

Document title

Transmission Clearing Specifications 15500

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A. GENERAL

1. **General:** This Section covers clearing of the right-of-way, installation of fences and gates, installation of construction roads, clean up and restoration of the right-of-way. All work shall be in accordance with Company Specifications Section 15100 "General Instructions", the detailed plans, and instructions detailed in this section.
2. **Environmental Protection:**
 - a) The COMPANY has taken measures to select a transmission line route that will have minimal environmental impact and comply with applicable environmental laws and regulations. It is mandatory that the CONTRACTOR employ construction methods and techniques that will not cause unnecessary environmental impact.
 - b) The COMPANY will enforce ecologically sound construction practices by the CONTRACTOR to ensure public acceptance and minimal environmental impact and comply with environmental laws and regulations. Any unreasonable environmental impacts or potential noncompliance issue as determined by the Environmental Health and Safety Department or appropriate regulatory agency, shall be noted and rectified at the CONTRACTOR'S expense, to the satisfaction of the Environmental Health and Safety Department and/or the appropriate regulatory agency.
 - c) **Archaeological Considerations:** - Prior to construction, the corridor may be examined by archaeologists. Certain areas may be designated as areas of archaeological interest and will be shown on the drawings. The CONTRACTOR shall take precautions to ensure that these areas will not be disturbed, by either construction activities or scavenging by his personnel. If items or areas of possible archaeological interest are uncovered during construction, construction at that site shall be halted and the SUPERVISOR notified. Archaeologists will be called in to analyze the find. At their discretion, construction may either be continued or the design modified.
 - d) Blasting shall not be done anywhere unless specifically directed in the Work Order. In this case, the CONTRACTOR shall obtain all required permits and insurance for blasting.
 - e) **Waterway Protection:**
 - (1) Machine clearing is not permitted within 25 feet of any stream bed or river crossing. Vegetation within 25 feet of the crossing must be hand cleared. All woody vegetation that has a normal mature height of greater than 12 ft. shall be cut as close to the ground line or water line as possible. Vegetation that has a mature height of less than 12 ft. should be left as a buffer.
 - (2) Care shall be taken to avoid oil or chemical spills or other pollution while working in or near bodies of water. Oil and fuels near bodies of water where they can reasonably be expected to discharge to watercourses shall be diked so that any oil spilled can be retained until cleaned up. Any spills should be reported immediately to PEF.
 - f) Maintenance of equipment shall not cause damage to the right-of-way. Crankcase and transmission fluids and coolants shall not be drained onto the right-or-way or any PEF property. If a release occurs, the CONTRACTOR shall remediate the affected area to the satisfaction of the Environmental Health and Safety Department and/or the appropriate regulatory agency.
 - g) Care shall be taken not to disturb the nests of any migratory birds. Any such nests encountered shall be brought to the immediate attention of the SUPERVISOR.
 - h) Threatened and endangered species are to be protected at all times on the right-of-way. Any species encountered should be reported to the SUPERVISOR and the Florida Department of Environmental Protection.

- i) Herbicide use - ONLY herbicides registered with the EPA and approved by PEF shall be applied in accordance with label directions (see Section L).

B. MARKING FOR CLEARING

1. Unless otherwise indicated, all clearing limits shall be measured by the Contractor from the transmission line centerline or other reference provided by PEF.
2. Where right-of-way boundaries and/or clearing limits are marked by the company, they shall be marked on both sides of the transmission line centerline by wood lathes approximately every 200 feet, with yellow ribbon for the "R/W" and green ribbon for the "Clearing Limit." Selective clearing of trees will be designated and marked as follows:

Removal:

Yellow paint (Class ST I):

At chest level – Stumps that are to be cut 6" above ground line

Orange paint (Class ST II):

At chest level and from ground line to 6" above ground line – Stumps that are to be grinded 6" below ground line

Pink paint (Class ST III):

At chest level and from ground line to 6" above ground line – Stumps that are to be removed

Pruning:

White ribbon at chest level.

