

City of Tulare Design Guidelines



SECTION A – GENERAL

1. All improvements within the City right-of-way shall be installed in accordance with the City of Tulare Technical Specifications and Public Improvement Standards, except as approved on the construction plans.
2. Full Public Works Improvements shall be required across the full frontages of the developed parcels together with any off-site extensions of utilities and/or street construction necessitated by the development.
3. Development shall comply with all applicable federal, state and local laws, codes, ordinances and regulations.

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SECTION B – STREETS

1. Streets shall be designed in accordance to applicable provisions of Section 8.24.040 of the City of Tulare Municipal Code, the City of Tulare Public Improvement Standards, City of Tulare Technical Specifications and this section.
2. R-value tests shall be taken at the anticipated sub grade depth at four-hundred (400') feet maximum spacing. A minimum of two R-Values shall be taken at different locations. Areas with lower R-Values shall be considered to end at the higher R-Values.
3. Pavement design shall follow the California Department of Transportation Highway Design Manual, be based on a 20 year design life and the R-Value of the subgrade material. In no case shall the structural pavement section be less than noted in Section B.5 of these Design Guidelines.
4. Traffic indices shall be as follows:

Street Classification	T.I. (20 Year)
Residential Cul-de-sacs	4.5
Local Streets	5.0
Collectors	6.5
Commercial/Industrial Streets	8.5
Minor Arterials	Per City Engineer
Major Arterials	Per City Engineer
Alleys	Per City Engineer

5. Minimum structural pavement sections shall be as follows:

Street Classification	Asphalt Concrete Thickness (inches)	Aggregate Base Thickness (inches)
Residential Cul-de-sacs	2.5	5.0
Local Streets	3.0	6.0
Collectors	4.0	8.0
Industrial Streets	5.0	11.0
Minor Arterials	5.0	10.0
Major Arterials	5.5	11.0

6. All underground facilities, including sewer laterals and water services, shall be extended to clear new street paving.
7. Cross slopes on new streets shall normally be two (2%) percent. When matching existing improvements on established streets, variable cross slopes are permissible, if justified; acceptable ranges are from one (1%) percent minimum to three (3%) percent maximum without special permission. Changes in cross slopes shall be gradual.
8. Necessary pavement transitions will be required of the developer.
9. Saw cut the edges of structurally sound asphalt concrete pavement to be joined with new asphalt concrete.

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10. New or replacement striping and other pavement markings necessitated by the development are the developer's responsibility.
11. When asphalt concrete is to be placed on the grading plane, the grading at any point shall not vary more than 0.02 foot above or below the grade established by the Engineer.
12. When subbase or base material is to be placed on the grading plane, the grading plane at any point shall not vary more than 0.04 foot above or below the grade established by the Engineer.

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SECTION C – SANITARY SEWER

1. Sanitary Sewer facilities shall be designed in accordance to applicable provisions of Chapter 7.20 of the City of Tulare Municipal Code, the City of Tulare Public Improvement Standards, City of Tulare Technical Specifications and this section.
2. Minimum pipe cover shall be not less than 2.25 and 2.75 feet without encasement or special pipe on non-arterial and arterial streets, respectively. However, where applicable, sewer depths shall also be adequate to install sewer laterals that conform to City Standards.
3. Maximum grade of sewer mains shall not cause a greater velocity than twelve (12 fps) feet per second at average flow.
4. Minimum grade of sewer main shall be as follows:

Pipe Size (Inches)	Minimum Grade (Percent)	
	Condition 1	Condition 2
8	0.33	0.20
10	0.24	0.15
12	0.19	0.10
15	0.14	0.084
18	0.11	0.063
21	0.09	-
24	0.08	-
27	0.07	-
30	0.06	-
36	0.04	-
42	0.04	-

Condition 1: Where the sewer can be extended to satisfactorily serve the ultimate service area without necessitating a lift station.

Condition 2: For 8 inch to 18 inch diameter mains that are not covered by Condition 1. Approval from the City Engineer is required for Condition 2.

