



Standards and Specifications



**CITY OF GROVER BEACH
COMMUNITY DEVELOPMENT
DEPARTMENT**

City of Grover Beach

Standards and Specifications

Adopted by the City Council
June 5, 2006



Robert Perrault
City Manager

Attest:



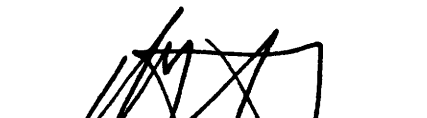
Donna L. McMahon
City Clerk

Approved:



Director of Public Works/
Designee

29 JUNE 07
Date



R. James Garing, RCE 26993
City Engineer

29 June 07
Date

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SECTION 1

GENERAL REQUIREMENTS

1.01 PURPOSE:

The purpose of these Standards and Specifications is to provide minimum standards for the design, methods of construction, kinds and uses of materials, and the preparation of plans for construction, repair or alteration of streets, roadways, concrete structures, drainage, sewerage, and water supply facilities within the City of Grover Beach, where any portion of such improvement is to be offered to the City of Grover Beach for operation and/or maintenance. Any items which are not included in these Standards and Specifications shall be constructed in accordance with the State Specifications as defined below or, if not covered in the State Specifications, as approved by the City of Grover Beach, Community Development Director.

1.02 DEFINITIONS:

In these Specifications or the State Specifications the intent and meaning of the terms that are used shall be as defined in Section I of the State Specifications except as follows:

1. Consultant - Shall mean any person or persons, firm, partnership or corporation legally authorized to practice civil engineering in the State of California who prepares or submits improvement plans and specifications on behalf of a Developer to the City of Grover Beach for approval.

2. Contractor - Shall mean any person or persons, firm, partnership, corporation or combination thereof who has/have entered into a contract with any person, corporation, company, special district, or the City of Grover Beach as party or parties of the second part, or legal representatives, for the construction of any improvement within the City of Grover Beach.

3. Community Development Director or Director - Shall mean the Community Development Director of the City of Grover Beach.

4. **Department** - Shall mean the City of Grover Beach Community Development Department.
5. **Engineer** - Shall mean the City Engineer of the City of Grover Beach acting either directly or through an authorized representative.
6. **Developer** - Shall mean the owner or owner's representative.
7. **Laboratory** - Shall mean any testing agency or testing firm, which has been licensed by the State of California to act in such capacity, and meeting the requirements of the Engineer.
8. **State** - When State specifications are applicable, the word "State" as used in the State Specifications, shall mean the City of Grover Beach.
9. **City** - Shall mean the City of Grover Beach.
10. **State Specifications** - Shall mean the latest edition of Standard Specifications and Standard Plans of the State of California, Business and Transportation Agency, Department of Transportation.

1.03 CONTROL OF MATERIALS:

The Director may make such tests of any of the materials used in any work done under these specifications as considered necessary. Samples of materials for testing shall be furnished to the Director without charge. In lieu of, or in addition to, tests by the Director, properly executed certificates of compliance with these specifications from the manufacturer or fabricator of any materials used in any work done hereunder may be required. Cost of all testing shall be paid for by person, firm or corporation making the improvement.

If pipe manufactured outside of the United States is to be furnished, all the tests required under these specifications shall be conducted within the continental limits of the United States by an established, reputable firm operating in the testing of materials field. The testing firm shall submit a certificate that all the requirements of these specifications have been met.

Requests for substitution of methods or materials differing from those set forth herein will be considered by the Director provided the requester makes any such requests in writing and furnishes complete descriptive information thereon to the Director (including any additional information the Director may request) as early in this process as possible, but, in any event, or not later than the day on which the final improvement plans are submitted for final review by the Director. The Director will consider requests for emergency substitutions involving materials which suddenly become unavailable, provided requests for such emergency substitutions, including all data to show substitutions comply with specifications, are received at least fifteen calendar days before date of use.

SECTION 2
PREPARATION OF PLANS

2.01 GENERAL:

All improvement plans shall be prepared and signed by a registered Civil Engineer. Complete plans and specifications for all proposed streets, drainage facilities, sewerage, water distribution systems, industrial and commercial development and residential subdivisions, including any necessary dedications and easements, shall be submitted to the Director for approval and must receive the required approval prior to the beginning of construction of any such improvements. This shall apply where it is the intent that any portion of such improvements will be turned over to the City. Where improvements are required as a condition of City approval of any development, including those where City acceptance of the public ways in said development is not intended, nor imminent, improvement plans acceptable to the Director shall be submitted to assure the City that proper construction standards will be used together with Performance Bonds and Labor and Materials Bonds as necessary to guarantee compliance. Plans not conforming to the normal standards of quality and neatness may be rejected.

Three sets of plans, specifications and special provisions, together with two copies of all computations, cost estimates, bid forms, test data, cross sections, and such other items as may be requested by the Director, shall be submitted to the Director for approval. One copy of the plans showing desired revisions will be returned to the consultant. At such time as the consultant has made the necessary revisions, the original drawings shall be submitted for approval. No construction will be authorized or plan approved until such time as the Director or a designated representative signifies approval by signature on the original drawings of the title sheet. There shall be no alterations made to an approved set of plans unless such alterations are submitted to the Director for approval. Excepted from approval are any features of the plans that are contrary to, in conflict with or do not conform to any Federal or State law, City

Ordinance or Resolution, or generally accepted engineering practice, in keeping with the standards of the profession, even though such errors, omissions or conflicts may have been overlooked in the review of the plans.

Where the improvement plans submitted cover only a portion of the ultimate development, the plans submitted must be accompanied by the approved overall tentative plan, or a study plan if there is no approved overall tentative plan, showing topographic features of the ultimate development at an adequate scale to clearly show the proposed improvements.

A print of the subdivision map shall be included with each set of subdivision improvement plans submitted.

2.02 DESIGN ALTERNATIVES:

The Director may approve design alternatives where the proposed alternate provides the same level of service, approximately the same estimated maintenance costs, and is not adverse to public health, safety and welfare. This provision is intended to provide for some flexibility in designing streets with bike ways, pedestrian paths and bridle paths; when an area specific plan has been approved showing an alternate to the standard drawings or where appropriate in order to provide compatibility with adjacent areas.

2.03 STANDARD SHEETS AND SCALES:

A. Residential Subdivisions and Commercial or Industrial Streets - These plans shall be prepared on mylar or an approved equal, 24" x 36", Standard Plan - Profile Sheet. Desirable Scales: Horizontal of 1" = 20' with vertical of 1" = 2' or 1' = 4'; or horizontal of 1' = 50' with vertical of 1" = 5'. However, scale may be varied in rough terrain.

B. Storm Drainage - Plans for minor drainage facilities may be shown on street plans, if appropriate. Plans for major drainage facilities shall conform to the sheet size and scale as shown for street plans, and shall include hydraulic grade line.

Attention is directed to 2.01 of these Specifications, which requires the submittal of computations with improvement plans at the time such plans are submitted for approval. Off street improvements shall be drawn on sheets and to a scale approved by the Director.

C. Sanitary Sewerage - Plans for sanitary sewer improvements shall be prepared on standard sheets as defined in paragraph A, and may be submitted on the same plans as the streets. Off street improvements shall be drawn on sheets and to a scale approved by the Director.

D. Water - Plans for water system layout and improvements shall be submitted on the same plans as the streets. Off street improvements shall be drawn on sheets and to a scale approved by the Director.

E. Utilities - Plans for electric, telephone, cable T.V. and gas system improvements shall be submitted on the same plans as the streets. Each respective utility shall signify approval of the proposed layout of its facility by signing the plans.

F. Grading - If any grading is proposed, a grading plan shall be submitted with the other required improvement plans. Cut and fill quantities shall be computed and shown on the plan. Existing and final contours shall also be shown.

2.04 PLAN DETAILS:

The following details are to be shown on plans submitted for approval:

A. Title Sheet - On improvement plans exceeding two sheets in the set, a title sheet shall be prepared showing the entire work complete with the following: a key map showing boundaries of the work, special districts, and City limits; street names; section and/or grant lines and corners; and the location of the work within the City. The title sheet shall also include an index of the sheets; the consultants name, and professional registration number and signature; the date of the drawing; and the blocks for the necessary approvals of the Director, Engineer and effected utilities.

B. Title Blocks - Each sheet of the set of drawings shall have an approved title

block showing the sheet title, sheet number, total number of sheets, date, scale and the consultants name, signature and professional registration number; and the name and/or number of the subdivision or assessment district.

C. Right of Way - Right of way lines, the boundaries of lots fronting on the street, all easements, section lines and corners, land grant lines, City limit lines and temporary construction easements both existing and proposed shall be shown on the plans. All right of way and easement lines shall be properly dimensioned.

D. Topography - All pertinent topographic features which may affect the design, construction, and operation of the improvement shall be shown on the plans, including, but not limited to the following: street lines, curbs, sidewalks, shoulders, location and size of existing utility lines, high water and frequent inundation levels, existing structures, fences, houses, trees, and other foliage, drainage ditches, utility poles, fire hydrants, and all other features of the area which may affect the design requirements for the area.

E. Profiles - The plans shall clearly show the existing and proposed profiles of all roadways, drainage ditches, storm drains, sanitary sewers, water lines and clearances at structures and power lines, including elevations at 25' minimum intervals for warped surfaces.

F. Stationing and Orientation - The stationing on plans and profile shall read from left to right. Insofar as practical, the plans shall be so arranged that the north arrow is either pointed toward the top or to the right edge of the sheet.

G. Special Notes - Special notes shall be clearly indicated. The following note shall be conspicuously placed on the first sheet of plans:

"All construction work and installations shall conform to the City of Grover Beach Standards and Specifications, and all work shall be subject to the approval of the Community Development Director or the City Engineer."

H. Typical Sections - The plans should include one or more sheets which shall show the following:

1. Typical street and road sections
2. Detail of all typical concrete structures
3. Typical sections of drainage, sewer or water trench construction
4. Miscellaneous typical details
5. Applicable City standard drawings

I. Cross Sections - Cross sectional drawings shall be shown for all culvert and drainage structure locations. Cross sections for the remainder of the street will be required on request of the Engineer.

J. As-built Plans - During the progress of the work the consultant shall maintain one set of prints of the improvement plans showing all "As-built" changes. The Director shall approve each "As-built" change before being made. This set shall be available on the job for inspection by the Director and Engineer at any time. Upon completion of the work, the consultant shall obtain the original drawings of the improvement plans from the office of the Director and make "As-built" changes thereon and return the original drawings to the Director. Prior to the City acceptance of the project, the City shall be furnished a complete set of "As-built" mylar plans.

SECTION 3
INSPECTION

3.01 INSPECTION DURING CONSTRUCTION:

Each phase of any and all improvements, constructed to these specifications, must first be inspected and approved by the Director prior to the Contractor's proceeding with subsequent phases. Each phase shall be inspected as the Director considers necessary, but in any case the Director shall make an inspection within two working days after receiving a request for inspection from the Contractor.

The Director may inspect as considered necessary, any improvements required by the City Council or Planning Commission as a condition of approval of any development even though City acceptance is not intended or imminent. Any improvements constructed without approval as provided above, or constructed contrary to the orders or instructions of the Director, will be deemed as not complying with City Standards and Specifications and will not be accepted for maintenance.

3.02 FINAL INSPECTION:

Upon completion of any improvements which are constructed under and in conformance with these Standards and Specifications, and prior to requesting final inspection, the area shall be thoroughly cleaned of all rubbish, excess material and equipment; and all portions of the work shall be left in a neat and orderly condition satisfactory to the Director.

Within five days after receiving the request for final inspection, the Director or authorized agent will inspect the work. The Developer or owner's representative will be notified in writing as to any particular defects or deficiencies to be remedied. The Developer or owner's representative shall proceed to correct any such defects or deficiencies at the earliest possible date. At such time as the work has been completed, a second inspection shall be made by the Director within 48 hours after notification that re-inspection is desired to determine if the previously mentioned defects have been

repaired, altered and completed in accordance with these Standards and Specifications. At such time as the Director approves the work, a report will be made to the City Council and a recommendation that a Resolution of Acceptance be passed.

SECTION 4

ROADS AND STREETS

4.01 CLASSES OF ROADS AND STREETS:

Roads and streets shall be designed in accordance with the adopted Circulation Element of the General Plan of the City and as directed by the Engineer or Director.

