**STATE OF CONNECTICUT**
**CONNECTICUT SITING COUNCIL**

**IN RE:**

**DOCKET NO. 454**

**APPLICATION OF TOWER HOLDINGS, LLC FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE AND OPERATION OF A TELECOMMUNICATIONS FACILITY AT 199 BRICKYARD ROAD IN THE TOWN OF FARMINGTON, CONNECTICUT**

**January 27, 2015**

## PRE-HEARING SUBMISSION OF TOWER HOLDINGS, LLC

The Applicant, Tower Holdings, LLC, ("Tower Holdings"), respectfully submits this Pre-Hearing Submission in accordance with § 16-50j-25(c) of the Regulations of Connecticut State Agencies.

### A. Witness List

1. Stephen Savino, Jr., Manager of Tower Holdings, and President of Northeast Towers, Inc.;

2. Chuck Regulbuto, Director of Business Development, Energy Site Solutions, LLC;

3. Michael Libertine, LEP, Director of Siting and Permitting, All-Points Technology Corporation, P.C. ("All-Points");

4. Robert C. Burns, P.E., Professional Civil Engineer, All-Points;

5. Martin J. Lavin, Radio Frequency Engineer, C Squared Systems, LLC; and

6. Ernest R. Jones, P.E., President and Founder, Consolidated Engineering, Inc.

The resumes of the above-mentioned witnesses are appended hereto as Attachment B.

**B. Exhibit List**

1. The Application of Tower Holdings for a Certificate of Environmental Compatibility and Public Need ("Application") for the construction, maintenance and operation of a telecommunications facility at 199 Brickyard Road, filed with the Council on November 7, 2014, including all Attachments appended thereto and materials also bulk filed with the Council;

2. Supplemental Certification of Service, dated November 10, 2014;

3. Tower Holdings' Responses to the Council's First Set of Interrogatories, dated January 5, 2015;

4. Tower Holdings' Responses to the Town of Farmington's First Set of Interrogatories, dated January 27, 2015;

5. "Determination of No Hazard to Air Navigation" from the Federal Aviation Administration, issued January 9, 2015;

6. Tower Holding's response to the comments from the Department of Public Health, dated December 23, 2014, to be provided to the Council;

7. Affidavit of Sign Posting, dated January 23, 2015, appended hereto as Attachment A;

8. Witness Resumes, appended hereto as Attachment B;

9. Pre-filed testimony of Ernest R. Jones, P.E., in the form of a letter, dated January 5, 2015, which is appended hereto as Attachment C;

10. Enlarged prints of site plans and aerial photograph (the originals of which are a part of the Application), to be submitted to the Council at the hearing on February 3, 2015; and

11. Any other exhibits that may be obtained prior to the hearing and are relevant to the Application or as rebuttal to positions taken by the other parties and intervenors of record.

**C. Items to be Noticed Administratively**

Tower Holdings does not wish to notice any items administratively at this time.

**D. Direct Testimony**

At the hearing on this Application, Tower Holdings intends to adopt the aforementioned exhibits as its direct testimony and make its representatives available for cross-examination and re-direct examination. Tower Holdings respectfully reserves the right to offer additional

exhibits, witnesses, testimony and administratively noticed materials as may be necessary during the course of the proceedings, including for purposes of rebuttal.

Respectfully submitted by,

TOWER HOLDINGS, LLC

By:_____

Jesse A. Langer
Updike, Kelly & Spellacy, P.C.
265 Church Street
New Haven, CT 06510
(203) 786-8310
Email: jlanger@uks.com

# ATTACHMENT A

Affidavit of Sign Posting

**STATE OF CONNECTICUT**
**CONNECTICUT SITING COUNCIL**

**IN RE:**

**DOCKET NO. 454**

**APPLICATION OF TOWER HOLDINGS, LLC FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE AND OPERATION OF A TELECOMMUNICATIONS FACILITY AT 199 BRICKYARD ROAD IN THE TOWN OF FARMINGTON, CONNECTICUT**

**January 23, 2015**

**AFFIDAVIT OF CHUCK REGULBUTO**
**CONCERNING POSTING OF SIGN**

STATE OF CONNECTICUT )
) ss.: Farmington
COUNTY OF HARTFORD )

I, Chuck Regulbuto, being duly sworn according to law, hereby depose and say:

1. I am over eighteen (18) years of age and believe in the obligations of an oath.

2. I am the Business Development Director for Energy Site Solutions, LLC ("ESS").

3. Tower Holdings, LLC, the applicant in the above-captioned Docket, retained ESS to perform certain services in connection with this Docket including, but not limited to, the posting of a sign to notify the public of the public hearing scheduled by the Connecticut Siting Council for this Docket on February 3, 2015.

4. The sign was posted, under my supervision, on January 22, 2015, in accordance with § 16-50j-21(a)(3) of the Regulations of Connecticut State Agencies.

5. The sign was posted at 199 Brickyard Road, which is the location of the site of the proposed telecommunications facility, along Brickyard Road within the vicinity of the access to the site. Photographs of the sign are attached hereto as Exhibit A.

**[SPACE LEFT BLANK INTENTIONALLY]**

**IN WITNESS WHEREOF**, I have hereunto set my hand and seal this 23rd day of January, 2015.

Chuck Regulbuto

Subscribed and sworn before me this 23rd day of January, 2015.

Notary Public
My Commission Expires: 07/31/2018


NOTARY
PUBLIC
CONNECTICUT

**EXHIBIT A**

Photographs of Posted Sign


PUBLIC NOTICE
Tower Holdings, LLC has filed an application with the Connecticut Siting Council ("Council") for the construction of a telecommunications facility on this site. The maximum height of the facility is 180 feet or as otherwise determined by the Council. The Council will conduct a public hearing on Tuesday, February 3, 2015, beginning at 3:00 p.m., and continued at 7:00 p.m., at the Farmington Town Hall, Council Chambers, 1 Monteith Drive, Farmington, Connecticut. A copy of the application can be reviewed at the Town Hall or at the Council's offices in New Britain, Connecticut. For more information, please contact the Council by telephone at 860-827-2935, electronically at www.ct.gov/csc, or by mail at 10 Franklin Square, New Britain, Connecticut 06051.


PUBLIC NOTICE
Tower Holdings, LLC has filed an application with the Connecticut Siting Council ("Council") for the construction of a telecommunications facility on this site. The maximum height of the facility is 180 feet or as otherwise determined by the Council. The Council will conduct a public hearing on Tuesday, February 3, 2015, beginning at 3:00 p.m. and continued at 7:00 p.m., at the Farmington Town Hall, Council Chambers, 1 Monteith Drive, Farmington, Connecticut. A copy of the application can be reviewed at the Town Hall or at the Council's offices in New Britain, Connecticut. For more information, please contact the Council by telephone at [illegible], electronically at www.ct.gov/csc, or by mail at [illegible], New Britain, Connecticut 06051.


PUBLIC NOTICE

# ATTACHMENT B

Witness Resumes

**Robert C. Burns, PE**
**Professional Civil Engineer**
**All-Points Technology Corporation, P.C.**
**3 Saddlebrook Drive, Killingworth, CT 06419**
**(860) 663-1697 x206 (860) 418-7980**

## General Background

Robert Burns has more than 29 years of experience working on a variety of projects that include all aspects of civil engineering and site development, including highway/roadway design, sanitary sewer and septic system design, water mains, grading, drainage, site layout, and permitting. He has designed roadway improvement projects, corporate office parks, industrial complexes, retail centers, and developed numerous telecommunication facilities.
As a Project Manager, Bob's responsibilities include: conducting design visits and initial facility feasibility assessments; project research; design and permit plan preparation; meeting with clients, client's team and permitting authorities; testifying in front of permitting boards; preparing construction documents; and supporting contractors and construction team during construction activities.

## Employment History

BL Companies, 355 Research Parkway, Meriden, Connecticut
- Principal and Partner, April 1998 to May 2009

URS Corporation, 500 Enterprise Drive, Rocky Hill, Connecticut
- Project Manager, June 1986 to April 1998

Storch Associates, Boston, Massachusetts
- Co-op Engineer, June 1984 to June 1985

## Key Projects

- **Telecommunication Facilities.**

  Project Manager responsible for the site feasibility, layout, permitting, and design of numerous raw land, rooftop, and co-location telecommunication facilities throughout the Northeast. Services included surveying, geotechnical, environmental, electrical engineering, civil and structural engineering, and construction management.

