

Cathy Wiss
Commissioner, ANC 3F06
3810 Albemarle Street, N.W.
Washington, D.C. 20016-1838

September 26, 2002

D.C. Zoning Commission
441 – 4th Street, N.W., Suite 210
Washington, D.C. 20001
Attn: Alberto Bastida

SEP 27 2002
PM 4:34
D.C. ZONING COMMISSION

Re: Zoning Case No. 02-19, Forest Hills Tree and Slope Protection Overlay

Dear Chairman Mitten and Members of the Zoning Commission:

I. New York City Zoning Resolution for Natural Areas

Pursuant to your request at the September 5, 2002, hearing, I am submitting at Attachment A a copy of The City of New York Zoning Resolution, Article X, Chapter 5: Special Natural Area District. This Special District was established in 1974:

“to guide development in areas of outstanding natural beauty”; “to preserve land having qualities of exceptional recreational or educational value”; “to protect aquatic, biologic, geologic and topographic features having ecological and conservation values and functions”; “to limit erosion associated with development by conservation of vegetation and protection of natural terrain”; and to promote the best use of the land according to a well-considered plan that provides for stability of residential development, enhancement of the character of the district, conservation of buildings and land values, and protection of the City’s tax revenue.

Section 105-00. The types of natural features to be protected are described in Section 105-11 and Appendix B.

Four Special Natural Area Districts have been mapped in New York City—one each in the Bronx and Queens, and two in Staten Island. Natural Area - 1 covers a large area in the central part of Staten Island. It includes Emerson Hill, Dongan Hills, Todt Hill and Lighthouse Hill, and the central wetlands area. This natural area is characterized by steep slopes, rock outcrops, lakes, ponds, creeks, tidal wetlands, and trees of the glaciated Oak-Chestnut Association. See Section 105-941. The underlying zoning is primarily very low density and low density single-family detached housing, but also includes a cemetery, a hospital, and parts of La Tourette Park, Fresh Kills Park, and Springdale Park.¹

¹ New York’s electronic zoning map can be accessed at www.nyc.gov/html/dcp/html/zone/zmapintr.htm. Natural Area I can be found on Maps 26a, 26b, 26c, 26d, 27a, and 27b.

ZONING COMMISSION
District of Columbia
Case 02-19
Exhibit 254

The Riverdale Ridge area of the Bronx is protected in Natural Area - 2. This area, too, is comprised of steep slopes, rock outcrops, ponds, brooks, and mature trees, as well as feeding areas for water fowl and the Hudson River shoreline. *See* Section 105-942. Although much of this area is in its natural state, it does include districts for single-family detached housing and general residence districts for housing of all types, as well as an academy and Riverdale Park.²

Natural Area - 3 protects Shore Acres Pond and its natural drainage. This is a spring-fed pond on the northeast shore of Staten Island, just north of the Verrazano Narrows Bridge and sandwiched between Fort Wadsworth and another federal reservation. It serves as a resting place for migratory birds. The area around the pond is characterized by wooded cliffs and rolling topography. *See* Section 105-943. The underlying zoning is single-family detached housing.³

The Special Fort Totten Natural Area – 4, is located on a peninsula in northern Queens at the juncture of the East River and Long Island Sound. In addition to protecting ecologically significant features, it serves to preserve historically significant buildings, public open spaces, and scenic views, while achieving a balance between scale of development and the landscape. It is also designed to encourage specified public amenities and recreational facilities in new developments. *See* Section 105-944 and Appendix A. Underlying zoning includes very low density single-family housing, single or two-family detached and semi-detached housing, and a commercial district devoted to waterfront-related activities.⁴

Before other city agencies may issue a permit for a new building, addition to a building, or site alteration in one of the natural areas, the City Planning Commission must review the application and approve it. Section 105-02. (The City Planning Commission appears to have the functions of both D.C.'s Zoning Commission and Board of Zoning Adjustment. *See* www.nyc.gov/html/dcp/html/luproc/ulpro.html.) No natural feature may be removed, destroyed, or altered without the permission of the City Planning Commission. Section 105-20. This includes trees of 6" caliper and more. Section 105-423. In making its determination, the Commission must consider the proposal's effect on the natural feature itself and the ecology of the surrounding area. Section 105-50. Building or site alteration is allowed only in areas far enough removed from natural features "to avoid impairment of their existence, functions or beauty". Section 105-50 (f). Preservation of all natural vegetation in and around the natural feature is required. Section 105-50 (g). Where plant communities have been reduced, they must be restored. No site may be left denuded. *Id.* Vegetation that cannot be saved must be replaced. Section 105-30.

Increased lot size is required in areas with steep slopes to preserve their natural beauty, to prevent erosion, and to protect the quality of nearby water features. Section 105-50 (l). Steep slopes are defined as having an incline of 15% or greater. Section 105-11 (b)(1). (By comparison, a substantial portion of the proposed Forest Hills Overlay is characterized by slopes of 25% or greater. *See* Exhibit 1, page 1.) Section 105-50 (l) establishes a 12,500 square foot minimum lot area *per dwelling unit* in residential areas with substantially steep slopes. Thus, a lot with a single-family house would have to be 12,500 square feet or more; a

² Natural Area 2 can be viewed on electronic Maps 1a, 1b, 1c, and 1d.

³ Natural Area - 3 is shown on electronic Map 21d.

⁴ Natural Area – 4 can be found on electronic Maps 7d and the subplan on Map 11c.

two-family house would have to occupy a lot of at least 25,000 square feet; a four-unit apartment building would have to be on a lot of 50,000 square feet; and so on.

The way the Natural Area Resolution treats subdivisions of vacant residential lots also shows that New York considers larger lot size *per se* to be significant for environmental protection. Like applications for building construction and site alteration, applications for subdivision of lots must be reviewed and approved by the City Planning Commission to ensure that natural features are preserved as fully as possible. Section 105-90. If an applicant intending to subdivide a vacant residential lot is unable to prevail, the application may still proceed without the Commission's approval so long as the resulting lot area *per future dwelling unit* is at least 25,000 square feet and the applicant complies with the tree planting standards of Section 105-30 to provide one 4" caliper tree or greater for every 1,000 square feet of lot area. Section 105-20 (b) and (c).

II. Population and Density of New York City; Baltimore City; Washington, D.C.; and Richmond, Virginia

At the September 5 hearing, you asked for population data on the four cities that I had researched for minimum lot sizes. The following chart compares data from the 2000 Census for these cities.⁵ Because I could not find the current land areas for each city, I have used the land areas reported in the 1990 Census to compute the average density for each city.⁶

Jurisdiction	Total Population	Land Area in Square Miles	Density (Average Population per Square Mile)
New York City	8,008,278	308.9	26,404
Baltimore City	651,154	80.8	8,109
Washington, D.C.	572,059	61.4	9,317
Richmond	197,790	60.1	3,291

(Although I do not have population data for the R-1A zoned area within the proposed Forest Hills Overlay, its 11,088,718 square feet (0.4 square mile) represents only 0.65% of the total land area of the District of Columbia.)

New York City's current population is 14 times that of Washington. Because its land area is five times as large, though, it is less than three times as dense. Despite its overall high

⁵ See www.census.gov.

⁶ All information pre-dating the 2000 Census is from Campbell Gibson, *The Population of the 100 Largest Cities in the United States: 1790 to 1990*, Population Division, U.S. Bureau of the Census, Washington, D.C., June 1998.

density, New York reports that more than 12% of its land area is vacant and 20% is devoted to open space and outdoor recreation.⁷

New York has had the largest population of any city in the United States since the Census began in 1790. In fact, overwhelming development in lower Manhattan caused New York to enact its first Zoning Resolution in 1916. This Resolution served as a model for zoning ordinances in cities throughout the country.⁸ Even so, New York's population has continued to grow, reaching its highest level ever in 2000, after a drop off in population between 1970 and 1990.

During the early and mid-nineteenth century, Baltimore had the second highest population of any U.S. city. Its population has always been larger than Washington's, even when its land area was only half the size, as it was until 1918, when Baltimore annexed parts of Baltimore County. In fact, before this acquisition, Baltimore had a higher average density than New York City.

Until the mid-nineteenth century, the populations of Richmond and Washington were about the same. From that point on, though, Washington's population expanded rapidly, probably spurred by the Civil War and growth of the federal government, while Richmond's grew much more slowly. Land acquisitions between 1910 and 1920, 1940 and 1950, and 1960 and 1970 have contributed to make Richmond a much less dense city.

All four cities experienced rises in population each decade through 1950. Washington in particular grew substantially between 1930 and 1950, the years of the New Deal and World War II. After 1950, the populations of all four cities began to decline. Only New York has seen an upsurge since then, and that has occurred only in the last decade. Baltimore's decline in the last decade has been more marked than Washington's. Perhaps that is why Baltimore is using its website to market homes to people who work in Washington.⁹

Tables showing population data and average density for these four cities during the last century, as well as a graph of density trends, can be found at Attachment B.

Sincerely,



Cathy Wiss

Attachments (2)

⁷ See www.nyc.gov/html/dcp/html/lresource/lufacts.html.

⁸ See www.nyc.gov/html/dcp/html/zone/zonehis.html.

⁹ See www.ci.baltimore.md.us.

ATTACHMENT A

ZONING RESOLUTION Web Version

THE CITY OF NEW YORK



THE CITY OF NEW YORK
Michael R. Bloomberg, Mayor

CITY PLANNING COMMISSION
Amanda M. Burden, Director

Article X: Special Purpose Districts Chapter 5: Special Natural Area District

Effective date of most recently amended section of Article X Chapter 5: 7/26/01

Corrections: 105 (Contents), 105-022 (del.), 105-20, 105-43, 105-701, 105-944



Date of file creation: Web version of Article X Chapter 5: 7/10/02

CITY PLANNING COMMISSION
nyc.gov/planning

DEPARTMENT OF CITY PLANNING
©Copyright 2002 NYC Department of City Planning

12/19/74

Article X - Special Purpose Districts

Chapter 5

Special Natural Area District

Table of Contents

GENERAL PURPOSES.....	105-00
Definitions.....	105-01
General Provisions.....	105-02
NATURAL FEATURES.....	105-10
Description of Natural Features.....	105-11
PROTECTION OF NATURAL FEATURES.....	105-20
SPECIAL PROVISIONS FOR PLANTING.....	105-30
SPECIAL REVIEW PROVISIONS.....	105-40
Certification.....	105-41
Authorization.....	105-42
Special Permits.....	105-43
Conditions for Certification, Authorization or Special Permits.....	105-44
Compliance with the Special Review Provisions	105-45
REGULATIONS FOR PROTECTION OF NATURAL FEATURES.....	105-50
MAINTENANCE OF NATURAL FEATURES.....	105-60
SPECIAL REGULATIONS FOR RESIDENTIAL DEVELOPMENT.....	105-70
JOINT APPLICATIONS.....	105-80
FUTURE SUBDIVISION.....	105-90
Special District Designation on Public Parks.....	105-91
Special Provisions for City-owned Lands.....	105-92
Inter-agency Coordination.....	105-93
Special Natural Area Districts Specified.....	105-94

12/19/74

105-00

GENERAL PURPOSES

The "Special Natural Area District" (hereinafter also referred to

as the "Special District"), established in this Resolution, is designed to promote and protect public health, safety and general welfare. These general goals include, among others, the following specific purposes:

- (a) to guide development in areas of outstanding natural beauty in order to protect, maintain and enhance the natural features of such areas;
- (b) to preserve land having qualities of exceptional recreational or educational value to the public;
- (c) to protect aquatic, biologic, geologic and topographic features having ecological and conservation values and functions;
- (d) to limit erosion associated with development by conservation of vegetation and protection of natural terrain; and
- (e) to promote the most desirable use of land and the direction of building development in accordance with a well-considered plan, to promote stability of residential development, to promote the character of the district and its peculiar suitability for particular uses, to conserve the value of land and buildings, and to protect the City's tax revenues.