4.02 GEOMETRICS AND PROFILES:

The following standards for the design of geometries and profiles for proposed improvements shall govern the preparation of plans for such improvements.

A. Minimum Grades and Maximum Grades

1. Minimum grade along any line on new streets shall be 0.30%.
2. Minimum grade of gutter sections constructed on existing streets shall be 0.30%.
3. Maximum grade on new streets shall be 15%.

B. Minimum Cross Gradient

1. Minimum cross section slope on streets shall be 1.5%.
2. When two streets intersect, neither street shall have a grade greater than 3.0% for a minimum distance of 40 feet measured from the curb line of the intersected street, except in unusually rough terrain.
3. The minimum vertical curve length allowable at the intersection of two grades shall be 50 feet. However, vertical curves may be omitted where the algebraic difference in grades does not exceed 0.5%.

C. Minimum Sight Distances

1. The minimum stopping sight distance (as defined in Chapter 200 of the Cal Trans Highway Design Manual) over any segment of the roadway shall be 200 feet unless approval for variation is received from the Director.

D. Cross Gutters - No cross gutters will be allowed to cross collector streets or arterial routes unless no other provision can be made for adequate drainage.

E. Curve Data - The curve data for all centerline curves shall be computed and shown on the plans. Minimum radius of curvature on a local street or road centerline shall be 250 feet. In new subdivisions only, the minimum radius of property lines on the exterior of all corner lots shall be 24 feet. The minimum radius of curb returns shall be 30 feet (12 feet optional in residential areas only).

4.03 SPECIFICATIONS FOR MATERIAL AND CONSTRUCTION:

A. Contractor's License and Supervision - Any Contractor performing work under these Standards and Specifications is required to possess a valid state license to perform such work. The Contractor or a duly authorized representative must be available on the job site during the time when any work is in progress. If such is not the case, the work shall be stopped at the direction of the Director.

B. Safety - All work shall be performed in accordance with the requirements of the State of California, CAL-OSHA.

The Contractor shall conform to the permit requirements of CAL-OSHA and shall obtain a trenching permit directly from the State of California.

The Contractor's attention is directed to the provisions of the Labor Code concerning trench excavation safety plans.

Excavation for any trench five feet or more in depth shall not begin until the Contractor has received approval, from the Division of Occupational Safety and Health, of the Contractor's plan for worker protection from the hazards of caving ground during the excavation of such trench. Such plans shall be submitted to the Division of Occupational Safety and Health at least five days before the Contractor intends to begin excavation for the trench and shall show the provisions to be made for worker protection during such excavation. No such plan shall allow the use of a shoring, sloping or protective system less effective than that required by the Construction Safety Orders or CAL-OSHA, and if such plan varies from the shoring system standards established by CAL-OSHA, the plan shall be prepared and signed by an engineer who is registered as a Civil or Structural Engineer in the State of California.

C. Materials and Tests - All materials furnished and the methods of performing any proposed work shall conform to and be done in accordance with the applicable portions of these Standards and Specifications of the City, or if the method and materials are not completely set forth therein, the provisions of the State Specifications shall apply. Where a California Test Method is specified, it shall mean the one currently in use by the State.

D. Temporary Improvements - The installation of temporary improvements to make building sites accessible will be approved on an individual basis, provided that it is expressly understood that such improvements are of a temporary nature only, and that they will be removed and replaced with permanent type improvements as soon as reasonably possible and prior to final acceptance inspection of the work by the Director. It shall be further understood that the approval of the installation of temporary improvements in no way obligates the City for any maintenance work.

E. Roadbed - The roadbed shall be prepared and constructed in accordance with the applicable portions of the State Specifications, unless otherwise modified in the following or approved by the Director.

1. Asphalt Concrete - Shall conform to the requirements for Type B Asphalt Concrete as specified in Section 39 of the State Specifications utilizing the $\frac{3}{4}$ inch maximum aggregate, for base course, and $\frac{1}{2}$ inch maximum aggregate for the finish course, except that the finish course for open graded asphalt concrete shall be inch maximum aggregate. The completed surface shall be sealed with a fog seal at the rate of 0.1 gallons per square yard. The fog seal shall comply and be applied in accordance with Section 37-1 of the State Specifications.

2. Survey Monuments - Survey monuments shall be provided at the following locations within an improvement.

a. Centerline of streets at angle points or at intersections with other streets.

b. At the beginning and end of curves on the street centerline, and radius points of cul-de-sacs.

c. At all subdivision corners, lot or parcel corners of the development and in such other locations so as to enable any lot or portion of the

improvement to be retraced or located. Monuments to be set as shown on record maps shall be a pipe at least 24 inches long and 1½ inches minimum diameter. All monuments shall be capped, stamped or tagged with the land surveyor's or engineer's number.

The Contractor is responsible for the protection and/or proper resetting of all existing monuments and other survey markers. Any survey monuments destroyed by the Contractor shall be replaced at the Contractor's expense.

4.04 TESTING OF BASE MATERIALS:

A. Subgrade Soil

1. Resistance factor "R" (State Stabilimeter Method) tests shall be made by the Developer as required by the Director. The location of the tests within the area shall be selected so that an average "R" value may be determined for the entire development area.

2. Relative compaction tests shall be made by the Developer as required by the Director on subgrade material and material placed within the street areas of the development as specified by the Director. Said tests will be made prior to placing the next layer of material.

B. Aggregate Base - Aggregate base shall be Class 2. Tests for aggregate base shall be made by the Developer as required by the Director on a minimum of two representative samples taken as the source from which material will be imported. The sample shall be taken within 15 days prior to placing of either base or sub-base. Test results submitted shall indicate clearly the location of the source of material. Base material shall also be subject to testing as it is delivered to the job site in accordance with State Standards.

The work of furnishing, spreading and compacting the aggregate base shall be done in accordance with these specifications and Section 26 of the State of California Standard Specifications.

4.05 STREET RIGHT OF WAY:

Minimum right of way widths shall be as set out in these Standards and Specifications in accordance with the Circulation Element and as directed by the Director. In no instance, without specific approval of the Director, shall a street have a

right of way width which is less than those streets of which they are a continuation. Right of way requirements for widening at intersections shall be as shown in the Standards or as approved by the Director.

4.06 PLANTING CUT AND FILL SLOPES:

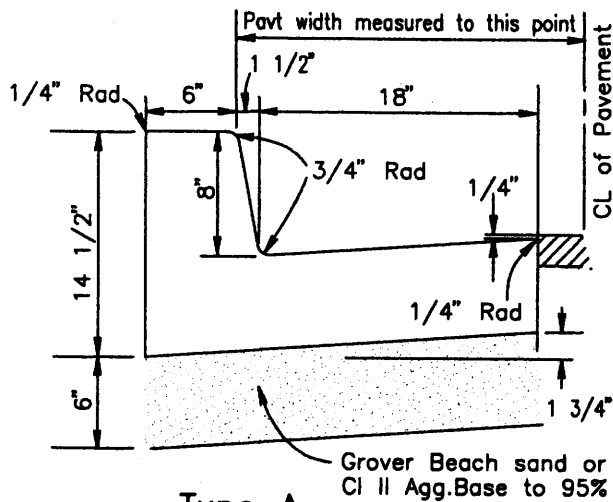
Cut and fill slopes shall be planted as required by the Director and to the approval of the Director. An erosion control plan shall be submitted when improvement plans are required. The erosion control plan shall be approved by the Director and/or City Engineer.

4.07 SOILS AND GEOLOGICAL REPORT:

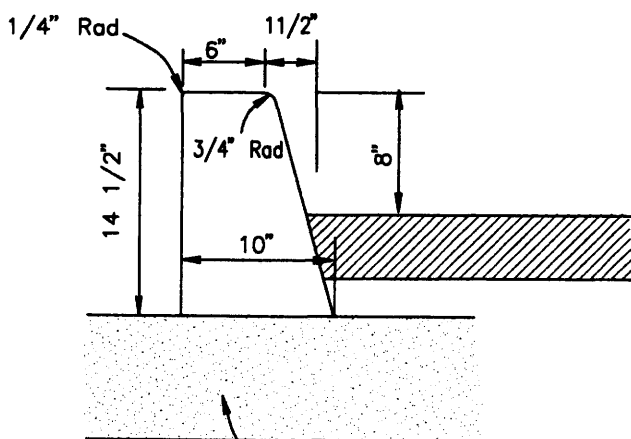
The Director may require a soils and geological report to substantiate road design and/or lot stability.

4.08 PRESERVATION OF TREES:

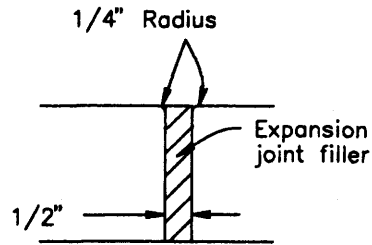
Preserve trees if possible. All trees to be removed shall be shown on the improvement plans. The Director may require additional trees to be removed for reasons of safety or maintenance.



Type A

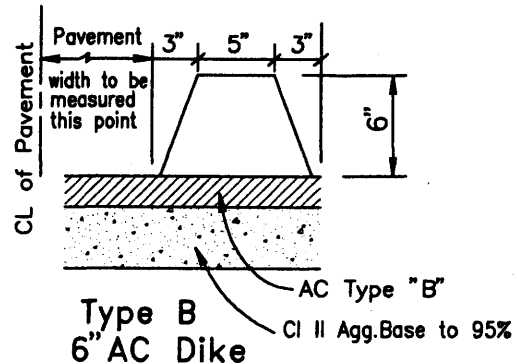


Type C

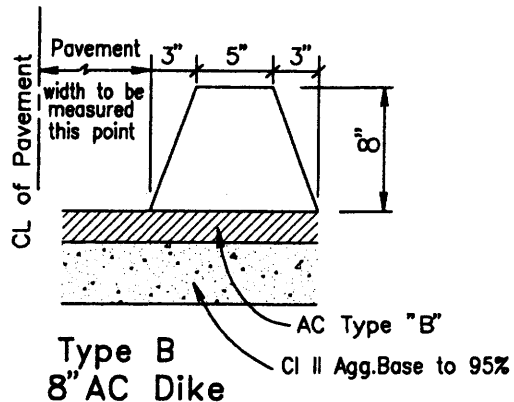


Expansion Joint

Expansion joint interval to be 100' maximum. Add joints at radius points and driveways. Smooth 18" long plastic encased steel dowels shall be inserted at all joints.



**Type B
6" AC Dike**



**Type B
8" AC Dike**

Notes:

1. Type A and Type C curbs to be Class B PCC
2. AC dike to be Type B AC.
3. Curing shall be by the pigmented curing compound method according to the provisions of Section 90-7 of the State Standard Specifications. Curing compound shall be the white pigment type.
4. Structure backfill must be compacted with a "whacker". A vibroplate shall not be used.