  **Clients:** -
  - Homeland Towers - Connecticut
  - T-Mobile Northeast, LLC - Connecticut
  - American Tower Corp. - Connecticut
  - Bay Communications II, LLC - Connecticut
  - Verizon Wireless, Inc. – Connecticut, New York, and western Massachusetts
  - Message Center Management – Connecticut
  - UNIsite – Northeast Region
  - Crown Castle – Northeast Region
  - Sprint PCS – Connecticut
  - Omnipoint Communications – Massachusetts
  - SNET Mobility, Inc. – Connecticut, Massachusetts, and Rhode Island

- **Animal Control, Humane Society and Veterinary Clinic Facility, Meriden, Connecticut.**

  Project Manager responsible for the conceptual site design for a new combined Animal Control Facility/Humane Society Facility, with Veterinary Clinic, in the City of Meriden. Included in the initial site investigation was a concept plan to fit a predetermined city owned property, as well as schematic architectural floor plan and elevation drawings. The chosen parcel is the present location of the existing outdated Meriden Animal Control building, and care was taken in the placement of the new facility and parking area to allow for continued use of the existing facility during the build cycle.

- **Connecticut Bridge Scour Program, Various Locations, Connecticut.**

  Design Engineer responsible for hydrologic calculation of 150 bridges throughout the State of Connecticut. Responsibilities include field inspection and observance of all 150 bridges.

- **Higby Road Reconstruction, Middletown, Connecticut.**

Project Engineer responsible for the reconstruction of this 4,950-foot roadway. The project included geometric design, drainage system design, permit preparation, construction estimates, the coordination and preparation of all construction documents, and consultation during construction. This reconstructed road will feature a curbed 30-foot pavement width designed to City and applicable AASHTO and Connecticut Department of Transportation standards and specifications. Critical design elements of the project were the layout and development of storm drainage facilities and the establishment of rock profiles to best control and fix construction cost. Two separate drainage systems were required to service the project. Several other issues were addressed during the design process including shallow rock depth, potential underground utility conflicts, reduction of construction costs, ground water conditions, maintenance and protection of traffic, drainage, an embankment on the west side of the road, and the intersection at Sisk Street.

- **Salt Shed Program, Connecticut Department of Transportation, Connecticut.**
  Design Engineer responsible for the design of numerous salt shed facilities throughout the State of Connecticut. The project included the layout, grading, storm water layout and computations, site investigations and the coordination and preparation of all construction documents.
- **Old Turnpike Road, Southington, Connecticut.**
  Project Engineer responsible for the reconstruction of this 11,000-foot local roadway. The project included geometric design, drainage system design, permit preparation, construction estimates, and the coordination and preparation of construction documents. This reconstructed road will have a curbed 32-foot pavement width designed to City and applicable AASHTO and Connecticut Department of Transportation standards and specifications.
- **Yale Old Campus Utility Modification Project, New Haven, Connecticut.**
  Project Engineer responsible for the separation of storm water and sanitary system in the Old Campus Section of Yale University. This project included the collection and compilation of all existing utility information supplemented with field investigation, the design of a new storm water system and the coordination and preparation of all construction documents.
- **Rite Aid Corporation, Northeast, Mid-Atlantic, and North Central U.S.**
  Project Manager for the design of various Rite Aid stores. Work included the due diligence and investigation of potential sites, design of concept plans for consideration by retailer's development committee, and the design and permitting of projects that progress to construction.
- **Wal*Mart Stores, Southington and Colchester, Connecticut.**
  Project Manager for the design of several stores in Connecticut. Work assignments on various projects included concept plan development, site design and permitting, preparation of construction documents, and construction administration and inspection.
- **Meriden City Center Initiative Master Plan, Meriden, Connecticut.**
  Division Director responsible for preparation oversight of the Meriden City Center Initiative Master Plan, a comprehensive plan for the redevelopment of the downtown Meriden area. Development of the plan required extensive investigation and dialog with City staff and a variety of groups and individuals representing the varying interests of merchants and residents. The master plan of development included redesign of roadway and traffic patterns, review of historic buildings and creation of over 30 acres of commercially developable land. Detailed feasibility analysis included evaluation of critical zoning issues, reviewing existing utilities and infrastructure, and development of a preliminary opinion of total project cost.

**Education** Northeastern University, BS Civil Engineering 1986

**Certifications/ Licenses** Profession Engineer Connecticut #20071

CEI

*Expert Technical Services*
**Consolidated Engineering, Inc**
*466 W. State Route 68*
*Lynnville, Indiana 47619*
*Email: ejones@ConEngInc.com*

# Ernest R. Jones, P.E.

**Civil / Mechanical Engineer**

**Specializing in Structures for Towers, Antennas, Wind Turbines, Lifting Systems; Expertise in Tower Design, Construction and Specialty Rigging:**

## Professional Engineering

**Registered Professional Engineer**: Mechanical and Civil Engineering
**States Registered**: Arizona, Colorado, District of Columbia, Florida, Georgia, Indiana, Kansas, Kentucky, Maine, Massachusetts, Missouri, New York, North Carolina, Oregon, Pennsylvania, Tennessee, Washington, and Wisconsin. Up to 48 states are represented by CEI thru its professional engineer staff and industry representative technical professionals.

## Work Experience

**1990 – Present - Consolidated Engineering, Inc.**
Consolidated Engineering Incorporated (CEI) was initiated to begin work as an engineering consulting company in 1990.

**Engineering Design Duties:**

CEI has performed structural analysis and tower renovations with numerous companies in the broadcast and telecom tower industry. These companies include Electronics Research, Inc. (ERI), Clear Channel Communications, Broadcast Connection Equipment Solutions, Broadcast Tower Technologies, Inc., CBS, NBC, ABC, FOX, Wind Tower Systems LLC, BMB Communications Management LLC, Crown Castle USA, American Tower Corporation, RF Services Inc., as well as many others. Mr. Jones and its staff are experienced in tower structures, conveyor support systems, and wind turbines.

Mr. Jones has a special relationship with Electronics Research, Inc. (ERI) in Chandler, Indiana and was V. P. of Engineering for several where he developed tower structures for manufacturing. Mr. Jones has assisted in tower and antenna structures in relation to research, design, manufacturing and erection since the early 1980's.

Mr. Jones and his engineering staff has designed and been in charge of fabrication for over 1000 towers over the past 30 years. These included monopole structures up to 240 feet in height, self supporting lattice towers up to 600 feet in height and guyed towers up to 2000 feet in height. Several rigging plans have been prepared and reviewed for safe and reliable construction of towers over the years. CEI, with Ernie Jones guidance, has developed a system of dropping guyed towers, when essential, to control their fall in certain directions when required and if practical. CEI has structurally analyzed towers up to 2000 feet in height of many types, makes and models, including structures built back in the 1930's and 1940's.

CEI engineers have designed structure supports for conveyor systems for the farming and industrial community and have designed special erection systems and support structures for the wind turbine industry.

Mr. Jones is an expert in vertical and tilted gin poles and in lifting poles, their design and use. Mr. Jones has reviewed many rigging plans for the broadcast and telecom tower industry and is a Qualified Engineer as defined in ANSI/TIA-1019-A-2011. Mr. Jones teaches gin pole use and the use of the new tower industry construction standard.

**Work Experience Prior to 1990 (1973 – 1989)**

Ernie Jones, PE, performed engineering services for the Factory Mutual Engineering Association (FMEA), now known as FM Global, working in the field of loss prevention and loss analysis for property insurance companies from 1973 to 1989. This work specialized in loss analysis related to apartments, factory buildings, warehouses, retail stores, large manufacturing facilities and special structures. This work included many large industry site inspections, loss investigations, and review of building and special protection system plans for industry.

## Industry Professional Services

Ernie Jones, PE, has been a participating member of the **TR14.7 Committee** of the Telecommunications Industry Association and Electronics Industry Association since **1986.** This committee has the responsibility to write and approve the **ANSI/TIA/EIA-222 Standard** which is the American National Standard for Steel Antenna Towers and Antenna Supporting Structures.

