ORDINANCE NO. 2014-53

AN ORDINANCE AMENDING THE CITY OF BOERNE SUBDIVISION ORDINANCE NO. 2007-56, DATED NOVEMBER 13, 2007, ARTICLE 1. GENERAL PROVISIONS, SECTION 04. DEFINITIONS, ARTICLE 2, PROCEDURES, SECTION 02. PROCEDURES FOR PRELIMINARY PLAT, SECTION 03. DESIGN AND CONSTRUCTION PLANS, SECTION 05. PROCEDURES FOR FINAL PLAT, ARTICLE 3, PLANNING AND COMMUNITY DESIGN STANDARDS, SECTION 02. TRANSPORTATION NETWORK AND STREET DESIGNS, TABLE 3-4: STREET CROSS-SECTION STANDARDS, ARTICLE 5. STREET SPECIFICATIONS AND CONSTRUCTION STANDARDS, SECTION 07. SIDEWALKS – TIMING, ARTICLE 6. DRAINAGE AND FLOOD HAZARDS, SECTION 04, DRAINAGE SYSTEM DESIGN STANDARDS, ARTICLE 7, WATER AND SEWERS, SECTION 03, WATER MAINS, SECTION 06, ON-SITE SEWAGE FACILITIES, SECTION 07, WASTEWATER SYSTEM DESIGN STANDARDS, ARTICLE 8. UTILITY EXTENSIONS AND GENERAL SUBDIVISION IMPROVEMENTS, SECTION 01, GENERAL REQUIREMENTS, EXHIBIT A, PLAT NOTES.

WHEREAS, the City Council has received recommendations of the Planning and Zoning Commission concerning matters herein;

WHEREAS, the City Council of Boerne has determined that it is in the best interest of the Boerne community to take into consideration the public health, safety and welfare to adopt amendments included herein;

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BEORNE TEXAS:

The following sections of the aforementioned Ordinance are hereby amended to read:

ARTICLE 1. GENERAL PROVISIONS
SECTION 04. DEFINITIONS

Slope Map: A map depicting native slopes of 15–25%, 25–35%, and over 35%. Slopes shall be calculated for each two-foot contour interval over 50 horizontal feet and shall be established by measurement of distance perpendicular to the contour of the slope (rise in feet per horizontal distance in feet).

Steep Slope: Land area where the inclination of the land's surface from the horizontal plane is fifteen percent (15%) or greater. Slope is determined from on-site topographic surveys prepared with two-foot contour interval or topography taken from controlled aerial photography at two foot contour intervals. The percent of slope shall be calculated for each two-foot contour interval and shall be established by measurement of distance perpendicular to the contour of the slope (rise in feet per horizontal distance in feet). *(Ord. No. 2014-02, §1, 2-25-2014)* Man-made slopes (such as a quarry or retaining wall) constructed prior to 2013 shall not be considered steep slopes *(Ord. No. 2008-25, §1, 8-12-2008)*

Steep Slope Area: That part of the lot that encompasses the steep slope.

ARTICLE 2. PROCEDURES
SECTION 02. PROCEDURES FOR PRELIMINARY PLAT

2.02.001 <u>Submission</u>.

B. Three copies of a preliminary water distribution and sanitary sewer plan bound together with the preliminary plat, including proposed pipe sizes and sewer grading (deliver to Public Works).

K. A Slope Map as identified in the Zoning Ordinance section 3.05.003C.

2.02.002 Form and Content of Plat.

M. A number to identify each lot and each block, the approximate width and depth of each lot, the acreage identified for each lot and a note of the approximate area of the smallest lot. In a grid street system identify the approximate perimeter of each block, and a note on the approximate perimeters of the largest and smallest blocks. If the alternative compliance for block sizes permitted by Article 3, Section 3.04 will be used, this shall be specified and the approximate areas where the street connectivity ratios may be different shall be indicated.

W. If applicable, areas identified as steep slope with a slope of 15% or greater.

SECTION 03. DESIGN AND CONSTRUCTION PLANS

Any time after approval of a preliminary plat, a subdivider may prepare the following, administratively complete design and construction plans and engineer's estimated cost documents for review, comment or filing to the City (hereinafter referred to as the "submittal"). Three complete bound sets as identified in Section 8.01.003 shall be filed with the Department of Public Works, 400 E. Blanco prior to submittal of a final plat. Design and construction plans shall be bound with a copy of the proposed plat which will be submitted for consideration.

