Safety Policy and Procedure

Policy Number: 046

Authorized By: The Cianbro Companies
Alan Burton

Effective Date: 12/23/08

Title: Electrical Transmission and Distribution

1 Status

1.1 Update of existing policy, effective 09/02/11.

2 Purpose

2.1 Provide the minimum policy and procedural requirements for working in and around Electrical Transmission and Distribution environments.

3 Applicability

3.1 This policy applies to all subsidiary companies and departments of The Cianbro Companies.

3.2 All organizations are required to comply with the provisions of this policy and procedure. Any deviation, unless spelled out specifically in the policy, requires the permission of the Corporate Safety Officer or designee.

4 Definitions

4.1 Activity Plan: A document that encompasses a description of the work to be performed and the methods used to accomplish the work. This plan must be written and presented by a Qualified Person, signed and acknowledged by all team members on the site. Any changes or deviations from this plan would warrant a subsequent plan and discussion as the work and methodology changes.

4.2 Authorized: One who has the authority to perform specific duties under certain conditions or who is carrying out orders from responsible authority.

4.3 De-energized: Free from any electrical connection to a source of potential difference and from electric charge; not having a potential different from that of the earth. Note: The term is used only with reference to current-carrying parts, which are sometimes energized (alive).

4.4 Enclosed space: A working space, such as a manhole, vault, tunnel, or shaft, that has a limited means of egress or entry, that is designed for periodic team member entry under normal operating conditions, and that under normal conditions does not contain a hazardous atmosphere, but that may contain a hazardous atmosphere under abnormal conditions.

Note: Spaces that are enclosed but not designed for team member entry under normal operating conditions are not considered to be enclosed spaces for the purposes of this definition. Similarly, spaces that are enclosed and that are expected to contain a hazardous atmosphere are not considered to be enclosed spaces for the purposes of this definition. Such spaces meet the definition of permit required confined spaces in 1910.146 and entry into them must be performed in accordance with that standard.

4.5 Energized (alive, live): Electrically connected to a source of potential difference, or electrically charged so as to have a potential significantly different from that of earth in the vicinity.
4.6 Energy Isolating Device: A physical device that prevents the transmission or release of energy, including, but not limited to, the following: a manually operated electric circuit breaker, a disconnect switch, a manually operated switch, a slide gate, a slip blind, a line valve, blocks, and any similar device with a visible indication of the position of the device. (Push buttons, selector switches, and other control-circuit-type devices are not energy isolating devices.)

4.7 Grounded, Effectively: Intentionally connected to the earth through a ground connection or connections of sufficiently low impedance and having sufficient current-carrying capacity to prevent the buildup of voltages that may result in undue hazards to connect equipment or to persons.

4.8 Hazardous Atmosphere: An atmosphere that may expose team members to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from an enclosed space), injury, or acute illness from one or more of the following causes:
A. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
B. Airborne combustible dust at a concentration that meets or exceeds its LFL; Note: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.
C. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
D. Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published and which could result in team member exposure in excess of its dose or permissible exposure limit;
- Note: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this definition.
E. Any other atmospheric condition that is immediately dangerous to life or health.
- Note: For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets that comply with the Hazard Communication Standard, 1910.1200, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

4.9 Insulated: Separated from other conducting surfaces by a dielectric (including air space) offering a high resistance to the passage of current.
Note: When any object is said to be insulated, it is understood to be insulated for the conditions to which it is normally subjected. Otherwise, it is within the purpose of this section, un-insulated.

4.10 Lines, Communication: The conductors and their supporting or containing structures which are used for public or private signal or communication service, and which operate at potentials not exceeding 400 volts to ground or 750 volts between any two points of the circuit, and the transmitted power of which does not exceed 150 watts. If the lines are operating at less than 150 volts, no limit is placed on the transmitted power of the system. Under certain conditions, communication cables may include communication circuits exceeding these limitations where such circuits are also used to supply power solely to communication equipment.
Note: Telephone, telegraph, railroad signal, data, clock, fire, police alarm, cable television, and other systems conforming to this definition are included. Lines used for signaling purposes, but not included under this definition, are considered as electric supply lines of the same voltage.

4.11 Minimum Approach Distances: Ensure that workers do not approach or take any conductive object closer to the energized parts as set forth in section 7.3.3 and Table 3-4. Adjustments to the minimum approach distances may need to be made to account for altitude changes. Changes in the weather have been factored into the minimum approach distances.

4.12 Primary Voltage: Any circuit that normally operates at more than 500 volts.
4.13 Qualified Team Member (qualified person): One knowledgeable in the construction and operation of the electric power generation, transmission, and distribution equipment involved, along with the associated hazards.
   Note 1: A team member must have the training required by 1910.269 in order to be considered a qualified team member.
   Note 2: Except as provided in 1910.260, an team member who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person is considered to be a qualified person for the performance of those duties.

4.14 Secondary Voltage: Any supply voltage that normally operates at less than 500 volts.

4.15 Step Potential: The voltage between the feet of a person standing near an energized grounded object. It is equal to the difference in voltage, given by the voltage distribution curve, between two points at different distances from the "electrode". A person could be at risk of injury during a fault simply by standing near the grounding point.

4.16 Touch Potential: The voltage between the energized object and the feet of a person in contact with the object. It is equal to the difference in voltage between the object and a point some distance away. It should be noted that the touch potential could be nearly the full voltage across the grounded object if that object is grounded at a point remote from the place where the person is in contact with it. For example, a crane that was grounded to the system neutral and that contacted an energized line would expose any person in contact with the crane or its uninsulated load line to a touch potential nearly equal to the full fault voltage.

5 Policy

5.1 Cianbro will lead the Electrical Utility Industry in safety by creating a culture where all team members, subcontractors and partners take personal accountability and ownership to ensure a safe working environment for all.

6 Responsibilities

6.1 The Corporate Safety Officer or designee is responsible for providing approval for deviations from this policy.

6.2 The top Cianbro manager on the job site is responsible for the implementation of this policy on the project.

6.3 The corporate safety department is responsible for maintaining this document.
7.1 General

7.1.1 Electrical equipment and lines (overhead or underground) shall always be considered as energized (with potentially fatal voltages) unless they are positively proven to be de-energized and properly grounded. This safety policy and procedure is provided as a support to the minimum standards from OSHA 1910.269.