Mr. Jones was responsible for developing the **ANSI/TIA-1019, 2004 Gin Pole Standard,** which is entitled "Structural Standards for Steel Gin Poles Used for the Installation of Antenna Towers and Antenna Supporting Structures". He is Co-Chairman of the technical section of this standard which recently produced a new and "one of a kind" tower industry construction standard entitled "Standard for Installation, Alteration and Maintenance of Antenna Supporting Structures and Antennas" **ANSI/TIA-1019-A-2011 (Approved: Aug. 29, 2011).**

Mr. Jones was instrumental in setting up and working with NATE on the 2013 Gin Pole Training Summit which developed the NATE "**Training Guidelines for Working on Communication and Similar Structures with a Gin Pole and Associated Equipment**".

My Jones is a member of the committee responsible for writing a new communication tower standard **ANSI/ASSE A10.48 – 20xx** entitled "Criteria for Safety Practices with the Construction, Demolition, Modification, and Maintenance of Telecommunication Towers".

## Tower Injury Related Work

Mr. Jones, thru CEI and Humatec Expert Technical Services, has provided professional services to a variety of attorneys and law firms in the capacity of expert witness since 2001.

Mr. Jones is an expert witness as a construction expert in two ongoing cases. One is the West Virginia February 1, 2014 tower construction accident that resulted in three fatal deaths. The other is a Gin Pole accident in Georgetown Mississippi that resulted in two fatal deaths in May 28, 2013.

## Formal Education

| | | |
|---|---|---|
| **Bachelor of Science:** | Rose-Hulman Institute of Technology (Terre Haute, IN) **1969- 1973** | |
| | BS Mechanical Engineering & Minor in Economics | |
| **Special Studies:** | University of Evansville (Evansville, IN) | |
| | Civil Engineering "Structures IV" | **1986** |
| | Civil Engineering "Computer Applied Structure Design" | **1987** |
| | Mechanical Engineering "Finite Elements" | **1987** |
| | Civil Engineering "Geotechnical Engineering I" | **1989** |
| | Civil Engineering "Geotechnical Engineering II" | **1990** |

## Professional Societies

American Institute of Steel Construction (AISC) Member (thru ERI)
American Society of Civil Engineers (ASCE) Member
American Welding Society (AWS) Member
National Association of Tower Erectors (NATE) Member
Telecommunication Industry Association (TIA) Participating Member

## Professional Presentations

**Standard for Installation, Alteration and Maintenance of Antenna Supporting Structures and Antennas – ANSI/TIA-1019-A-20XX.**

- National Association of Tower Erectors (NATE)
- February 2011 – Oklahoma City, OK

**Structural Standards for Installation, Alteration and Maintenance of Communication Towers, Antennas and Antenna Supporting Structures: ANSI/TIA-1019-A "Draft"**

- National Association of Broadcasters Convention (NAB)
- April 2009 - Las Vegas, NV

**Proposed Construction Standards and Rigging Plans for Towers**

- National Association of Tower Erectors (NATE)
- February 2009 -Nashville, TN

**Fall Radius Design Concepts for Broadcast and Telecom Tower Structures**

- Paper for TR 14.7 Committee for TIA-222 Standard
- February 2009

**1500 Foot Self Supporting Tower Design Presentation**

- McHenry County College Board
- February 2009 - Crystal Lake, IL

**Examination of a Catastrophic Tower Failure**

- Iowa DTV Symposium
- October 2007 - Des Moines, IA

**Structural Standards for Design, Construction and Operation of Broadcast Towers**

- National Association of Broadcasters (NAB)
- April 2006 - Las Vegas, NV

**Structural Standards for Installation, Alteration and Maintenance of Communication Towers, Antennas and Antenna Supporting Structures: ANSI/TIA-1019 "Draft"**

- National Association of Tower Erectors (NATE)
- February 2006 - Orlando, FL

**Standards for Design, Performance and Construction of Radio, Television, Cellular and Microwave Towers**

- IOWA Public Television
- October 2005 - Des Moines, IA

**Structural Standards for Installation of Antennas, Towers and Antenna Supporting Structures**

- North Carolina Society of Broadcast Engineers
- March, 2005 - North Carolina

**Innovations in RF and Structural Engineering**

- National Association of Broadcasters (NAB)
- April, 2004 - Las Vegas, NV

**Joint Rotation on Tall Towers for the Impact of Coverage for Broadcast Transmission Systems**

- IOWA Public Television
- October 2004 - Des Moines, IA

**Buckling for Tower Mast Members and Gin Poles**

- Montana Joint Engineers Conference
- November 2003 - Helena, MT

**TIA/EIA-222 Gin Pole Standard Presentation**

- National Association of Tower Erectors (NATE)
- NATE Conference – February 2002
- NATE Conference – February 2001
- Orlando, FL

**Analysis of Broadcast Antenna Performance as a Function of Support Structure**

- 54th Annual NAB Broadcast Engineering Conference
- April, 2000 - Las Vegas, NV

## Research Activities

| | |
|---|---|
| 2006 | **Experimental Investigation of Load Amplification Factors Due to Sudden Guy Rupture and Guy Slippage.** Research completed with the University of Windsor to determine impact factors for released guy cables for the ANSI\TIA-1019 proposed industry tower construction standard. |
| 2006 | **Use of Temporary Guys During Construction 5-16-2006 Bulletin.** Prepared this bulletin for the tower construction industry (thru NATE) for dissemination of standard committee preferred practices for industry use prior to the formal release of the in-process tower construction standard. |
| 2004 | **Testing of Reinforced Leg Members of Weld-Together Tower Sections.** Supervised this work completed at the University of Windsor for Electronics Research, Inc. |
| 2003 | **Testing of Bolted Circular Flange Connections Typically Used in Broadcast Tower Designs.** Supervised this work completed at the University of Windsor for Electronics Research, Inc. |
| 2002 | **Strength of Bolted Ring-Type Connections of Solid Round Leg Members of Guyed Communication Structures.** Supervised this work completed at the University of Windsor for Electronics Research, Inc. |
| 2001 | **Effects of Residual Stresses on Column Strength of Solid Round Bars.** Presented the results of this research to the TR 14.7 TIA committee. Results were used to determine compression equations for use in the ANSI/TIA-222-G, 2005 Standard. |
| 1999 – 2002 | **Analytical Research, Small Scale Testing and Full Scale Testing for Development of Overall Buckling Factors for Steel Gin Poles**. This work was used for development of ANSI/TIA-1019, 2004 "Structural Standards for Steel Gin Poles Used for Installation of Antenna Supporting Structures" |
| 1999 | **Effective Length Factors for Solid Round Diagonals in Guyed Communication Towers.** Testing for this work was preformed at the University of Windsor and was used for buckling factors now provided in the ANSI/TIA-222-G, 2005 Standard. |
| 1999 | **Effective Length Factors for Solid Round Chord (Leg) Members of Guyed Towers.** Testing for this work was preformed at the University of Windsor and was used for buckling factors now provided in the ANSI/TIA-222-G, 2005 Standard. |

C² Systems
martin.lavin@csquaredsystems.com

Resume of: Martin J. Lavin 65 Dartmouth Drive, Auburn, NH 603-644-2820

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**SUMMARY:** Over twenty-five years of experience in the RF and wireless communications industry.

**EXPERIENCE:**

**C Squared Systems, LLC** **2008-Present**
**Senior RF Engineer**

- Drive Test Services
- Intermodulation Studies
- RF Exposure Studies
- Advanced Wireless Services RF System Design
- Wireless Broadband Access Systems Engineering
- Zoning Hearing Support

**U.S. Cellular, Bedford, NH** **2002-2008**
**Senior RF Engineer**

- West Virginia / Maryland / Pennsylvania CDMA System Design and Optimization
- CDMA Capacity Planning and New Site Builds
- Subject Matter Expert for E-911, Public Safety Interference Issues, Colocation, and Technology Transitions

**Independent Wireless One (Sprint Network Affiliate), Londonderry, NH** **2000-2002**
**Senior RF Engineer**

- CDMA System Buildout in New Hampshire and Vermont
- Organized Field Office
- RF System Design and Site Selection Point of Contact with Site Acquisition and Construction
- Capacity Planning
- System Performance

**Nextel, Reston, VA** **1999-2000**
**Senior Manager – Technology Development**

- New Feature Development for the Motorola iDEN system
- Corporate RF Engineering Standards
- Evaluation of international and domestic spectrum acquisition opportunities

**USI, Chantilly, VA** **1999**
**Program Manager**

- Software development projects in Europe and U.S., including budget and schedule responsibility.
- Direct client contact for requirements gathering and proposal writing.

