

No Net Loss

Compensatory Reforestation Program

Program Guidelines

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State of New Jersey
Department of Environmental Protection
NJ Forest Service

Contents

1. LEGAL FRAMEWORK	1
2. PURPOSE	1
3. DETERMINATION OF APPLICABILITY OF THE ACT	1
a. Conditions of Non-Applicability	1
b. Applicability Determination	2
4. DETERMINATION OF THE AMOUNT OF DEFORESTATION	2
a. NNL GIS Grid	2
b. Explanation of 'Existing Forested Area'	3
c. Determining the Presence of 'Existing Forested Area'	3
d. Performing a NNL GIS Grid Analysis to Calculate Total Deforestation	4
5. DETERMINATION OF COMPENSATORY REFORESTATION OBLIGATION	6
a. Calculating Compensatory Reforestation Obligation	6
b. Methods of Compensatory Reforestation	6
6. TREE ESTABLISHMENT REQUIREMENT & CRITERIA	7
a. Establishment Period Threshold	7
b. Establishment Criteria	8
7. PUBLIC FORUM REQUIREMENT	8
8. COMPENSATORY REFORESTATION PLAN ELEMENTS	8
a. NNL Compensatory Reforestation Plan Checklist	8
b. NNL Compensatory Reforestation Plan Application	8
c. Project Narrative	9
d. Maps	10
e. Pictures	11
f. Site Plan/Construction Drawings	11
g. Specifications	12
i. Proposed Timeline	12
h. Public Forum	12
j. Payment	12
9. COMPENSATORY REFORESTATION PLAN SUBMISSION, REVIEW & APPROVAL	13
a. Pre-Submission Conference	13
b. Plan Submission and Review	13
c. Plan Approval	13
10. COMPLIANCE & COMPLETION	14
a. Types of Inspections and Inspection Procedures	14
b. Compensatory Reforestation Project Completion	15
<u>APPENDIX</u>	
A. No Net Loss Act	17
B. Calculating the Extent of Deforestation – NNL ½ Acre GIS Grid Analysis	19
C. Payment Protocol	20
D. Checklist	23
E. Application	25
F. Example Tree Planting Detail	26
G. Applicability Determination	28
H. Submission & Approval Protocol	30
GLOSSARY	32
REFERENCES	35

1. LEGAL FRAMEWORK

The New Jersey No Net Loss (NNL) Compensatory Reforestation Act, N.J.S.A. 13:1L-14.1 et. seq., ‘the Act’ (Appendix A), requires that a State entity submit a compensatory reforestation plan to the NJ Department of Environmental Protection, New Jersey Forest Service (NJFS), for each project that results in the deforestation of one-half acre (0.5 ac/21,780 square feet) or more on land the State entity owns or maintains. The compensatory reforestation plan shall have a goal of no net loss of existing forested area. Each plan is subject to review and comment by the NJ Community Forestry Council prior to approval by NJFS. The law requires that the State entity obtain NJFS approval of the compensatory reforestation plan prior to commencing the project.

2. PURPOSE

These guidelines advise a State entity as to:

- The determination of the amount of deforestation that will result from a State entity’s project, and therefore whether the amount of the project’s deforestation requires the approval of a NNL compensatory reforestation plan;
- The determination of a State entity’s compensatory reforestation obligation for deforestation;
- The methods available for satisfying a compensatory reforestation obligation;
- The elements required for a compensatory reforestation plan;
- The procedures for the submission, review, and approval of a compensatory reforestation plan;
- NJFS’s role in the oversight of plan implementation; and
- The remuneration to NJFS for review and implementation of the compensatory reforestation plan, and the payment of monetary compensation in lieu of reforestation performed by the State entity [reference for the Memorandum of Agreement per N.J.S.A. 13:1L-14.2(c)].

3. DETERMINATION OF APPLICABILITY OF THE ACT

a. CONDITIONS OF NON-APPLICABILITY

- i. The Act does not apply to a project if the extent of deforestation of an existing forested area on State owned or maintained land is determined to be less than one-half acre (0.5ac/21,780 square feet) as defined in Section 4.
- ii. The Act does not apply to activities on State owned or maintained land that constitute standard forestry, wildlife management, arboricultural, or active utility easement management practices. Such activities can include, but are not limited to:

1. Any tree removal activity on State owned or maintained land that is determined by NJFS to be part of a NJ Department of Environmental Protection Natural and Historic Resources policy or plan for natural resource management (e.g. forestry, forest fire, biodiversity, wildlife habitat, endangered and nongame species, threatened/ endangered and rare plants, and wildlife).
2. Any tree removal activity on State owned or maintained land that is part of a documented, ongoing, scheduled vegetation management program in conjunction with an existing utility easement.
3. Any tree removal activity by a state entity deemed appropriate by the division that is done on developed or maintained lands in response to natural disasters including events such as fires, floods, insect infestations or disease infestations on state lands. Such activity shall be done with the intent to minimize the spread of infestations or maintain public safety.

b. APPLICABILITY DETERMINATION

An applicability determination is the NJFS's statement of whether the Act applies to a specific project. State entities are encouraged to obtain an applicability determination from NJFS if it is unclear whether the Act applies to a project.

Details on the application requirements and review process for an applicability determination are provided in Appendix G.

4. DETERMINATION OF THE AMOUNT DEFORESTATION

This section explains the methods used to determine if a project results in the deforestation of one-half acre or more of existing forested area, and qualifies as a deforestation project subject to the compensatory reforestation obligation.

a. NNL GIS GRID

NJFS developed a statewide GIS one-half acre grid to determine whether a project site is an 'existing forested area,' and to calculate the total amount of deforestation. The grid is a GIS file used with ArcGIS, AutoCAD, or any other compatible program. The grid divides the State into one-half acre (0.5 ac/21,780 square feet) square cells based on the USGS 7.5 Quadrangle series. The grid is only available on a DVD due to its large size. NJFS provides the DVD, free of charge, upon request.

Section 4(d) below explains how to use the NNL GIS grid to ascertain the presence of an 'existing forested area' at a project site, and how to calculate the total amount of deforestation for a project.

b. EXPLANATION OF 'EXISTING FORESTED AREA'

Before any calculations of the extent of deforestation can occur, it must be determined whether a project site contains an 'existing forested area.' Existing forested areas are:

- Lands that are undeveloped tracts with naturally occurring tree cover,
- Lands that are landscaped and planted with trees, and
- Lands that have been disturbed and have returned, or are returning, to a naturalized forested condition.

For NNL purposes, existing forested areas can belong to any one of three (3) different successional stages, depending on the predominant size of the trees. These stages are:

- **Established Forest** - trees predominately have a diameter at breast height (DBH) greater than 4-inches.
- **Emerging Forest** - trees are predominately saplings and have a DBH 4-inches or less and are greater than 2 feet in height.
- **Seedling Forest** - a new or regenerating forest with predominately seedling trees 2 feet in height or less.

c. DETERMINING THE PRESENCE OF 'EXISTING FORESTED AREA'

Before calculating the total deforestation for a project, determine whether an established forest, an emerging forest, or a seedling forest is present at the project site.

To determine if there is an established forest, first delineate the site's tree canopy coverage using aerial photography and on-site verification. If an area has discernable tree canopy coverage on the aerial photograph, and field verification confirms that the area predominantly has trees that are greater than 4-inches DBH, then there is established forest. Once it is determined that an established forest is present, map the boundary of that area and use it in conjunction with the grid analysis methodology explained in Section 4(d) below, or use an acreage calculation or equivalent method without the use of the grid analysis. Based on the grid methodology, if the extent of the area of established forest meets or exceeds 33% of the area of a NNL GIS grid cell, that cell is determined to be an existing established forest area.

The use of the site's tree canopy coverage in aerial photography is not practicable to determine if there is an emerging or a seedling forest. The density of saplings or seedlings per one-half acre must be measured. To measure sapling or seedling density, use fixed-point, plot count sampling methodology. Any project site where the trees are predominantly saplings or seedlings should be sampled using 1/10th acre plots. Use two to three sample plots per one-half acre.

The site is an emerging forest if sampling results in a density of 204 saplings per one-half acre or more. The site is a seedling forest if sampling results in a density of 605 seedlings per one-half acre or more. Once it is determined that an emerging or a seedling forest is present based on the calculated density, the boundary of that area should be mapped and used in conjunction with a NNL GIS grid analysis as explained in Section 4(d) below, or use an acreage calculation or equivalent method without the use of the grid analysis. Based on the grid methodology, if the extent of the area of emerging or seedling forest meets or exceeds 33% of the area of a grid cell, that cell is determined to be an existing emerging or an existing seedling forested area.

d. PERFORMING A NNL GIS GRID ANALYSIS TO CALCULATE TOTAL DEFORESTATION

A NNL Grid Analysis of Deforestation, or grid analysis, uses the one-half acre GIS grid system, described in Section 4(a) above, with current aerial photography to identify, outline, and quantify the existing forested areas of a project. Then, the existing forested areas scheduled for deforestation are delineated and added together to determine a project's total amount of deforestation. This section provides instructions on how to perform a grid analysis. A visual aide for completing a grid analysis is provided in Appendix B.