**IF IT ISN'T GROUNDED – IT ISN'T DEAD. ALWAYS INSULATE AND / OR ISOLATE**

- Only authorized team members shall work on or near energized lines or equipment.
- No team members shall approach any exposed ungrounded line work or apparatus unless they are insulated from other conducting surfaces or uses adequate protective devices.
- Team members shall report immediately to their nearest foreman or supervisor any defective line, tool or other condition which in their judgment may be dangerous either to persons or property or likely to interrupt or delay service.
- Electrical equipment and lines shall always be considered as "live" unless they are positively known to be de-energized and grounded. Before starting to work, preliminary inspection or test shall be made to determine what conditions exist. Extreme care shall be exercised when handling common neutral conductors as high voltage may be encountered (induction).
- No work shall be performed in inclement weather on high voltage equipment or lines when conditions are such as to materially increase the hazards of the operations being performed, excepting emergency work necessary to restore service or demanded by the public interest.

7.1.2 An activity plan must be written and presented by a Qualified Person, signed and acknowledged by all team members on the site prior to beginning work each day. The plan shall cover at least the following subjects: safety hazards associated with the job, work procedures involved, special precautions, energy source controls, and personal protective equipment requirements. Any changes or deviations from this plan would warrant a subsequent plan and discussion as the work and methodology changes.

7.1.3 Team members who are required to work on or in close proximity to overhead or underground electrical lines shall be trained and competent in: (a) the skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment, (b) the skills and techniques necessary to determine the voltage of exposed live parts, (c) the minimum approach distances that correspond to the voltages to which the team member will be exposed and (d) the proper use of personal protective equipment, insulation and shielding materials and insulated tools.

7.1.4 Only qualified team members or those under the continuous supervision of an experienced journeyman line worker shall work on lines or equipment, which are energized.
7.2 Personal Protective Equipment (PPE)

The information provided below is intended to supplement existing PPE Safety Policy and Procedures.

7.2.1 Wearing Apparel
A. Rubber glove protectors shall not be used as work gloves.
B. FR clothing is required at all times when work is performed within applicable minimum approach distances or when electrical contact, induction or energization may occur on any job-site with energized line, cable, or appliances.
C. A long-sleeved shirt or coveralls with sleeves rolled down shall be worn when climbing and/or working on poles or structures where gloves and/or sleeves are required.
D. FR clothing requirements will meet a minimum of HRC 1, or higher as required by arc flash hazards, or client/owner requirements. (Other protective devices are to be used in specific types of work to provide adequate personal protection.)
E. When working on or near live parts, team members shall not wear loose dangling watch chains, key chains or unnecessary metal of any kind.

7.2.2 Use and Care of Rubber Gloves and Sleeves

<table>
<thead>
<tr>
<th>Classes of rubber gloves manufactured, proof-test voltage and maximum use as specified by ANSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class of Glove</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

A. Only qualified team members or those under the continuous supervision of an experienced journeyman line worker shall work on lines or equipment, which are energized.
B. When rubber glove work is authorized to be performed, use the chart shown above.
C. Team members shall wear rubber gloves, with leather protectors **ground to ground** when working on lines or equipment energized at voltages below 500 volts.
D. Team members shall wear rubber gloves **ground to ground** when working on lines and equipment energized at voltages over 500 volts and less than 35,000 unless approved live line tools are used.
E. Team members shall wear rubber gloves when testing for voltage and when applying and/or removing any ground cable.
F. Rubber gloves with leather protectors shall also be worn by team members on the ground when:
   - Working on or within reaching distance of any electrical equipment and/or conductor which are not effectively grounded and which may become energized (i.e. URD, Substations).
   - While a pole or other conductive structure is being set or removed from proximity of energized primary lines. They shall be put on before pole is raised and worn until pole is set and secured (at voltages over 500 volts and less than 35,000).
   - As requested by supervision or required by the Activity Plan.
   - Opening and closing manually operated oil circuit breakers, air break switches, fuses, or fuse doors on cutouts.
   - Testing to determine if lines are de-energized, and applying and removing grounds.
G. When working with rubber protective equipment on energized circuits or apparatus the following minimum conditions shall be met, in addition to all other rules governing the use of protective equipment.
   - Team members shall not make physical contact with energized conductors, jumpers, or grounds, with other than their rubber gloves.
   - Where the voltage exceeds 5,000 volts between a single phase and ground, team members shall be isolated from all grounds (wooden poles shall be considered as grounds in this case) by using approved supplementary insulation such as aerial baskets, a line worker’s platform, or other approved insulated devices.

H. Rubber gloves shall never be worn inside out or without leather protective covers. They shall be exchanged at any time they become damaged or the team member to whom they are assigned becomes suspicious of them. Leather protectors or over glove covers shall not be worn as work gloves except when in use over rubber gloves.

I. Rubber sleeves shall be worn when team members are working with energized loose ends or taps.

J. Rubber gloves and sleeves shall be inspected for corona cracks or other damage and the gloves shall be given an air test each day while in use, at the beginning of the work period and at any other time when their condition is in doubt. They shall be given a visual inspection before each use.

K. Rubber gloves and sleeves when not in use shall be kept in canvas bags or other approved containers and stored where they will not become damaged from sharp objects or exposed to direct sunlight. They shall never be folded while stored nor shall other objects be placed upon them.

L. Rubber gloves will be dielectrically tested at a minimum of every quarter (every 3 months) annually. Jobs requiring heavy and frequent use of rubber gloves may require more frequent testing.

M. Rubber sleeves will be dielectrically tested at a minimum of twice annually (every 6 months. Jobs requiring heavy and frequent use of rubber sleeves may require more frequent testing.

N. Rubber gloves shall be stored in the glove bag with the cuffs down to permit drainage, provide better ventilation and reduce the possibility of damage.