12/19/74

105-01

Definitions

Definitions specially applicable to this Chapter are set forth in this Section. The definitions of other defined terms are set forth in Section 12-10 (DEFINITIONS).

Development

For the purposes of this Chapter, a "development" includes the construction of a new #building or other structure# on a #zoning lot#, the relocation of an existing #building# on another #zoning lot#, the #use# of a tract of land for a new #use#, or an #enlargement# of a non-#residential building# or portion thereof.

To "develop" is to create a #development#.

Natural feature

A "natural feature" is a specific natural feature belonging to one of the types listed in Section 105-10 (NATURAL FEATURES) and existing within a #Special Natural Area District#.

Site alteration

A "site alteration" is an alteration on any vacant tract of land, #land with minor improvements# or any tract of land containing non-#residential building# which includes land contour work, topographic modifications, removal of top soil, vegetation, excavating, filling, dumping, changes in existing drainage systems, improvements in public rights-of-way, relocation of erratic boulders or modification of any other #natural features#, whether or not a permit is required from the Department of Buildings, the Department of Transportation or other public agencies.

In all #Special Natural Area Districts# other than the NA-3 District, the requirements set forth herein shall not apply to any #site alteration# on a #zoning lot# of less than 40,000 square feet containing #residential buildings# on the effective date of the Special District designation.

Special Natural Area District (repeated from Section 12-10)

The "Special Natural Area District" is a Special Purpose District designated by the letters "NA", in which special regulations set forth in Article X, Chapter 3 apply to all #developments# or #site alterations#. The #Special Natural Area District# appears on the #zoning maps# superimposed on other districts, and its regulations supplement or modify those of the districts on which it is superimposed. The #Special Natural Area District# includes any district whose designation begins with the letters "NA".

#Special Natural Area Districts# may be mapped only in areas where outstanding #natural features# or areas of natural beauty are to be protected. The preservation of such areas is important because they contain areas of special ecological significance: interesting geologic formations such as rock outcrops, unique aquatic features such as tidal wetlands, unique topographic features such as palisades, valleys, and hills, important plant life such as glaciated oak-chestnut forests or because they serve as habitats for native flora and fauna. A #Special Natural Area District# may include one or more #natural features#.

A #public park# may be included in a #Special Natural Area District# only where it is a part of a designated larger natural

ecological system.

12/19/74

105-02

General Provisions

In harmony with the general purpose and intent of this Resolution and the general purposes of the #Special Natural Area District#, the regulations of the districts upon which this Special District is superimposed are supplemented or modified in accordance with the provisions of this Chapter, in order to protect outstanding #natural features# described herein. Except as modified by the express provisions of this Chapter the regulations of the underlying district remain in effect.

The provisions of this Chapter shall apply to:

- (a) any #development# on a #zoning lot#;
- (b) any #site alteration# on a #zoning lot#;
- (c) any subdivision of a #zoning lot# existing on the effective date of the Special District designation into two or more #zoning lots#; and
- (d) any public improvement projects located within the #Special Natural Area District#, which shall be subject to the provisions of Sections 105-92 and 105-93, except for any such projects which were approved by the Board of Estimate prior to the effective date of the Special District designation.

Prior to issuance by the Department of Buildings, Department of Transportation, Department of Environmental Protection or other city agencies, of a permit for any #development# or #site alteration# within a #Special Natural Area District#, or for any #site alteration# for which no permit is required by the Department of Buildings, Department of Transportation, Department of Environmental Protection or other city agencies, an application shall be submitted to the City Planning Commission for review and approval pursuant to Section 105-40 (SPECIAL REVIEW PROVISIONS). When a #zoning lot# existing on the effective date of the Special District designation is subdivided into two or more #zoning lots#, an application shall be submitted to the Commission for review and approval pursuant to Section 105-90 (FUTURE SUBDIVISION).

Nothing contained in this Chapter shall be understood to supersede scenic landmark designations of the New York City Landmarks Preservation Commission.

Except in the #Special Natural Area District#-3 (NA-3), the provisions of this Chapter shall not apply to a #zoning lot# for which a building permit application was filed prior to October 15, 1974 with the Department of Buildings, and building permits pursuant thereto are issued no later than October 15, 1975, provided that such #zoning lot# is not modified in size, that there are no substantial amendments to building plans after October 15, 1974 and that substantial construction of foundations has been completed by October 15, 1977.

For #site alterations# on a #zoning lot# of more than 40,000 square feet containing #residential buildings# on the effective date of the #Special Natural Area District# designation, a plan for such #site alterations# shall be filed by the owner of the #zoning lot# with the Commission for approval. In the event such #site alteration# work has impact on the #natural features# existing on the #zoning lot#, the Commission may require the applicant to comply with the provisions of Section 105-021 (Requirements for application) and Section 105-40 of this Chapter.

6/23/77

105-021

Requirements for application

An application to the City Planning Commission for certification, authorization or special permit respecting any #development# or #site alteration#, to be made within any #Special Natural Area District#, shall include the following:

- (a) a survey map prepared by a registered surveyor showing topography at two foot intervals, location, caliper and species of individual trees of 6 inch caliper or more, location of geologic features, boundaries of steep slopes, aquatic features, and botanic environments, as enumerated in Section 105-11 (Description of Natural Features);
- (b) photographs showing the location and condition of such #natural features# for verification with pre-existing aerial survey and/or other photographs for each #Special Natural Area District#;
- (c) site plans showing the proposed #site alteration# or

#development#;

- (d) a drainage plan and soil report prepared by a registered engineer, when necessary to assess whether or not there will be major impact on #natural features#; and
- (e) any other information necessary to evaluate the request.

For a #site alteration# or #development# within any #Special Natural Area District#, the Commission may modify one or more requirements set forth in paragraphs (a) through (d) of this Section, when such modification is requested by the applicant in writing and when the Commission determines that the requirements are unnecessary for evaluation purposes.

Appendix B should be used as a guide to assist in the preparation of the surveyor's map required in this Section.

The applicant's submission shall also include a statement admitting authorized Department of City Planning personnel to the site for the purposes of recording or verifying survey data.

The Commission shall act within 60 days after receipt of a completed application. Where a permit is required for a #development# or #site alteration# within a #Special Natural Area District# from any City agency, an application for such permit shall be filed simultaneously with such agency and the Commission.

In the event a City agency involved in issuing permits has failed to act or there is disagreement among agencies concerning requirements within their jurisdiction for a #development#, the matter shall be resolved pursuant to Section 105-93 (Inter-agency Coordination), within 90 days after the application is filed by the Director of the Department of City Planning with the Inter-agency Board of Conservation of Natural Features.

12/19/74

105-023

Relationship to public improvement projects

In all cases, the City Planning Commission shall deny application, whenever the #development# or #site alteration# will interfere with a public improvement project (including highways, public buildings or facilities, redevelopment or renewal projects, or rights-of-way for sewers, transit or other public facilities) which has been approved by the Board of Estimate, the

City Planning Commission or the Site Selection Board.

12/19/74

105-10

NATURAL FEATURES

6/23/77

105-11

Description of Natural Features

All #natural features# shall be significant in terms of age, size, composition, function, structure, history, association, location, ecological value or educational interest. The preservation of the #natural features# may be necessary in order to maintain ecological balance in the area.

The protection of one #natural feature# may require the protection of another which is closely linked to it. The preservation of #natural features# may also be necessary to avoid such adverse conditions as flooding, erosion or hazards to private property. All vegetation is part of a botanic environment or part of an aquatic feature and shall be considered as a #natural feature# protected by the regulations of this District. For the purposes of this Chapter, vegetation includes all forms of plant material, including but not limited to trees, shrubs, vines, ferns, grasses, herbs and other plant life.

All #natural features# defined in this Section and further described in Appendix B shall be protected by the provisions of this Chapter.

(a) Geologic features

(1) Rock outcrop

A rock outcrop is the portion of a rock formation which appears at the surface of the earth.

(2) Geologic deposit

A geologic deposit is a mass of material which has been placed, shaped or created by the actions of wind, water, ice, gravity, vulcanism, pressure or temperature, either alone or in combination. Such

deposits are to include erratic boulders, glacial formations, mineral deposits or semi-precious stones.

(b) Topographic features

(1) Steep slope

A steep slope is ground which has an incline of 15 percent or more.

(2) Existing natural topography

Existing natural topography is the ground elevation of land existing at the time of designation of a #Special Natural Area District#.

(3) Topsoil

Topsoil is generally the top six inches of soil containing undisturbed humus and organic matter capable of sustaining vigorous plant growth.

(c) Aquatic features

(1) Laminarian zone

A laminarian zone is that land under the surface of salt water from the mean low tide mark to the depth of 15 fathoms. The portion of laminarian zone to be protected by the provisions of this Special District extends to the pierhead line, or to the shoreline where no pierhead line has been established.

(2) Beach

A beach is a tract of relatively flat, sandy or gravelly land, without visible vegetation, forming the shore of a large body of water.

(3) Tidal wetland and saltwater littoral zone

A tidal wetland or saltwater littoral zone is that land which is regularly covered by tidal waters and its spray.

(4) Swamp

A swamp is a wet woodland, the soil of which is typically waterlogged or often covered with water.

(5) Marsh

A marsh is a wet prairie which has waterlogged soil during the growing season (from last spring frost to first fall frost) and is often covered with shallow water.

(6) Bog

A bog is a tract of waterlogged land without natural drainage.

(7) Meadow

A meadow is a tract of land which is waterlogged to within a few inches of the surface and may have temporary ponds during the non-growing season (between the first fall frost and first spring frost).

(8) Creek, stream or brook

A creek, stream or brook is a free flowing fresh watercourse on soil, gravel or rock which drains a watershed.

(9) Lake or pond

A lake or pond is a body of fresh or salt water standing year round.

(10) Natural spring

A natural spring is a point source of water exiting from the surface of the earth or rock.

(d) Botanic environments

(1) Primary succession community area

A primary succession community area is a tract of land characterized by species which can tolerate extreme environmental conditions and provide initial protection for less tolerant forms of life. These species are usually annuals and herbaceous.

(2) Secondary succession community area

A secondary succession community area is a tract of land characterized by short-lived trees and shrubs as well as grasses and herbaceous material. These species

are less tolerant than primary succession community species but provide a greater diversity and range of protection from the sun, wind and rain.

