

RIPARIAN AND WETLAND BUFFERS SMARTCODE MODULE

PREPARED BY DUANY PLATER-ZYBERK & CO. WITH DANIEL SLONE

Always design a thing by considering it in its next larger context - a chair in a room, a room in a house, a house in an environment, an environment in a city plan.

Eliel Saarinen

3.7 RIPARIAN AND WETLAND BUFFERS

This section should be inserted in the base code after 3.6 and subsequent sections renumbered. If Article 2 is not included in the calibration, this section must be modified to delete the references to it. The list of natural conditions should then be provided here.

These standards consist of stream, wetlands, and storm-water provisions applicable to New Community Plans. In the rural Transect Zones, they are compatible with the EPA Model Ordinance. Nevertheless, calibrators must research the extent to which these requirements are enforceable, particularly where they conflict or overlap. This is likely in the more urban T-zones. Where there are conflicts with other adopted ordinances, the more restrictive provision usually applies. (“Restrictive” is an ambiguous term and its appearance in codes sometimes creates unintended consequences.) Some of these standards should be resisted, as excessive buffer requirements in urban areas can undermine the connectivity of thoroughfares (and hence diminish potential density). Walkability is also affected as more traffic is channeled to the few collectors and arterials.

In many respects, the SmartCode environmental requirements represent a significant increase in precision over existing environmental regulations, because they consider the context of the Transect instead of using a single standard for all conditions. However, until this approach is recognized on a State and Federal level, the extent to which this section should be included must be advocated locally.

3.7.1b The online document “EPA Model Ordinances to Protect Local Resources” is useful. A note says: “The width of the stream buffer varies from 20 feet to 200 feet [each side] in ordinances throughout the United States (Heraty, 1993). The width chosen by a jurisdiction will depend on the sensitivity and characteristics of the resource being protected and political realities in the community.” Buffers should account for slope, soil type, quality of protected feature and nature of surrounding land uses. As a rule of thumb, 25 feet is the usual requirement for an urban embankment, 50 feet is the ecological minimum, 100 feet protects from erosion, and 150 feet allows some wildlife habitat and migration.

3.7.1b, 3.7.2b, 3.7.4b, 3.7.5b, 3.7.6b, 3.7.7b

These sections focus on stream buffers. Communities creating coastal buffers may incorporate additional requirements. For an example of a coastal buffer ordinance, see Rhode Island’s. (cont.)

ARTICLE 3. NEW COMMUNITY SCALE PLANS**3.7 RIPARIAN AND WETLAND BUFFERS****3.7.1 GENERAL**

- a. Transect Zones manifest a range of natural and urban conditions. In case of conflict, the natural environment shall have priority in the more rural zones (T1-T3) and the built environment shall have priority in the more urban zones (T4-T6).
- b. There shall be three classes of Streams: Class I Perennial, Class II Intermittent, and Class III Ephemeral, each generating a Stream Buffer subject to a standard for crossing and protection of its riparian condition as specified below for each Transect Zone.
- c. There shall be three classes of Wetlands: Class I Connected, Class II Isolated, and Class III Xeric, each subject to a standard of restoration, retention, and mitigation as specified below for each Transect Zone.

3.7.2 SPECIFIC TO ZONES T1, T2

- a. Within T1 Zones and T2 Zones, the encroachment and modification of natural conditions listed in Sections 2.3.2 and 2.4.2 shall be limited according to applicable local, state and federal law.
- b. The Stream Buffers for Class I and Class II Streams shall be 200 feet in width each side, and for Class III Streams shall be 100 feet in width each side. Stream Buffers shall be maintained free of structures or other modifications to the natural landscape, including agriculture. Thoroughfare crossings shall be permitted by Variance only.
- c. Class I, Class II, and Class III Wetlands shall be retained (and restored if in degraded condition). Additional Buffers shall be maintained at 100 feet for Class I and II. Wetland Buffers shall be maintained free of structures or other modifications to the natural landscape, including agriculture. Thoroughfare crossings shall be permitted only by Variance.

3.7.3 SPECIFIC TO ZONES T1, T2, T3

- a. Stormwater management on Thoroughfares shall be primarily through retention and percolation, channeled by curbside Swales.

3.7.4 SPECIFIC TO ZONE T3

- a. Within T3 Zones, the continuity of the urbanized areas shall be subject to the precedence of the natural environmental conditions listed in Sections 2.3.2 and 2.4.2. The alteration of such conditions shall be limited according to local, state and federal law.
- b. The Stream Buffers for Class I and Class II Streams shall be 100 feet in width each side. Stream Buffers shall be maintained free of structures, except that Thoroughfare crossings may be permitted by Warrant. Class III Streams may be modified by Warrant.
- c. Class I, Class II, and Class III Wetlands shall be retained (and restored if in degraded condition). Additional Buffers shall be maintained at 50 feet for Class II and Class III Wetlands. Buffers shall be free of structures or other modifications to the natural landscape. Thoroughfare crossings shall be permitted only by Variance.