O. Inner liners may be worn if desired.

7.3 Work Practices

7.3.1 Climbing and Working on Poles
   - All poles and structures shall be carefully inspected before climbing to assure that they are in a safe condition for the work to be performed and that they are capable of sustaining the additional or unbalanced stresses to which they will be subjected.
   - Where poles or structures may be unsafe for climbing, they shall not be climbed until made safe by guying, bracing or by other adequate means. An aerial bucket should be used instead if possible.
   - Proper hooks and gaffs are required for climbing wood poles.
   - Wires shall not be attached to or removed from a pole or structure until it is certain the pole or structure will withstand the altered strain.
   - Worker(s) shall not wear their climbers while driving or riding in vehicles or when doing work on the ground, on ladders (except hook ladders), in aerial lifts or on platforms in which the wearing of climbers creates a hazard.
   - Gaffs on climbers shall be kept within safe length limits (1-1/4 inches min.), properly shaped, and sharp.
   - Workers shall not work on an elevated pole or structure without first securing themselves with an approved harness or other approved safety device.
   - Only approved, 100% fall protection belts* and secondary safety straps shall be used (Cianbro provided). (Current examples of approved devices include the: Miller Stop-Fall, Buckingham Buck-squeeze, and the Bashlin Pole-lariat.)
   - Larger model belts are usually needed when working on transmission class poles.

* CIANBRO LINE SAFETY AND TRAINING COMMITTEE MUST APPROVE TYPE OF CLIMBING EQUIPMENT USED.
• Metal hooks, chains, etc., for holding tools or tape shall not be attached to body belts. Leather or other non-conducting material shall be used for this purpose.
• The safety strap shall not be put around a pole above the uppermost pole attachment position, except where pole top or attachment is above eye level. It shall not be used on pole steps, cross arm braces, insulators, insulator pins, and conductors, rotten or otherwise weak cross arm or on attachments that are being moved. When it is necessary to safety off to a cross arm, the safety strap shall never be placed that it will not be cut by line equipment or twisted or fouled by material that may give way under strain. The use of a two (2) strap (lanyard) system will be utilized; a minimum of one (1) strap (lanyard) must be in place at all times.
• Line workers shall not trust their weight to guy wires, pins, braces, conductors, or other such equipment that might prove unstable.
• When two or more team members are to work on the same pole at the same time, one shall reach the working position before the next leaves the ground. They shall descend the pole one at a time.
• When climbers (hooks) are stored in the truck or tool room, they shall be placed where the sharp points will not damage other equipment or cause personal injury.
• All other work will refer to standard Cianbro Safety Policy and Procedure(s) for Fall Protection

7.3.2 Working on De-energized Lines and Electrical Equipment
• General- All conductors and/or electrical equipment shall be treated as energized until tested to be de-energized and grounded.
• New construction- New lines and/or electrical equipment may be considered de-energized and worked as such where:
  • The lines or equipment are grounded, or
  • The hazard of induced voltages is not present and adequate clearances or other means are implemented to prevent contact with energized lines or equipment and the new lines or equipment.
• When working on de-energized lines the worker shall work under the tagging orders on whose property the work is performed or to Cianbro’s Lock out-Tag out policy as a minimum standard.
• Testing equipment of adequate capacity shall be used to determine whether or not a line and/or equipment are de-energized.
• Grounding equipment shall be used when working on all de-energized circuits and/or equipment.
• Rubber gloves must be worn when sticks are used to test, switch, phase-out, or ground circuits and/or equipment.
• When working in de-energized areas use barricades, signs, tags, and /or other safety means to designate energized lines and/or equipment.
• All tools shall be kept in good working condition, properly stored, and must be restricted to the use for which they are intended.
• Grounding procedures and requirements must be adhered to (See section 7.4.2 Grounding).

7.3.3 Working on Energized Lines
• All qualified line workers working on energized conductors and/or electrical equipment over 500 volts shall be assisted by another qualified line worker, or a qualified line worker trainee, on the same pole, structure or location. (Two separate poles or structures may be considered one for the purpose of this rule if both line workers can step to the other pole or structure without descending to the ground to do so.).
• In no case, when working together in pairs, shall line workers work simultaneously on energized wires or equipment of different phases or polarities.
• Before starting work the line worker shall have themselves in such a position that the presence of the second worker does not increase the hazard.
• Qualified line worker trainees may, under the supervision of a First Class line worker, work on energized conductors and/or equipment. Qualified line worker trainees shall deemed “qualified” by the Training committee.
• Energized conductors and/or electrical equipment shall be handled in accordance with the safety rules, regulations and safe working procedures of the utility on whose property the work is performed, provided a copy of such procedure is made available.

### TABLE 3-4

<table>
<thead>
<tr>
<th>Qualified Persons</th>
<th>ALTERNATING CURRENT – MINIMUM DISTANCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage range (phase to phase) Kilovolt</td>
<td>Minimum working distance</td>
</tr>
<tr>
<td>0.5 to 1.0</td>
<td>..........................</td>
</tr>
<tr>
<td>1.1 to 15</td>
<td>..........................</td>
</tr>
<tr>
<td>15.1 to 36</td>
<td>..........................</td>
</tr>
<tr>
<td>36.1 to 46</td>
<td>..........................</td>
</tr>
<tr>
<td>46.1 to 72.5</td>
<td>..........................</td>
</tr>
<tr>
<td>72.6 to 121</td>
<td>..........................</td>
</tr>
<tr>
<td>138 to 145</td>
<td>..........................</td>
</tr>
<tr>
<td>161 to 169</td>
<td>..........................</td>
</tr>
<tr>
<td>230 to 242</td>
<td>..........................</td>
</tr>
<tr>
<td>345 to 362</td>
<td>..........................</td>
</tr>
<tr>
<td>500 to 550</td>
<td>..........................</td>
</tr>
<tr>
<td>765 to 800</td>
<td>..........................</td>
</tr>
</tbody>
</table>

OSHA Unqualified Work Distances (Minimum Approach Distances – Unqualified)

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 50,000 volts</td>
<td>10’</td>
</tr>
<tr>
<td>69,000 volts</td>
<td>11’</td>
</tr>
<tr>
<td>115,000 / 138,000 volts</td>
<td>13’</td>
</tr>
<tr>
<td>230,000 volts</td>
<td>15’</td>
</tr>
<tr>
<td>345,000 volts</td>
<td>20’</td>
</tr>
</tbody>
</table>

OSHA Qualified Work Distances (Minimum Approach Distances – Qualified)

