *professional engineer (attacher or distributor)*, shall accompany any request for an attachment to be considered *materially insignificant*. The *certificate of approval* shall be in a format agreed upon by the party's involved. The *distributor* then examines the request & declaration and deems the proposed work as either "*materially insignificant*" or "*not materially insignificant*".

The *distributor* can exempt *materially insignificant* work from the audit requirements of Sections 7 and/or 8 of Regulation 22/04 and that work will be deemed in compliance with Regulation 22/04.

For examples of *materially insignificant*, please see Appendix C.

2.5.3. Recognized Uses of Certificates of Deviation

Certificates of deviation shall be used to address when part of the safety standards set out in section 4 and 5 of the Regulation would not be met.

Certified Lists of Deviations - The *distributor* may allow, establish or utilize a certified list of deviations from required standards, if the *distributor* deems it appropriate to do so. The certified list of deviations shall meet the requirements of Regulation 22/04 – Section 9 and where that section is not applicable the deviations are to be *professional engineer* approved and state the failure to meet the standards will not materially affect the safety of any person or property. For an example of a Certified List of Deviations, please see Appendix D.

2.5.4. Make-Ready Work

ESA recognizes that some *make-ready work* may not be deemed as required to be completed, prior to the work that identified the *make-ready work* starting. The *distributor* determines if the proposed *make-ready work* is deemed required to be completed, prior to the work that identified the *make-ready work* starting. A *certificate of approval* or *certificate of deviation* signed by a *professional engineer (attacher or distributor)*, may identify *make-ready work* as something that is not required to be completed, prior to the work that identified the *make-ready work* starting. The *certificate of approval* or *certificate of deviation* shall be in a format agreed upon by the party's involved. The *distributor* reviews the proposed design including the *certificate of approval* or *certificate of deviation* and if it is accepted by the *distributor* the work may start without the completion of identified *make-ready work*. For more information, the Regulation 22/04 Technical Guidelines: Approval of Designs, Equipment and Construction address how to deal with deviations from approved *standard designs* or *plans*, and the safety standards (see Sections 4 & 5 of Regulation 22/04). For examples of using *certificates of deviation* to address *make-ready work*, please see Appendix E.

2.5.5. Application for Licensed Occupancy of Structures.

Accompanying the *plan, standard designs* or *work instruction* should be an Application for Licensed Occupancy of Structures (or Poles) form filled out accordingly. This requested application is to include the details from Appendix A as required. This application may also have the *structure* markings that the *distributor* has installed in the field for clarity for current and future records.

2.5.6. In-Span Structures and Overhead Unsupported Conductors

Pole replacement project work sometimes include in-span (i.e. mid-span) poles to be created for a temporary period of time. This work is commonly

referred to as “pole stumping”, “double poling”, “cutting off the tops of poles”, “pole topping” or similar.

The following direction aligns with a proposal to amend subparagraph 5.8.3.3 of C22.3 No.1 Overhead Systems, that is under consideration for the 2025 edition.

Distributors may follow the direction below in the preparation of *plans, standard designs* or *work instructions*, and remain in compliance with Regulation 22/04.

Where communication lines are in joint-use with supply conductors rated up to 50 kV, in-span *structures* that do not support all supply and communication lines shall be avoided unless all of the following conditions are met:

- a) The in-span pole is associated with a pole replacement project, and only exists for the duration of the pole replacement project. The pole replacement project *should* not exceed a 2-year period.
- b) A working space at the in-span pole is provided by:
 - I. mechanical protection that is installed for the safety of workers on the in-span pole, that is agreed upon by the parties involved; or
 - II. the following minimum clearances are met between the communication attachment at the in-span pole, and the unsupported supply plant under maximum sag conditions:
 - i. 1000 mm for supply plant less than 750V;
 - ii. 2500 mm for supply plant greater than 750V and less than 22kV; and
 - iii. 3600 mm + 0.01 m/kV for supply plant over 22kV.
- c) The new pole is installed within 3m of the in-span pole’s location, *where practicable*; and

- d) The separation at the in-span pole between top of pole and the highest communication attachment point is between 100 mm to 200 mm, when mechanical protection is not installed.