(3) Climax community area

A climax community area is a stable association of plants and animals which will perpetuate itself indefinitely with minor variation in the group of associated plants. The climax community area in New York City is the glaciated oak-chestnut association, which is part of the eastern hardwood deciduous forest.

(4) Dune or heathland

A dune or heathland is a tract of windblown and wind- or water-shaped sandy land with such characteristic species as beach grass and beach heather.

(5) Wild grassland

A wild grassland is an area whose vegetation is primarily of wild grass species.

The #natural features# defined in this Section are described in Appendix B.

7/26/01

105-20

PROTECTION OF NATURAL FEATURES

All #natural features# within a #Special Natural Area District# shall be protected by the regulations of this Chapter in accordance with the provisions set forth in Sections 105-02 (General Provisions) and 105-50 (REGULATIONS FOR PROTECTION OF NATURAL FEATURES).

Except for any existing #natural feature# which is unsafe and the removal of which is required by the Department of Buildings to eliminate hazardous conditions, no #natural features# described in Section 105-11 (Description of Natural Features) shall be removed, destroyed or altered unless permitted by certification, authorization or special permit of the City Planning Commission pursuant to Section 105-40 (SPECIAL REVIEW PROVISIONS).

Where a special permit or authorization pursuant to Sections 105-421, 105-422, 105-423, 105-432 or 105-433 is not granted to an

applicant with respect to a #zoning lot# which as of December 1, 1980 contained no #developments#, the restrictions imposed by the provisions of Section 105-20 shall not apply to that portion of the #natural feature# affected, provided that:

- (a) all future #developments# or #site alterations# shall have a resulting density of not less than 25,000 square feet or the actual area of the #zoning lot# in existence on December 1, 1980, whichever is smaller;
- (b) any future subdivisions pursuant to Section 105-90 shall have a resulting #lot area per dwelling unit# of not less than 25,000 square feet; and
- (c) all future #developments# or #site alterations# shall comply with the tree planting standards specified in Section 105-30, whether or not existing vegetation is removed as a result of such #development# or #site alteration#.

12/15/77

105-30

SPECIAL PROVISIONS FOR PLANTING

Any vegetation that cannot be saved as a result of #site alteration# or #development# shall be replaced with alternate vegetation to be approved by the City Planning Commission. The replanting of elements of vegetation which are parts of an association or community shall be such as to reestablish, as rapidly as is reasonable, the vigor and character of the association. When necessary to establish ecological balance, the Commission may also require additional vegetation to be planted.

For the purposes of this Section, the following minimum standard shall apply for tree planting:

For any #development# within a #Special Natural Area District#, trees of at least four inch caliper, pre-existing or newly planted, shall be provided on the #zoning lot# at the rate of one tree for each 1,000 square feet of #lot area# or portion thereof.

For any existing tree of at least 6 inch caliper which is preserved, credit for one tree shall be given for the first six inch caliper for the purpose of this Section, and for each additional four inches of caliper, credit for one additional tree shall be given.

Trees newly planted to meet this requirement shall be of a species selected from Appendix B and acceptable from the standpoint of hardiness, appearance and habit of growth suitable to the site.

The Commission may grant a waiver of the tree planting requirements by certification to the Department of Buildings, where the Commission finds that the ecology of the site is such that the substitution of other plant material would be more appropriate than the tree planting requirements and a detailed plan for planting has been filed with the Commission for its approval.

Where trees are planted pursuant to this Section prior to April 1, 1978, such planting may be undertaken in accordance with the tree caliper requirements existing prior to the effective date of this amendment.

The planting of species shall not be limited to woody plant materials, but shall include trees, shrubs, vines, ferns, grasses, herbs, annuals, biennials, perennials, mosses, and other associated vegetation. All vegetation to be planted shall be either of the species which characterized the area's biological community prior to #site alteration# or #development#, or of an alternate biologic community found in the area. Species selection shall give particular attention to the relationship of the species to each other and to the surrounding plant community and to the quality of the soil and the vertebrate and invertebrate populations associated with and dependent upon the proposed plants. The goal is to maintain, reinforce and increase the diversity and stability of the plant and animal population which characterize the #Special Natural Area District#.

6/23/77

105-40

SPECIAL REVIEW PROVISIONS

The provisions of this Section shall apply to all #developments# or #site alterations# located within a #Special Natural Area District#.

Prior to the issuance by the Department of Buildings of any permit for a #development# or #site alteration# within a #Special Natural Area District#, the Commission shall certify to the Department of Buildings that the #development# or #site alteration# is approved pursuant to Sections 105-41, 105-42 or 105-43.

The provisions of Article VII, Chapter 8 (Special Regulations Applying to Large-Scale Residential Developments) shall apply to all #developments# except as modified by the provisions of Section 105-701 (Applicability of large-scale residential development regulations).

12/19/74

105-41

Certification

When it is not necessary for the applicant for a #development# or #site alteration# to apply for an authorization or special permit, the City Planning Commission shall certify to the Department of Buildings that no authorization or special permit is required pursuant to this Chapter.

Where #natural features# are to be protected and maintained under Section 105-60 (MAINTENANCE OF NATURAL FEATURES), the Commission shall indicate in the certification specific conditions and safeguards appropriate to the designated area.

12/1/77'

105-42

Authorization

For a #development# or #site alteration# located within the #Special Natural Area District#, the City Planning Commission may authorize:

- (a) modification of existing natural topography pursuant to Section 105-421 (Modification of existing topography; or
- (b) relocation of erratic boulders pursuant to Section 105-422 (Relocation of erratic boulders); or
- (c) alteration of botanic environments pursuant to Section 105-423 (Alteration of botanic environments or removal of trees); or
- (d) alteration of #natural features# other than existing topography, erratic boulders or botanic environments, pursuant to Section 105-424 (Alteration of natural features), in NA-1 and NA-3 Districts.

12/19/74

105-421

Modification of existing topography

The natural topography existing at the time of designation of a #Special Natural Area District# may be modified by the City Planning Commission provided that the Commission finds:

- (a) that #development# is not feasible without such modification;
- (b) that such modification, including any removal of top soil, will not disturb the drainage pattern and soil conditions in the area; and
- (c) that such modification of topography has minimal impact on the existing natural topography of the surrounding area and blends harmoniously with it.

Where permits are required from a city agency, the Commission shall request a report from such agency, and the provisions of Section 105-93 (Inter-agency Coordination) apply.

12/19/74

105-422

Relocation of erratic boulders

No erratic boulder with a diameter at any point of six feet or more may be moved from its location at the time of designation of a #Special Natural Area District# to another location within the Special District during #development# or #site alteration# except in compliance with the provisions of this Section.

Prior to the moving of an erratic boulder from its present location to a location elsewhere within the #Special Natural Area District#, an application shall be filed with the City Planning Commission showing the present location and the proposed location. Moving of an erratic boulder will be permitted only by authorization of the Commission under the following circumstances:

- (a) where such a boulder is located in an area to be occupied by #buildings#, driveways, parking areas or recreation areas and it is not possible to avoid such location by minor adjustments in the arrangement of such #buildings#,

driveways, parking areas or recreation areas on the site;

- (b) where the boulder's continued existence in its present location would create hazards or dangers; and
- (c) where authorizations granted by the Commission under the provisions of this Chapter require or clearly contemplate the boulder's relocation from its present position.

In issuing authorization under this Section, the Commission shall require an appropriate relocation site, visible, if possible, from a public #street#, park, or public place, preferably on the #zoning lot# or elsewhere within the #Special Natural Area District#. The Commission may prescribe appropriate conditions to enhance the setting of the relocated boulder and safeguards to protect the character of the #Special Natural Area District#.

6/23/77

105-423

Alteration of botanic environments or removal of trees

No portion of a botanic environment shall be altered or land operations affecting botanic environments undertaken by or on behalf of present or future applicants for permits except in compliance with the provisions of this Section.

No individual tree of six inch caliper or more shall be removed without authorization of the City Planning Commission.

Prior to any such removal, alteration or land operation, applications shall be filed with the Commission showing the location of all botanic environments indicated in Section 105-11 (Description of Natural Features) and trees of six inch caliper or more, and identifying those which are proposed to be removed or altered. Alteration or removal of existing plant material will be permitted only by authorization of the Commission under the following circumstances:

- (a) where plant material is located in areas to be occupied within a distance of 8 feet of the exterior dimension of such facilities, and it is not possible to avoid such location by minor adjustments in the arrangement of such #buildings#, driveways, parking areas, utility lines or recreation areas on the site. If necessary to permit the construction of such facilities, exceptions may be made to allow the removal of individual plant material located up to a distance of not more than 15 feet from the exterior

dimension of such facilities; or

- (b) where plant material is located in areas which require excessive cut or fill of land deemed inimical to plant survival; or
- (c) where the plant material's continued presence would create hazards or dangers (such as an area affected by storm or plant disease) to persons, property or other plant material which it would not be possible or practical to eliminate by pruning; or
- (d) where authorizations granted by the Commission under the provisions of this Chapter require or clearly contemplate the plant material's alteration or removal.

In issuing authorizations under this Section, the Commission may prescribe appropriate conditions and safeguards to protect the character of the #Special Natural Area District#.

12/1/77

105-424

Alteration of other natural features

In #Special Natural Area Districts#-1 (NA-1) or 3 (NA-3), alteration of all #natural features# other than existing topography, erratic boulders or botanic environments for which alteration, modification or relocation is authorized pursuant to Sections 105-421 (Modification of existing topography) or 105-422 (Relocation of erratic boulders) or 105-423 (Alteration of botanic environments or removal of trees), may be permitted by authorization of the City Planning Commission where #development# is not feasible without such alteration or where such alteration is necessary to protect the health and safety of the site occupants.

As a condition for such alteration, the Commission shall find that the #development# as authorized will result in the minimum #natural feature# interference that must be permitted in order to allow reasonable #development# and #bulk# distribution under the regulations of the underlying district.

The Commission shall impose appropriate conditions and safeguards to assure protection of the portions of the area to be preserved in their natural state.

Where permits are required from a city agency for any work

affecting #natural features#, the Commission shall request a report from such agency and the provisions of Section 105-93 (Inter-agency Coordination) apply.

In the event alteration of a #natural feature# is found inappropriate, the Commission may treat an application under this Section as an application for modification of #yard# and height and setback regulations under Section 105-432.

12/1/77

105-43

Special Permit

For any #development# or #site alteration# within the Special District, the City Planning Commission may grant special permits for modification of the underlying district regulations in accordance with the provisions of Section 105-431 to Section 105-434, inclusive.

6/30/89

105-431

Modification of use regulations

In addition to any #use# modifications which may be granted under the provisions of Section 105-701 (Applicability of large-scale residential development regulations), the City Planning Commission may grant special permits to allow #semi-detached# or #attached single-family residences# in R2 Districts and #attached single-# or #two-family residences# in R3-1 Districts.