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Phase to Ground</th>
<th>Phase to Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 V to 600 V</td>
<td>Avoid Contact</td>
<td>Avoid Contact</td>
</tr>
<tr>
<td>1 kV to 15 kV</td>
<td>2’ 1”</td>
<td>2’ 2”</td>
</tr>
<tr>
<td>23 kV / 28kV</td>
<td>2’ 4”</td>
<td>2’ 7”</td>
</tr>
<tr>
<td>34.5 kV</td>
<td>2’ 4”</td>
<td>2’ 7”</td>
</tr>
<tr>
<td>69 kV</td>
<td>3’ 0”</td>
<td>3’ 6”</td>
</tr>
<tr>
<td>115 kV</td>
<td>3’ 2”</td>
<td>4’ 3”</td>
</tr>
<tr>
<td>345 kV</td>
<td>8’ 6”</td>
<td>12’ 6”</td>
</tr>
</tbody>
</table>

*See Minimum Approach, definition section*
7.3.4 Working on Energized Lines with Live-Line Tools

- A careful check shall be made to see that the condition of the structure and lines at the point of the work is such that the job maybe performed safely. In addition, the adjacent spans and structures shall be carefully checked for defects in conductors, tie wires, insulators, and other equipment.
- Planned work with live-line tools shall not be started during unfavorable weather.
- Before work with live-line maintenance tools is begun, the dispatcher or person having jurisdiction shall be notified. If during live-line tools work, an interruption of service occurs, the dispatcher or other person having jurisdiction shall be notified immediately.
- Only approved tooling shall be used in live-line maintenance work.
- Under no circumstances shall a Line worker depend on another Line worker to hold a live conductor clear of him.
- Positive control shall be maintained during the movement of any conductor.
- While live-line work is in progress, no other work of any nature shall be performed on the same pole or structure.
- All live-line tools, when not in use, shall be kept in canvas bags or weatherproof boxes provided for that purpose; these containers shall be stored in dry and, if possible, a warm place.
- Live-line tools shall never be laid directly on the ground or against sharp objects. Special tool holders or tarpaulins shall be used for this purpose.
- All live-line tools shall be visually inspected before use each day. Tools to be used shall be wiped clean, and if any hazardous defects are indicated, these tools shall be removed from service.
- When practical, the automatic reclosing feature of circuit interrupting devices shall be made inoperative before work begins (one shot, non-reclose).
- Careful attention shall be given to avoid mechanical overloading of live-line tools.
- When installing or removing jumpers, only one connection shall be made at a time. Jumper ends not connected shall be secured in such a manner as to prevent unintended contacts.
- Plan each job carefully to provide the maximum clear working space. Guard against contact with conductors other than the one being worked on.
- Approved protection devices shall be placed in position on any and all conductors energized above 5kV when such conductors are within reach of any part of the Team member's body when live line tools are being used. Such conductor guards shall be installed by means of appropriate live line tools if voltages are greater than 15kV, and by wearing class II rubber gloves for voltages less than 15kV.
- Only clean and dry non-conductive line shall be used on energized conductors above 5 kV. Link sticks (non-conductive tooling) shall be used between the rope and conductor on voltages above 15kV.
- Care shall be exercised to prevent the ends of the tie wires, armor rods, or other conductive material from contacting the structure or attached hardware during removal from or installation upon energized conductors.

7.3.5 Working on Transformers

- The primary leads of a distribution transformer shall be considered energized at full voltage until both the primary and the secondary leads have been disconnected, or it has been determined that the secondary circuit to which it is attached is not energized from other transformers.
- The cases of all transformers connected to a source of supply shall be considered as being energized at the full primary voltage unless they are adequately grounded.
- Team members shall not stand on or otherwise contact transformer cases while working on or near energized circuits.

NOTE: Old-type transformer with cast iron cases may weigh about 50% more than the weights listed in chart number 3-8 and will require correspondingly larger rope and blocks. The weights given are for standard distribution transformers.
• Use of rope as a hoist line shall be discontinued when it becomes worn, deteriorated or damaged to a degree that is unsafe.
• Metallic slings (chain or cable) shall not be used for hoisting purposes.
• A non-conductive tag line shall be used on all loads.
• Synthetic hoisting and pulling lines and ropes shall not be considered as non-conductive, unless properly maintained to preserve their insulating qualities.

7.3.6 Fuses
• Rubber gloves shall be worn while opening, closing, removing or replacing hot line clamps, fuses or fuse doors on cutouts even when using an approved switch stick or hot line tool.

7.3.7 Hoisting Cables-Conductive Material

CHART NO. 3-8

APPROXIMATE TRANSFORMER WEIGHTS
(WEIGHT IN POUNDS)

<table>
<thead>
<tr>
<th>KVA</th>
<th>SINGLE PHASE</th>
<th>THREE PHASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>210</td>
<td>420</td>
</tr>
<tr>
<td>5</td>
<td>295</td>
<td>540</td>
</tr>
<tr>
<td>7.5</td>
<td>405</td>
<td>560</td>
</tr>
<tr>
<td>10</td>
<td>420</td>
<td>780</td>
</tr>
<tr>
<td>15</td>
<td>545</td>
<td>895</td>
</tr>
<tr>
<td>25</td>
<td>700</td>
<td>1440</td>
</tr>
<tr>
<td>37.5</td>
<td>1010</td>
<td>1580</td>
</tr>
<tr>
<td>50</td>
<td>1230</td>
<td>2225</td>
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<tr>
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<td>1505</td>
<td>2545</td>
</tr>
<tr>
<td>100</td>
<td>1720</td>
<td>2635</td>
</tr>
</tbody>
</table>

• Wire rope or other conductive material shall not be used to raise transformers, poles, or any other equipment or materials near energized lines.

7.3.8 Working on Capacitors
• Line capacitors shall be considered at full voltage until they have been disconnected from the line, and the terminals short-circuited and discharged to ground by an approved method.
• The terminals shall not be short-circuited until the capacitors have been de-energized for at least five minutes.
• Line workers shall wear rubber gloves and use a hot stick while shorting and grounding terminals.
• A line worker shall not come in contact with an ungrounded capacitor case until the capacitor has been disconnected from the circuit and the terminals shorted.
• The exposed terminals of line capacitors in storage shall be shorted.