Step 1

Using ArcGIS or AutoCAD, the most current, available State aerial photograph must be used as a base map. It must be projected in NJ State Plane coordinate system, North American Datum, 1983 (NAD83), feet.

Step 2

Delineate the project limits on the aerial base map using complete polygons. This means that all lines defining your project limits must be connected. There must not be any incomplete shapes or single lines used to delineate any area.

Step 3

Lay the NNL grid over the entire project area. Evaluate each one-half acre cell that falls within the project limits for canopy coverage. Delineate all the canopy coverage in the cell regardless of project or ownership boundaries. Only use complete polygons as described above.

If the area of canopy coverage in a cell measures one-third (1/3) – 33% - of the total area of the cell (0.17 acres/7,260 sq. ft.) or more, then the entire cell must be considered an existing established forested area.

When there is no discernible tree canopy coverage on the base map, and the site is vegetated, use the sampling methodology described in Section 4(c) to determine whether an emerging or a seedling forest exists. If an emerging or a seedling forest is present, proceed with the grid analysis from **Step 2** above.

If the area of emerging or seedling forest in a cell measures one-third (1/3) – 33% - of the total area of the cell (0.17 acres/7,260 sq. ft.) or more, then the entire cell must be considered an existing emerging or a seedling forested area.

Any one-half acre cell that has less than one-third (1/3) - 33% - existing forested area is not considered an existing forested area and is not used to calculate total deforestation.

Step 4

Within each grid cell that is an existing forested area, delineate the area of canopy coverage (and/or the area of emerging/seedling forests) on State owned or maintained property within the project limit and scheduled for deforestation.

Step 5

Add all the areas of deforestation from each cell together to get the total area of deforestation, and round the sum to the nearest half-acre. If the total area of deforestation equals one-half acre (0.5ac/21,780 square feet) or more, it is subject to the compensatory reforestation requirement (see Section 5).

Example: Using ArcGIS software, the NNL GIS grid is laid over the State’s most recent aerial photography covering a specific project area. Four (4) one-half acre grid cells have 100%, 35%, 18% and 45% tree canopy coverage. A field survey verified the accuracy of the aerial photograph, and the existence of established forest. The project calls for total deforestation of the first three cells, and deforestation of one-half of the fourth cell. The third cell falls below the minimum 33% canopy coverage, and is not included in the calculation of deforestation. The first two cells have 0.5 ac (100%), 0.18 ac (35%) canopy coverage scheduled for deforestation respectively. The fourth cell has 0.23 ac (45%) canopy coverage, half of which, 0.12 ac., is scheduled for deforestation. Therefore, total deforestation for this project equals 0.8 acres, and it is subject to the compensatory reforestation requirement.

Note: A grid analysis is not required if an acreage calculation or equivalent is used to calculate actual acreage. A shape file (shp), or equivalent, of the project area, that can be opened in ArcMap must be provided to NJFS.

5. DETERMINATION OF COMPENSATORY REFORESTATION OBLIGATION

a. CALCULATING COMPENSATORY REFORESTATION OBLIGATION

The compensatory reforestation obligation is the number of trees that a State entity is required to plant, and establish, to offset deforestation. It shall be determined using the Tree Replacement Factor (TRF) set forth at N.J.S.A 13:1L-14.2(6)-(7). To calculate the compensatory reforestation obligation, multiply the number of acres deforested by the TRF of the trees used for reforestation. The size class of the trees used for reforestation is a function of the size class of the existing forested area that was deforested. The compensatory reforestation obligation for an established forest must be calculated using the TRF for 2- 2.5-inch caliper trees. The compensatory reforestation obligation for an emerging or a seedling forest must be calculated using the TRF for whip/container trees and seedling trees respectively.

Tree Replacement Factor

Established Forest = 204 trees (2-2.5 inch caliper B&B) per acre
Emerging Forest = 408 whip/container trees (4 – 6 foot tall) per acre
Seedling Forest = 1,210 tree seedlings per acre

Compensatory Reforestation Obligation (Trees) = # of Acres Deforested X TRF
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Example: Based on the example calculation of deforestation from Section 4(d) a total of 0.8 ac. of established forest was deforested. Therefore, the compensatory reforestation obligation is 0.8 ac multiplied by the TRF for an established forest, 204 trees per acre. This equals 163.2 trees. All calculations for the compensatory reforestation obligation must be rounded to the nearest whole number. Therefore, the compensatory reforestation obligation is determined to be 163 trees.

b. METHODS OF COMPENSATORY REFORESTATION

There are three (3) methods of compensatory reforestation: on-site reforestation, alternative-site reforestation, and monetary compensation. These methods can be used individually or in combination with one another as part of a comprehensive reforestation plan.

- i. **On-site Reforestation** is carried out by the State entity, or its designated representative, directly on the project site.
- ii. **Alternate-site Reforestation** is carried out by the State entity, or its designated representative, on a site selected in accordance with the hierarchy set forth at N.J.S.A. 13:1L-14.2.b.(1) through (3). Alternative-

site reforestation is only permitted on public property including municipal, county or State lands.

If, according to the hierarchy, a State entity chooses to plant on an “alternate-site” [N.J.S.A. 13:1L-14.2.b.(3)] as part of their reforestation plan, the planting must commence within a year before or after the deforestation.

A planting plan of the alternate site planting locations must be submitted to the NJFS prior to approval.

- iii. **Monetary Compensation** in lieu of all, or part, of the reforestation may be provided per tree for the number of trees required to meet the compensatory reforestation obligation, plus administrative costs (Appendix C). The 2-2 ½” caliper tree rate multiplied by the TRF per acre shall be used to calculate the monetary compensation amount.

All compensatory reforestation plans should first aim to satisfy reforestation obligations through on-site reforestation. Factors such as mature tree size, tree shape, and various site conflicts or constraints will determine the amount of reforestation that can reasonably take place at each site.

If the compensatory reforestation obligation cannot be met entirely through on-site reforestation, then alternative-site reforestation options should be utilized with the aim to reforest as close to the nexus of deforestation as possible.

Only after consideration of all on-site and alternative-site reforestation options should monetary compensation be incorporated into the plan for compensatory reforestation.

6. TREE ESTABLISHMENT REQUIREMENT & CRITERIA

a. TREE ESTABLISHMENT PERIOD THRESHOLD

A two-year establishment period is required for all on-site and alternative-site reforestation projects carried out by the State entity, or its designated representative. The establishment period will commence with certification of planting completion by NJFS. During the two-year establishment period, all tree plantings must be maintained by the State entity, or its designated representative. At the end of the two-year establishment period, the following thresholds based on the total compensatory reforestation obligation (trees) must be met:

- Seedling reforestation = 80% established
- Whip/container reforestation = 90% established
- B&B reforestation = 95% established

b. TREE ESTABLISHMENT CRITERIA

The following criteria are general conditions and characteristics used by NJFS to determine that a tree is established. NJFS makes the final determination on whether a tree is established. NJFS may accompany state entity inspectors to conduct this inspection if applicable.

- The terminal or topmost shoot, the central leader, of the tree is alive and healthy (species specific characteristic).
- Two-thirds (2/3) or more of a tree's canopy is alive and healthy (a branch or shoot is dead when no live cambium is present in the stem).
- There are no major wounds on the trunk or root collar. A major wound occurs when one-third or more of the cambium is injured over the circumference of the bole.
- There is no major insect, disease or fungal infestation or affliction.
- Adventitious stems and/or roots are not present.
- There are no j-roots or girdling roots.

7. PUBLIC FORUM REQUIREMENT

Pursuant to N.J.S.A. 13:1L-14.4, the State entity must hold a public forum when one (1) acre or more is deforested. The forum should be held in an affected municipality at least one hundred eighty (180) days prior to any deforestation. The plans for deforestation and compensatory reforestation are presented at the forum. If one project affects more than one municipality, the State entity may choose one municipality in which to hold the public forum.

The public forum can be held in conjunction with other public processes associated with the project provided that the agenda clearly sets aside an item for the proposed deforestation and compensatory reforestation plan.

A 60 day public comment period from the date of the forum must be open to oral and written comments. The State entity's written response must be provided no more than 60 days subsequent to the close of the public comment period.

The agenda and all comments and responses must be submitted to NJFS as part of a complete compensatory reforestation plan.

8. COMPENSATORY REFORESTATION PLAN ELEMENTS

A complete compensatory reforestation plan must include the following elements for review:

a. **NNL Compensatory Reforestation Plan Checklist**

One complete copy of the Checklist (Appendix D).

b. NNL Compensatory Reforestation Plan Application

The Application (Appendix E) must be the first page of the plan.

The State entity must designate a person to serve as a single point of contact responsible for communication and coordination with NJFS. This primary contact shall be an employee of the State entity and not a third party.

The State entity may authorize a third party to submit a compensatory reforestation plan on their behalf, in writing.

c. Project Narrative

The narrative shall contain a complete written description of the project and its activities.

