WORKSHOP OF THE
SAN MARCOS PLANNING AND ZONING COMMISSION

Tuesday, January 14th, 2014
5:00 – 6:00 p.m.
City Council Chambers
630 E. Hopkins Street

AGENDA

1. Call to Order.

2. Roll Call

3. Discuss proposed revisions to Chapters 5 and 7 of the Land Development Code to clarify language, remove inconsistencies, and modify/add environmental protection standards contained within these chapters. Results of the Open House survey and overall community feedback will also be discussed as related to:

    1) Cut and fill limitations
        a) Examples
        b) Areas of exemption
    2) Additional detention pond requirements
        a) Possible cost factors
        b) Community look and feel
        c) Increased land area
    3) Water Quality requirements within the San Marcos River Corridor.
        a) Sedimentation vs. Sed/Filtration ponds
        b) Area requirements
        c) Cost implications

4. Adjourn.

STORMWATER DETENTION BASIN COMPARISON

Revision Purpose

- Detention for the 100-year storm offers greater flood protection to downstream property owners and reduces flood damages.
- 100-year detention can benefit the City's floodplain management program with FEMA. By implementing 100-year detention, the City may be able to reduce flood insurance costs for property owners.
- Detention for the 2- storm will decrease the peak rate of runoff from developed sites which will help minimize creek bank erosion, can reduce drainage complaints, and improve water quality.
- Detention for the 2- and 10-year storms will help protect downstream property owners from frequent flooding and can reduce drainage complaints to the City.
- Adding the option to include low impact development practices will allow more stormwater management tools such as rainwater harvesting, permeable pavement, rain gardens, conservation landscaping, and others to cost effectively reduce stormwater runoff and detention pond size.

Proposed Land Development Code

5.1.1.3 Runoff Attenuation (For Flood Control in the City limits and ETJ)

5.1.1.3 (b) *Detention Required.* Drainage facilities will be designed and constructed so that the rate of runoff at each existing discharge location from a site after construction shall be equal to or less than the runoff prior to construction for the 2-, 10-, 25-, and 100-year storm frequencies. Rate of runoff and facility design features shall be designed by using the City of Austin Drainage Criteria Manual. Computation of the rate of runoff shall be based on an assumption of a fully developed contributing drainage area or watershed.

5.1.1.3(d) Low Impact Development Practices as described in the Stormwater Technical Manual may be used to reduce the impact of runoff on the natural and built drainage system.

Other Community Stormwater Detention Requirements

Community/ Storm Event	1-YR	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
Austin		X		X	X		X
Buda		X		X	X		X
Cedar Park		X		X	X		X
Cibolo				X			X
College Station		X		X	X		X
Denton	X				X		X
Kyle		X			X		
New Braunfels		X		X	X		X
Round Rock		X		X	X		
San Antonio			X		X		X
San Marcos - Existing		X			X		
San Marcos - Proposed		X		X	X		X
Seguin		X		X	X	X	X
Temple				X			X
Waco		X		X			X