**LCC International, McLean, VA** **1991-1998**
**Manager of Engineering**

- Domestic and International Cellular & PCS System Design and Buildout
- FCC PCS Pioneer's Preference
- Strategic Planning for LCC Initial Public Offering
- Responsible for RF Design and Site Selection for Los Angeles MTA
- Wrote network equipment RFP for two PCS MTAs
- Software Product Manager for CellCAD, ANET, and MetroNET
- Managed Drive Test Services, including all Timesheet and Expense Approval

**Carl T. Jones Corporation / SAIC, Springfield, VA** **1987-1991**
**EMC/EMI Engineer**

- Test and Measurement consulting for FCC compliance
- Broadcast (AM-FM-TV) consulting

**EDUCATION:**

**University of New Hampshire – Whittemore School of Business and Economics**
Master of Business Administration

**Rensselaer Polytechnic Institute**
Bachelor of Science, Electrical Engineering

**Michael Libertine, LEP**
**Director of Siting and Permitting**
**All-Points Technology Corporation, P.C.**
**3 Saddlebrook Drive, Killingworth, CT 06419**
**860-663-1697 860-983-5153**

### General Background

Mr. Libertine has over 23 years of professional experience in the environmental consulting field. His experience includes siting, permitting and regulatory compliance for telecommunication and utility clients involving: consultations with the local, state and federal agencies; environmental assessments/impact statements, including those consistent with NEPA regulations; visual and aesthetic evaluations; site assessments and field investigations for property transfers; remedial strategy development; environmental due diligence; Brownfields redevelopment projects; and remedial investigations at RCRA facilities as well as state and federally recognized hazardous waste sites. Mike is a Licensed Environmental Professional in Connecticut and has been Project Manager on over 1800 environmental site assessments and field investigations for property transfers throughout New England.

### Employment History

Vanasse Hangen Brustlin, Inc., 54 Tuttle Place, Middletown, Connecticut

- Director, Environmental Services May 1997 to January 2012

Atlantic Environmental Services, Inc./GEI Consultants, Colchester, Connecticut

- Project Manager/Team Leader, January 1991 to May 1997

### Key Projects

#### Environmental Permitting Services for Wireless Telecommunications Clients, New England & NY

Program Manager for environmental due diligence, siting and permitting services in support of various telecommunications clients throughout New England and New York. Mike has worked directly for licensed wireless service providers and tower management firms since 1997. Representative project-related services include due diligence and land use evaluations; preliminary site screenings; visibility analyses; preparation of compliance documentation, environmental assessments and Memorandums of Agreement to fulfill NEPA requirements; Phase I ESAs and Phase II/III field investigations; remedial planning and oversight; wetland assessments; vegetative/biological surveys; noise analyses; regulatory permitting, and construction support. Mr. Libertine has testified on behalf of telecommunications clients in front of local municipalities and the CT Siting Council on nearly 400 applications.

#### Certificates of Environmental Compatibility and Public Need, Electrical Substations, Connecticut

Project Manager in support of Applications to the CSC for the permitting of five new bulk power substations in Killingly, Guilford, Windsor, Waterford and Westport, Connecticut (2004 through 2012). These projects required extensive coordination of numerous team members, including client's in-house discipline managers and engineers, consultants, legal counsel, staff, and subcontractors. Mike was responsible for overseeing pre-acquisition environmental due diligence services, site survey, site data collection and analysis, site/civil layout, and drafting of municipal documents and the Application to the CT Siting Council. Services included conducting natural resources inventories of existing flora and fauna, habitat evaluations, wetland delineation, noise analyses, hazardous waste investigations, site layout and design drawings, landscape architecture, preparation of technical documents, coordination with State and local agencies, and permitting. Mike was also responsible for the preparation of Development and Management Plans to the Siting Council and providing environmental monitoring for adherence to the CTDEP's General Permit for Construction Activities and environmental requirements set forth in the Client's contract documents and specifications.

#### Environmental Siting and Permitting Services, Electrical Utilities

Program Manager in support of various electrical transmission projects, including assessment and permitting of transmission line corridors, structures, and underground utility installations in CT and MA. Mike was responsible for overseeing civil engineering feasibility studies, pre-acquisition due diligence evaluations, natural resources inventories of existing flora and fauna, habitat evaluations, wetland delineations, noise analysis, hazardous waste investigations, site survey, layout and design

drawings, landscape architecture, visual analyses, preparation of technical documents, coordination with federal, state and local agencies, regulatory permitting, public outreach, and expert witness testimony. Mike has assisted clients in the siting, design and permitting of modifications to existing substations and switch yards, installing transition stations, as well as transmission line corridor studies.

**Environmental Evaluations and Regulatory Permitting, Wind Farm Colebrook, Connecticut**
Project Manager for environmental considerations associated with the development of Connecticut's first commercial wind farm in northwest Connecticut. Responsibilities included overseeing due diligence, natural resource studies and environmental permitting activities. The 3.2 MW project involved evaluations of wetland and other natural resources, flora and fauna studies, sound studies, flicker analyses, visual evaluations and expert testimony. Mike assisted this client in preparing the Development and Management Plan and pre-construction coordination efforts.

**Environmental Siting and Permitting Services, Fuel Cell Installation, South Windsor, CT**
Project Manager for environmental considerations associated with the development of a 4.98 megawatt fuel cell generation facility. Mike prepared an environmental assessment documenting existing environmental conditions at the site and the proposed project's impacts to water resources, vegetation and wildlife, rare species, historic and cultural resources, scenic and recreational areas, and other natural resources. Noise and air quality assessments were also included in the evaluation of how the proposed build conditions might affect the surrounding environment.

**Constructability Review, Greater Springfield Reliability Project, Massachusetts and Connecticut**
Project Manager responsible for assessing the environmental and construction feasibility associated with the installation of a new 345-kV overhead transmission line, as well as existing electric distribution and transmission infrastructure upgrades, within approximately 57 miles of existing transmission line right-of-way (ROW) in Massachusetts and Connecticut. Project tasks included assessing the suitability of existing access roads to and within the ROW to determine their viability as construction routes; evaluating new access roads, developing primary access routes, identifying appropriate locations for construction pads at each proposed structure location, developing data collection and management methodologies, and, providing a GIS geo-database and mapping depicting field data. Mike also assisted the client on environmental permitting and compliance-related issues associated with the reconfiguration of three substations along the route, two in MA and one in CT.

**Permitting Support Services, Interstate Reliability Project, Connecticut**
Project Manager responsible for preparing Location Review documents associated with the Card Street Substation upgrades and overhead transmission line interconnections in Lebanon, Connecticut. Project tasks included evaluations of environmental impacts, including wetland resources and wildlife habitat, roadway improvements, site design, landscaping and visual impacts. Mr. Libertine acted as liaison with local officials during the technical review process and assisted in securing letters of support from the First Selectman, Planning and Zoning and Inland Wetlands Commissions.

| | |
|---|---|
| **Education** | University of Connecticut, B.S. Natural Resources Management, December 1990<br>Stonehill College, B.A. Marketing, May 1981 |
| **Certifications/ Licenses** | Licensed Environmental Professional, State of Connecticut, LEP No. 345<br>OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) Training (29 CFR 1910.120) |

# CHARLES S. REGULBUTO

## *Professional Experience:*

**New Business Development Director**
**Northeast Site Solutions/Energy Site Solutions** **3/12 – current**

Develop and execute strategies for lead generation and sales for New England based telecommunication services company including Site Acquisition, Regulatory, Project & Construction Management, Tower Development, Distributed Antenna Systems and Site Management for tower and rooftop sites. Provide market feedback to the company leadership regarding competitive offerings, prospect needs and generate product development ideas. Expanded services into renewable energy field with wind and solar power projects and working with strategic alliance to purchase future revenue stream of privately owned telecommunication sites. Personally pursue and close key sales opportunities and manage the sales process.

**Site Acquisition Manager**
**SAI Communications** **3/11 – 2/12**

ATT New Site Build Project - New England

Manage all site acquisition & development functions and activities from site search, candidate selection, lease negotiation, zoning and permitting of staff site acquisition specialists, independent contractors, sub-contractors, third party and legal representatives. Prepare and maintain internal and external site development milestone forecast trackers, databases and reports for weekly management meetings with the client and reporting. Conduct weekly status meetings with site acquisition personnel to assist in obtaining forecast requirements, overcome site specific issues, and to expedite client development procedures.