The following information must be included in the narrative:

- i. Description of the work. Include the activities, the project site (include land use and ownership of abutting properties, if applicable), the amount of existing forested land, and the extent of deforestation, in acres. Provide a justification for the work with a description of efforts to avoid deforestation, how the design minimizes the amount of impact to forested land, and any adverse impacts to abutting properties and efforts to address them.
- ii. Description of the existing forested area. Include whether there is a seedling, emerging, or established forest (Section 4b & 4c), the area in acres rounded to the nearest half-acre, the forest cover type, understory vegetation, hydrology, soils, slope, and any unique site or microclimatic conditions.
- iii. Description of the extent of deforestation. Include the total area of proposed deforestation, in acres by municipality. Explain the methods for calculating existing forested area and the amount of deforestation (e.g. NNL GIS grid analysis, plot samples). Describe the best management practices (BMPs) employed to minimize the environmental impact of deforestation operations. The New Jersey Forestry and Wetlands Best Management Practices Manual is provided on the NJFS website (www.state.nj.us/dep/parksandforests/forest/nj_bmp_manual1995.pdf).
- iv. Description of the compensatory reforestation obligation. Include the total number of trees to be reforested, how it was calculated, and how

this will satisfy Section 5 above. Detail how the project will use on-site reforestation, alternative-site reforestation, monetary compensation in lieu of reforestation, or a combination of methods. Total amounts associated with each compensation method must be stated (e.g. number of trees for reforestation and dollar amount for monetary compensation).

- v. Description of the on-site and/or alternative site reforestation. State the total number of trees proposed for planting, and the total number of proposed planting locations. Describe the specific planting locations, and state how many trees, of what species, will be planted on how many acres. Provide justification for these decisions. Justification should focus on the compatibility and appropriateness of the species, size class and spacing to the site conditions including location, soil, slope, vegetation, hydrology, and other unique site or microclimatic conditions. Reforestation design should be consistent with the surrounding landscape. Reforestation adjacent to existing forest should consider the composition and structure of the adjacent forest. Many proposed tree plantings may impact or conflict with existing infrastructure (including above and below ground utilities), and vegetation as trees mature. These conflicts must be taken into consideration and addressed. State the minimum distances between existing structures and vegetation and the proposed trees. Prioritize and identify native species. Identify fall dig hazards.

Describe how the trees will be maintained at the location before and after installation and the responsible party. The plan shall include maintenance activities such as watering intervals, and animal, weed, disease, or insect control.

Provide written authorization from all public property owners where any alternate-site compensatory reforestation is proposed.

d. **Maps**

All maps must have a scale, north arrow, and legend.

- i. USGS Quad Map (1:24,000) – Clearly outline the project site to scale delineating the area of deforestation, the areas of on-site reforestation, and/or the areas of alternative-site reforestation. Include the quadrangle name and number.

- ii. Street Map – clearly indicate the location of the project and provide at least one major roadway and one minor roadway.
- iii. No Net Loss Grid Analysis – current color infrared Digital Orthophoto Quadrangle (DOQ) with 1-meter ground resolution or better, cast on the NJ State Plane NAD 83 (feet) overlaid with the No Net Loss one-half acre Grid. The project boundary and areas of deforestation must be clearly delineated, identifiable and labeled (Appendix B).
- iv. Municipal Tax Map (alternative-site planting only) – if a reforestation plan includes alternative-site planting on property that is not owned or maintained by the State entity a municipal tax map must be provided that clearly outlines the alternative-site planting locations.

e. **Pictures**

Color pictures should depict the entire project area including areas to be deforested (clearly represent existing forest cover and vegetation), on-site reforestation locations, and alternative-site reforestation locations. Pictures should be presented on 8.5-inch x 11-inch paper and reference an accompanying map indicating the location and direction from which each photograph was taken. Black and white pictures or copies of pictures are not acceptable.

f. **Site Plan/Construction Drawings**

Scaled drawings must be signed and sealed by a licensed Engineer, Landscape Architect, NJ Certified Tree Expert, Certified Arborist, or Certified/Approved Forester as appropriate. Drawings must contain all the information necessary for a thorough review of all activities associated with deforestation and reforestation including:

- i. Existing conditions
- ii. Demolition/Deforestation
- iii. Grading
- iv. Utilities
- v. Soil erosion and sediment control
- vi. Elevations
- vii. Landscape drawings must be provided for all on-site and/or alternative-site reforestation and include:
 - ♦ Proposed planting locations for each tree and scaled spacing.
 - ♦ Plant schedule that includes a plant code, scientific name, common name, size, quantity, and indicate native species and fall dig hazards.
 - ♦ Planting detail must reflect the current accepted standard for tree quality and planting in the tree care industry (e.g. ANSI Z60.1 and A300). An example is provided in Appendix F.

- ♦ Notes (planting, maintenance, site improvements) that accurately correlate to the project specifications.

Please note in the plan if any of the above mentioned information cannot be provided at time of plan submittal with the reason, and provide the information to the NJFS as soon as the information becomes available.

g. **Specifications**

Specifications for deforestation and reforestation must be developed and submitted as part of the plan for compensatory reforestation. Specifications must incorporate the most recent best management practices (BMP's) for forestry as required for deforestation¹ and tree care industry standards (e.g. ANSI Z60.1 and A300) for plant material, handling, shipping planting/transplanting, and maintenance. All plant material must be nursery grown. No collected or wild plant material is acceptable. Pursuant to N.J.S.A. 13:1L-14.2(9) trees should be selected from *Trees for New Jersey's Streets*.

h. **Proposed Timeline**

The timeline should include the chronology, duration, and phases for deforestation, reforestation, and maintenance. A proposed timeline must be provided for all on-site and alternative-site reforestation.

i. **Public Forum**

Documentation evidencing the required public forum (Section 7) for all compensatory reforestation projects with deforestation of one (1) acre or more must be provided pursuant to N.J.S.A. 13:1L-14.4. This includes the formal meeting agenda, and all public comments with the State entity's written responses.

j. **Payment**

Payment for NJFS review must be submitted with all compensatory reforestation plans. Payments must be calculated per Appendix C.

¹ New Jersey Forestry and Wetlands Best Management Practices Manual is available on the NJ NJFS website www.state.nj.us/dep/parksandforests/forest/nj_bmp_manual1995.pdf.

9. COMPENSATORY REFORESTATION PLAN SUBMISSION, REVIEW & APPROVAL

The compensatory reforestation plan must contain all the required elements detailed in Section 8, and provided for in the No Net Loss Compensatory Reforestation Plan Checklist, for the submission to be complete. Only complete submissions are reviewed to ensure all the required elements meet the conditions of these guidelines. Details and schedules for the submission, review and approval of compensatory reforestation plans are provided in Appendix H.

a. PRE-SUBMISSION CONFERENCE

The State entity may request a pre-submission conference with NJFS-No Net Loss Program prior to submitting a compensatory reforestation plan. This is highly recommended if the State entity has not previously submitted a compensatory reforestation plan to NJFS, or if the project is large and/or complicated. Prior to a pre-submission conference NJFS will require the submission of particular compensatory reforestation plan elements that it determines are necessary to properly advise the State entity regarding the proposed project and application procedures.

b. PLAN SUBMISSION & REVIEW

Details on the compensatory reforestation plan submission and approval protocol are provided in Appendix H.

A preliminary submission is required for NJFS to determine whether an application is complete based on all the required elements set forth in Section 8. If it is determined that the compensatory reforestation plan does not contain all the necessary elements to be deemed complete, the State entity will be notified as to what elements must be provided to eliminate any deficiencies. Once NJFS receives all of the required elements, the submission is complete and reviewable. If the review determines that the plan's elements do not meet the requirements set forth in these guidelines, NJFS will require revisions to bring the plan in line with the requirements. Once the plan is in line with all the requirements, the State Entity must provide a complete submission. NJFS provides copies of the complete submission to the NJ Community Forestry Council for review and comment.

c. PLAN APPROVAL

After the NJ Community Forestry Council review and comment of a State entity's complete compensatory reforestation plan, NJFS issues a Conditional Approval to Proceed (CAP). The CAP includes an invoice for the inspections of on-site and/or alternative site reforestation, and any monetary compensation in-lieu of reforestation. After all the required payments are received by NJFS, NJFS issues the

final Approval to Proceed (AP) allowing for the commencement of deforestation on State property, and the implementation of the compensatory reforestation plan. An AP is valid for five (5) years from the date of issue.

10. COMPLIANCE & COMPLETION

a. **TYPES OF INSPECTIONS & INSPECTION PROCEDURES**

The purpose of NJFS inspections is to ensure that the implementation of the compensatory reforestation plan is in accordance with the approved plan so that the extent of deforestation is not exceeded, and the required survivability threshold for reforestation is attained.

NJFS may perform a minimum of four (4) inspections to monitor the State entity's compliance with the approved compensatory reforestation plan. These inspections include:

- i. **Deforestation Inspection** – This inspection verifies that all deforestation occurs within the limits defined in the approved plan, and that the approved amount of deforestation is not exceeded.

NJFS must be notified at least seven (7) business days prior to the anticipated start date for any deforestation. Limits of deforestation must be clearly marked on site. Deforestation beyond the limits in the approved compensatory reforestation plan may require plan amendment.