SECTION 05. PROCEDURES FOR FINAL PLAT

2.05.004 Formal Filing with the Planning and Zoning Commission.

A minimum of 14 days prior to the Planning and Zoning Commission meeting, and upon receipt of the review comments by staff, or upon failure of the City to provide written comments, the subdivider may make formal filing to the Planning and Zoning Commission, or after completion and acceptance of the submittal including any revisions or corrections suggested by staff. The formal filing shall contain the following:

A. Twenty (20) folded copies of the final plat plus one 8½ x 11 black and white copy suitable for making overheads.

B. At least three (3) original signed and sealed Mylars of the final plat for recording, plus an original, notarized affidavit showing the taxes have been paid, including copies of the paid tax statement from the Kendall County Appraisal District.

C. A check for recording fees in the amount as determined by Kendall County.

D. Two copies of the digital file of the final plat in a format specified by the City Manager, and one copy of the final plat in .pdf format.

ARTICLE 3. PLANNING AND COMMUNITY DESIGN STANDARDS

SECTION 02. TRANSPORTATION NETWORK AND STREET DESIGNS.

3.02.002 Transportation Network Plan.

E. ***External Connections.*** All new streets shall align with any existing or proposed streets on adjacent property, and shall continue and extend arterial, collector, and local streets within the proposed subdivision externally to the parcel boundary as follows:

2. Local street connections shall be provided and extended to the boundary of the site in any subdivision that contains more than 30 residential lots in a manner that all blocks and parcels in the subdivision meet the block standards in Article 3, Section 3.04. The City may require local streets to stub to the property edge where future development or re-subdivision of adjacent property is anticipated. Where there are more than 30 residential lots a separate and approved fire apparatus access road shall be provided.

5. A fence constructed of solid masonry or other material approved by the Planning and Zoning Commission shall be a minimum of 6 feet in height and shall be constructed at the perimeter of a residential area along a Collector or Arterial street classifications.

3.02.003 Street Cross-section Standards.

TABLE 3-4: STREET CROSS-SECTION STANDARDS
Specific measurements are identified in the table below to give the developer direction in preliminary planning. Proper design of any portion of a street may require modification depending on the context. The cross-sections below shall be interpreted by City staff for each subdivision following the pre-application conference.

	COLLECTOR					ARTERIAL					
	Avenue [3]		Secondary	Primary		Parkway / Neighborhood [2]	Avenue[3]		Minor	Major [8]	
Expected Daily Traffic	< 10,000	> 10,000	< 3,000	< 10,000	> 10,000	< 20,000	< 54,000	> 54,000	< 20,000	< 54,000	< > 54,000
Desired Vehicle Speeds	< 25 mph	< > 25 mph	30 – 35 mph	35 – 40 mph	35 – 40 mph	35 – 40 mph	< 25 mph	< > 25 mph	40 – 45 mph	45 + mph	45 + mph
Right-of-way Width [4]	70’	108’	74’	72’	94’	100’	92’	112’	104’	108’	122’
Sidewalk width / Both sides[6]	10’	10’	5’	5’	5’	8’	12’	12’	5’	5’	5’

Table 3-4 Notes

[1] The Rural street design type is a special type permitted only for Local or Collector streets in Rural Cluster subdivisions according to Article 4, Section 02, or in the Rural Residential or Low-Density Residential Development Patterns of the Boerne Master Plan.

[2] The Neighborhood street design type is a special type permitted only for residential uses platted with a Grid / Modified Grid or Curvilinear Transportation Network Plan per section 3.02.002 of these regulations. It may be applied to the Local or Collector street classifications, or to an Arterial street classification as a “Parkway”, according to this table.

[3] The Avenue street design type is a special type permitted only for non-residential uses platted with a Grid / Modified Grid Transportation Network Plan per section 3.02.002, and supporting the Neighborhood, Mixed Use or Commercial Development Patterns in the Boerne Master Plan. It can be applied to Local, Collector or Arterial street classifications, but shall be applied only along those blocks where a pedestrian atmosphere is anticipated and where street designs can transition to slower desired speeds.

