

**CITY OF SOLANA BEACH  
ENGINEERING CONSTRUCTION STANDARDS**

**IMPROVEMENT PLAN SUBMITTALS**

Prior to acceptance of any submittal, all of the following requirements must be met:

1. Engineering plan check fee must be paid (See latest Engineering fee schedule).
2. First submittal shall include 2 copies of the improvement plans, 2 copies of drainage study (if applicable) and cost estimate, and one copy of soils report. Subsequent submittals as requested. For combined grading and improvement plan submittals, one set of reports and reference materials are preferred.
3. Submit one copy of all reference materials needed to aid in the plan check process, such as a title report, approved tentative map, site development plan, conditional use permit, coastal permit, Council resolution, improvement plans, record data and cross sections.
4. Submit all previous plan checks.
5. All final reports shall:
  - a. Be prepared on 8-1/2" x 11" paper.
  - b. Be securely bound and have durable covers. The front cover shall be marked with the name, assessor parcel number, City plan number, and discretionary permit number of the project.
  - c. Be prepared in a neat and logical fashion. Methods, formulas used and results shall be clearly shown.
  - d. Be signed and stamped by the Engineer of Work.
6. The design of all storm water drainage facilities shall be in accordance with the latest standards of the San Diego County Hydrology Manual.
7. A separate letter of transmittal for each project indicating all is being submitted.
8. Final grading plans submitted for approval shall be printed on mylar and contain no self-adhesive attachments copied onto the mylar.
9. An engineer's estimate based on the latest City of San Diego Development Review Department's Unit Price List, plus a 10% contingency.

**NOTE:** If the plan check finds that some items are missing when the plans are being reviewed, the submittal will be returned with a note indicating what is needed to complete the submittal. Improvement plans and reports are to be submitted to the Engineering Department.

## IMPROVEMENT PLAN CHECKLIST

NOTE: Verify all pertinent conditions of Resolution of Approval and Special Use Permit or Rezone, if applicable. All City codes, regulations and policies in effect at the time of submittal shall be adhered to. All improvement plans are subject to, but not limited to the following:

### A. GENERAL FORMAT

1. Key Map 1" to 200' with legends including street names, streetlights, fire hydrants, sewer, water, block numbers and easements.
2. Lot number, key map and plans.
3. Location or vicinity map.
4. North arrow and bar scale on all sheets.
5. List of work to be done on Sheet 1 or Sheet 2 (with standard drawing numbers).
6. Signature blocks for fire and water agencies.
7. Engineer of Work's signature on plans prior to plan check.
8. Benchmark description – complete information USC and GS Datum only.
9. Standard title block.
10. Size of sheets (24" X 36") – tracings to be trimmed 1/8" + outside of trim line.
11. Typical street sections.
12. Owner's name, address and telephone number (on front sheet).
13. Engineer's name, address and telephone number (on front sheet).
14. Show Special Use Permit number, rezone number, grading permit number (where applicable.)
15. General improvement notes and certificates (see attached).
16. Final engineering plans ready for signature shall not contain sticky backs or other adhesive logos, details, etc.

### B. DRAINAGE

1. Map of all drainage areas affecting the improvements has been submitted.
2. Calculations showing hydrology and hydraulics have been submitted.
3. Drainage structures and location shown on plans and profile.
4. Width of X-gutter, elevations at spandrels.
5. Notarize approval for discharge of drainage onto adjoining property. Letter of permission and waiver required, except when discharging into natural watercourse.
6. Drainage easements.
7. Check for no-erosive velocities at point of discharge, or adequate energy dissipater. No drainage shall be channeled across travel lanes of any street without PCC gutters.

## C. STREET IMPROVEMENTS

Public and private improvements shall be prepared on separate plans.