7.3.9 Stringing or Removing De-energized Conductors
• Prior to stringing operations, an Activity Plan shall be written by a Competent person (2nd class or above) and discussed setting forth the plan of operation and specifying the type of equipment to be used, grounding devices and procedures to be followed, methods to be employed, and the clearance authorization required.
• Where there is a possibility of the conductor accidentally contacting an energized circuit or receiving a dangerous induced voltage buildup, to further protect the team member from hazards of the conductor, the conductor being installed or removed shall be considered and worked as energized.
• If the existing line is de-energized, proper clearance authorization shall be secured and the line grounded on both sides of the crossover or, the line being strung or removed shall be considered and worked as energized.
• When crossing over energized conductors in excess of 500 volts, guard structures shall be installed unless provision is made to isolate or insulate the team member or the energized conductor. Where practical the automatic reclosing feature of the circuit-interrupting device shall be made inoperative. In addition, the line being strung shall be grounded on either side of the crossover or considered and worked as energized.
• Conductors being strung in or removed over a road without any energized conductors will have a grounded running block on at least one side of the crossing, in addition to the running ground.
• Conductors being strung in or removed shall be kept under positive control by the use of adequate tension reels, guard structures, tie lines, or other means to prevent accidental contact with energized circuits.
• A transmission clipping crew shall have a minimum of two structures clipped in between the crew and the conductor being sagged. When working on bare conductors, clipping and tying crews shall work between grounds at all times. The grounds shall remain intact until the conductors are clipped in, except on dead-end structures.

7.3.10 Stringing Adjacent to Energized Lines
Prior to stringing parallel to an existing energized transmission line, a competent determination shall be made to ascertain whether dangerous induced voltage buildups will occur, particularly during switching and ground fault conditions. When there is a possibility that dangerous induced voltage may exist, the following provisions apply:
• When stringing adjacent to energized lines, the tension stringing method or other methods that preclude unintentional contact between the lines being pulled and any team member shall be used.
• All pulling and tensioning equipment shall be isolated, insulated or effectively grounded.
• All pulling and tensioning equipment will be fully barricaded to prevent touch potential hazards from site visitors or TMs not directly involved in wire pulling operations.
• A ground shall be installed between the tensioning reel setup and the first structure in order to ground each bare conductor and overhead ground conductor during stringing operations (running ground).
• During stringing operations, each bare conductor and overhead ground conductor shall be grounded at the first tower adjacent to both the tensioning and pulling setup and in increments so that ground location is never more than 2 miles apart.
• The grounds shall be left in place until conductor installation is completed.
• Aerial grounds shall be removed when work activities requiring their use have been completed.
• Except for moving type grounds, the grounds shall be placed and removed with a hot stick.
• Conductors and Overhead ground conductors shall be grounded at all dead-end or catch-off points.
• A ground shall be located at each side and within 10 feet of working areas where conductors or overhead ground conductors are being spliced at ground level. The two ends to be spliced shall be bonded to each other.
• All conductors and overhead ground conductors shall be bonded to the tower at any isolated tower where it may be necessary to complete work on the transmission line.
• Work on dead-end towers shall require grounding on all de-energized lines.
• Grounds may be removed as soon as the work is completed, provided that the line is not left open circuited at the isolated tower at which work is being completed.
• When performing work from the structures, clipping crews and all others working on conductors or overhead ground conductors shall be protected by personal protective grounds installed at every work location.

7.3.11 Pole Hauling and Temporary Storage
• The trailing end of a load of poles shall be marked by a red flag during the day and a red light at night. As an additional precaution, warning flags or lights may be
placed in the center of long loads. A team member shall be used for flagging when necessary.

- If it becomes necessary to store poles at the location where they are to be set, they shall be so placed that they will not interfere with traffic.
- If poles left on or near streets, highways or walkways overnight creating a hazard, they shall be safeguarded by lights or well-lighted warning signs.
- Poles shall be placed or blocked so that they will not roll.
- Team members shall not remain on a pole pile while poles are being hoisted.
- Poles loaded on a truck or trailer shall be securely fastened every ten (10) feet.
- When a load of poles is within working distance of the ground, load binders shall be installed so that they can and will be operated by team members while standing on the ground.
- Team members shall not ride pole dollies or trailers.
- The wheels of the transporting vehicle shall be chocked or securely braked prior to loading.

7.3.12 Setting and Removing Poles

- If any holes are left unfilled at the end of the work period, they shall be protected with secured coverings (capable of supporting pedestrian traffic) with a sign stating “hole”.
- All persons not engaged in pole-setting operations shall keep out of the work area.
- While setting or removing poles between or within minimum clearance distances of conductors energized above 500 volts:
  - If safe clearance cannot be maintained, the conductors shall be de-energized, covered with protective devices, spread apart, or a pole guard shall be used, to minimize accidental contact.
  - Workmen handling the butt of the pole shall wear rubber gloves and sleeves whether or not cant hooks, peaveys or slings are used.
  - Until a pole is positively secured from moving against and energized conductor, no one shall step on or off the truck or pole trailer, nor shall a team member standing on the ground touch any part of the truck or pole trailer without using rubber gloves.
  - Ground wires shall not be attached to the pole higher than 10 feet from the ground.
- When pikes are used to hold poles in place while holes are being backfilled, they shall be firmly secured until the backfill is sufficient to hold. When a pole is being "canted" or "hooked", the pikes shall be held.
- Team members shall not stand or pass under a suspended load or adjacent to or over or under a loaded winch line.
- Team members engaged in handling or working on poles shall wear suitable gloves and shall wear a shirt or jacket with the sleeves rolled down.
- Hoisting equipment operators shall accept signals only from the worker specifically designated. The operator shall obey a stop signal given by anyone.
- The operations of setting a pole in an energized line shall require two (2) qualified team members (minimum). The number of team members utilized will depend on the work to be done. Additional qualified personnel will be assigned whenever required to perform the work safely.

7.4 Insulating & Isolating

7.4.1 Insulating Protective Equipment (Rubber, Synthetics, Etc.)

- Team members shall not touch or work any exposed energized lines or apparatus except when wearing protective equipment approved for the voltage to be contacted.
- When work is to be done on or near energized lines or equipment, all energized and grounded conductors, guy wires or equipment within reach of any part of the body shall be covered with protective equipment, except that part of the conductor on which the team member is working.
- When working on energized lines or apparatus, including the installation of protective devices, work should be done from below, if possible.
In applying flexible protective equipment, a team member shall always protect the nearest and lowest wires first, protecting themselves as they progress. In removing rubber protective equipment, the reverse order shall be maintained.