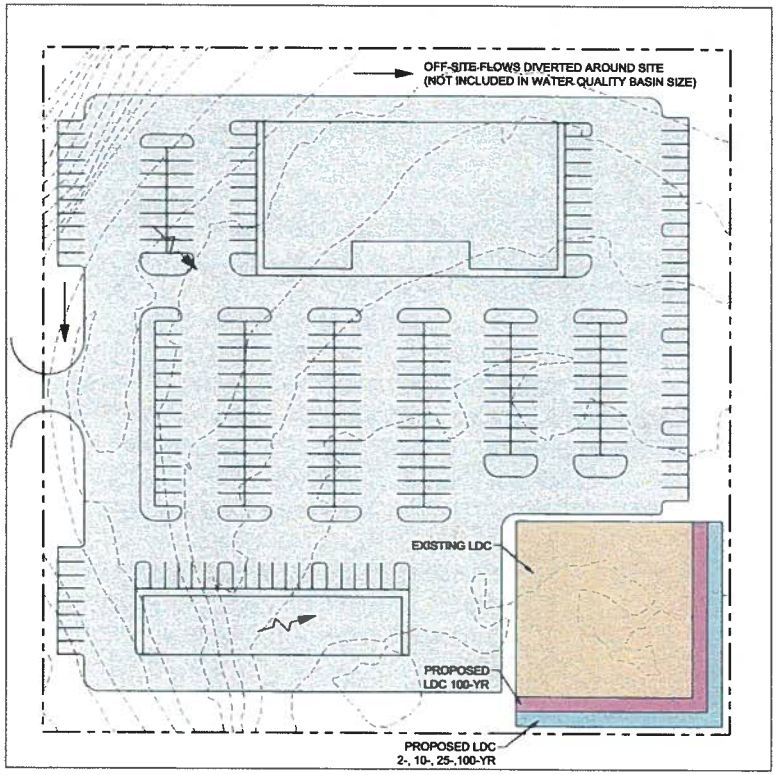
Regulation Comparison

Conceptual 5 acre development site with 70 percent impervious cover
Assume a basin depth of four feet and 3 to 1 side slopes

Regulatory Basis	Stormwater Detention Basin Volume (cubic feet)	Approx. Basin Dimensions (feet)	Basin Area (square feet)	Percent of Site (%)	Estimated Cost[1]
Existing LDC[2]	32,700	120 by 120	14,400	6.7	$90,000
Proposed LDC[3]	41,800	130 by 130	16,900	7.8	$105,000
Proposed LDC[4]	50,000	140 by 140	19,600	9	$120,000

1. Includes design, land, and construction costs
2. Detention for the 25-year storm
3. Detention for the 100-year storm
4. Detention for the 2-, 10-, 25-, and 100-year design storms

** Note:*
Sites, designs, and land cost will vary, other alternatives could be used to reduce the basin footprint.



CONCEPTUAL 5 ACRE SITE PLAN
1" = 40'

3.5 ACRES - 70% IMPERVIOUS COVER OF 5 ACRE COMMERCIAL SITE

25 YEAR DETENTION 120'x120'
0.33 ACRES (6.7% OF SITE)
(EXISTING LDC)

100 YEAR DETENTION 130'x130'
0.39 ARCES (7.8% OF SITE)
(PROPOSED LDC)

2-, 10-, 25-, 100- YEAR DETENTION 140'x140'
0.45 ACRES (9.0% OF SITE)
(PROPOSED LDC)

EXISTING 100-YR FLOODPLAIN

FUTURE 100-YR FLOODPLAIN

*FLOODPLAIN SOURCE: 2007 FLOOD PROTECTION PLAN

RPS
4801 Southwest Parkway,
Parkway 2, Suite 150
Austin, Texas 78735
(512) 326-5659
TBPE #F-293

CLARIFICATION AND ADDITION OF ENVIRONMENTAL REGULATIONS
BASIN COMPARISON EXHIBIT

DEC. 2013

PROJECT NO. 12048.00

SAN MARCOS RIVER CORRIDOR
STORMWATER QUALITY BASIN COMPARISON*

*ONLY APPLIES IN SAN MARCOS RIVER CORRIDOR (SEE MAP)

Revision Purpose

- Improve stormwater quality discharging to the San Marcos River
- Facilitate easier design process by using current standards and not requiring a customized design and calculation approach
- Direct designers to the City of San Marcos Stormwater Technical Manual as the "Contaminant Removal Guidelines for the City of San Marcos" do not exist.

Proposed Land Development Code

5.3.2.2 Water Quality Standards

5.3.2.2 (e) *Water Quality Basins.* All Stormwater runoff from the developed site shall be treated to a level equivalent to that provided by sedimentation-filtration BMPs Water quality detention or sedimentation basins shall be situated and constructed to capture and hold at least the first one-half inch of runoff from the contributing drainage area all impervious cover. All subsequent runoff in excess of the design capacity of the basins shall bypass the basins and remain segregated from the contained runoff waters in a peak shaving basin up to the capacity specified in section 5.1.1.3 (b) the Austin Drainage Criteria Manual.

