

THE FOREST CONSERVATION PLAN MUST SHOW TREES WITHIN THE development site that have been designated for retention, and areas that have been designated for reforestation and/or afforestation. Priority must be given to techniques for retaining existing forest on the site. Figure 6 contains an overview of forest conservation plan development requirements.

Standard Submittal Requirements

AN APPLICANT MUST SUBMIT COPIES OF THE PRELIMINARY OR final forest conservation plan drawing with **development applications** or **sediment control permits**. The plans should be the same scale (*minimum 1"=200' with 5' contour intervals*) so that they can be overlaid. In general, the forest conservation plan should be a separate drawing, but it may be shown as an overlay to the development plan if it contains all the required information and is legible. Two copies of the other items that are part of a forest conservation plan must also be submitted. In addition, the application must contain an affirmative statement signed by the applicant declaring that no declaration of intent was filed within the five years prior to the application, and that no commercial harvesting operations occurred on the property within the five years prior to the application. The basic parts of a forest conservation plan include:

- Forest Conservation Plan Drawings

- 20. Forest Conservation Worksheet
- 20. Planting Plan and Narrative
- 20. Development Program
- 20. Financial Security
- 20. Management Agreement
- 20. Long-term Protection
- 20. Qualifications of Preparer(s)

PRELIMINARY FOREST CONSERVATION PLAN

Development applications that need more than one approval may submit a **preliminary forest conservation plan** in conjunction with the first approval. A preliminary forest conservation plan submittal may be based on conceptual analysis provided that the basic parameters are met and any assumptions are realistic. In most instances, the information about protection, planting and maintenance can be limited to a description of the likely measures that will be taken with details being provided at final plan. The preliminary forest conservation plan may be submitted with:

- 20. subdivision plans that will undergo 59-D-3 site plan analysis;
- 20. zoning applications where a development plan is either required or a schematic development plan is submitted by the applicant in accordance with Section 59-H-2.5 of the Zoning Ordinance and future subdivision and/or site plan review is required; and
- 20. special exceptions that involve new construction and will undergo preliminary subdivision or 59-D-3 site plan.

FINAL FOREST CONSERVATION PLAN

The **final forest conservation plan** must be based on final site grading. A final forest conservation plan may be waived for tracts with less than 40,000 square feet of area that do not contain at least 10,000 square feet of forest (*Refer to section 3, D, 4 for other requirements*). A final forest conservation plan must be submitted with:

- 20. 59-D-3 site plans;
- 20. subdivision plans that are not subject to 59-D-3 site plan review;
- 20. mandatory referral plans; and
- 20. applications for sediment and erosion control permits where subdivision and/or site plan review are not required, and no previous tree conservation plan has been approved.

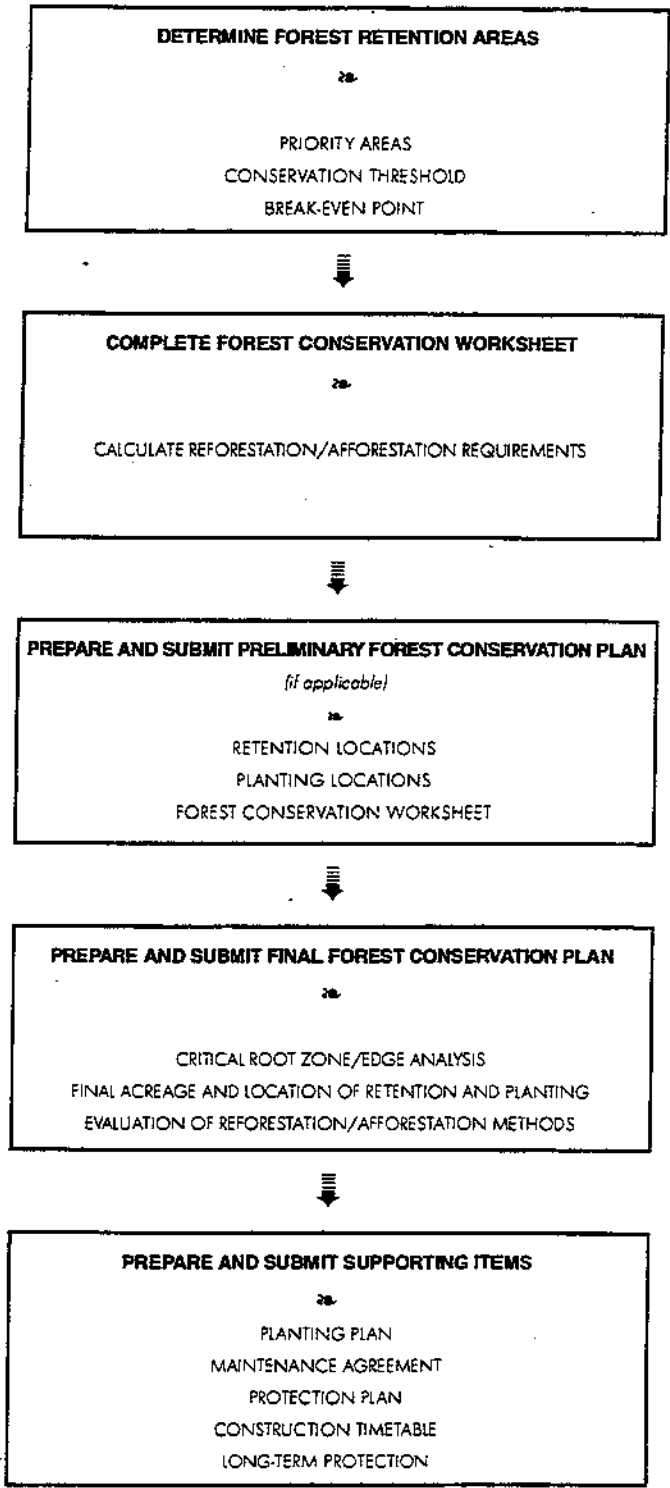


Figure 6
OVERVIEW
OF
FOREST CONSERVATION
PLAN DEVELOPMENT

Planning Department Review And Approval

PRELIMINARY FOREST CONSERVATION PLAN REVIEW

A preliminary forest conservation plan will be reviewed concurrently with the development application for which it applies.

FINAL FOREST CONSERVATION PLAN REVIEW

Planning Department staff will review the final forest conservation plan within 45 calendar days from receipt of the application and notify the applicant whether it is approved for submission. This notification will be given in writing, and will signify that the final forest conservation plan is complete and correct and ready for submittal to the Planning Board or Planning Director. If the final forest conservation plan is incomplete or incorrect, the applicant will be notified that changes or additional information are necessary. An additional review period of up to 45 calendar days will begin when the revised plans are logged in. The review period may be extended up to an extra 15 calendar days under extenuating circumstances. If notification is not given within the 45 days, the final forest conservation plan will be considered complete and correct for submittal. If the forest conservation plan and the NRI/FSD are submitted at the same time, review of the forest conservation plan (*and the 45 day review clock*) will not commence until the NRI/FSD has been approved.