Note: Voltages are rms line-to-ground.

For recommendations and a figure regarding in-span *structures* and overhead unsupported conductors, please see Appendix F.

2.5.7. Software-Based Engineering Tools

Professional engineers are responsible for all aspects of the design or analysis they incorporate into their engineering package for the proposed work. Software-based engineering tools can be approved for use in a similar manner as the approval of *standard designs*, for compliance with Regulation 22/04 – Section 7. This may include defining the scope which the software can be used, similar to notes within a *standard design*. Where software-based engineering tools are used by a third party *attacher* as part of a *plan* or *work instruction*, the *certificate of approval* shall be made available upon request by either the *distributor* or ESA.

Note: For more information, the following material is available to review. PEO Guideline: Professional Engineers Using Software - Based Engineering Tools.

The distributor may stipulate the software and associated settings to use when analyzing the loading of supporting structures. This would ensure supporting structures are analyzed consistently among all parties.

Note: The software and associated settings are especially important when permitting the use of load non-linearities. Refer to C22.3 No.1 Overhead Systems for more information.

3.0 Inspection and Approval of Construction.

3.1 Record of Inspection and a Certificate

Once the new *equipment* has been installed or the modifications to an existing *attachment* have been completed, a *professional engineer*, ESA or a *qualified person* identified in the *distributor's* Construction Verification Program must prepare a *record of inspection* and a *certificate*. The *distributor* will keep completed *records of inspection* and *certificates* (see Documentation Section 4.0 below for more information).

Attachers may submit documentation to a *distributor*, which contains material for consideration, for inclusion within a *distributor's* Construction Verification Program. *Distributors* and the *attachers* that work within many *distributor* service territories may both benefit from the consistency of *attacher* generated documentation.

A person (other than a *professional engineer* or ESA) carrying out an inspection of construction shall have undergone training, in regards to the construction verification program.

The recommended construction verification program refresher-training interval is 1 year. The construction verification program refresher-training interval can be extended up to 2 years with documented agreement by ESA (the documentation can be located within the construction verification program or be separate documentation).

3.2 Field Visits

Initial contact is required prior to the commencement of work and field visits may be required from time to time. Both parties *should* agree if a joint field visit is required.

3.3 Who can be designated as *Qualified Persons* to inspect?

A *qualified person* may be an employee of the *attacher*, but they must be identified in the *distributor's* approved Construction Verification Program. It is the responsibility of the *distributor* to determine the qualifications necessary to designate the *attacher's* employees as qualified in the Construction Verification Program. Alternatively the *distributor* may choose to complete all of the inspections.

3.4 Confirmation of Compliance.

The *distributor* is responsible for the safety of the *distribution system* and all work completed on it. If the *distributor* has designated employees of an *attacher* as *qualified persons*, it *should* complete an annual confirmation appraisal of the work inspected and certified by the *attacher*. Once a year, a sample (suggested rate 10% to 15%) of the new "Application for Licensed Occupancy of Structure (or Pole)" locations taken out that year, may be audited for compliance.

4.0 Documentation

The *distributor* is to retain the *records of inspection* and *certificates* and make them available to the ESA upon request for a period of at least one year after the annual audit, following construction completion, for audit purposes.

5.0 Appendices

Appendix A - Minimum Review Document Requirements for Proposed *Attachments* on Distributor Structures.

Note: If both parties agree, different levels of information may be required and provided.

Required Documents

- a. Completed Distributor Application
- b. Design *Plan* or *Work Instruction* Drawing
- c. *Attacher Standard Designs* with *Certificate of Approval*
- d. Software Based Engineering Tool Report
- e. Software Based Engineering Tool File

General Requirements

- a. Name & contact information of the Project Manager for the specific application
- b. Identification of the owner of the proposed attachment
- c. Identification of any third party consultant (e.g. *professional engineer*) performing the design work
- d. Proposed and existing Bundle diameters and weights.

