| | | | |
|---|---|---|---|
| Hydro Ottawa | | Title: **Guideline** | |
| Recommended: | **V. Brenders**<br>**M. Syed**<br>**M. Wyndham, P.Eng.** | No: **OJG0001** | Rev: **1** |
| Approved: | **R.Bob Harrington, P.Eng.** | | |
| Rev. date: | **2026-08-26** | | |



# Overhead Telecom Attachment Guideline & Submission Requirements

# Revision Sheet

| Revision | Description of change | Date | Initials |
|---|---|---|---|
| 1 | Original document. | 2026-08-26 | MW/BH |

# Table of Contents

Page

# 1. Executive Scope & Regulatory Framework

To ensure all third-party licensee attachments strictly conform with the legal requirements of Ontario Regulation 22/04 and CSA Overhead Systems C22.3 No. 1, Hydro Ottawa Limited (HOL) requires all permit applications to contain the complete, verified information outlined in this document.

This guide outlines the exact compliance criteria evaluated by Hydro Ottawa during the engineering review process. All permit applications must be submitted digitally via the official Hydro Ottawa website using the Third-Party Permit Form. Whether installing new telecommunication strands, fiber optic connections, or wireless small-cell equipment, adhering strictly to these specifications will minimize technical corrections, prevent application rejections, and significantly expedite permit approval times.

### *DISCLAIMER & REGULATORY NOTICE*

*The information provided in this document serves as an administrative and technical guideline to assist licensees and third-party contractors in preparing complete permit submission packages. It does not replace, supersede, or override applicable legal statutes, mandatory safety regulations, or technical governing codes.*

*Applicants, engineers, and contractors are solely responsible for ensuring that all design drawings, structural analyses, and field installations strictly conform to the most recent official revisions of all governing standards, including but not limited to:*

- *Ontario Regulation 22/04 (Electrical Safety Authority)*
- *CSA C22.3 No. 1 (Overhead Systems - latest edition)*
- *Electrical Utility Safety Rules (EUSR)*

*In the event of any conflict between this guidance document and mandatory codes or updated governing standards, the most restrictive requirement in the most current official publication shall govern. Hydro Ottawa reserves the right to update or modify these administrative and technical requirements at any time as technical or regulatory standards evolve.*

# 2. References

CSA Group – CSA C22.3 NO. 1 – Overhead Systems
Government of Ontario – Ontario Regulation 22/04 – Electrical Distribution Safety Regulation
Hydro Ottawa – OLS0001 – Clearances for Communication Attachments Construction Detail
IHSA – Electrical Utility Safety Rules (EUSR)

# 3. Definitions, Abbreviations and Acronyms

**Before & After Make-Ready Modelling:** Structural analysis modelling for a failing pole structure that includes both Case A (As-Is / Failed) and Case B (Proposed / Post Make-Ready Passed) to demonstrate structural failure without modifications and validate the engineering solution.

**Load cases**: **Calculation Criteria and Summary:** A document section explicitly confirming that all pole structures were calculated using the Climate & Loading Criteria per CSA C22.3 No. 1 and evaluated under both required load cases:

- Case 1 (Heavy Loading): Deterministic climate loads for the region using Table 30.
- Case 2 (Maximum Wind-Only): Maximum wind-only load excluding ice using typical local temperatures from Table D.3 for the specific project area (Ottawa Barrhaven, City Hall, Kanata, Macdonald-Cartier International Airport, or Orleans).

**Clearance Validation Tables:** Summary tables detailing ground clearances, in-span separations, and vertical separations at the pole, marked with green PASS or red FAIL indicators aligned with CSA C22.3 No. 1 thresholds.

**Colour-Coded Stress Levels:** Visual utilization indicators defined as:

- 🟢 0–80% (Green): Compliant structural utilization.
- 🟡 81–99% (Orange): High structural utilization requiring monitoring.
- 🔴 ≥ 100% (Red): Overloaded structure exceeding allowable capacity.

**Construction Drawings:** Fully detailed engineering drawings specifying existing attachments, proposed pole modifications, clearances, and make-ready details required for permit review.

**CSA:** Canadian Standards Association.

**EUSR:** Electrical Utility Safety Rules.

**HOL:** Hydro Ottawa Limited.

**Load Cases:** Mandatory environmental conditions (Deterministic Heavy Loading and Extreme Wind-Only Loading) under which structural stability is evaluated.

**Make-Ready:** Required physical modifications, relocations, or hardware additions on existing pole infrastructure to safely accommodate new attachment requests in full compliance with utility standards.

**Non-Linear Analysis Report:** An engineering assessment report that calculates structural pole loading, guy wire tensions, anchor capacities, and clearances using non-linear analysis methods.

**O. Reg. 22/04:** Ontario Regulation 22/04 under the Electricity Act, governing safety standards for design, construction, and maintenance of electrical distribution systems in Ontario.

**P.Eng.:** A Professional Engineer registered and licensed in the Province of Ontario.

# 4. Mandatory Permit Submission Requirements

This document covers the required activities, technical specifications, and submission criteria for third-party applicants seeking pole attachments on Hydro Ottawa assets.

## 4.1. Wireline Attachment Permits

*Note: This applies to all small-cell wireline attachment permits that show the fibre connection to each small-cell location.*

- **Construction drawings:** Must follow the standards outlined in Section 3, and stamped by a licensed Professional Engineer and with the correct completed Certificate of Approval Stamp (see Appendix A for more information). Both stamps are required on each drawing sheet.
- **Non-Linear Analysis Report:** Must follow the standards outlined in Section 4, and be stamped by a licensed Professional Engineer.
- **Field Survey Notes & Photos:** Detailed survey notes, including clear, high-resolution photographs of each pole and pole stamp, must be appended to the end of each non-linear analysis report. Notes must clearly cross-reference the corresponding pole ID.

## 4.2. Wireless Small-Cell Permits

*Note: This applies strictly to wireless small-cell attachment permits. Small-cell wireless attachments must have a valid agreement and design approved prior to permit application.*

- **Construction drawings:** Must follow the standards outlined in Section 3, and stamped by a licensed Professional Engineer and with the correct completed Certificate of Approval Stamp (see Appendix A for more information). Both stamps are required on each drawing sheet.
- **Non-Linear Analysis Report:** Must follow the standards outlined in Section 4 and be stamped by a licensed Professional Engineer. *If a wireline permit will be submitted for the same small-cell project, a non-linear analysis does not need to be submitted for the wireless portion.*
- **Construction detail:** Wireless attachment construction detail stamped by a Professional Engineer.

# 5. Construction Drawing Specifications

To ensure an expedited, first-pass review, construction drawings must be clean, highly legible, and fully detailed.

**Required elements on every page:**

- O. Reg. 22/04 Certificate of Approval: Completed, signed, and dated
- Professional Engineer (P.Eng.) Stamp
- Construction Notes: Clearly outlining the proposed work and any make-readys.