APPROVAL OF FOREST CONSERVATION PLANS

Approval of preliminary forest conservation plans will be conditioned upon providing the final forest conservation plan. This conditional approval will occur concurrently with the approval of the application for which it is submitted. Action on the final forest conservation plan will be taken by the Planning Board concurrent with their action on the development application, or by the Planning Director for plans that do not go to the Board. In general, approval of the final forest conservation plan can be conditioned upon providing staff with certain components before the start of clearing and grading. These components may include tree protection plans, tree planting plans, and maintenance agreements. In some instances however, these items may be required for submittal to the Board.

AMENDING AN APPROVED FOREST CONSERVATION PLAN

A request for an amendment to a forest conservation plan must be submitted and reviewed under the procedures outlined in this section. Refer to the Forest Conservation Regulations for amendment provisions.

A. Forest Retention Areas

The primary objective of the Forest Conservation Plan is to retain forested areas. This section contains a methodology for choosing forest retention areas on sites where all of the forest cannot be saved. The selection process is based upon the priority areas identified on the NRI/FSD Summary Map and on the criteria for determining area to be cleared listed below. Clearing beyond this level will be permitted when it can be demonstrated that it is necessary for development, and techniques for retention have been investigated, and it is infeasible to do so. The forest conservation law specifies percentages of all forested sites which, at a minimum, should be preserved. Applicants should strive to reach the "break-even point" on forested sites so that no replanting is required (*see section C,2,(a) for calculation*). Techniques for retention should include analyses of different housing types and heights to reduce the overall footprint of development.

1. Criteria For Determining Area To Be Cleared

MINIMUM AREA FOR DEVELOPMENT

The area to be cleared on a tract, shall generally be limited to that area needed for the following construction elements:

- Street construction and necessary slope construction.
- Necessary clearing for public service or utility easements and rights-of-way.
- Building roof coverage area and ancillary structures such as patios and porches plus the area needed on all sides for construction activity and necessary slope construction.
- Driveways, alleyways, walkways, parking lots and other land area necessary to the installation of the proposed development or use.
- Sediment basins, stormwater management structures, septic fields, and other environmental and health-based site improvements.
- Minimum yard areas and, where necessary, common open play area.

ADDITIONAL AREA

The following factors will be considered when reviewing applications for clearing more than the minimum area. These factors may also be used when deciding between two forest stands of apparently equal value.

Development Factors:

- 2a. The extent to which the actual or intended use of the property, as developed or proposed to be developed in accordance with the regulations of the zoning ordinance and/or area master plans, requires clearing of trees.
- 2a. Whether an urban or suburban form of development is desired at a particular location.
- 2a. Any hardship to the applicant which may result from a modification or rejection of the required permit, provided that the hardship is not self-imposed.
- 2a. The desirability of preserving tree cover in densely developed or densely populated areas to serve as landscape buffers to assure compatibility with adjacent properties.
- 2a. The ability of the trees to complement the project design and architecture and the overall landscape.

Environmental Factors:

- 2a. The priority classification of a stand of trees (*as described in 2.C*).
- 2a. The desirability of carrying out selective clearing of older trees to encourage healthier, more vigorous growth of younger similar nearby trees.
- 2a. The extent to which the area would be subject to environmental degradation due to removal of the trees.
- 2a. Whether the trees can tolerate environmental change, e.g., increased sunlight, heat, wind or alteration of water regime or water table level.
- 2a. Likelihood of the trees surviving due to the presence of health factors such as infestation by gypsy moths or other infestation or disease.

Safety Factors:

- 2a. Whether the tree is diseased, injured beyond restoration, in danger of falling, interferes with utility services or creates unsafe visual clearance.

Other Factors:

- 2a. The desirability of preserving trees by reason of size, age or some other outstanding quality, such as uniqueness, rarity or status as a landmark or specimen tree.
- 2a. The desirability of the tree species as a permanent part of the urban forest.
- 2a. Whether or not the trees are part of a significant off site forested area which when combined, would be important to retain.

2. Criteria For Determining Retention Area Boundaries

GENERAL

Acreage of retention areas is calculated differently. The forest retention area boundaries which are shown on a preliminary FCP plan may be a conservative estimate (see Figure 7). This estimate will be refined on the final FCP. The final forest retention area boundaries should be delineated using the methods described below. Some details may not be finalized until the preconstruction field meeting between the applicant and Park and Planning enforcement and monitoring staff prior to clearing of the site. A save area must be at least 10,000 square feet in size and 35 feet wide to be credited toward **forest** retention.

The **critical root zone** (CRZ) of a tree is the zone in which the majority of the trees' roots lie. A trees' roots are often concentrated in the upper 12-18" of the soil. Therefore, they may spread far from the tree, often beyond the extension of the canopy. Protecting the majority of the CRZ of trees to be retained is equally as important as protecting the aboveground parts. The only sure method for determining the extent of the CRZ is to do investigative digging in the field. In some instances, this may be the only method that is considered acceptable (such as when dealing with a historic or champion tree). Under more typical circumstances (forest stands or non-specimen trees) the CRZ can be estimated using the method described in Figure 7.

The critical root zone analysis must be shown for trees greater than or equal to 6" in DBH within 25 feet on either side of the **limit of disturbance**. There may be a need to analyze trees beyond the 25 feet if they are large enough that their critical root zones would be impacted. The area within the CRZ of a tree may be credited toward forest retention acreage provided the entire CRZ is protected. When a portion of the CRZ is impacted by disturbance, the credit will be lowered accordingly. If more than 30 percent of the CRZ will be impacted, proper measures must be taken to preserve the tree. In addition to appropriate protection, these measures must include necessary treatment such as, limb pruning, root aeration, fertilizing, etc. The preservation measures must be certified by a qualified tree care professional who should be available for the preconstruction field inspection with Planning Department staff (see section 4). In some instances, staff may recommend that a highly impacted tree be removed and replaced by selective clearing. Developers will be expected to use creative techniques and designs to minimize the need for cut and fill along retention area edges. This will minimize the need for elaborate protection devices and enhance tree survival.