Approved:

[Signature] 29 JUNE 07
Director of Public Works/
Designer

[Signature] 29 June 07
R. James Garing, RCE 26993
City Engineer

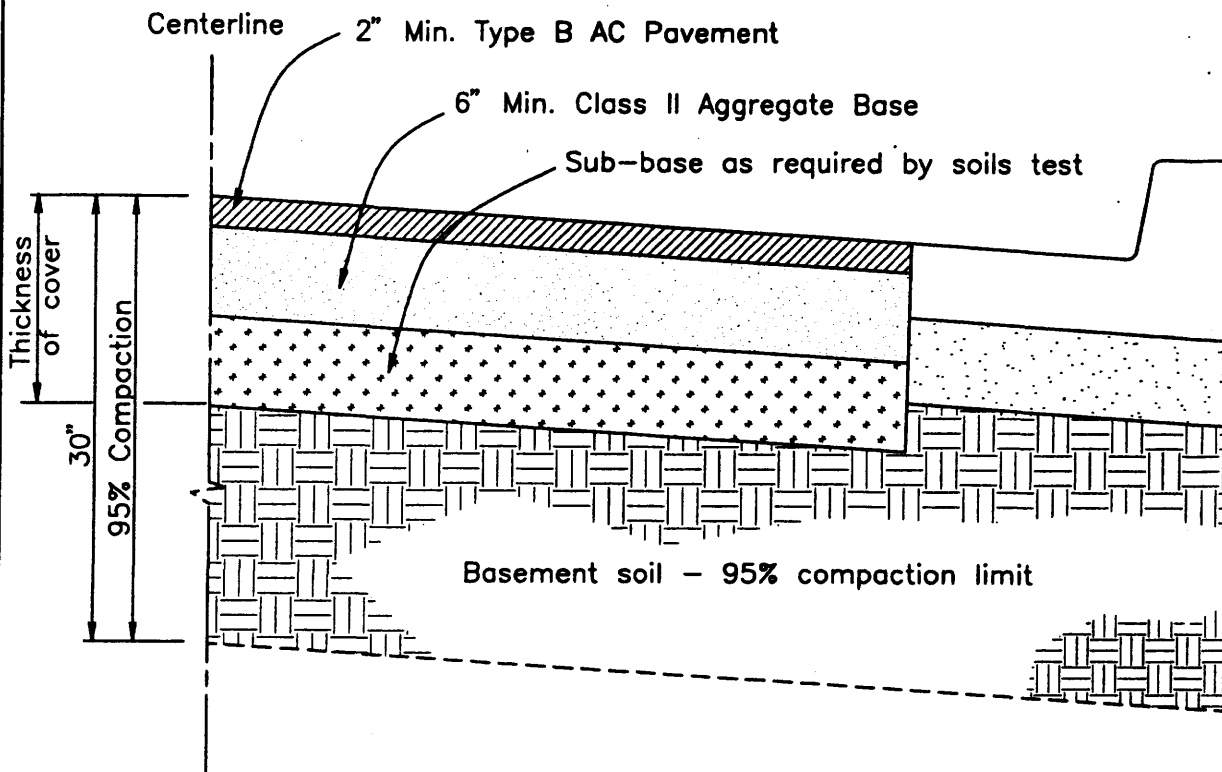


City of Grover Beach

Curbs

A.1

Revised 8-17-2001



Notes:

1. Total thickness of cover depends on R value of basement soil.
2. Sub-base R value = 55 min
3. Aggregate base R value = 75 min
4. Base thickness requirements by traffic index.
5. 2" minimum of AC pavement and 6" minimum of aggregate base. However, replace in kind. For example, if 5" over 2" is found, new section is to also be 5" over 2".
6. Recycled base\crushed material must meet Class II aggregate base specifications.

Approved:

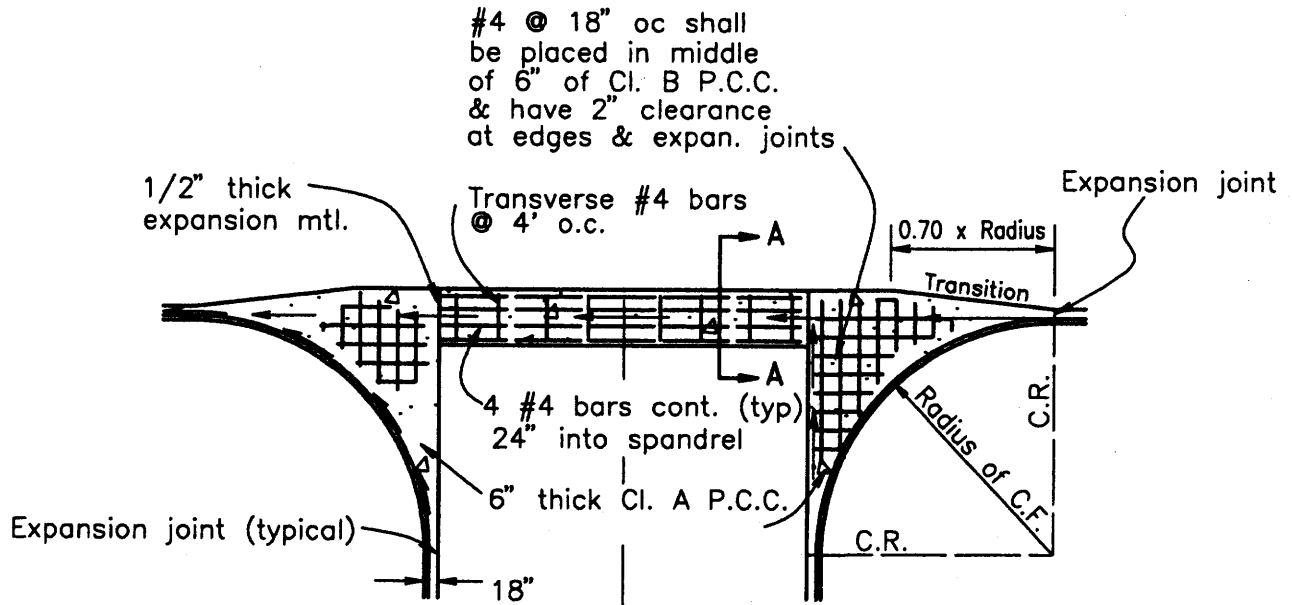
[Signature] 29 JUNE 07
 Director of Public Works/
 Designee

[Signature] 29 June 07
 R. James Garing, City Engineer



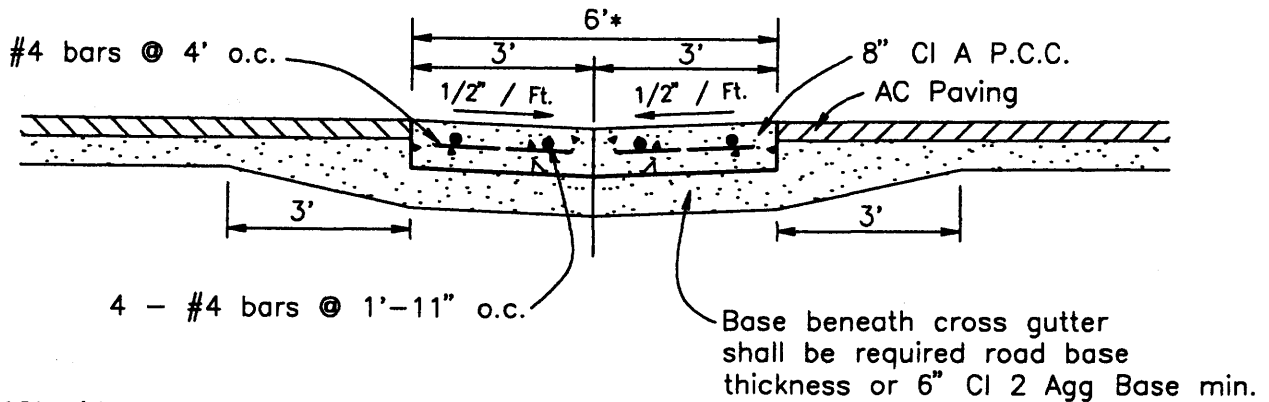
City of Grover Beach

Elements of
 Flexible Paving
 A.2



Note:
 indicates flowline

Plan



* 12' wide cross gutter shall be built at 1/4" / Ft.

Section A - A

Approved:

29 JUNE 07
 Director of Public Works/
 Designee

29 JUNE 07
 R. James Garing, RCE 26993
 City Engineer

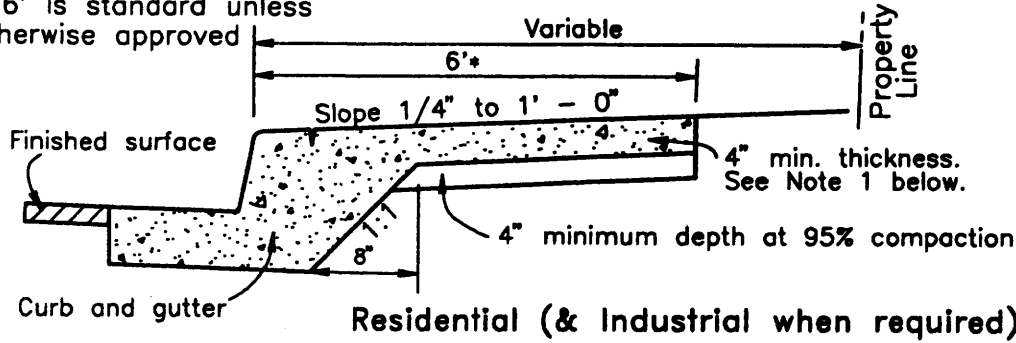


City of Grover Beach

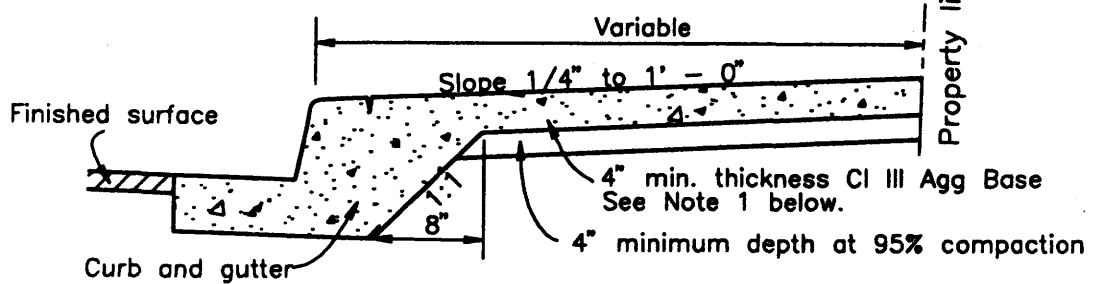
Concrete Cross Gutter

A.3

* 6' is standard unless otherwise approved

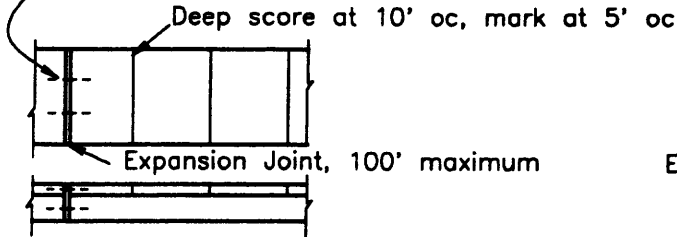


Residential (& Industrial when required)



Commercial

1/2" x 18" greased, smooth dowel w/sleeve at expansion joints (typ)



Sidewalk Marking

1/4" Tooled joint

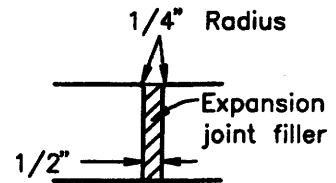


Optional Curb, Gutter & Sidewalk Joint

When extruded curb & gutter is used, extruding machine must be capable of placing a dense grade of concrete. Sidewalk portion must be placed not more than one hour after the curb & gutter has been placed, unless optional joint is used.

Notes:

1. Sidewalk thickness to be not less than 4" and be 6" at driveway approaches.
2. Expansion joints shall be placed at 100' max. and at ends of all curb returns, each side of driveway depressions, and each end of the gutter transitions adjacent to storm drain inlets. The intervals between expansion joints may vary to allow matching of joints in adjacent existing improvements.
3. Curing shall be by the Pigmented Curing Compound Method according to the provisions of Section 90-7 of the State Standard Specifications. Curing compound shall be the white pigment type.
4. Use Class B PCC.
5. Extruded curbs are to be checked by licensed engineer or surveyor for horizontal & vertical location immediately after extrusion.



