



**BUILDING AND DEVELOPMENT
SERVICES DEPARTMENT**

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**DEVELOPMENT ENGINEERING CHECKLIST FOR
IMPROVEMENT PLANS**

THIS CHECKLIST IS A PROCESSING AID AND DOES NOT INSURE THAT ALL ISSUES
PERTINENT TO A PARTICULAR PLAN SET HAVE BEEN ADDRESSED

Subdivision Name/Number: _____

Location/APN(s): _____

Engineering Firm/Contact Number: _____

Project Eng.: _____ Other Contact: _____

Submittal No.: _____ Date Submitted: _____

I. REQUIRED PLAN CHECK ITEMS

A. Information From Developer's Engineer

- ___ 1. Improvement plans (2 copies)
- ___ 2. Plan Check Fees
- ___ 3. Approved Street Names (*After Tentative Map has been approved, contact
Kathy Taj at 879-6506*)
- ___ 4. Storm drainage analysis
- ___ 5. Sanitary sewer analysis
- ___ 6. Street section calculations
- ___ 7. Fire Hydrant Plan approved and signed by Fire Marshal
- ___ 8. Landscape Plans

B. Information From City Staff – *Contact City For Information*

- ___ 1. Traffic index – Traffic Division
- ___ 2. Sewer & Storm Drain Identification – Sewer & Storm Drain Division
- ___ 3. Street trees – Parks Division, Urban Forester

II. REVIEW OF IMPROVEMENT PLANS

A. General Items

- 1. Compliance with all conditions of approval
- 2. Easements from title report are shown
- 3. Applicable general notes included (i.e. street lights, street trees, underground alert contact, mailbox location and construction)
- 4. 22" x 34" sheet size used including 1" borders
- 5. Title block, north arrow, and scale shown on each sheet where appropriate
- 6. Drafting quality neat and legible
- 7. Vicinity/Location map
- 8. Sheet index for 3 or more sheets
- 9. Legend shown for all proposed and existing features not labeled on plan
- 10. Verify all existing public improvements within public right-of-way
- 11. Contractor will install City-supplied benchmark
- 12. Engineer's name block (including stamp, license number, date and signature) with the note: "Prepared by or under the supervision of"
- 13. City Engineer's signature block

B. Streets

Typical Sections

- 1. Structural sections indicated per "R" value
- 2. Curb type and sidewalk indicated
- 3. R/W and street dimensions shown
- 4. Cross-slope (cut/fill slopes) shown beginning at R/W line

Plan View

- 1. Curve data (i.e., R, and length shown)
- 2. 30' radius @ f.o.c. shown at curb returns
- 3. 40' minimum radius @ f.o.c. in cul-de-sac
- 4. R/W, PSE, PUE and street widths shown
- 5. Centerline stationing at 100' intervals, also at all BC, EC, BCR, ECR, and angle points -
- 6. Lot/parcel lines and numbers/letters shown
- 7. 1.5% - 5% x-slope from lip of gutter to high point in cul-de-sac
- 8. Flowline grades at quarter points on curb returns and along valley gutter centerline
- 9. Station/offset information for drainage, sewer, and other structures shown (as an option, can be shown in profile)
- 10. T/C, flowline, and invert elevations of structures shown
- 11. Easements shown and dimensioned
- 12. Location of all existing underground utilities shown
- 13. Standard Plan S-27A handicapped ramp shown at all curb returns with 5' wide sidewalk contiguous to curb; Standard Plan S-27 handicapped ramp

shown at all curb returns with 9.5' wide sidewalk contiguous to curb or with sidewalk not contiguous to curb

- ___ 14. Driveway ramps/centerline stationing shown
- ___ 15. Driveways with contiguous sidewalk are ADA compliant
- ___ 16. Centerline data, street limits, and curb return locations consistent with final map
- ___ 17. Cul-de-sac, 500' maximum length
- ___ 18. Edge of pavement grades shown for street widening
- ___ 19. Verify existing improvements shown (location and elevation)

Profile View

- ___ 1. Curb return and cul-de-sac profiles shown
- ___ 2. Vertical curves used where grade break is > 1%
- ___ 3. Minimum vertical curve lengths observed (CMC 18R, Table 2)
- ___ 4. Maximum/minimum gradient observed at intersecting streets
- ___ 5. Minimum 0.25% grade observed for paved gutter
- ___ 6. Minimum 0.50% grade observed for unpaved gutter
- ___ 7. Existing and proposed underground pipes and utilities shown
- ___ 8. Existing and proposed grade along centerline and T/C or F/L grade shown
- ___ 9. Centerline of intersecting streets shown to their point of intersection
- ___ 10. Centerline stationing/elevations shown at 100' intervals, and at BVC, EVC, PVI, and grade breaks
- ___ 11. SD/SS crossing, minimum 6" grade separation
- ___ 12. Standard Plan S-12A, pipe crossing cradle, 1" min. separation - use only if no other alternatives

C. Storm Drainage

Hydrology

- ___ 1. Contours continue beyond tract boundary sufficiently to show off-tract drainage pattern (minimum 25')
- ___ 2. Analysis and design of proposed storm drain system submitted; if applicable, includes study of upstream area. For stage construction, the analysis shall provide for the design of the entire storm drain system.
- ___ 3. For proposed subdivision boundaries higher than existing grade, solution to blocked drainage pattern is submitted.