CRITICAL ROOT ZONE ANALYSIS

Figure 7

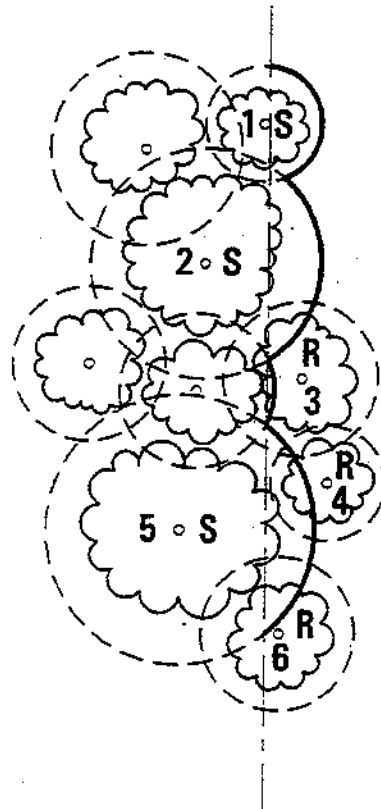
DETERMINING
CRITICAL ROOT ZONES
AND
FIELD EDGES

CRITICAL ROOT ZONES

There are several ways to estimate the size of the critical root zones. The following method is suggested, but others may be accepted if they are shown to provide adequate protection for the root zone. In some instances, field investigation may be the only acceptable method (*for example, on a champion tree field investigation would be required*). The following formula may be used to calculate the area of the critical root zone:

$$1" \text{ DHB} = 1.5' \text{ RADIUS OF THE CRITICAL ROOT ZONE}$$

EDGE DETERMINATION



TREE#	STATUS	NOTES
1	Save	Preliminary retention edge impacting more than 30% of the CRZ. Can be moved to accommodate.
2	Save	Preliminary retention edge can be moved to protect the entire CRZ.
3	Remove	Tree is completely within the disturbance zone.
4	Remove	Tree is completely within the disturbance zone.
5	Save	Preliminary retention edge can be moved to protect the entire CRZ.
6	Remove	Preliminary retention edge is over trunk.

Staking Retention Edges in the field requires tree-by-tree decisions. The above example demonstrates the use of Critical Root Zone, but tree health and tree species must also be considered when laying out a final retention line.

SELECTIVE CLEARING
OF EDGE TREES

In some instances, it may be appropriate, or necessary to **selectively clear** highly impacted edge trees and replace them (1:1). For example, it may be advantageous to remove edge trees that are susceptible to impact from adjacent significant grade changes or compaction, and may become hazardous after construction. It may also be appropriate to use selective clearing to lessen the effects of nonconstruction impacts (*such as, increased temperature, light and wind*) on newly created forest edges containing intolerant species. Justification for the use of selective clearing should be provided by the applicant with the plan. Old or dead trees provide valuable habitat for many types of wildlife. Selective clearing should only be considered for individual trees that may be in danger of falling on structures or into open sections of a yard where outdoor activities are likely to take place.

If the overall condition of the forest stand to be cleared is poor, it may be possible to approve selective clearing as part of the plan review. In these instances, the retention area boundary does not need to be shown using critical root zones. The retention area acreage will be calculated based on the limit of disturbance line. The trees within the retention area that are slated for removal should be flagged in the field by the applicant. During the initial field inspection of the limit of disturbance (*see section 4 for details*) Planning Department enforcement and monitoring staff may suggest adjustment of the line to protect certain trees. The selective clearing should take place after the clearing of the development area is complete. This may require temporary removal of tree protection fencing. Selective clearing must be carried out by a qualified tree expert and may not involve removal of the roots and stump of the trees. New trees (*1 1/2 - 2 1/2" caliper*) should be planted as soon as possible, and the tree protection fence must be back in place prior to any grading or construction in the adjacent development areas.

Selective clearing may also be used as a technique for managing the entire forest retention area left after development. It may be desirable to take advantage of a strong regenerative population within a stand by clearing the older, slower growing individuals and thereby rejuvenating growth. Selective clearing of the whole stand should be planned as part of a Forest Conservation and Management Plan approved by the Maryland Department of Natural Resources or delegated local authorities.

Specimen or champion trees will receive a credit equal to the area of their critical root zone when the entire CRZ is protected. When the entire CRZ is

INDIVIDUAL TREES & TREE STANDS
LESS THAN 10,000 SQUARE FEET

not protected, the retention credit will be adjusted accordingly. Individual trees of less than specimen size and tree stands smaller than 10,000 square feet which are not within the "forest" retention areas, may also be credited toward forest retention, but only at a rate of one quarter of the total area of their critical root zones. It may be more beneficial to use nonspecimen trees and tree stands less than 10,000 square feet which are retained, as credit toward reforestation or afforestation requirements. These credits are discussed in section 3, B, 4 of this manual.

B. Afforestation /Reforestation

After all attempts to maximize the areas of forest retention on a tract have been exhausted, there is a procedure for **reforestation** or **afforestation**. This procedure includes a determination of the acreage and priority areas for the trees that must be planted, a sequential analysis of reforestation and afforestation methods, a planting plan, and an agreement for at least two years of management for planted areas. After the two year maintenance period, the planted areas must be preserved as forest (*see section D*) for long-term protection measures. Reforestation and afforestation plans must be designed to integrate native forest associations into developed landscapes, and to promote diverse, stable forests that are able to provide multiple benefits to a community. In some cases, the afforestation and reforestation plans may emphasize planting trees and landscaping to allow for higher density development without losing the benefits of providing trees.

1. Afforestation Requirements

Afforestation is the establishment of **forest cover** on areas which are not presently forested, or where existing forest cover is below the afforestation threshold for the use (*refer to Table 3 in section 3,C*). If an applicant can demonstrate that afforestation using forest cover is inappropriate for a site, afforestation requirements may be satisfied by **tree cover**. The instances where it may be appropriate to satisfy the afforestation requirements using tree cover may include:

- developments located in an urban setting;
- redevelopments;
- high-density residential developments;
- commercial and industrial development;
- planned unit development; or
- some institutional areas.

Afforestation should conform to the preferred sequence and priorities listed below. Afforestation requirements must be accomplished within one year after the completion of the development project (*as specified in the **development program***).

Reforestation is the creation of a biological community dominated by trees and other woody vegetation (*forest cover*). Reforestation is required if an applicant has shown that it is necessary to clear existing forested areas in order to develop a tract. The reforestation requirements are dependent upon the conservation threshold for the land use (*refer to Table 3 in section 3,C*). It is possible to avoid the requirements altogether by preserving forest at or above the break-even point for the tract (*as determined on the forest conservation worksheet in section 3,C,2*). Reforestation should conform to the preferred sequence and priorities listed below. The reforestation requirements must be accomplished within 1 year after completion of the development project (*as specified in the development program*).

2. Reforestation Requirements

3. Priorities For Afforestation & Reforestation

FUNCTIONAL PRIORITIES

When afforestation or reforestation planting is required, the following list of priorities must be considered. The applicant should refer back to the approved NRI/FSD summary map to delineate the areas on the forest conservation plan.