Flexible blankets shall not be used on the ground without protecting them from physical damage and moisture by means of a tarpaulin, canvas, or protective mat.

Protective equipment shall be put on before entering the work area within which energized lines or apparatus may be reached, and the protective equipment shall not be removed until the team member is completely out of reach of this area.

To avoid corona and ozone damage, rubber protective equipment shall not be allowed to remain in place on energized lines or apparatus overnight or for more than one eight-hour period, unless approved by the supervisor in charge.

Line hose, hoods, blankets, line guards, etc. shall be visually inspected before each job.

Line hoses, hoods, etc. issued for service shall be tested. The interval between date of issue and retests shall be based on work practices and test experience, but shall not exceed one (1) year. Blankets shall be tested electrically, every six (6) months.

Where visual inspection indicates that there may be reason to suspect the electrical integrity of flexible protective equipment, the equipment shall be removed from service until an electrical test shall be performed before reissuing the equipment for service.

Flexible protective devices shall be stored in special compartments on trucks and elsewhere where they will not be subjected to damage from tools or other equipment.

Electrical cords or electric power tools shall not be used near or above energized lines or equipment exceeding 5kV.

7.4.2 Grounding

All conductors and/or electrical equipment shall be treated as energized until tested to determine that it is de-energized and grounds can be installed.

New lines or equipment may be considered de-energized and worked as such where:

- The lines or equipment are grounded, or
- The hazard of induced voltages is not present and adequate clearances or other means are implemented to prevent contact with energized lines or equipment and the new lines or equipment.

De-energized conductors and equipment that are to be grounded shall first be tested for the presence of voltage.

Grounds (personal) shall be installed at each worksite. A grounding “cluster” bracket shall be attached to the pole at a point below the work area. Do not use the Down Ground on the pole, as part of equi-potential, personal protective grounding.

Attached grounds.

- When attaching grounds, the ground end shall be attached first, and the other end shall be attached and removed by means of insulated tools and rubber gloves.
- When removing grounds, the grounding device shall first be removed from the line or equipment using insulated tools and rubber gloves and then from the ground connection (system neutral or driven ground rod).

Where the making of a ground is impracticable, or the conditions resulting there from would be more hazardous than working on the lines or equipment without grounding, the grounds may be omitted and the line or equipment worked as energized.

Grounds may be temporarily removed only when necessary for test purposes and extreme caution shall be exercised during the test procedures.

Grounding to tower shall be made with a tower clamp capable of conducting the anticipated fault current.

A ground lead, to be attached to either a tower ground or driven ground, shall be capable of conducting the anticipated fault current and shall have a minimum conductance of 2/o AWG copper.
• Grounding equipment shall be of sufficient current carrying capacity to actuate protective devices such as oil circuit breakers, relays, etc., without destroying the grounding equipment.
• All grounding equipment shall be inspected prior to use for scarred insulation, pressed ferrules and other defects.

7.5 Rigging and Equipment

7.5.1 Derrick Trucks, Cranes, Etc.
• All work performed by crane must conform to Cianbro’s Safety Policy and Procedure # 28 (Crane Safety) With the exception of equipment certified for work (Digger Derricks / Material Handling Buckets) on the proper voltage, mechanical equipment shall not be operated closer to any energized line or equipment than 10 feet unless (and when operated by trained personnel).

Unless one or all of the below mentioned criteria are met:
• An insulated barrier is installed between the energized part and the mechanical equipment
• The mechanical equipment is grounded
• The mechanical equipment is considered as energized.

CHART NO. 5-1.1

POLES – AVERAGE WEIGHTS
(When Furnished To A.S.A. Specifications)

It should be understood that pole, even within the same class, vary in diameter and hence weight. Also, the moisture content of a pole changes under various conditions; therefore the weights given in these tables should be taken as average values only, but they should prove sufficiently reliable.

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7.5.2 Rope
• A rope shall not be overloaded or dragged over rough or sharp objects.
• Short bends over sharp-edged surfaces shall be avoided.
• Kinks shall be removed before any strain is put on a rope.
• When not in use, rope shall be dried and stored properly and kept free from mechanical damage and excessive heat and dryness.
• Rope shall be examined regularly for cuts, worn spots, burns and rot. The rope shall be untwisted at various places and inspected for poor fiber and dry rot.
• The outward appearance of rope shall not be accepted as proof of quality or strength.
Hand lines shall be a minimum of 1/2-inch diameter and have a strength equivalent to 1/2-inch manila (minimum).
Eyes and splices shall be made in accordance with the instructions given by the rope manufacturer.
The “safe load” rating for the rope must be known and may never be exceeded.
All rope shall be properly coiled and stored when not in use and kept free from contaminants and moisture.

**CHART NO. 5-2**

**Safe Loads on NEW 3-Strand Manila Rope**

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<thead>
<tr>
<th>Diam. in Inches</th>
<th>Circum. in Inches</th>
<th>Approx. Wt. per ft. in Pounds</th>
<th>SINGLE ROPE</th>
<th>TWO PART SLING</th>
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<td>Breaking Strength</td>
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<td>¾</td>
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**Safe Loads on NEW Synthetic Fiber Rope**

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<td>Pounds per 100 ft.</td>
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7.6 Underground

7.6.1 Opening and Guarding Holes
Whenever the cover is to be removed from a manhole or a vault, or when any other obstruction to traffic exists, the following precautions shall be taken.

- All obstructions to traffic shall be guarded by adequate signs, barricades, lights, or flags. Traffic shall be warned in advance through the use of signs, high-level standards, flashing lights, traffic cones or flaggers, as may be required by the situation. Please see Cianbro Safety Policy and Procedure # 35 regarding to a Traffic Safety Plan to be attached to the daily Activity Plan.
- Where permissible and practicable, the truck shall be placed to guard the work area against oncoming traffic.
- A blow torch or other open flame shall never be used to melt ice around a manhole or vault cover.
- Manhole, vault and service-box covers shall always be removed and replaced by means of approved hooks and hoists.
- All opened holes must be immediately protected by a suitable / approved barricade.

