

# **CITY OF NATIONAL CITY STREET IMPROVEMENT PLAN REQUIREMENTS**

## **TITLE SHEET**

1. All general notes included, including the “as built” note, the Dig Alert note, benchmark information, horizontal control information, and declaration of responsibility statement by the civil engineer.
2. Name(s) address and telephone number (s) of the property owner (s).
3. Name(s) address and telephone number (s) of the person (s) to have effective control of the work.
4. Name address and telephone number of the civil engineer, together with his/her signature and seal, on all sheets.
5. Vicinity map with north arrow.
6. Project name, address, and case file number shown in the City signature block on all sheets.
7. Any and all required water notes and specifications for new waterline construction. Obtain listing of these notes from Sweetwater Authority.
8. Sweetwater Authority review and approval signature block for new waterline construction.
9. Any and all required sewer notes and specifications for new sewer line construction, including information for the televising of the new sewer line (s).
10. Typical street sections shown together with the corresponding stationing.
11. Note for work to be done and reference to the latest standard drawing and specifications in effect at the time of reviews.
12. Legend provided, with all relevant standard drawing numbers and symbols.

## WORK DRAWINGS

1. Scale and North arrow shown ( Note: scale must be large enough to show the work sufficiently clear). Horizontal scale to be 1"=20', vertical scale to be 1"=2'.
2. Project boundaries/property lines dimensioned and clearly shown and labeled. Also bearing of the property lines shall be shown.
3. All streets identified and dimensioned for widths, right-of-ways, etc.
4. All existing and required street improvements shown and called-out, including utility lines.
5. Existing roadway topo and ground elevations shown for both sides of the street, beyond the limits of the work.
6. Existing and proposed structures shown with the appropriate set backs.
7. Plan and profile of all streets shown. This includes top of curb, center line, waterline, sewer line, storm drain, retaining wall, manhole, and driveway elevations and stationing. Also the profile of existing ground and center line shown (dashed line).
8. Horizontal control data shown for new curbing, street centerline, retaining wall, property lines and utility lines, including sewer and storm drain.
9. Stationing shown for driveway centerlines, sewer and water laterals, beginning and end of all curves, street lights, firehydrants curb inlets, curb outlets, and any other new items.
10. Widths of all driveways shown. Driveways shall either be type G-14A or G-14B, unless approved for alley type entrance, per G-17. If G-17 driveway called-out, pedestrian ramps provided on both sides and types specified.
11. The invert elevations of sewer and water laterals at the property line and the main together with their lengths shown.
12. All curve data shown.
13. New bus zone, or existing bus zone upgraded per MTDB standards.
14. All areas of street pavement or street repair, replacement, or overlay called out, stationed and quantified. New pavement sections per National City standard drawing 113-SB. At all areas of curb and gutter work, A.C. removal and hot mix patch replacement adjacent to the gutter shown as per National City Standard Drawing 119-SB.

15. Required dedications for public right-of-way and street purposes or additional dedications for street widening shown and called out with dimensions.
16. New pedestrian ramp construction, the type and the appropriate dimensioning and slopes shown, per ADA requirements. The required pavement removal for maximum 5% grade to the ramp, as called out in the Standard Drawing G-32, also shown.
17. Flow line elevations shown on new cross gutter(s), with section consisting of 8" of concrete over 10" of base material compacted to 95% relative compaction, and reinforced with wire mesh or number 3 rebar.
18. Appropriate transitions provided at driveways adjacent to sidewalk, or behind sidewalks where power poles, light poles are present. Minimum width requirement behind poles is 4 feet.
19. Required street light(s), as per City Council policy, and Standard Drawing "E-1", together with the electrical energy connections shown.
20. Reverse curves are to be separated by tangent distance adequate to provide safety to travel for the type of street involved.
21. Property line radius at intersections are to be 10 feet less than future face of curb radius with a minimum of 20 feet.
22. Street knuckles shall be in accordance with the San Diego County Design Standard Drawing DS-15.
23. Streets are to intersect at 90 degree angles or as close thereto as practical.
24. Intersection of local streets to major streets (prime and major arterials) are to be kept to a minimum.
25. Cul-de-sac and dead-end streets shall be in accordance with San Diego County Design Standard Drawing DS-6 and shall conform with the City of National City Fire Department's requirements.
26. Dead-end streets (cul-de-sac) which will not be extended in the future should not exceed 500 feet in length in commercial and industrial areas unless there are clearly defined topographic conditions requiring greater lengths. In such instance extra street widths, special turnarounds, setbacks, on-site circulation provisions, etc. may be required to compensate for the more difficult emergency access associated with the longer dead-end streets that may be necessary.