5. Manholes shall be installed at the following locations:
 - a. At all changes in sewer pipe slope.
 - b. At all direction changes including reverse curves (manholes are not required for beginning and ending points of tangential curves).
 - c. At main sewer junctions.
 - d. At junction between private lateral and sewer main if lateral is the same size as the sewer main.
 - e. At final upstream termination of sewers.
 - f. At change of sewer main pipe size.
6. Manhole spacing shall be a maximum of three-hundred-fifty (350) feet, unless greater spacing is approved by the City Engineer. In no case shall this spacing exceed four-hundred-fifty (450) feet.

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7. Pipe invert elevations shall match for sewer mains going straight through manholes.
8. Curves may be permitted in sewer mains provided that pipe deflection is limited to manufacturer's recommendations, with a minimum radius of 200 feet, and the curve is only in one plane (horizontal or vertical) between adjacent manholes.
9. A one-tenth (0.10') foot invert drop shall be used for right angle changes of directions in manholes.
10. Sewer laterals shall be installed to 5' inside the property line of each single-family residential lot and shall be located a minimum of 5' from drive approach, 5' from property line, 5' from street trees and 10' from water service (measured center to center of pipes).
11. Sewer lateral location for all development other than single family residential shall be as approved by the City Engineer.
12. Sewer laterals shall not be connected to sewer manholes, except at the end of cul-de-sacs. A maximum of two laterals may be connected to such manholes. At permanent termini of sewer systems, laterals shall be connected downstream from the manhole.
13. Cleanouts are required at the temporary terminus of all sewer mains that will be extended in the future when one or more sewer laterals are connected to the sewer run and a manhole would not normally fall at or near the terminus.

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SECTION D – STORM DRAINAGE

1. Storm drainage facilities shall be designed in accordance with the City of Tulare Storm Drainage Master Plan, dated July 2009 as prepared by Carollo Engineers, the City of Tulare Public Improvement Standards, City of Tulare Technical Specifications and this section.
2. Definitions:
 - a. Retention Basin: A basin designed to hold runoff indefinitely.
 - b. Detention Basin: A basin designed to temporarily hold runoff and slowly drain to another location (usually by pumping).
3. Hydraulic computations shall be based on the following design methods:
 - a. Rational Design Method ($Q=CIA$) where:
 - Q = Flow (c.f.s.)
 - C = Runoff Coefficient (see Table D.1)
 - I = Rainfall Intensity Factor (in./hr., see Figure D.1)
 - A = Drainage Areas (Acres)Time of concentration values (travel time) for use in determining rainfall intensity factor shall consider overland flow, gutter flow, channel flow and pipe flow.
 - b. Other design methods as approved by the City Engineer.
4. Storm drainage conveyance facilities shall be designed for the following recurrence intervals:
 - Tributary Area \leq 160 Acres: 5 year storm recurrence interval.
 - Tributary Area $>$ 160 Acres: 10 year storm recurrence interval.
 - Master Plan Facilities: 10 year storm recurrence interval.
5. Storm drain piping shall be designed to have a minimum flow velocity of 2.5 ft./sec. under flows from the design storm recurrence interval.
6. Storm piping shall convey the flows for the storm recurrence interval assuming the storm basin is filled to 50% of its design capacity. Under this condition, there is no minimum flow velocity requirement.
7. Retention basins where runoff is infiltrated shall be designed based on the 100-year/24-hour storm event (3.13 inches).
8. Detention basin capacity shall be based on the 10-year/48hour storm event (2.48 inches). Detention basins may only be used with approval from the City Engineer.
9. Basin freeboard shall be set at a minimum of one (1') foot below the top of the lowest drop inlet grate or lowest gutter flow line, whichever is lowest, except freeboard on temporary basins with design water depth of one (1') foot or less may be reduced to six (6") inches.
10. Basins shall have chain link fence with barbed wire, mow strip and privacy slats, except privacy slats may be eliminated as approved by the City Engineer in areas where screening is not required. The material and color of privacy slats shall be approved by the City Engineer and noted on the drawings. Gate shall have twelve (12') foot (total width) double swing gates.