C. EASEMENT LIST AND SPECIAL INSTRUCTIONS

1. An easement list is included in the Clearing Work Order.
2. All special instructions noted under the "Rights/Restrictions" column of the easement list, or appended to easement list, shall be adhered to in strict compliance with agreements made.
3. In the last column of the easement list "Requirements" states what rights have been acquired, and shall be strictly adhered to.
4. All other special instructions detailed in the Work Order are to be strictly adhered to.
5. This section will include notes regarding sensitive property owners, special agreements made by PEF or any special instructions as provided by the ENGINEER.

D. CLEARING

1. The entire width of the right-of-way is to be completely cleared as specified in the Work Order. If this is not possible, special clearing instructions will be detailed in the Work Order.
2. The type of clearing shall be noted in the Work Order. All holes resulting from the removal of stumps shall be refilled to average ground level.

Upland clearing is defined as removing all vegetation from "ground to sky" in the areas defined by the ENGINEER. "Ground to sky" means no overhanging branches in the easement area. All required tree pruning shall conform to the latest approved edition of ANSI Z133 Safety Standards, ANSI A-300 Plant Maintenance, and OSHA 1910.269 as a minimum to assure safety and industry standards are maintained.

Type 1

Removal of all trees and brush in the width specified by the ENGINEER and as measured by the CONTRACTOR. Stumps will be cut at ground line and treated with an herbicide (see Section L). Chipping material or debris may be spread up and down the right-of-way (Max. depth of 6") as directed by the SUPERVISOR.

Type 2

Removal of all trees and brush in the width specified by the ENGINEER and as measured by the CONTRACTOR. Stumps will be cut at ground line and treated with an herbicide (see Section L). All trees, chipping material and debris are to be removed from the right-of-way and disposed of by the CONTRACTOR.

Type 3

Grubbing of all trees, brush and stumps in an area specified by the ENGINEER. Chipping material or debris may be spread up and down the right-of-way as directed by the SUPERVISOR.

Type 4

Grubbing of all trees, brush and stumps in an area specified by the ENGINEER. All trees, chipping material and debris are to be removed from the right-of-way and disposed of by the CONTRACTOR.

Type 5

Wetlands Right-of-Way Clearing shall consist of the removal of all trees with a mature height greater than 12' in the width specified by the ENGINEER. Stumps will be treated in the wetland areas if the herbicide (see Section L) is registered with the EPA and approved by PEF.

Type 6

Access roads and structure pads in wetlands will be cleared to the ground. Removal of stumps will be at the direction of the Environmental Health and Safety Department. Access through the wetlands will be cleared to the ground in a width specified by the ENGINEER, which includes the removal of all stumps.

- 3. In waters and wetland sections of the state, trees, stumps, and brush shall be cut, using low ground pressure equipment, to ground or to water level. All trees and debris are to be removed from the right-of-way and disposed of by the CONTRACTOR. Care shall be taken to prevent disruption of the root mat.

The CONTRACTOR will be responsible for complying with all state and federal regulations pertaining to clearing in all wetlands. Wetland areas will be cleared by the use of hand chain saws or mechanized equipment (low ground pressure) to cut the trees as close as possible to the soil surface or water line at time of clearing. The cut material will be removed from or spread along the wetland utilizing either low ground pressure equipment or temporary construction mats. Care must be taken at all times to minimize rutting and disturbing the root mat. No chipped material or brush may be placed in wetland areas, without direction from the Environmental Health and Safety Department.

- 4. Limbs, brush, stumps and debris may be piled and burned within the limits of the right-of-way with the appropriate State and County permits. The CONTRACTOR is responsible for obtaining the appropriate permits. Extreme caution is to be exercised to prevent damage to the adjacent property and to standing trees. NO FIRES ARE TO BE LEFT UNATTENDED. Where local ordinances prohibit burning, items described above are to be hauled away and disposed of at the nearest public dumping ground. Under no circumstances are brush, stumps, and debris to be buried within the right-of-way.