**Required elements for every pole in drawing:**

- Pole ID
- Pole owner
- **Pole Attachment table:**
    - List of existing primarys, secondarys, neutrals, overhead guys, street lights, transformers, fuses, drip loops, risers, telecom attachments, etc.
    - Side (DE / FS / CE / RS), height, and direction (e.g. NE, S/NE, etc.)
    - Bold or clearly indicate the line on this table which attachments you are adding/altering/overlashing
- **Pole information:**

    - Pole nomenclature/ID
    - Pole class
    - Pole height
    - Pole condition
- **New & Existing down guy & anchor information (if applicable)**
    - Anchor owner
    - Anchor type
    - Direction
    - Lead length
    - Rod size
    - Down guy attachment height
- **Make ready detail(s)** (if applicable)
- **Safety note** (if applicable for safe limit of approach)
- **Pole integrity note** (if noticeable damage, decay, woodpecker holes, or similar defects are present that may reduce a pole's strength)

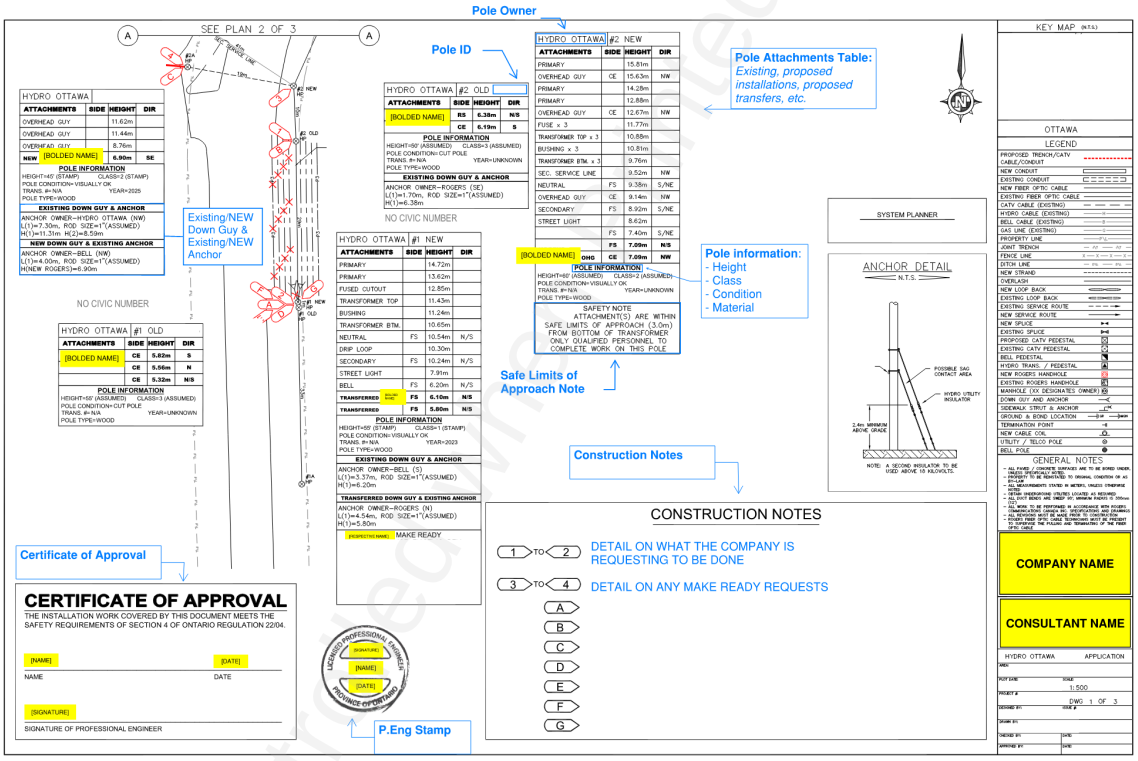



*Figure 5-1. Labelled example of a construction drawing.*

# 6. Non-Linear Analysis Report Specifications

Ensure the compiled Non-Linear Analysis Report contains the following mandatory sections:

**P.Eng. Certified Cover Page:**

- Company name
- Consultant name *(if applicable)*
- Ontario P.Eng. stamp

- Publication date

**Written Sections:**

- **Scope:** Outlines the work being proposed.
- **Data Collection:** The report explicitly states the field survey date, which must be within six (6) months of the submission date. The data model must capture all existing and proposed attachments, including primary conductors, secondary/neutral conductors, secondary service conductors, mid-span secondary service conductors, and communication cables.
- **Calculation Criteria and Summary:** Explicitly states that all poles were calculated using the Climate & Loading Criteria, as per CSA C22.3 No. 1, and analyzed under both load cases: (see Section 8 for more information)
    - **Case 1: Deterministic climate loads** for the area using Table 30: Heavy loading
    - **Case 2: Maximum wind-only climate load (excluding ice)** using typical local temperatures from Table D.3, specifying the area: Ottawa (Barrhaven), Ottawa (City Hall), Ottawa (Kanata), Ottawa (M-C Int'l Airport), Ottawa (Orleans)

**Clearance Validation Tables:** Summary tables marked with green **PASS** or red **FAIL** indicators matching the CSA C22.3 No. 1 thresholds.

- Ground clearances
- In-span separations
- Vertical separations

**Vertical Separation (at Pole) - CSA Table 23 / C22.3 No.1**

| Street | Pole Number | Survey Number | Highest Communication Height(m) | Lowest Supply (0-750V) | Vertical Separation(m) (0-750) | Minimum Required Separation (m) (0-750V) | Lowest Primary Wire(m) | Vertical Separation (m) from primary | Minimum Required Separation (m) from primary | Lowest Transformer Height(m) | Vertical Separation (m) from Transformer | Minimum Required Separation (m) from Transformer | Lowest Primary Bushing Height(m) | Vertical Separation (m) from Bushing | Minimum Required Separation (m) from Bushing | Lowest Hydro Dip Conduit Height(m) | Vertical Separation (m) from Hydro Dip | Minimum Required Separation (m) from Hydro Dip | Lowest Streetlight Height(m) | Vertical Separation (m) from Streetlight | Minimum Required Separation (m) from Streetlight | Lowest Secondary Voltage Point Height(m) | Vertical Separation (m) from Lowest Secondary Voltage Point | Minimum Required Separation (m) from Lowest Secondary Voltage Point |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Byron Ave. | X59995 | P2 | 6.4 | 7.4 | 1 | 1 | 9.88 | 3.48 | 1.2 | | | | | | | 10.55 | 4.15 | 1 | 6.5 | 0.1 | 1 | | | |
| Byron Ave. | 55C2C-0069 | P3 | 5.8 | 6.8 | 1 | 1 | 10.01 | 4.21 | 1.2 | | | | 11.74 | 5.94 | 1.2 | 8.88 | 3.08 | 1 | 7.29 | 1.49 | 1 | | | |
| Byron Ave. | 55C2C-0067 | P4 | 5.5 | 6.5 | 1 | 1 | 9.58 | 4.08 | 1.2 | | | | 8.5 | 3 | 1.2 | 6.78 | 1.28 | 1 | | | | | | |

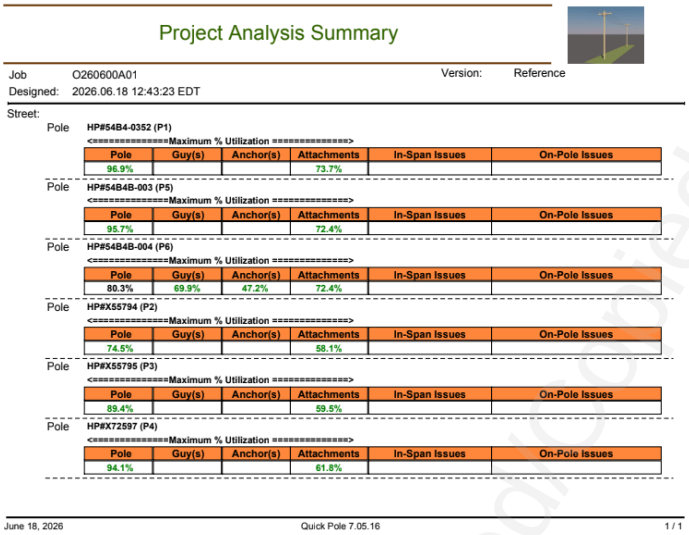
**Ground Clearances - CSA Table 2 / C22.3 No.1**

