Section 24 - Vegetation Removal and Replacement

A. Findings: Vegetation in a resourc-e area protected by the Bylaw is significant for wildlife, wildlife habitat and water quality. In addition, vegetation controls flood and storm damage, and trees provide carbon sequestration and shade to offset heat-island effects, thereby mitigating potential impacts of climate change when their replacement is equal to or greater than the loss. Vegetation provides food, shelter, socialization ?, shade, water ? ~~detention~~attenuation, sediment control, bank stabilization, biodiversity, pollutant uptake, water evapotranspiration ~~of water~~, aesthetics, and atmospheric purification. In addition, plant size ordinarily is proportional to habitat value; i.e., large wooded trees are of greatest habitat value, followed by bushes, and then ground cover. Thus, an adequate quantity of vegetation must be maintained so areas subject to protection under this ~~that resource areas protected by the~~ Bylaw can thrive. ~~provide protection form adverse effects on the characteristics and functions of the resource area provide the resource area values protected by the Bylaw, including, but not limited to: flood control, storm damage prevention, pollution abatement, wildlife protection, aesthetic value, and recreation.~~

B. No vegetation in a resource area protected by the Bylaw shall be damaged, extensively pruned, or removed without written approval by the Commission and in-kind replacement. Extensive pruning is defined as removal of more than 20% ~~or more~~ of the crown and/or limbs ~~limbs or growth~~ ? . For extensive pruning or removal of vegetation because of an Imminent Risk to Public Health and Safety, in-kind replacement shall be to the extent practicable as determined by the Commission (See Section 9 of these Regulations for Emergency Certification).

C. "In-kind replacement" shall refer to a combination of species type and surface area as ~~defined~~ measured by the affected plant or plants' ~~the area~~ delineated ~~by the~~ drip line ~~of the affected plant(s)~~. "In-kind" means the same type and quantity of plant species that was removed, extensively pruned, or damaged, unless compelling evidence is presented in writing that explains why the resource area values under the Bylaw are promoted through an alternative proposal, and planted within the same resource area or another resource area located in close proximity ~~on the project site~~. Notwithstanding the foregoing, only native, non-invasive plant species shall be planted as replacements.

D. ~~The criteria for removal of vegetation follow.~~ In all instances, the reasons for removal must be expressed in writing before executing the removal. In administering this standard, the Commission shall consider species selection, location, and timing of the plantings. Vegetation removal criteria are as follows. ~~The criteria for removal of vegetation follow.~~

(1) Health of the Vegetation
Vegetation in a state of irreversible decay, or undesirable vegetation present as a result of unintentional lack of maintenance may be offered as a reason(s) for removal.

(2) Bank or Slope Stabilization
A bank or slope stabilization plan requires the restructuring of soils occupied by the vegetation ~~vegetation~~ to be removed.

(3) Invasive Species

Comment [MOU1]: I do not instand what is meant by this word. It needs clarification or should be taken out.

Comment [MOU2]: Rentention or dention - not sure what is meant by this.

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Comment [MOU3]: Is this the crown or the height of the tree, its mass? needs clarification. I am not sure what is intended here.

Comment [TC4]: Resident of Arlington are allowed to cut 20% of each tree or shrub canopies without notification or written approval.

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Comment [MOU5]: First sentence in C is awkwardly written and should be rewritten. I am not sure how.

Comment [MOU6]: Rewrite - In all instances, the reasons for the removal of vegetation must be expressed in writing before the vegetation can be removed. In administering this standard, the Commission shall consider (not sure what is meant here) ..... The criteria for removal of vegetation is as follows:

The vegetation being removed is an aggressive, invasive, or non-native species as professionally confirmed ~~by a wetlands scientist~~ or as listed on a wetlands plant list acceptable to the Commission, such as, but not limited to that published by the United States Fish and Wildlife Service.

(4) Ecological Restoration
The vegetation is being removed as part of a project whose primary purpose is to restore or otherwise improve the natural capacity of a resource area to protect and sustain the interests of the Bylaw; also called Resource Area Enhancement.