Basic Drawing Requirements (applies to all drawings)

- a. Title block (name of *attacher*, date, drawing/project number, drawing revision number, location of project)
- b. Language: English/French as appropriate
- c. Scale or Dimensions (where applicable): Metric
- d. Scale Size (where applicable)
- e. Legend of symbols
- f. *Certificate of approval* for the *plan* or *work instruction*
- g. The *competent person* who assembled the *work instruction* for the *attacher* (if applicable) and/or the *professional engineer* who approved the *plan* or *standard design(s)*.

Project Specific Drawing Orientation Requirements

- a. North Point
- b. Key Map
- c. Street names
- d. Sidewalks, driveways, curbs, trees, buildings, bridges, rivers, railroads and other utilities, when they add clarity to specific issues
- e. Lot lines and/or buildings, and house numbers in front of *structures*
- f. Clearly indicated *structures and their ownership* (or “unknown”)
- g. Horizontal offset measurements for proposed *structures* close to buildings, other non-*distributor* systems (e.g. traffic, street lighting, signs, gas tanks, bridges).

Project Specific Drawing Requirements

Attacher Information

- a. Standard *designs* that have been applied (if applicable)
- b. Which side of the *structure* and orientation for the attachment
- c. Proposed electrical bonding & grounding locations
- d. Proposed dip and/or riser locations
- e. Proposed and existing (where available) *attacher* anchoring including size, strength, assumed soil class, tension, and location (including height and lead data)
- f. *Make-ready work* anticipated by the *attacher* with the *distributor's structure(s)* or third party *attachments*
- g. Railroad, major highway, & river crossing engineering details & associated profiles
- h. *Structure attachment* height detail (by drawing or table) indicating dimensions above grade for all other existing attachments such as other communications attachments, street lighting, approximate separation to lowest electrical line (neutral, secondary, primary, transformer, decorative banners)
- i. Proposed cable and support strand *attachments* clearly indicated with heavier line style
- j. Proposed and existing support strand details (type, size and strength), with proposed and existing cables (profile drawing acceptable)
- k. Proposed and existing support strand initial tensions and stringing tables. (includes full, reduced and slack tension spans)
- l. Proposed and existing bundle CSA final sags
- m. Proposed communication *attachments* to the *structure*. For example amplifiers, power supplies, antenna, *attacher* electrical wiring and protection, and wire routing on the *structure*
- n. Proposed in-span slack storage and equipment locations and requirements

Appendix B - Examples - Previous Editions of the Overhead and Underground Standards.

The following are examples of the Direction section of this guideline. Any reference numbers within the examples point the reader to the applicable Direction number (#), in paragraph 2.5.1 of this guideline.

- Electrical *distributor* is constructing a new line section for additional customers or due to a relocation for a road widening. This is deemed a new line section (2) and shall comply with the current edition of the Standards or the Standard editions identified in Regulation 22/04.
- Electrical *distributor* is splicing or undertaking cable injection work. This is deemed as a replacement or alteration of existing non-*structure equipment* (3) and is permitted to meet the edition of the Standard in force at the time of the line's original design, without being modified to comply with the current edition.
- Electrical *distributor* is replacing failed or failing insulators. This is deemed as a replacement or alteration of existing non-*structure equipment* (3) and is permitted to meet the edition of the Standard in force at the time of the line's original design, without being modified to comply with the current edition.
- Electrical *distributor* is replacing one failed or failing *structure*. This is deemed as a replacement of an existing *structure* (4), meets the *like-for-like replacement* definition and is permitted to meet the edition of the Standard in force at the time of the line's original design, without being modified to comply with the current edition.
- Electrical *distributor* is replacing more than one *structure*, where the *structures* are adjacent to one another. This is deemed as a replacement of existing *structures* (4), does not meet the *like-for-like replacement* definition and shall comply with the current edition of the Standards or the Standard editions identified in Regulation 22/04.
- Electrical *distributor* or 3rd party *attacher* is adding a materially significant load to a *structure*. This is deemed as an alteration or addition of a new structural load (5) and is permitted to meet the edition of the Standard in force at the time of the line's original design (contingent on the approval from the *structure* owner), without being modified to comply with the current edition, as long as the *structure* load was *accounted for* by the original design. If it does not meet the criteria above, this is deemed as an alteration or addition of a new structural load *un-accounted for* by the original design (6) and it needs to comply with the current edition of the Standards or the Standard editions identified in Regulation 22/04.