| Type | Street | Span Desc. | Span Length(m) | Audit or Lowest Attachment impacting Ground Clearance | Minimum Clearance Point Max Sag value(m) | Minimum Clearance Point elevation(m) | Minimum Clearance Point Ground Clearance(m) | Minimum Clearance Point - Clearance Type | Minimum Clearance Point Required Ground Clearance(m) | Minimum Clearance Point Evaluation(m) | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Span | Byron Ave. | 55C2C-0069/P3 to EOS: NO ID/P3A | 15.62 m | 3/0-266 AACSR Triplex Spun Bus(A2/S3A) Type 17 6/1 Strands (Single Wire) (Secondary) | 0 | 6.98 | 6.98 | Roadway | 4.42 | Pass | |
| Span | Byron Ave. | 55C2C-0069/P3 to X59995/P2 | 38.71 m | 3/8-inch Grade 180 7 Strands Steel (Single Wire) (Rogers) | 0.107 | 4.913 | 4.913 | Residential Driveways | 4 | Pass | |
| Span | Byron Ave. | 55C2C-0069/P3 to 55C2C-0067/P4 | 33.2 m | 3/8-inch Grade 180 7 Strands Steel (Single Wire) (Rogers) | 0.227 | 4.603 | 4.603 | Residential Driveways | 4 | Pass | |
| Span | Byron Ave. | X59995/P2 to EOS: X59991/P1 | 27.99 m | 3/8-inch Grade 180 7 Strands Steel (Single Wire) (Rogers) | 0.149 | 5.651 | 5.651 | Roadway | 4.42 | Pass | |
| Span | New Orchard Ave. | X59995/P2 to EOS: NO ID/P2A | 18.38 m | 1/0 ACSR Bare "Raven" (Single Wire) (Neutral) | 0.044 | 6.296 | 6.296 | Residential Driveways | 3.7 | Pass | |
| Span | Byron Ave. | 55C2C-0069/P3 to EOS: NO ID/P3B | 16.06 m | 3/8-inch Grade 180 7 Strands Steel (Single Wire) (Bell) | 0.006 | 5.494 | 5.494 | Roadway | 4.42 | Pass | |
| Span | ___ | 55C2C-0069/P3 to EOS: 55C2C-0554/P3C | 41.7 m | 3/8-inch Grade 180 7 Strands Steel (Single Wire) (Bell) | 0.079 | 5.421 | 5.421 | Off-road | 3.7 | Pass | |
| Span | Byron Ave. | EOS: X35080/P5 to 55C2C-0067/P4 | 30.52 m | 3/8-inch Grade 180 7 Strands Steel (Single Wire) (Rogers) | 0.138 | 4.692 | 4.692 | Residential Driveways | 4 | Pass | |

*Figure 6-1. Example of an acceptable clearance validation table.*

**Software report outputs:**

- **Project Analysis Summary Table:** A master table listing the maximum structural utilization percentages for all poles, guy wires, and anchors. All utilization percentages must be formatted using the correct colour-coded ranges: 🟢 **0-80%: GREEN** | 🟡 **81-99%:** Orange | 🔴 **≥ 100%:** Red



Project Analysis Summary

Job O260600A01 Version: Reference
Designed: 2026.06.18 12:43:23 EDT
Street:

Pole HP#54B4-0352 (P1)
<==========Maximum % Utilization ==========>

| Pole | Guy(s) | Anchor(s) | Attachments | In-Span Issues | On-Pole Issues |
|---|---|---|---|---|---|
| 96.9% | | | 73.7% | | |

Pole HP#54B4B-003 (P5)
<==========Maximum % Utilization ==========>

| Pole | Guy(s) | Anchor(s) | Attachments | In-Span Issues | On-Pole Issues |
|---|---|---|---|---|---|
| 95.7% | | | 72.4% | | |

Pole HP#54B4B-004 (P6)
<==========Maximum % Utilization ==========>

| Pole | Guy(s) | Anchor(s) | Attachments | In-Span Issues | On-Pole Issues |
|---|---|---|---|---|---|
| 80.3% | 69.9% | 47.2% | 72.4% | | |

Pole HP#X55794 (P2)
<==========Maximum % Utilization ==========>

| Pole | Guy(s) | Anchor(s) | Attachments | In-Span Issues | On-Pole Issues |
|---|---|---|---|---|---|
| 74.5% | | | 58.1% | | |

Pole HP#X55795 (P3)
<==========Maximum % Utilization ==========>

| Pole | Guy(s) | Anchor(s) | Attachments | In-Span Issues | On-Pole Issues |
|---|---|---|---|---|---|
| 89.4% | | | 59.5% | | |

Pole HP#X72597 (P4)
<==========Maximum % Utilization ==========>

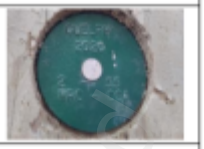
| Pole | Guy(s) | Anchor(s) | Attachments | In-Span Issues | On-Pole Issues |
|---|---|---|---|---|---|
| 94.1% | | | 61.8% | | |

June 18, 2026 Quick Pole 7.05.16 1 / 1

*Figure 6-2. Example of an acceptable project analysis summary table.*

- **Pole Analysis Report:**
  - **Pole Information**
  - **Design parameters & load summary**, explicitly showing both load cases assessed.
    - All utilization percentages must be formatted using the correct colour-coded ranges:🟢 **0-80%: GREEN** | 🟡 **81-99%:** Orange | 🔴 **≥ 100%:** Red
  - **Guying & Anchoring details**
  - **Conductors, Strands, & Cables details:** Must explicitly model, itemize, and report details (including calculated clearances) for all attached lines, specifically:
    - Primary conductors
    - Secondary / neutral conductors
    - Secondary service conductors
    - Mid-span secondary service conductors
    - Communication cables & equipment
  - **Make-readys** *(if applicable)*: Addressed for all overloaded structures (≥100%)
- **Before & After Make-Ready Modelling** *(if applicable)***:** For any pole failing structural analysis, the non-linear analysis report must include:
  - **Case A (As-Is / Failed):** An analysis of the pole failing (before any work has been done)
  - **Case B (Proposed / Post Make-Ready):** An analysis of the pole under the proposed engineering solution demonstrating the pole's structural integrity.

**Field Survey Notes & Photos:** Detailed survey notes, including clear, high-resolution photographs of each pole and pole stamp, must be appended to the end of each non-linear analysis report. Notes must clearly cross-reference the corresponding pole ID. If the pole stamp is not visible, clearly mention 'not visible' under the notes section.

| Pole # | Conductor & Pole Info | Survey information | Image |
|---|---|---|---|
| X /P1 | 55' - Class 2 | Pole is assumed as a 55' Class 2 wooden pole based on the surveyed pole top measurements and stamp on the pole |  |
| X /P2 | 60' - Class 3 | Pole is assumed as a 60' Class 3 wooden pole based on the surveyed pole measurements | |

Updated Photos from Field Survey for P2- X Done on Mar 10/2026

*Figure 6-3. Example of Field Survey Notes & Photos*

# 7. Structural Clearances & Design Standards

## 7.1. CSA C22.3 No. 1 Vertical, Ground & In-Span Clearances

The proposed attachment must strictly meet all design and safety requirements of the latest version of CSA C22.3 No. 1. To demonstrate compliance, the licensee's engineering report must include dedicated summary tables detailing these clearance checks, as outlined in Section 6.

**Ground Clearances:** Refer to *CSA C22.3 No. 1, Table 2: Minimum vertical design clearances above ground or rails.*

- Reference baseline: The location of the wires or conductors (e.g., over land versus alongside a public roadway) must be accurately identified on all design submissions. Required vertical clearance thresholds differ significantly depending on the field scenario.

**In-span / Line-of-sight Clearances:** Refer to *CSA C22.3 No. 1, Table 24: Minimum in-span vertical clearances between supply and communication conductors.*

- Reference baseline: The power asset used for this comparison must be the lowest physical point of the power space (typically the secondary conductor or the system neutral). The voltage tier used to determine compliance clearances is based on the specific asset being compared.

**Vertical Separation on the Pole Structure:** Refer to *CSA C22.3 No. 1, Table 23: Minimum vertical separations at a joint-use structure.*

- Reference baseline: The power asset used for this comparison must be the lowest physical point of the power space (typically the secondary conductor or the system neutral). The voltage tier used to determine compliance clearances is based on the specific asset being compared.