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11. Bank slopes in basins shall not be steeper than 3:1 (horizontal to vertical). Slope stability in basins deeper than 15 feet shall be certified in writing by a registered civil or soil engineer. Private basins shall not be steeper than 2:1 (horizontal to vertical) provided a slope stability analysis (prepared by a registered civil or soil engineer) shall be provided for basins deeper than 10 feet. Basins located near canals, ditches or other waterways shall be designed to ensure excessive water does not infiltrate between the waterway and basin.
12. Basin ramps shall have a minimum width of drive surface of twelve (12') feet with two (2%) percent cross slope and ten (10%) percent maximum longitudinal slope. Ramps shall not end in basin nuisance areas.
13. Basin bottoms shall slope to locations where water is to be discharged or to nuisance area at a minimum of one-half ($\frac{1}{2}$ %) percent. All basins shall have a nuisance area near the inlet structure. Nuisance area shall be a minimum of one foot deep and a minimum surface area of ten (10%) percent of the basin floor area.
14. Basin fences shall meet normal setback requirements unless reduced setback requirements are approved jointly by the Community Development Director and City Engineer.
15. A minimum flat distance between basin fence and basin hinge point of ten (10') feet is required, except this distance may be reduced to two (2') feet under the following conditions:
 - a. When a basin has a permanent pump, which allows it to be pumped dry, except the nuisance area
 - b. Where no outside dimension of the basin is greater than one hundred fifty (150') feet.
 - c. Where a pull sprayer can be reasonably brought within two hundred twenty-five (225') feet of any point within the basin site when basin has three (3') feet of water in it.
16. Minimum access easement width from basin to street shall be twenty (20') feet.
17. Discharge rate from detention basins shall normally be a minimum of five (5 c.f.s.) cubic feet per second and discharge piping shall normally be designed for ten (10 c.f.s.) cubic feet per second.
18. The developer shall be required to demonstrate that retention basins will adequately infiltrate a ten (10) year, twenty-four (24) hour event (2.01 inches) in ten (10) days. A soil boring is required at location of lowest level. Boring shall extend twenty (20') feet more or less below the lowest basin level. Actual depth to be determined based on the type of soil encountered. City Engineer shall be notified when boring is to take place so that a representative from the Engineering staff can be available for boring termination decision.
19. Storm basin soil, except for private basins, shall be sterilized. Sterilant shall be approved by the City Engineer.
20. Privately owned and maintained basins shall meet all criteria noted in this section, unless specifically noted otherwise. Deviations from these standards shall only be permitted with approval from the City Engineer.
21. Maximum gutter runs shall not exceed one thousand (1,000') feet.

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22. Curb and gutter grades shall be a minimum of 0.002 ft/ft, except when matching existing streets where it can be demonstrated that 0.002 ft/ft is impractical. Under the latter circumstances, minimum slope shall not be less than 0.0015 ft/ft.
23. Curb and gutter grades at curb bulbs and cul-de-sacs shall be a minimum of 0.0030 ft./ft., unless otherwise approved by the City Engineer.
24. Flow line grade across commercial or industrial drive approaches shall be 0.0030 ft./ft., unless matching existing conditions or as otherwise approved by the City Engineer.
25. Slopes at street returns shall conform to the following:

Curb Return Radius	Minimum Slope at Flow Line	Maximum Slope at Flow Line
20'	0.64%	1.5%
30'	0.64%	1.5%
35'	0.64%	1.5%

Exceptions to the above are as follows:

- a. Special circumstances that may be approved by the City Engineer on a case-by-case basis.
26. Minimum size of storm drains and drop inlet laterals shall be twelve (12") inches.
 27. Maximum nominal pipe sizes allowed for manholes:
 - a. Type I: 24 inches
 - b. Type II: 36 inches
 - c. Type III: 42 inches.
 28. Type IV manholes are required for storm drain piping larger than 42 inches diameter.
 29. Drop inlet laterals shall conform to the following:
 - a. Shall not create an opposing flow into the main, unless specifically allowed by the City Engineer because of low-flow relative to the storm drain main.
 - b. May connect directly to new mains with fabricated tees, to adjacent manholes, or to another drop inlet. No drop inlet shall have more than two laterals connected to it (one in and one out).
 - c. Connection directly to main shall match pipe centerlines
 - d. Drops into manholes shall be one-tenth (0.10') foot minimum at any change of direction. The maximum drop at a manhole shall be four (4') feet, or matching inside top of pipe, whichever is greater.
 - e. Maximum separation within the tongue and groove of mortar joints shall not exceed one (1") inch for concrete pipe deflections.
 30. Minimum drop inlet depth from bottom of grate to floor in cases where the drop inlet is installed almost directly over storm drains shall not be less than twelve (12") inches. There is no specified maximum drop inlet depth.
 31. Storm drain manhole spacing shall not exceed 450 feet.

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32. Manholes shall be installed as follows:
 - a. At changes in pipe slope.
 - b. At direction changes including reverse curves (manholes are not required for beginning and ending points of tangential curves).
 - c. At main junctions.
 - d. At final upstream termination.
 - e. At change of pipe size.
33. The radius of curvature for pipe alignments shall comply with the pipe manufacturer's specifications.
34. Drainage berms shall be required where circumstances warrant protecting subdivision improvements from runoff from adjacent properties.
35. Grades for new subdivisions shall not unduly affect the surrounding properties. Examples of unacceptable design without mitigation are as follows:
 - a. Step grading between properties exceeding five-tenths (0.5') foot.
 - b. Street grades which place existing properties in holes or excessively high.
36. Residential lots shall drain to streets, except where a city maintained alley exists, drainage may be directed to the alley. Lot grading shall be in accordance with the latest California Building Code, adopted by the City.
37. Unless otherwise approved by the City Engineer, curb elevations on both sides of streets are to match within one-tenth (0.1') feet, unless existing curb slopes are less than 0.0015 ft/ft, in which case they shall match within two-tenths (0.2') feet.
38. Cross gutters are to be avoided, except for isolated situations where a long storm drain extension would be required to avoid one cross gutter or at low-traffic local streets or cul-de-sacs, where approved by the City Engineer. Cross gutters shall not be installed across streets, which would normally have non-stop traffic at that location.
39. Alley vee-gutters are not required at the upper end of alleys if the longitudinal pavement slope equals or exceeds one (1) percent.