**Network Development Project Manager**
**Clearwire** **3/09 – 3/11**

Connecticut

Responsible for all aspects and overall management of Phase 1- 4G build-out in the Connecticut market, 400+ sites from inception to completion on existing sites, and raw land opportunities. Duties encompass development and monitoring of project forecasting and budgets and coordination with other corporate departments for managerial reporting. Manage third party vendors to and attain forecasted monthly milestones. Work closely with both RF design engineers and microwave engineers to ensure proper line of site and coverage objective requirements within site specifications.

**Director of Northeast Development**
**Optasite/SBA** **10/04 – 5/09**

New England

Perform due diligence on potential tower locations throughout New England including site selection, carrier need, zoning potential, constructability, and marketability. Create and oversee budgets for all

tower development. Staff and manage site acquisition personnel and zoning specialists to perform required functions. Market to and interact with area carriers for site specific requirements and locations. Prepare internal operational reports, conduct weekly status meetings. Meet with industry-specific vendors, negotiate contracts and review scopes of work.

**Partner**
**Northstar Site Development LLC** **10/98 – 10/04**

New England, New York, Chicago, Detroit

Managed business operations of a 28 person telecommunication company which performed site acquisition and leasing functions, construction and zoning management, as well as, site modification activities for; Verizon, AT&T, General Dynamics, Broadband to Wireless, Bechtel and Nextel. Managed site acquisition specialists, construction managers, zoning managers and site modification agents throughout New England, New York, Chicago and Detroit. Responsible for staffing and training personnel assigned to individual clients to meet client needs, specifications and job requirements.

**Site Acquisition Manager**
**Pinnacle Site Developement** **6/97 – 10/98**

Sprint - CT/WMA Phase 1 Build Out Project

Manage day to day activities of other site acquisition specialists working for company to reach monthly goals. Conduct bi-weekly site status meetings. Monitor and address leasing, zoning, construction, title, easement and environmental issues as needed. Participate in pre-zoning meetings, facilitate required zoning materials, and attend zoning hearings. Coordinate review and analysis for all unsolicited sites with RF engineers.

**Site Acquisition Specialist**
**SBA/Site Cellection, Inc** **3/96 – 6/97**

Sprint - CT/WMA Phase 1 Build Out Project

Identify and evaluate search area candidates for leasing, zoning and construction feasibility. Create candidate packages. Perform lease negotiations and attorney review coordination. Prepare executable lease documents and final lease review prior to execution. Prepare lease summary and completion paperwork for central office. Coordinate and conduct site and design visits for tower build, rooftop and tower and water tank collocation sites. Monitor and address leasing, zoning, construction, title and easement issues as needed.

**Outside Plant Manager Axsys Communications, Inc. 12/94 – 3/96**

CT/MA/RI

Responsible for operations of fiber optic installation, splicing and technical services company. Encompassed; Project Management, staff supervision, resource management and estimating. Managed and reported on work in progress and work forecast, budgeting and cost control, sub-contractor bid analysis and contract negotiations. Supervised customer service personnel, recruiting and staffing.

# ATTACHMENT C

Letter of Ernest R. Jones, P.E., dated January 5, 2015

CONSOLIDATED ENGINEERING, INC.

*Phone: 812.459.1346*
*Email: ejones@conenginc.com*
*January 5, 2015*

Jesse Langer
Updike, Kelly & Spellacy, P.C.
One Century Tower
265Chrch Street
New Haven, CT 06510
jlanger@uks.com

1-5-2015

Mr. Langer,

This letter is to address the need for a site specific tower for gin pole and other lifting device 'training'. It is for a gin pole, a lifting pole, and blocks used for lifting in the communication tower industry, and how training for these lifting systems may be relevant to public safety.

A **gin pole** is a lifting device that allows headroom above the highest fixed point of a structure used to raise (or lower) successive sections of structural steel, antennas, or equipment into position. It typically uses a steel lattice constructed boom in either a triangular shape or in a square shape, and uses wire rope for a load line driven from a ground mounted hoist or winch. A gin pole is usually used in a **vertical position** but can be used in a **tilted configuration**. A **lifting pole** is a small pole or boom, usually extended a few feet above the top of a tower, to gain head room for a top tower sector mount or antenna lift. It is typically much lighter than a common communication tower gin pole. The difference with this type of lifting system, in relation to a normal gin pole, is the use of synthetic rope for the system load line which is commonly driven with a cathead hoist for lighter lifts. It should be noted that usually only 25% to 40% of the total length of a gin pole is extended above a tower. The amount of gin pole positioned above this tower for training can also vary and be limited to less than 20 feet, limiting the total height of tower and gin pole to or less than 200 feet above ground. *For training, I see that this extension in height limited to only short periods of time, less than a couple of hours, and only a few times each year.* Examples of a gin pole device and a lifting pole device are provided with attachments to this letter. (See **Attachments 1, 2 and 3**)

Use of a gin pole, or a similar lifting device, is a **"complete system"** requiring the lifting device, load and tag lines, blocks mounted to the tower and a ground mounted hoist. The whole system has to be put together in the field and is often site-specific.

Lattice towers, 3-sided or 4-sided, are often the type of towers requiring the use of gin poles. They are typically taller structures rendering the use of cranes for lifting uneconomical and often not an option due to lifting heights. Monopole structures are seldom rigged with gin poles due to difficulty in connecting and due to their shorter heights, usually 200 feet or less. The shorter monopole structures can be economically assessed for lifting work with ground mounted cranes.

In the 1990's OSHA specifically required engineered lift charts, known as "load charts", for the use of gin poles for tower work. There was not a specific standard to standardize the engineering of these charts at that time. Our industry developed a subcommittee of the TIA 14.7 committee (TIA - Telecommunications Industry Association). This committee produced the **ANSI\TIA-1019 -2004** standard entitled **"Structural Standards for Steel Gin Poles Used for Installation of Antenna Towers**

**and Antenna Supporting Structures".** This standard outlined a specific approach for use of a gin pole and for engineering related to load charts and special engineering lifts. It was revised to become a complete communications tower construction standard referenced as ANSI/TIA-1019-A-2011 entitled **"Standard for Installation, Alteration and Maintenance of Antenna Supporting Structures and Antennas"**. These standards set forth guidelines for the use of gin poles and for engineering relative to acceptable lift loads. (See **Attachment 4** for a Standard Load Chart)

Once the broadcast digital TV build-out was completed, tall tower gin pole work slowed down. Today there is an ongoing massive construction build-out and upgrade of existing structures for the telecommunications side of the communications industry (cellular antenna work). A large majority of this work, on towers up to 350 foot tall, use ground mounted cranes for lifts at tower tops instead of using gin poles. Cranes are economical for lifts in the 250 foot and under height range and the size cranes necessary for these lifts are usually not so large to have problems accessing the site. From 250 feet to 350 feet the economics begin to change and we start to see consideration for gin pole work. Economics and site area restrictions usually eliminate the use of cranes for top tower work for towers over 350 feet in height, and cranes are no choice at all for tower lifts at the top of towers much above 500 feet.

Helicopter lifts can be an option to the use of gin poles, but often are too expensive and usually limited for antennas weighing less than 7,000 lbs. Some sites are not suitable for the staging areas and open areas required for safe helicopter use. While helicopters can be of use in some situations, their cost and other restrictions will leave most of the tall tower top lifting work to the preference of gin pole use.

Blocks hung off the side of the towers are usually used for lifts 20 feet or more below the top of a tower. So, gin poles and cranes are usually only considered for lifts within the top 20 feet of a tower, or above a tower. (See **Attachment 5** for Rigging with a Top Block on a Tower)

For top tower lifting we are now seeing a move back to the use of gin poles and lifting poles to allow for head room above towers to make alterations to top mounted cell systems and for the installation, or de-stacking, of towers taller than 250 feet. Aside from this general transition back into the use of gin poles and lifting poles, we also anticipate that the Federal Communication Commission's ("FCC") mandate for TV stations to relocate to different channels will require a significant amount of future gin pole use as most of these TV antennas extend above the top of tall lattice towers. TV antennas are much heavier top mounted antennas than cellular antennas and typically located on towers from 500 foot tall to 2,000 foot tall. This makes the use of gin poles for their lifts often the most desirable method, and in many circumstances the only choice available. The FCC mandated broadcast antenna change-out is scheduled to start in late 2016 and will likely last for several years. Although firm predictions of time frame for this change-out have not been established the FCC has indicated they anticipate 4 to 5 years as an estimate. However, the FCC missed the original expected time frame for the initial digital TV build-out by several years. In my opinion, this channel relocation will require significant tall tower work for 7 to 10 years from the time period the relocation starts.