1. Horizontal curves to conform to Caltrans Highway Design Manual and intersectional sight distance requirements.
2. Plan and profile of water and sewer lines, both new and existing.
3. Fire hydrants correctly located or relocated.
4. Encroachment permit from other agencies as required.
5. Existing power poles in right-of-way to be relocated or removed, as required.
6. Stationing on plan and profiles – two-line profile with natural ground, show natural ground profile outside boundary at end of street.
7. Show plan, profile and stationing of existing streets being tied to or widened. Provide centerline equation, if necessary. Area shown to include required transitions and provide cross sections.
8. Check advance/nearby existing road plan. Either subdivision, road surveys, curb grades.
9. Street names to be approved, submitted to Planning Department.
10. Street name signs, traffic signs and barricades on stub street.
11. Wheel chair ramps (only where sidewalk is being installed).
12. Extra 5 feet of bike lane on select system roads.
13. AC dike to train gutter water along AC taper to existing ditch.
14. Overlay existing pavement as necessary to provide a smooth transition.
15. Profile existing EP on curb grades and on centerline profiles w/station, elevations and percent grades shown.
16. Elevation of drainage pipes; invert, top curb, rim elev., gutter depression, 100 year Q.
17. Curb return arcs, profiles and station.
18. Width of right-of-way and drainage easements and record number/date of new dedication.
19. Width of paving, sidewalks, cut-off walls at end of stub out streets.
20. Cul-de-sac minimum turning area approved, cul-de-sac grade not to exceed 5%.
21. Type of streetlight standard, fixture and wattage shown and approved.
22. Compare with final map for easements.
23. Street light location approved and service line install. Data shown.
24. Provide transition from end of sidewalk to natural ground.
25. Obtain proper stopping sight distance on vertical curves.
26. Place chevrons where curb and walk are not contiguous and slope greater than 7%.
27. Submit Engineer's cost estimate for required improvements including sewer and water mains and laterals.
28. Reference centerline to City of County approved road plans, i.e., road survey, subdivision map, etc.
29. Check all existing power poles, fire hydrants and other existing structure that may affect the improvements.
30. Streets with grades 1% or less, or grades greater than or equal to 10% require concrete curb and gutter from intersection to intersection.
31. Check possible encroachments of slopes, etc., on adjacent properties.
32. Compare against grading plans for continuity.

**GENERAL IMPROVEMENT NOTES AND CERTIFICATES**  
(To be shown on Improvement Plans)

**STANDARD REQUIREMENTS**

1. All work, unless otherwise specified, shall be done in accordance with the latest edition and supplements of the "Standard Specifications of Public Works Construction", San Diego Regional Standard Drawings and City of Solana Beach Engineering Construction Standards.
2. Work zone traffic controls throughout permit construction shall conform to the latest California Department of Transportation, "Manual of Traffic Controls for Construction and Maintenance Work Zones".
3. Before work on any sewer line begins, a permit must be issued by the Solana Beach Engineering Department. For information on sewer permits, please call (858) 720-2470.
4. Parking restrictions, as approved by City Engineer, shall require a minimum of 48 hours notice, excluding holidays and weekends.
5. Traffic lane restrictions and detours may occur only between the hours of 9:00 a.m. and 3:00 p.m., and are subject to review of the City Engineer. Excavations shall be backfilled or other adequate means provided to maintain existing traffic lanes other than during these hours.
6. One lane of traffic in each direction shall be maintained at all times on all major and secondary highways.
7. A minimum 4' wide pedestrian walkway, clear of any obstruction shall be maintained wherever sidewalks exists and must be maintained with safety fencing or barrier separation from adjacent excavation when left unmanned.
8. Any damage to traffic control equipment, traffic striping or raised pavement markers shall be the permittee's responsibility and shall be brought to the immediate attention of the inspector. The replacement of damaged traffic equipment, striping or raised pavement markers shall be the responsibility of the permittee and be done as soon as practical after completion of work.
9. A.C. pavement shall be sawcut to one foot beyond the edge of the trench. Concrete sections to be replaced score line to score line.
10. Permanent pavement repairs shall be made within 25 days after excavation work is completed. Inspector's approval is required before permanent repairs are made.
11. When permittee tunnels under existing curbs, gutters and sidewalks, the excavated trench shall be backfilled with cement grout as prescribed in the Standard Specifications.
12. When compaction tests are required, all costs are to be borne by the permittee.
13. A one-sack cement and slurry mixture may be required for compaction where excavation interferes with traffic flow or where work is within the roadway portion of an inspection.
14. Tree trunks shall be cut to within 4" of curb height and said trunk and all roots shall be ground to a depth of 18" below grade by a mechanical stump grinder to the satisfaction of the Public Works Superintendent. All wood chips shall be removed and the hole filled and compacted with topsoil.