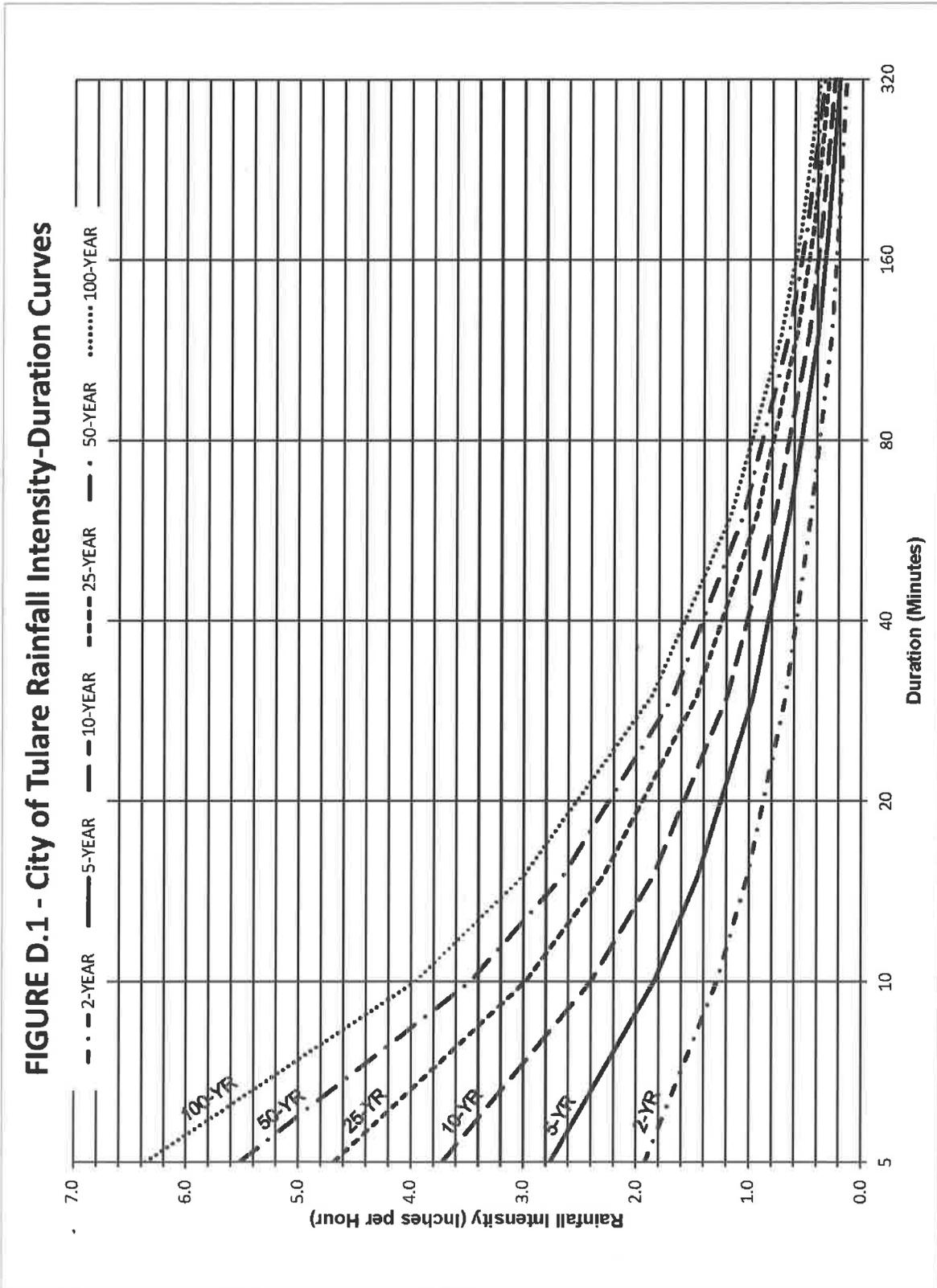
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TABLE D.1 - CITY OF TULARE RUNOFF COEFFICIENTS

Land Use Category	Runoff Coefficient 'C'
<u>Residential Designations</u>	
Rural Residential (1-2 Units/Acre)	0.30
Rural Estate	0.30
Low Density Residential (3-10 Units/Acre)	0.40
Medium Density Residential (11-14 Units/Acre)	0.50
High Density Residential (15-29 Units/Acre)	0.60
<u>Commercial Designations</u>	
Neighborhood Commercial	0.70
Community Commercial	0.85
Regional Commercial	0.85
Service Commercial	0.85
Central Business District	0.85
Entertainment Commercial	0.85
Office Commercial	0.65
<u>Industrial Designations</u>	
Light or Heavy Industrial	0.85
<u>Other Designations</u>	
Public/Quasi-Public	0.60
Parks and Recreation	0.20
Open Space	0.15
<u>Reserve Designations</u>	
Village	0.40
Residential Reserve	0.40
Commercial Reserve	0.85
Industrial Reserve	0.85

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SECTION E – WATER

1. Water facilities shall be designed in accordance with the City of Tulare Water System Master Plan, dated July 2009 as prepared by Carollo Engineers, the City of Tulare Public Improvement Standards, City of Tulare Technical Specifications and this section.
2. Separation between sewer and water mains plus fire hydrant laterals shall be in accordance with the "California Waterworks Standards," or if separation cannot be maintained, pipe materials and casing requirements shall be in accordance with the Department of Health Services, "Criteria for the separation of Water Mains and Sanitary Sewers," or City Public Improvement Standard Drawings 6110 and 6120.
3. Minimum cover on water mains shall be as follows:

Size of Water Main (inches)	Minimum Cover below Finished Grade (feet)		Minimum Cover below Subgrade (Feet)
6	3.5	or	2.5 (whichever is deeper)
8	4.0	or	3.0 (whichever is deeper)
10	4.0	or	3.0 (whichever is deeper)
12	4.0	or	3.0 (whichever is deeper)

4. The number of gate valves at intersections of mains shall be same as the number of branches. Intersection gate valves shall normally be installed as near as practical to crosses or tees.
5. Valve spacing shall not exceed six hundred (600') feet.
6. Single family residential water services shall be installed to each lot and shall be located two and one half feet (2.5') from the side property line. To the extent feasible, avoid locating water services within 5' of fire hydrants, street lights or street trees. Minimum horizontal distance between water services and sewer laterals shall be ten (10') feet, center to center of pipes.
7. Locations of water services for all development other than single family residential shall be as approved by the City Engineer.
8. Water services for single family shall be a minimum of one (1") inch and those for multiple family shall be one and one-half (1-1/2") inches or greater. For multiple family residences, the minimum metered service shall not be less than one and one-half (1-1/2") unless approval is granted in writing by the Planning and Building Divisions.
9. All domestic water services (except single family residential) shall have an appropriately sized lead-free backflow preventer installed downstream from the water meter.
10. Water services shall be installed on the wide frontage of residential lots, except for arterial and collector street frontages where the service shall be installed on the lesser traveled street.
11. Minimum size of water mains in Residential and commercial areas shall be eight (8") inches, except on cul-de-sacs and short run streets with approval of the City Engineer, water mains may be six (6") inches.

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12. Hot-tapping of water mains is permitted when new water mains or laterals are smaller than the existing main that is being hot-tapped.
13. Hot-tapping of water mains is not permitted when new water mains or laterals are the same size or larger than the existing water main that is being tied into.
14. When performing a tie-in requiring a fitting to an existing water main, the existing pipe shall be removed to the nearest pipe joint, or as directed by the Public Works Inspector.
15. Fire Hydrant locations shall be determined by the Fire Department.
16. Fire suppression systems shall comply with the City of Tulare Municipal Code, Title 3 and City of Tulare Fire Department Prevention Manual 4-C, Policy #11-001, "Fire Department Connections (FDC) and Post Indicator Valve (PIV) Installation Standard"

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SECTION F - LANDSCAPING AND IRRIGATION

1. Landscaping and Irrigation shall conform to applicable provisions of Chapters 8.32 and 10.196 of the City of Tulare Municipal Code.

SECTION G – STORM WATER MANAGEMENT

1. Storm Water Management shall conform to applicable provisions of Chapter 7.64 of the City of Tulare Municipal Code and this section.
2. Development projects which disturb between 2,500 square feet and 5,000 square feet should implement one or more site design measures to reduce storm water runoff:
 - a. Stream Setbacks and Buffers:
 - b. Soil Quality Improvement and Maintenance:
 - c. Tree Planting and Preservation:
 - d. Rooftop and Impervious Area Disconnection:
 - e. Porous Pavement:
 - f. Green Roofs:
 - g. Vegetated Swales:
 - h. Rain Barrels and Cisterns:
3. Development projects which disturb more than 5,000 square feet (except single family homes that are not part of a larger development) should implement Low Impact Development standards to the extent feasible to meet the Numeric Sizing Criteria for Storm Water Retention and Treatment, to evapotranspire, infiltrate, harvest/use, and bio-treat stormwater to meet one of the following criteria as presented below:
 - a. Volumetric Criteria
 - i. The maximized capture storm water volume for the tributary area, on the basis of historical rainfall records, determined using the formula and volume capture coefficients in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87 (1998) pages 175-178 (that is, approximately the 85th percentile 24-hour storm runoff event; or
 - ii. The volume of annual runoff required to achieve 80 percent of more capture, determined in accordance with the methodology in Section 5 of the CASQA's Stormwater Best Management Practice Handbook, New Development and Redevelopment (2003), using local rainfall data.
 - b. Flow Based Criteria
 - i. The flow of runoff produced from a rain event equal to at least 0.2 inches per hour intensity; or
 - ii. The flow of runoff produced from a rain event equal to at least 2 times the 85th percentile hourly rainfall intensity as determined from local rainfall records.
4. Development projects which disturb one acre or more (except projects that do not create a net increase of impervious area) should implement Hydromodification Management; that is, post project runoff should not exceed the estimated pre-project flow rate for the 2-year, 24-hour storm. The rainfall depth for the 2-year, 24-hour storm event for Tulare is 1.13 inches.

