



City of Riverbank Community Development Department

Planning ≈ Building ≈ Neighborhood Improvement

6707 Third Street, Riverbank, CA 95367 Office (209) 863-7120 FAX (209) 869-7126

**Public Improvement Plans
For Land Entitlement/Development Applications**

Case No. _____ Checked by: _____ on date: _____

Attach any remarks to indicate if it is known that an item will come in deferred submittal. The City Engineer, at his or hers sole discretion, will determine if review of plans can continue without items shown in a deferred submittal. Grading plans shall address both rough grading and precise grading activities. The precise grading plan may be incorporated into rough grading plan or may be submitted by separate grading plan(s) as may suit the individual project subject to the discretion of the City Engineer. Improvement plans shall be used to depict public and/or private improvements that cross City right of way.

The following items are a check list to be used when preparing plans to be submitted with a land entitlement or development application(s). This checklist should be used as a general guide for plan submittal requirements and is not an exhaustive list. Additional information may be required prior to the City Engineer or Community Development Director making a professional recommendation on a land entitlement or development to either the City Council or Planning Commission. All submittal requirements are subject to the City Engineer's professional determination and discretion on a case specific basis. The Engineer of Work shall initial items on the checklist that are submitted with the application.

General:

Plans must be folded into **9" x 11"**. ENGINEER OF WORK'S ASSESSMENT OF LEVEL OF COMPLETENESS, must be at **65% or better** for submittal.

1. 1st submittal package should include

- | | |
|--|---------|
| a. (10) sets of blacklines/bluelines | Initial |
| b. (2) copies Hydrology and Hydrologic Calculations see H & H Checklist | _____ |
| c. Easement documents, if required (see Easement Checklist) | _____ |
| d. (2) copies Cost Estimate (see Improvement Checklist) | _____ |
| e. Copy of the dry utility plan for underground power, cable, gas & electric | _____ |

2. Verify the following items:

- | | |
|--|-------|
| a. Use the City of Riverbank Improvement Plan Checklist | _____ |
| b. Review hydrology and hydrologic calculations (and drainage map) against the improvement plans to verify conformance. | _____ |
| c. Verify if public easements are required as part of this project and illustrate | _____ |
| d. Verify that the improvement plans are in conformance with the "conceptual improvements" shown on the Site Plan/TM (i.e.: street alignments, street widths, facilities, etc.). | _____ |
| e. All sheets contain a signed statement by the engineer of work. | _____ |
| f. Storm Water Management Plan/Permit/SWPPP (as applicable) and disturbed acreage. | _____ |
| g. EOW's assessed level of completeness is shown on the border of the plans | _____ |

3. Drafting Format:

- | | |
|---|-------|
| a. Prepared on 24"x 36" D-sheets | _____ |
| b. All lettering size min. 0.1" | _____ |
| c. Sheets are numbered consecutively | _____ |
| d. Project boundary line is dark, thick, bold line-type | _____ |
| e. Right-of-way line is dark, bold, solid, bold line-type | _____ |
| f. Proposed easement line is bold, dashed line-type | _____ |
| g. Existing easement line is light, dashed line-type | _____ |
| h. Proposed topo line is bold, solid line-type (with elevation no.) | _____ |
| i. Existing topo line is light, dashed line-type (with elevation no.) | _____ |
| j. Topo lines are smooth and continuous to at least 50-feet beyond project limits | _____ |
| k. All trees and structures within and 100-feet of project boundary are shown | _____ |
| l. Slope arrow indicators should point down-slope | _____ |
| m. Revision Block on all sheets. | _____ |

4. Cover Sheet:

- a. Title block should be representative of the Cities requirements _____
- b. Title block indicates: "Public Improvement Plans for **Project Name**" _____
- c. Dig Alert notice _____
- d. Name and street address of subdivision or project in title block _____
- e. Verify current standard improvement notes _____
- f. Verify current water and sewer notes _____
- g. Vicinity Map (showing site, nearest highway, roads, north arrow, City boundary) _____
- h. Key Map (showing overall improvements sheet coverage, subdivision boundary, scale, lot lines, key map legend, short legal descriptions, offsite work, existing/proposed facilities, fire hydrant locations, street slope arrows, north arrow, water and sewer services, and any other pertinent information) _____
- i. A key map is required on multiple sheet improvement plans _____
- j. Sheet Index _____
- k. Engineer's Certificate with signature and stamp _____
- j. Complete legend detailing the existing and proposed work and reference to City of Riverbank standard drawings. _____
- k. Legend should show "DESCRIPTION", "SYMBOL", and "QUANTITY" (for proposed work, check units and values): _____
 - (1) Subdivision or property boundary _____
 - (2) Right-of-way lines _____
 - (3) Lot lines _____
 - (4) Existing water, sewer, storm drain, reclaimed water lines, etc. _____
 - (5) Existing cleanouts, inlets, headwalls, vaults or other substructures _____
 - (6) Proposed spot elevations _____
 - (7) Proposed paving (AC or PCC?) _____
 - (8) Proposed water line (size, type, pressure class?) _____
 - (9) Proposed blow-offs _____
 - (10) Proposed manual or automatic air release valves _____
 - (11) Proposed sewer (size, SDRSD 35 unless > 15' deep then use C-900) _____
 - (12) Proposed sewer manholes or cleanouts _____
 - (13) Proposed storm drains, if any _____
 - (14) Proposed cleanouts, inlets, headwalls, if any _____
 - (15) Proposed concrete swales _____
 - (16) Proposed cross gutters _____
 - (17) Proposed sidewalk underdrains or curb outlets _____
 - (18) Proposed retaining walls (separately permitted) with type _____
- l. Legal Description and APN(s) _____
- m. Owner's information and signature, if required _____

