

**RULE NO.: R161-13.18**

**NOTICE OF PROPOSED RULE**

**POSTING DATE: July 3, 2013**

The Director of the Watershed Protection Department proposes to adopt the following rule after August 4, 2013.

Comments on the proposed rule are requested from the public. Comments should be submitted to Dana McGehee, 505 Barton Springs Road, Suite 1200, Austin Texas, 78704, 974-2634, or via email at *dana.mcgehee@austintexas.gov*. To be considered, comments must be submitted before August 4, 2013, the 32nd day after the date this notice is posted. A summary of the written comments received will be included in the notice of rule adoption that must be posted for the rule to become effective.

An affordability impact statement regarding the proposed rule has been obtained and is available for inspection or copying at the address noted in the preceding paragraph.

**EFFECTIVE DATE OF PROPOSED RULE**

A rule proposed in this notice may not become effective before the effective date established by a separate notice of rule adoption. A notice of rule adoption may not be posted before August 4, 2013 (the 32nd day after the date of this notice) or not after October 1, 2013 (the 90th day after the date of this notice).

If a proposed rule is not adopted on or before October 1, 2013, it is automatically withdrawn and cannot be adopted without first posting a new notice of a proposed rule.

**BRIEF EXPLANATION OF PROPOSED RULE**

**R161-13.18:** Proposes revisions to the Drainage Criteria Manual Sections 1 and 2 as follows:

**Drainage Criteria Manual – Section 1, *Drainage Policy***

*Section 1.2.0 – City of Austin Drainage Policy:* Proposed modifications require that development cause no adverse impact, and cite Section 25-7 of the Land Development Code.

*Section 1.2.1 – Application:* Proposed modifications clarify that waivers to the DCM may be granted by the director of the department, and correct the department name.

*Section 1.2.2 – General*

- A. Proposed modification prohibits the creation of any identifiable adverse impacts.
- C. Proposed modifications address minor grammatical issues.
- E. Proposed modifications correct the name of DCM Section 8.
- G. 6: Proposed addition requires that the existing lot not receive significant off-site drainage.
- G.7: Proposed modifications renumber existing Section 1.2.2.G.6 as section as G.7; correct department name; and update the engineer's certification statement.
- G.8: Proposed addition requires that calculations supporting the certification statement be submitted if requested.

#### *Section 1.2.3 – Street Drainage*

- B. Proposed additions require that the 100-year storm be contained within roadside ditches, medians, drainage channels or other drainage facilities located within the public right-of-way or drainage easements.
- C. Proposed addition includes requirements for discharge of concentrated flow.
- D. Proposed addition includes restrictions for discharging concentrated flow across sidewalks.

#### *1.2.4 – Drainage System*

- A. Proposed modification requires that drainage system components comply with the City of Austin's Transportation Criteria Manual.
- D. Proposed modification replaces "residential street" with "local street."
- E. Proposed modifications refer reader to Environmental Criteria Manual for exceptions to requirements and renumber Figure 8-7 as Figure 1-1.
- E.1: Proposed modifications address minor grammatical issues
- E.3.C: Proposed modification moves section E.9 to section E.3.C.
- E.4.A: Proposed modifications refer reader to section E.3.B for information on the City's 50-foot setback rule, and address minor grammatical issues.

*E.6:* Proposed addition requires that drainage facilities have appropriately designed outfall that may include streambank stabilization.

*E.7:* Proposed modifications change residential lot to residential structure and addresses minor grammatical issue.

*E.9* Delete and move to E.3.C and renumber Figure 8-9 to 1-2.

*E.10:* Proposed modifications renumber this section as E.9 and refer reader to section E.3.C instead of section E.9.

*E.11:* Proposed modifications renumber section as E.10 and renumber Figure 8-8 as Figure 1-3.

*E.12:* Proposed modifications renumber section as E.11 and address minor grammatical issues.

*E.13:* Proposed modifications renumber section as E.12 and address minor grammatical issues.

*E.14:* Proposed modification renumbers section as E.13; address minor grammatical issues and exclude raingardens and water quality features that require infiltration from 95% compaction requirement.