GENERAL CONCRETE NOTES

1. ALL CONCRETE SHALL BE CLASS 3 CONCRETE UNLESS OTHERWISE SPECIFIED.
2. CLASS 2 CONCRETE SHALL CONTAIN NOT LESS THAN 590 POUNDS OF PORTLAND CEMENT PER CUBIC YARD WITH 1 INCH AGGREGATE. 5 INCH MAXIMUM SLUMP. 3000 P.S.I. AT 28 DAYS.
3. CLASS 3 CONCRETE SHALL CONTAIN NOT LESS THAN 505 POUNDS OF PORTLAND CEMENT PER CUBIC YARD WITH 1 INCH AGGREGATE. 5 INCH MAXIMUM SLUMP. 2500 P.S.I. AT 28 DAYS.
4. CLASS 4 CONCRETE SHALL CONTAIN NOT LESS THAN 420 POUNDS OF PORTLAND CEMENT PER CUBIC YARD WITH 1 INCH AGGREGATE. 5 INCH MAXIMUM SLUMP. 2500 P.S.I. AT 28 DAYS.
5. WHEN MAXIMUM DAYTIME TEMPERATURE EXCEEDS 90°F, THE CONCRETE SHALL HAVE A RETARDING ADMIXTURE ADDED AT THE BATCH PLANT.
6. ALL WORK CONSTRUCTED BY THESE STANDARDS SHALL BE IN COMPLIANCE WITH ALL CURRENT ADA REGULATIONS.

CURBS AND GUTTERS

1. BARRIER TYPE CURB AND GUTTER SHALL HAVE A MINIMUM GRADIENT OF 0.20 FEET PER 100 FEET OR AS APPROVED BY THE CITY ENGINEER.
2. BARRIER TYPE CURB AND GUTTER ON THE CURVE OF CUL-DE-SACS AND STREET BULBS SHALL HAVE A MINIMUM GRADIENT OF 0.35 FEET PER 100 FEET OR AS APPROVED BY THE CITY ENGINEER.
3. VEE GUTTER SHALL HAVE A MINIMUM GRADIENT OF 0.25 FEET PER 100 FEET OR AS APPROVED BY THE CITY ENGINEER.
4. ALL CURB AND GUTTER, VEE GUTTER, MEDIAN CURB AND LANDSCAPE CURB SHALL BE PLACED ON 6 INCH MOIST AND COMPACTED SUBGRADE. 95 PERCENT MINIMUM RELATIVE COMPACTION.
5. ALL CURB AND GUTTER, VEE GUTTER, MEDIAN CURB AND LANDSCAPE CURB SHALL HAVE A LIGHT BROOM FINISH.
6. ALL CURB AND GUTTER AND VEE GUTTER SHALL HAVE WEAKENED PLANE JOINTS CONSTRUCTED AT 20 FOOT CENTERS. MEDIAN CURB AND LANDSCAPE CURB SHALL HAVE WEAKENED PLANE JOINTS CONSTRUCTED AT 15 FOOT CENTERS. WEAKENED PLANE JOINTS SHALL BE A MINIMUM OF 1 INCH IN DEPTH AND SHALL BE FINISHED WITH A SCORING TOOL LEAVING THE EDGES ROUNDED.
7. ALL EXPOSED SURFACES OF CURB AND GUTTER, VEE GUTTER, MEDIAN CURB AND LANDSCAPE CURB SHALL NOT VARY IN EXCESS OF 0.02 FEET WHEN A 10 FOOT STRAIGHT EDGE IS PLACED ON THE SURFACE, EXCEPT AT GRADE CHANGES OR CURVES.
8. ALL CURB AND GUTTER AND VEE GUTTER SHALL BE WATER TESTED FOR FLOW.