- Establish or enhance forest buffers adjacent to intermittent and perennial streams to widths of at least 50 feet;
- Establish or enhance forested areas on 100-year floodplains, when appropriate;
- Establish or increase existing forested corridors to connect existing forests within or adjacent to the site. Where practical forested corridors should be a minimum of 300 feet in width to facilitate wildlife movement;
- Establish or enhance forest buffers adjacent to critical habitats where appropriate;
- Establish plantings to stabilize slopes of 25% or greater and slopes of 15% or greater with erodible soils including slopes of ravines or other natural depressions;
- Establish buffers adjacent to areas of differing land use where appropriate, or adjacent to highways or utility right-of-ways;

- 20. Establish forest areas adjacent to existing forests to increase the overall area of contiguous forest cover, when appropriate; and
- 20. Use **native** plant materials for afforestation or reforestation.

Other areas which should be considered for reforestation and afforestation include buffers for nontidal wetlands, and stream buffers along streams flowing through existing farmland. In evaluating areas that are chosen for reforestation or afforestation, review staff will give consideration to why trees do not currently exist in the area. In some instances, planting trees may not be a preferred alternative. Such instances may include nontidal wetland areas and areas which provide significant habitat for nonforest dwelling animals or plants.

LOCATIONAL PRIORITIES

The Forest Conservation Act specifies a procedure for choosing the method to use in planting reforestation or afforestation areas. The options are listed below, in order of priority. Applicants must provide justification for their chosen methodology with the afforestation or reforestation plan submittal. To assist in this analysis, evaluation criteria for the different methods has been reprinted from the State Forest Conservation Manual (*see Appendix H*). When off-site afforestation or reforestation can be justified, the applicant must find a planting location within the same watershed as the development project. If the applicant can demonstrate that a location in the same watershed is not available, a site anywhere within the county may be selected. The options for meeting the afforestation and reforestation requirements are:

- 20. On-site afforestation or reforestation;
- 20. Landscaping of on-site areas under an approved landscaping plan that establishes a forest at least 35 feet wide and covering 2,500 square feet of area;
- 20. Off-site afforestation or reforestation;
- 20. Natural regeneration on-site; and
- 20. Natural regeneration off-site.

Variations from the preferred sequence above, may be considered when site conditions warrant, and appropriate justification can be provided by the applicant. Applicants should refer to the County Code, Chapter 22A, Article II, Section 22A-12(e)(1) for examples of specific instances not related to site conditions, which may warrant a variation from the preferred sequence.

4. Other Considerations

NONTIDAL WETLANDS

Tree clearing within the net tract area which occurs either wholly or partly in areas regulated as **nontidal wetlands** under Natural Resources Article 8-1201-1211 and COMAR 08.05.04, is subject to the reforestation requirements of both the nontidal wetlands and forest conservation regulations. Forested nontidal wetlands which are retained, will be counted toward the forest conservation requirements. Forested wetlands which are permitted to be cleared must be replaced as required under the provisions of COMAR 08.05.04. Clearing within forested wetlands shall be shown on the forest conservation plan, but the area shall be subtracted on an acre for acre basis from the total amount of forest to be cut or cleared. The reforestation requirements of this law will be calculated using the reduced acreage.

PROVISIONS FOR SMALLER TRACTS

Reforestation

For tracts that are less than 40,000 square feet in size and completely wooded, or contain areas of forest cover greater than or equal to 10,000 square feet, the reforestation threshold may be applied in the same manner as specified in section B, 2 above. Planting of **tree cover** instead of **forest cover** will be acceptable for meeting planting requirements. A significant number of the smaller development tracts may not contain areas which can be defined as **forest**. On these tracts, an emphasis should be placed on preserving **specimen trees** and stands of trees which are valuable for compatibility reasons. If the loss of these trees is shown to be unavoidable, replacement will be required. The replacement ratio will be determined in the following manner:

- SPECIMEN/CHAMPION TREES... Substitute landscaping plan which may be required to include transplanting of large trees.
- SIGNIFICANT TREE STANDS... Requirements will be based on measures that are necessary to replace the function of the stand. For instance, trees which provide screening shall be replaced in sufficient kind and number to perform the same function.

Afforestation percentages for smaller properties will always be calculated in terms of tree cover. In some instances tree planting requirements may be waived.

Afforestation

The amount of credit applied toward reforestation and afforestation for landscaping, street trees and **tree save areas** will vary depending upon

Credit for landscaping and street trees

whether the plan is designed to establish forest cover or tree cover. Credit is based on either canopy at 20 years (*see Appendix C*) for newly planted trees or protected critical root zones for existing trees. Full credit means square footage provided in landscape cover is equal to the square footage of the required forest or tree cover. One quarter credit means one fourth of the full credit amount. Trees which are saved outside of "forest" retention areas may not be credited toward both forest retention and afforestation/reforestation.

- Where **forest cover** is required:

LARGE LANDSCAPED AREAS... Full credit for landscaped areas that are 35 feet wide and greater than or equal to 2,500 square feet in size. The area must contain at least 7 shade trees and 20 shrubs. Existing trees outside of the forest retention areas but included in the landscaped areas receive full credit.

SMALL LANDSCAPED AREAS... One quarter credit for landscaped areas that are less than 2,500 square feet in size, street trees, and trees which are saved outside of the forest retention areas.

NOTE: These areas cannot exceed 20% of the overall reforestation requirement.

- Where **tree cover** is required: Full credit
- Specimen and champion trees: Full credit

5. Standards

There must be a minimum of 5 species unless the site is to be actively managed under an **approved forest management plan**. The plant list should contain a mixture of dominant and understory, and early to late seral stage trees. Plants must be native to the Piedmont province of Maryland unless proven unavailable (*see Appendix C for list of native species*). When the planting plan is designed for areas that will be forest cover, understory shrubs must be planted at one third the rate of the trees. Shrubs are not necessary for planting plans designed to provide tree cover. All planting stock must meet accepted nurserymen's standards. As a minimum standard, stocking should be one of the following, or a combination which yields appropriate final density and is approved by staff.

- 100 2" caliper trees/acre
- 200 1" caliper trees/acre
- 350 hardwood whips/seedlings w/ tree shelters/acre
- 350 1-3 gallon container-grown trees/acre
- 700 seedlings/acre

C. Detailed Forest Conservation Plan Submittal Requirements

1. Forest Conservation Plan Drawings

A Preliminary Forest Conservation Plan Drawing Must Include:

- (a) The shape and dimensions of lots, showing any existing locations of structures and improvements, including paved areas.
- (b) Locations and dimensions of all existing and proposed rights-of-way, setbacks, easements, stockpile areas, and stormwater management facilities.
- (c) Location of building restriction lines and areas to be conserved including floodplains, wetlands and stream buffers.
- (d) Conceptual locations of structures and improvements, drainage systems, and sediment control measures.
- (e) Preliminary limits of disturbance of the natural terrain, and location of forest and tree retention areas with appropriate justification and proposed long-term protection method.

NOTE: A conceptual grading plan and/or a more detailed tree survey may be required when necessary to determine the feasibility of proposed retention areas.

- (f) Proposed locations of afforestation and reforestation areas, if required.