*E.15:* Proposed modification renumbers section as E.14.

*E.16:* Proposed modifications renumber section as E.15 and delete reference to single family and duplex residential developments.

*E.17:* Proposed modification renumbers section as E.16.

*E.18:* Proposed modifications renumber section as E.17; remove prohibition on stormwater becoming stagnant within a development; and require that all volume required for detention be available after 24 hours to allow for subsequent storms.

*E.19:* Proposed modification renumbers section to E.18.

*F:* Proposed addition provides information on drainage easement size requirements.

*G:* Proposed addition addresses access requirements for drainage or right-of-way easements and gives minimum widths for open and enclosed drainage systems.

*1.2.6 – Flood Plain Delineations:* Proposed modification renames section, “Floodplain Delineations.”

*A.1:* Proposed addition addresses minimum size requirement for a floodplain with language moved from A.3; proposed modifications correct spelling of “floodplain” and replace “fully developed drainage area” with “floodplain delineation.”

*A.2:* Proposed modifications correct department name and spelling of “floodplain.”

*A.3:* Section is proposed for deletion.

*B.1:* Proposed modifications remove references to floodways and provide information on floodplain boundaries depicted in flood insurance rate maps (FIRMs) and clarifies the timeframe for existing conditions.

*B.2:* Proposed modifications remove references to Letter of Map Amendment and Letter of Map Revision.

*B.3:* Proposed modifications remove references to Conditional Letter of Map Amendment and Conditional Letter of Map Revision.

*B.4:* Proposed addition addresses City’s role in reviewing Letters of Map Change (LOMC) and Conditional Letters of Map Change (CLOMC).

*C.2.a:* Proposed modifications clarify that the City of Austin must receive a letter of acknowledgement from FEMA of receipt of a complete application for a LOMC prior to approval of a preliminary plan.

*C.2.b:* Proposed modifications require that applicant provide evidence of LOMC approval by FEMA; addresses minor grammatical issues; and changes “plans” to “permit or site plan permit.”

*C.2.c:* Proposed addition clarifies that requirements apply to buildings located within the floodplain at the time of application.

*C.3.a:* Proposed modification requires that applicant provide either evidence that the proposed developments do no increase the level of the floodplain or a letter of acknowledgement by FEMA of receipt of a complete application for a CLOMC.

*C.3.b:* Proposed addition allows applicant to submit evidence that the proposed developments do no increase the level of the floodplain.

*C.3.c:* Proposed modifications change “release” to “approval” and “plans” to “permit or site plan permit;” and allows applicant to submit evidence that the proposed developments do no increase the level of the floodplain.

*C.3.d:* Proposed modifications clarify that requirements apply to site plan improvements and buildings that are within the portion of the floodplain affected by a required LOMC.

*C.3.e:* Proposed addition requires that evidence of final acceptance by FEMA of the LOMC be provided before a certificate of occupancy is issued.

*1.2.7 – City Ordinances:* Proposed modification addresses minor grammatical issue.

*1.4.0 – Designation and Delineation of Austin Area Watersheds:* Proposed modifications refer reader to the City of Austin website for a list of Austin-area watersheds; eliminate Table 1-1; and require approval from the department director if any watershed boundary delineation other than that provided by the City is used.

### **Drainage Criteria Manual – Section 2, Determination of Storm Runoff**

*Section 2.1.0 – General:* Proposed modifications address grammatical issues and require engineer to make reasonable assumptions with regard to the development characteristics of the study area.

*Section 2.2.0 – Effects of Urbanization:* Proposed modifications add the word “event” after “rainfall;” indicate that a drainage area’s hydraulic efficiency is generally improved as a byproduct of urbanization; and replaces “porous surfaces” with “pervious surfaces.”

*Section 2.2.1 – Design Assumptions for Stormflow Analysis:* Proposed modification changes section title to “Storm Runoff Analysis.”

*Section 2.2.1.A:* Proposed addition includes storm drain design; proposed modification directs reader to section D rather than section E.