REVISIONS	DATE		CITY OF TULARE PUBLIC IMPROVEMENT STANDARD	
			GENERAL CONCRETE NOTES	DRAWING NO.: 1020
			Approved By: <i>Michael W. Miller</i> Date: 11/15/16 City Engineer	1 OF 2

SIDEWALKS AND RAMPS

1. SIDEWALKS AND RAMPS SHALL BE PLACED ON 6 INCH MOIST AND COMPACTED SUBGRADE AND/OR BASE MATERIALS. 90 PERCENT RELATIVE COMPACTION UNDER SIDEWALKS. 95 PERCENT RELATIVE COMPACTION UNDER RAMPS AND SIDEWALKS AT CURB RETURNS.
2. SIDEWALKS AND RAMPS SHALL BE STEEL TROWELED AND HAVE A LIGHT BROOM FINISH UNLESS OTHERWISE NOTED. RAMPS SHALL HAVE A HEAVY BROOM FINISH ACROSS THE SLOPE OF THE RAMP.
3. ESTABLISHED SIDEWALK PATTERN IN BLOCK SHALL BE MATCHED.
4. SPECIAL SIDEWALK DESIGNS AND MATERIALS SHALL BE SUBJECT TO APPROVAL BY THE CITY ENGINEER.
5. SIDEWALK INSTALLED IN INFILL OR EXISTING AREAS SHALL BE SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.
6. ALL SIDEWALKS AND RAMPS SHALL BE CURED IN ACCORDANCE WITH THE PROVISIONS IN THE GENERAL CONCRETE NOTES OF THESE IMPROVEMENT STANDARDS.
7. DETECTABLE WARNING SURFACES SHALL BE INSTALLED PER THESE IMPROVEMENT STANDARDS AND AS REQUIRED BY THE CITY ENGINEER.

DRIVE APPROACHES

1. SINGLE FAMILY RESIDENTIAL DRIVE APPROACHES SHALL BE PLACED ON 6 INCH MOIST AND COMPACTED SUBGRADE AND/OR BASE MATERIALS. 95 PERCENT RELATIVE COMPACTION.
2. MULTI-FAMILY RESIDENTIAL, OFFICE AND COMMERCIAL DRIVE APPROACHES SHALL BE PLACED ON 6 INCH MOIST AND COMPACTED BASE MATERIALS. 95 PERCENT RELATIVE COMPACTION.
3. MAJOR COMMERCIAL DRIVE APPROACHES SHALL BE PLACED ON 4 INCH MOIST AND COMPACTED CLASS 2 AGGREGATE BASE OVER 6 INCH MOIST AND COMPACTED SUBGRADE. 95 PERCENT RELATIVE COMPACTION.
4. DRIVE APPROACHES SHALL BE STEEL TROWELED AND HAVE A LIGHT BROOM FINISH.
5. DRIVE APPROACHES SHALL HAVE A WEAKENED PLANE JOINT CONSTRUCTED AT EACH EDGE AND AT THE CENTERLINE. WEAKENED PLANE JOINTS SHALL BE A MINIMUM OF 1 INCH IN DEPTH AND SHALL BE FINISHED WITH A SCORING TOOL LEAVING THE EDGES ROUNDED.
6. DRIVE APPROACHES ON STATE ROUTES ARE SUBJECT TO APPROVAL BY CALTRANS.
7. ALL EXPOSED SURFACES OF DRIVE APPROACHES AND FLOW LINES SHALL NOT VARY IN EXCESS OF 0.02 FEET WHEN A 10 FOOT STRAIGHT EDGE IS PLACED ON THE SURFACE, EXCEPT AT GRADE CHANGES OR CURVES.

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			Approved By: <i>Michael W. Miller</i> Date: 11/15/16 City Engineer	2 OF 2