Howard County Forest Conservation Worksheet Instructions

This document explains the methodology behind the Forest Conservation Worksheet and provides directions for filling out the worksheet. An Excel spreadsheet file that calculates forest conservation obligations is available on the Department of Planning and Zoning web page. The DPZ worksheet must be used for all submissions. Boxes highlighted in gray should be completed based on project site data.

Net Tract Area

A. Total (Gross) Tract Area A = _____
B. Area within 100-year Floodplain B = _____
C. Other Deductions (Identify:_____) C = _____
D. Net Tract Area D = _____

Fill in the acreage of A, B and C to the nearest 0.1 acre (at a minimum) based on project site data. Item C may include deductions such as previously developed areas covered by an impervious surface or the area of a preservation parcel being created by a rural cluster subdivision. The spreadsheet will calculate the net tract area (D), by deducting the floodplain and other allowed deductions (B and C) from the gross site area (A).

Land Use Category

	Resid. Rural LD	Resid. Rural MD	Resid. Suburban	Inst./ Linear	Retail/Ind./ Office	Mixed Use/ PUD	
E. Afforestation Threshold	(Net Tract Area x _____ %)						E = _____
F. Reforestation Threshold	(Net Tract Area x _____ %)						F = _____

Select the land use category for the project and enter the number 1 under the appropriate land use. The land use categories are described in Figure 3-B of the Howard County Forest Conservation Manual, 2021. The spreadsheet will calculate the afforestation and reforestation thresholds percentage and acreage (E and F) based on the land use category selected.

Existing Forest Cover

G. Existing Forest Cover within the Net Tract Area G = _____
H. Area of Forest above Afforestation Threshold H = _____
I. Area of Forest above Reforestation Threshold I = _____

Fill in item G based on project site data. The spreadsheet will calculate the area of existing forest above the afforestation and reforestation thresholds (H and I).

If existing forest cover is less than the afforestation threshold (if G is less than E), afforestation will be required (see S, below). If clearing of existing forests below the afforestation threshold is proposed, reforestation requirements will apply in addition to afforestation requirements (see T, below).

If existing forest cover equals or exceeds the afforestation minimum (if G is equal to or greater than E) and clearing of existing forests is proposed, reforestation requirements may apply (see R, below).

Break Even Point

J. Break Even Point J = _____
K. Forest Clearing Permitted without Mitigation K = _____

The spreadsheet will calculate the break even point (J), which is the amount of forest that must be retained (one-third of the forest above the reforestation threshold) to balance the reforestation obligation for any clearing. The spreadsheet will calculate the amount of forest that can be cleared without incurring a mitigation obligation (K) as the existing forest minus the break even point (G minus J).

Proposed Forest Clearing

L. Total Area of Forest to be Cleared L = _____
M. Total Area of Forest to be Retained M = _____

Fill in item L based on project site data. Forest that will be retained but not placed in a Forest Conservation Easement must be recorded as cleared. The spreadsheet will calculate the forest to be retained (M) by deducting the forest to be cleared from the existing forest area (G minus L).

Planting Requirements

N. Reforestation for Clearing above the Reforestation Threshold N = _____
P. Reforestation for Clearing below the Reforestation Threshold P = _____
Q. Credit for Retention above the Reforestation Threshold Q = _____
R. Reforestation Obligation R = _____
S. Afforestation Obligation S = _____
T. Total Reforestation and Afforestation Obligation T = _____
U. 75% of Total Obligation (Retention + Planting) U = _____
V. Planting Required Onsite to meet 75% Obligation V = _____

The spreadsheet will calculate any obligations incurred for clearing above the reforestation threshold (N is calculated at ½ acre for every acre cleared) or below the reforestation threshold (P is calculated at 2 acres for every acre cleared) and will calculate any credits granted for retaining forests above the reforestation threshold (Q is calculated at 1 acre credit for every acre retained above the reforestation threshold).

Reforestation obligation (R): If the clearing is less than or equal to the amount of forest clearing permitted without mitigation (if L is less than or equal to K), no reforestation will be required (R will equal 0). The formula for this calculation can also be expressed as: IF N is less than or equal to Q, then R = 0. If the credit for retention above the reforestation threshold (Q) is equal to or greater than the reforestation obligation for clearing above the reforestation threshold (N), then no reforestation is required.

Afforestation obligation (S): If existing forest cover is less than the afforestation threshold (if G is less than E), afforestation will be required at a rate of 1 acre of planting for every unforested acre below the afforestation threshold. Afforestation must make the total forest equal to the minimum required (S plus G must equal E).

Reforestation and afforestation obligation (T): If existing forest cover is below the afforestation threshold and additional clearing of forests is proposed, the reforestation obligation for that clearing is 2 aces for every acre cleared (R). This obligation is in addition to the afforestation obligation of 1 acre for every unforested acre below the afforestation threshold (S). The minimum requirement must be met and compensation for any clearing is required. The total planting required is the sum of reforestation and afforestation required (T equals R plus S).

75% of Total Obligation (Retention + Planting) (U): The spreadsheet calculates 75% of the total obligation (retention plus reforestation and afforestation) that must be met onsite for those residential projects subject to Section 16.1209(b)(2) as U equals 75% of (M plus T).