Expansion Joint

Approved:

[Signature] 29 JUNE 07
Director of Public Works/
Designee



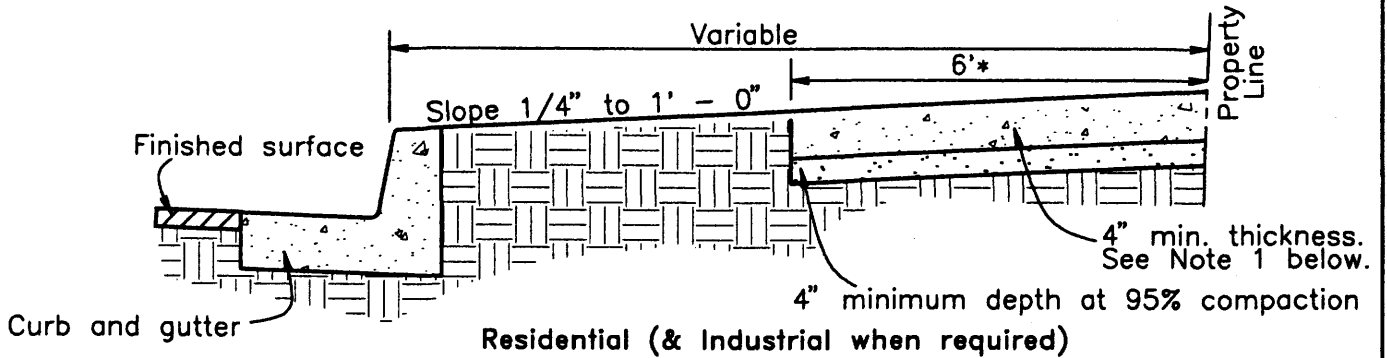
City of Grover Beach

Sidewalks

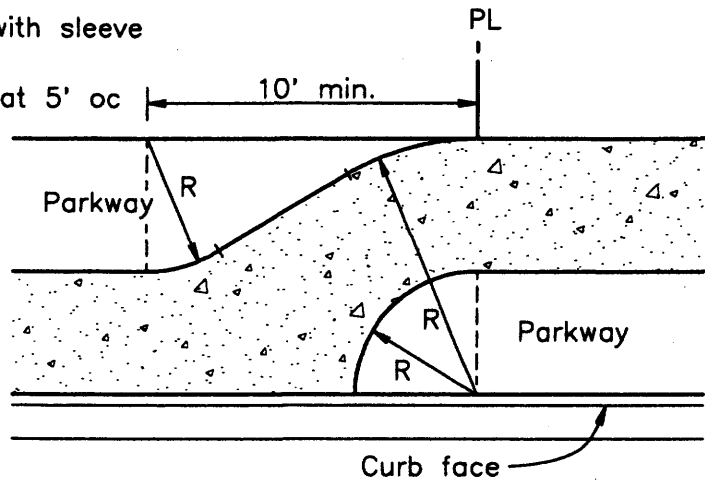
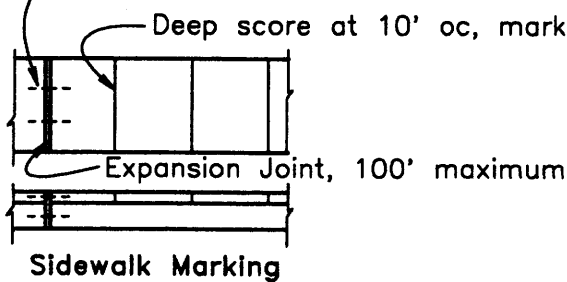
B. 1

R. James Garing, RCE 26993
City Engineer

* 6' is standard unless otherwise approved

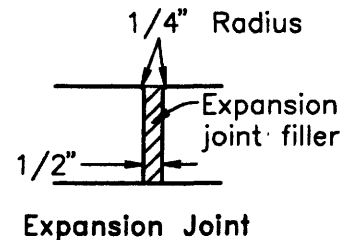


1/2" x 18" greased, smooth dowels with sleeve at expansion joints (typ)



Notes:

1. Sidewalk thickness to be not less than 4" and be 6" at driveway approaches. 'R' varies with sidewalk and parkway widths
2. Expansion joints shall be placed at 100' max. The intervals between expansion joints may vary to allow matching of joints in adjacent existing improvements.
3. Curing shall be by the Pigmented Curing Compound Method according to the provisions of Section 90-7 of the State Standard Specifications. Curing compound shall be the white pigment type.
4. Use Class B PCC.



Approved:

[Signature] 29 JUNE 07
 Director of Public Works/
 Designer

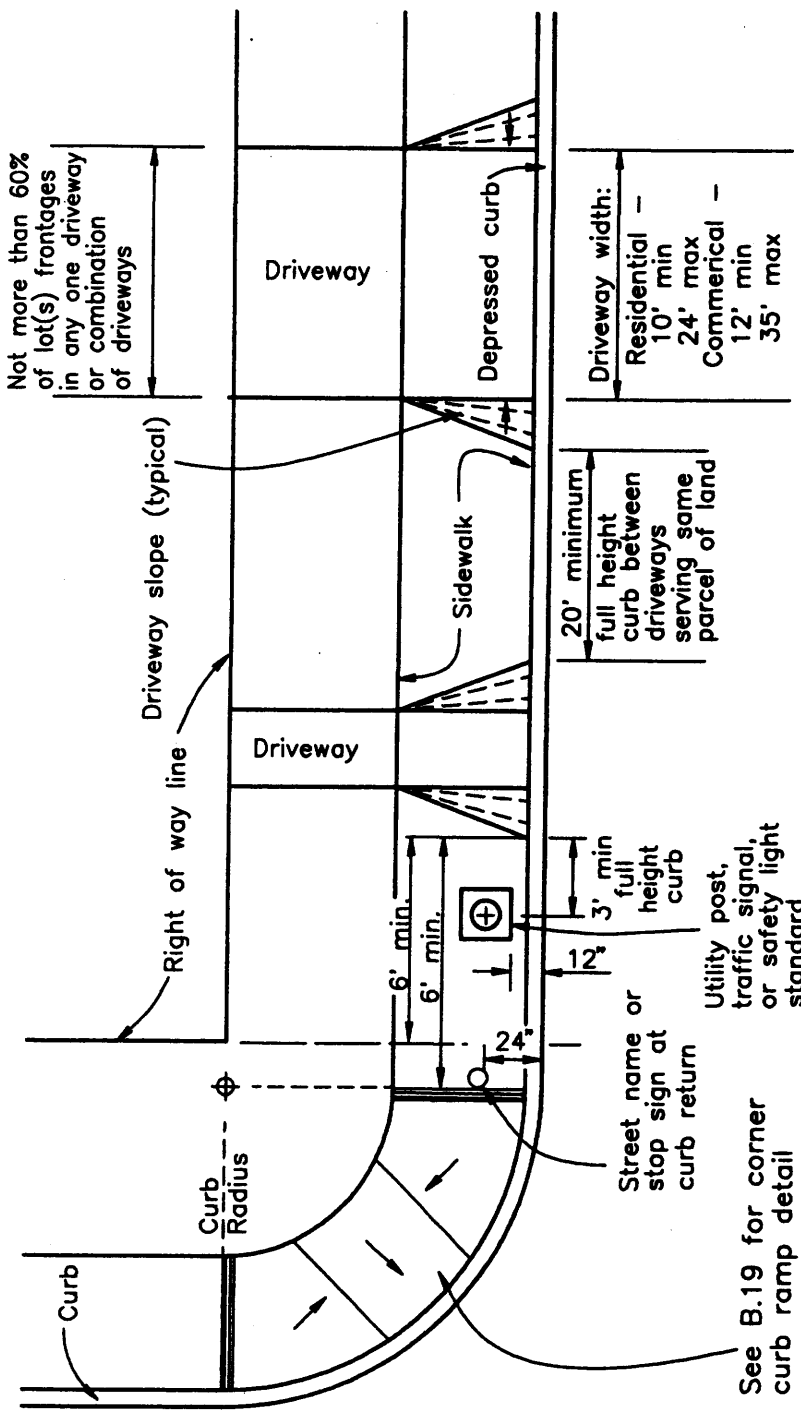
[Signature] 29 June 07
 R. James Garing, RCE 26993
 City Engineer



City of Grover Beach

Detached Sidewalks

B.1a



- Notes:
1. A residential driveway is one that serves a dwelling or dwellings used by two (2) families or less. All other driveways are commercial.
 2. Driveway width shall be the net width of opening, exclusive of side slopes.
 3. The maximum width of residential driveways shall be 24 feet.
 4. The maximum width of commercial driveways shall be 35 feet.
 5. Where the curb is not existing in old subdivisions, the curb location and grade must be designed by the Community Development Department.
 6. As a condition of issuance of any driveway permit all abandoned driveway areas on the same frontage shall be removed and the curbing and sidewalk properly restored.
 7. In all cases driveways abutting parcels shall be separated by a minimum of 2' of full height curb or berm between them, unless otherwise approved by the Community Development Dept. This requirement may be waived in commercial areas.

Approved:

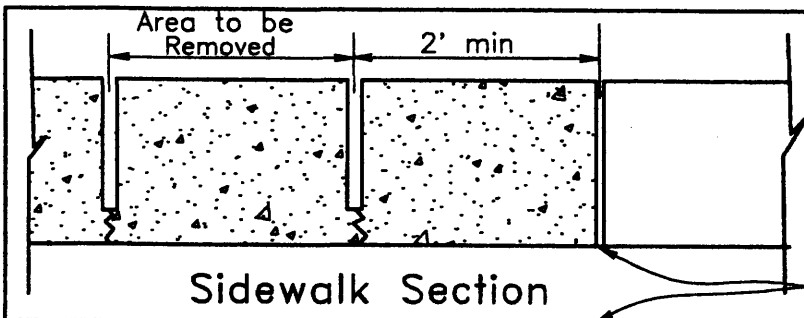
[Signature] 29 JUNE 07
 Director of Public Works/
 Designee

[Signature] 29 JUNE 07
 R. James Garing, RCE 26993
 City Engineer



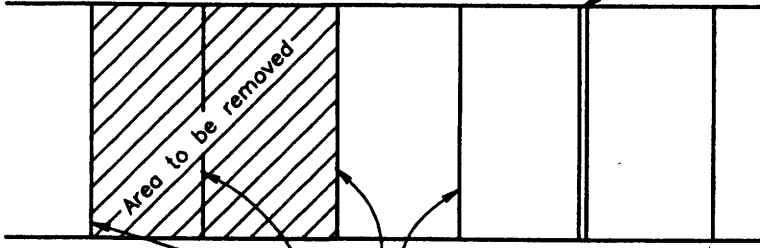
City of Grover Beach

Driveway Location
 B. 2



Sidewalk Section

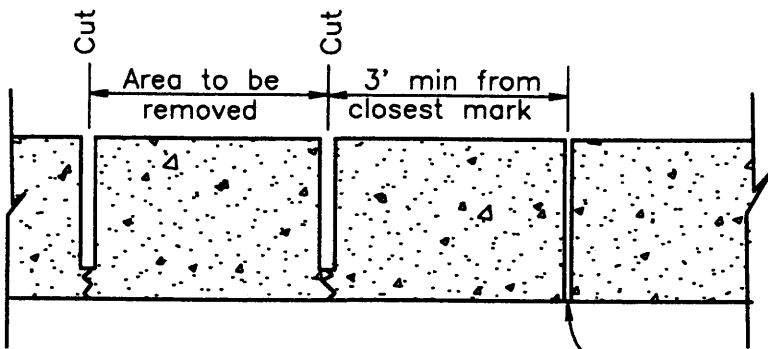
Expansion Joint



Sidewalk groove lines
Sidewalk Plan

Note:

Complete section of curb & gutter shall be removed.