Collection System & Hydraulics

- ___ 1. Size, material, and class of conduit indicated
- ___ 2. Headwalls and outlet structures incorporated
- ___ 3. 10-inch minimum conduit diameter
- ___ 4. Minimum velocity of 2 fps achieved
- ___ 5. 2' minimum cover over conduits. Use City Standard S-12M for less than 2' of cover. Use alternative pipe type, as approved by the City where S-12M requirements can not be met.
- ___ 6. 1% minimum lateral slope or minimum velocity achieved

- ___ 7. Standard Plan S-10 manhole and S-7 inlets used
- ___ 8. Maximum 500' inlet spacing
- ___ 9. Maximum 350' MH spacing for 30" diameter or smaller conduit
- ___ 10. Crowns of conduits intersecting MH match, or minimum fall 0.1' through structure observed
- ___ 11. Improved earth channel side slopes: 1.5:1 or flatter
- ___ 12. All public open channels located within dedicated easements
- ___ 13. 12' wide access road adjacent to open channels
- ___ 14. Maximum velocity, pipes, & ditches
- ___ 15. Minimum radius of curvature of 500'
- ___ 16. Verify existing improvements shown (location and elevation)
- ___ 17. Seepage trench (pursuant to CMC 18R – private streets unless approved by director)
- ___ 18. Storm water interceptor (maintainability)
- ___ 19. Detention facilities (maintainability)
- ___ 20. No concentrated flows onto unimproved areas
- ___ 21. 1st flush and peak flow mitigation is provided
- ___ 22. Outfalls match proposed grades and erosion control is provided
- ___ 23. If necessary, storm drain easements provided and dimensioned
- ___ 24. In a flood plain? If yes, specify design modifications.

D. Sanitary Sewer

Collection System and Hydraulics

- ___ 1. Size and material of pipe indicated
- ___ 2. Minimum 8" diameter pipe installed; 6" diameter pipe used in last run in residential area, on cul-de-sac and where no future extensions of main are intended
- ___ 3. Pipe straight between MHs, 500' radius of curvature for special case
- ___ 4. 4.5' minimum cover from flowline to finish grade, 5' to existing grade
- ___ 5. Maximum MH spacing: 6"-8", 400'; 10"-12", 500'; 15" & up, 1000'
- ___ 6. Crowns of conduits intersecting MH match
- ___ 7. Flush hole; 150' maximum distance from MH
- ___ 8. Flush hole installed in cul-de-sac or at temporary ends of lines where no MH is intended
- ___ 9. 4" minimum lateral size
- ___ 10. 2% minimum lateral slope
- ___ 11. Laterals installed 5' minimum into private property
- ___ 12. Lateral stubs don't conflict with facilities in joint utility trench, end beyond joint trench
- ___ 13. Depth of lateral shall be 3' at property line. Where sewer main is 10' or greater in depth, deep sewer risers shall be installed
- ___ 14. Deep laterals constructed against undisturbed soil
- ___ 15. Stubs at manholes for future extensions (for maintenance, place manhole a minimum of 20' from subdivision boundary)

- ___ 16. Note to replace existing stub if material differs from rest of main
- ___ 17. Maintain maximum depth where practical (minimum slope = 0.003)
- ___ 18. Verify existing improvements shown (location and elevation)
- ___ 19. Show adjacent public sewers, adequate access
- ___ 20. For phased subdivisions, sewer application has been submitted for each phase

E. Grading

- ___ 1. Surface drainage away from buildings
- ___ 2. 1% minimum slope, 2% away from buildings
- ___ 3. Back of sidewalk below lot corner
- ___ 4. Fill retention at property line (fill shall not block existing drainage pattern of adjacent property)
- ___ 5. Pad elevations
- ___ 6. Erosion/dust control
- ___ 7. Existing trees to remain match proposed grades

F. Traffic

- ___ 1. Signing (including street signs)
- ___ 2. Stop signs on public streets only if justified by current conditions
- ___ 3. Stop signs on all private streets
- ___ 4. All stop signs to have high-intensity grade sheeting
- ___ 5. Striping (including stop legends)
- ___ 6. Bike path
- ___ 7. Bus stops
- ___ 8. Pavement markers
- ___ 9. Replace existing pavement markers in kind
- ___ 10. Check sight distance at intersections
- ___ 11. Traffic signals reviewed by Traffic Engineer
- ___ 12. Is traffic regulation amendment required (for stop signs or parking elimination)?

G. Street Lights

- ___ 1. Service point(s), (PG&E secondary pull boxes)
- ___ 2. PG&E street light identification number(s) referenced for illustration on As-Built Plan set and for Contractor to install prior to improvement acceptance.
- ___ 3. Reference to City standard details
- ___ 4. Maximum spacing of street lights dependent on type

III. LANDSCAPING AND IRRIGATION

- 1. Street trees
- 2. Preserve existing trees
- 3. Plant list
- 4. Landscaping plans
- 5. Irrigation plans and design calculations
- 6. Electric/water service points
- 7. Irrig. system (water & elec.) sized for future extension
- 8. Minimum 3/4" irrigation pipe size
- 9. Reference to City standard details
- 10. Landscaping/irrigation reviewed by Urban Forester

IV. OTHER NOTES/COMMENTS