E. TREE PRUNING AND SELECT TREE REMOVAL

1. **Permits:** Certain municipalities, counties, and the Department of Transportation have passed ordinances governing tree cutting, or require permits for such action. Evidence that proper permits, or permissions, have been obtained will be included in the Work Order. This shall include any special instructions covering replacement of trees with other plant material in accordance with permit or ordinance requirements.
2. **Tree Pruning:** When pruning is required, the locations and quantities will be noted in easement list, Work Order, and/or on drawings accompanying Work Order, and will be specially marked in field. All required tree pruning shall conform to the latest approved edition of the following standards: ANSI Z133 Safety Standards, ANSI A300 Plant Maintenance, and OSHA 1910.269 as a minimum to assure safety and industry standards are maintained.
3. **Select Tree and Stump Removal:** Tree removal requirements will be detailed as part of the work details in the Work Order. Trees to be removed will be noted in the easement list, Work Order, and/or drawings accompanying the Work Order, and will be specially marked in field. All damage to property or grounds must be repaired to property owner's satisfaction and if in public right of way, left in a condition satisfactory to the controlling agency's representative. A stump may be removed as long as the process of grinding the stump will not damage the surrounding trees.

DANGER TREES:

Trees located outside the cleared right-of-way that are dead, diseased, leaning, dying or have structural defects and whose height, plus 5 feet, equals or exceeds the distance from the base to a point on a ground directly underneath the conductor should be identified. Permission should be obtained from the property owner to identify, mark and remove the trees. The wood and debris should be left on site unless its removal is specifically requested by the property owner. Any trees meeting these criteria that cannot be removed due to any circumstance should be documented and submitted to the person in charge for resolution.

STUMP TYPES:

CLASS ST I

Stump shall be cut by grinding to 6" below ground line and resulting holes backfilled.

CLASS ST II

Stump shall be cut no more than 6" above ground line and treated with herbicide (See Section L). Approval from the SUPERVISOR must be acquired if the criteria cannot be met.

CLASS ST III

Stump shall be removed and resulting holes backfilled

4. **Mangrove Trimming:** The Mangrove Trimming and Preservation Act allows an electrical utility company to trim mangrove trees in, or adjacent to, a public or private easement for the maintenance of existing lines or facilities, including substations, and provided it is conducted to avoid any unnecessary alteration of mangrove trees. While there are no numeric restrictions, trimming activity should be limited to only the amount reasonably necessary for access and work areas. The act defines "trim" as to cut mangrove branches, twigs, limbs, and foliage, but does not mean to alter, by removing, defoliating, or destroying the mangroves. In addition, any cut material must be removed from the area. Approval from the Environmental Health and Safety Department needs to be obtained, before any clearing commences.

5. **Tree Removal-Groves:** Trees to be removed will be noted in the Work Order, in easement list, and on special tree removal drawings. They will also be marked in the field. Extreme care must be taken in the removal so no trees outside the removal perimeter are damaged. Special instructions as to grove entry, disease and parasite prevention, equipment cleaning, etc., noted in the easement list or Work Order are to be strictly complied with. Removed grove trees are to be disposed of in accordance with all local and state laws.
6. **Disposal of Trees and Debris:** All trees, stumps, limbs, and debris (unless otherwise specified) are to be hauled away from properties and parkways and disposed in an approved manner. Burning or burying of debris on properties or parkways will not be permitted.

F. SEEDING

When seeding is required on the line right-of-way, public rights-of-way, or private property, this requirement will be noted on the easement list, in permits, or in the Work Order. Special instructions as to the type and extent of seeding will be contained in the Work Order.