- ii. **Initial Tree Quality and Planting Inspection** - This inspection verifies the planting of the required number of trees under the compensatory reforestation obligation, and that the trees meet the specifications for quality and planting in the approved plan. This inspection may take place throughout the delivery, during the installation of the trees, or shortly after planting.

NJFS must be notified at least seven (7) business days prior to the anticipated start date for tree delivery and planting. Any plant material or tree planting that does not conform in form, planting methods, or specifications of the approved plan will not be counted towards the compensatory reforestation obligation.

NJFS must be notified in writing by the State entity when the entire tree planting is complete. A final plant list based on the actual planting, and an as-built drawing indicating final planting locations must be provided to

NJFS if different from the approved reforestation plan. NJFS will issue a Notice of Planting Completion after all the required information is received, and the planting complies with the approved plan. The date of this Notice will trigger the two-year establishment period for the project.

- iii. **Year-1 Tree Establishment Inspection** - This inspection verifies that the required maintenance is taking place according to the specifications in the approved plan, and that the trees are on track for meeting the establishment threshold for the final inspection. This inspection occurs one (1) year following the issuance of the Notice of Planting Completion.

NJFS may provide a one (1) year inspection report to the State entity stating that the planting is on track to meet the establishment threshold, or that it appears that the maintenance schedule in the approved compensatory reforestation plan is not being followed, and the planting may not meet the required establishment threshold at the final inspection. State entities requiring this inspection report can also request a 1-year inspection report.

- iv. **Final Tree Establishment Inspection** - This inspection verifies whether the establishment threshold (Section 6.a) for the compensatory reforestation obligation was met or not. This inspection occurs two (2) years following the issuance of the Notice of Planting Completion. Section 10.b below describes the project completion procedures based on whether the required establishment is met or not at the time of this inspection.

NJFS shall provide a final tree establishment report to the State entity stating whether the establishment threshold has been met.

b. COMPENSATORY REFORESTATION PROJECT COMPLETION

The compensatory reforestation project is complete when all deforestation and compensatory reforestation are satisfactorily completed.

- i. **On-site and/or Alternative-Site Reforestation**

The entire compensatory reforestation obligation through tree planting is met. Tree establishment meets the threshold defined in Section 6.a of these guidelines two (2) years from the date of planting completion. NJFS will issue a Notice of Project Completion to the State entity.

If the establishment threshold is not met at the end of the two (2)-year establishment period, the State entity will be charged monetary compensation in lieu of reforestation calculated in accordance with

Appendix C.5. This charge is based on the number of trees that failed to establish under the required establishment threshold. NJFS will issue a Notice of Project Completion to the State entity after receiving the monetary compensation.

ii. **Monetary Compensation in lieu of Reforestation**

If monetary compensation in lieu of reforestation is the sole method utilized to satisfy the compensatory reforestation requirement, NJFS will issue a Notice of Project Completion to the State entity after the monetary compensation has been received, and the deforestation is complete and in compliance with the approved compensatory reforestation plan.

When monetary compensation in lieu of reforestation is used in conjunction with on-site and/or alternative-site reforestation, NJFS will issue a Notice of Project Completion to the State entity when the conditions for project completion for all methods of compensation are met.

CHAPTER 10

AN ACT concerning reforestation of land, and amending and supplementing P.L.1993, c.106.

BE IT ENACTED by the Senate and General Assembly of the State of New Jersey:

1. Section 2 of P.L.1993, c.106 (C.13:1L-14.2) is amended to read as follows:

C.13:1L-14.2 Plan for compensatory reforestation.

2. a. Each State entity, by July 1, 1993, and at least annually thereafter, shall develop, and submit to the Division of Parks and Forestry in the Department of Environmental Protection, a plan for compensatory reforestation for all areas at least one-half acre in size that are owned or maintained by that State entity and are scheduled for deforestation. A reforestation plan required pursuant to this act shall establish a goal of no net loss of existing forested area based upon a reasonable and practical Tree Replacement Factor developed due to the act of deforestation and in accordance with this act. The plan shall be subject to approval of the division after review and comment by the Community Forestry Council established pursuant to section 5 of P.L.1996, c.135 (C.13:1L-17.5). No project that would deforest land at least one-half acre in size that is owned or maintained by a State entity may be commenced without approval of that State entity's plan by the division.

A reforestation plan shall provide that, if tree planting adjacent to the deforested area is not feasible, it shall be conducted in the following order: within the municipality in which the deforestation occurred, within five miles of the site of deforestation, or off-site.

b. A reforestation plan developed pursuant to this section shall include appropriate and approved methods for the planting, protection, care and management of trees and other related natural resources. With the advice and assistance of the Community Forestry Council, the division shall develop and make available to State entities a list of guideline elements that shall be required in a reforestation plan. These guidelines shall establish but not limit the basic framework of an approved reforestation plan.

A reforestation plan developed pursuant to this section shall provide that:

(1) if the division determines that it is not feasible to conduct the tree planting efforts on-site, then the tree planting shall be conducted first on State property within the municipality in which the deforestation occurred or municipal property within the municipality in which the deforestation occurred. Municipal property may include property owned or maintained by that community including but not limited to parks, streets, schools, municipal facilities, and open space and recreation areas;

(2) if the division determines that it is not feasible to conduct the tree planting efforts on-site or within that municipality, then the tree planting shall be conducted within five miles of the site of the deforestation. Sites within five miles of the site of deforestation may include property owned or maintained by the State, county or other municipal entity;

(3) if the division determines that it is not practicable to conduct the tree planting efforts on-site, within the municipality or five miles of the site, then the tree planting shall be conducted off-site by the State entity. Off-site property may include property owned or maintained by a State entity other than the one developing and implementing the plan if the State entity that is to receive the benefits of the off-site tree planting efforts agrees thereto;

(4) the State entity shall use native species when practicable;

(5) the shape or configuration of the reforested area may be substantially similar to the shape or configuration of the deforested area;

(6) the replacement of trees shall be determined by the Tree Replacement Factor and shall be based upon accepted forestry research and practices which show the average tree density within urban areas to be 204 trees per acre of tree cover;

(7) in using the Tree Replacement Factor (TRF) for sites that are deforested the following number of stems shall be calculated for seeding, caliper and whip/container trees:

$$\begin{aligned} \text{TRF} &= 204 (2" - 2 \frac{1}{2} ") \text{ caliper trees per acre} \\ &= 408 \text{ whip/container } (4' - 6') \text{ trees per acre} \\ &= 1210 \text{ tree seedlings per acre;} \end{aligned}$$

(8) the seedlings shall be planted from six to 10 feet apart, or at a distance mutually agreed to by the division and the State entity, and that the seedlings are obtainable from a tree nursery owned and operated by the State. Subject to availability from a State tree nursery, the seedlings

used in reforestation by a State entity pursuant to this act shall be those that are the most suitable for the site; and

(9) the species of caliper nursery grown trees measured at two and one half inches and whips at one and one half inches shall be planted based upon the approved planting plan and subject to the standards established by the American Association of Nurserymen. Trees to be planted shall be selected from those recommended in the publication entitled "Trees for New Jersey Streets" published by the New Jersey Shade Tree Federation and in accordance with the recommended planting specifications. Diversity in species composition shall be required to reduce the risk of widespread loss of trees to single insect and disease infestation and, therefore, similar species shall not exceed 30 percent of the total planting.

c. The State entity shall enter into a memorandum of agreement with the division that guarantees the division reimbursement for actual labor hours attributable to the review and implementation of that State entity's reforestation plan pursuant to this act. If the compensatory reforestation as required by this act cannot be accomplished on the site of the project by the State entity, the division and the State entity may mutually agree within the memorandum of agreement that the State entity responsible for the deforestation shall pay an amount equal to the value of the number of trees required as determined by the Tree Replacement Factor and in accordance with an approved plan. This payment shall be deposited in the "Shade Tree and Community Forest Preservation License Plate Fund," established pursuant to section 12 of P.L.1996; c.135 (C.39:3-27.81), and shall be expended for reforestation by the division with the advice of the Community Forestry Council and the approval of the director of the division. The memorandum of agreement shall be part of the State entity's plan for compensatory reforestation.

C.13:1L-14.4 Public forum to present plan for deforestation, reforestation by State entities.

2. Whenever a State entity owns or maintains land on which an area of at least one acre in size is scheduled for deforestation, at least 180 days prior to the deforestation of the area the State entity shall hold at least one public forum within the municipality in which the deforestation is scheduled, or, if the forested area scheduled for deforestation spans more than one municipality, in any one of the municipalities in which deforestation is scheduled, to present its plan for deforestation and its plan for reforestation. The public shall be permitted to present oral and written comments to the State entity within a comment period of 60 days from the date of the forum. No more than 60 days after the comment period has closed, the State entity shall provide written responses to the comments presented.

Whenever a public process is already required by any other State or federal law, or any rule or regulation adopted pursuant thereto, for a project that includes forested land scheduled for deforestation, the State entity shall not be required to conduct a separate public forum to comply with the provisions of this section, provided that the public forum requirements established herein are also met at the public forum or hearing conducted pursuant to any other State or federal law. The State entity shall clearly advise the public in its agenda for the public forum that a reforestation plan will be presented. Copies of written responses to the public comments shall be provided by the State entity to the division at the close of the comment period.