In addition to (a)-(c) above, a final forest conservation plan drawing (*Figure 8*) must also show:

- (a) Final grading plans which include building locations and footprints, retaining walls, road and parking layout, sidewalks and pathways, and location of recreation facilities.
- (b) Survey of trees 6 inches and greater DBH for 25' on either side of the limit of disturbance, and delineation of their critical root zones.
- (c) A limit of disturbance line which reflects the limits of all clearing and grading on the tract.
- (d) Retention areas as described in section 3.A., and those delineated at preliminary forest conservation plan, and any existing other individual trees to be saved.
- (e) Afforestation and/or reforestation areas, if required, and the protection measures for them (*short- and long-term*).
- (f) Permanent conservation easement boundaries, where applicable, and building restriction lines.

2. Supporting Items For Forest Conservation Plans

FOREST CONSERVATION WORKSHEET

The following items shall be submitted with the forest conservation plan. As noted below, the information may vary if the forest conservation plan is a preliminary or a final plan.

The **forest conservation worksheet** (Figure 9) is used to determine the forest retention, afforestation, and reforestation requirements on a tract. The worksheet for preliminary forest conservation plans may be based on conceptual forest retention and replanting area boundaries. The requirements for each tract are based on the type of land use and the **forest conservation threshold** or **afforestation threshold** for that land use, as described in Table 3. The forest conservation threshold is the minimum percentage of a forested tract that an applicant should preserve in forest cover.

For all existing **forest cover** (measured to the nearest 1/4 acre) cleared at or above the conservation threshold on a site, 1/4 acre must be planted for every 1 acre removed. For all existing forest cover cleared below the conservation threshold on a site, 2 acres must be planted for every 1 acre removed. The **break-even point** is an exact level of forest retention that precludes the need for reforestation. The afforestation threshold is the percentage of a non-forested site which must be planted in forest. In some instances, the afforestation requirements may be satisfied by establishing tree cover. Refer to section 3,C,1 for a discussion of these instances. (See Figures 10 through 14 for examples of reforestation and afforestation).

INFORMATION NEEDED TO COMPLETE THE WORKSHEET

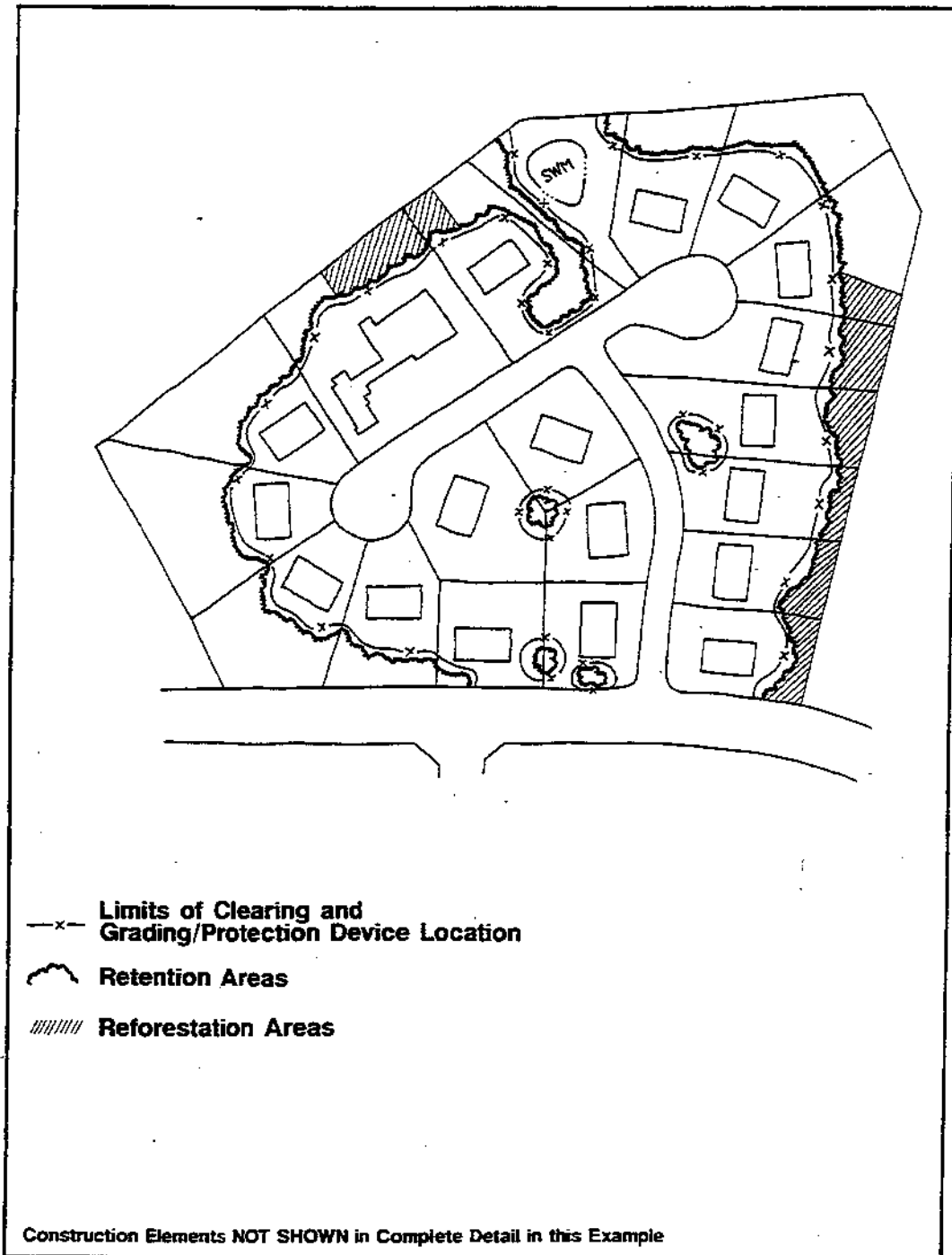
The following information is needed to determine the **break-even point** for a tract:

- Land use category - Table 2 contains a comparison of the county zoning categories with the land use categories defined in the county forest conservation law.
- Conservation and afforestation thresholds (from Table 3)
- Total tract area
- Area of site within the 100-year floodplain - The 100-year floodplain for streams with more than 400 acres of drainage area, and all streams within a Use III and III-p watershed, must be subtracted from the total tract area.

NOTE: These floodplains must be shown on the natural resources inventory map.

Figure 8

FOREST
CONSERVATION
PLAN



ADDITIONAL INFORMATION
NEEDED TO DETERMINE
Reforestation
OR
Afforestation
REQUIREMENTS

- Areas remaining in agricultural production - A declaration of intent to farm is required for these areas.
- Areas within WSSC right of ways or easements for which WSSC is responsible - These areas generally include projects that will be constructed by WSSC or their subcontractors.
- Areas within road right of ways that will be constructed partially or wholly with public funds - Certification from the appropriate government authority should be provided by the applicant to justify subtracting this area.
- Existing forest cover (*from the approved Forest Stand Delineation Map*)

- Forest and additional trees to be saved - Determined by the retention area analysis described in section A, above.
- Forested area to be cleared - Same as above.
- Trees to be planted as part of landscape or streetscape plan.