In just the past couple years there have been at least 4 deaths related to gin pole use, and 3 deaths related to tower construction work. One gin pole accident in Mississippi claimed two lives when a gin pole was use to get head room above a 280 foot guyed tower for replacement of cellular antennas. Another gin pole accident in Missouri occurred, which also cost our industry two workers lives, involving the use of a gin pole to remove an older guyed tower. This incident resulted in collapse of the entire tower being removed with the gin pole system. In West Virginia, in February of this year, two workers

were killed and one was injured during a tower collapse caused by a construction activity. One of the emergency responders, while in the process of rescuing the injured worker, was killed when a 2nd collapse of tower sections un-expectantly fell during the rescue effort.

Concern for accidents relating to construction projects in the communication tower industry, and in particular with the use of gin poles and other lifting devices, continues. Engineers trained to complete gin pole load charts had concerns relating to proper training and use of their charts in relation to the intent of the TIA-1019-A standard. Due to these concerns a "Gin Pole Summit" was sponsored by NATE (National Association of Tower Erectors) in 2013. Inputs from experienced riggers, gin pole users and engineers were used by NATE to write and publish their "Training Guidelines for Working on Communication and Similar Structures with a Gin Pole and Associated Equipment". This document was developed from input received from the "Gin Pole Summit" and is specific for training tower workers in critical TIA-1019-A standard items relating to the proper use of gin poles.

The NATE "Gin Pole Training Guideline" **Section 6** outlines a process for companies to qualify an existing gin pole to the TIA-1019-A standard for its use in the field. It also outlines the process which an engineer uses to develop a "Standard Gin Pole Load Chart" for an existing gin pole. **Section 8** is for required **field experience verification** for gin pole users. This section outlines several specific steps to qualify users in a realistic field setting. It will require the users to demonstrate they know how to safely put the whole lifting system together for proper use. It requires users to demonstrate how to assemble and inspect a gin pole, to verify satisfactory tower and ground anchorages, for preforming adequate load tests before lifting a gin pole and for load testing the gin pole prior to using it to make a lift. Lifting and setting a gin pole on a structure is often the most critical step in field use and is part of this field verification procedure. Other aspects are making a lift, verifying how to control load and tag angles during a lift, demonstrating how to move the gin pole on the tower for repositioning, and finally for its removal. (See **Attachments 6 & 7** for Training Guideline Sections 6 & 8)

Currently there is only one company located in the mid-west of which I am aware with a tower specifically used for training of climbers, and for gin pole training. They have a 120 foot tower they can use for climber training and gin pole training. This company manufactures and erects towers, manufactures broadcast (FM and TV) antennas, and manufactures gin poles. They use this structure for only their in-house employees and not for general industry use. A few manufacturers and training companies have 20 to 40 foot towers for climber training, but these shorter structures are not suitable for gin pole training or gin pole field experience verification. Tower owners are often reluctant, due to unknowns, to allow this type of training on their structures. Also, the top of a tower needs a clear working space for repeated gin pole attachment and removal for training maneuvers and needs, and most towers do not have this arrangement. These are a few of the reasons we are asking for **at least a 40 foot extension** to the proposed 140 foot tower. The presence of antennas sticking out from a tower below this top working space is not uncommon. These antennas can be used to help riggers, in a controlled environment, learn how to properly maneuver lifting equipment and lifted loads around the protrusions. This tower can also be used for competent climber training and climber rescue training, if desirable. It can be used for training with the use of smaller lifting poles designed for a little head room, 3 to 8 feet, above a tower for work on antenna arrays near the top of a tower. It could also be used for training for just the use of attaching blocks to the tower, no gin pole or lifting pole at all. This is usually completed with a capstan and synthetic rope and is how most of the telecom tower lifting is done today. (**Attachment 5,** formerly referenced)

**Public safety** is of concern for proper training for tower workers, and specifically in the use of gin poles for higher and heavier antenna lifts than a lot of the telecom workers have had to perform in the past. In the event this tower work is done on towers next to occupied buildings or on towers beside travelled roads, and if it was incorrectly rigged adding detrimental loading to a tower, the **entire tower might collapse**. This happened in Missouri earlier this year. So, the prevention of a catastrophic tower failure which could result in injury or death to the public is in the utmost interest of "**public safety**".

**To summarize**, I emphasize that field verification for proper use of a gin pole system is felt to be a necessary process for proper training by industry professionals and NATE. It is also a new requirement of our industry and training facilities specific for this purpose would be of great benefit. The overall objective is to provide adequate and safe training for users of this equipment. The hopeful result is the **prevention of future accidents** which could include **preventing loss of life, serious personnel injury and physical property damage.**

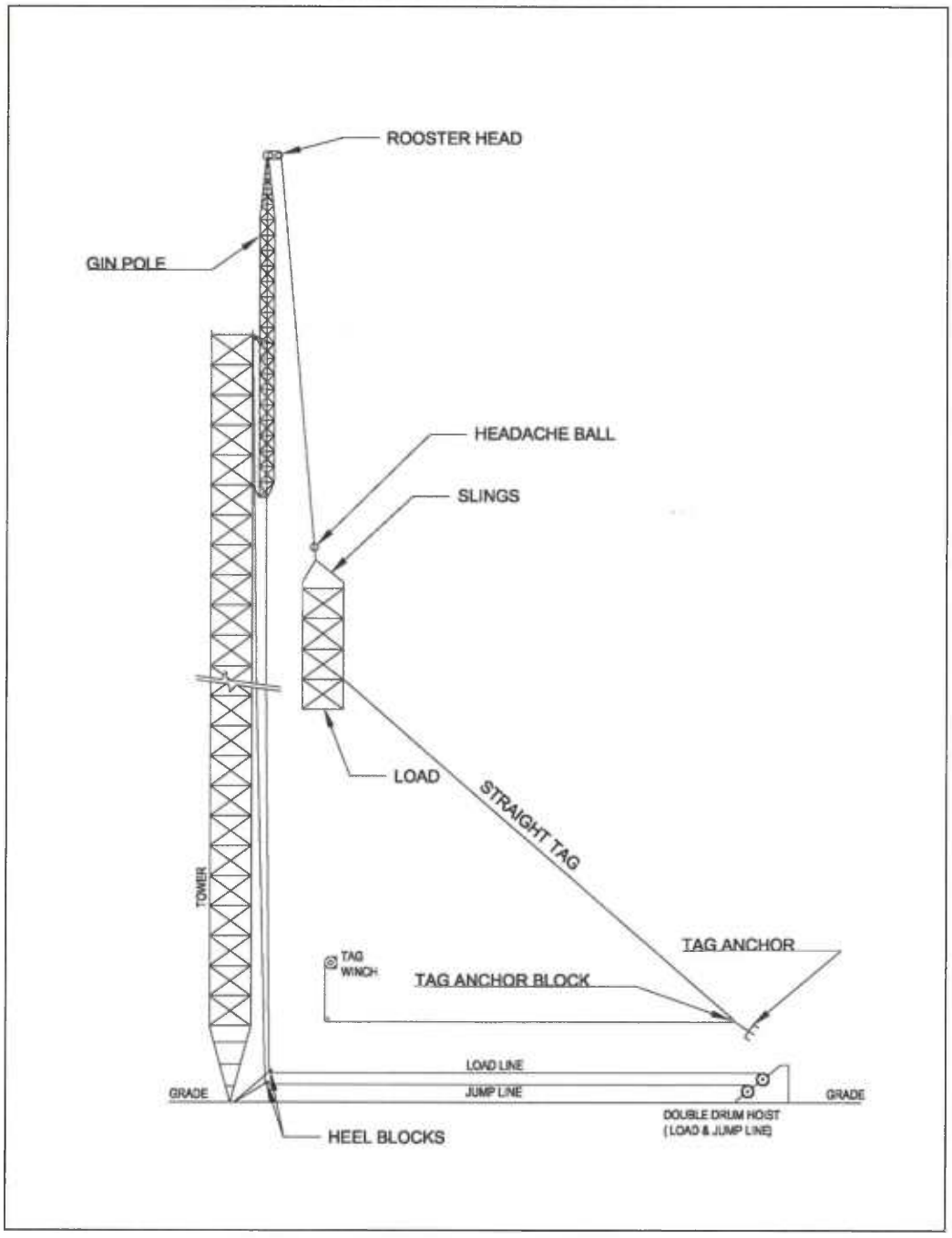
Sincerely,

Ernest R. Jones, PE
Qualified Construction Engineer

1c. Attachment 1 - Typical Straight Gin Pole Arrangement
1c. Attachment 2 - Tilted Gin Pole Arrangement
1c. Attachment 3 - Typical Lifting Pole Arrangement
1c. Attachment 4 - Standard Load Chart
1c. Attachment 5 - Rigging with a Top Block
1c. Attachment 6 - Gin Pole Qualification Process
1c. Attachment 7 - Gin Pole Field Experience Verification