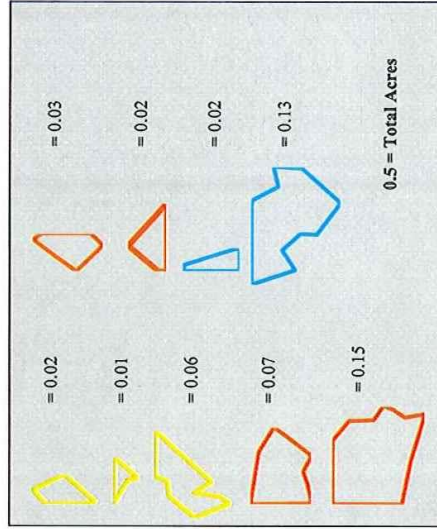
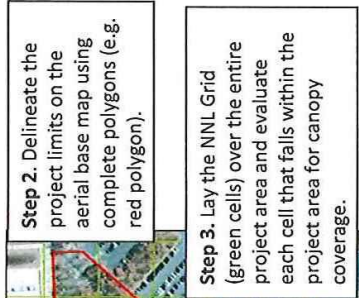
3. Section 3 of P.L.1993, c.106 (C.13:1L-14.3) is amended to read as follows:

C.13:1L-14.3 Nonapplicability of act.

3. The requirements of this act shall not apply to activities that are deemed by the division to constitute standard forestry, wildlife management, or arboricultural practices, or to actively managed existing utility easements.

4. This act shall take effect immediately, but shall not apply to capital construction projects that are scheduled to be advertised for bid by a State entity within one year after the date of enactment.

**NO NET LOSS
 GIS HALF-ACRE (0.5AC) GRID
 ANALYSIS OF DEFORESTATION**



No Net Loss
Compensatory Reforestation Plan
Payment Protocol

This section sets forth the payment protocol the State entity shall follow to compensate NJFS for review and implementation of a compensatory reforestation (plan review and inspections), as well as monetary compensation in lieu of reforestation, unreported deforestation, and monetary compensation for failure to meet establishment thresholds.

1. Plan Review

The amount due for NJFS review of the State entity’s compensatory reforestation plan shall be according to the schedule below. The amount is for labor spent on the review and approval of a compensatory reforestation plan associated with each project resulting in deforestation of one-half acre or more.

Payment for compensatory reforestation plan review by the State entity is due to NJFS with the submission of the plan for preliminary review (Appendix H).

Compensatory Reforestation Plan Review

Type of Review	Payment
Single State Entity Reforestation Plan	\$3,000.00

2. Inspections

Payment shall be for work on the deforestation inspection, the initial tree quality and planting inspection, the year-1 tree establishment inspection, and the final tree establishment inspection.

Both on-site and alternative-site reforestation methods are subject to NJFS inspection.

If a proposed reforestation plan utilizes both on-site and alternative-site reforestation, payment should be calculated by adding the amount due for inspection per the number of reforested trees under each reforestation method.

An invoice for inspection payment will be issued with the Conditional Approval to Proceed for a compensatory reforestation plan. Payment is required for NJFS’s issuance of an Approval to Proceed (Appendix H).

Compensatory Reforestation Plan Inspection

Type of Reforestation Inspection	Payment per tree
On-site reforestation	\$8.00
Alternative-site reforestation	\$13.00

3. Monetary Compensation

Monetary compensation in lieu of reforestation for any, or all, of the required compensatory reforestation obligation shall be provided for the reforestation cost calculated at a per tree rate for the number of trees required based the Tree Replacement Factor set forth at N.J.S.A. 13:1L-14.2(7), plus ten percent (10%) of the reforestation cost.

The per tree rate for monetary compensation is defined based on market costs and state averages for the purchase, transport, installation and maintenance of trees based on a 2-2.5 caliper inch balled & burlap (B&B) tree.

Tree Size Class	Rate/Tree
2-2.5 caliper inch B&B	\$300.00

$$\text{Reforestation Cost} = \text{Compensatory Reforestation Obligation (trees)} \times \text{Per Tree Rate}(\$)$$

$$\text{Monetary Compensation} = \text{Reforestation Cost} + (10\% \text{ Reforestation Cost})$$

4. Unreported Deforestation

Deforestation subject to the No Net Loss Reforestation Act, and not properly reported to NJFS, shall result in the payment of monetary compensation in lieu of reforestation by the State entity for each one-half acre deforested without NJFS approval. The amount of monetary compensation will be calculated per Section 3 of this Appendix, using the 2-2.5 caliper inch B&B rate.

5. Monetary Compensation for Failure to Meet Establishment Threshold

If the compensatory reforestation carried out by the State entity fails to meet NJFS survivability threshold defined in Section 6.a of the program guidelines at the Final Tree Establishment inspection, the State entity will be charged for monetary compensation in lieu of reforestation. The monetary compensation is based on the number of trees that failed to establish under the required establishment threshold, and calculated as per Section 3 of this Appendix. The Final Tree Establishment inspection report will contain an invoice for the monetary compensation. Payment is required prior to the issuance of the Notice of Project Completion.

6. Timing of Payment

Payment for the review of the compensatory reforestation plan is due in full with the preliminary submission of the plan.

An invoice for the inspection of on-site reforestation and/or alternative-site reforestation, as well as for monetary compensation in lieu of reforestation will be issued with the Conditional Approval to Proceed.

Payment shall be made to NJFS within sixty (60) days of an invoice, and shall be a prerequisite to the State Forester's issuance of an Approval to Proceed with the project under a compensatory reforestation plan.

Failure to remit payments according to the schedule will delay plan review, approval to proceed, and/or project completion.

8. Method of Payment

Electronic payments shall be made to NJFS via electronic debit/credit transfers through the State Treasury system:

Current Budget Fiscal Year: _ _ _ _
Fund: 100
Agency: 042
Organization: 4870
Appropriation Unit: 074
Revenue Source: 4917
Sub-revenue Code: 03

Or

Payments by check shall be made payable to Treasurer, State of New Jersey and sent to:
NJ Department of Environmental Protection
NJ Forest Service – No Net Loss
Mail Code 501-04
P.O. Box 420
Trenton, NJ 08625-0420

If the State entity does not remit payment to NJFS directly, it must provide a letter authorizing payment from the designated representative on its behalf.

9. Audit

The program is subject to audit by any applicable State entity.



**No Net Loss
 Compensatory Reforestation Plan
 CHECKLIST**

CALL NJ FOREST SERVICE – NO NET LOSS AT 609.292.2532 IF YOU HAVE ANY QUESTIONS

All compensatory reforestation plans must be submitted with this checklist completed and with all the materials required herein.

Postal Mailing Address:

NJ Forest Service
 Attn: No Net Loss
 Mail Code 501-04
 PO Box 420
 Trenton, NJ 08625

Street Address (For courier service and hand deliveries only):

NJ Forest Service
 501 E. State Street, Station Plaza Five, 4th Floor
 Trenton, NJ 08625

Email: rosa.yoo@dep.nj.gov

CHECK ALL BOXES OR MARK N/A

- a. CHECKLIST (complete)
- b. NJFS-NNL APPLICATION (complete and first page of compensatory reforestation plan)
- c. PROJECT NARRATIVE
 - i. Work
 - Activities
 - Site (Land use and ownership of abutting properties)
 - Acres of existing forested land
 - Acres of deforestation
 - Justification for the work (efforts to avoid deforestation, how the design minimizes the amount of impact to forested land, any adverse impacts to abutting properties and efforts to address them).
 - ii. Existing Forest
 - Area of existing forest in acres (rounded to the nearest half-acre)
 - Forest cover type
 - Vegetation
 - Hydrology
 - Soils
 - Slope
 - Unique site/microclimate
 - iii. Extent of Deforestation
 - Area of to be deforested in acres (rounded to the nearest 10th)
 - Explanation of determination/calculation of deforestation (GIS grid canopy analysis or plot samples)
 - Description of BMPs
 - iv. Compensatory Reforestation Obligation
 - Amount of compensatory reforestation obligation (# of trees)
 - Explanation of calculation of obligation
 - Method of compensation (on-site reforestation - # of trees, alternate-site reforestation - # of trees, dollar amount of monetary compensation)
 - v. Reforestation
 - Details on the number of trees, species, acreages and locations to be planted and the totals for all sites
 - Explanation of site conditions
 - Justification of species selection
 - Justification for the planting plan (Is it consistent with the surrounding landscape and does it minimize conflict with existing infrastructure? How does it maximize the benefits of reforestation?)