Furthermore, except in the #Special Natural Area District#-1 (NA-1), the Commission may grant special permits to allow #semi-detached# or #attached single-family residences# in R1-2 Districts provided that the #development# is on a tract of land of at least four acres. As a condition for granting such special permits the Commission shall find:

- (a) that the preservation of #natural features# requires the permitted #development# to be concentrated to the extent feasible in the remaining portion of the tract;
- (b) that for such concentration of #development#, better standards of privacy and usable #open space# can be and are achieved under the development plan by inclusion of the

proposed #residential building# types;

- (c) that the change of housing type requested constitutes the most effective method of preserving #natural features#;
- (d) that the #aggregate width of street walls# of a number of #residential buildings# separated by party walls shall not exceed 100 feet;
- (e) that the proposed #street# system for the #development# is so located as to draw a minimum of vehicular traffic to and through #streets# in the adjacent area; and
- (f) that the existing topography, vegetation and proposed planting effectively screen all #attached single-family residences# from the #lot lines# along the #development# perimeter.

6/30/89

105-432

Modification of yard, height and setback regulations, and parking location regulations

For any #development# which does not qualify under provisions of Section 105-701, the City Planning Commission may authorize variations in required #front#, #rear# or #side yards#, location of parking, driveways or curb cuts and required space between #buildings# on the same #zoning lot#, and may modify height and setback regulations for the purpose of preserving #natural features# if the Commission finds that the proposed placement of #buildings# and arrangement of #open spaces# will not have significant adverse effects upon the light, air and privacy for existing #development# in adjacent areas or the opportunities therefor in future #development# and will preserve significant #natural features#. The Commission may condition such authorizations upon the joint submission of acceptable plans for #development# of two or more adjacent #zoning lots# by the owners thereof.

12/1/77

105-433

Alteration of natural features

In #Special Natural Area District#-2 (NA-2), alterations of all

#natural features# other than existing topography, erratic boulders or botanic environments, for which alteration, modification or relocation is authorized pursuant to Sections 105-421 (Modification of existing topography), 105-422 (Relocation of erratic boulders) or 105-423 (Alteration of botanic environments or removal of trees) may be granted by special permit of the City Planning Commission where #development# is not feasible without such alteration or where alteration is necessary to protect the health and safety of the site occupants. As a condition for such alteration, the Commission shall find that the #development#, as authorized, will result in the minimum #natural feature# interference that must be permitted in order to allow reasonable #development# and #bulk# distribution under the regulations of the underlying district.

The Commission shall impose appropriate conditions and safeguards to assure protection of the portions of the area to be preserved in their natural state.

Where permits are required from a city agency for any work affecting #natural features#, the Commission shall request a report from such agency and the provisions of Section 105-93 (Inter-agency Coordination) shall apply. In the event alteration of a #natural feature# is found inappropriate, the Commission may treat an application under this Section as an application for modification of #yard# and height and setback regulations under Section 105-432.

7/26/01

105-434

Natural area dedicated for public use

Where commonly or separately owned areas containing #natural features# of exceptional recreational, cultural or educational value to the public are dedicated to the City, without any cost to the City, pursuant to Section 105-701 (Applicability of large-scale residential development regulations), the City Planning Commission may by special permit allow, where appropriate, such portion of the #zoning lot# to be included in the zoning computation for #floor area#, #open space#, #lot coverage#, density regulations and other #bulk# computations.

6/30/89

105-44

Conditions for Certification, Authorization or Special Permits

The City Planning Commission may certify or grant authorization or special permit for any #development# or #site alteration# within the #Special Natural Area District#, provided the #development# or #site alteration# complies with the provisions of the following Sections:

Section 105-50 (REGULATIONS FOR PROTECTION OF NATURAL FEATURES)

Section 105-60 (MAINTENANCE OF NATURAL FEATURES)

Section 105-70 (SPECIAL REGULATIONS FOR RESIDENTIAL DEVELOPMENT)

Section 105-80 (JOINT APPLICATIONS)

The provisions of Section 105-50 establish regulations for Commission review of #development# or #site alteration# plans from the standpoint of the protection they afford to #natural features#. Plans which are deficient in this regard may be rejected or required to be modified, even though they comply with all other applicable regulations of this Chapter.

The provisions of Section 105-60 establish requirements for the maintenance of #natural features#. Approval of development plans subject to such requirements is conditioned upon the Commission's approval of a maintenance plan.

Section 105-70 deals with the Commission's power to grant modifications of the applicable regulations of the underlying districts for predominantly #residential developments# so as to permit greater flexibility in the location of #buildings# and parking, driveways and curb cuts, in the distribution of #bulk#, density and #open space# or #lot coverage# and thereby facilitate the protection of #natural features# or the preservation of natural terrain.

As a condition for certification, authorization or issuance of a special permit by the Commission, the Commission shall find that all proposed #developments# or #site alterations# blend harmoniously with the #natural features# and topography of the surrounding area within a #Special Natural Area District#.

6/23/77

105-45

Compliance with the Special Review Provisions

On any #zoning lot# to which the provisions of Section 105-02 (General Provisions) apply, no #natural features# as described in Section 105-11 (Description of Natural Features) or any other vegetation shall be removed, altered, relocated or replaced without prior approval by the City Planning Commission as set forth in Section 105-40 (SPECIAL REVIEW PROVISIONS) of the #Special Natural Area District#.

In the event that any such features are removed, altered, relocated or replaced from a #zoning lot# without prior approval by the Commission, the Commission may specify the manner of their replacement or restoration. If trees are to be planted, the Commission may require that they be six inches in caliper.

A copy of the Commission's requirements for the replacement or restoration of the #natural features# shall be issued to the owner of the #zoning lot# containing such violations and to the Department of Buildings.

Upon receipt of the Commission's restoration requirements, the Department of Buildings shall require the owner of the #zoning lot# to remove the violations in accordance with the requirements set forth by the Commission. If such violations have not ceased within 90 days of receipt of the Commission's requirements, the Department of Buildings shall institute such action as may be necessary to terminate the violations. For compliance with new planting requirements to remove violations, the Department of Buildings may allow an additional 90 days.

No building permit or certificate of occupancy shall be issued by the Department of Buildings for any #development#, #enlargement# or #use# on such #zoning lot# until the violations are removed from the #zoning lot# in accordance with the Commission's requirements.

5/21/75

105-50

REGULATIONS FOR PROTECTION OF NATURAL FEATURES

The provisions of this Section establish regulations for City Planning Commission review of #development# or #site alteration# plans from the standpoint of the adequacy of protection for #natural features# with a #Special Natural Area District#.

These regulations are to be used by the Commission in reaching a determination whether to approve #development# or #site

alteration# plans filed pursuant to Sections 105-41 (Certification), 105-42 (Special Authorizations) or 105-43 (Special Permits).

The Commission, where appropriate, shall be guided by the reports from other city agencies involved in land contour work, storm water drainage systems and similar operations affecting #natural features#.

In determining the necessary alteration of #natural features# or extent of modifications involved in a #development# or #site alteration#, the Commission shall be guided by the effect of any alteration of a #natural feature# on the total ecological process of the surrounding natural environment including the following: the effect of such alteration on the existing topography, soil conditions, erosion, natural flow of water and drainage, water quality, animal, plant and marine life.

Further guidelines for the protection of #natural features# are listed below:

- (a) No #natural feature# shall be moved, removed, covered, diminished, broken or disfigured, unless permitted pursuant to the provisions of Section 105-40. Furthermore, topsoil shall neither be removed from the surface of any #zoning lot# nor covered with inferior material unless permitted pursuant to Section 105-21 (Modification of Existing Topography). Where existing topography is altered without prior authorization of the Commission, the Commission may require new grading or other topographical modifications or surface improvement to reestablish the viability and function of the soil as a growing medium, and as a drainage surface, in order to permit the site to blend harmoniously with the surrounding area of the Special District.
- (b) Filling, excavating, draining, dredging, grading and contouring shall be staged and controlled so as to minimally impair the function, composition, vitality and existence of #natural features#. When and where possible, such operations shall be done in a manner so as to maintain or improve the biological system and individual features on the site.
- (c) All filling, excavating, draining, dredging, grading and contouring shall avoid creation of steep slopes or conditions causing erosion, loss of fertility of soil, health or safety hazards, and shall be done in conformance with the limits and nature of the soil involved.
- (d) All land operations including filling, excavating, draining,

dredging, grading and contouring shall be limited to those operations which maintain or restore natural drainage, cause a minimum disturbance of the #natural features# and their setting while providing for the #development# or #site alteration# or permitted #uses#.

- (e) No #development# or #site alteration# shall be such as to impede or change the quality, turbidity, temperature or chemical composition of natural drainage or aquatic features.
- (f) A #development# or #site alteration# shall be permitted only in areas sufficiently removed from the #natural features# to avoid impairment of their existence, functions or beauty.
- (g) There shall be maximum preservation of all natural vegetation in and adjacent to the #natural features# found on the site. Plant communities which have been substantially reduced in area or composition as a result of a #development# or #site alteration# shall be restored, extended or replaced by alternative plant materials with an adequate maintenance program. In no case shall the site be allowed to be denuded and without vegetational cover upon completion of the #development# or #site alteration#.
- (h) Replacement of any #natural feature# and planting of new vegetation on a site in the Special District shall be such as to extend, reinforce, increase the diversity, function and vitality of an association or community in the area. Special attention shall be given to symbiotic relationships between plants and the relationship between vegetation to be planted and animal populations which are dependent upon or related to the proposed vegetation. Where appropriate, planting shall include trees, shrubs, vines, ferns, grasses, herbs, annuals, biennials, perennials, mosses, and other associated vegetation.
- (i) Adequate provision shall be made for proper management and maintenance of #natural features# and their immediate surroundings to avoid pollution, loss of vigor, reduction in composition or function or other ecological damage.
- (j) Where appropriate, when a portion of a #natural feature# or its function must be altered, such alteration shall not only reinforce the function, vitality and existence of the remaining portion of the #natural feature# but also improve conditions for other #natural features#. This shall apply particularly but not exclusively to the removal and replanting of plant materials.

- (k) Where appropriate, a #development# or #site alteration# shall be such as to leave #natural features# intact in their natural setting and, where feasible, visible from public #streets# or places.
- (l) For a steep slope, the primary concerns are the preservation of natural beauty and the prevention of hillside erosion, landslide, and excessive runoff. Additional concerns arise where the steep slope area is part of the watershed of a creek, stream, brook, lake, pond or swamp. Accordingly, these additional requirements apply:

In all #Residence Districts#, for #residential developments#, on individual #zoning lots# substantially within a steep slope area, the #lot area per dwelling unit# requirement shall not be less than 12,500 feet. Except in R1 Districts located in the #Special Natural Area District#-1 (NA-1), the Commission may, for a tract of land of at least 4.0 acres substantially within the steep slope area, modify, by authorization, the #lot area per dwelling unit# requirement set forth above, for the steep slope area and may allow #development# to be concentrated in clusters to preserve the steep slope areas in their natural state, provided that such clusters are located to the extent feasible in areas of comparatively flat topography and will not require unnecessary grading on adjacent slopes or the creation of new steep slopes.