Figure 9

FOREST CONSERVATION
WORKSHEET^{1,2}

- A. TOTAL AREA OF TRACT: _____ acres
- B. AREA WITHIN 100 YEAR FLOODPLAIN: _____ acres
(>400 ac. D.A. or Use III/III-P waters)
- C. AREA OF LAND TO BE USED FOR AGRICULTURE: _____ acres
- D. AREA WITHIN ROW/EASEMENT FOR WHICH WSSC OR MCDOT/SHA WILL BE RESPONSIBLE: _____ acres
- E. NET TRACT AREA: A-B-C-D = _____ acres
- F. LAND USE CATEGORY *(from Table 2)*: _____
- G. AFFORESTATION THRESHOLD: [____% from Table 3 x E] = _____ acres
- H. CONSERVATION THRESHOLD: [____% from Table 3 x E] = _____ acres
- I. EXISTING FOREST COVER: = _____ acres
- J. FOREST COVER ABOVE AFFORESTATION THRESHOLD: (I-G)= _____ acres
- K. FOREST COVER ABOVE CONSERVATION THRESHOLD: (I-H)= _____ acres

CALCULATION OF
BREAK-EVEN POINT
*(Forested acres to be saved
for no planting requirements)*

- * L. IF $K < 0$ AND $I > -G$, BREAK-EVEN POINT EQUALS I: _____ acres
*(if $I < -G$, there is no break-even point and afforestation planting is required.
Refer to P, below.)*
IF $K > 0$, BREAK-EVEN POINT EQUALS $(K \times 20\%) + H =$ _____ acres
- M. FOREST COVER TO BE RETAINED: = _____ acres
- N. TOTAL AREA OF FOREST TO BE CLEARED: _____ acres
(if N is greater than I, reforestation planting is required. See Q-W, below.)

CALCULATION OF
AFFORESTATION REQUIREMENT

- P. AFFORESTATION REQUIREMENT: $G - I =$ _____ acres

CALCULATION OF
REFORESTATION REQUIREMENT

- * Q. AREA OF FOREST **ABOVE** CONSERVATION THRESHOLD TO BE CLEARED: *(if $K > N$, use N; $K < N$, use K)* = _____ acres
- R. AREA OF FOREST **BELOW** CONSERVATION THRESHOLD TO BE CLEARED: $N - G =$ _____ acres
- S. FORESTED AREA ABOVE CONSERVATION THRESHOLD TO BE SAVED: $M - H =$ _____ acres
- T. PLANTING REQUIRED FOR CLEARING ABOVE THRESHOLD: $Q \times 1/4 =$ _____ acres
- U. PLANTING REQUIRED FOR CLEARING BELOW THRESHOLD: $R \times 2 =$ _____ acres
- V. CREDIT FOR FOREST SAVED ABOVE CONSERVATION THRESHOLD: $S =$ _____ acres
- W. TOTAL REFORESTATION REQUIREMENT: $T + U - V =$ _____ acres
- X. AFFORESTATION AND REFORESTATION: $P + W =$ _____ acres
- Y. CREDIT FOR TREES AND LANDSCAPING³: = _____ acres
- Z. TOTAL FOREST PLANTING REQUIREMENT: $X - Y =$ _____ acres

TOTAL PLANTING REQUIREMENT

¹ Use 0 for all negative numbers that result from the calculations.
² See Appendix A - Glossary, for definition of terms.
³ Refer to Section 3, B, (4) of this manual for detailed explanation. All areas which are appropriate for establishing forest cover must be utilized before credit may be taken for trees and landscaping. Show calculations.
 * $>$ (Greater than or equal to); $<$ (Less than or equal to)

Table 2

COMPARISON OF LAND USE CATEGORIES FROM FOREST CONSERVATION LAW AND MONTGOMERY COUNTY ZONING CATEGORIES

Land Use Category <i>(from Table 3)</i>	Compatible County Zoning Categories
Agricultural and resource areas	RDT ¹ , Rural Zone, RC ¹
Medium-density residential areas	RDT ¹ , RC ¹ , RE-2, RE-2C, RE-1, RE-1 <i>(cluster)</i>
Institutional development areas	Various uses that may occur in all zoning categories including, schools, colleges and universities, military installations, transportation facilities, utility and sewer projects, government offices and facilities, golf courses, recreation areas, parks, and cemeteries <i>(includes the PCC zone)</i> .
High-density residential areas	R-200, R-200 <i>(cluster)</i> , RMH-200, R-MH, R-150, R-90, R-90 <i>(cluster)</i> , R-60, R-60 <i>(cluster)</i> , R-40, RT, RT-8.0, RT-10.0, RT-12.5, R-30, R-20, R-10, R-H, RMX, standard method, TS-R, TDR Zones <i>(except as noted below)</i>
Mixed-use development areas ²	MXPD, P-D, Town Sector, TS-M, P-R-C, RMX-1/TDR, RMX-2/TDR, RMX-3/TDR, CBD-0.5
Commercial and industrial use areas	C-O, O-M, C-P, C-T, C-1, C-2, C-3, C-4, C-1nn, I-1, I-2, I-3, I-4, R&D, CBD-1, CBD-2, CBD-3, H-M, MRR

¹ These zones allow for clustering down to 40,000 square foot lots to allow for agricultural use on the remaining parcel. Since agricultural use areas can be subtracted from the net tract area, the threshold for medium density residential may be used (declaration of intent to farm will be necessary for the rest of the parcel).

² The residential and institutional portions of the tract must meet the 20% conservation threshold requirements specified in Table 3.

Table 3

LAND USE
THRESHOLDS

Land Use Type *	Afforestation Threshold	Conservation Threshold
Agricultural and Resource Areas	20%	50%
Medium Density Residential Areas	20%	25%
Institutional Development Areas	15%	20%
High Density Residential Areas	15%	20%
Mixed-use Development Areas	15%	15 - 20% **
Commercial and Industrial Areas	15%	15%

* See Table 2 for comparison of land use and zoning.