<p>d. MAPS (all maps must have a scale, north arrow, and legend)</p> <ul style="list-style-type: none"> <input type="checkbox"/> USGS Quad Map <ul style="list-style-type: none"> o Project site clearly delineated – areas of deforestation, on-site and alternative-site reforestation <input type="checkbox"/> Street Map <input type="checkbox"/> NNL grid analysis of deforestation <input type="checkbox"/> Municipal Tax Map (alternative-site planting only)
<p>e. Pictures (all photographs must be in color)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Existing forest to be deforested <input type="checkbox"/> On-site reforestation location(s) <input type="checkbox"/> Alternate-site reforestation location(s)
<p>f. SITE PLAN/CONSTRUCTION DRAWINGS</p> <ul style="list-style-type: none"> <input type="checkbox"/> Signed and sealed <input type="checkbox"/> Existing conditions <input type="checkbox"/> Demolition/Deforestation <input type="checkbox"/> Grading <input type="checkbox"/> Utilities <input type="checkbox"/> Soil erosion and sediment control <input type="checkbox"/> Elevations <input type="checkbox"/> Landscape drawings <ul style="list-style-type: none"> o Proposed planting locations for each tree o Plant schedule that includes a plant code, scientific name, common name, size, quantity, and fall dig hazard status and native o Planting Detail o Notes (planting, maintenance, site improvements) that accurately correlate to the project specifications
<p>g. SPECIFICATIONS</p> <ul style="list-style-type: none"> <input type="checkbox"/> Deforestation <input type="checkbox"/> Reforestation (Planting) <input type="checkbox"/> Maintenance (including but not limited to, stakes, water, weeds, mulch, pruning, and protection)
<p>h. PROPOSED TIMELINE (chronology, duration, phases)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Deforestation <input type="checkbox"/> Reforestation <input type="checkbox"/> Maintenance
<p>i. PUBLIC FORUM</p> <ul style="list-style-type: none"> <input type="checkbox"/> Agenda <input type="checkbox"/> Meeting minutes <input type="checkbox"/> Public comments and written responses
<p>j. PAYMENT</p> <ul style="list-style-type: none"> <input type="checkbox"/> Payment for compensatory reforestation plan review (rates provided in the most recent No Net Loss Reforestation Program Guidelines, Appendix C)



**NO NET LOSS
 COMPENSATORY REFORESTATION PLAN
 APPLICATION**

PROJECT INFORMATION

State Department/Agency Name:	Estimated Start Date:
Project Name:	
Project Location: (Municipality, County)	

DEFORESTATION

Total Deforestation (Acres):	=	Seedling Forest (Acres)	+	Emerging Forest (Acres)	+	Established Forest (Acres)
Project Street Address:		¹ City:		County:		ZIP:
Block:		Lot:				

COMPENSATORY REFORESTATION

Compensatory Reforestation Obligation (Trees) ▶	# of Seedling Ac Deforested X TRF*	# of Emerging Ac Deforested X TRF*	# of Established Ac Deforested X TRF*
Method of Compensatory Reforestation ▶	# of Acres/Seedlings On-Site: Alternative-Site:	# of Acres/Saplings On-Site: Alternative-Site:	# of Acres/B&B Trees On-Site: Alternative-Site: Monetary Compensation:
Alternative-Site Property Owner:			
Phone:		Email:	
Alternative-Site Planting Address:		¹ City:	
Block		Lot	
Total Monetary Compensation in lieu of Reforestation: \$	# Acres x TRF for B&B Trees x B&B Rate =		

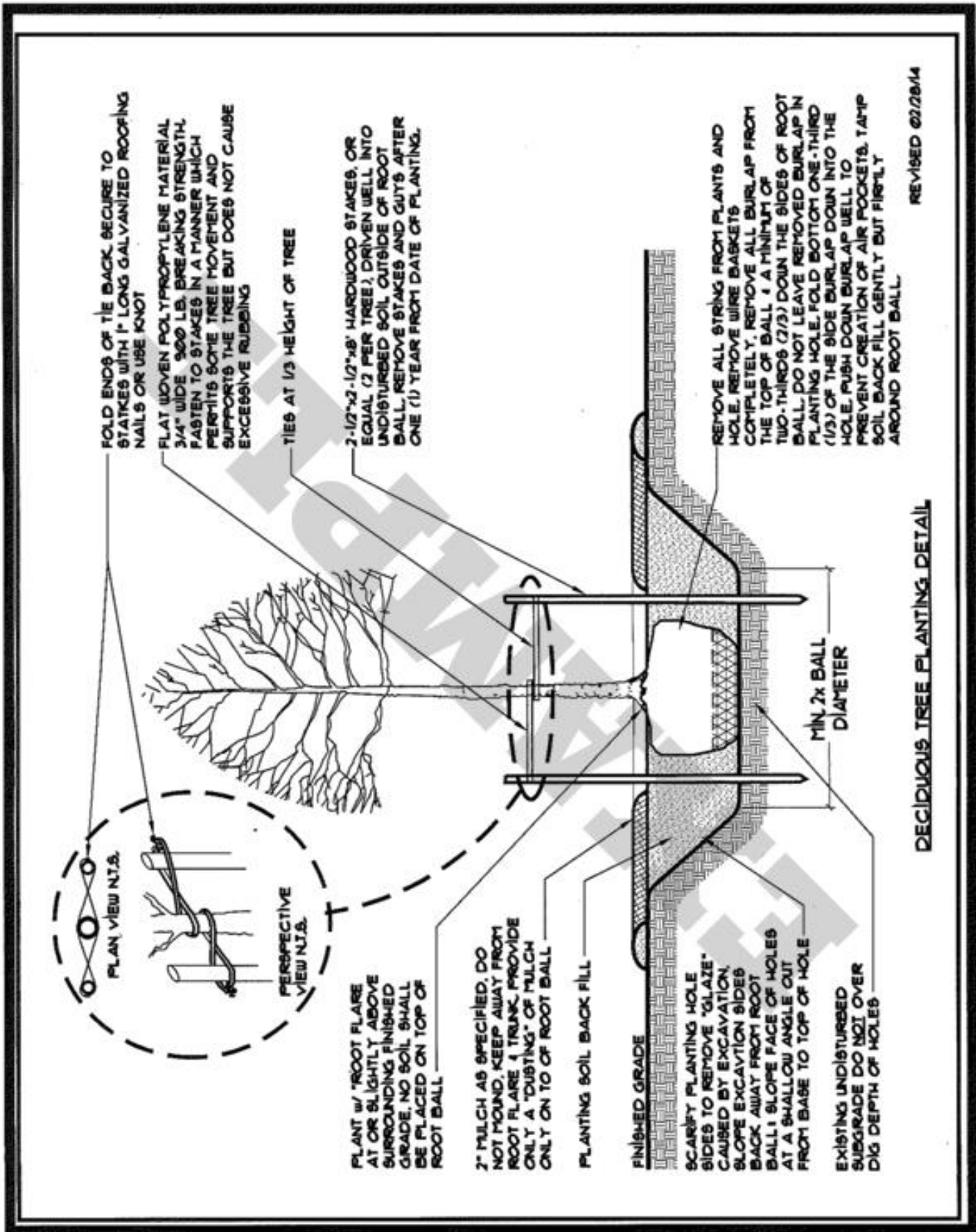
CONTACT INFORMATION

State Primary Contact:			
Organization:			
Phone:		E-mail:	
Address:		City:	State: ZIP:
Plan Author:			
Organization:			
Phone:		E-mail:	
Address:		City:	State: ZIP:
Project Manager:			
Organization:			
Phone:		Email:	
Address:		City:	State: ZIP:

Plan Review Payment Included

Print Name, State Authorized Agent	Signature, State Authorized Agent	Date
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¹If deforestation or alternate-site reforestation occurs in more than one municipality, please include a separate sheet that lists acres/site per municipality

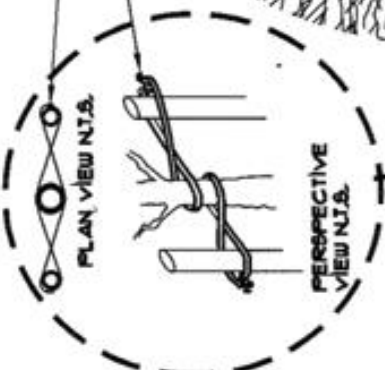


FOLD ENDS OF TIE BACK, SECURE TO STAKES WITH 1" LONG GALVANIZED ROOFING NAILS OR USE KNOT

FLAT WOVEN POLYPROPYLENE MATERIAL 3/4" WIDE, 500 LB. BREAKING STRENGTH, FASTEN TO STAKES IN A MANNER WHICH PERMITS SOME TREE MOVEMENT AND SUPPORTS THE TREE BUT DOES NOT CAUSE EXCESSIVE RUBBING

TIES AT 1/3 HEIGHT OF TREE

2-1/2"x2-1/2"x8' HARDWOOD STAKES, OR EQUAL (2 PER TREE), DRIVEN WELL INTO UNDISTURBED SOIL OUTSIDE OF ROOT BALL, REMOVE STAKES AND CUTS AFTER ONE (1) YEAR FROM DATE OF PLANTING.



PLAN VIEW N.T.S.

PERSPECTIVE VIEW N.T.S.