In no event shall the #lot area per dwelling unit# requirement be less than the amount required by the underlying district regulations.

Existing vegetational cover in steep areas shall not be removed, destroyed or damaged except pursuant to #development# and grading plans approved by the Commission. An objective of such plans shall be to fit #street# layouts and #building# designs to the natural terrain, limit grading to a practical minimum and provide for maximum preservation of the natural terrain and vegetational cover.

12/19/74

105-60

MAINTENANCE OF NATURAL FEATURES

For any #development# or #site alteration# on a tract of land

within a #Special Natural Area District#, the City Planning Commission may require a maintenance plan for a #natural feature#. Where a maintenance plan is required, approval of the development plan and the granting of certification, authorizations or special permit shall be conditioned upon the Commission's approval of the maintenance plan.

The maintenance plan shall specify what the maintenance is to consist of and whose responsibility it will be, and shall provide assurance that maintenance will be satisfactorily executed. The Commission, in considering the maintenance needs of a particular #natural feature# and the content of an acceptable maintenance plan shall, where appropriate, refer all relevant plans to the Landmarks Preservation Commission, Department of Parks or other City agency with primary responsibilities in natural areas conservation, for its report thereon. The Commission shall, in its determination, give due consideration to any such report submitted within one month from the date of referral. If such City agency does not report within one month, the Commission may make a final determination without reference thereto.

For #natural features# for which the Commission determines that specialized maintenance and regulated public #use# are appropriate, the maintenance plan may provide for dedication of the #natural feature# to the City or an approved private conservation organization for responsible maintenance in the public interest.

12/19/74

105-70

SPECIAL REGULATIONS FOR RESIDENTIAL DEVELOPMENT

In order to carry out the purposes of this Chapter all #developments# used predominantly for #residential use# shall be subject to the provisions of this Section.

5/21/75

105-701

Applicability of large-scale residential development regulations

The provisions of Article VII, Chapter 8 (Special Regulations Applying to Large-Scale Residential Developments) shall apply except as modified by the provisions of this Section.

Any #development# used predominantly for #residential uses# shall be treated as a #large-scale residential development#, and authorizations or special permits for such #development# may be granted in accordance with the provisions of Article VII, Chapter 8, as modified herein or in Section 105-80 (JOINT APPLICATIONS), regardless of whether such #development# will have the area, number of #buildings# or number of #dwelling units# specified in the definition of #large-scale residential development# as set forth in Section 12-10 (DEFINITIONS).

However, in R1 Districts located in the #Special Natural Area District#-1 (NA-1), no modification of minimum required #lot area# as set forth in Section 23-32 (Minimum Lot Area or Lot Width for Residences) shall be allowed for any #development# pursuant to paragraph (c) of Sections 78-311 (Authorizations by the City Planning Commission) or 78-32 (Bonus for Good Site Plan) but modifications of required #front# or #rear yards# and height and setback regulations on the periphery of such #development#, pursuant to paragraphs (c) and (d) of Section 78-312 (Special permit authorizations), shall apply. Modification of #side yards# of all #developments#, including #developments# in R1 Districts, shall be subject to the provisions of Section 105-432 (Modification of yard, height and setback regulations, and parking location regulations).

Bonuses which may be granted for #large-scale residential developments#, pursuant to Section 78-32 (Bonus for Good Site Plan) through Section 78-35 (Special Bonus Provisions), may not be granted for #developments# which have less than 10 acres and less than the number of #buildings# or number of #dwelling units# required by the definitions of a #large-scale residential development#.

Commonly or separately owned areas containing #natural features# may qualify as common #open space# for purposes of satisfying #open space# requirements in #residential developments#.

Approval by the Commission of a development plan incorporating #natural features# as common #open space# shall be conditioned upon the findings required in Sections 78-313 (Findings) and 78-52 (Common Open Space) with respect to the qualification of areas as common #open space# and upon additional findings that appropriate safeguards are provided for the protection and preservation of such #natural features#. In the case of #natural features# which are determined to have qualities of exceptional recreational, cultural or educational value to the public and which are directly accessible to the public from a public right-of-way, the applicant may request the City to take title or a less than fee interest in the property occupied by such a #natural feature# without any cost to the City or its designee

for #use# and enjoyment by the public subject to the provisions of Section 105-60.

12/19/74

105-80

JOINT APPLICATIONS

Notwithstanding the provisions of Section 78-06 (Ownership), a tract of land which is the subject of an application for authorizations or special permits under the provisions of this Chapter may include adjacent property in more than one ownership, provided that the application is filed jointly by the owners of all property included. Any subdivision of the tract reflecting ownerships at the time of application or creating new ownerships before, during or after #development# shall be subject to the provisions of Section 78-51 (General Provisions).

5/28/81

105-90

FUTURE SUBDIVISION

Within a #Special Natural Area District#, any #zoning lot# existing on the effective date of the Special District designation may be subdivided into two or more #zoning lots# provided that #natural features# are preserved to the greatest extent possible under future #development# options.

A plan for such subdivision shall be filed with the City Planning Commission and the Commission shall certify that such subdivision complies with this objective. The subdivision plan shall include a survey map indicating existing topography and other #natural features# within this area. When a #zoning lot#, existing on the effective date of the Special District designation is more than 10 acres and is intended to be subdivided, an area plan of the entire #zoning lot# shall be filed with the Commission. The area plan shall include the proposed #street# system within the area, #block# layouts and any other information required by the Commission.

When any #zoning lot# is subdivided into two or more #zoning lots#, all resulting #zoning lots# which lie substantially within a steep slope area existing as of December 19, 1974, shall be subject to the steep slope provisions of Section 105-50 (REGULATIONS FOR PROTECTION OF NATURAL FEATURES).

Any #zoning lot# subdivided into two or more #zoning lots# after May 28, 1981 shall be subject to the #lot area per dwelling unit# standard in accordance with Section 105-20 (PROTECTION OF NATURAL FEATURES).

In the event that #natural features# on any #zoning lot# subject to the provisions of Section 105-02 (General Provisions) proposed for subdivision have been removed, altered, relocated or replaced from the #zoning lot# without prior approval by the Commission, as set forth in Section 105-40, the Commission shall not approve the subdivision until violations are removed from the #zoning lot# in accordance with the Commission's requirements under Section 105-45 (Compliance with the Special Review Provisions).

12/19/74

105-91

Special District Designation on Public Parks

When a #Special Natural Area District# is designated on a #public park# or portion thereof, any #natural features# existing on December 19, 1974 within such area shall not be removed, destroyed or altered unless authorized by the City Planning Commission. As a condition for granting such authorization, the Commission shall find that such authorization is consistent with the intent of the #Special Natural Area District#.

12/19/74

105-92

Special Provisions for City-Owned Land

For any #development# or #site alteration# on city-owned land located within a #Special Natural Area District#, the provisions of Section 105-40 (SPECIAL REVIEW PROVISIONS) shall apply, except that modifications permitted under Section 105-43 (Special Permits) may be approved by authorization of the City Planning Commission.

Furthermore, provisions of Section 105-93 (Inter-agency Coordination) apply to all #developments# or #site alterations# on City-owned land. However, the provisions of this Chapter shall not apply to any public improvement project approved by the Board of Estimate prior to the effective date of the Special District designation.

12/19/74

105-93

Inter-agency Coordination

Where an authorization or permit is required from the City Planning Commission pursuant to this Chapter and where a permit is required from the Departments of Transportation or Buildings for land contour work, by the Department of Environmental Protection for storm water drainage systems for #buildings# or adjacent areas or where construction of a public improvement project is undertaken by a city agency, the Department of City Planning and the agencies involved shall jointly determine the conditions under which such proposed #development# or #site alteration# within a #Special Natural Area District# will best meet the purposes of the Special District. Applications for any required permit or authorizations shall be filed simultaneously with each agency requiring a permit. Where differences exist among agencies concerning a proposed #development# or #site alteration# within the Special District, a three-member Inter-agency Board of Conservation of Natural Features shall arbitrate prior to the issuance of any permit.

Such Board shall consist of:

the Deputy Mayor;

the Chairperson of the City Planning Commission; and

the Commissioner of the agency directly involved.

The Deputy Mayor shall be the Chairperson of the Inter-agency Board.

5/21/75

105-94

Special Natural Area Districts Specified

6/23/77

105-941

Special Natural Area District-1:

Emerson Hill, Dongan Hills, Todt Hill, Lighthouse Hill and the Central Wetlands Area of Staten Island

The central, serpentine, hilly spine of Staten Island is composed of Emerson Hill, Dongan Hills, Todt Hill and Lighthouse Hill. These hills are richly endowed with steep slopes, rock outcrops, erratic boulders and ponds, lakes, swamps, creeks and many trees of the glaciated Oak-Chestnut association.

To the south and west of the serpentine hills are tidal wetlands, a habitat for marine life and water fowl. The wetlands include parts of Latourette Park, Fresh Kills Park and New Springville Park. The high and low wetlands of Latourette Park and New Springville Park and most of the low wetlands of Fresh Kills Park remain in their natural state. The purpose of this #Special Natural Area District# is to preserve and protect the aforementioned #natural features# pursuant to the provisions of this Chapter.

5/21/75

105-942

Special Natural Area District-2:

Riverdale, Spuyten Duyvil and Fieldston, The Bronx

The Riverdale Ridge of The Bronx is composed of part of Riverdale, Spuyten Duyvil and Fieldston. This ridge contains steep slopes, rock outcrops, ponds, brooks, swampy areas and mature trees.

The western foot of the ridge contains marshes, feeding areas for water fowl. The shoreline of the Hudson River estuary contains the aquatic food web necessary to sustain marine life.

The marshes and most of the Hudson River shoreline are included in Riverdale Park. Much of the Riverdale Ridge and Riverdale Park are in their natural state. The purpose of this #Special Natural Area District# is to preserve and protect the aforementioned #natural features# pursuant to the provisions of this Chapter.

12/1/77

105-943

Special Natural Area District-3:

Shore Acres Area of Staten Island

The Shore Acres area of Staten Island owes its unique character to Shore Acres Pond, which is fed predominantly by springs

percolating from an underground aquifer through Pleistocene strata of sand and gravel.

The Pond is a resting place for migratory and local fowl as well as a watering hole for opossums which are abundant along the wooded cliffs of the Narrows. The Pond has shaped its built environment, including the street layout, landscaping and orientation of neighboring homes. The surrounding area is distinguished by rolling topography with orientation of the northeastern edge toward Lower New York Bay and the Narrows.

The natural drainage area is in need of protection to insure survival and maintenance of the Pond which in turn is essential to the preservation of this special area.

7/26/01

105-944

Special Fort Totten Natural Area District-4

(a) General purposes

The "Special Fort Totten Natural Area District"-4 (hereinafter referred to as Special District), established in this Resolution, is designed to promote and protect public health, safety, general welfare and amenity. These general goals include, among others, the following general purposes:

- (1) to preserve, protect and enhance the combination of historically significant buildings and other structures, public open spaces, outstanding scenic views and pedestrian and vehicular circulation system which by their siting create a unique balance between buildings and open spaces and which, together with the harmonious scale of development and landscaping, add to the quality of life in the area;
- (2) to protect aquatic, biologic, geologic, topographic and other natural features having ecological and conservation values and functions;
- (3) to improve the quality of new development in the area by fostering the provision of specified public amenities and recreational facilities in appropriate locations and by making these facilities directly accessible to the public; and

- (4) to promote the desirable use of land improvements in accordance with the District Plan and in conformance with the character of the Fort Totten area and thus conserve the value of land and buildings and thereby protect the City's tax revenue.