## 7.2. Hydro Ottawa (HOL) Corridor Zone Restrictions & Strand Limits

The proposed attachments must be located within the telecommunication corridor, as specified in Hydro Ottawa (HOL) Standard *OLS0001 - Clearances for Communication Attachments* (see Appendix B).

**Telecom corridor zone:**

- Maximum telecommunication attachment height: H = 6.4 m (6400 mm)
- Minimum telecommunication attachment height: H = 5.8 m (5800 mm)

*Note: This corridor zone standard applies strictly to new attachments and does not apply to the overlashing of existing telecommunications lines. If field constraints necessitate a new attachment to be installed outside this designated corridor, the applicant must provide a formal engineering justification within the permit package detailing why corridor placement is impossible, and must maintain all required CSA clearances throughout the installation.*

**Structural Strand Capacity:** In strict accordance with HOL standards, a maximum of three (3) telecommunication strands are permitted to attach to any single HOL-owned pole.

**Overlashing Protocol:** If a pole asset already hosts three valid strands, direct physical overlashing is permitted. However, the configuration must be formally coordinated and authorized directly with the owner of that specific hosting strand.

**Linear Spacing Constraints:**

- A minimum vertical clearance of 0.3 m (300 mm) must be maintained between parallel telecommunication strands mounted along the structure.
- As per OLS0001, a minimum clearance separation of 1.8 m (1800 mm) must be maintained between the highest telecommunication strand and the lowest physical power asset (such as the system neutral, secondary conductors, secondary drip loops or secondary/primary riser guards).
    - *Note: Separation space may vary on existing installations to a minimum of 1.0 m (1000 mm) to comply with CSA requirements.*

## 7.3. Electrical Utility Safety Rules (EUSR) Safe Limit of Approach

In strict alignment with the Electrical Utility Safety Rules (EUSR), specialized safety precautions must be documented for any work executed near energized infrastructure.

- **The three-meter rule:** As per the Electrical Utility Safety Rules (EUSR), an authorized worker is required to work within three (3) meters of an energized piece of equipment (such as active transformers or primary conductors).

- **Construction drawing requirement:** A safety note or designated stamp is required on the construction drawings for any utility pole where a telecom attachment is within three (3) meters of an energized asset.

## 7.4. Guying & Anchoring

To maintain soil integrity and pole stability, the placement of guy anchors must adhere to strict spatial limitations:

- **Clearance Constraint:** Proposed mechanical anchors must maintain a minimum physical distance of 1.5 meters from any existing HOL anchors positioned along the same line angle from the pole structure.
- **Anchor Capacity:** In accordance with HOL standards, a maximum of two (2) down guys are permitted to attach to any single HOL-owned anchor.
- **Pole Replacements:** Pole replacements must be reviewed by the design department and premature replacement of the pole shall be paid for by the telecom as per the agreement with HOL.

# 8. Structural Loading & Design Load Standards

All third-party attachment designs must satisfy the load criteria detailed below to ensure the long-term structural integrity of Hydro Ottawa's overhead distribution system.

All structural load designs must comply with the CSA C22.3 No. 1 specification. Per Clause 7, structural strength checks must evaluate both the deterministic climate load factors in Table 30 and the local maximum wind loading parameters specified in Clause 7.2.3 a), Table 37.

## 8.1. Load Case 1: Deterministic Heavy Loading

This case models structural performance under extreme regional winter icing conditions.

- **Loading Rule:** Apply deterministic climate loads matching the standard **CSA Heavy** weather criteria as per the latest version of *CSA C22.3 No.1, Table 30: Deterministic climate loads*.

## 8.2. Load Case 2: Extreme Wind-Only Loading (No Ice)

This case models structural performance under maximum regional wind gust speeds in the absence of ice accumulation.

- **Loading Rule:** Apply loads matching the region's weather criteria, as per the latest version of *CSA C22.3 No.1.*
    - The weather model must map to the regional Ottawa sub-station closest to the project site (Barrhaven, City Hall, Kanata, Macdonald-Cartier Airport, or Orleans). (Refer to the latest version of *CSA C22.3 No.1, Table D.3: Climatic data for selected Canadian locations*).

## 8.3. Construction Grades & Structural Strength Factors

All poles shall be evaluated based on new pole strength, the heavy and wind-only load conditions, and by applying the minimum construction load factors, according to the latest version of CSA C22.3 No.1.

- **Construction Grade:** Joint-use poles must be modeled using the specific Construction Grade parameters outlined in the most recent versions of *CSA C22.3 No.1, Table 31: Minimum load factors for non-linear analysis of structures* and *CSA C22.3 No.1, Table 32: Minimum load factors for guy assemblies at installation.*

# 9. Technical Data Reconciliation & Alignment

To prevent processing delays and immediate package rejections, all utility applications must undergo a rigorous internal quality control check to align data across all submission mediums. Hydro Ottawa cross-references all application datasets with internal records before processing permits.

**Table 9-1: Data Cross-Reference & Alignment.**

| Data Criteria Checked | Construction Drawings | Non-Linear Analysis Report | Hydro Ottawa Records |
|---|---|---|---|
| Scope of Project [1] | ✓ | ✓ | *N/A* |
| Mounting Heights | ✓ | ✓ | *N/A* |
| Pole Nomenclature (ID) | ✓ | ✓ | ✓ |
| Pole Classes | ✓ | ✓ | ✓ |
| Pole Heights | ✓ | ✓ | ✓ |
| Pole Material | ✓ | ✓ | ✓ |
| Existing Attachments [2] | ✓ | ✓ | ✓ |
| Conductor Types & Sizes[3] | *N/A* | ✓ | ✓ |
| Make-Ready Requests [4] | ✓ | ✓ | *N/A* |

[1] ***Scope of Project*:** Ensures that every utility pole featured in the construction drawings is accurately matched and accounted for within the engineering analysis report, and vice versa. This check also mandates that any required structural Make-Ready field interventions are accurately mirrored across both files.

[2] ***Existing Attachments*:** Every piece of hardware physically residing on the pole structure must be fully accounted for in the construction drawings and report. This includes (but not limited to) existing third-party telecommunication strands, streetlights, and power transformers with accurate, verified kVA ratings.

[3] ***Pre-Submission Conductor Data:*** Licensees are strongly encouraged to acquire exact overhead conductor specifications and sizes by requesting information via email to *ss-permits@hydroottawa.com*. Taking this proactive measure drastically reduces technical corrections and subsequent package resubmissions.

[4] ***Make Ready Requests:*** If a construction drawing indicates make-ready modifications on a pole (such as moving attachments or adding a new down guy and anchor), the engineering report must feature a dual-case analysis for that exact pole asset. The analysis must include calculations for the pole without modifications to clearly demonstrate that the structure will fail under load, alongside a secondary simulation proving code compliance once the proposed make-ready work is completed.

# Appendix A. P.Eng. Structural Stamp & O. Reg. 22/04 Certificate of Approval Standards

All technical documents must bear a valid Professional Engineer (P.Eng.) stamp and a completed O. Reg. 22/04 Certificate of Approval.

- **Professional Engineer Stamp:** Must be clearly affixed to the cover page of the Non-Linear Analysis Report and every sheet of the construction drawings.


*Figure A-1: Example of a valid Professional Engineer (P.Eng.) Stamp.*

- **Certificate of Approval:** Must be completed, signed, dated, and stamped on every sheet within the construction drawing set.