[4] Where greater right-of-way widths are designed to provide a greater civic amenity in the right-of-way, this area in addition to the minimum may be counted towards the Civic Open Space requirement of the proposed subdivision per Section 3.02.003.D.

[5] The Yield Lane shall be limited in application according to Section 3.02.003.A.

[6] Sidewalks and Parkways shall be designed and located based on context according to Section 3.02.003.C. Additional landscape / utility easements may be necessary to allow appropriate urban design and still meet the pedestrian and utility accessibility standards. If a trail that provides direct access from each lot is provided the Planning and Zoning Commission may waive the requirement to have sidewalks on both sides of the street. A 12’ concrete (or like material) multi-use trail shall be provided in lieu of a 5’ sidewalk/bike lane on some collectors/arterials determined by the Planning Director.

[7] The requirements for medians may be waived by the directors of Public Works and Planning if deemed unnecessary.

[8] Right-of-Way classified by TxDOT as an Interstate Highway (IH-10) shall be constructed per TxDOT standards.

ARTICLE 5. STREET SPECIFICATIONS AND CONSTRUCTION STANDARDS

SECTION 01. GENERAL LAYOUT AND ALIGNMENT OF STREETS

Adequate streets shall be provided by the subdivider, and the arrangement, character, extent, width, grade and location of each shall be as specified in Article 3, Planning and Community Design Standards.

Private streets are restricted as described in Section 11.

SECTION 07. SIDEWALKS - TIMING

Sidewalks, the width set forth in Table 3-4: Street Cross-Section Standards of this ordinance, shall be installed in the appropriate location adjacent to all properties-fronting a street at such time as that lot is developed. This includes all lots/tracts or parcels that front any portion of IH-10 right-of-way. Locations of sidewalks within State right-of-way shall be as directed by TxDOT and a sidewalk permit must be approved by TxDOT, prior to construction within State right-of-way.

Construction of the sidewalks on each street is not necessary until construction begins on the first building on that street. However, to avoid undue costs and damage to sidewalks, the subdivider, developer or builder may construct the sidewalk on each lot as it is developed. In no case will a Certificate of Occupancy be issued for a building until the required sidewalks have been constructed. In areas, sites, or other portions of streets where no building will be constructed and sidewalks are required by these regulations, the sidewalks shall be constructed with other required street infrastructure. Sidewalks, including portions within any driveway aprons, shall meet City and TDLR standards.

ARTICLE 6. DRAINAGE AND FLOOD HAZARDS

SECTION 04. DRAINAGE SYSTEM DESIGN STANDARDS

B. *Computer Models.* Computer models shall be prepared using the HEC-HMS software developed by the US Army Corps of Engineers Hydrologic Engineering Center. Parameters for the model shall be determined as described herein. Rainfall and runoff relationships shall be based on the methodology and parameters provided in TR-55 Urban Hydrology for Small Watersheds (TR-55) published by the Natural Resource Conservation Service (NRCS) except as modified herein.

i. Runoff: The TR-55 option in HEC-HMS shall be used for runoff calculations. Curve numbers shall be determined from the values given in TR-55. In addition, impervious cover values shall be estimated from aerial photos for existing conditions. For post-development conditions, the maximum anticipated impervious cover shall be used with the appropriate curve number for the development. An assumption that the initial abstraction is equal to 0.2 times the maximum soil retention per TR-55 shall be used unless calibration data is available to justify other figures to the satisfaction of the City Manager.

ii. Rainfall: Values from Table 6-5 shall be used to calculate the rainfall depth-duration-frequency relationships for the model. Rainfall distribution shall be based on the Type II distribution per TR-55.

TABLE 6-5: BOERNE RAINFALL DEPTHS FOR VARIOUS DURATIONS AND FREQUENCIES.