(b) Definitions

(1) Designated open space

The "designated open space" is an #open space# as shown on the District Plan.

(2) Street

For the purpose of this Section, a "street" is a way existing within the #Special Fort Totten Natural Area District#-4 as shown on the District Plan (Appendix A) complying with the definition of #street# in Section 12-10, except that the #street# width shall be limited to existing dimensions. No modification of existing dimensions shall be permitted without prior certification of the City Planning Commission.

(c) General requirements

(1) Requirements for applications

An application to the Commission for any #development# within the Special District shall be subject to the requirements of Section 105-21. In addition, an application for #development# within Area B shall include the existing and proposed site plan showing the location and the scale of the existing and proposed #buildings or other structures#, the location of all vehicular entrances and exits and off-street parking facilities, the changes that will be made in the location and size of the #open space#, and such other information as may be required by the Commission. The submission shall include a landscaping plan, building sections and elevation and an appropriate model of the planned community.

The Commission shall require, where relevant, a subdivision plan and, in the case of a site plan providing for common #open space# or common parking areas, a maintenance plan for such space or areas and surety for continued availability of such space or areas to the people they are intended to serve.

(2) Pier development

The Commission may permit, by special permit, pier development, only upon finding that the proposed #development# shall have no significant adverse impact on the Special District or surrounding environment. The Commission may prescribe appropriate conditions and safeguards to minimize possible adverse effects on the surrounding area.

(d) Special regulations

(1) Demolition

Except in Area E, no demolition permit or alteration permit for alterations which may affect the character or design of the facade of a #building or other structure# shall be issued by the Department of Buildings, except as permitted by the Commission, unless it is an unsafe #building or other structure# and demolition or alteration is required pursuant to the provisions of Chapter 26, Title C, Part I, Article 8, or its successor, of the New York City Administrative Code. An applicant for any such permit shall notify the Landmarks Preservation Commission of the application.

The Commission, by special permit, may allow:

- (i) the alteration of such #building or other structure#, provided that such alteration treatment of the facade relates harmoniously to the character and materials of the original facade and to the adjoining #buildings or other structures#; or
- (ii) the demolition of such #buildings or other structures#, other than those deemed unsafe as defined by the Department of Buildings, provided that the Commission finds that the existing #building or other structures# is not suitable for rehabilitation.

Where a #building or other structure# has been demolished pursuant to this Section, the Commission may, by special permit, allow the replacement of the demolished structure provided that the design of the new structure in terms of scale, #lot coverage#, building height and exterior treatment of the facade shall replicate as nearly as possible the design and

site plan of the original #building#.

(2) Special height regulations

In order to preserve the unique character of the Special District and to protect the views of and to the water within the Special District, Section 23-631 (Height and setback in R1, R2, R3, R4 or R5 Districts) shall apply except that the maximum height for any #development# or #enlargement# shall be 32 feet or three stories, whichever is less.

(3) Location of zoning district boundaries at the shore line

Zoning district boundary lines shall coincide with the shore line lawfully existing on April 28, 1983, or any natural or lawful alteration thereof.

A zoning district boundary line which intersects the shore line lawfully existing on April 28, 1983 shall be prolonged, in a straight line, to such naturally or lawfully altered shore line. Lawfully approved piers or other lawfully approved structural extensions of the shore line, as may be so altered, shall not generate development rights.

(4) Designated open space

Any #development# or #site alteration# on a #zoning lot# which contains #designated open space# as shown on the District Plan, shall require certification by the Commission that such #designated open space# shall not be reduced in size or altered in shape and shall be preserved in its natural state by the owner of the #zoning lot#.

Planting, landscaping or provision of footpaths or sitting areas are permitted in any part of #designated open space#, provided that such improvements do not involve removal of trees or alteration of existing topography, and do not obstruct pedestrian movement within the public pedestrian ways.

#Designated open space# may be used for active recreational facilities provided that the Commission certifies that such #uses# have minimal impact on tree removal, topographic alteration or drainage conditions.

All #designated open spaces# shall be directly

accessible to the public from public rights-of-way between dawn and dusk. A prominent plaque or other permanent #sign# shall be displayed on all #designated open spaces# in a prominent location, designated by the Commission, visible from the adjacent public right-of-way. Such plaque or permanent #sign# shall have a #surface area# of not less than three nor more than six square feet, and shall contain the following statement:

"This area is open to the public between sunrise and sunset."

(5) District plan

The District Map for the #Special Fort Totten Natural Area District#-4 (Appendix A) identifies specific areas comprising the District Plan in which special zoning regulations carry out the general purposes of the #Special Fort Totten Natural Area District#-4. The District Plan is set forth in Appendix A and is made an integral part hereof. These areas and the specific paragraphs of this Section which contain regulations pertaining thereto are as follows:

Area A Historic fort area - (d)(6)
Area B Planned community area - (d)(7)
Area C Water related area - (d)(8)
Area D Bay area - (d)(9)
Area E Development area - (d)(10)

(6) Historic fort area (Area A)

Within Area A (Fort Area) there shall be no #development# nor #enlargement# of existing #buildings or other structures# except that the Commission may authorize necessary renovation to protect existing structures. In all cases the Commission shall refer all applications to the Landmarks Preservation Commission and Department of Parks and Recreation or other City agencies with primary responsibilities in the conservation area, for its report thereon.

(7) Planned community area (Area B)

In order to protect the unique scale, character and design relationships between the existing #buildings# and public #open spaces# and parade grounds, no #development#, #enlargement# nor alteration of landscaping or topography shall be permitted, except as set forth herein and as provided by paragraph (d)(1) of

this Section.

(i) Special permit

For any #development#, #enlargement# or alteration of landscaping or topography, the Commission may, by special permit, allow:

- (a) the unused total #floor area#, #dwelling units# or #rooming units# permitted by the applicable district regulations for all #zoning lots# within the #development# to be distributed without regard for #zoning lot lines#;
- (b) the total #open space# or #lot coverage# required by the applicable district regulations for any #zoning lot# within the #development# to be distributed without regard for #zoning lot lines#;
- (c) minor variations in the #yard# and #court# regulations required by the applicable district regulations;
- (d) minor variations in the height and setback regulations required by the applicable district regulations;
- (e) modifications of the minimum spacing requirements consistent with the intent of the provisions of Section 23-71 (Minimum Distance Between Buildings on a Single Zoning Lot);
- (f) permitted or required #accessory# off-street parking spaces to be located anywhere within the #development# without regard to #zoning lot lines#, or the provisions of Sections 25-821 (Location of parking spaces in certain districts) and 25-631 (Location and width of curb cuts in certain districts), subject to findings of Section 78-41 (Location of Accessory Parking Spaces), or where such requirement substantially injures the functioning of the existing area, authorize waiver of all or part of the required parking.

(ii) Findings

As a condition precedent to the granting of a special permit under the provisions of paragraph (d) (7) (i) of this Section, the Commission shall make the following findings:

- (a) that the new #development#, #enlargement# or said alteration is related to the existing #buildings or other structures# in the Planned Community Area (Area B) in scale and design, and that the new #development# will not seriously alter the scenic amenity and the environmental quality of the area;
- (b) that the new #development# or #enlargement# be sited in such a manner as to preserve the greatest amount of #open space# and landscaping that presently exists, consistent with the scale and design of the existing #development# and the landscaping surrounding the new landscaping arrangement and conditions of the community;
- (c) that the new #development# or #enlargement# is sited such that it will not require at the same time or in the foreseeable future new access roads or exits, off-street parking or public parking facilities that will disrupt or eliminate major portions of #open space# and landscaping or will generate large volumes of traffic which will diminish the environmental quality of the community;
- (d) that minimal landscaping is to be removed during construction and such areas will be fully restored upon completion of construction.

The Commission may prescribe appropriate conditions and safeguards, including covenants running with the land which shall permit public or private enforcement reflecting terms, conditions, and limitations of any special permit hereunder to minimize adverse effects on the character and quality of the community.

(iii) Parade ground

Unless ownership is retained in a governmental agency, the parade ground #designated open space# shall be commonly owned with a #zoning lot# within

Area B or Area E and the maintenance of the parade ground shall be the collective responsibility of said owner or owners. The parade ground shall be used for open recreational #uses# and may contain minor #accessory# structures to said #use#. The parade ground shall be directly accessible from the adjoining #streets# along its entire perimeter. There shall be no fences nor walls around or within the parade ground.

(8) Water-related area (Area C)

In order to protect the unique aquatic and botanic characteristics of the area, there shall be no #development# in Area C except as provided by paragraph (d)(1) of this Section.

(9) Bay area (Area D)

In order to promote waterfront-related activities, only the following #uses# of the C3 District shall be permitted in Area D:

- (i) #residential uses#, which #uses# are permitted only above the ground floor of those #buildings# existing prior to April 28, 1983;
- (ii) all #uses# of Use Group 14, except for boat showrooms or sales, and the storage, repair, or painting of boats other than crew sculls used for intercollegiate competition;
- (iii) all retail or service establishment #uses# of Use Group 6, except automobile supply stores.

(10) Development area (Area E)

Any #development# used predominantly for #residential uses# may be considered a #large-scale residential development#, and authorizations or special permits for such #development# may be granted in accordance with the provisions of Article VII, Chapter 8, except that the #accessory uses# of 78-22 (Accessory Uses in Large-Scale Residential Developments) shall not apply.