** The residential and institutional portion of the tract must meet the 20% requirement.

Figure 10

DETERMINATION
OF
REFORESTATION
REQUIREMENTS:
EXAMPLE 1

Net Tract Acre:	100 acres
Current Forest Cover:	70 acres
Forest Cover Above Threshold:	45 acres
Land Use Category	Medium Density Residential
Conservation Threshold:	25%

CLEARING UP TO
THRESHOLD

REFORESTATION CALCULATIONS

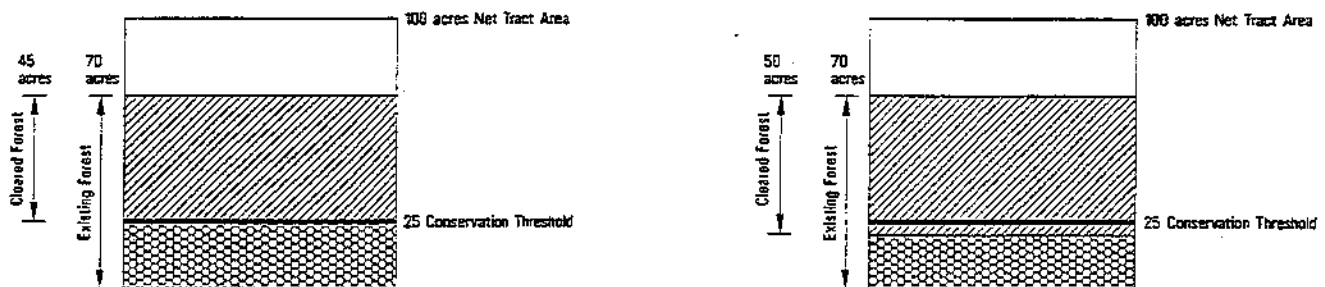
Forest to be Cleared:	45 acres
Above Threshold:	45 acres x 1/4 = 11.25 acres

CLEARING BELOW
THRESHOLD

REFORESTATION CALCULATIONS

Forest to be Cleared:	50 acres
Above Threshold:	45 acres x 1/4 = 11.25 acres
Below Threshold:	5 acres x 2 = 10.00 acres

Total: 11.25 acres + 10.00 acres = **21.25 acres**



Adapted from the State Forest Conservation Manual

Figure 11

DETERMINATION
OF
REFORESTATION
REQUIREMENTS:
EXAMPLE 2

USE OF
REFORESTATION CREDIT

REFORESTATION CREDIT RULE:

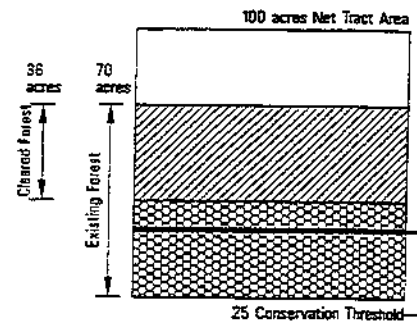
Each acre of forest retained in the net tract area, above the forest conservation threshold, reduces the reforestation requirement by an acre. A break-even point exists such that the retained acreage compensates for the cleared acreage and no reforestation is required. The rule for calculating this break-even point is: 20% (one acre retained per four acres cleared = 1/5) of the original forested area above the Conservation Threshold must be retained, so that no reforestation will be necessary.

Net Tract Area:	100 acres
Current Forest Cover:	70 acres
Forest Cover Above Threshold:	45 acres
Forest to be Cleared:	see calculations
Land Use Category:	Medium Density Residential
Conservation Threshold:	25%

CALCULATIONS

Break-even Point: $45 \text{ acres} \times 20\% = 9 \text{ acres}$
 Forest to be Cleared: $45 \text{ acres} - 9 \text{ acres} = 36 \text{ acres}$

If 9 acres are retained above the Conservation Threshold, no reforestation is needed.



Adapted from the State Forest Conservation Manual.

Figure 12

DETERMINATION
OF
AFFORESTATION
REQUIREMENTS:
EXAMPLE 1

Net Tract Acre:	100 acres
Current Forest Cover:	15 acres
Land Use Category:	Medium Density Residential
Conservation Threshold:	20%

TOTAL FORESTED ACREAGE
BELOW AFFORESTATION
THRESHOLD

AFFORESTATION CALCULATIONS

100 Acres x 20% = 20 acres must contain forest
 20 acres - 15 acres (existing) = **5 acres must be forested**

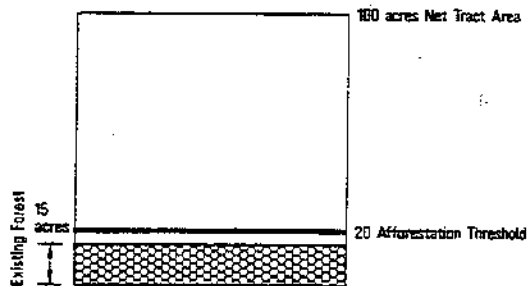


Figure 13

DETERMINATION
OF
REFORESTATION
AND
AFFORESTATION
REQUIREMENTS:
EXAMPLE 1

Net Tract Area:	100 acres
Current Forest Cover:	15 acres
Land Use Category:	Medium Density Residential
Conservation Threshold:	25% (25 acres)
Afforestation Threshold:	20% (20 acres)
Forest to be Cleared:	5 acres

CALCULATIONS

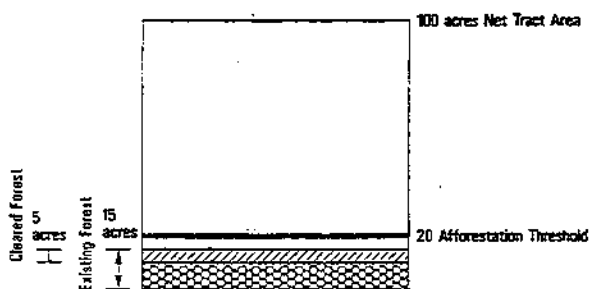
AFFORESTATION REQUIREMENT:

20 acres - 15 acres = 5 acres must be afforested

REFORESTATION REQUIREMENT:

Area cleared below Conservation Threshold:
5 acres x 2 = 10 acres must be reforested

TOTAL PLANTING REQUIREMENT = **15 ACRES**



Adapted from the State Forest Conservation Manual

NARRATIVE
OF
SEQUENTIAL
ANALYSIS OF
AFF/REFORESTATION
METHODS

The applicant should refer to previous section 3, B.3 for the requested sequence, and to Appendix H for the evaluation criteria. The narrative should be prepared using this information, and should provide justification for the chosen method.

PLANTING
PLAN

A **planting plan** shall be required for all reforestation or afforestation areas prior to the start of clearing and grading. For preliminary forest conservation plans, it is sufficient to provide the planting locations and the analysis of site suitability for planting and description of necessary preparation measures. The following must be provided with the planting plan.

- An analysis of the suitability for planting and a description of necessary measures.
- A list of target species for planting based upon an analysis of site conditions (*soil, water, sun exposure, etc.*) and plant availability. An indication of the appropriate species may be found by identifying the forest association for the region, or evaluating forest land adjacent to the proposed planting site (*see Appendix C for table of common species within various forest associations and list of native species*).
- A plant materials table including:
 1. species
 2. size of plants
 3. quantity

NOTE: Proposed stocking rates other than discussed under standards may be considered on a case-by-case basis. The preferred planting standard shall be container-grown stock, augered in at 450 plants per acre in a random planting pattern (8 - 12" between individuals). The stock should be a mix of sizes from 1 to 3 gallons (auger size should be adjusted accordingly), and a mix of species.