(5) Vegetation Replacement
The vegetation ~~can beis being~~is being removed and replaced elsewhere on the project site or within the same resource area, only if the Commission determines that such removal and replacement does not decrease the resource area's contribution to the resource area values protected by the Bylaw.

(6) Imminent Risk to Public Health and Safety
The vegetation is an imminent risk to public health or safety or property as confirmed in writing and submitted to the Commission by the Arlington Tree Warden, Fire Department Representative, Public Safety Officer, or a certified arborist.

E. Application for Removal. For all projects, the application for vegetation removal shall be submitted as part of the application for permit or Notice of Intent as described by the Bylaw and these regulations. At a minimum, the application will include:

(1) Narrative
The narrative shall describe the existing conditions, the proposed planting plan, the list of existing and proposed species, the size of existing and proposed species, and number of plants before and after the revegetation event. The narrative shall also provide the rationale for the removal, by addressing the criteria D1 through D6 above, and discuss the proposed maintenance plan (see (7) below).

(2) Affirmation of the Revegetation Activities
All plans for revegetation must be accompanied by written testimony and scaled diagram from a certified arborist or wetland scientist or landscape architect. At a minimum, this document must include the following information:
(a) Is the vegetation removal necessary? (See D. above)
(b) How much surface area of the vegetation will be removed (ft^2-based on drip line)?
(c) How many individual plants will be removed by species; *i.e.*, is the species list submitted with the NOI correct?

(3) Planting Plan
The proposed planting plan must be drawn to scale and identify properly the resource area and buffer zone and the project site. It must include the locations of each replacement species and the number of each species proposed for planting (in table form).

The planting plan and procedures shall comply with the American Standards for Nurserymen, Inc. or equivalent. It must also include the location of the erosion control devices used during the restoration event. A brief narrative must accompany this planting plan describing the storage location of all motorized equipment.

The planting plan shall show the estimated tree canopies after 15 years of growth, the specific names, sizes and locations of trees to be planted, and the total area of square feet of the area shaded by tree canopies. In determining the shaded area, measure the shaded area assuming that the shaded area is only that area directly under the drip line.

(4) Existing Species List
Each species existing before the restoration shall be listed in terms of area of coverage (ft^2) and number of individual plants and either height or dbh as specified in the tables below.

(5) Replacement Species List
The replacement of vegetation shall be according to the following table (derived from the American Standards for Nurserymen, Inc.), unless the Applicant proves that the amount of replacement vegetation will not survive or contribute in the long-term to resource area values. A rationale for the species and size choice must be provided if not an "in-kind replacement"~~the replacement is not "in-kind"~~.

Native species are ~~the preferred~~required; invasive species are not allowed.

Replacement plant materials shall conform to the requirements described in the latest edition of American Standard for Nursery Stock, which is published by the American Association of Nurseryman ("AAN").

Replacement size shall be three inches in diameter at six inches in height above natural grade ~~most common available substantial size~~, or as approved by the Commission.

Vegetation replacement is not considered successful until the replacement plants have survived three full growing seasons.

For extensive pruning or removal of vegetation because of an Imminent Risk to Public Health and Safety, in-kind replacement shall be to the extent practicable as determined by the Commission (See Section 9 of these Regulations for Emergency Certification).

(a) Tree:

Existing Trunk (dbh)	Replacement Quantity
Sapling	0*
1 to 3 inches	2
≥ 3 to 8 inches	~~1~~3
≥ 8 to 20 inches	~~2~~4
> 20 inches	~~3~~Discuss with Commission

*may require replacement at discretion of Commission
dbh = diameter at breast height

Comment [MOU7]: This needs to be rewritten. It i very vague. But not sure exactly how to rewrite it.

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Comment [MOU8]: Add a sentence or two explaing the purpose of the chart. Also indicate if there are any exceptions to thee quantities.