PLANT w/ "ROOT FLARE AT OR SLIGHTLY ABOVE SURROUNDING FINISHED GRADE. NO SOIL SHALL BE PLACED ON TOP OF ROOT BALL

2" MULCH AS SPECIFIED, DO NOT MOUND, KEEP AWAY FROM ROOT FLARE & TRUNK, PROVIDE ONLY A "DUSTING" OF MULCH ONLY ON TO OF ROOT BALL

PLANTING SOIL BACK FILL

FINISHED GRADE

SCARIFY PLANTING HOLE SIDES TO REMOVE "GLAZE" CAUSED BY EXCAVATION. SLOPE EXCAVATION SIDES BACK AWAY FROM ROOT BALL; SLOPE FACE OF HOLES AT A SHALLOW ANGLE OUT FROM BASE TO TOP OF HOLE

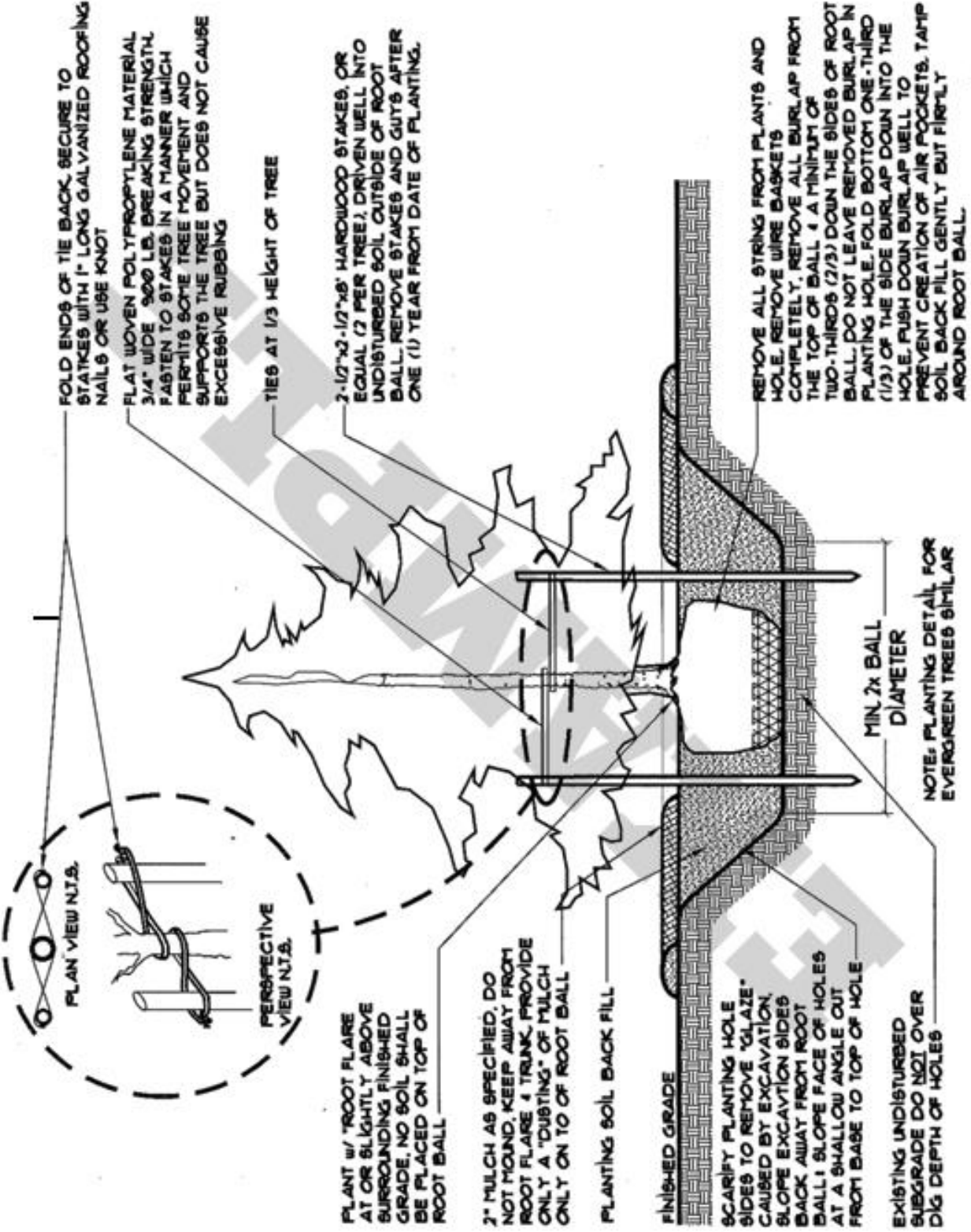
EXISTING UNDISTURBED SUBGRADE DO NOT OVER DIG DEPTH OF HOLES

REMOVE ALL STRING FROM PLANTS AND HOLE. REMOVE WIRE BASKETS COMPLETELY. REMOVE ALL BURLAP FROM THE TOP OF BALL & A MINIMUM OF TWO-THIRDS (2/3) DOWN THE SIDES OF ROOT BALL. DO NOT LEAVE REMOVED BURLAP IN PLANTING HOLE. FOLD BOTTOM ONE-THIRD (1/3) OF THE SIDE BURLAP DOWN INTO THE HOLE. PUSH DOWN BURLAP WELL TO PREVENT CREATION OF AIR POCKETS. TAMP SOIL BACK GENTLY BUT FIRMLY AROUND ROOT BALL.

MIN 2x BALL DIAMETER

DECIDUOUS TREE PLANTING DETAIL

REVISED 02/28/14



FOLD ENDS OF TIE BACK, SECURE TO STAKES WITH 1" LONG GALVANIZED ROOFING NAIL'S OR USE KNOT

FLAT WOVEN POLYPROPYLENE MATERIAL 3/4" WIDE 900 LB. BREAKING STRENGTH. FASTEN TO STAKES IN A MANNER WHICH PERMITS SOME TREE MOVEMENT AND SUPPORTS THE TREE BUT DOES NOT CAUSE EXCESSIVE RUBBING

TIES AT 1/3 HEIGHT OF TREE

2-1/2"x2-1/2"x8' HARDWOOD STAKES, OR EQUAL (2 PER TREE), DRIVEN WELL INTO UNDISTURBED SOIL OUTSIDE OF ROOT BALL. REMOVE STAKES AND GUYS AFTER ONE (1) YEAR FROM DATE OF PLANTING.

PLAN VIEW N.T.S.

PERSPECTIVE VIEW N.T.S.

PLANT W/ 'ROOT FLAIRE AT OR SLIGHTLY ABOVE SURROUNDING FINISHED GRADE. NO SOIL SHALL BE PLACED ON TOP OF ROOT BALL

2" MULCH AS SPECIFIED, DO NOT MOUND, KEEP AWAY FROM ROOT FLAIRE & TRUNK. PROVIDE ONLY A "DUSTING" OF MULCH ONLY ON TO OF ROOT BALL

PLANTING SOIL BACK FILL

FINISHED GRADE

SCARIFY PLANTING HOLE SIDES TO REMOVE "GLAZE" CAUSED BY EXCAVATION. SLOPE EXCAVATION SIDES BACK AWAY FROM ROOT BALL. SLOPE FACE OF HOLES AT A SHALLOW ANGLE OUT FROM BASE TO TOP OF HOLE

EXISTING UNDISTURBED SUBGRADE DO NOT COVER DIG DEPTH OF HOLES

REMOVE ALL STRING FROM PLANTS AND HOLE. REMOVE WIRE BASKETS COMPLETELY. REMOVE ALL BURLAP FROM THE TOP OF BALL & A MINIMUM OF TWO-THIRDS (2/3) DOWN THE SIDES OF ROOT BALL. DO NOT LEAVE REMOVED BURLAP IN PLANTING HOLE. FOLD BOTTOM ONE-THIRD (1/3) OF THE SIDE BURLAP DOWN INTO THE HOLE. PUSH DOWN BURLAP WELL TO PREVENT CREATION OF AIR POCKETS. TAMP SOIL BACK FILL GENTLY BUT FIRMLY AROUND ROOT BALL.

MIN. 2x BALL DIAMETER

NOTE: PLANTING DETAIL FOR EVERGREEN TREES SIMILAR

EVERGREEN TREE PLANTING DETAIL

No Net Loss
Compensatory Reforestation Plan
Applicability Determination

To apply for an applicability determination one (1) hard copy and one (1) digital copy of the following materials must be submitted. All components must be included for the submission to be complete. Digital copies must be in .pdf format submitted on a CD, DVD, thumb drive, email or FTP provided by the State entity, or its representative.

The application for applicability determination may be submitted by a third party on behalf of the State entity with documented authorization from the State entity.