- Plan drawing illustrating planting locations, spacing, and planting details. (*see Appendix B for suggested methods*).
- Planting and inspection schedule which is tied to the planned construction sequence for the project. Planting must be accomplished no later than 1 year after **completion of the development project**. (*see Appendix B for planting specifications*).

DEVELOPMENT PROGRAM

The development program is a schedule for provision of the required elements of the final forest conservation plan that are conditioned as part of planning board or planning director approval. Items that must be included are:

- Development phasing, if applicable
- Tree planting schedule
- Schedule for provision of financial security and/or fee in lieu

The development program must be submitted and approved prior to the start of any clearing and grading

FINANCIAL SECURITY

The financial security shall ensure that the afforestation, reforestation and associated maintenance agreements are implemented in accordance with the approved forest conservation plan. It may also be required when payment into the forest conservation fund is required

An irrevocable letter of credit or cash bond is required prior to any land disturbing activities. Alternative security measures may be used if approved by the Planning Board. The bond must be made payable to MNCPPC.

Form

The amount of the financial security must be equal to the estimated cost of afforestation/reforestation and maintenance, or the amount of the contribution due, as determined by the Planning Department. When appropriate, the amount of the financial security may be adjusted according to the actual cost of afforestation/reforestation and maintenance if justification is provided by the applicant.

Amount and Conditions

The financial security must be issued by a financial institution authorized to do business in Maryland. The letter of credit should expressly state the total sum is guaranteed to be available and payable directly to MNCPPC on demand in the event of forfeiture. Government projects are exempt from providing financial security.

The full amount must be provided before enforcement and monitoring staff authorize clearing and grading activities to begin on a section of the tract subject to a forest conservation plan.

When Due

The financial security must be in force until all measures for reforestation and afforestation and maintenance requirements have been fulfilled to the satisfaction of the Planning Department, or until the in lieu fees have been paid to the appropriate fund. A surety bond or other alternative form of security may not be canceled by the surety, bank, or other issuing entity unless both of the following conditions are satisfied: a) the surety notifies the Planning Board and the applicant of its intent to cancel the bond, in writing, by registered mail, not less than 90 days before cancellation; and b) at least

Release

45 days before the cancellation date indicated in the notice, the applicant files a commitment from a surety, bank, or other issuing entity to provide a substitute security which will be effective on the cancellation date indicated in the notice.

Partial
Release

Release of part of the financial security may be authorized by the Planning Department enforcement and monitoring staff after planting has been done. To determine whether this partial release should occur, an inspection of the planted areas by enforcement staff should be requested by the applicant immediately after planting is complete. If staff is satisfied that the planting plan has been followed and the stock is properly planted and in good condition, up to one half of the financial security will be released.

Full
Release

Written notice will be provided by the Planning Department at the end of the two year maintenance period (or as specified above) that the financial security may be released. If the Planning Department fails to send written notice within 60 days after the end of the monitoring and maintenance period, the financial security shall be automatically released.

FORFEITURE

Refer to section 22A-12(6) & (7) of the Forest Conservation law for events of forfeiture and forfeiture proceedings.

MAINTENANCE
AGREEMENT

Reforestation and afforestation areas must be maintained for a period of two years as specified in a maintenance agreement between the applicant and the Planning Board or Planning Director. The maintenance agreement must be provided no later than the first inspection of the new planting. The maintenance agreement shall be an agreement between the applicant and the Planning Board that states how the areas designated for afforestation or reforestation will be planted and maintained to ensure protection and satisfactory establishment of forest. The agreement must include:

Plant
Maintenance:

- Watering
- Fertilizing
- Control of competing vegetation
- Protection from disease, pests, mechanical injury

Inspection
Information:

- Permission for inspection staff to enter the site
- Required notification of staff for final inspection

- 20. Provisions for release of the financial security
- 21. Name of the company or individual responsible for tree care
- 22. An exhibit demonstrating the applicant's legal right to implement the proposed maintenance agreement on the site. May consist of an executed deed conveying title to the site; executed conservation easement restricting use of the site; a fully executed non-contingent contract of sale for the site; or other written evidence of a possessory or ownership interest in a selected site.

Other:

LONG-TERM PROTECTION

The final forest conservation plan must include provisions for long-term protection of forest retention areas, reforestation areas, and afforestation areas. The areas must be delineated on the final forest conservation plan. The methods most commonly used by the Planning Board are conservation easements and tree save agreements. Areas protected under a long-term agreement may be managed under a Forest Management Plan approved by the MD Department of Natural Resources. Developers are encouraged to suggest other methods. Staff will review these on a case-by-case basis.

- 23. **Category I Conservation Easements** will be applied to "forest" retention areas, reforestation areas, and afforestation areas that involve establishing forest cover. The easement boundary must be shown by a line on the record plat and a note which references a recorded easement agreement. MNCPPC has pre-recorded the easement, but will review alternatives suggested by applicants on a case-by-case basis. Revised easements must be recorded by the applicant concurrently with the plat.
- 24. **Category II Conservation Easements** will be applied to "trees" saved outside of forest areas which are determined to be significant. Significant trees include: a) specimen trees, b) trees that make up a buffer between two uses which enhances compatibility, and c) other trees which may be designated by the Planning Board. The record plat must include a note stating which lots are subject to the easement and referencing a recorded easement agreement.
- 25. **Tree Save Agreements** can be applied to "tree" save areas except as described under the Category II Conservation Easement. The agreement, between the Planning Board and the developer, must state that the designated trees will be saved during construction. The record plat must contain a note stating which lots are subject to the agreement.

D. Summary Of The Requirements

STEP 1

Determine
Forest Retention Areas

- Priority areas from NRI/FSD Summary map
- Area to be cleared

STEP 2

Complete Forest
Conservation
Worksheet

- Break-even point
- Reforestation/afforestation requirements, if applicable

STEP 3

Preparation of
Preliminary
or
Final Forest
Conservation Plan

- Designate retention areas
 - priority rating and acreage
 - edges reflecting critical root zones (*final plans*)
 - specimen/champion trees and their critical root zones
- Locate afforestation/reforestation areas
 - priority areas for afforestation/reforestation
 - evaluation of afforestation/reforestation methods

STEP 4

Submit
Forest Conservation Plan
and Supporting Items

- Preliminary or final plan drawing (2 copies)
- Forest Conservation Worksheet (2 copies)
- Narrative of sequential analysis of afforestation/reforestation methods (2 copies)
- Planting plan (2 copies)
- Maintenance Agreement (2 copies)
- Protection plan (*see section 4*) (2 copies)
- Long-term protection measures/agreements (2 copies)
- Development Program (2 copies)
- Qualifications of Preparer(s)