5.3.2.2 (f) *Design of Water Quality Basins.* The design of all water quality basins shall allow an minimum drawdown time average residence time of 24 hours for the first one-half inch of runoff from the contributing drainage area all impervious cover. The design of all water quality basins shall incorporate efficient removal of contaminants, including but not limited to lead, zinc, iron, total phosphorous, total nitrogen, total suspended solids, and fecal coliform bacteria generated as a consequence of the SMRC development for which a basin is designed as approved by the Engineering Director in accordance with the City of Austin San Marcos Stormwater Technical Manual Containment Removal Guidelines of the City of San Marcos. These basins shall be maintained at all times in accordance with section 5.1.1.7 so that efficient removal of the contaminants is continuous.

Pollution Management
(% reduction in pollution concentration)

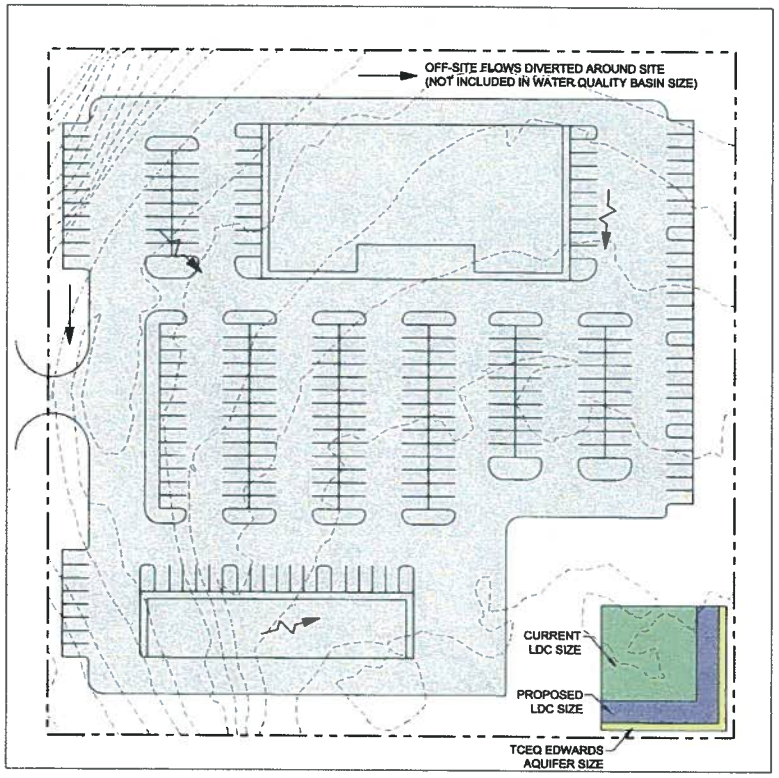
Basin Type	Total Suspended Solids	Total Phosphorus	Total Nitrogen	Zinc	Lead	Bacteria
Water quality detention basin (existing)	70	32	25	42	62	30
Sedimentation filtration basin (proposed)	89	60	31	80	80	36

Regulation Comparison

Conceptual 5 acre development site with 70 percent impervious cover
Assume a basin depth of four feet and 3 to 1 side slopes

Regulatory Basis	Water Quality Basin Volume (cubic feet)	Approx. Basin Dimensions (feet)	Basin Area (square feet)	Percent of Site (%)	Estimated Cost ($)
Existing LDC[1]	6,350	65 by 65	4,225	2	$43,000
Proposed LDC[2]	9,075	80 by 80	6,400	2.9	$60,000
TCEQ Edwards Aquifer[3]	13,600	90 by 90	8,100	3.7	$68,000