**Certificate of Approval**
**The installation work covered by this document meets the safety requirements of Section 4 of Regulation 22/04**

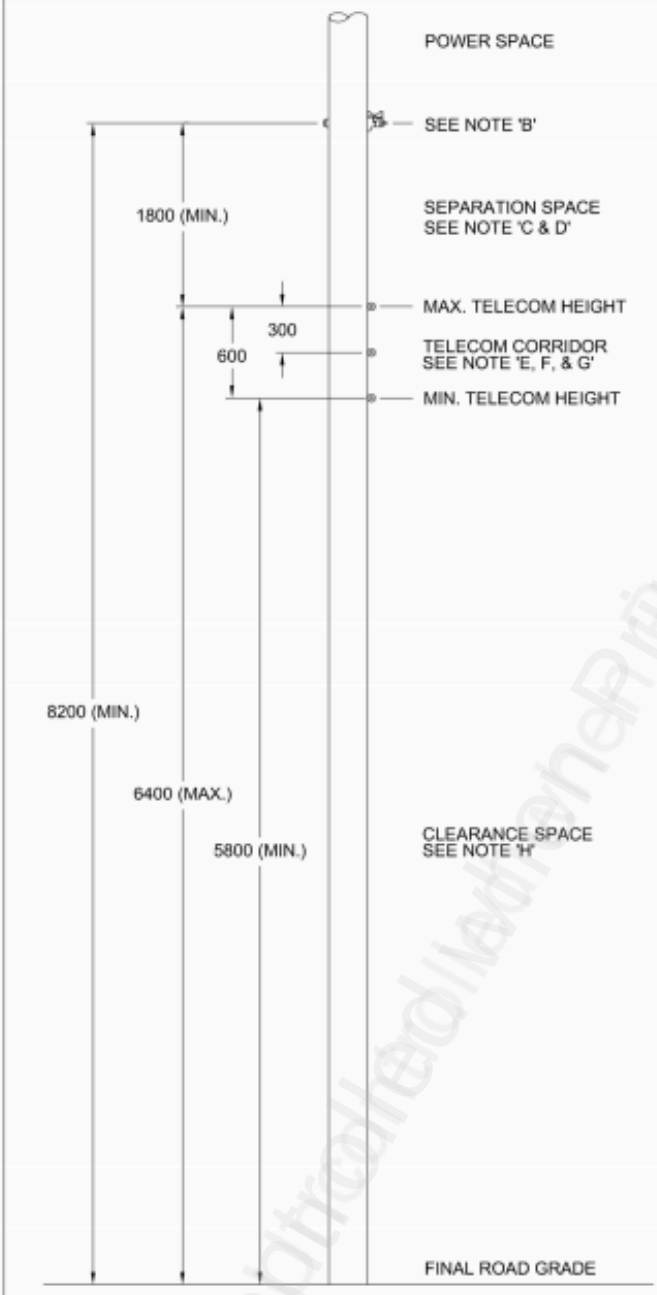
_____ _____
**Name** **Date**

_____
**Signature & Professional Designation**

*Figure A-2: Example of a valid Certificate of Approval (O. Reg. 22/04).*

# Appendix B. Hydro Ottawa Standard OLS0001 Detail

Hydro Ottawa Standard OLS0001 establishes structural and spatial rules for communications attachments to Hydro Ottawa assets. If field constraints necessitate a new attachment to be installed outside this designated corridor, the applicant must provide a formal engineering justification within the permit package detailing why corridor placement is impossible, and must maintain all required CSA clearances throughout the installation.




NOTES:

A. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

B. LOWEST POWER EQUIPMENT POINT BEING SYSTEM NEUTRAL, SECONDARY CONDUCTOR, OR BOTTOM OF TRANSFORMER.

C. FOR NEW CONSTRUCTION ONLY. 'SEPARATION SPACE' MAY VARY ON EXISTING INSTALLATIONS TO A MINIMUM OF 1 METER.

D. FOR 'SEPARATION SPACE' FROM SUB-TRANSMISSION CIRCUITS, CONTACT HYDRO OTTAWA.

E. 600mm TELECOM CORRIDOR ALLOWS FOR MAXIMUM OF 3 PARALLEL, VERTICAL MOUNTED STRANDS 300mm APART. WHERE HYDRO OTTAWA PLACES TELECOM ATTACHMENTS ON HYDRO OTTAWA OWNED POLES, THE HIGHEST POSITION WITHIN THE TELECOM CORRIDOR SHALL BE USED WHEREVER POSSIBLE.

F. TELECOM ATTACHMENT HEIGHT FOR ACROSS OR ALONGSIDE ALL PUBLIC ROADS, PUBLIC LANDS OR PUBLIC PLACES ACCESSIBLE TO VEHICLES OR MACHINERY. FOR ATTACHMENT HEIGHT ABOVE RAILWAY OR FREEWAYS, CONTACT HYDRO OTTAWA.

G. TELECOM ATTACHMENT HEIGHT ALLOWS FOR MAXIMUM 1.1m [3' 8"] SAG IN TELECOM STRANDS.

H. MINIMUM TELECOM ATTACHMENT HEIGHT MAY VARY WHEN ADDING STRAND(S) TO EXISTING JOINT USE STRUCTURES OR OVERLASHING TO EXISTING TELECOM PLANT PROVIDING MINIMUM CLEARANCES COMPLY WITH CSA STANDARDS.



| REVISIONS | PREP | CHKD | APPD |
|---|---|---|---|
| REV: 2 DATE: 2012-06-27 CHANGE: ADDED NOTE 'H' | WS | RW | CSM |
| REV: 3 DATE: 2017-05-29 CHANGE: REVISED NOTE 'E' | EV | RW/ MW | BDH |
| REV: 4 DATE: 2026-04-17 CHANGE: RAISED NEUTRAL TO 8200mm AND INCREASED SPACE BETWEEN NEUTRAL AND HIGHEST TELECOM STRAND TO 1800mm. | LG | MS RH | MW |

HydroOttawa
WWW.HYDROOTTAWA.COM

PREP: G. MOLNAR
CHKD: C. MORAN
APPD: C. MALONE P. Eng.
DATE: 2008-01-06
SCALE: N.T.S. @ ANSI A

TITLE: ENGINEERING SPECIFICATION
CLEARANCES
FOR
COMMUNICATIONS ATTACHMENTS
CONSTRUCTION DETAIL

NO: OLS0001

SHEET 1 OF 1

REV: 4

G:\4.2.3 TECH STD & MAT\01_STDS\01 HOL\O-OVERHEAD\L-LINE LOCATION AND CLEARANCES\OLS0001 R4 CLEARANCES FOR COMM ATTACHMENTS.DWG

2026-05-04 2:50 PM

# Appendix C. Software-Specific Modelling & Configuration Guides

## C-1. QuickPole Configuration Guide

1. **Weather & Load Case Setup:**
    a. Navigate to *Design Editor Window* > *Settings Tab* > *Analysis and Other Settings* > *Weather Conditions*.

    b. Select *CSA Heavy* for Deterministic Weather Load Case, as defined by CSA C22.3 No.1.

    c. Set the *Terrain type* to best represent the project site geography (CSA C22.3 No.1, Table D.3)). Keep the default configuration unless you have validated on-site exposure data. QuickPole supports 10-minute average wind values under Terrain Type B for CSA.

    d. Enable *Extreme Wind Load Case (No Ice):*

        i. Must be manually enabled. Navigate to the *Extreme Wind* settings block and check *Enable*.
        ii. Input the specific wind speed and temperature matching the chosen regional Ottawa weather station. This ensures the software outputs the appropriate worst-case differential tension values.