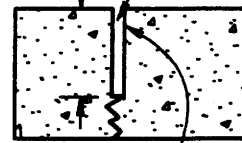


Pavement Section

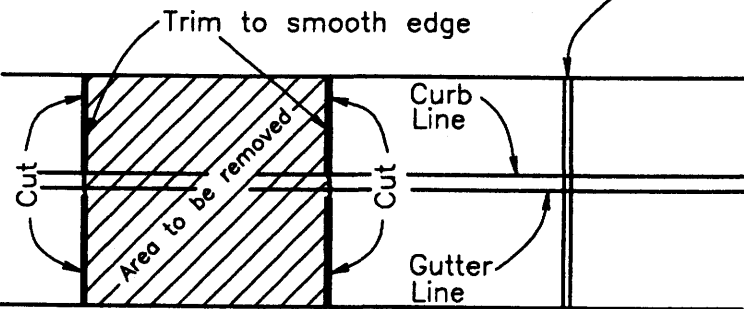
Expansion Joint

Cut with abrasive type cutting wheel

4" min



Remaining edge to be smooth and true with no shatter



Curb Plan

Section - Showing Cut

Approved:

[Signature] 29 June 07
Director of Public Works/
Designee

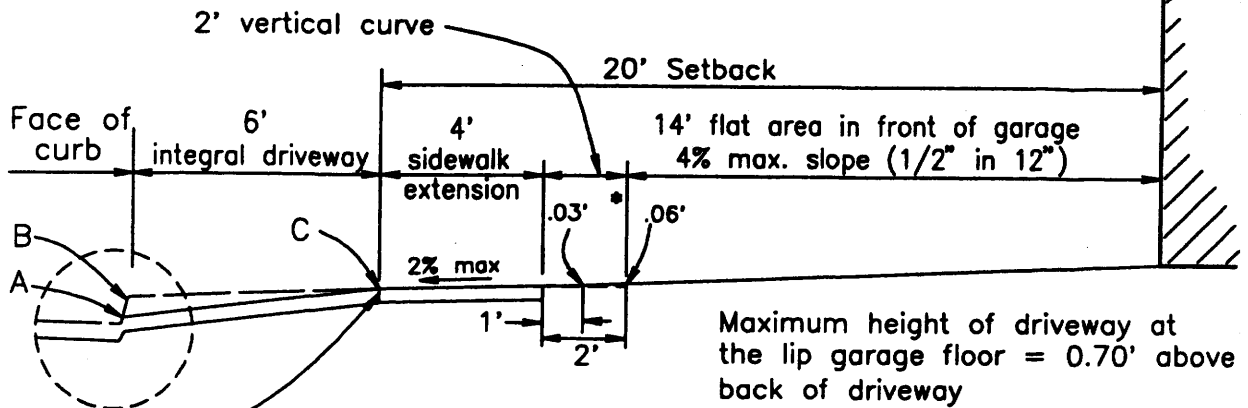
[Signature] 29 June 07
R. James Garing, RCE 26993
City Engineer



City of Grover Beach

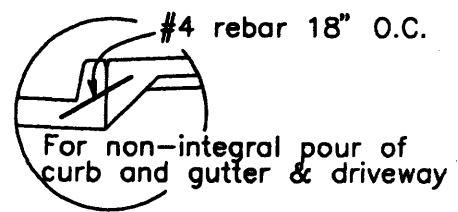
Cutting Concrete
B.3

For Garage at 20' Setback

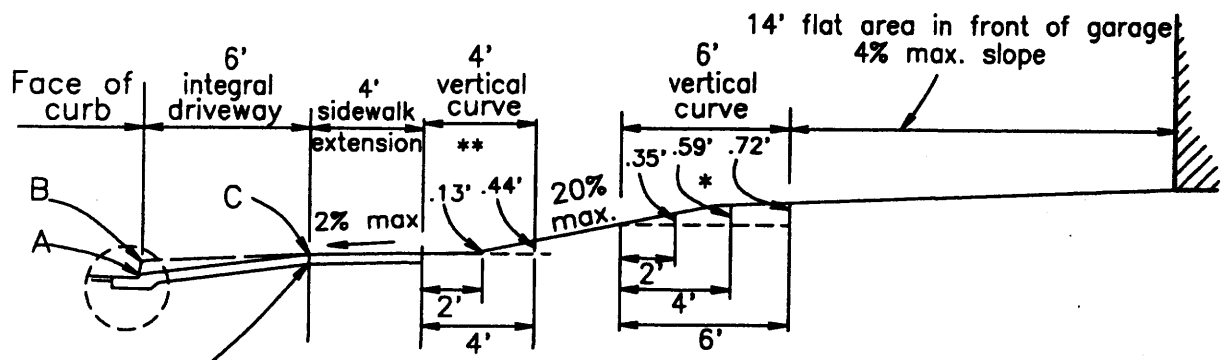


Back of sidewalk
 12% straight grade A to C
 Slope 1/4" per ft. B to C

* Dimensions for 2% to 4% transition



For Long Upward Driveways Maximum Grades and Dimensions



Back of sidewalk

* Dimensions for 20% to 4% transition

** Dimensions for 2% to 20% transition

Maximum rise, and the run, shall be measured for the worst condition between the back of the sidewalk and the finished floor at the garage or carport entrance.

Non-integral driveway ramps must be poured as soon as practicable after construction of curb and gutter.

Approved:

[Signature] 29 JUNE 07
 Director of Public Works/
 Designee



City of Grover Beach

Standard
 Upward Driveway

B. 4

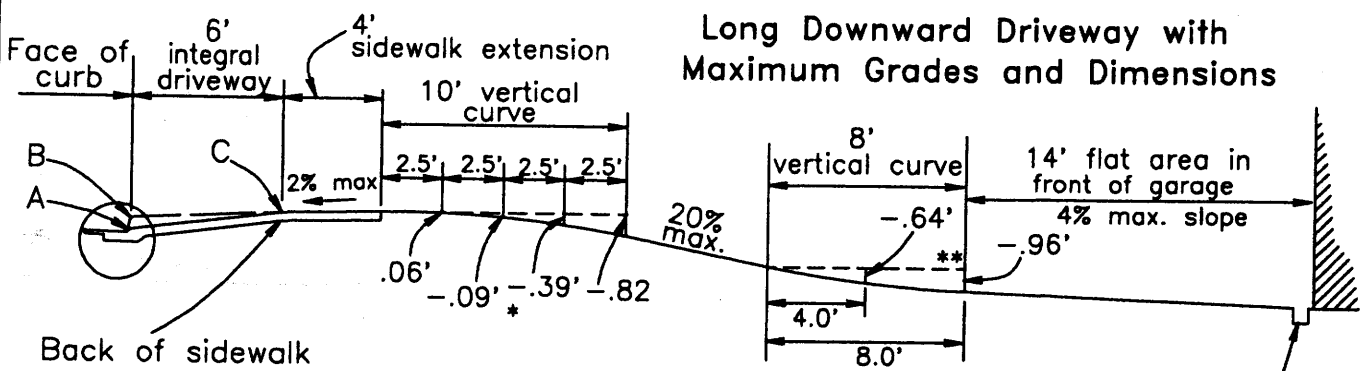
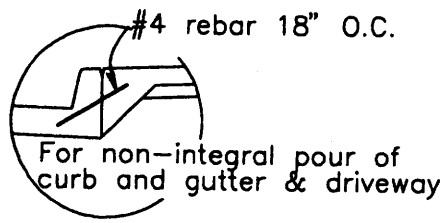
R. James Garing, RCE 26993
 City Engineer

For Garage at 20' Setback



Back of sidewalk
 12% straight grade A to C
 Slope 1/4" per ft. B to C

* Dimensions for 2% to 4% transition
 2" x 2" drainage slot (slope to drain)



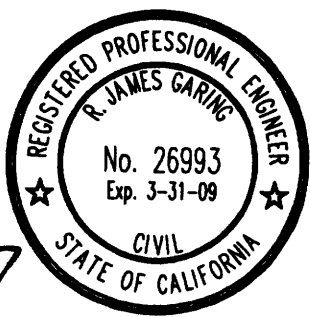
Note:
 * Dimension for 2% to 20% transition
 ** Dimensions for 20% to 4% transition
 2" x 2" drainage slot (slope to drain)

Maximum descent, and the run, shall be measured for the worst condition between the back of the sidewalk and the finished floor at the garage or carport entrance.

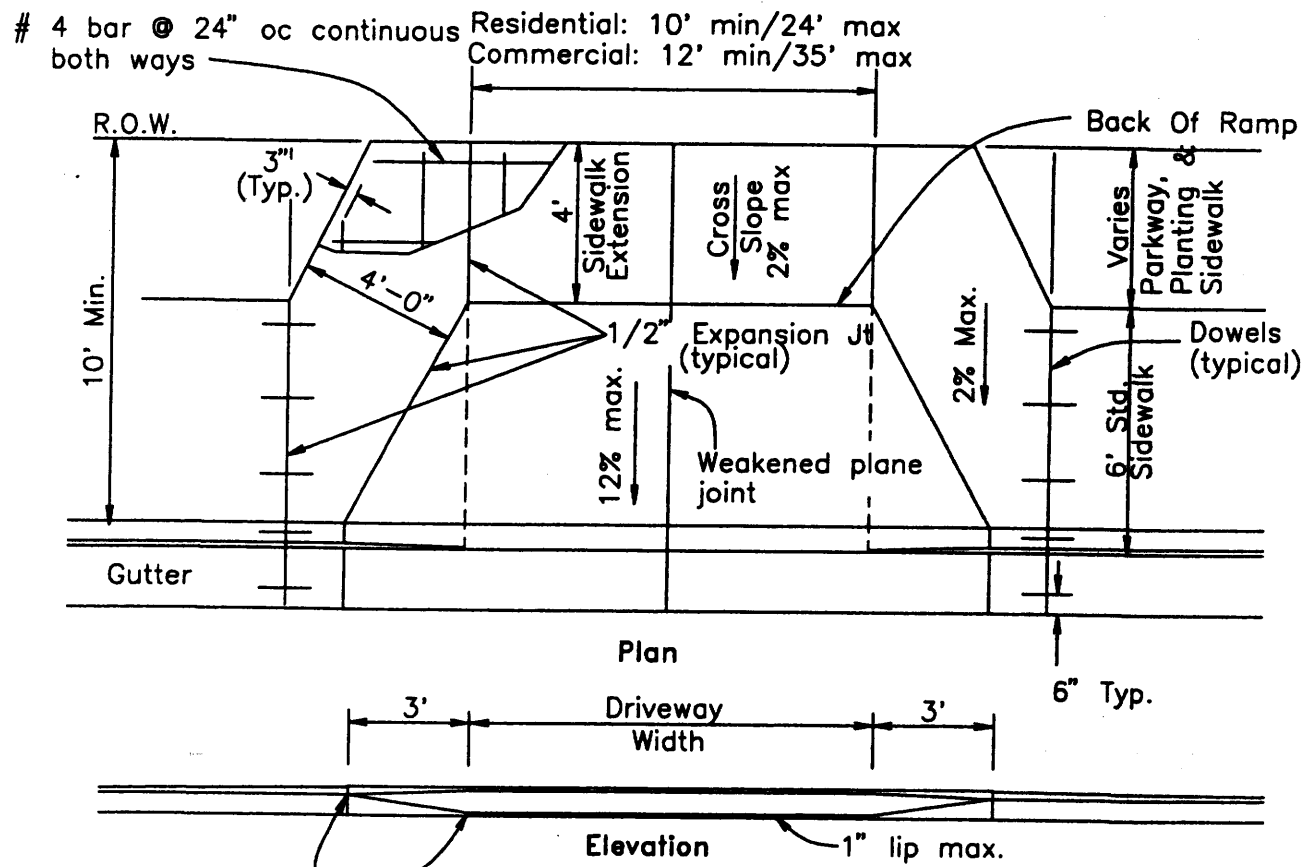
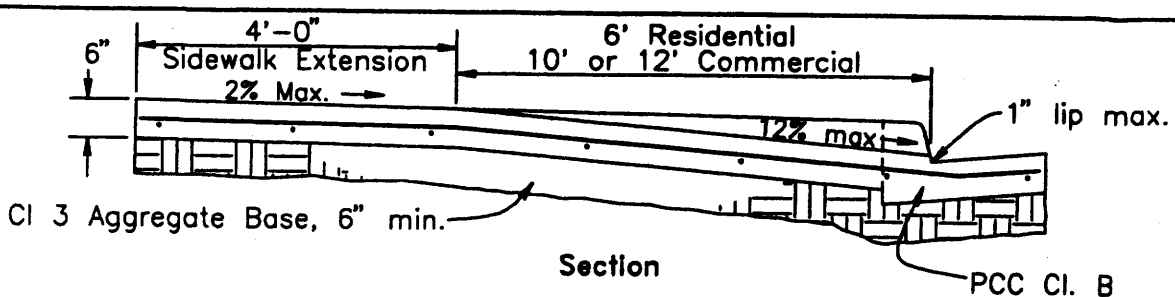
Non-integral driveway ramps must be poured as soon as practicable after construction of curb and gutter.

Approved:

Jim L 29 JUNE 07
 Director of Public Works/
 Designee
R. James Garing 29 June 07
 R. James Garing, RCE 26993
 City Engineer



City of Grover Beach
 Standard
 Downward Driveway
 B.5



Notes:

1' radius (typ)

4' wide area with 2% max. slope must be available for wheel chair traverse.

Slope back of approach apron to gutter on a straight grade.

Curing shall be by the pigmented curing compound method according to the provisions of Section 90-7 of the State Standard Specifications.

Curing compound shall be the white pigment type.

See Drawing B.18 for notes 7 and 8.