1. 0.5 inches of runoff from impervious cover only
2. 0.5 inches of runoff from the contributing drainage area
3. 0.75 inches of runoff from the contributing drainage area



CONCEPTUAL 5 ACRE SITE PLAN
1" = 40'

70% IMPERVIOUS COVER OF 5 ACRE COMMERCIAL SITE

EXISTING LDC SIZE 65'x65'
0.10 ACRES (2.0% OF SITE)
SEDIMENTATION ONLY

PROPOSED LDC SIZE 80'x80'
0.15 ACRES (2.9% OF SITE).
SEDIMENTATION/FILTRATION

TCEQ EDWARDS AQUIFER SIZE 85'x85"
0.19 ACRES (3.7% OF SITE)
SEDIMENTATION/FILTRATION

RPS
4801 Southwest Parkway,
Parkway 2, Suite 150
Austin, Texas 78735
(512) 326-5659
TBPE #F-293

CLARIFICATION AND ADDITION OF ENVIRONMENTAL REGULATIONS
WATER QUALITY BASIN COMPARISON EXHIBIT

DEC. 2013 PROJECT NO 12048.00

CUT AND FILL EXHIBIT

Revision Purpose

- Clarify requirements for developers and City staff (current language is vague as it states "shall minimize the amount of cut and fill...")
- Minimize land disturbance
- Protect water quality
- Manage stormwater quantity
- Protect natural character and terrain
- Aligned with Comprehensive Plan goals
- Retaining walls typically greater than four feet in height require structural design

Proposed Land Development Code

Section 5.1.1.2 Erosion Control Standards

5.1.1.2(d) In order to help reduce stormwater runoff, and resulting erosion, sedimentation and conveyance of nonpoint source pollutants, the layout of the street network, lots and building sites shall, to the greatest extent possible, be sited and aligned along natural contour lines, and shall minimize the amount of cut and fill on slopes within the limits for cut and fill required in subsections (e) and (g) in order to minimize the amount of land area that is disturbed during construction and to ensure that the post construction layout is integrated into the natural environment.

5.1.1.2(e) Cuts on a tract of land may not exceed four feet of depth, except:
(1) in the Downtown SmartCode District;
(2) in a street right-of-way;
(3) for construction of a building foundation;
(4) for utility construction or a wastewater drain field if the area is restored to natural grade; or
(5) in a state permitted sanitary landfill or a sand or gravel excavation located in the extraterritorial jurisdiction, if:
  a. the cut is not in a water quality or buffer zone;
  b. the cut does not alter a 100-year floodplain;
  c. the landfill or excavation has an erosion and restoration plan approved by the City; and
  d. all other applicable City Code provisions are met.

5.1.1.2(f) The surface of a cut area must be restored and stabilized in accordance with the Criteria Manuals identified in 5.1.1.2(b).

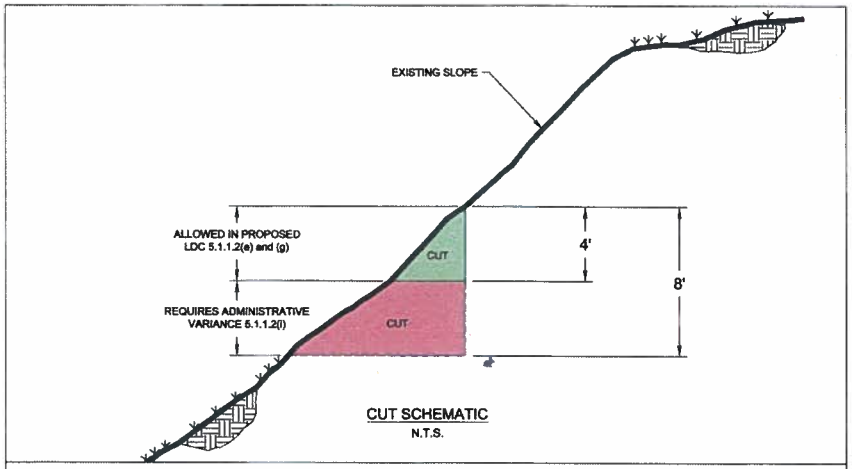
5.1.1.2(g) Fill on a tract of land may not exceed four feet in depth, except:
(1) in the Downtown SmartCode District;
(2) in a street right-of-way;
(3) under a foundation with sides perpendicular to the ground, or with pier and beam construction;
(4) for utility construction or a wastewater drain field
(5) in a state-permitted sanitary landfill located in the extraterritorial jurisdiction, if:
  a. The fill is derived from the landfill operation;
  b. The fill is not placed in a water quality zone, buffer zone, or a 100-year floodplain;
  c. The landfill operation has an erosion and restoration plan approved by the City, and
  d. All other applicable City Code provisions are met.