*Section 2.2.1.B:* Proposed modification corrects department name.

*Section 2.2.1.C:* Proposed modification eliminates reference to residential subdivision.

*Section 2.2.1.D:* This section is proposed for elimination.

*Section 2.2.1.E:* Proposed modification renames this section 2.2.1.D and replaces “assure” with “ensure.”

*Section 2.3.0 – Method of Analysis:* Proposed modifications clarify language regarding the National Resource Conservation Service; remove reference to HEC-1; provide guidance for engineers using both the Rational Method and the NRCS methods for drainage calculations; and correct department name.

*Section 2.4.0 – Rational Method:* Proposed modifications update unit for coefficient  $Q_p$  as acre-inches per hour; clarify that coefficient  $C$  is a composite coefficient and replaces

reference to specified area A with “soil types and land uses characteristic of the contributing drainage area;” and update definition of coefficient i with “design point.”

*Section 2.4.0.B:* Proposed modifications correct minor grammatical issues and replace “during” with “over a duration equal to” the time of concentration.

*Section 2.4.0.F:* Proposed addition provides definition for maximum rate of discharge at point of design.

*Section 2.4.1 – Runoff Coefficient (C):* Proposed modifications add surface vegetation, soil type and land slope to factors affecting the proportion of total rainfall that will reach the drainage system; address minor grammatical issues; eliminate reference to Table 2-1; and replaces reference to Table 2-2 with Table 2-1. Second paragraph, referring to soil characteristics, is proposed for deletion.

*Section 2.4.2 – Time of Concentration:* Proposed modifications clarify definition and calculation of time of concentration; and add Equation 2-2.

*Section 2.4.2.A – Sheet Flow:* Proposed modifications revise calculations of sheet flow conditions, limiting maximum sheet flow distance to 100 feet and require that sheet flow for developed conditions be based on actual pavement conditions.

*Equation 2-2:* Proposed modifications renumber equation as 2-3; update reference for Manning’s n to Table 2-2; and include definition for  $P_2$ .

*Section 2.4.2.B – Shallow Concentrated Flow:* Proposed modifications limit maximum sheet flow distance to 100 feet; renumber Equation 2-3 as Equation 2-4; add Equation 2-5; and provide explanation for using both equations.

*Equation 2-3:* Proposed modifications renumber equation as Equation 2-4 and update equation. Reference to Manning’s n is proposed for deletion.

*Equation 2-4:* Proposed modifications renumber equation as Equation 2-5 and update equation. Reference to Manning’s n is proposed for deletion.

*Section 2.4.2.C – Channel or Storm Drain Flow:* Proposed addition provides guidance for dividing channel flow component of time of concentration into multiple segments to address changes in channel characteristics.

*Equation 2-4:* Proposed modification renumbers equation as 2-6.

*Equation 2-5:* Proposed modifications renumber equation as 2-7 and replace coefficient S with  $\Sigma$ .

*Table 2-1:* Table is proposed for deletion.

*Table 2-2:* Proposed modification renumbers table as 2-1.

*Table 2-3:* Proposed modifications renumber table as 2-2; update n values for concrete and asphalt; and delete n value for Bermuda grass.

*Section 2.4.3 – Rainfall Intensity (i):* Proposed additions include the annual chance event percentages for 25-year and 100-year frequency storms. Proposed modifications update references to equations 2-6, 2-4 and 2-5 to equations 2-7, 2-3 and 2-4, respectively.

*Table 2-4:* Proposed modifications renumber table as 2-3 and update reference from Table 2-5 as Table 2-4.

*Table 2-5:* Proposed modifications renumber table as 2-4 and update reference from Table 2-6 to Table 2-5.

*Equation 2-6:* Proposed modifications renumber equation as 2-8; address minor grammatical issues; and update reference from Table 2-6 to Table 2-5.

*Table 2-6:* Proposed modifications renumber table as 2-5; update reference from Equation 2-6 to 2-8; change table source to W. H. Asquith; and move explanation of derivation of a, b and c parameters from table source to paragraph below table.