- Electrical *distributor* is adding a new transformer on an existing pole, where this new structural load was *un-accounted for* by the original design. This is deemed as an addition of a new *structure* load *un-accounted for* by the original design (**6**) and it needs to comply with the current edition of the Standards or the Standard editions identified in Regulation 22/04.
- Electrical *distributor* is upgrading insulators in order to convert a line's voltage. This is deemed as an upgrade of existing *non-structure equipment* (**7**) and this is permitted to meet the edition of the Standard in force at the time of the line's original design, without being modified to comply with the current edition.

Appendix C - Examples - “Materially Insignificant” Work

- A *professional engineer* submits a request for a 3rd party *attachee’s* power supplies or cable dips to be *reviewed as materially insignificant* by the *Electrical distributor*. If the *Electrical distributor* deems the work to be *materially insignificant*, then the *Electrical distributor* may not require the 3rd party *attachee* to supply an approved *plan, standard designs* or *work instruction* for the work. The *Electrical distributor* may require a *record of inspection* and *certificate* to be completed.
- A *professional engineer* submits a request for the Municipality’s Canadian Flag attachments to be *reviewed as materially insignificant* by the *Electrical distributor*. If the *Electrical distributor* deems the work to be *materially insignificant*, then the *Electrical distributor* may not require the Municipality to supply an approved *plan, standard designs* or *work instruction* for installation work. The *Electrical distributor* may also not require a *record of inspection* and *certificate* to be completed.
- A Municipality employee submits a request for the Municipality’s Canadian Flag attachments to be *reviewed as materially insignificant* by the *Electrical distributor*. The *Electrical distributor’s professional engineer* signs a declaration that the proposed work is *materially insignificant*. The *Electrical distributor* would then deem the work to be *materially insignificant*. Then the *Electrical distributor* may not require the Municipality to supply an approved *plan, standard designs* or *work instruction* for installation work. The *Electrical distributor* may also not require a *record of inspection* and *certificate* to be completed.

Appendix D – Example - Certified List of Deviations

Third Party Company Logo

Certificate of Deviation Approval for Non-Standard Items

This certifies that the below list of deviations from CSA standards will not materially affect the safety of any person or property, if not resolved immediately. These items can be resolved over time through maintenance, pole line rebuild and street light replacement programs.

The items covered by this *certificate of deviation* are deemed to not be an imminent safety hazard for workers that are “qualified” to work in the communications space on poles, based on their knowledge, training and experience levels required. This *certificate of deviation* is not intended to be applied to new pole lines or any situation where a pole is being replaced anyways. In those cases it is expected that the entire pole be brought up to 100% CSA standards compliancy.

The workers are “qualified” in their ability to recognize electrical hazards and other potential safety concerns, which may cause them to implement specific safety measures or work procedures to avoid the item. They are required to take a training module called “Health and Safety Guidelines for Contractors - Working at Heights Module”, among other requirements before they are deemed qualified.

This *certificate of deviation* can only be applied to Third Party Company projects, at their discretion, by inclusion of this *certificate of deviation* into their attachment application. On a per attachment application basis, the exact poles and pole spans where this *certificate of deviation* is being applied will be clearly identified on a separate form, completed by a competent person. A suitable form is attached to this *certificate of deviation*, but similar forms are also acceptable. Third Party Company and the LDC may agree to identify some of these items through existing Joint Use Processes, or other agreed methods, rather than this form.