G. FENCES AND FENCE GATES

1. **Existing Fences:** Fences are to be maintained at all times. Under no circumstance is a fence to be let down or cut without prior arrangement with the property owner. If fences are damaged, they shall be repaired and put in first class condition entirely acceptable to the owner. Repair work is to be accomplished at time of damage, or as soon thereafter as possible.
2. **New Fences:** When the easement list or Work Order specifies a new fence it shall be installed as specified in the Work Order.
3. **Existing Gates:** Wherever feasible, access to the right-of-way shall be through existing gates. With agreement of the property owner, a COMPANY lock shall be locked with the property owner's lock with a length of chain (chain length to be a minimum of three (3) links). This is to prevent lock out to owner's property and/or right-of-way and allow use of gate independently by either party. Gates shall be closed immediately after each passage of COMPANY or CONTRACTOR-owned equipment.
4. **New Gates:** New permanent locked gates are to be installed at locations specified in the Work Order where existing gates do not allow suitable access. Fence gate installations will include a minimum 16' X 4 1/2' hog-proof drive gate, and shall be installed per Standard 92921.

H. CONSTRUCTION AND PATROL ROADS

1. **Existing Roads:** Wherever feasible, access to right-of-way shall be over existing roads. These roads shall be maintained in a usable condition while the COMPANY or CONTRACTOR'S equipment is using the road. Any improvement on an existing road needs to be reviewed by the Environmental Health and Safety Department to determine if any permits will be required. At close of construction, roads shall be left in a usable condition.
2. **New Roads:** New roads shall be constructed so that the roadway is suitable for traversing by heavy construction vehicles such as concrete mixer trucks. Any new roads constructed in wetland areas must comply with all applicable permits. The Environmental Health and Safety Department will work with the ENGINEER to include these requirements as specific conditions in the work order. Where land conditions dictate the necessity of constructing either permanent or temporary roads, the following types of roads shall be constructed as specified in the Work Order.

Type 1

A road 18 feet in top width, with one-half the width on each side of the designated centerline

- (1) Type 1 road is to consist of in-situ material shaped and leveled to provide drainage and compacted to 90% of maximum theoretical density in accordance with ASTM D-1557.
- (2) Type 1 road will be used where the in-situ material is adequate to support intended traffic as is or with only minor modifications.

Type 2

A sand/clay fill road 18 feet in top width, one-half the width on each side of the designated centerline. The depth shall be as specified in the Work Order, but not less than two feet. The top one foot layer shall be the surface of the road and the types of materials shall be determined by their availability locally. Sugar sand or non-compactable sand is not acceptable as fill in the top one foot layer.

- (1) Type 2 road is to consist of imported fill shaped to provide drainage (provide a 3" crown), constructed with side slopes of 1:2 or as specified and compacted to 90% of maximum theoretical density in accordance with ASTM D-1557.
- (2) Type 2 roads must be provided with a riding surface which could consist of a 1' layer of clayey sand, crushed stone, or shell.

Type 3

A rock fill road 18 feet in top width, one-half the width on each side of the designated centerline. The depth shall be as specified in the Work Order. The rock shall be placed, shaped, and compacted with side slopes of 1:2 or as specified.

- (1) Type 3 roads shall consist of lime rock and shall contain coarse and fine material so that it will readily compact, with a maximum of 40 percent sand. The road shall be compacted to 90% of maximum theoretical density in accordance with ASTM D-1557.
- (2) Type 3 road is to have a 3" crown and to be graded to promote drainage.

Type 4

A coarse sand or fine crushed stone mixed with a small percentage of, and finally topped with a clean fine to sandy clayey soil placed on a road bed liner like MIRAFI HP-570 High Strength Woven Geotextile or approved equally. The top of the road is to be 18' wide with slopes as called for in the Work Order. Type 4 road is to be compacted to 90% of maximum theoretical density in accordance with ASTM D-1557. At structure locations, structure pads shall be constructed of the same material as the road in between the structure pads, and with a gradual slope to meet the road slope without any change in elevation. Fill areas shall have 3" crown to promote drainage. Preparations must be made for placement of road bed liner by:

- (1) Fill all holes and ruts where there is more than 6" grade change in 3 feet.
- (2) Roll out the geotextile fabric providing the minimum lap as directed by the manufacturer, at the junctures of the individual geotextile fabric sheets.

I. CULVERT INSTALLATION

Where specified in the Work Order, install permanent culverts. All culvert installation shall be in accordance with all applicable environmental permits and have appropriate erosion control as approved by the Environmental Health and Safety Department. Installation of culverts shall be as follows or as outlined in the Work Order.