*2.4.4 – Drainage Area (A):* Proposed modifications indicate that topographic maps should be used to determine area; remove the preceding word “many” from “other features;” reconfigure Example 2-1 and equations 2-2 and 2-3.

*Example 2-1:* Proposed modifications update “n” value column to read “n’ Value/Surface Type;” revise values for Reach A-B; and revise “n” values and surface types for Reaches B-C and C-D.

*Equation 2-3:* Proposed modifications renumber Equation 2-3 as 2-4; update formulas  $T_{i(A-B)}$  and  $T_{i(B-C)}$ ; provide guidance for calculating channel flow travel time and total time of concentration; include annual chance event percentage for 100-year storm; provide Area and Land Use columns for area runoff coefficients; update references to Equation 2-6 and Table 2-6 to Equation 2-7 and Table 2-5; and update results of rainfall intensity calculation.

*Section 2.5.9 – The Soil Conservation Service Method for Calculation of Peak Flows:* Proposed modifications address minor grammatical issues; provide guidance for applying the SCS method; and provide additional guidance for accessing the HEC-HMS program through the USACE website.

*2.5.1 – Austin Twenty-Four (24) Hour Storm Rainfall Distributions:* Proposed modifications update references to tables 2-4, 2-5 and 2-7 with tables 2-3, 2-4 and 2-6, respectively; provide guidance for using Table 2-6 in spreadsheet calculations; and provide guidance for using the HEC-HMS model.

*Table 2-7:* Proposed modification rennumbers table as 2-6.

*Section 2.5.2 – Soil Conservation Service Runoff Curve Numbers:* Proposed modifications address minor grammatical issues; update references to Antecedent Moisture Condition with Antecedent Runoff Condition; change reference to Table 2-11 to Table 2-7; provide guidance for using Antecedent Runoff Conditions; remove reference to four soil groups given in the TR-55 publication; update Soil Conservation Service with Natural Resource Conservation Service; and provide link for digital versions of soil datasets.

*Table 2-8:* Proposed modifications renumber table as 2-7 and update assumed soil condition to ARC-II.

*Section 2.5.3 – Time of Concentration:* Proposed additions refer reader to Section 2.4.2 of the DCM for information on the Soil Conservation Services method; address minor grammatical issues; provide additional information on the TR-55 method; include Equation 2-9 for estimating lag time; require that the time of concentration represents overall drainage area; and provide a minimum slope of 0.5%.

*Section 2.6.9 – Probable Maximum Storm/Flood Development:* Proposed addition clarifies that PMP rainfall depths only apply to the City of Austin and its 5-mile ETJ.

*Section 2.6.2 – Probable Maximum Flood:* Proposed modifications update references to Antecedent Moisture Condition with Antecedent Runoff Condition.

## **TEXT OF PROPOSED RULE**

A copy of the complete text of the proposed rule is available for public inspection and copying at the following locations. Copies may be purchased at the locations at a cost of ten cents per page:

Watershed Protection Department, located at 505 Barton Springs Road, Suite 1200, Austin, TX, 78704; and

Office of the City Clerk, City Hall, located at 301 West 2nd Street, Austin, Texas.

## **AUTHORITY FOR ADOPTION OF PROPOSED RULE**

The authority and procedure for the adoption of a rule to assist in the implementation, administration, or enforcement of a provision of the City Code is established in Chapter 1-2 of the City Code. The authority to regulate dedication of drainage easements is established in Section 25-7-152 of the City Code; the authority to regulate design and construction of drainage facilities and improvements is established in Section 25-7-121 of the City Code.

**CERTIFICATION BY CITY ATTORNEY**

By signing this Notice of Rule Adoption R161-13.18, the City Attorney certifies that the City Attorney has reviewed the rule and finds that adoption of the rule is a valid exercise of the Director's administrative authority.

**REVIEWED AND APPROVED**

\_\_\_\_\_  
Victoria J. Li, P.E., Director  
Watershed Protection Department

Date: \_\_\_\_\_

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Karen M. Kennard  
City Attorney

Date: \_\_\_\_\_