## GENERAL NOTES

1. A permit shall be obtained from the City of Solana Beach Engineering Department for any work within the public right-of-way.
2. The structural section shall be approved by the City of Solana Beach and as recommended by the geotechnical engineer.
3. Approval of these improvement plans as shown does not constitute approval of any construction outside the project boundary.
4. All underground utilities within the public right-of-way shall be constructed, connected and tested prior to construction of berm, curb, cross gutter and paving.
5. The existence and location of existing underground facilities shown on these plans were obtained by a search of the available records. To the best of our knowledge, there are no other existing facilities except as shown on these plans. However, the contractor is required to take precautionary measures to protect any existing facility shown hereon and any others that is not of record or not shown on these plans.
6. Location and elevation of improvements to be met by work to be done shall be confirmed by field measurements prior to construction of new work. Contractor will make exploratory excavations and locate existing underground facilities sufficiently ahead of construction to permit revisions to plans if revisions are necessary because of actual location of existing facilities.
7. The contractor shall notify DIG ALERT at 1-800-227-2600 prior to starting work and shall coordinate his work with company representatives.
8. No paving shall be done until existing power poles are relocated outside the areas to be paved.
9. Private road improvements shown hereon are for information only. City Engineer's signature hereon does not constitute approval or responsibility of any kind for the design or construction of these private improvements (if applicable).
10. The contractor shall request from the City Engineer's office a pre-construction meeting and shall provide at least 48 hours notice for such a meeting.
11. It shall be the responsibility of the developer to contact the utility agencies and advise them of the proposed improvements and bear the cost of relocations, if needed.
12. Power sources and runs serving streetlights shall be shown on the "As-Built" improvement drawings. All sources shall be located within the dedicated right of way or within easement dedicated to the City of Solana Beach.

## PAVING NOTES

1. Final street structural section shall be submitted to the City Engineer for approval prior to placement of base material. The design shall be based on the "R" value method and shall include all supporting calculations and test results. The Traffic Index (T.I.) and minimum structural sections shall be used in accordance with The City of Solana Beach Engineering Construction Standards Street Structural Section Design Table.
2. A compaction report from a registered Civil Engineer certifying all roadway and utility trenching has been compacted to the minimum requirements specified in the Standards

Specification for Public Work Construction and the recommendations of the Soil Engineering contained in the project's soils report.

ENGINEER OF WORK'S CERTIFICATE

I, \_\_\_\_\_, hereby declare that I am the Engineer of Work for this project, that I have exercised responsible charge over the design of the project as defined in Section 6703 of the Business and Professions Code, and the design is consistent with current standards and City of Solana Beach Resolution No. \_\_\_\_\_.

I understand that the check of project drawings and specifications by the City of Solana Beach is confined to a review only and does not relieve me of responsibilities for project design.

Signed \_\_\_\_\_ Date \_\_\_\_\_

R.C.E. No. \_\_\_\_\_ Exp. \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

Telephone: \_\_\_\_\_

ENGINEER OF WORK'S AS-BUILT CERTIFICATE

The information shown is based on an actual field survey of the improvements between the dates of \_\_\_\_\_ and \_\_\_\_\_. To the best of my knowledge and experience the survey and these plans provide an accurate and correct representation of the as-built conditions.

Signed \_\_\_\_\_

Date \_\_\_\_\_

R.C.E. No. \_\_\_\_\_

Exp. \_\_\_\_\_

## STREET STRUCTURAL SECTION DESIGN TABLE

Design Criteria	Major Arterial	Collector-Commercial	Collector Local-High Density	Local – Low Density
Minimum Traffic Index	9.0	7.0	6.0	5.0
Minimum Structural Section	6 AC / 6 AB	4 AC / 6 AB	4 AC / 6 AB	3 AC / 6 AB

Final street structural section design shall be submitted to the City Engineer for approval prior to placement of base material. The design shall be based on the "R" value method and shall include all supporting calculations and test results.