Approved:

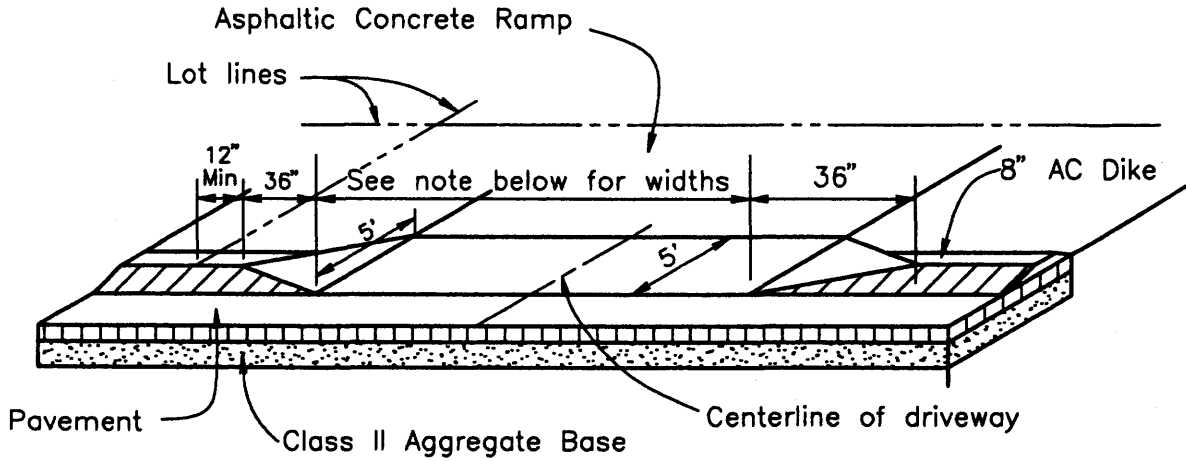
[Signature] 29 JUNE 07
 Director of Public Works/
 Designer

[Signature] 29 June 07
 R. James Garing, RCE 26993
 City Engineer



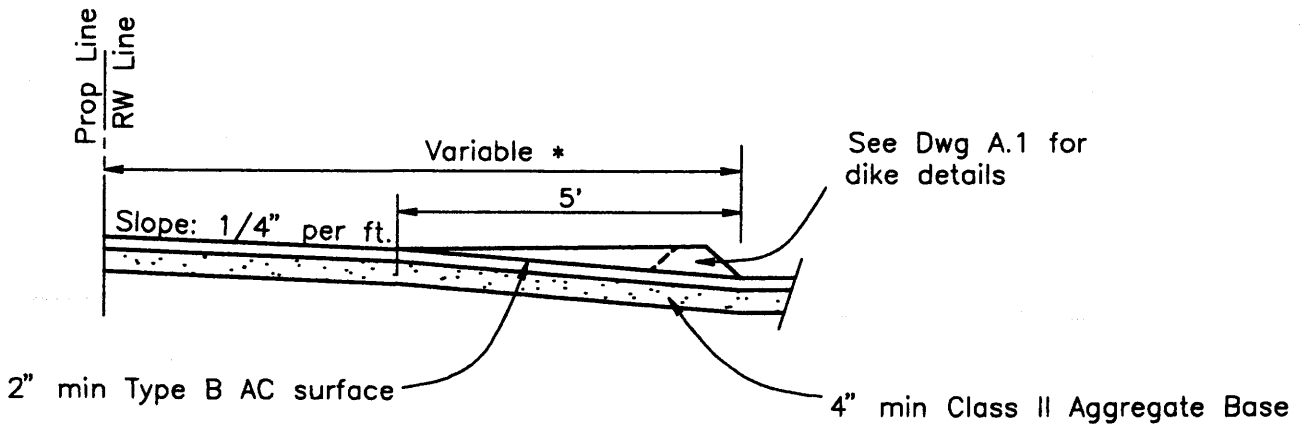
City of Grover Beach

Driveway Ramp
 B.6



Perspective View

Commercial Min. 12', Max. 35'
 Residential Min. 10', Max. 24'



Centerline Section

* Paving may be required beyond the RW line if necessary to control silting of the gutter

Approved:

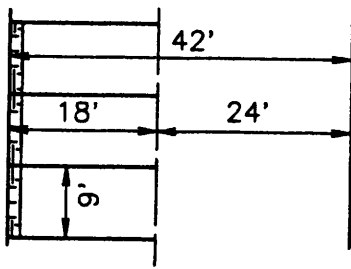
[Signature] 29 JUNE 07
 Director of Public Works/
 Designer
[Signature] 29 June 07
 R. James Garino, RCE 26993
 City Engineer



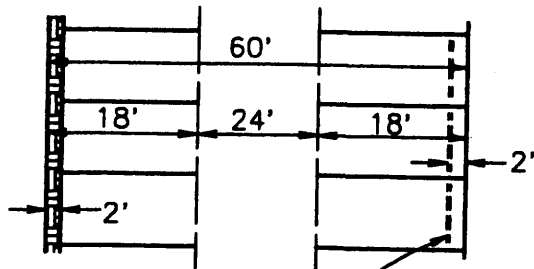
City of Grover Beach

**Driveways:
 Asphalt Concrete
 B.7**

10' Stall required adjacent to fence, wall, post or property line

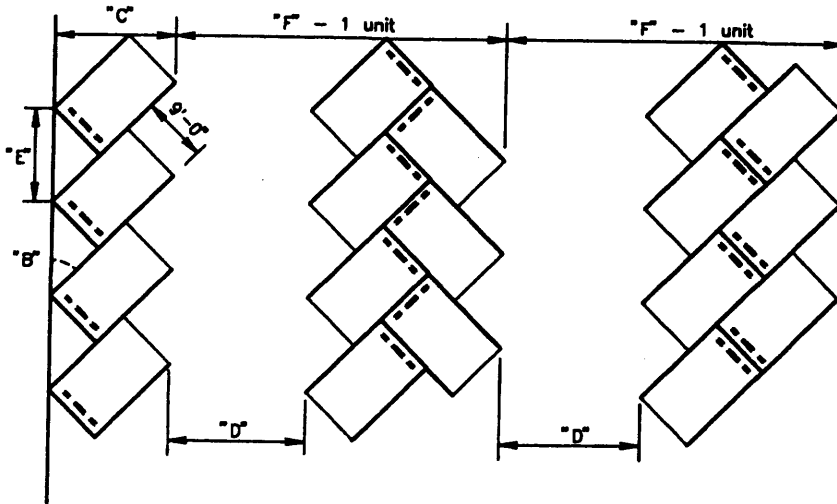


One Row



Two Rows

Tire stops required when parking heads into building



Stall & Aisle Dimensions				
B	C	D	E	F
90°	18'	24'	9'	60'
60°	20'-9"	18'-4"	10'-5"	54'-7"
45°	19'-1"	12'-8"	12'-9"	44'-6"

Note:
Residential parking spaces: 10' x 20'

Where uses require the provision of four or more parking spaces, such spaces shall be connected to aisles, drives or aprons, etc. which shall be designated in such a manner as to permit and encourage automobiles to exit the site and enter onto public thoroughfares driving in a forward direction.

Parking spaces and appurtenant aisles, drives, aprons, etc. shall be dust-proof, all-weather surface and striped.

Compact spaces (if B = 90°):
C = 16'
E = 8'

Approved:

[Signature] 29 JUNE 07
Director of Public Works/
Designee

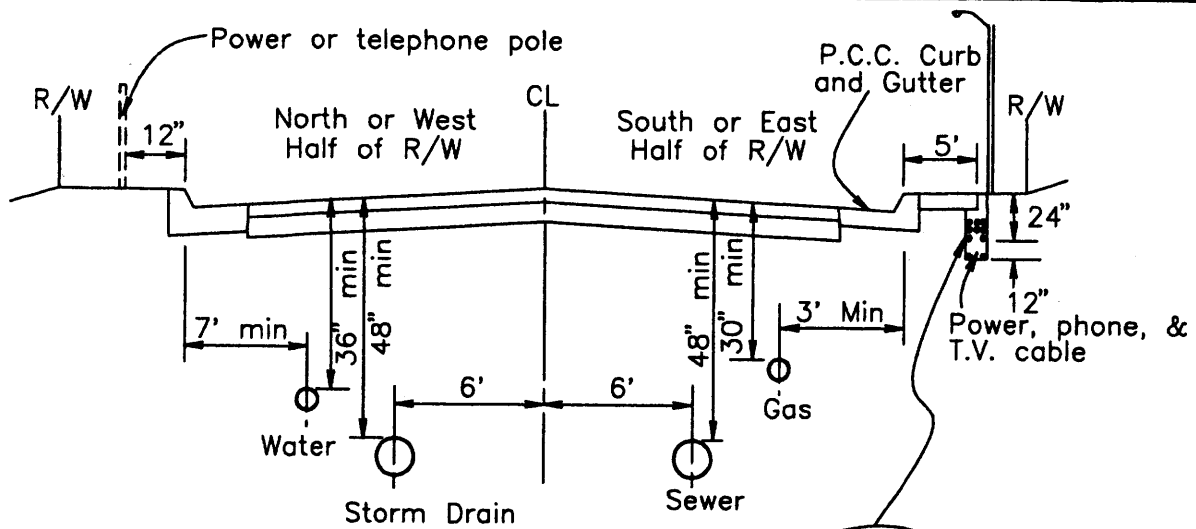
[Signature] 29 June 07
R. James Garing, RCE 26993
City Engineer



City of Grover Beach

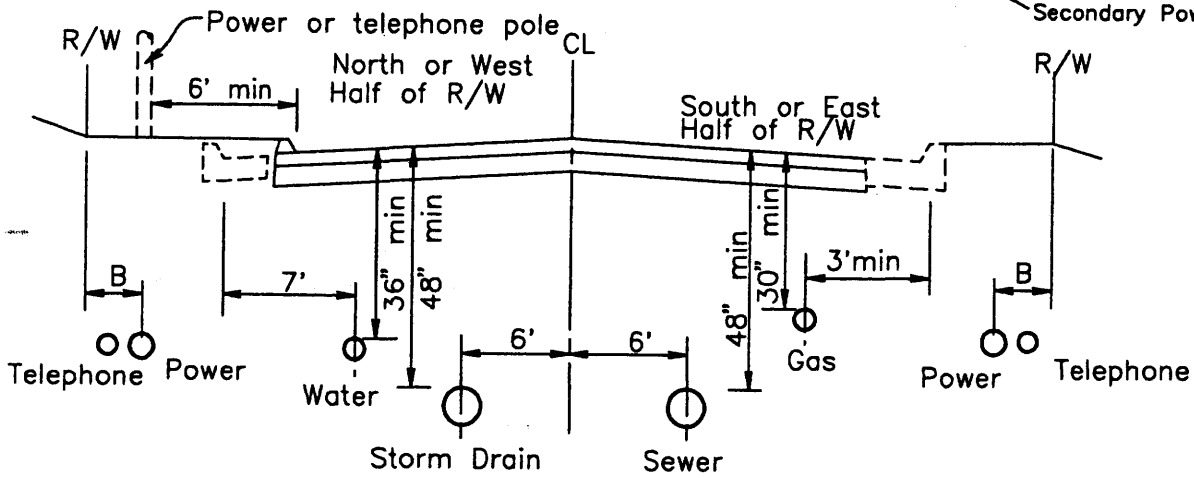
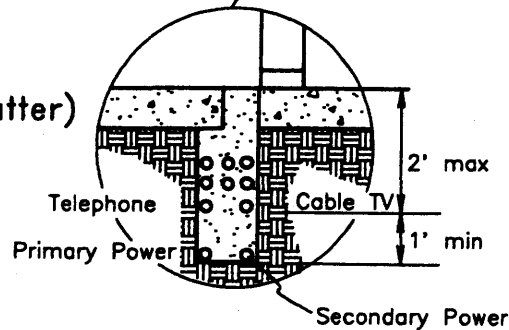
Commercial &
Industrial Off
Street Parking

B. 8



Case I
(Behind P.C.C. Curb & Gutter)

Street crossings by utilities require a minimum of 30" cover & be at right angles wherever possible.



Case II
(Behind AC Dike)

Note: See Drawing B.10 for "B" dimensions and notes

Approved:

[Signature] 29 JUNE 07
Director of Public Works/
Designee

R. James Garing, RCE 26993
City Engineer



City of Grover Beach

**Location of Utilities
in New Subdivisions**

B.9

NOTE: These dimensions and notes apply to Standard B.9

'B' : Contain within 4' on 50' R/W streets.
Contain within 7' on 60' or greater R/W streets.