Planting Required Onsite to meet 75% Obligation (V): The minimum planting that must be done onsite to meet the requirements of Section 16.1209(b)(2) is 75% of the total obligation minus the onsite retention (V equals U minus M). Note that changing onsite retention may also change this minimum planting requirement.

Planting Requirements Outside Watershed

W. Total Planting within Development Site Watershed	W =
X. Total Afforestation Obligation	X =
Y. Remaining Planting within Watershed for Reforestation Credit	Y =
Z. Reforestation for Clearing above the Reforestation Threshold	Z =
AA. Reforestation for Clearing below the Reforestation Threshold	AA =
BB. Credit for Retention above the Reforestation Threshold	BB =
CC. Total Reforestation Obligation	CC =
DD. Total Reforestation and Afforestation Obligation	DD =

Fill in item W based on project site data. Planting within the watershed will first be credited toward any required afforestation and then toward any required reforestation.

Total Afforestation Obligation (X): If total planting within the development site watershed is sufficient to meet the afforestation obligation (W is greater than or equal to S), then no additional afforestation planting is required outside the watershed (X equals zero). The remaining planting within the watershed for reforestation credit will equal the total planting within the development site watershed minus the required afforestation (Y equals W minus S).

If additional afforestation is required outside the watershed (W is less than S), the additional planting needed will equal the required afforestation minus the total planting within the development site watershed (X equals S minus W). In this case there is no remaining planting acreage within the development site watershed that may be credited toward reforestation (Y equals zero).

Reforestation for Clearing above the Reforestation Threshold (Z): If the remaining planting within the watershed for reforestation credit is sufficient to meet the reforestation for clearing above the reforestation threshold (Y is greater than or equal to N), no additional planting is needed (Z equals zero). If additional planting must be done outside the watershed to meet the obligation for clearing above the reforestation threshold (Y is less than N), the spreadsheet will calculate the remaining obligation (subtract Y from N), undo the inside the watershed mitigation ratio of ½ acre for every acre cleared, and apply the outside the watershed mitigation ratio of one acre for every acre cleared to this remaining obligation (Z equals ((N minus Y) divided by ½ and multiplied by 1)).

Reforestation for Clearing below the Reforestation Threshold (AA): If the remaining planting within the watershed is sufficient to meet the reforestation for clearing above and below the reforestation threshold (Y minus N minus P is greater than or equal to zero), no additional planting is needed (AA equals zero). If additional planting is needed, the remaining obligation is calculated in one of two ways. If the remaining planting within the watershed for reforestation credit is less than or equal to the reforestation for clearing above the threshold (Y is less than or equal to N), then the remaining obligation is the full reforestation for clearing below the threshold (P). If the remaining planting within the watershed for reforestation credit is greater than the reforestation for clearing above the threshold (Y is greater than N), then the remaining obligation is P minus (Y minus N). The spreadsheet will undo the inside the watershed mitigation ratio of 2 acres for every acre cleared and apply the outside the watershed mitigation ratio of 3 acres for every acre cleared to this remaining obligation (AA equals remaining obligation divided by 2 and multiplied by 3).

Credit for Retention above the Reforestation Threshold (BB): The credit for retention above the reforestation threshold is the same as the credit for retention above the reforestation threshold within the watershed (BB equals Q).

Total Reforestation Obligation (CC): The total reforestation is the sum of reforestation for clearing above and below the reforestation threshold, minus the credit for retention above the reforestation threshold (CC equals Z plus AA minus BB).

Total Afforestation and Reforestation Obligation (DD): The total planting required outside the watershed is the sum of afforestation and reforestation required (DD equals X plus CC).

Unforested Stream and Wetland Buffers Remaining Onsite

EE. Unforested Stream and Wetland Buffers- Afforestation Required EE = _____

Upon meeting the reforestation and afforestation obligation, all unforested stream and wetland buffers onsite shall be planted and protected in a Forest Conservation Easement, unless approved by DPZ. Fill in Item EE based on the acreage of unforested stream and wetland buffers remaining onsite after the reforestation and afforestation obligations have been met. This area will be added to the total afforestation and reforestation obligation in Item FF below.

Stream and wetland buffers are determined in accordance with Section 16.116(a) of the Subdivision & Land Development Regulations.

In the case that the forest retention and planting requirements cannot be met on-site, and off-site mitigation or fee-in-lieu is authorized by DPZ, then the offsite mitigation or fee-in-lieu amount will be based on any unforested buffer areas in addition to the total afforestation and reforestation obligation (see Item FF below).

Total Afforestation and Reforestation Requirement

FF. Total Afforestation and Reforestation Requirement FF = _____

The total afforestation and reforestation requirement is based on the total planting obligation (Item T or DD) plus any unforested stream and wetland buffers remaining onsite (Item EE). This is the total amount of planting required.

In the case that the forest retention and planting requirements cannot be met on-site, and off-site mitigation or fee-in-lieu is authorized by DPZ, then the offsite mitigation or fee-in-lieu amount will be based on this number (Item FF).