Comment [SC9]: I think replacement should be a minimum of 2:1 because of the benefits lost for the tree being removed that will not be replicated for many years until the replacement tree matures – see the tool "itrees"

Comment [DK10]: agreed

(b) For all trees:

1. If a plant is well grown with a single stem, well-shaped and bushy, and has sufficient well-spaced side branches to give it weight and good bud qualities, it is an acceptable plant.
2. On multi-stem trees, height shall be defined as the measurement taken from the ground level to the average uppermost point of growth~~s~~ of the plant.
3. All replacement plants shall have ball sizes which are of a diameter and depth to encompass enough of the fibrous and feeding root system as necessary for the fully recovery of the plant once planted.
4. Sapling trees shall include deciduous trees with a dbh of 1 inch and less; evergreens of 2 feet or less and shall be replaced at the discretion of the Commission so as to reach an equivalent area of coverage and soil retention.

(c) For Shrubs:
The replacement of shrubs (bushes) shall be with bushes and shrubs of equivalent size. For bushes, the replacement must be well grown with a single stem, well-shaped and bushy, and have sufficient well-spaced side branches to give it weight and good bud quality as per the American Association of Nurserymen standards.

(6) Rationale for Removal - Describe why the interests of wetlands protection are advanced by the revegetation plan.

(7) Maintenance Plan - Vegetation replacement is not considered successful until the replacement plants have survived three full growing seasons. The maintenance plan shall describe how the restoration will be evaluated annually for three years and reported to the Commission. The Commission reserves the right to require a revised replanting plan, or additional plantings on an annual basis in the event that the revegetation plants decay or die.

F. The Commission may require one or more of the following measures to protect vegetation during work:

(1) Tree protection fencing – Prior to commencing work, four (4) foot-high sections of snow fencing shall be installed and secured with wooden stakes (2" x 4" or 2" x 3") or 6-foot steel channel posts so as to create an enclosure at the dripline of tree(s) or other distance as the site conditions allow to be protected. Such fencing shall be securely erected, be vertically plumb and be maintained for the duration of the project and shall protect individual trees or groups of trees.
(2) Tree protection blanket – "BarkSavers" or similar armored blankets shall be installed and maintained according to product specifications.
(3) No existing trees shall be used for crane stay, guys or other fastening.
(4) Vehicles shall not be parked below the canopy of any existing tree or where damage may result to existing trees or tree roots.
(5) Construction materials shall not be stored beneath existing trees.
(6) Following completion of work, have a certified arborist monitor the health of trees on site for possible damage and take measures to repair damage.

(7) Prior to commencing work~~,~~ prepare and submit~~ation~~ of a tree protection plan ~~showing~~ summar~~y~~izing ~~of~~ all trees on site (including dbh, species, extent of canopy, roots and health) and specifying whether each tree shall be saved or lost.

G. The Commission may require the placement of permanent bounds (e.g., granite or metal) to demarcate all or part of a resource area or vegetation mitigation area.

H. The requirements of this section shall be met commensurate with the nature, scope, type, and cost of the proposed project or activity.

Natural surfaces improve the capacity of the Resource Area to protect and sustain areas subject to protection under this bylaw. They provide protection from adverse effects on the characteristics and functions protected and minimize disturbance through their natural features. Natural surfaces contribute to cool air, water infiltration, and filtering. They remove carbon dioxide from our atmosphere. Artificial turf can be associated with urban heat island effects, climate impacts from C02, hazardous waste, heat stress, migration of crumb rubber from the field, and exposure to PAH's. In determining whether to exercise its discretion to approve synthetic turf fields, or require some limits to be placed on its total area coverage, the Commission shall consider the following factors: The magnitude of the alteration and the significance of the project to the resource area, the availability of reasonable alternatives to the proposed activity, and the extent to which adverse impacts are minimized and to the extent to which mitigation measures including replication or restoration are provided

Should we add a discussion about replacement of Natural Turf fields with Artificial Turf fields here or in Climate Change section?

Comment [TC11]: Draft Artificial Turf Field section

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