All conduit to be properly bedded in clean sand (sand equivalent 25 or greater) a minimum of 6" above and below.

Backfill trench at a minimum of 90% relative compaction.

Note: Minimum Cover for both Case I and Case II

Sewer Main	48" minimum
Water	36"
Telephone & Power	24"
Gas	30"
Storm Drain	48" minimum

Approved:

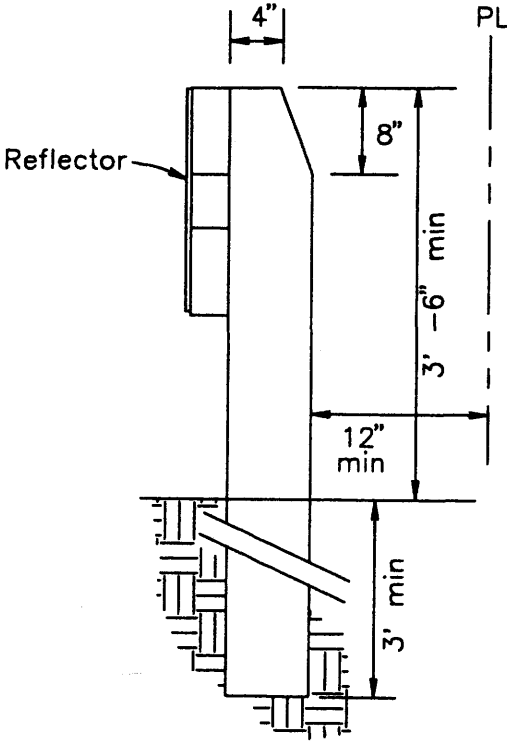
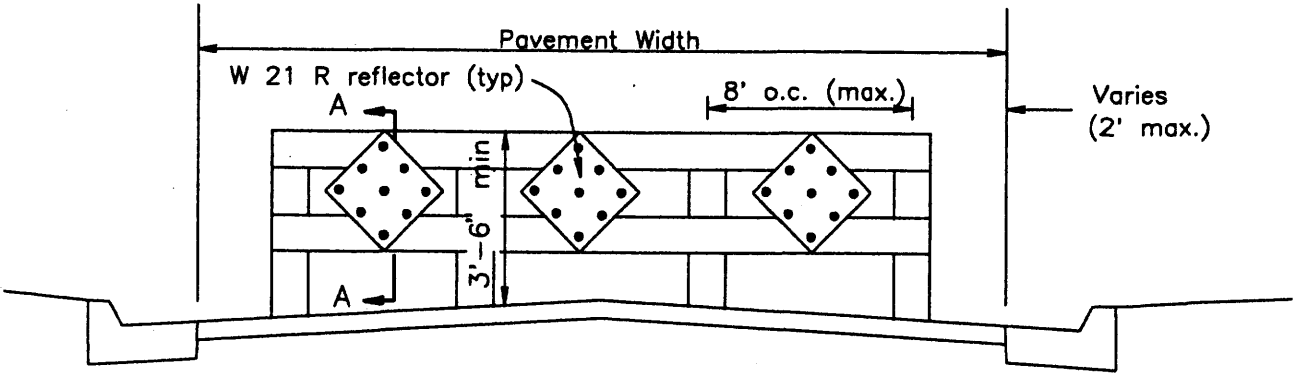
[Signature] 29 JUNE 07
Director of Public Works/
Designee



[Signature] 29 JUNE 07
R. James Garing, RCE 26993
City Engineer

City of Grover Beach
Location of Utilities in
New Subdivisions
(Cont.)

B.10



Section A - A

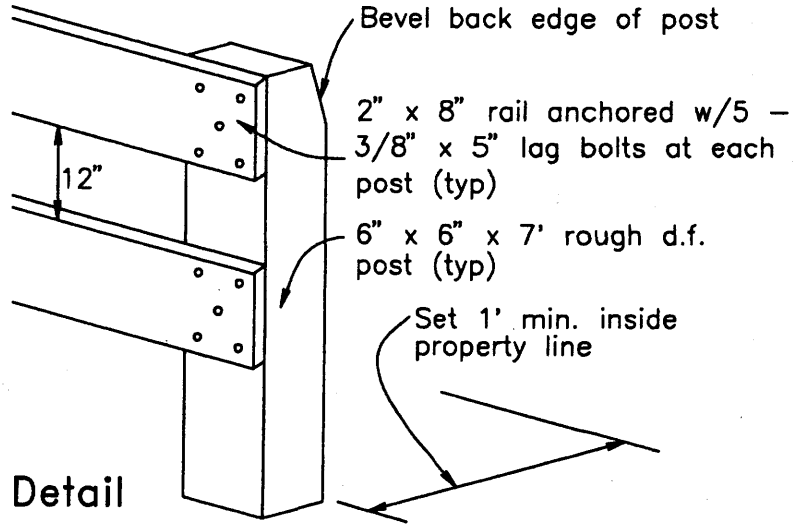
Notes:

Rails to be 2" x 8" clear douglas fir S4S and posts to be 6" x 6" x 7' rough douglas fir.

Butt all rail joints on center of post.

All wood shall be pressure treated and painted white, 2 coats.

Standard W 21 R reflector to be located on barricade as shown.



Post Detail

Approved:

[Signature] 29 JUNE 07
 Director of Public Works/
 Designer

[Signature] 29 June 07
 R. James Garing, RCE 26993
 City Engineer

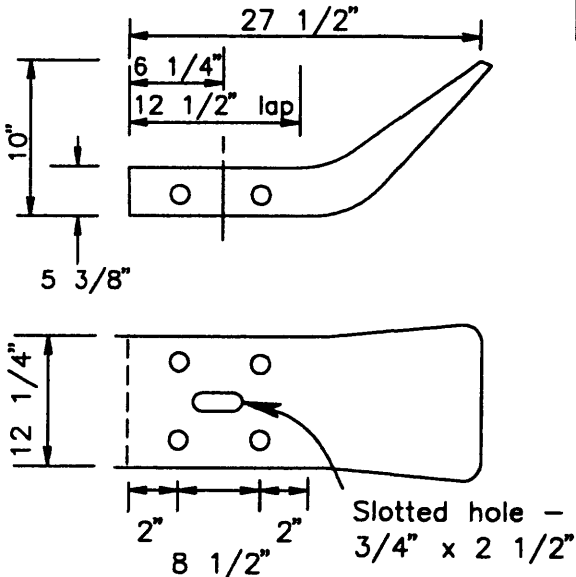


City of Grover Beach

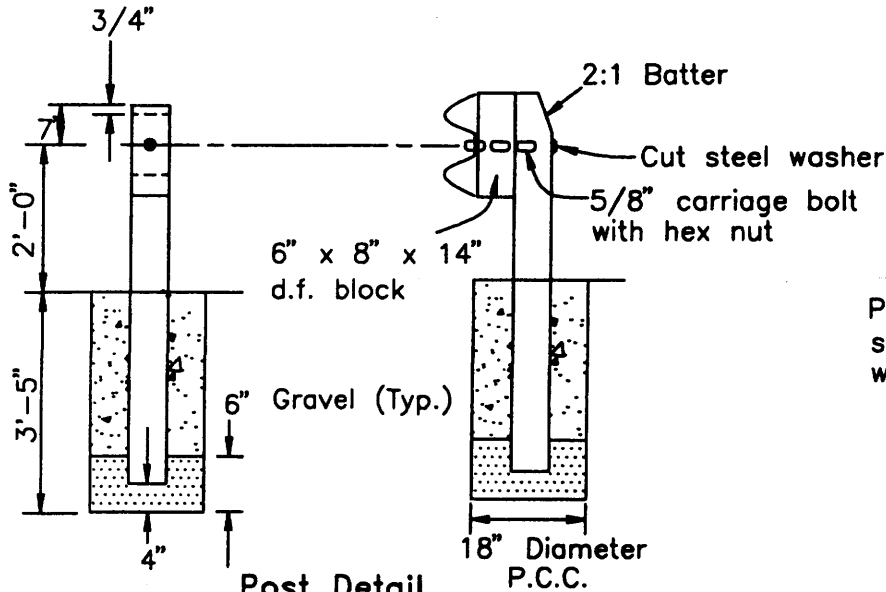
Temporary
 Wood Beam Barricade

B.11

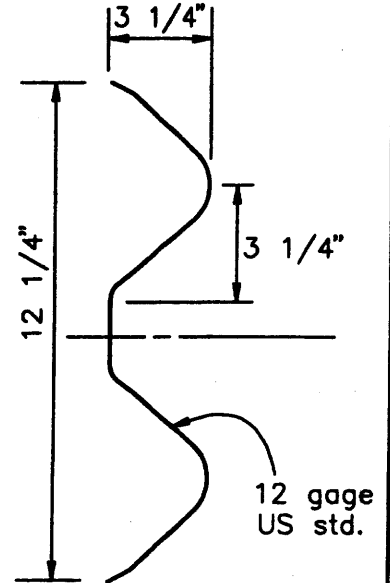
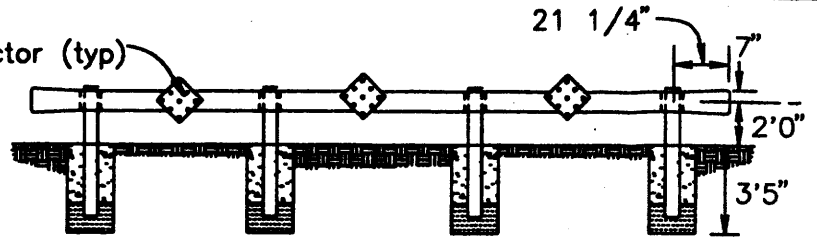
Number of bays will vary with right of way width



Terminal Section



Post Detail



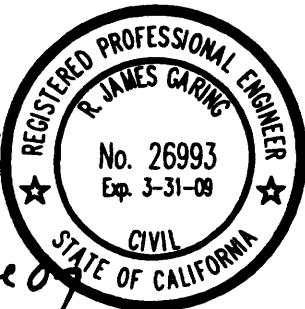
Section through Rail Element

Posts & metal beam railing shall be painted in accordance with State Specifications

Approved:

[Signature] 29 JUNE 07
 Director of Public Works/
 Designee

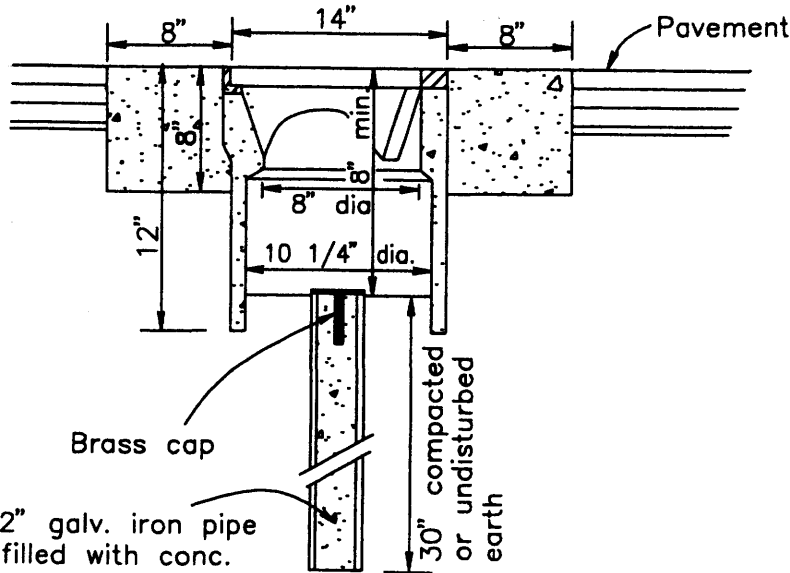
[Signature] 29 June 07
 R. James Garing, RCE 26993
 City Engineer



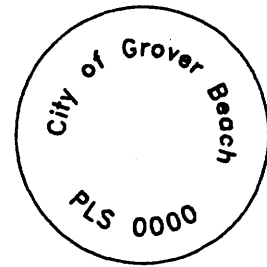
City of Grover Beach

Metal Beam Barricade

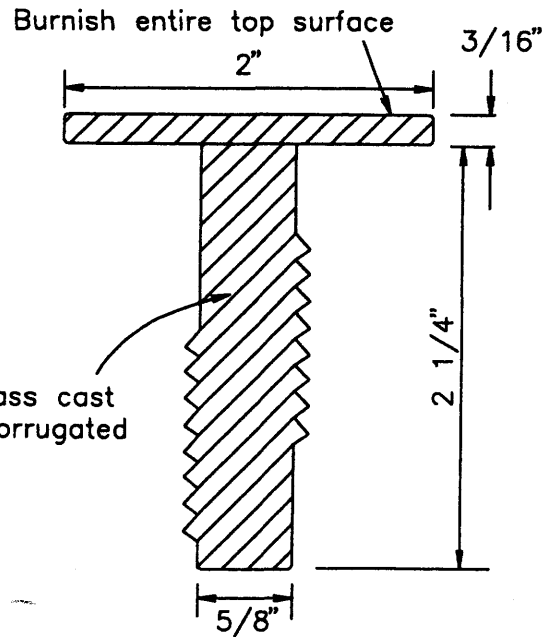
B.12



Section



Cap Plan



Cap Section

Notes:

1. The Engineer or Surveyor setting the monument shall indicate the exact point by marking a cross on the cap. The license type and number shall also be stamped on the cap.
2. The monument well to be Brooks Products No. 4TT or approved equal.
3. Brass cap shall be Surv-Kap M/M-B2L or approved equal.
4. There shall be no rigid material or concrete between the pipe and sides of the well.