27. Residential cul-de-sacs of more than four lots require a turnaround. Residential cul-de-sacs over 1,000 feet in length require an intermediate turnaround. Such dead end streets shall be limited to a maximum ADT (Average Daily Traffic) of 200 unless there are clearly defined topographic problems which require greater volumes. In such cases, appropriate special requirements may be imposed to compensate for the difficult emergency access associated with the higher ADT's.
28. Two streets intersecting opposite sides of a third street are to have the same points of intersection or else their center lines are to be separated by a minimum of 200 feet on the third street.
29. Circular horizontal curves along street centerlines shall not be used unless approved by the City Engineer.
30. All horizontal curves shall have a minimum intervening tangent distance measured along the centerline in feet equal to four times the design speed (designated in miles per hour) of the street or alley.
31. Minimum curb return radii:
  - a. Intersection of alley with any street: 10 feet
  - b. Residential street to residential street: 20 feet
  - c. Commercial and residential streets: 50 feet
  - d. All other intersections: 30 feet
32. Streets having a grade in excess of 12% shall have a minimum paving of 6" of Portland Cement Concrete. Concrete to be 3,000 pounds per square inch (P.S.I.) or greater, per 28 days compressive strength.
33. Vertical curves shall conform to State of California, Division of Transportation, "Highway Design Manual" criteria.
34. Minimum grade for all streets and alleys; 0.5%.
35. The maximum centerline grade for a permanent cul-de-sac street turning area shall be 5%, the maximum centerline grade for a temporary cul-de-sac street turning area shall be 8%.
36. The minimum gutter grade in a turnaround segment of cul-de-sacs shall be 1%.
37. The maximum street grade at a cross gutter shall be 3% for 25 feet from the edge of the cross gutter furthest from the centerline of the cross street.

38. The maximum grade at any intersection of two streets shall be 8% within the intersection and for at least 50 feet past the nearest curb lines of the intersecting street. Intersections within super elevated sections may require special design consideration.
39. Grade changes and the angle of departures at intersections shall not exceed 8 degrees. Super elevation is required, on all except neighborhood streets, in accordance with the States of California, Division of Transportation, "Highway Manual".
40. Vertical curves shall be used when change in grade exceeds 1% in sags and 0.5% on crests.
41. Alleys shall be constructed in accordance with G-21 and National City Standard Drawing 120-S-B. Two inch by four inch redwood headers shall be installed along exterior sides of alley improvements.
42. Both contact and weakened plane joints shall be constructed in accordance with Section 22302-6.54 of the Standard Specification for Public Works Construction. Preformed joint filler in the weakened plane joint **shall not** be used.
43. Two inch by four inch redwood headers shall be installed along all exterior sides of new asphalt paving, unless such paving abuts existing asphalt paving or existing Portland Cement Concrete.
44. Traffic control devices, including pavement markings, signs, and signals shall be in conformance with the State of California Traffic Manual.
45. Contiguous sidewalk a minimum of five feet wide is to be installed in commercial and industrial zones and on all four or six lane streets. Contiguous sidewalk in residential zones is to be a minimum of four and one half feet wide. Noncontiguous sidewalk is to be four feet wide and set adjacent to the property line and may be installed **ONLY** in residential zones, except that contiguous sidewalk is required adjacent to schools, churches, public buildings and like developments, and further that contiguous sidewalk is required on streets where the grade is 7% or greater. Sidewalk areas within curb returns are to be completely paved at intersections of arterial streets with all arterial and collector streets and at other intersection locations where significant pedestrian volumes are anticipated.
46. Type "G" curb and gutter shall be constructed per Regional Standard Drawing G-2. Curb height of 8" is required for prime and major arterial streets or at locations where existing curb is 8" high.
47. Portland Cement Concrete cross gutters shall be installed in all locations where drainage crosses paved surface portions of the streets.