Required Materials:

a. **No Net Loss Application Form** (Appendix E)

The State entity must designate a person to serve as a single point of contact who will be responsible for communication and coordination with NJFS and who shall be an employee of the State entity and not a third party.

b. **Project Narrative**

The narrative shall contain a complete written description of the project and its activities. The narrative must include:

- i. Description of the work. This includes the activities, the project site (include land use and ownership of abutting properties), the amount of existing forested land, and the extent of deforestation, in acres. A justification for the work with a description of efforts to avoid deforestation, how the design minimizes the amount of impact to forested land, and any adverse impacts to abutting properties and efforts to address them.
- ii. Description of the existing forested area. This includes whether it is a seedling, emerging, or established forest (see Section 4.b & 4.c), the total area in acres rounded to the nearest half-acre, the forest cover type, vegetation, hydrology, soils, slope, and any unique site or microclimatic conditions.
- iii. Description of the extent of deforestation. This includes the total area proposed for deforestation in acres rounded to the nearest half-acre. Provide an explanation of the calculation of existing forested area and the amount of deforestation (GIS grid canopy analysis or plot samples as per Section 4).

c. **Maps**

- i. USGS Quad Map(1:24,000). Clearly outline the project site, delineate the location of the area to be deforested.
- ii. Street Map. Clearly indicate the location of the project, and provide at least one major roadway and one minor roadway.
- iii. No Net Loss Grid Analysis (see Section 4 of the NNL Guidelines). Provide current color infrared Digital Orthophoto Quadrangle (DOQ) with 1-meter ground resolution or better, cast on the State Plane NAD 83 overlaid with the No Net Loss One-half acre Grid. Clearly delineate, identify, and label the project boundary and areas of deforestation (see Appendix B).

d. **Pictures**

Color pictures should depict the entire project area including areas to be deforested (clearly represent existing forest cover and vegetation). Pictures should be presented on 8.5-inch x 11-inch paper and reference an accompanying map showing the location and direction from which each picture was taken. Black and white pictures or copies of pictures are not acceptable.

e. **Management Plans and Policies**

One copy of the natural resource management plan or policy that supports the proposed project activity, or one copy of a vegetation management plan that supports the proposed project activity as per Section 3.a.ii.2, if applicable.

Approval Process Timeframes:

NJFS will review and make a determination regarding an Applicability Determination within 60 working days of receipt of a complete request.

Address for Submission:

Postal Mailing Address:

NJ Forest Service
Attn: No Net Loss
Mail Code 501-04
PO Box 420
Trenton, NJ 08625

Street Address (For courier service and hand deliveries only):

NJ Forest Service
501 E. State Street, Station Plaza Five,
4th Floor
Trenton, NJ 08625

Email: rosa.yoo@dep.nj.gov

No Net Loss
Compensatory Reforestation Plan
Submission & Approval Protocol

Required Materials:

Preliminary Submission:

- One (1) hard copy of the compensatory reforestation plan containing all required elements detailed in Section 8 of these guidelines.
 - Must include original executed NJFS>NNL Project Application.
 - Must include one (1) signed and sealed set of site plans/construction drawings.
- One (1) digital copy of the compensatory reforestation plan in .pdf format submitted on a CD, DVD, thumb drive, email or FTP provided by the State entity or its representative.
- Payment for compensatory reforestation plan review (Appendix C.1).

Complete Submission:

- Three (3) hard copies of the complete and reviewable compensatory reforestation plan, for NJFS review and NJ Community Forestry Council review and comment.
- One (1) digital copy of the compensatory reforestation plan in .pdf format submitted on a CD, DVD, thumb drive, email or FTP provided by the State entity or its representative.

Approval Process:

See flow chart on the following page.

Approval Process Timeframes:

NJFS will review, and make a determination regarding the State entity's compensatory reforestation plan within 90 working days of receipt of the complete submission. This includes review and comment by the NJ Community Forestry Council. The Council meeting is held the second Thursday of every month, except August. NJFS submits plans for subcommittee review no later than two (2) weeks prior to the monthly Council meeting. The NJFS may request additional time for review with permission from the State entity for special circumstances. However a letter of Conditional Approval may still be provided within the 90 day period if appropriate.

All payments for Inspections and Monetary Compensation must be received within 60 working days from receipt of the Conditional Approval to Proceed.

The Approval to Proceed is issued 30 working days from the receipt of the required payments.

Address for Submission:

Postal Mailing Address:

NJ Forest Service
Attn: No Net Loss
Mail Code 501-04
PO Box 420
Trenton, NJ 08625

Street Address (For courier service and hand deliveries only):

NJ Forest Service
501 E. State Street, Station Plaza Five, 4th Floor
Trenton, NJ 08625
Call 609.292.2532

**No Net Loss
Compensatory Reforestation Plan
Submission & Approval Protocol**



Adventitious: pertaining to a plant part that develops outside the usual order of time, position, or tissue —note e.g., an adventitious bud arises from any part of a stem, leaf, or root but lacks vascular connection with the pith; an adventitious root arises from parts of the plant other than a preexisting root, e.g., from a stem or leaf.

Alternate-Site Property (Off-site Property): Any land owned or maintained by any State entity that is not part of the project area for which a No Net Loss Compensatory Reforestation Plan is required.

ANSI A300: American National Standards Institute ANSI A300 standards are the generally accepted industry standards for tree care practices. They are voluntary industry consensus standards developed by the Tree Care Industry Association (TCIA) and written by a committee called the Accredited Standards Committee (ASC) A300, whose mission is to develop consensus performance standards based on current research and sound practice for writing specifications to manage trees, shrubs, and other woody plants.

ANSI Z60.1: American National Standards Institute AZ60.1 is the American Standard for Nursery Stock and provides buyers and sellers with a common terminology in order to facilitate transactions involving nursery stock. The standard defines terms and numerical relationships among tree parts.

Balled & Burlapped (B&B): Plants established in the ground, which have been prepared for transplanting by digging so that the soil immediately around the roots remains undisturbed. The ball of earth containing the roots of the plant is then bound up in burlap or similar mesh fabrics.

Bare Root: Harvested plants from which the soil or growing medium has been removed.

Caliper: The diameter of a tree measured at a point 6-inches above the ground line if the resulting measurement is no more than four inches. If the resulting measurement is more than four inches, the measurement is made at a point 12-inches above the ground line.

Cambium: a layer of living, meristematic cells between the wood and the innermost bark of a tree.

Container Grown Tree: A tree grown and marketed in a container, usually not available in sizes as large as balled and burlapped.

Cultivar: A cultivated variety of a plant which is asexually reproduced to retain a certain characteristic or trait.

Diameter at Breast Height (DBH): The diameter of the stem of a tree measured at breast height (4.5 ft. or 1.37 m) from the ground.

Emerging Forest: Any one-half (0.5) acre area that has predominately sapling trees with a DBH of 4-inch or less.

Established Forest: Any one-half (0.5) acre area that has predominately trees with a DBH greater than 4-inches.

Existing Forest Area: A one-half acre grid cell (as per the 0.5 acre grid developed by NJ Forest Service) that contains 1/3 canopy cover or 0.17ac of canopy cover, or a one-half acre or more of saplings at a density of 408 saplings per acre, or a one-half acre or more of seedlings at a density of 1210 stems per acre.

Fall Dig Hazard: Some trees have poor survival rates when dug and transplanted in the fall. Each nursery has a list of such trees in their inventory which can be subject to change from nursery to nursery.

Forest Cover Type: A category of forest usually defined by its vegetation, particularly its dominant vegetation as based on percentage cover of trees, e.g., spruce-fir, pine-oak, beech-birch-maple.

Girdling Root: A plant root that encircles the plant rather than spreading out radially from the plant and can result in Girdling Root Syndrome (GRS).

Girdling Root Syndrome (GRS): A collection of symptoms produced by roots that either partially or completely compress sapwood tissues near or above the root collar flare, or result in phloem girdling.

Grid Analysis: This term is short for NNL Grid Analysis of Deforestation. It involves two components: 1.) The use of the NNL one-half acre GIS grid to determine the amount of existing forested area in a project area, and 2.) The calculation of how much of that existing forested area is scheduled for deforestation.

J-Root: a root that is bent into a J-shape because the seedling was improperly planted in a hole or slit that was too shallow or narrow.

Microclimate: The climate of a small area, differing in temperature and moisture from the general local climate.

Payment: Reimbursement for labor hours attributable to the review and implementation of a State entity's compensatory reforestation plan.

Planting Plan: A plan submitted by a grantee receiving funds due to a monetary compensation for the sole purpose of reforestation. There is no deforestation component.

Product Size: The size of a tree purchased for reforestation. Depending on the product type, the size can be measured in length, height, DBH, or caliper.

Product Type: The way a tree purchased for reforestation is sold or packaged. Examples are seedling, balled and burlapped (B&B), bare root whips and container grown. Reforestation usually maintains the same forest type, and is done promptly after the previous stand or forest was removed.

Reforestation: The reestablishment of forest cover either naturally (by natural seeding, coppice, or root suckers) or artificially (by direct seeding or planting).

Seedling: An immature tree that is less than 48”in height.

Seedling Forest: Any one-half acre area that is predominately a regenerating forest at the seedling stage.

State entity: Any department, agency, or office of State government, including a State university or college, or an authority created by the State.

Stem: The principal axis of a plant from which buds and shoots develop.

Tree: A tall perennial woody plant with a main trunk and branches forming a distinct elevated crown.

Whip: A sapling tree without branches usually sold bare root.

ANSI A300 (Part 6) –Planting and Transplanting. 2012. Tree Care Industry Association.

ANSI Z60.1 – American Standard for Nursery Stock. 2014. American Nursery and Landscape Association, Washington DC.

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L.H. Bailey Hortorium. Hortus Third: A Concise Dictionary of Plants Cultivated in the United States and Canada. 1976. Cornell University Press, Ithaca.

Trees for New Jersey Streets. New Jersey Shade Tree Federation, revised 2016 .

The Dictionary of Forestry. The Society of American Foresters, 1998.