Duration (Minutes)	Frequency					
	2-year (Inches)	5-year (Inches)	10-year (Inches)	25-year (Inches)	50-year (Inches)	100-year (Inches)
5	0.56	0.73	0.83	0.97	1.09	1.18
10	0.88	1.14	1.30	1.52	1.71	1.86
15	1.09	1.41	1.62	1.90	2.13	2.33
20	1.24	1.62	1.86	2.18	2.45	2.68
30	1.48	1.93	2.21	2.59	2.92	3.20

45	1.70	2.24	2.57	3.02	3.41	3.74
60	1.87	2.47	2.83	3.33	3.76	4.13
120	2.28	3.04	3.48	4.12	4.66	5.12
180	2.52	3.39	3.87	4.62	5.22	5.73
240	2.72	3.64	4.16	4.96	5.64	6.20
360	2.94	4.02	4.62	5.52	6.24	6.84
720	3.48	4.80	5.40	6.60	7.44	8.16
1440	4.08	5.52	6.48	7.68	8.88	9.60

iii. Unit hydrograph development shall be based on the Snyder-Clark Synthetic Unit Hydrograph. The following equations and parameters shall be used unless a more precise calibration is provided and approved by the City Manager.

Use the following to compute the duration of the Unit Hydrograph:

$$t_r = \frac{t_p}{5.5}$$

Where:
t_r = Unit hydrograph duration (hours).
t_p = basin lag time (hours).

Use the following to compute the basin lag time:

$$t_p = C_L \left(\frac{L \cdot L_C}{\sqrt{s}} \right)^n$$

Where:
t_p = basin lag time (hours).
L = the main stream distance from the outlet to the divide (miles).
L_c = the main stream distance from the outlet to a point opposite the basin centroid (miles).
C_L = Basin lag coefficient, use 0.15 to 0.18 depending upon level of watershed development.
S = average watershed slope (ft/ft)
n = basin exponent coefficient, use 0.34.

The peak discharge of the unit hydrograph shall be calculated by:

$$q_p = \frac{C_p 640 A}{t_p}$$

Where:
q_p = peak discharge of the unit hydrograph (cfs).
C_p = Snyder's peaking coefficient, per Table 6-6.
A = watershed size (sq. mi.).
t_p = basin lag time (hours).

TABLE 6-6: SNYDER'S PEAKING COEFFICIENT

Watershed Type	Average Watershed Slope	C_P
Flat	S ≤ 0.5%	0.55
Moderate	0.5% ≤ S ≤ 1.5%	0.61
Rolling	1.5% < S ≤ 3.0%	0.71
Steep	S > 3.0%	0.80

iv. For channel routing, use the Muskingum-Cunge method. For reservoirs and other structures, use the actual stage-storage-outflow curves.

6.04.003 <u>Hydraulic Calculations.</u>

Hydraulic calculations shall be based on industry standard methods and as described herein. The purpose of hydraulic calculations shall be to determine the depth, velocity, and width of flow in drainage systems. Small systems may be designed based on normal depth calculations using Manning's equation. Large systems must be modeled using acceptable computer software. Closed systems must include calculations for inlet capacity, pipe capacity, hydraulic grade line and energy grade line. Flow depths and hydraulic grade lines shall be plotted on construction plans.

A. *Open Systems*. Open systems include channels, swales, detention ponds and other open forms of drainage conveyance and/or storage.

i. Small systems: Small systems have a maximum normal depth of 3.0 feet and serve a watershed smaller than 100 acres. Normal depth calculations shall be used for design based on the Manning's equation:

$$V = \frac{1.486}{n} R^{2/3} S_f^{1/2}$$

Where:
V = average flow velocity in feet per second.
N = Manning's roughness coefficient.
R = hydraulic radius = $\frac{A}{WP}$ in feet.
S_f = Friction slope in feet per foot, assumed equal to channel slope.
A = flow area in square feet.
WP = wetted perimeter in feet.

The average flow velocity and flow area are related to the discharge flow rate as follows:

$$Q = VA$$

Where *Q* = discharge flow rate in cubic feet per second.

ii. Large systems: Large systems either have a normal depth greater than 3.0 feet or serve a watershed of 100 acres or more. These systems require that a backwater model be prepared to show the depth of flow and velocity in the system. Natural channels shall be modeled using HEC-RAS computer software developed by the US Army Corps of Engineers Hydrologic Engineering Center. Other channels may also be modeled using HEC-RAS. Uniform cross-section channels may be modeled using the standard step procedure in hand calculations or other software programs acceptable to the City Manager. Both methods shall make use of the Manning's equation for channel friction losses. For natural channels, Manning's n values should be estimated using experienced judgment and information presented in publications such as the *Guide for Selecting Manning's Roughness Coefficients for Natural Channels and Flood Plains*, FHWA-TS-84-204, 1984, FHWA HEC-15, 1988, or Chow, 1959. Some of these values are given in Table 6-7 below. Use the values in Table 6-8 below for artificial channels.