5. Detail Sheets:

- a. Provide any details, as required, for:
 - (1) Special connections for water, sewer, or storm drain _____
 - (2) Thrust blocks _____
 - (3) Wall sections, locations to PL, easements, and ROW _____
 - (4) Street sections _____
 - (5) Utility cross sections _____
 - (6) Feather and overlay details _____
 - (7) Sewer lateral table _____
 - (8) Water lateral table _____
 - (9) Street light notes and table _____

6. Improvement Sheets (to be filled out for each sheet)

General:

- a. Boundary lines shown (City boundaries, subdivision boundaries, right-of-way, proposed lot lines (dimensioned), existing adjacent lot lines, private and public easement lines, etc.) _____
- b. Lots are numbered (per proposed final map or existing legal description) _____
- c. Verify standard 2% crossfall on new and widened streets _____
- d. Verify streets widths and alignments are consistent with Site Plan/TM _____
- e. The second sheet should include a table on street names, classification, street widths, Traffic Index, pavement section, and stationing where applicable _____
- f. Verify that all public facilities are located within public right-of-way or easements _____
- g. Review superelevation design to check on drainage problems and curb inlet locations _____
- h. Adequate specs and details to describe work to be done. Additional details _____

- m. Check pipe depth (and pipe D-load requirements) Be cautious on pipes less than 2-feet and pipes deeper than 12-feet.
- n. Ensure that pipes are not under pressure. If it cannot be avoided, then water-tight joints should be called out on the profile and a detail added
- o. Provide water tight-joints when slopes exceed 20% or whenever HGL over crown
- p. Provide cut-off walls when the pipe slope exceeds 33%.
- q. Profiles should indicate $Q_{100} = \underline{\hspace{2cm}}$ and $V_{100} = \underline{\hspace{2cm}}$ on each stretch of pipe.
- r. Check these numbers against the hydrology study.
- s. Public storm drains min. 18-inches in diameter and must be RCP
- t. Check max. distance of cleanouts to be <300'
- u. Check beveling requirements on small curves to verify it can be done
- v. Ensure no pipe diameters increase downstream
- w. Verify that public easements are obtained for any public pipes outside right-of-way
- x. Check discharge velocity onto rip-rap and check rip-rap design
- y. Check whether depth of manholes are exceeded (SDRSD) need design exception
- z. The profile should depict all lug connections
- i. Callout type of connection to existing drainage facility
- ii. Callout stationing of storm drain, cleanouts, inlets, BC, EC

Sewer Utilities

- a. Use City of Riverbank Checklist
- b. Verify that sewer facilities and manholes are visible and shown on the key map and on key map legend
- c. Verify that sewer facility items are included in legend (i.e.: _____-inch PVC, SDRSD 35, manholes, cleanouts, pump stations, force mains, sewer laterals, etc.
(1) Use Metallic Tape Locator for Non-Metallic Sewer Pipe, SDRSD S-19.
- d. Provide sewer data table which include bearings, distance, curve data, type of pipe, diameter, and class
- f. Verify the horizontal location of proposed sewer lines min. 10' from water
- g. Verify no vertical conflicts with existing or proposed public facilities (1' minimum clearance; between 1 and 6" clearance allowed if sand cushion is provided)
- h. SDR-35 is allowed between 7'-20' deep. Any other depth requires design exception (i.e.: <5' =concrete encasement, >20' =C-900) and city approval thereof
- i. Callout stationing of sewer line, manholes, cleanouts, BC, EC, etc.
- j. Ensure sewer services have an 5-foot horizontal distance from water services
- k. If an existing sewer line is undermined to install a new facility, provide a concrete support per SDRSD S-12
- l. Note if manhole needs adjustment to grade
- m. If a sewer study is required, then:
 - (1) Review peak flows on each stretch of pipe
 - (2) Ensure velocity in pipes does not fall below 2 fps (solids fallout)
 - (3) Typically sewer pipes do not flow greater than half full
 - (4) Review sewer map to check nodes and all dwelling units are included
 - (5) If there is high cfs and high velocity, question scour of pipe or manhole
 - (6) Ensure no pump station / force main. They are not allowed in BSD or VSD:
 - (7) Review sewer pressure pipe design as consistent with water pressure pipe design. (i.e.: thrust blocks, restrained joints, watertight, no potential failures)
 - (8) Ensure a geotechnical report addresses the alignment of this pipe (no faults, no landslides, corrosiveness, if DIP or steep pipe)

Water Utilities

- a. By separate utility plans.
- b. Verify that water facilities and fire hydrants are visible and shown on the key map and on key map legend
- c. Provide water data table which include bearings, distance, curve data, type of pipe, diameter, and class
- d. Water mains and valves shown? Note if ex., proposed, or to be modified.
- e. Angle points labeled; degree deflection and station
- f. Offset dimension
- g. Fire hydrants stationed
- h. Location of valves, tees, crosses
- i. Service lines
- j. Laterals
- k. Valve size and type
- l. Blow-offs; station, offset, type
- m. Air Vacuum; station, offset, type
- n. Connection to existing pipe detailed and labeled

- o. Irrigation meters coordinated with landscape architect; size and location
- p. Irrigation sleeves coordinated with landscape architect; size and location

Dry Utilities

a. If undergrounding of overhead utilities is required:

- (1) MID/PG&E "will serve" letter included?
- (2) Note on plan showing general alignment with note "Utilities to be placed underground by others" or equal