3.7.5 SPECIFIC TO ZONE T4

- a. Within T4 Zones, the continuity of the urbanized areas shall take precedence over the natural environmental conditions listed in Sections 2.3.2 and 2.4.2. The alteration of such conditions shall be mitigated off-site, and the determination for

3.7.2 From the EPA: “Communities should carefully consider whether to exempt agricultural operations from the buffer ordinance because buffer regulations may take land out of production and impose a financial burden on family farms. Many communities exempt agricultural operations if they have an approved NRCS conservation plan. In some regions, agricultural buffers may be funded through the Conservation Reserve Program (CRP). For further information, consult the Conservation Technology Information Center (CTIC) at www.ctic.purdue.edu.”

3.7.5-8 Federal and State law may not allow these provisions or may require different mitigation ratios. Compliance with State and Federal storm water requirements may require on-site retention. As of this writing (2008), the EPA Model Ordinance does not recognize the Transect; provisions apply everywhere equally, based on the class of the watercourse or wetland, regardless of the context being rural or urban. The consequences to connective urbanism are potentially drastic. It may be difficult to allow for higher densities through adequate urban thoroughfare connectivity unless there is a diversity of appropriate standards, as in this Module. A municipality may overcome these limitations by working with State and Federal agencies to create regional mitigation banks or by exempting certain urban areas.

ARTICLE 7 DEFINITIONS OF TERMS RIPARIAN AND WETLAND BUFFERS

These definitions are from the online document “EPA Model Ordinances to Protect Local Resources.” Their annotation warns: “Defining the term “stream” is perhaps the most contentious issue in the definition of stream buffers. This term determines the origin and the length of the stream buffer. Although some jurisdictions restrict the buffer to perennial or “blue line” streams, others include both perennial and intermittent streams in the stream buffer program. Some communities do not rely on USGS maps and instead prepare local maps of all stream systems that require a buffer.”

modification and mitigation shall be made by Warrant.

- b. The Stream Buffers for Class I and Class II Streams shall be 50 feet in width each side. Stream Buffers and Streams of all classes may be crossed by Thoroughfares as required by the Thoroughfare network.
- c. Class I and Class II Wetlands shall be retained and maintained free of structures or other modifications to the natural landscape [and restored if in degraded condition]. Thoroughfare crossings may be permitted by Warrant.

3.7.6 SPECIFIC TO ZONE T5

- a. Within T5 Zones, the continuity of the urbanized areas shall take precedence over the natural environmental conditions listed in Sections 2.3.2 and 2.4.2. The alteration of such conditions should be mitigated off-site, and the determination for modification and mitigation shall be made by Warrant.
- b. The Stream Buffers for Class I and Class II Streams shall be 25 feet in width each side, with the exception that Stream Buffers and Streams of all classes may be embanked and crossed by Thoroughfares as required by the Thoroughfare network.
- c. Class I and Class II Wetlands may be modified if mitigated off-site at a two to one ratio. Class III Wetlands may be modified, not requiring off-site mitigation. Thoroughfare crossings shall be permitted By Right.

3.7.7 SPECIFIC TO ZONE T6

- a. Within T6 Zones, the continuity of the urbanized areas shall take precedence over the natural environmental conditions listed in Sections 2.3.2 and 2.4.2. The alteration of such conditions shall not require off-site mitigation, and the determination for alteration of such conditions shall be made by Warrant.
- b. The Stream Buffers for Class I and Class II Streams shall be [25] feet in width each side with the exception that Stream Buffers and Streams of all classes may be embanked and crossed or enclosed by Thoroughfares as required by the Thoroughfare network.
- c. Class I, Class II and Class III Wetlands may be modified, not requiring off-site mitigation. Thoroughfare crossings shall be permitted By Right.

3.7.8 SPECIFIC TO ZONES T4, T5, T6

- a. Stormwater management on Thoroughfares and Lots shall be primarily through underground storm drainage channeled by raised curbs, and there shall be no retention or detention required on the individual Lot.

ARTICLE 7. DEFINITIONS OF TERMS

ENVIRONMENTAL STANDARDS

Buffer: A vegetated area, including trees, shrubs, and herbaceous vegetation, that exists or is established to protect a stream system, lake, reservoir, or coastal estuarine area. Alteration of this natural area is strictly limited.

Streams: Perennial and intermittent watercourses identified through site inspection and US Geological Survey (USGS) maps. Perennial streams are those depicted on a USGS map with a solid blue line. Intermittent streams are those depicted on a USGS map with a dotted blue line.