TABLE 6-7: ROUGHNESS COEFFICIENTS (MANNING'S N) FOR NATURAL CHANNELS		
Channel Description	Manning's n	
MINOR NATURAL STREAMS		
Fairly regular section		
1. Some grass and weeds; little or no brush	0.030	
2. Dense growth of weeds, depth of flow materially greater than weed height	0.035	
3. Some weeds, light brush on banks	0.035	
4. Some weeds, heavy brush on banks	0.050	
5. Some weeds, dense willows on banks	0.060	
For trees within channels with branches submerged at high stage, increase above values by	0.010	
Irregular section with pools, slight channel meander, increase above values by	0.010	
Floodplain – Pasture		
1. Short grass	0.030	
2. Tall grass	0.035	
Floodplain – Cultivated Areas		
1. No crop	0.030	
2. Mature row crops	0.035	
3. Mature field crops	0.040	
Floodplain – Uncleared		
1. Heavy weeds scattered brush	0.050	
2. Wooded	0.120	
MAJOR NATURAL STREAMS		
Roughness coefficient is usually less than for minor streams of similar description on account of less effective resistance offered by irregular banks or vegetation on banks. Values of "n" for larger streams of mostly regular sections, with no boulders or brush	Range from 0.028 to 0.060	
UNLINED VEGETATED CHANNELS		
Clays (Bermuda Grass)	0.035	
Sandy and Silty Soils (Bermuda Grass)	0.035	
UNLINED NON-VEGETATED CHANNELS		
Sandy Soils	0.030	
Silts	0.030	
Sandy Silts	0.030	
Clays	0.030	
Coarse Gravels	0.030	
Shale	0.030	
Rock	0.025	

TABLE 6-8 MANNING'S ROUGHNESS COEFFICIENTS (N) FOR ARTIFICIAL CHANNELS				
		Depth Ranges		
Category	*Lining Type*	0-0.5 ft	0.5-2.0 ft	>2.0 ft
Rigid	Concrete	0.015	0.013	0.013
	Grouted Riprap	0.040	0.030	0.028
	Stone Masonry	0.042	0.032	0.030
	Soil Cement	0.025	0.022	0.020
	Asphalt	0.018	0.016	0.016
Unlined	Bare Soil	0.023	0.020	0.020
	Rock Cut	0.045	0.035	0.025
Temporary*	Woven Paper Net	0.016	0.015	0.015
	Jute Net	0.028	0.022	0.019
	Fiberglass Roving	0.028	0.022	0.019
	Straw with Net	0.065	0.033	0.025
	Curled Wood Mat	0.066	0.035	0.028
	Synthetic Mat	0.036	0.025	0.021
Vegetated lining	Sod lining	0.035	0.035	0.030
		0.030	0.030	0.028
Gravel Riprap	1-inch D_{50}	0.044	0.033	0.030
	2-inch D_{50}	0.066	0.041	0.034
Rock Riprap	6-inch D_{50}	0.104	0.069	0.035
	12-inch D_{50}	–	0.078	0.040
Note: Values listed are representative values for the respective depth ranges. Manning's roughness coefficients, n, vary with the flow depth.				
*Some "temporary" linings become permanent when buried.				

Source: HEC-15, 1988.

iii. Detention and Retention Ponds: Detention ponds shall be analyzed using commercially available software approved by the City Manager or HEC-HMS. Inflow hydrographs developed in accordance with Section B, above shall be used with the design depth-volume-discharge rating curve for the pond to determine the outflow hydrograph. An outflow hydrograph shall be plotted for each of the design storms. The pond may use a combination of culverts, weirs and spillways to control the outflow from the pond. Culverts used as outflow structures must be designed for inlet control. The pond embankment shall include one foot of freeboard above the 100-year maximum depth. A spillway shall be provided to prevent breach of the pond embankment.