7.6.2 Entering Underground Structures
Refer to Cianbro Safety Policy and Procedure # 19 for further reference

- All team members required to enter into confined or enclosed spaces shall be instructed (trained) in Confined Space entry (Permitted and Non-Permitted) prior to being allowed entry to an underground structure.
- Before a team member enters a street opening, such as a manhole or an unvented vault, it shall be promptly protected with a barrier, temporary cover, or other suitable guard with an approved retrieval system.
- All manholes must be thoroughly tested for explosive atmosphere and air quality prior to entry. All testing apparatus must remain in place while the manhole is occupied. Mechanical ventilation must be in place at all times.
- All team members entering a Permitted or Non-Permitted structure must wear an approved full body harness and be attached to an approved tether and retrieval system.
- A ladder shall always be used in entering or leaving a manhole or vault. Climbing into or out of manholes or vaults by stepping on cables or hangers is forbidden.
- While work is being performed in manholes, an “attendant” shall be available in the immediate vicinity to render emergency assistance as may be required. This shall prevent the team member in the immediate vicinity from entering a manhole, other than in an emergency.
- Before any work is done on a cable, it shall be identified by an approved method. If there is any doubt as to the identification, work shall not be started until it is checked and identified by the proper authority. The procedure for this process is:
  - Open circuit
  - Verify zero voltage
  - Ground the circuit
  - Purge the circuit

7.6.3 Work adjacent to an Energized Cables (500 volts or under)

- All ground cables and apparatus carrying current at voltage above 500 volts shall be de-energized before work is done on the conductor or before the cables are cut into or spliced.
- Before any work is done on an energized cable, other cables and all grounded equipment with which contact can be made while working on the energized cable shall be covered with rubber blankets or approved insulating shields.
- Because of the characteristics of a low voltage network system, when work is performed on cables or apparatus carrying less than 500 volts, team members shall take extra precautions in the use of necessary rubber protective equipment, in observing adequate clearances and in using proper tools in order to prevent short circuits.
• Team members shall wear rubber gloves with leather protectors, sleeves and stand on rubber (grounding) mats or use insulated tools while cutting into and removing sheathing or sleeves and while testing an energized cable.
• Immediately after each conductor of an energized multiple conductor cable is cut in two, the ends shall be insulated before another conductor is cut. During the course of the work, only one uninsulated conductor shall be exposed at any one time.

7.6.4 Work on De-Energized Cables Greater or Less Than 500 Volts
• When cables and apparatus are taken out of service to be worked on, the accepted procedures for "lock out, tag out" apply (See Safety Policy and Procedure # 16 for "Zero Energy State").
• Before making an opening in or removing a part of the sheath or sleeve of a cable, the line shall be grounded at the first possible grounding point on each side of the work location. The procedure for this process is:
  • Open the circuit and tag it.
  • Verify zero voltage
  • Ground the Circuit
  • Purge the cable
• When a high voltage cable is to be cut, the cable shall be tested at the work location by an approved testing method to determine whether or not the cable is de-energized. If no indication of a live cable is obtained, the team member may proceed with the work.
• When cutting or opening joints on low voltage cables, the same procedure as outlined above for high voltage cables shall be followed, except in testing. To determine whether the conductor is energized, the insulation shall be cut away to the conductor and tests made with an approved tester. On multiple conductor cables, only one conductor shall be cut into at a time, and tests shall be made on at least two conductors before proceeding with work.

7.6.5 Pulling Cables
• Team members shall not handle pull-wires or pulling-lines within reaching distance of blocks, sheaves, winch drums or take-up reels.
• Pull-wires, steel pulling-lines or metal rodding shall not be pushed through ducts where energized equipment is present unless another team member is stationed at the other end of the run.
• Team members shall not remain in a manhole or vault during pulling operations.
• Communications between manholes must be maintained.
• When pulling cable into vaults, manholes, or duct, care shall be exercised to protect team members and the public from possible injury. Vehicular and pedestrian traffic at the work location shall be studied long enough to enable the equipment to be set up in the safest manner possible.
• A team member or suitable warning sign or barricade, must be stationed alongside a cable, snake wire or pulling rope laid out on the sidewalk or street pavement; cables laid across sidewalks temporarily during pulling operations shall be properly guarded, to reduce the hazard to pedestrians and other traveling public.

7.7 Underground Residential
Introduction
Underground Residential Distribution (URD) systems have a number of apparent advantages over overhead systems; however, they also have some disadvantages such as confined working spaces, closer clearances between energized parts and greater exposure to all types of grounds. In most cases, if protective devices are not used, the team member will be in direct contact with the ground or grounded equipment. This contact completes half of an electrical circuit. If these contacts are not avoided, or protection against contact is not used, serious injury can result.
7.7.1 URD-General
- Before a URD transformer enclosure is opened, all unauthorized persons including the public shall be required to leave the work area, and remain clear of all hazards involved in the work. Proper barricading of the work site shall be utilized.
- When underground equipment is being located, previously buried short sections of scrap cable could provide false indications of the actual position of permanent conductors. Therefore, all scrap cable, regardless of length, is to be removed from the job site.

7.7.2 Opening and Closing Circuits-URD
- All "lock-out, Tag-out" policies apply to URD work (See Safety Policy and Procedure # 16 for “Zero energy State”)
- When a URD circuit has opened, the route of the circuit shall be patrolled for obvious hazards before the circuit is reclosed.
- An approved switching tool and rubber gloves with sleeves shall both be used when switches (including secondary breakers) in an energized circuit are opened or closed.
- Any URD primary circuit shall be de-energized by opening one or more devices. De-energized shall be done with load break elbow connectors, load break fuse cutout at the riser pole, load break tool or other approved device.
- Eye and face protection shall be worn when primary switching operations are performed.

7.7.3 Grounding-URD
NOTE: A capacitance charge can remain in a URD cable after it has been disconnected from the circuit and a static-type arc can occur when grounds are applied to these cables.
- All URD cables and equipment, including services, that have been energized or could become energized from any source, shall be considered as energized until the equipment is positively proven (tested) to be de-energized and has been grounded.
- Before performing work on de-energized primary circuits or equipment:
  - (1) a visible open break shall be provided;
  - (2) a voltage test shall be made and
  - (3) the equipment shall be grounded.
- When work is to be done on equipment or cables of an underground system, precautions to prevent back feed shall be taken. This shall include grounding of the secondary conductors where applicable.
- De-energized cables shall be grounded at a point as close to the work as possible before work is started.
- All underground cables and apparatus carrying at voltages shall be de-energized and grounded before cables are cut into or spliced.