The Installation of work covered by this document meets the safety requirements of Section 4 of Ontario Regulation 22/04 with the following deviations:

- 1) Neutral Wires that sag below the line of sight of Communication Attachments when:
 - a. Span length is less than 75 meters
 - b. Neutral wire is part of a multi-grounded neutral system
 - c. Neutral wire is measured in its maximum sag condition.
 - d. Communications is measured in its Thermal sag condition
 - e. Closest distance between the Neutral and Communications is greater than 0.3m under the above conditions.
- 2) Street lights that may or may not have been bonded to the neutral and are within 1.0m of the highest strand.
- 3) Single damaged or missing vertical ground wires. (Consecutive vertical ground locations on a pole lead that are both missing or damaged are excluded)
- 4) The following items at the pole if they are at least 0.6m above the highest communications strand:
 - a. Secondary Risers
 - b. Drip loops of power service wires or secondary cable bundles
 - c. Mechanical protection over primary riser cables
- 5) Secondary Wires (e.g. Triplex, Spun Buss, Open Buss Secondary...) that sag below the line of sight of Communication Attachments when:
 - a. Secondary wire is measured in its maximum sag condition.
 - b. Communications is measured in its Thermal sag condition
 - c. Closest distance between the Secondary Wire and Communications is greater than 0.3m under the above conditions.

In the generation of this certificate, due consideration was given to current CSA Standards and the qualifications of “qualified workers” in the Communications space. The failure to meet the standards will not materially affect the safety of any person or property.

Reference	Title	Issue date
914-1000-200	Aerial Structure Design – Integrated Standard	2009-10-05

Name of Professional Engineer

Date

Appendix E - Examples - Addressing Make-Ready Work Deviations**General Examples**

- 1) The Electrical *distributor* may choose to accept deviation(s) from CSA 22.3 No.1 on a pole, when the additional infrastructure would not create or make worse the existing deviation(s). This can be done through the use of a *certificate of deviation* signed by a *professional engineer*, instead of implementing *make-ready work* on the pole.
- 2) The Electrical *distributor* may choose to write deviation(s) from CSA 22.3 No.1 on a pole, when identified *make-ready work* has been deemed minor and work can safely proceed on the pole without the need for the identified *make-ready work* to be completed, before a new *attachment* to the pole is put into service. This can be done through the use of a *certificate of deviation* signed by a *professional engineer*.
- 3) The Electrical *distributor* may choose to accept deviation(s) from *standard designs* on a pole, when the additional infrastructure would not create or make worse the existing deviation(s). This can be done through the use of a *certificate of approval* signed by a *professional engineer*, instead of implementing *make-ready work* on the pole.

Specific Examples

- 4) An *attacher* identifies that the clearances between the proposed attachment to the Electrical *distributor* neutral would not meet CSA standard's clearances and the neutral will need to undergo *make ready work* to meet standards. The Electrical *distributor* may accept a *certificate of deviation* to allow the attachment to occur and the neutral may or may not be moved at a future date.
- 5) An *attacher* identifies that an existing Electrical *distributor* guy wire needs to be re-tensioned. The Electrical *distributor* may accept a *certificate of approval* or *certificate of deviation* to allow the attachment to occur and the guying may or may not be addressed at a future date.
- 6) An *attacher* identifies that an existing Electrical *distributor* guy anchor extends above the standard's identified ground level. The Electrical *distributor* may confirm that the depth is adequate or accept a *certificate of approval* to allow the attachment to occur and the guying may or may not be addressed at a future date.

Appendix F – Recommendations and Figure - In-Span Structures and Overhead Unsupported Conductors

ESA Recommends

- The best approach for transferring attachments is through proactive and adequate coordination between the pole owner and other *attachment* owners, which avoids in-span *structures*.
- All parties *should* be aware that when utilizing the direction in this guideline, the clearances and separations within the guideline are only applicable for the duration of the pole replacement project. Not complying with timeline provisions would result in breaching Regulation 22/04, Section 10 (entitled “Proximity to distribution lines”).
- In-span *structures*, which do not support all supply and communication lines, *should* be documented and monitored for the completion of transferring communication attachments and removal of the in-span *structures* within 2 years.
- The milestones, which represent the beginning and end of the pole replacement project, are per the processes of the Electrical *distributor*. For example, the Electrical *distributor* may decide the beginning and end milestones to be the physical creation and removal of the in-span pole, respectively.
- The Electrical *distributor*’s agreements related to items such as timelines and safety measures (such as mechanical protection installed on the in-span pole), *should* be communicated with all parties involved.