Approved:

[Signature] 29 JUNE 07
Director of Public Works/
Designee

[Signature] 29 June 07
R. James Garing, RCE 26993
City Engineer



City of Grover Beach

Standard Street
Monument

B.13

Notes (All Walls):

1. Footings shall be in soil or engineered fill with a minimum compaction of 90% to a depth of 12-inches below bottom of footing.
2. All cells must be filled with grout.
3. First block may be imbedded in footing.
4. Place a 12-inch thick layer of coarse gravel with filter fabric against the back of all walls.
5. These walls are designed to be used at the back of sidewalks, but may be used elsewhere if the footing is set at least to the depth of the top of the footing shown.
6. Omit mortar from the vertical joints in first course above the ground at 32" centers for weep holes. Approved weep holes and/or drainage conduit daylighted to drain shall be used.
7. Vibrate all concrete and grout in place with a mechanical vibrator.
8. Application of these standards must be approved by the Community Development Department official when used in conjunction with a building permit.
9. All of the retaining walls presented in these standards are designed for the following material specifications:
 - Concrete f'c = 2000 psi / 28 days / 5 sack min. / 1-inch max. aggregate size
 - Masonry f'm = 1500 psi
 - Reinforcing Steel = 20,000 psi ASTM GRADE 40
Splices in reinforcing to be lapped 30 bar diameters minimum.
 - Grout f'c = 2000 psi
 - Mortar (type S) = 1800 psi
10. Special inspection is required in accordance with the latest edition of the Uniform Building Code.

Approved:

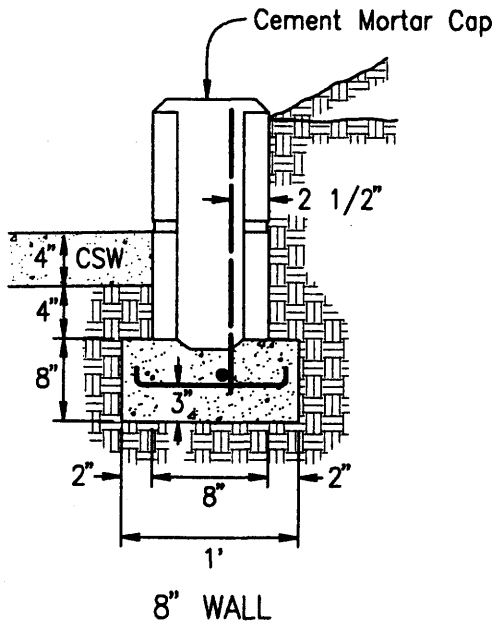
Amz 29 JUNE 07
Director of Public Works/
Designer

RJA 29 June 07
R. James Goring, RCE 26993
City Engineer

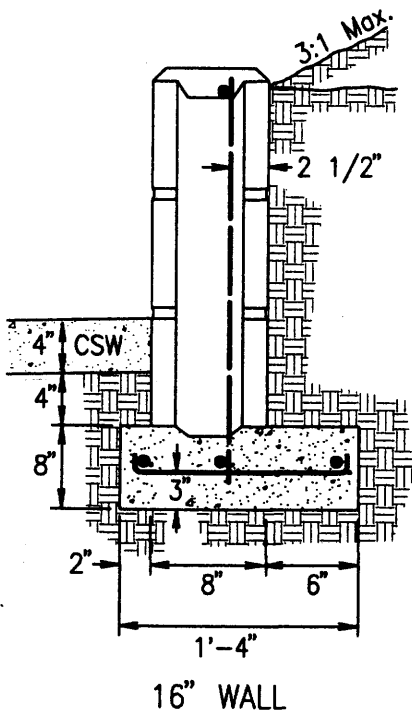


City of Grover Beach

Standard Cantilever
Retaining Walls
Pages B. 14a thru B. 14e
B. 14a



8" WALL

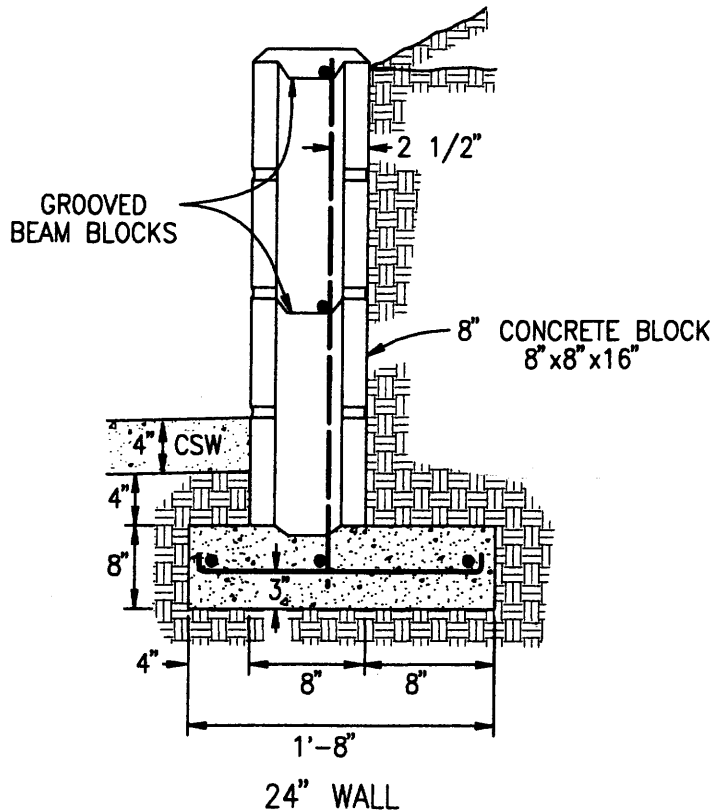


16" WALL

Steel:
Vertical & Transverse No. 3 at 32" o.c.
Longitudinal No. 3 as shown

Note:
Omit mortar from vertical joint in first course above finished grade at 32" centers for weep holes. Fill all cells with grout.

CSW = Concrete Sidewalk



24" WALL

Approved:

Am Y 29 JUNE 07
Director of Public Works/
Designee

R. James Garing 29 June 07
R. James Garing, RCE 26993
City Engineer



City of Grover Beach

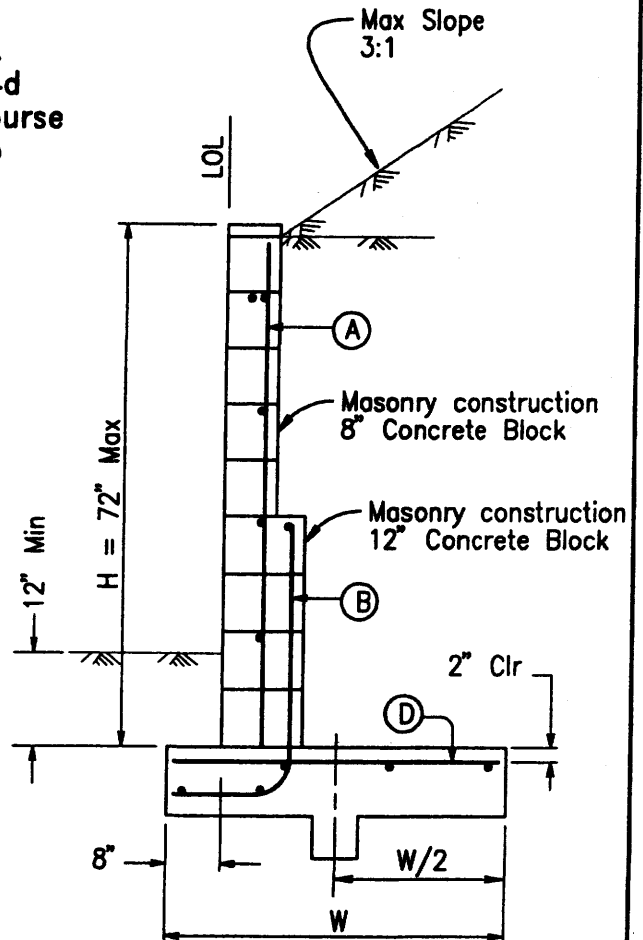
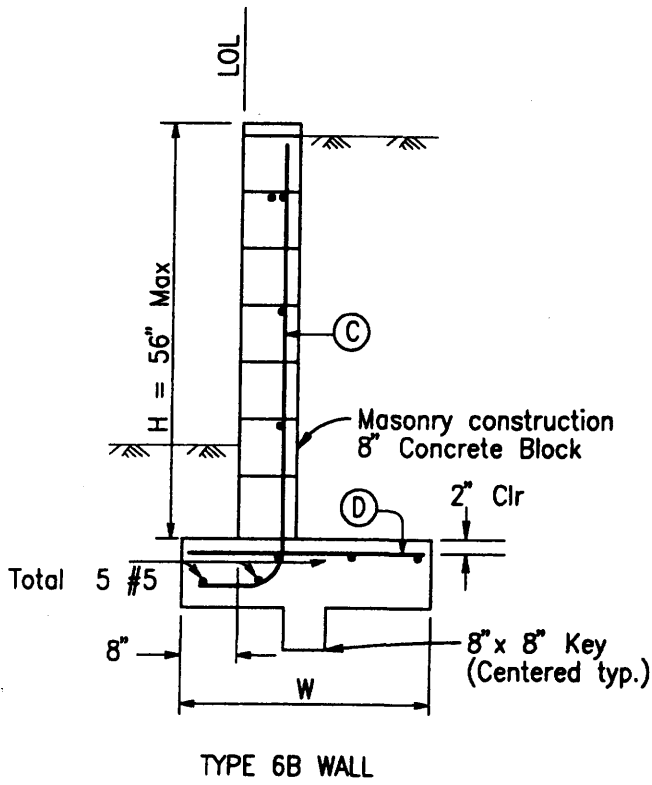
Short Retaining Wall
Slope = 3:1

B.14b

Type	Design H (in)	40	48	56	64	72
6B	W (in)	33	37	41	45	49
6B	(A) (# @ in)				#5@16	#5@16
6B	(B) (# @ in)				#5@16	#5@16
6B	(C) (# @ in)	#5@16	#5@16	#5@16		
6B	(D) (# @ in)	#5@15	#5@15	#5@15	#5@15	#5@12

Notes:

1. No splices allowed on (A), (B), or (C) Bars.
2. For details not shown on B.14c, see B.14d
3. Omit Mortar from vertical joint in first course above finished grade at 32" centers for weep holes. Fill all cells with grout.



Note: Proposed walls higher than 72" must be designed by a registered professional engineer and approved by the City Engineer of the City of Grover Beach.

Approved:

[Signature] 29 JUNE 07
 Director of Public Works/
 Designer

[Signature] 29 June 07
 R. James Garing, RCE 26993
 City Engineer



City of Grover Beach
Property Line
Retaining Wall (6B)
Masonry Stem
Soil over footing
Slope = 3:1 B.14c