7.7.4 Rubber Glove and Sleeve Use-URD
- Rubber gloves and sleeves shall be worn before any URD compartment or enclosure (including a service pedestal) is opened.
- Rubber gloves and sleeves shall be worn when removing animals, vines, weeds, grass or vegetation of any kind that has grown into an energized URD installation whether the equipment is opened or closed.
- Rubber gloves shall be worn when energized primary cables are moved, handled or protected, when work is performed on energized secondaries and services, and when working on or contacting a neutral.

7.7.5 Work on Energized Equipment-URD
Please refer to Cianbro Safety Policy and Procedure # 20 (Flash Protection) for performance of this work.
- When work is performed on cables or apparatus carrying less than 500 volts, team members shall take extra precautions in the use of necessary rubber protective
equipment, in observing adequate clearances, and in using proper tools in order to prevent short circuits.

- When energized pad-mounted transformers are unlocked and opened, they shall be directly attended by a team member. They shall be kept closed and locked at all other times.
- A primary or secondary system neutral on any energized circuit shall both be opened under any circumstances.
- Elbow connectors provide a great deal of flexibility in switching and system sectionalizing. However, only those connectors designed and approved for load break use shall be used to connect or disconnect an energized circuit.
- Only tools with insulated handles shall be used for making energized secondary connections or when work is performed within energized service pedestals, pad-mount compartments or submersible transformer enclosures.
- Only one energized secondary or service conductor shall be worked on at any one time, and protective devices shall be used to insulate or isolate it from all others.
- Before any attempt is made to replace a damaged or blown cable limiter, the customer's service will be checked for faults by the use either ohmmeter or a voltmeter.
- Appropriate clothing with full-length sleeves, rolled down, shall be worn when work is performed with rubber gloves and sleeves.

### 7.7.6 Excavations-URD

Please refer to Cianbro 004 Excavation Safety Policy and Procedure for performance of this work.

- Mechanical excavating equipment shall be used only in areas where there is no known danger of contacting or damaging buried facilities.
- Whenever excavating is done in close proximity (within 18” of mark out) to buried facilities, it must be done only by hand digging. Suitable gloves shall be worn when using any equipment or tools to excavate, expose or handle secondary cables. They shall also be used when digging with approved hand tools to expose primary cables.
- Before excavating in any area where any buried facilities are suspected, such facilities shall be notified of the proposed work. (DIG SAFE or appropriate agency). All appropriate DIG SAFE numbers shall be noted within the Daily Activity Plan.
- If electric cables are damaged, the following steps shall be taken:
  - Stop all activity, shut off all vehicles and shield the public
  - Notify your Supervisor and Dig Safe and Cianbro Safety.
  - If the damaged cable belongs to a power company other than the one performing the work, this company shall be notified at once.
  - The area shall be barricaded and the public kept out until hazardous conditions can be eliminated.
- If gas lines are damaged, the following steps shall be taken as soon as possible:
  - Stop all activity, shut off all vehicles and shield the public.
  - The hole shall be left open to allow the gas to dissipate into the atmosphere. All possible sources of igniting the gas shall be removed or eliminated.
  - Residents of the area shall be warned when necessary and the public kept out of the area.
  - The following departments shall be notified immediately (As identified within the Daily Activity Plan):
    - Local Fire
    - Dig Safe or appropriate agency
    - Gas Company
    - Cianbro Safety
- If communication cables are damaged, the communication company shall be notified at once.
- When trenches are left open, warning devices, barriers, barricades or guardrails shall be placed to adequately protect the public and team members.
7.8 General Excavation and Shoring
All work should be performed within the guidelines presented by Cianbro 004 Excavation Safety Policy and Procedure as reference.

7.8.1 Working in the vicinity of heavy equipment (Ditching Machines)
- Ditching machines shall not be used on slopes or inclines without first preparing the right-of-way to prevent overturning.
- Team members (other than the operator) shall not stand with hands or feet resting on a machine while it is running and shall keep clear of conveyor or discharge side.
- Trenching machines, which are parked or operating on streets or highways, shall be protected by proper warning devices.
- When it is necessary to leave excavating equipment unattended, the blade, or scoop shall be lowered to the grounded, and the ignition system locked.

7.9 Tree Trimming Activities in the Vicinity of Power Lines
It is expected that Cianbro will normally subcontract tree trimming activities around power lines but this section applies to subcontractors and to Cianbro team members if performing this work. Cianbro team members performing this work must be trained to do the work safely.

7.9.1 Prior to climbing, entering, or working around any tree, the nominal voltage of electric power lines posing a hazard to team members shall be determined.

7.9.2 Insulating equipment must be used when removing tree branches that have the potential to cause electrocution (branches that are contacting energized conductors, or are within the distances specified in Tables R-6, R-9, and R-10 of 1910.269, or branches whose potential movement from wind or work activities would place it within those distances).

7.9.3 Line clearance tree trimming work shall not be performed in weather conditions that make the work too hazardous to perform safely. Thunderstorms in the immediate vicinity, high winds, snow storms and ice storms are presumed to make the work too hazardous.

7.9.4 Team members shall be trained in the safe use of brush chippers. Brush chippers must have either a mechanical in-feed system or be equipped with an in-feed hopper that is long enough to prevent team members from contacting the blades during operation.

7.9.5 Team members must be trained in the safe use of power saws. Saws must be turned off when the saw is being carried up a tree by a team member.

7.9.6 Team members required to use climbing ropes shall have been trained in how to climb safely. All climbing ropes must be inspected for damage or defects prior to each use. It is not expected that Cianbro team members will be expected or allowed to climb using climbing ropes. Alternate methods shall be developed such as using an aerial lift.

7.10 Safety At Home
Whenever trimming trees or brush at home, never attempt to do it around energized power lines. Ask trained professionals to do it for you or have the power company shut the power off. Never touch a live power line with your body, with a tool or with any ladder.

8 Budget / Approval Process

8.1 It is the responsibility of each jobsite to procure and provide all PPE requirements under this policy and to provide necessary training.

9 Related Documents

9.1 Not Applicable