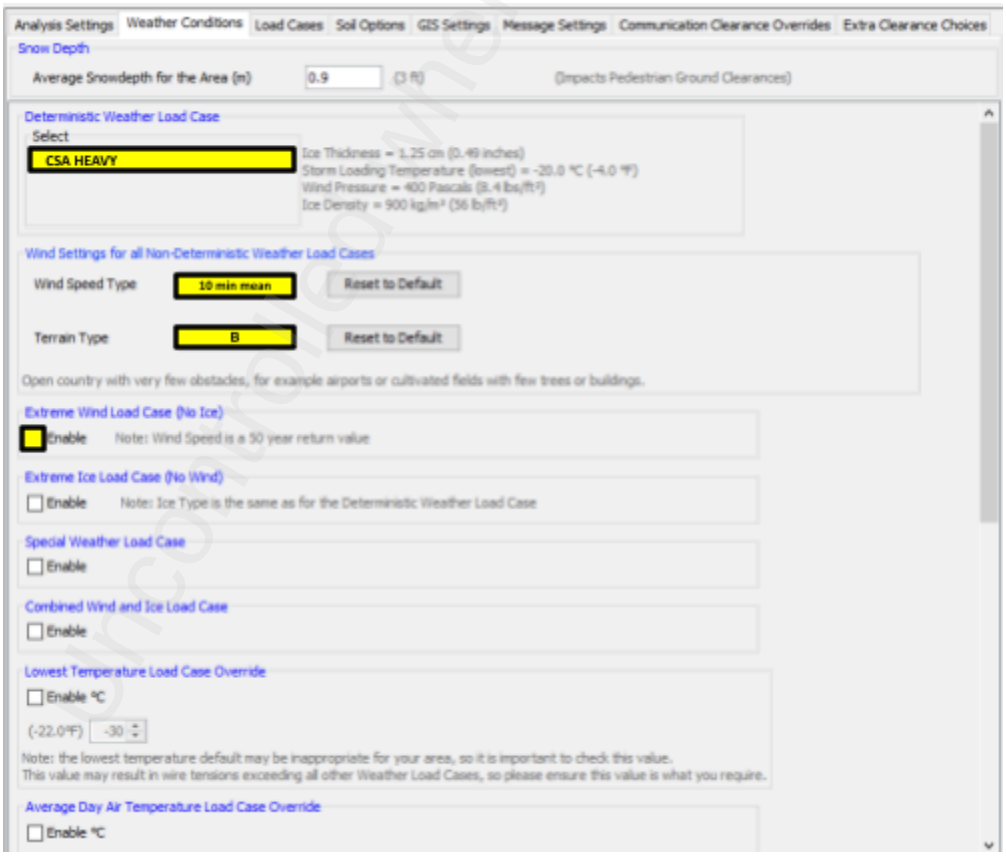


*Figure C-1.1. Screenshot of QuickPole Weather Conditions selections (Screenshot from 2026-07-21).*

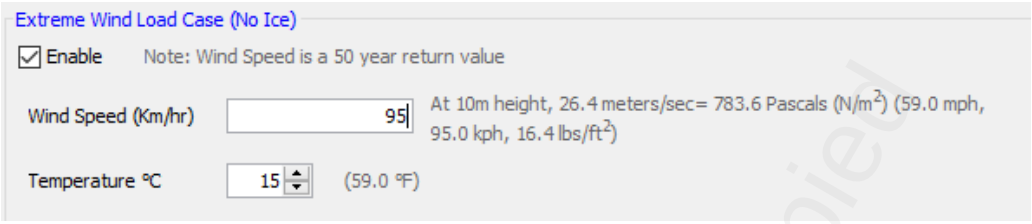



*Figure C-1.2. Screenshot of QuickPole Extreme Wind Load Case selection (Refer to CSA C22.3 1:25, Clause D.3 Maximum wind load condition for clarification on the proper input values) (Screenshot from 2026-07-21).*

**2. Output Report Generation:**

a. Navigate to: *Project Level Results*. Select the *Project Analysis Summary* box.

b. Navigate to: *Structure Reporting*. Select the *Pole Attachment Summary* box.

**Verification Check:** Review the generated PDF report to confirm that the Pole Attachment Summary results lists stress calculations under both the CSA Heavy and Extreme Wind load cases.

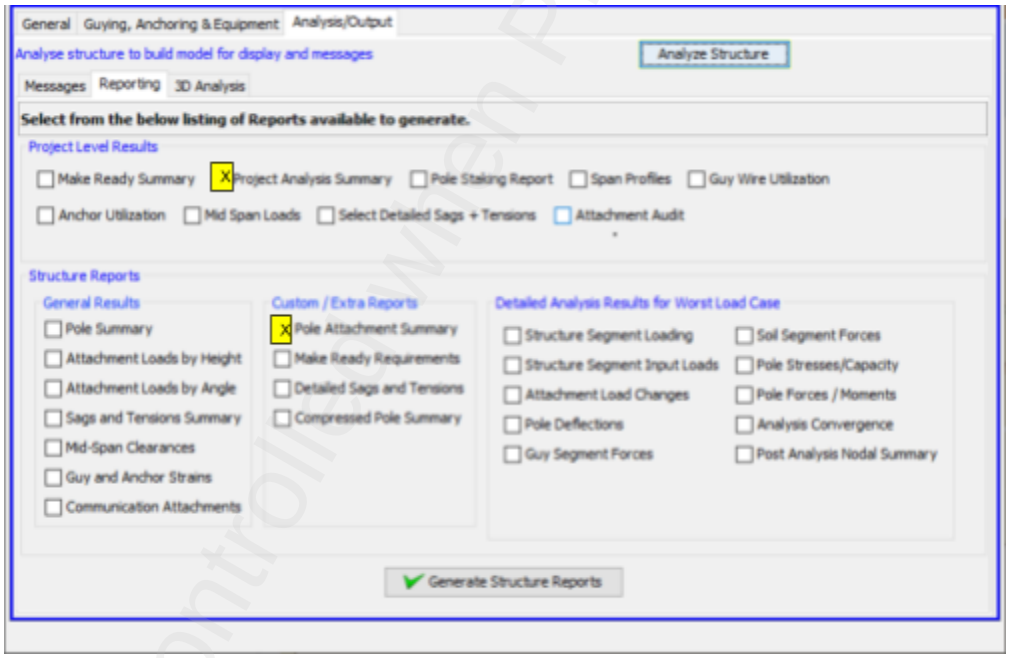
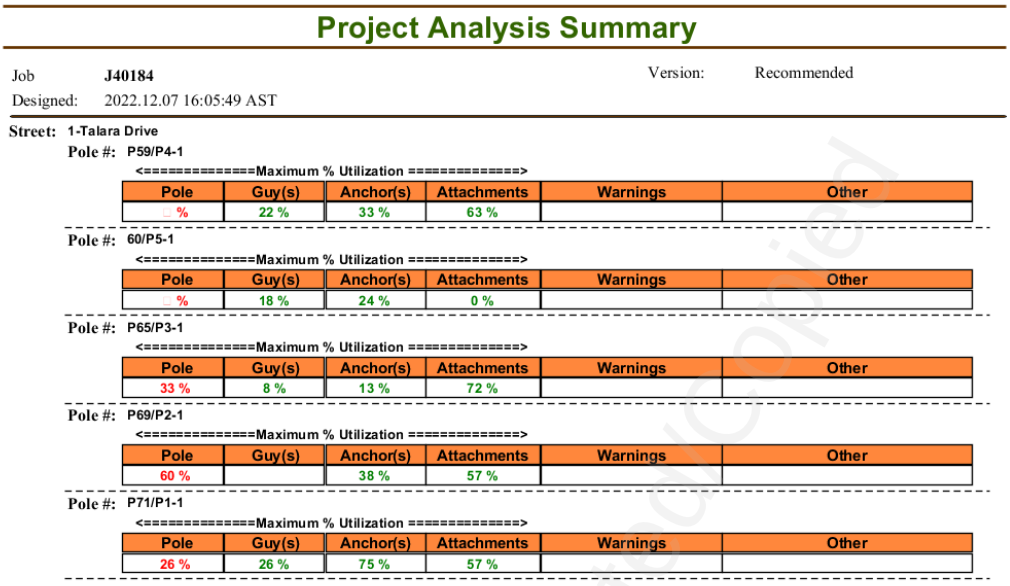



*Figure C-1.3. Screenshot of QuickPole Structure Reporting, highlighting the boxes that should be clicked (Screenshot from 2026-07-21).*