5.1.1.2(h) A fill area must be restored and stabilized in accordance with the Criteria Manuals identified in 5.1.1.2(b).

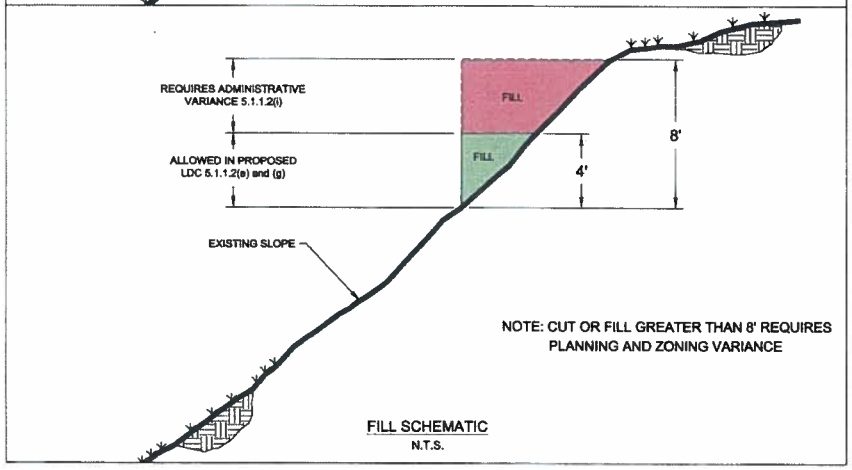
5.1.1.2(i) *Administrative Variances.* The Engineering Director may grant a variance from a requirement of Section 5.1.1.2(e) (cut requirements) or Section 5.1.1.2(g) (fill requirements) for a water quality control or stormwater detention facility, or for a cut or fill of not more than eight feet if the post construction layout is integrated into the natural environment and enhanced measures identified in the Criteria Manuals are used to manage construction and post construction stormwater runoff quality to levels that would be the same or better quality as would result from a cut or fill of not more than four feet.

Section 7.5.1.1 System Design Requirements

(g) *Layout Should Use Natural Contour Lines.* In order to help reduce storm water runoff, and resulting erosion, sedimentation and conveyance of nonpoint source pollutants, the layout of the street network, lots and building sites shall, to the greatest extent possible, be sited and aligned along natural contour lines, and shall minimize the amount of cut and fill on slopes in accordance with the standards for cut and fill set forth in section 5.1.1.2 in order to minimize the amount of land area that is disturbed during construction.



CUT SCHEMATIC
N.T.S.



NOTE: CUT OR FILL GREATER THAN 8' REQUIRES PLANNING AND ZONING VARIANCE

FILL SCHEMATIC
N.T.S.

CUT/FILL IN EXCESS OF 8 FEET

UTILITY TRENCH - NO CUT/FILL LIMITS

BUILDING CONSTRUCTION - NO CUT/FILL LIMITS

Exempt from Cut and Fill Limits

- In the Downtown Smart Code District
- In a street right-of-way
- For construction of a building foundation
- For utility construction
- In a sanitary landfill or a sand/gravel operation

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