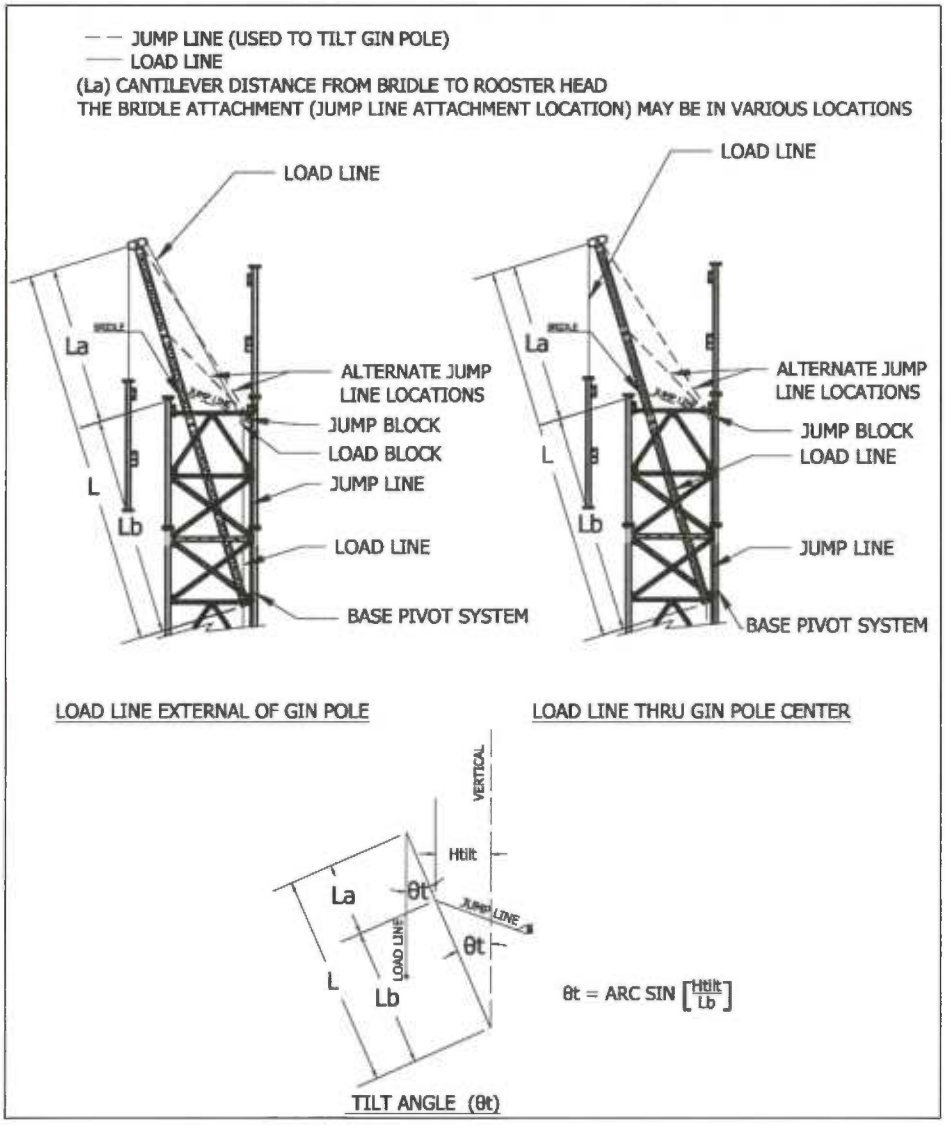
# Attachment 1

Typical Straight Gin Pole Lifting Arrangement

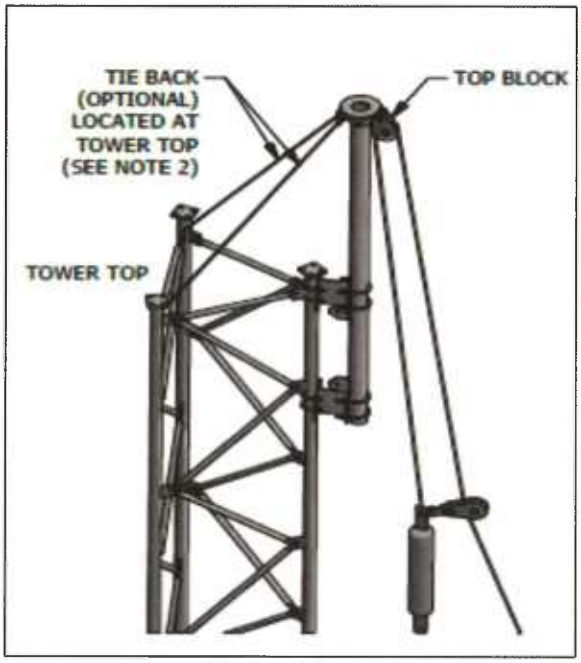


# Attachment 2

Typical Tilted Gin Pole Lifting Arrangement

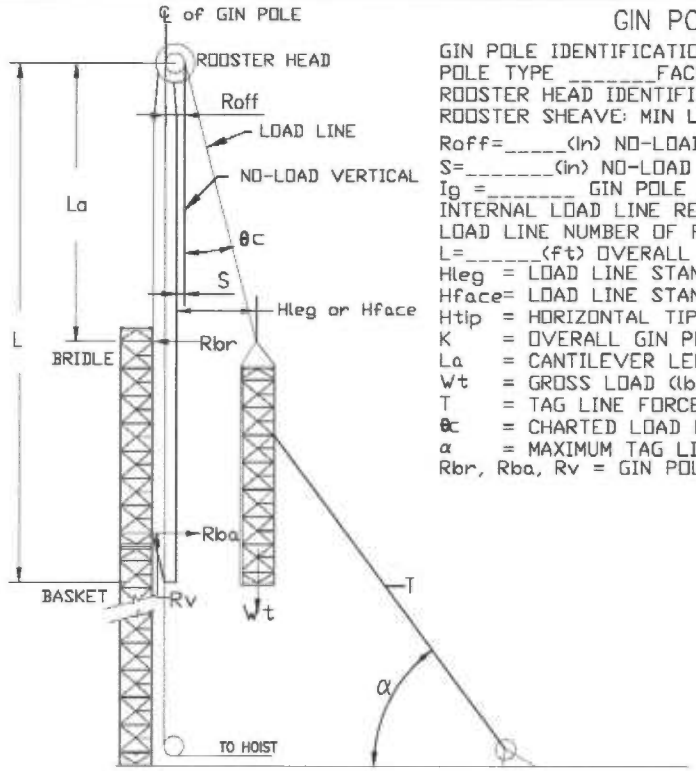


## Attachment 3




Lifting Pole

# Attachment 4




## GIN POLE LOAD CHART

GIN POLE IDENTIFICATION_____
POLE TYPE _____FACE WIDTH/DIA_____ CLASS_____
ROOSTER HEAD IDENTIFICATION_____
ROOSTER SHEAVE: MIN LINE SIZE_____, MAX LINE SIZE_____
Roff=_____(in) NO-LOAD LINE POSITION FROM ℄
S=_____(in) NO-LOAD LINE STANDOFF DISTANCE FROM LEG
Ig =_____ GIN POLE IMPACT FACTOR
INTERNAL LOAD LINE RESTRAINT REQUIRED YES ☐ NO ☐
LOAD LINE NUMBER OF PARTS_____
L=_____(ft) OVERALL LENGTH
Hleg = LOAD LINE STANDOFF DISTANCE FROM LEG AT BRIDLE (in)
Hface= LOAD LINE STANDOFF DISTANCE FROM FACE AT BRIDLE (in)
Htip = HORIZONTAL TIP DEFLECTION OF GIN POLE (in)
K = OVERALL GIN POLE EFFECTIVE LENGTH FACTOR
La = CANTILEVER LENGTH (ft)
Wt = GROSS LOAD (lbs) [LIFTED WEIGHT+ALL RIGGING WEIGHT]
T = TAG LINE FORCE AT GROUND (lbs)
θc = CHARTED LOAD LINE POSITION ANGLE (degrees)
α = MAXIMUM TAG LINE ANGLE AT GROUND
Rbr, Rba, Rv = GIN POLE REACTIONS (lbs)