## Project Analysis Summary

Job J40184 Version: Recommended

Designed: 2022.12.07 16:05:49 AST

**Street: 1-Talara Drive**

**Pole #: P59/P4-1**

<==========Maximum % Utilization ==========>

| Pole | Guy(s) | Anchor(s) | Attachments | Warnings | Other |
|---|---|---|---|---|---|
| % | 22 % | 33 % | 63 % | | |

**Pole #: 60/P5-1**

<==========Maximum % Utilization ==========>

| Pole | Guy(s) | Anchor(s) | Attachments | Warnings | Other |
|---|---|---|---|---|---|
| % | 18 % | 24 % | 0 % | | |

**Pole #: P65/P3-1**

<==========Maximum % Utilization ==========>

| Pole | Guy(s) | Anchor(s) | Attachments | Warnings | Other |
|---|---|---|---|---|---|
| 33 % | 8 % | 13 % | 72 % | | |

**Pole #: P69/P2-1**

<==========Maximum % Utilization ==========>

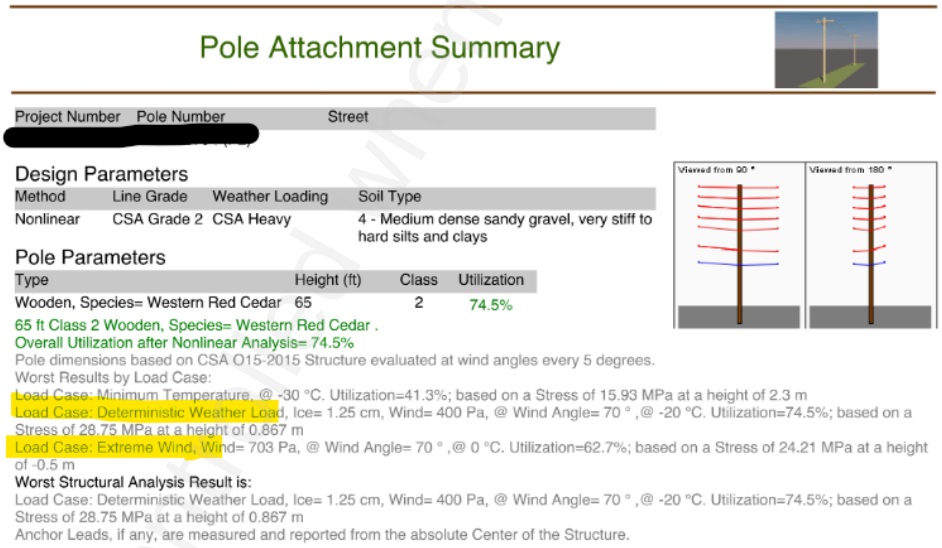
| Pole | Guy(s) | Anchor(s) | Attachments | Warnings | Other |
|---|---|---|---|---|---|
| 60 % | | 38 % | 57 % | | |

**Pole #: P71/P1-1**

<==========Maximum % Utilization ==========>

| Pole | Guy(s) | Anchor(s) | Attachments | Warnings | Other |
|---|---|---|---|---|---|
| 26 % | 26 % | 75 % | 57 % | | |

*Figure C-1.4. Screenshot of [QuickPole Project-Wide Reporting] Project Analysis Summary example (Screenshot from 2026-07-21).*



## Pole Attachment Summary

| Project Number | Pole Number | Street |
|---|---|---|
| [redacted] | | |

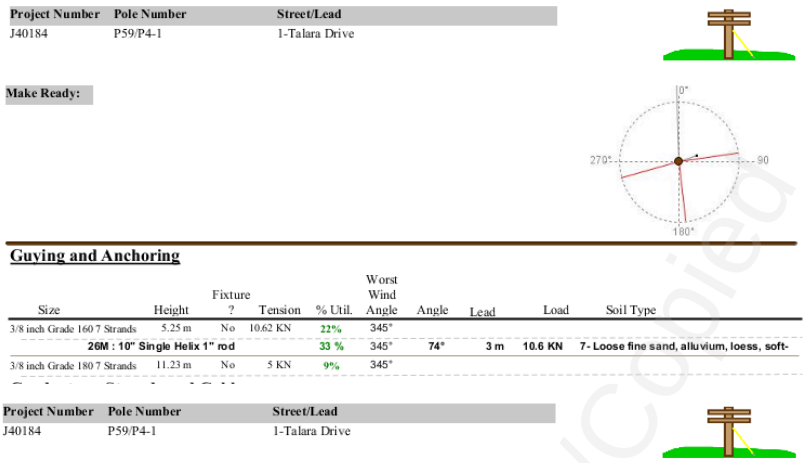
### Design Parameters

| Method | Line Grade | Weather Loading | Soil Type |
|---|---|---|---|
| Nonlinear | CSA Grade 2 | CSA Heavy | 4 - Medium dense sandy gravel, very stiff to hard silts and clays |

### Pole Parameters

| Type | Height (ft) | Class | Utilization |
|---|---|---|---|
| Wooden, Species= Western Red Cedar | 65 | 2 | 74.5% |

65 ft Class 2 Wooden, Species= Western Red Cedar .
Overall Utilization after Nonlinear Analysis= 74.5%
Pole dimensions based on CSA O15-2015 Structure evaluated at wind angles every 5 degrees.
Worst Results by Load Case:
Load Case: Minimum Temperature, @ -30 °C. Utilization=41.3%; based on a Stress of 15.93 MPa at a height of 2.3 m
Load Case: Deterministic Weather Load, Ice= 1.25 cm, Wind= 400 Pa, @ Wind Angle= 70 ° ,@ -20 °C. Utilization=74.5%; based on a Stress of 28.75 MPa at a height of 0.867 m
Load Case: Extreme Wind, Wind= 703 Pa, @ Wind Angle= 70 ° ,@ 0 °C. Utilization=62.7%; based on a Stress of 24.21 MPa at a height of -0.5 m
Worst Structural Analysis Result is:
Load Case: Deterministic Weather Load, Ice= 1.25 cm, Wind= 400 Pa, @ Wind Angle= 70 ° ,@ -20 °C. Utilization=74.5%; based on a Stress of 28.75 MPa at a height of 0.867 m
Anchor Leads, if any, are measured and reported from the absolute Center of the Structure.



| Project Number | Pole Number | Street/Lead |
|---|---|---|
| J40184 | P59/P4-1 | 1-Talara Drive |

**Make Ready:**



**Guying and Anchoring**

| Size | Height | Fixture ? | Tension | % Util. | Worst Wind Angle | Angle | Lead | Load | Soil Type |
|---|---|---|---|---|---|---|---|---|---|
| 3/8 inch Grade 160 7 Strands | 5.25 m | No | 10.62 KN | 22% | 345° | | | | |
| **26M : 10" Single Helix 1" rod** | | | | **33 %** | 345° | **74°** | **3 m** | **10.6 KN** | **7- Loose fine sand, alluvium, loess, soft-** |
| 3/8 inch Grade 180 7 Strands | 11.23 m | No | 5 KN | 9% | 345° | | | | |

| Project Number | Pole Number | Street/Lead |
|---|---|---|
| J40184 | P59/P4-1 | 1-Talara Drive |