Any #development# used predominantly for #community facility uses# may be treated as a #large-scale community facility development#, and authorizations or special permits for such #development# may be granted in accordance with the provisions of Article VII,

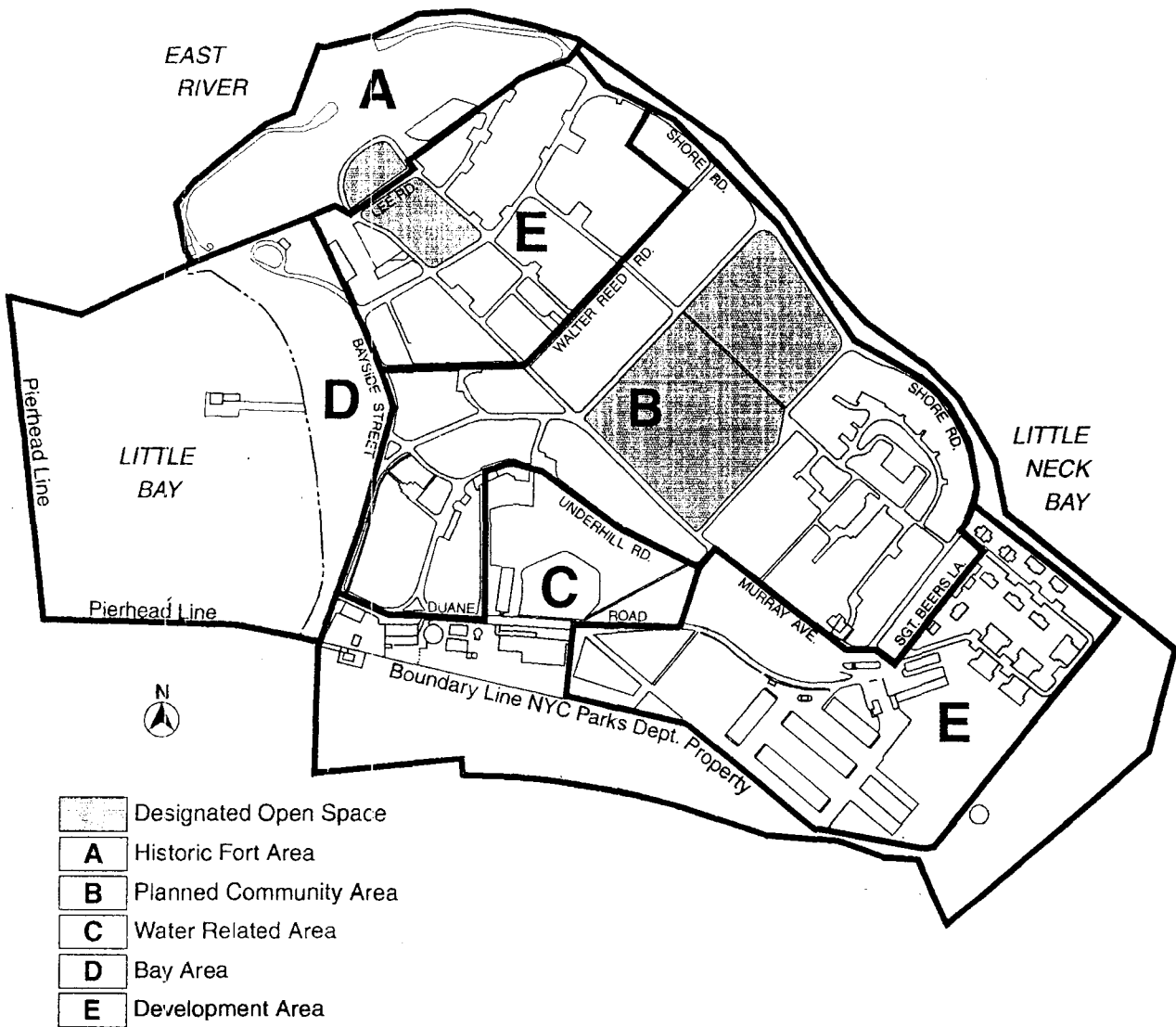
Chapter 9.

In Area E, the Commission may authorize clustering of #single-family# and #two-family residences# and a modification of housing types in order to maximize the preservation of existing #natural features# in the area, and to provide adequate view protection, and to relate these new structures with the existing structures in the general vicinity. Clustering shall be limited to a maximum #street wall# of 100 feet.

Any and all bonuses permitted in Sections 78-32 through 78-353, inclusive, shall not apply to #development# in Area E.

6/23/77

APPENDIX A
SPECIAL FORT TOTTEN NATURAL AREA DISTRICT-4 PLAN MAP



6/23/77

APPENDIX B
GLOSSARY

Part I:

Certain botanic terms referred to in the text and Part II of this Appendix are explained below:

A "tree" is any woody plant with one trunk rising out of the earth and root system, from which branches then spring, usually at some distance from the earth. A tree may be deciduous or coniferous.

A "shrub" is a woody plant that has one or more trunks rising from the same root system instead of a single trunk. These trunks or stems may or may not branch at some distance from the earth. A shrub may be deciduous or coniferous.

A "herb" is a non-woody plant with a fleshy stem which dies back to the earth level at the end of the growing season. It may be annual, biennial, or perennial.

A "vine" is a woody plant whose trunk or stem must be supported by the general environment or other plants. It is unable to stand on its own.

A "grass" is a family of herbaceous plants, rarely woody, with hollow round stems.

An "annual" is a plant which completes its life cycle in the space of one growing season, that is, it goes from seed to full plant and flower and sets seed in a single season.

A "biannual" is a plant which requires two years to grow from seed to mature plant capable of producing seed and then dies.

A "perennial" is a plant which lives more than one or two years and usually produces seeds for more than a few years.

A "fern" is a perennial, flowerless plant which reproduces by spores.

An "association" is a grouping of many plant species over a wide area sharing a common habitat and similar geographic conditions.

A "community" is a series of plants, animals, algae, fungi, grasses, trees, shrubs, herbs and other life forms which characteristically grow and live together in harmony, creating a balanced biological environment.

Part II:

Description of Natural Features defined in Section 105-10
(NATURAL FEATURES):

(a) Geologic features

(1) Rock outcrop

A rock outcrop shows the type of rock underlying the area, the results of surface abrasion by glacier, waterborne or windborne matter, or the results of chemical or temperature weathering.

(2) Geologic deposits

Geologic deposits include:

Soils of different origins such as loess and mineral deposits such as artinite, garnets, zircon, topaz, beryl, tourmaline, algite, tremolite, serpentine, muscovite, amethyst, peridot, jadeite, geodes and other elements of the Precambrian, Ordovician, Triassic, Cretaceous, Pleistocene and Holocene geology found in New York City.

An erratic boulder is a relatively large mass of rock which has been moved significant distances from its parent rock to be left amidst a geologic area which has a different history and origin than the parent.

(b) Topographic features

(1) Steep slope

A steep slope includes ground formation with sharp inclines such as hills and palisades.

(2) Existing natural topography

Existing natural topography includes terrain other than steep slope areas.

(3) Topsoil

Topsoil includes all of the A horizon, specifically, from top to bottom: the A1 litter layer where organic material, such as leaves and animal matter accumulate; the A2 fermentation layer where organic material is decomposed by fermentation, fungi, bacteria and soil organisms; the A3 humic layer where humus, resulting from the decomposition process, lies; and the B1 mixing layer where the humic substances become mixed with mineral matter.

(c) Aquatic features

(1) Laminarian zone

(i) Rock bottom

Characteristic plants:

Green algae:

Chaetomorpha melagonium
Cladophora gracillis
Codium fragile

Brown algae:

Asophyllum nodosum
Sargassum filipendula
Agrum cribrosum

Red algae:

Rhodomenia palmata (Dulse)
Ceramium robrum
Ahnefeltia plicata
Polysiphonia lanosa
Seirospora griffithsiana
Callithamnion corymbosum

Characteristic animals:

Diadumene leucolella - Pallid sea anemone
Ceriantheopsis americanus - Worm sea anemone
Astrangia danae - Star coral
Crisia denticulata - Fringed moss animal
Bugula turrita - Turreted moss animal
Membranipora monostachys - Sea mat
Lepas fasticularis - Northern sea barnacle
Balanus balanoides - Rock barnacle
Littorina littorea - Common periwinkle
Littorina obtusata - Smooth periwinkle
Littorina irrorata - Salt marsh periwinkle
Crepidula fornicata - Common boatshell
Polinices duplicatus - Shark eye
Urosalpinx cinerea - Oyster drill
Mytilus edulis - Blue mussel
Modiolus demissus - Ribbed mussel
Crassostrea virginica - Virginia oyster
Petricola pholadiformis - False angelwing

(ii) Mud or sand bottom

Characteristic plants:

Green algae:

Chaetomorpha melagonium
Cladophora gracillis

Brown algae:
Sargassum filipendula
Laminaria agardhi
Agarum cribosum

Red algae:
Rhodomenia palmata (Dulse)
Cystoclonium purpureum
Ahnefeltia plicata
Polysiphonia lanosa
Seirospora griffithsiana
Callithamnion corymbosum

Characteristic animals:

Ceriantheopsis americanus - Worm sea anemone
Littorina littorea - Common periwinkle
Littorina obtusata - Smooth periwinkle
Littorina irrorata - Salt march periwinkle
Crepidula fornicata - Common boatshell
Polinices duplicatus - Shark eye
Lunatia heros - Common moonshell
Mytilus edulus - Blue mussel
Modiolus demissus - Ribbed mussel
Nucula proxima - Atlantic nut clam
Aequipecten irradians - Bay scallop
Mercenaria mercenaria - Northern quahog
Macoma baltica - Baltic macoma
Tagelus plebius - Stout razor
Mya arenaria - Soft shell clam
Corbula contracta - Common basket clam

(2) Beach

Characteristic saltwater beach animals:

Beach flea:
Orchestia agilis
Talitrus longicornis

Sandworms or Bristleworms:

Nereis virens
Nereis limbata
Nephtys picata
Arabella opalina
Lumbriconereis tenuis
Glycera americana
Nerine agilis
Cirratulus grandis
Cistenides gouldii

Clymenella torquata
Maldane elongata

Ghost shrimp:
Penaeus brasiliensis
Laldemonetes vulgaris
Crangon vulgaris

Ghost crab, Horseshoe crab, Green crab
Ocypoda arenaria
Limulus polyphemus
Carcindes moenas

Blue crab:
Callinectes sapidus
Callinectes hastatus

Lady crab, Sand crab, Rock crab:
Ovalipes ocellatus
Platyonichus ocellatus
Cancer irroratus

Fiddler crabs:
UCA minax
Gelasimus minax
UCA pubnax
Gelasimus pugnax
UCA pugilator
Gelasimus pugilator

Pinnotheres maculatum - Oyster crab
Venus mercenaria - Hardshell clam
Mya arenaria - Softshell clam
Ensis directus - Razor clam
Tagelus gibbus - Clam
Psilaster florae - Starfish
Amphiura squamata - Brittlestars
Echinarachne parma - Sand dollar

Snails:
Haminae solitaria
Scala lineata
Scala multistriata
Polynices heros
Polynices triseriata
Polynices duplicata
Crepidula fornicata
Crepidula plana
Littorina littorea (Periwinkle)
Urosalpinx linera (Oyster drill)

Eupleura caudata
Columbella avara
Columbella similis
Columbella anachis
Columbella astyris
Columbella lunata
Nassa trivittata
Nassa obsoleta

(3) Tidal wetland or saltwater littoral zone

(i) Rock bottom

Characteristic plants:

Blue-green algae:

Callithrix spp.
Rivularia atra

Green algae:

Ulothrix flacca
Enteromorpha intestinalis
Ulva lactuca (Sea lettuce)
Monostroma oxyspermum
Codium fragile

Brown algae:

Fucus vesiculosus
Fucus vesiculosus var spiralis
Fucus spiralis
Ascophyllum nodosum

Red algae:

Hildenbrandia prototypus
Agardhiella tenera
Chondrus crispus (Irish moss)
Bangia fuscopurpurea
Porphyra umbilicalis
Ceratium rubrum
Ahnfeltia plicata
Polysiphonia lanosa
Scirospora griffithsiana
Callithamnion corymbosum

Characteristic animals:

Lepas fascicularis - Northern sea barnacle
Balanus balanoides - Rock barnacle
Littorina littorea - Common periwinkle
Littorina obtusata - Smooth periwinkle

Littorina saxatilis - Rough periwinkle
Littorina irrorata - Salt marsh periwinkle
Crepidula fornicata - Common boatshell

(ii) Mud or sand bottom

Characteristic plants:

Blue-green algae:
Callithrix spp.
Lyngbya majuscula
Rivularia atra (Mermaids hair)
Rhizoslonium fragile

Green algae:
Enteromorpha linza
Ulva lactuca (Sea lettuce)
Monostroma oxyspermum
Codium fragile

Red Algae:
Chondrus crispus (Irish moss)
Bangia fuscopurpurea
Porphyra umbilicalis
Ceramium rubrum
Ahnfeltia plicata
Polysiphonia lanosa
Scirospora griffithsiana
Callithamnion corymbosum
Baccharis halmilifolia - Groundseltree
Distichlis spicata - Alkali grass
Hybiscus palustris - Marsh mallow
Iva frutescens - Marsh elder
Juncus gerardi - Black grass
Limonium carolinianum - Sea lavender
Phragmites communis - Reed
Ruppia maritima - Wigdeon grass
Salicornia spp. - Perennial saltwort
Spartina alternifolia - Smooth cordgrass
Spartina cynosuroides - Salt reedgrass
Spartina patens - Salt hay
Spartina pectinata - Freshwater cordgrass
Zostera pectinata - Eelgrass

Characteristic animals:

Ceriantheopsis americanus - Worm sea anemone
Littorina littorea - Common periwinkle
Littorina saxatilis - Rough periwinkle
Littorina littorea - Salt marsh periwinkle

(4) Swamp

Characteristic plants:

Acer rubrum - Red maple
Acer - Silver maple
Alnus spp. - Alder
Arisaema triphyllum - Jack in the pulpit
Cephalanthus occidentalis - Buttonbush
Cornus florida - Dogwood
Epilobium hirsutum - Willowherb
Hibiscus moscheutos - Rosemallow
Salix spp. - Willow
Smilax glauca - Catbrier
Smilax rotundifolia - Bulbrier
Quercus palustris - Pin oak

(5) Marsh

Characteristic plants:

Acnida - Waterhemp
Acorus calamus - Sweetflag
Cyperus spp. - Chufa
Echinochola - Wild millets
Eleocharis - Spikerushes
Impatiens pallida - Jewelweed
Leersia oryzoides - Rise cutgrass
Phragmites communis - Reeds
Pontederia cordata - Pickerelweed
Polygonum - Smartweed
Sagittaria - Arrowhead
Scirpus cyperinus - Sedge bullrush
Typha latifolia - Cattails
Zizania aquatica - Wild rice

(6) Bog

Characteristic plants:

Andromeda folifolia - Bog rosemary
Arethusa bulbosa - Swamp pink
Caldopogon pulcherlus - Grass pink
Chamaedaphne calyculata - Leatherleaf,
marsh cinquefoil
Drosera rotundifolia - Sundew plant
Eriophorum virginicum - Cottongrass
Iris versicolor - Blue flag, wild iris
Ledum groenlandicum - Labrador tea
Menyanthes trifoliata - Bogbean

Myrica gale - Sweetgale
Peltandra virginica - Snakes-mouth orchid
Rhododendron viscosum - Swamp azalea
Sarracenia purpurea - Pitcher plant
Solidago uliginosa - Bog goldenrod
Sphagnum - Sphagnum moss
Urtricularia conuta - Horned bladderword
Vaccinium macrocarpon - American cranberry
Vaccinium oxycoccus - Dwarf cranberry

(7) Meadow

Characteristic plants:

Amelanchier canadensis - Shadbush
Apios americana - Groundnut
Lilium supurbum - Turks cap lily
Impatiens pallida - Jewelreed
Lysmachia terrestris - Swamp-candles
Lythrum calicaria - Spiked loosetrife
Sambucus canadensis - Elderberry
Spirea tomentosa - Steeplebush

(8) Creek, stream or brook

Creeks, streams and brooks are often classified by the rate at which the water flows, a fast stream being a water flow of about two feet per second. Creeks, streams and brooks are valuable for their drainage function, the fish they contain both as a source of sport and for the other forms of life which relate to the animal and plant life dependent upon the stream.

(i) Fast creek, stream or brook

Characteristic plants:

Fontalis - Water moss
Ulothrix - Algae
Diatoma - Diatoms
Gomphonema

Characteristic animals:

Caddisflies:

Trichoptera
Phyganea
Rhyacophila
Philopotamidae
Hydropsychidae

Hydropsyche
Pharyganeidae
Limnephilidae
Leptocerus
Leptocella
Anthrpsodes
Oecetis
Brachycentridae
Helicopsychidae

Simulium - Blackfly
Plecoptera - Stonefly
Tipulidae - Crane fly
Neuroptera - Dobsonfly
Ephemeroptera - Mayfly
Osonychia
Percina caprodes - Log perch
Salvelinus fontinalis - Brook trout
Salmo gairdneri - Steelhead trout
Salmo trutta - Brown trout
Salmo salar - Atlantic salmon

(ii) Slow creek, stream or brook

Characteristic plants are the same as those in a lake or pond.

Characteristic animals:

Dragon Fly:
Anisoptera
Iodonata

Water striders:
Gerridae
Hemiptera
Odonata

Zygoptera - Damselflies
Orixidae - Waterboatmen
Hexagenia - Mayfly
Sphaerium - Fingernail clam
Semotilus atromaculatus - Creek chub
Ictalurus punctatus - Channel catfish
Ictalurus catus - White catfish
Ictalurus melas - Black catfish
Cyprinus carpio - Carp
Esox lucius - Northern pike
Esox americanus - Little pickerel
Esox niger - Chain pickerel

Characteristic plants of a secondary succession community area include the species found in a primary succession community area, a swamp, a meadow, and the following species:

Acer rubrum - Red maple
Amelanchier canadensis - Shadbush
Amelanchier obovalis - Serviceberry
Betula lenta - Black birch
Betula lutea - Yellow birch
Betula populifolia - Gray birch
Cornus florida - Flowering dogwood
Larix laricina - American larch
Lindera benzoin - Spice bush
Picea mariana - Black spruce
Pinus rigida - Pitch pine
Pinus strobus - White pine
Prunus serotina - Black cherry
Prunus virginiana - Choke cherry
Rhus copallina - Dwarf sumac
Rhus glabra - Smooth sumac
Rhus typhina - Staghorn sumac
Rubus spp. - Blackberries
Salix spp. - Willow
Sambucus canadensis - Elderberry
Smilax rotundifolia - Bull brier
Tilia americana - American basswood
Vaccinium - Blueberry

(3) Climax community area

Characteristic plants:

Acer rubrum - Red maple
Acer saccharum - Sugar maple
Amelanchier obovalis - Serviceberry
Azalea spp. - Azalea
Betula lenta - Sweet birch
Betula lutea - Yellow birch
Betula populifolia - Grey birch
Carpinus caroliniana - Ironwood
Carya laciniosa - Shagbark hickory
Carya glabra - Pignut hickory
Carya ovata - Shagbark hickory
Carya tomentosa - Mockernut hickory
Castanea dentata - American chestnut
Celtis occidentalis - American hackberry
Chamaecyparis thyoides - Atlantic white cedar
Cornus florida - Flowering dogwood
Diospyros virginiana - Persimmon

Fagus grandifolia - American beech
Fraxinus americana - White ash
Gaylussacia - Huckleberry
Hamamelis virginiana - Witch hazel
Ilex opaca - Holly
Juglans cinerea - Butternut
Juglans nigra - Black walnut
Juniperus virginiana - Red cedar
Kalmia latifolia - Laurel
Larix laricina - Larch
Liquidambar styraciflua - Sweet gum
Liriodendron tulipifera - Tulip-tree, Yellow poplar
Nyssa sylvatica - Sour gum
Ostrya virginiana - Hop hornbean
Picea mariana - Black spruce
Pinus rigida - Pitch pine
Pinus strobus - White pine
Prunus serotina - Black cherry
Prunus virginiana - Choke cherry
Quercus prinus - Chestnut oak
Quercus alba - White oak
Quercus bicolor - Swamp oak
Quercus coccinea - Scarlet oak
Quercus pallustris - Pin oak
Quercus rubra - Red oak
Quercus velutina - Black oak
Sambucus canadensis - Elderberry
Sassafras variifolium - Sassafras
Tilia americana - American basswood, linden
Tsuga canadensis - Hemlock
Ulmus americana - American elm
Vaccinium spp. - Blueberry

(4) Dune and heathland

Characteristic plants:

Aster undulatus - Skydrop aster
Ammophila breviligulata - Beachgrass
Baptisia tinctoria - Wild indigo, rattle box
Corema couradii - Broom crowberry
Comptonia peregrina - Sweetfern
Deschampsia flexuosa - Wavyhair grass
Gaylussacia baccata - Black huckleberry
Helianthus canadense - Frostweed
Hieracium venosum - Rattlesnake weed
Hudsonia ericoides - Golden beachheather
Hudsonia tomentosa - Woolly beachheather
Myrica pennsylvanica - Bayberry
Potentilla tridentata - Three toothed cinquefoil

Rubus spp. - Blackberries, raspberries
Vaccinium angustifolium - Low sweet blueberries

(5) Wild grassland

A wild grassland exists usually on poor soils and is composed of a mixture of native grasses, such as the following:

Danthonia spicata - Poverty oat grass
Andropogon virginicus - Broomsedge
Bromus spp. - Bromegrass

ATTACHMENT B

TOTAL POPULATION *

Census	New York City	Baltimore City	Washington	Richmond
1910	4,766,883	558,485	331,069	127,628
1920	5,620,048	733,826	437,571	171,667
1930	6,930,446	804,874	486,869	182,929
1940	7,454,995	859,100	663,091	193,042
1950	7,891,957	949,708	802,178	230,310
1960	7,781,984	939,024	763,956	219,958
1970	7,894,862	905,759	756,510	249,621
1980	7,071,639	786,741	638,432	219,214
1990	7,322,564	736,014	606,900	203,056
2000	8,008,278	651,154	572,059	197,790

DENSITY (Average Number of Persons per Square Mile) *

Census	New York City	Baltimore City	Washington	Richmond
1910	16,621	18,554	5,518	12,763
1920	18,796	9,289	7,293	7,153
1930	23,179	10,227	7,853	7,622
1940	24,933	10,916	10,800	9,021
1950	25,046	12,067	13,065	6,208
1960	24,697	11,886	12,442	5,945
1970	26,343	11,568	12,321	4,140
1980	23,455	9,798	10,181	3,647
1990	23,705	9,109	9,884	3,379
2000	26,404	8,109	9,317	3,291

* These data were compiled from Campbell Gibson, *The Population of the 100 Largest Cities in the United States: 1790 to 1990*, Population Division, U.S. Bureau of the Census, Washington, D.C., June 1998.

COMPARISON OF POPULATION DENSITY
1910-2000