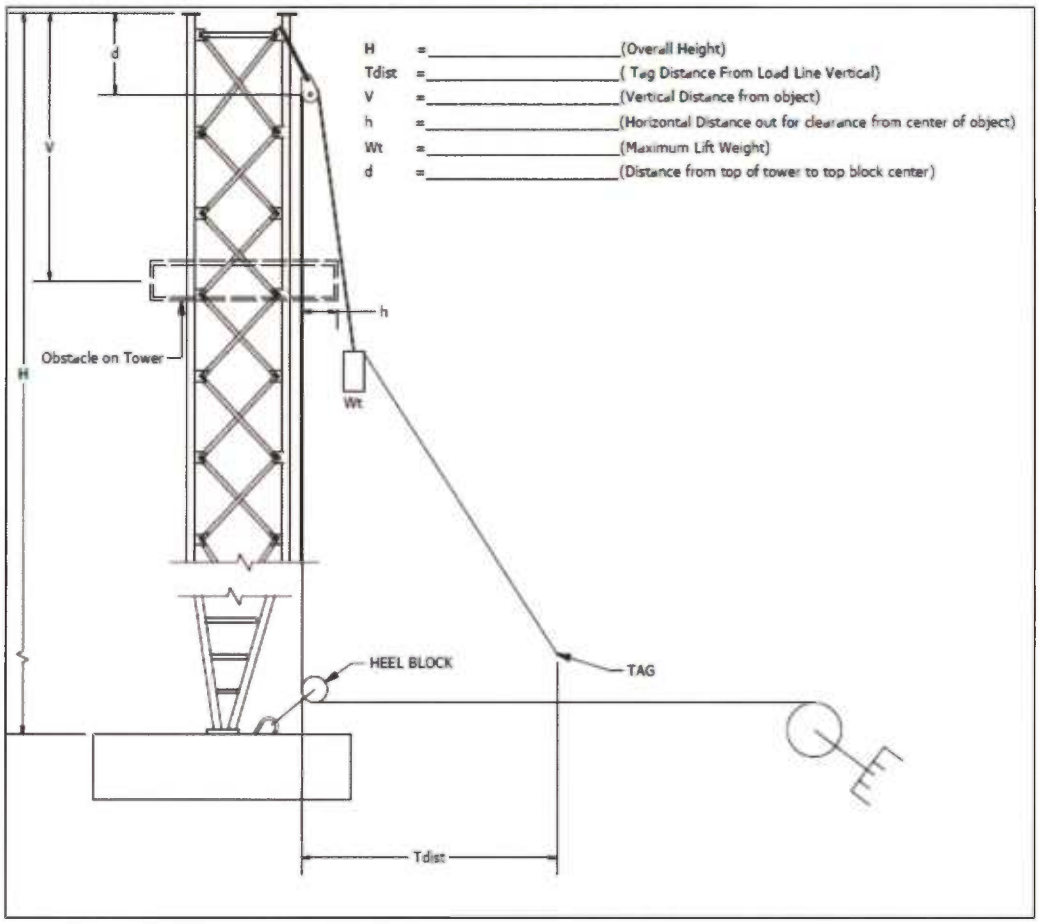
| PARAMETERS | | 20% L (La=_____ft) K=_____ | 30% L (La=_____ft) K=_____ | 40% L (La=_____ft) K=_____ | 50% L (La=_____ft) K=_____ |
|---|---|---|---|---|---|
| LOAD LINE POSITION ANGLE θc = ___° | Wt | | | | |
| | Hleg | | | | |
| | Hface | | | | |
| | Htip | | | | |
| | Rbr | | | | |
| TAG ANGLE α ≤ ___° | Rba | | | | |
| | Rv | | | | |
| | T | | | | |
| LOAD LINE POSITION ANGLE θc = ___° | Wt | | | | |
| | Hleg | | | | |
| | Hface | | | | |
| | Htip | | | | |
| | Rbr | | | | |
| TAG ANGLE α ≤ ___° | Rba | | | | |
| | Rv | | | | |
| | T | | | | |

**NOTES:**

- GROSS LOAD (Wt) SHALL NOT BE GREATER THAN THE WORKING LOAD LIMIT (WLL) OF THE LOAD LINE AND OTHER RIGGING COMPONENTS.
- MAXIMUM OPERATIONAL EFFECTIVE WIND SPEED 30 MPH.
- GROSS LOAD WHEN LIFTING PERSONELL SHALL NOT EXCEED 50% OF THE CHARTED VALUES (Wt). (OTHER CONSTRUCTION LOADS SHALL NOT BE LIFTED SIMULTANEOUSLY).
- INTERPOLATION BETWEEN CHARTED LOAD LINE POSITION ANGLES AND CANTILEVER LENGTHS ALLOWED.
- REACTIONS Rbr, Rba & Rv DO NOT INCLUDE AN IMPACT FACTOR.
- CHARTED REACTIONS MAY BE USED FOR SIZING OF BRIDLE AND BASKET CONNECTIONS.
- REACTIONS MUST BE INCREASED BY 30% FOR INVESTIGATING STRENGTH AND STABILITY OF SUPPORTING STRUCTURES.

# Attachment 5

Rigging with a Top Block on a Tower



# Attachment 6

## 6. Gin Pole Qualification Process for Load Chart Development and Use

**6.1**
Complete detailed drawings of the gin pole, its rooster head, and track as applicable. These drawings shall describe the materials and members of the gin pole, its sections, connection bolts and welds, and its assembly sequence. It shall identify the intended rooster head for use. If a track is used its drawing is required along with a description of its proper rigging arrangement. These drawings should clearly reference the gin pole to its load chart and vice-versa. Details for specific items for these drawings are contained in Annex C of TIA-1019-A Standard.

**6.2**
Complete written inspections per Section 3.4.1 and 3.4.2 in TIA-1019-A Standard.

**6.3**
Provide the results of items 1 and 2 above with specific requests per Annex C of TIA-1019-A Standard to a Qualified Engineer for development of a "Standard Gin Pole Load Chart" per Section 3.5 of TIA-1019-A Standard. Charts shall be developed using the gin pole analysis and design criteria in Section 5.0 and Annex B of TIA-1019-A Standard.

**6.4**
Training for use of this "Qualified Gin Pole" to TIA-1019-A Standard is mandatory for the users of the provided chart.

# Attachment 7

8. Gin Pole Field Experience Verification

It is important to verify that individuals have practical experience with a similar gin pole. Below is a recommended field qualification process for the type of gin pole used. It is recommended that users of a gin pole complete an on-site "Qualification" for the type for gin pole system used. They should be able to demonstrate an understanding and ability to adequately perform the following functions per TIA-1019-A Standard specifications and guidelines:

a. Assembly and inspection of the type gin pole being used.
b. Verify a proper method to determine if the structure and associated anchorages will be adequate for gin pole reactions and forces.
c. Install gin pole jump rigging and heel block rigging, then inspect.
d. Perform an adequate load test of all components of the gin pole jump system and verify anchorages are adequate prior to lifting and setting gin pole in place.
e. Lift and set gin pole on tower, or other structure.
f. Perform an inspection of gin pole bridle support, basket support, and heel block rigging.
g. Load test gin pole to verify tip deflections and tower deflections are within expectations.
h. Demonstrate an understanding of how to maintain adequate load line angles and tag angles during a lift with the gin pole system. This shall include the use of the specific tag system, or systems, to be used with the gin pole demonstrating proper tag control of the lifted object.
i. Demonstrate an understanding of appropriate installation and use of the anti-two block system.
j. Demonstrate the proper jumping (relocating) of gin pole on tower, or on other structure, and how to maintain stability and control throughout this process.
k. Demonstrate how the gin pole users would monitor and maintain a specified load line angle during a critical lift situation

**CERTIFICATION**

I hereby certify that on this day a copy of the foregoing was delivered by electronic mail and regular mail, postage prepaid, to all parties and intervenors of record, as follows:

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Jesse A. Langer
Commissioner of the Superior Court