**Conductors, Strands and Cables**

| Attachment Height | Description | Max Tension | | Max Sag | Status | Bundle Size | Clearance |
|---|---|---|---|---|---|---|---|
| **Span To Pole 55/P4A-1;696SQ3, Distance = 28.47 m, Angle = 82°** | | | | | | | |
| 11.7 m | 3/0 AWG PIGEON ACSR | 6195 N | 37% | 0.166 m | OK | 12.8 mm | |
| | The maximum sag for this attachment occurs approximately 7.5 m from structure 55/P4A-1;696SQ3 at an elevation of 183.68 m and resulting ground clearance of 10.407 m. (Clearance Type=Roadway (New)), Requirement= 4.7 m 750V-22KVAC<br>The worst clearance requirement for this attachment occurs approximately 7.5 m from structure 55/P4A-1;696SQ3 at an elevation of 183.68 m and resulting ground clearance of 10.407 m. (Clearance Type=Roadway (New)), Requirement= 4.7 m 750V-22KVAC<br>The minimum ground clearance for this attachment occurs approximately 7.5 m from structure 55/P4A-1;696SQ3 at an elevation of 183.68 m and resulting ground clearance of 10.407 m. (Clearance Type=Roadway (New)), Requirement= 4.7 m 750V-22KVAC | | | | | | |
| | Toronto Hydro-PRIM | | | | | | |
| 6.98 m | 3/0 A1 Triplex Secondary | 9962 N | 56% | 0.428 m | OK | 29 mm | |
| | The maximum sag for this attachment occurs approximately 12 m from structure 55/P4A-1;696SQ3 at an elevation of 179.468 m and resulting ground clearance of 6.197 m. (Clearance Type=Roadway (New)), Requirement= 4.7 m 0-750VAC/DC<br>The worst clearance requirement for this attachment occurs approximately 12 m from structure 55/P4A-1;696SQ3 at an elevation of 179.468 m and resulting ground clearance of 6.197 m. (Clearance Type=Roadway (New)), Requirement= 4.7 m 0-750VAC/DC<br>The minimum ground clearance for this attachment occurs approximately 12 m from structure 55/P4A-1;696SQ3 at an elevation of 179.468 m and resulting ground clearance of 6.197 m. (Clearance Type=Roadway (New)), Requirement= 4.7 m 0-750VAC/DC | | | | | | |
| | Toronto Hydro-SEC | | | | | | |
| 5.55 m | 1/4 inch 6M Strand | 9105 N | 53% | 0.127 m | OK | 40.1 mm | |
| | The maximum sag for this attachment occurs approximately 8 m from structure 55/P4A-1;696SQ3 at an elevation of 177.99 m and resulting ground clearance of 4.716 m. (Clearance Type=Roadway (New)), Requirement= 4.7 m<br>The worst clearance requirement for this attachment occurs approximately 8 m from structure 55/P4A-1;696SQ3 at an elevation of 177.99 m and resulting ground clearance of 4.716 m. (Clearance Type=Roadway (New)), Requirement= 4.7 m<br>The minimum ground clearance for this attachment occurs approximately 8 m from structure 55/P4A-1;696SQ3 at an elevation of 177.99 m and resulting ground clearance of 4.716 m. (Clearance Type=Roadway (New)), Requirement= 4.7 m | | | | | | |
| | EXIST. BELL | Cables: 50-26-50-26-100-24-SR-5B12LT-072 | | | | | |



*Figure C-1.4. Screenshots of [QuickPole Structure Reporting] Pole Attachment Summary example output, highlighting the two load cases required (Screenshot from 2026-07-21)*

# Appendix D. Pole Attachment Permit Submission Checklist

## Submission Package

*Verify that your complete submission package includes all mandatory digital PDF documents:*

| | |
|---|---|
| ☐ **Construction drawings** | • Stamped by a licensed Professional Engineer (P.Eng.)<br>• Feature a completed Certificate of Approval stamp |

- Construction notes outlining scope of work
- Pole information: Pole ID, Owner, Height, Class, Condition
- Pole Attachments Table: all current equipment's mounting height, side, span direction *Proposed modifications bolded
- Down-Guy & Anchor Data (Existing & New), *if applicable*
- Safe Limits of Approach Safety Note, *if applicable*
- Make-Ready Details, *if applicable*

| | |
|---|---|
| ☐ **Non-Linear Analysis Report** | • Stamped by a licensed Ontario Professional Engineer (P.Eng.) |

- Scope, Data Collection, Calculation Criteria (outlining the two load cases assessed)
- Project assumptions & survey pictures
- Clearance validation tables: ground clearances, in-span separations, vertical separations
- Software Report outputs *(e.g. from QuickPole, SPIDAcalc, etc)*
  - Project Analysis Summary Table **colour-coded stress levels*
  - Pole Analysis Report: Pole information, Design parameters & Load summary, explicitly showing both load cases assessed **colour-coded stress levels*
  - Guying & Anchoring
  - Conductors, Strands, & Cables, explicitly showing the CSA clearances
  - Before & After Make-Ready Modelling, *if applicable*

☐ **Field Survey Notes & Photos**

## Clearance & Spatial Design Standards

*Confirm that your design complies with all mandatory clearance boundaries:*

☐ **Design Standard Version:** All designs are modelled under the current **CSA C22.3 No. 1** standard, clearly addressing both load cases.

- ☐ **Ground Clearance *(CSA C22.3 No. 1, Table 2)*:** Minimum design heights above roadways, pedestrian pathways, or railways are verified.
- ☐ **Vertical Separation at Structure *(CSA C22.3 No. 1, Table 23)*:** Minimum vertical separations at the structure and within the working space are verified.
- ☐ **In-Span Separation *(CSA C22.3 No. 1, Table 24)*:** Mid-span separations under worst-case thermal sag comply with the required limit.
- ☐ **HOL Telecom Corridor:** New attachments are strictly placed within the communication zone: **5.8 m (5800 mm)** minimum to **6.4 m (6400 mm)** maximum above ground.
- ☐ **Number of Telecom Attachments Limit:** The pole does not host more than **three (3)** communication strands.
- ☐ **Overlashing Authorization:** If three strands are already present, new fiber is overlashed and written permission from the host strand owner is included.
- ☐ **Telecom Spacing Constraints:** A minimum vertical gap of **0.3 m (300 mm)** is maintained between parallel communication strands on the pole.
- ☐ **Asset Spacing Constraints:** A minimum separation of **1.8 m (1800 mm)** is maintained between the highest telecommunication strand and the lowest physical power asset. *Note: Separation space may vary on existing installations to a minimum of 1.0 m (100 mm) to comply with CSA requirements.*

## Make-Ready, Field & Safety Verifications

*Validate that field conditions and worker safety considerations are addressed:*

- ☐ **Is there make-ready work required?**
  - Proposed anchors must be at least 1.5m from existing HOL anchors in the same line angle from the pole and must be shown on the drawings. If this cannot be maintained, please provide reasoning for consideration.
  - A maximum of two (2) down guys are permitted to attach to any single HOL-owned anchor.
  - Pole replacements will need to be reviewed by the design department, and premature replacement of the pole shall be paid for by the telecom as per the agreement with HOL.
  - The analysis must include the pole without additional make-ready work as well as with make-ready work to demonstrate that the pole will fail without it.
- ☐ **Do the drawings match the current field conditions and interfere with proposed work, existing equipment and Hydro Ottawa Operations?**
  - Providing survey notes will reduce the likelihood of resubmission to occur for this reason.
- ☐ **Safe Limit of Approach Note:** A safety note is clear on the construction drawings for any utility pole where a telecom attachment is within 3.0 m of an energized asset.
- ☐ **Does the proposed attachment threaten the health and safety of Hydro Ottawa employees, contractors, or other permitted occupants of the poles?**
  - *Example:* Small cell wireless clearances and shutoff switch

## Administrative & Account Prerequisites

*Confirm that your account and agreements with Hydro Ottawa are up to date:*
*Note: These may not necessarily be related to a specific permit but could affect permit approval.*

- ☐ **Is there a valid agreement with Hydro Ottawa for the type of attachment being requested (wireline vs wireless)?** If not, please contact: ss-permits@hydroottawa.com
- ☐ **Does the applicant have any outstanding pole transfers? Does the applicant have any outstanding As-Built drawings?**
    - *Note: As-builts are due no later than 180 days after approval date - please send as-built packages to ss-tranfers@hydroottawa.com*
- ☐ **Does the applicant have any outstanding payments to Hydro Ottawa?**
- ☐ **Are there any construction related correspondence that would affect this permit?**
    - Flagging this will help expedite the permit and reduce the amount of back and forth.