B. *Closed Systems.* Closed systems include underground storm sewers, culverts and any drainage system with the potential for being surcharged. Refer to the Hydraulic Manual published by Texas Department of Transportation, Bridge Division for design procedures, equations, parameters, and other information for design of closed drainage systems except as modified herein. Software programs acceptable to the City Manager that use procedures and equations derived from the Hydraulic Manual may be used. Spreadsheets and other non-commercial software calculations must show each step and be adequately documented for approval by the City Manager.

i. Storm sewer systems shall be designed for gravity flow with no surcharge with flows from the 5-year storm. The Hydraulics shall then be checked for the 100-year storm by plotting the hydraulic grade line and energy grade line for the system. The final system design shall not allow the energy grade line to be higher than the ground and shall maintain the hydraulic grade line below ground by at least one foot at all locations within the storm sewer system. Refer to the Hydraulic Manual for inlet capacities, entrance loss calculations and other factors required to calculate and plot the energy and hydraulic grade lines.

ii. Culverts shall be designed in accordance with the procedures and factors in the Hydraulic Manual. Variances from this procedure shall be approved by the City Manager.

6.04.004 Use of streets as Drainage Facilities.

Streets may be used to carry storm water to dedicated drainage facilities. However, streets may not be used as a continuation of or discharge for other drainage facilities such as ponds, channels, or sub-surface facilities without approval of the City Manager. The maximum spread of storm water in street gutters must provide for the requirements of Table 6-9 below. The depth of flow in streets shall be measured at its deepest point, at the curb in the gutter. Inlets shall be provided to minimize the flow of storm water in streets and alleys. Streets carrying storm water shall have a minimum cross slope of 2% at all times except at transitions from crowned sections to superelevated sections. In transition, the longitudinal slope shall be a minimum of 0.70% whenever the cross slope is less than 2% and the requirements of Table 6-9 must be met. Inlets should be provided on both sides of crowned streets to remove storm water. Thoroughfares, arterials, and collectors shall not allow storm drainage to cross traffic lanes unless approved by the City Manager.

TABLE 6-9: STORM WATER CARRYING CAPACITY OF STREETS BY FUNCTIONAL CLASSIFICATION

Functional Classification	5-Year Criteria	100-Year Criteria
Regional Thoroughfare	Two 12' lanes dry	Maximum 6 IN depth
Arterial (Undivided)	Two 11' lanes dry	Maximum 6 IN depth
Arterial (Divided)	One 11' lane dry each direction	Maximum 6 IN depth
Collector	One 12' lane dry	Contained within ROW
Local (Non-residential)	One 10' lane dry	Contained within ROW
Local (Residential)	Max 6 IN depth	Contained within ROW
Access	Curb full	Contained within ROW

6.04.005 Storm Sewers.

Where storm sewers are provided, they shall be designed in accordance with the above criteria in Section 6.04.003.B and the structures provided shall be designed and constructed in accordance with design criteria and assumptions used in the design. A final design report shall provide the calculations and show that the structures and facilities included in the construction plans will function as the calculations describe. Calculations of hydraulic grade shall be shown in the report and the line plotted on the profiles included in the construction plans.

6.04.006. Capacity of Open Drainage Channels.

The design of all open drainage channels shall be based on a 100-year storm frequency and must be approved by the City Manager. All open drainage channels shall be designed with at least the minimum freeboard specified in Table 6-10 ~~9~~ below.

TABLE 6-10: MINIMUM DRAINAGE CHANNEL FREEBOARD

Design Depth of Flow	Required Freeboard
Less than 5 feet	0.5 foot
5 – 10 feet	10% of design depth
More than 10 feet	1.0 foot

Add extra freeboard whenever design conditions such as channel bends or turns require it.

6.04.007 Lining of Open Drainage Channels

Use Table 6-11 below to determine the channel lining used for scour protection and erosion control. The maximum calculated velocity shall be used for design. The only approved linings are shown in Table 6-11, no other channel linings are approved unless specifically approved by the City Manager.

TABLE 6-11: VELOCITY CONTROL REQUIREMENTS

Maximum velocity	Type of Channel Lining Required
Less than 3 feet per second	Vegetated earth or sod lined
3 – 5 feet per second	Sod lined
More than 5 feet per second	Concrete lined

ARTICLE 7. WATER AND SEWERS

SECTION 03. WATER MAINS

7.03.001 General Specifications.

Piping for water mains and connections shall be poly-wrapped ductile iron AWWA C151/C105 or Polyvinyl Chloride (PVC) AWWA C900, with either mechanical or single rubber gasket joints. Polyethylene pipe conforming to AWWA standards may be used in new construction when approved by the City Manager. All pipe and accessories shall be of new materials only.

