CHAPTER 4

SITE DEVELOPMENT AND LAND USE

SECTION 401
GENERAL

401.1 Scope and intent. This chapter provides requirements for the development and maintenance of building and building sites to minimize negative environmental impacts and to protect, restore and enhance the natural features and environmental quality of the site.

401.2 Predesign site inventory and assessment. An inventory and assessment of the natural resources and baseline conditions of the building site shall be submitted with the *construction documents*. The inventory and assessment shall:

1. Identify how soils will be prepared, amended and placed in a manner that establishes or restores the ability of the soil to support the vegetation that has been protected and that will be planted;
2. Identify *invasive plant species* on the site for removal; and
3. Identify *native plant species* on the site.

SECTION 402
[RESERVED]

SECTION 403
[RESERVED]

SECTION 404
LANDSCAPE IRRIGATION AND OUTDOOR FOUNTAINS

404.1 Landscape irrigation systems. Irrigation of exterior landscaping shall comply with Sections 404.1.1 and 404.1.2.

Exception: Projects under the jurisdiction of the *Residential Code*.

404.1.1 Water for outdoor landscape irrigation. Outdoor landscape irrigation systems shall be designed and installed to reduce potable water use by 50 percent through plant selection, water efficient irrigation technology, the elimination of a permanently installed irrigation system, and/or, where permitted by District regulation or ordinances, with *alternate onsite nonpotable water* complying with Section 1115 of the *Plumbing Code* and local regulations. Designers shall use the EPA Water Sense Interactive Water Budget Tool to determine whether the design meets the 50 percent reduction threshold.

Exceptions: *Potable* water is permitted to be used as follows:

1. During the establishment phase of newly planted landscaping and during periods of drought in excess of 30 days.
2. To irrigate food production.
3. To supplement *nonpotable* water irrigation of shade trees provided in accordance with Section 408.2.3 of the *Green Construction Code*.

404.1.2 Irrigation system design and installation. Where in-ground irrigation systems are provided, the systems shall comply with all of the following:

1. The design and installation of outdoor irrigation systems shall be under the supervision of an irrigation professional accredited or certified by an appropriate local or national body.
2. Landscape irrigation systems shall not direct water onto building exterior surfaces, foundations or exterior paved surfaces. Systems shall not generate runoff.
3. Where an irrigation control system is used, the system shall be one that regulates irrigation based on weather, climate or soil moisture data, or time of day. The controller shall have integrated or separate sensors to suspend irrigation events during rainfall.
4. Irrigation zones shall be based on plant water needs with plants of similar need grouped together. Turfgrass shall not be grouped with other plantings on the same zone.

404.2 [Reserved]

SECTION 405
MANAGEMENT OF VEGETATION, SOILS AND EROSION CONTROL

405.1 Soil and water quality protection. Soil and water quality shall be protected in accordance with Sections 405.1.1 and 405.1.4.

405.1.1 Soil and water quality protection plan. A soil and water quality protection plan shall be submitted by the owner or the owner's authorized agent and *approved* prior to construction. The protection plan shall address the following:

1. A soils map, site plan, or grading plan that indicates designated soil management areas for all site soils, including, but not limited to:
   - 1.1. Soils that will be retained in place and designated as vegetation and soil protection areas.
   - 1.2. Topsoils that will be stockpiled for future reuse and the locations for the stockpiles.
   - 1.3. Soils that will be disturbed during construction and plans to restore disturbed soils and underlying subsoils to soil reference conditions.

1.4. Soils that will be restored and re-vegetated.

1.5. Locations for all laydown and storage areas, parking areas, haul roads and construction vehicle access, temporary utilities and construction trailer locations.

1.6. Treatment details for each zone of soil that will be restored, including the type, source and expected volume of materials, including compost amendments, mulch and topsoil.

1.7. A narrative of the measures to be taken to ensure that areas not to be disturbed and areas of restored soils are protected from compaction by vehicle traffic or storage, erosion, and contamination until project completion.

2. A written periodic maintenance protocol for landscaping, including, but not limited to:

2.1. A schedule for periodic watering of new planting that reflects different water needs during the establishment phase of new plantings as well as after establishment. Where development of the building site changed the amount of water reaching the preserved natural resource areas, include appropriate measures for maintaining the natural areas.

2.2. A schedule for the use of fertilizers appropriate to the plants species, local climate and the pre-establishment and post-establishment needs of the installed landscaping. Nonorganic fertilizers shall be discontinued following plant establishment.

405.1.2 [Reserved]

405.1.3 [Reserved]

405.1.4 Soil reuse and restoration. Soils that are being placed or replaced on a *building site* shall be prepared, amended and placed in a manner that establishes or restores the ability of the soil to support the vegetation that has been protected and that will be planted. Soil reuse and restoration shall be in accordance with Sections 405.1.4.1 and 405.1.4.2.

405.1.4.1 Preparation. Before placing stockpiled or imported topsoils, compliance with all of the following shall occur:

1. Areas shall be cleared of debris including, but not limited to, *building* materials, plaster, paints, road base type materials, petroleum based chemicals, and other harmful materials;
2. Areas of construction-compacted subsoil shall be scarified; and
3. The first lift of replaced soil shall be mixed into this scarification zone to improve the transition between the subsoil and overlying soil horizons.

Exceptions: Scarification is prohibited in all of the following locations:

1. Where scarification would damage existing tree roots.
2. On inaccessible slopes.
3. On or adjacent to trenching and drainage installations.
4. On areas intended by the design to be compacted such as abutments, footings, and inslopes.
5. *Brownfields*.
6. Other locations where scarification would damage existing structures, utilities and vegetation being preserved.

405.1.4.2 Restoration. Soils disturbed during construction shall be restored in areas that will not be covered by buildings, structures or hardscapes. Soil restoration shall comply with Items 1 and 2:

1. **Organic matter.** To provide appropriate organic matter for plant growth and for water storage and infiltration, soils shall be amended with a mature, stable compost material so that not less than the top 12 inches (305 mm) of soil contains not less than 3 percent organic matter. Sphagnum peat or organic amendments that contain sphagnum peat shall not be used. Soil organic matter shall be determined in accordance with ASTM D2974. Organic materials selected for onsite amendment or for blending of imported soils shall be renewable within a 50-year cycle.

Exception: Where the reference soil for a building site has an organic level depth other than 12 inches (305 mm), soils shall be amended to organic matter levels and organic matter depth that are comparable to the site's reference soil.

2. **Additional soil restoration criteria.** In addition to compliance with Item 1 Organic Matter, soil restoration shall comply with not less than three of the following criteria:

2.1. **Compaction.** Bulk densities within the root zone shall not exceed the densities specified in Table 405.1.4 and shall be measured using a soil cone penetrometer in accordance with ASAE S313.3. The root zone shall be not less than 12 inches (305 mm), nor less than the site's reference soil, whichever results in the greater depth of measurement. Data derived from