### SPECIAL SEWER CONSTRUCTION NOTES

1. Pipe Bedding and Backfill: Gravel shall conform to the latest edition of the Standard Specifications for Public Works Construction, Subsection 306-1.2.1 and be placed in accordance with San Diego Regional Standard Drawing S-4, Type B. The upper zone backfill shall be compacted to ninety five percent (95%) minimum relative compaction.
2. Manhole Exterior Surface: The exterior surface of manholes shall be coated with a waterproofing agent consisting of a coal tar emulsion. The waterproofing shall be Kop-Coat Bitumastic No. 300M, or approved equal. The waterproofing shall be applied no less than two (2) coats to achieve a total dry thickness of 25 to 35 mils. The exterior surface shall be prepared and waterproofing shall be applied in accordance with the manufacturer's specifications.
3. Manhole Interior Surface: The interior surface of manholes shall be lined with an epoxy/urethane lining. The epoxy/urethane lining shall be SANCON 100 Polyurethane System, or approved equal. The lining shall be installed in accordance with manufacturer's specifications.

### TRANSFER OF RESPONSIBILITY:

If responsible professionals (civil engineer, soil engineer, engineering geologist, the testing agency, the contractor or other professional) of record are changed during the course of the work, the work shall be stopped until:

1. The owner submits a letter of notification verifying the change of the responsible professional; and
2. The new responsible professional submits in writing that he/she has reviewed all prior reports and/or plans (specified by date and title) and work performed by the prior responsible

professional and that he/she assumes all responsibility within his purview as of the specified date. All exceptions must be justified to the satisfaction of the City Engineer.

Where clearly indicated that the firm, not an individual professional is the contracting party, the designated professional may be reassigned and another professional of comparable accreditation within the firm may assume responsibility.

3. The new responsible professional processing a revision to the approved plans shall include bubbling out the revision and signing the plans at the required locations. The "Declaration of (Professional Title) of Work" on the plans shall also be included and signed in the event of a change of professional.

#### AS-BUILT:

When the work shown on the plans is completed, the Engineer of Work shall be required to "As-Built" the plans. Initially, a print of original plans shall be red-line plans showing all "As-built" information including but not limited to approved construction changes, location of water and sewer services, gas and electric facilities, and final pavement sections. When the "As-Built" prints are conceptually approved, the original plans will be checked out to the Engineer of Work to make those changes onto the original plan. The Engineer of Work shall turn in those original plans, with all of the original "wet" signatures, back to the City. The securities for the work will not be release until the City accepts the "As-Built" plans.

#### STORM DRAIN MARKERS:

1. All new or replaced storm drain inlets shall have a tile permanently affixed on the curb face of each side of the inlet opening with the following message on it: "NO DUMPING, THIS DRAINS TO OCEAN," including a fish stencil.
2. The size, color and design shall be subject to approval by the City Engineer. The tile marker shall consist of a heat-fired, vitreous, ceramic base and a heat-fired, opaque, glazed surface. The bottoms of the tile marker shall be free from gloss or glaze and shall have a number of integrally formed protrusions projecting from the surface in a uniform pattern.
3. The tile marker shall be applied with an epoxy adhesive to meet service requirements for highway construction. The portion of curb face surface to which the tile marker is to be bonded by the adhesive shall be free of dirt, curing compound, grease, oil, moisture, loose or unsound layers, paint and other material which would adversely affect the bond of the adhesive.



STREET LIGHT LUMINAIRE TYPE AND SPACING TABLE:

Scenic Highway	Major Arterial	Collector-Commercial	Collector Local-High Density	Local-Low Density	Cul-de-sac Street
250 watts HPS 200' staggered	250 watts HPS-200' staggered	250 watts HPS – 250' staggered	100 watts HPS-250' one side or staggered	100 watts HPS – at all intersections – 250' spacing one side of street	100 watts HPS – at mid block if less than 200'

See Section 17.60.060 of the Solana Beach Municipal Code regarding limitations of installing new street lighting in areas designated as "Dark Sky" areas.