7.03.004 Looping Requirements.

In all areas, water mains shall be looped between water mains whose inside diameter is eight inches or larger, except dead end mains in cul-de-sacs up to 600 ft shall be allowed.

SECTION 06. ON-SITE SEWAGE FACILITIES

When specifically authorized by the Planning and Zoning Commission, on-site sewage facilities may be utilized for wastewater disposal. All lots in the subdivision which utilize private wells and on-site sewage facilities shall obtain approval from and adhere to the regulations provided by Cow Creek Groundwater District and TCEQ (Texas Commission on Environmental Quality). Lots in subdivisions being served with water provided by a public or other community water system may utilize individual on-site sewage facilities provided all lots within the subdivision have a minimum area of 45,000 square feet and a street frontage of at least 150 feet unless the water system is providing water from a source that is outside the jurisdiction of the Cow Creek Underground water District then the standards set forth in Section 3.04.003.B shall be followed. Any method of on-site wastewater disposal other than conventional on-site sewage facilities shall require the specific approval of the Planning and Zoning Commission on a lot by lot basis. On-site sewage facilities shall be installed on each lot concurrent with any development thereon and the design of such system and the method of installation shall conform in all respects to the requirements of the Kendall County Office of Development Management.

SECTION 07. WASTEWATER SYSTEM DESIGN STANDARDS

7.07.007 Lift Stations and Force Mains.

Lift station capacity shall be no less than 100 gallons per minute per pump. Lift station force mains shall be designed and sized to produce a complete exchange of wastewater every other cycle of the pumps. Force mains and fittings shall be of ductile iron, Polyethylene or PVC pipe, pressure class 150. The pipe shall have either mechanical joints or rubber gasket joints as approved by the City Manager. The minimum force main size shall be four inches. Lift stations shall be enclosed, for noise and odor control, in a building that matches the general architecture of the subdivision.

ARTICLE 8. UTILITY EXTENSIONS AND GENERAL SUBDIVISION IMPROVEMENTS

SECTION 01. GENERAL REQUIREMENTS

8.01.003 Construction Plans.

Construction plans shall be submitted as provided in Article 2. Constructions Plans shall meet the following requirements.

C. Three complete bound sets of construction plans, specifications and contract documents shall be filed with the City Manager after approval of a preliminary plat. These plans and specifications shall include the following, all in compliance with the specifications and Design Standards of this ordinance:

1. Street plans, showing roadway cross sections and longitudinal slope for drainage, a full description of the proposed pavement or other street improvement, and its grade and slope.

2. Drainage system plans, sanitary sewer system plans, water system plans, electric plans, natural gas plans, and the overall utility layout. showing the dimensions and specifications of the improvements to be installed, including proposed position on the ground, specifications of materials and construction, profile maps showing both ground surface and flow line, and other pertinent information of similar nature.
3. A final erosion control and construction phasing plan as specified in Article 6, Section 01.003.
4. A copy of the associated plat shall be attached to each set of plans.

EXHIBIT "A"

PLAT NOTES:

LANDSCAPE NOTE:
Residential lots in excess of 12,500 square feet shall only irrigate the area that lies within 75 feet of the main residence. Turf grasses shall be limited to Zoysia, Buffalo or Bermuda grasses or other grasses approved by the City Manager or his or her designated representative. (Ord. No. 2004-20) Xeriscaping is permitted as described in the City of Boerne Zoning Ordinance Article 3, Section 3.07.003D.

SIDEWALK NOTES:

At such time as a lot is developed, five-foot wide [Substitute larger where required] reinforced concrete sidewalks shall be installed adjacent to all property lines of each lot where the lot abuts public or private street.

PASSED and APPROVED on first reading this the 18th day of November, 2014.

PASSED, APPROVED, and ADOPTED on second reading this the 16th day of December, 2014.

APPROVED:

s/s Michael D. Schultz
Mayor

ATTEST:

s/s Lori A. Carroll
City Secretary

APPROVED AS TO FORM:

s/s Kirsten B. Cohoon
City Attorney