1. Install conforming to manufacturer's recommendations.
2. Corrugated-metal culverts and coupling bands for permanent installation shall be galvanized as outlined in the Work Order.
3. Lift or roll culvert to protect coating. Do not drag over gravel or rock. Avoid striking rocks or hard objects when lowering into trench.
4. Install culvert with longitudinal laps at the side or quarter points, and with inside circumferential laps pointing downstream.
5. Install lower portion of two-piece connecting band before positioning succeeding culvert length. Make sure corrugations of band and culvert sections line up.
6. Attach end sections with bolted coupling bands.
7. Alignment shall follow the channel of the waterway.
8. Prepare the ground surface to provide uniform bearing.
9. Set the inlet slightly below ground level. Set the outlet slightly above ground level.
10. Fill for permanent pipe installation backfill shall be granular fill as specified for Type 2 road.
11. The fill shall be carefully and evenly tamped on all sides of the pipe. Depth of fill over the pipe shall be a minimum of 1/2 the pipe diameter, but not less than 12 inches.

J. STRUCTURE PADS

1. This instruction covers the general requirements for constructing structure pads in wet or flooded areas of right-of-way to raise ground level above water level when the Work Order specifies structure pad. All structure pad installations shall be in accordance with all applicable environmental permits and have appropriate erosion control as approved by the Environmental Health and Safety Department.
2. The specific dimensions of structure pads to be installed will be detailed in the Work Order and on drawings. Structure pad grades shall be staked in field.
3. Fill required for structure pads shall be as noted in the Work Order, and shall be placed on a geotextile fabric in areas requiring Type 4 Roads.
4. The structure pad is to be compacted to 90% of maximum theoretical density in accordance with ASTM D-1557 and rough-graded after filling.
5. Any minor drainage ditches, obstructed by the structure pads, are to be rerouted around the structure pad unless otherwise directed in the Work Order. The rerouted ditch is to be the same width and depth as the original ditch. Consideration should be given to the direction of flow of the existing ditch.

K. NOTIFICATIONS AND COMPLAINTS

- 1. Notifications to Private Owners:** The clearing CONTRACTOR shall be responsible for notifying property owners as to time of entry on their property. He shall also secure any permits for burning required. Any exceptions to this shall be noted in the easement list or in the Work Order.
- 2. Notifications to Public Agencies:** The CONTRACTOR shall be responsible for any notifications required to public agencies, such as the Department of Transportation, city authorities, etc., to conform to permits or agreements with said agencies.
- 3. Complaints:** Any complaints received from property owners or public agencies shall be handled promptly by the SUPERVISOR and the ENGINEER shall be notified as soon as possible.

L. HERBICIDES

All stumps of fast growing woody species that are left in the right of way shall be treated with an EPA and PEF approved herbicide to prevent re-growth, except as noted by the ENGINEER. All herbicides shall be applied by a qualified, licensed herbicide Applicator. Label directions must be followed at all times. PEF shall expect 90% effectiveness 4 months after the project has been completed. Re-treatment, if required, will be at the CONTRACTOR'S expense. The CONTRACTOR shall be responsible for all liability associated with non-target impacts resulting from the use of herbicides and the cost of remediation.

The following is a list of approved herbicides for use in cut stump treatment.

Upland Approved
Pathfinder II

Wetland Approved
Accord
Rodeo

*Additional herbicides can be used if approved by the PEF forester prior to application.

M. APPLICABLE SPECIFICATIONS

ANSI Z133 (approved 1994)
American National Standard for Tree Care Operations - Pruning, Trimming, Repairing, Maintaining and Removing Trees, and Cutting Brush – Safety Requirement

ANSI A300 (approved 1995)
American National Standard for Tree Care Operations – Tree, Shrub and Other Woody Plant Maintenance Standard Practices.

OSHA 1910.269
Line Clearance Tree Trimming Operations

ASTM D-1557-91 (approved 1998)
Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effect (56,000 ft-lb/ft³ (2700kN-m/m³))