48. Design of the drain system shall be to the 100 year flood in all areas of 200 acres or more per the County of San Diego Drainage Manual. Protection against flooding, under this criteria, shall be provided with an engineering plan approved by the City Engineer. Local drainage for a ten year flood is permissible, if such design will indicate that a 100 year flood will not cause inundation above structural flood levels within the flood area. In addition, all provisions of the Land Use Code, Chapter 18.24 “ FLOOD PLAIN ZONING” of the National City Municipal Code, shall be complied with.
49. Minimum storm drain size is 18” inside diameter, minimum “D” load rating within the public right-of-way for RCP shall be 1350. The minimum grade for precast drain pipe shall be 0.2%, while that for cast in place drain pipe shall be 0.5%.
50. All concentrated private drainage from an area of one acre or greater shall be taken to the gutter via a D-25 underdrain. The use of the sidewalk underdrain pipe D-27 should be considered for any site development where any small anticipated artificial or natural flows might cause a nuisance flow over the sidewalk. Sidewalk underdrains shall be turned 30 degrees to 45 degrees with the gutter flow from the property line, and shall be PVC. Sch. 80.
51. Storm drain inlets and catch basins shall be in accordance with the latest San Diego Area Regional Standard Drawings. “NO DUMPING” concrete stamps shall be placed on top of all newly constructed inlets and catch basins.
52. Concrete pipe storm drains **shall not** be used on gradients exceeding 40%.
53. Maximum cleanout spacing: Storm drains constructed on grades greater than 20% shall use concrete anchors per Regional Standard S-9 intervals of not more than 40 feet.
  - Pipe diameter of less than 30”: 300 feet
  - Pipe diameter greater than 30”: 800 feet
54. Inlets shall not normally be placed within pedestrian crosswalks.
55. The minimum sewer main is 8” inside diameter in residential and commercial areas and 10” inside diameter in industrial areas.
56. Grades for sewer lines shall be determined by using design flow and velocities with the exception that minimum grade for 8” sewer **shall not** be less than 0.4%.

57. Sewer construction on grades of 20% or more, in newly compacted fill, shall use concrete anchors per Regional Standard Drawing No. S-9 at intervals of not more than 40 feet between anchors. Backfill shall be rounded over trench.
58. Sewer construction on grades of 20% or more, under conditions other than above, shall use cutoff walls per Regional Standard Drawing No. S-10, at intervals of not more than 40 feet between cutoff walls.
59. Grades above 65% shall use cast iron pipe, class 150, without bedding.
60. Portions of sewer systems which serve the equivalent of less than 10 residential lots shall be constructed at a minimum grade of 2% if vitrified clay pipe is used. When PVC is used the minimum grade shall be 1%.
61. Cradle/Encasement Requirements-Depth (to top of pipe).

Vitrified Clay Pipe

- a. 0'-3' Concrete encasement- Standard Drawing No. S-7
- b. 3'-14' Normal installation (extra strength pipe).
- c. 14'-21' Concrete cradle- Standard Drawing No. S-6
- d. Over 21' Concrete encasement per Standard Drawing No. S-7

62. Manholes:

Standard Drawing No. S-2

Maximum distance between manhole shall be 400 feet.

Maximum distance from manhole to plug on grades not exceeding 7% shall be 200 feet.

Manhole shall be provided with PVC liner to protect against corrosion.

In cul-de-sac, the sewer line shall terminate in a manhole.

63. Sewer trunks and mains will normally be located on the center line of streets unless otherwise approved by the City Engineer.
64. Sewer which may be extended in the future shall be constructed to the boundary of the land being developed, or to the end of the permanent improvements as determined by the City Engineer.

65. Sewer and water lines paralleling each other shall be separated by a minimum of 10 feet.
66. Sewer crossing water lines shall cross under the water line.
67. Cleanouts shall be provided at a maximum of 100 foot intervals for sewer laterals.
68. Sewer constructed along curved alignments:
  - Curves of radii exceeding 200 feet may be formed by the deflection of each joint or by use of specially beveled pipe.
  - Curves of radii equal to 200 feet or less will use two foot length pipe for every other length when using joint deflections.
69. Sewer laterals shall be in accordance with Regional Standard Drawing Nos. S-13 and S-14.
70. Minimum Grade for sewer laterals shall be 2% unless otherwise approved by the City Engineer.