

# SECTION 4 STREETS

## TABLE OF CONTENTS

Section	Title	Page Number
	General .....	4-1
4-1	Developer’s Pavement, Signal and Street Light Responsibilities .....	4-1
4-2	County Cost Participation .....	4-4
4-3	Street Type and Design Width .....	4-5
4-4	Right-of-Way Width .....	4-12
4-5	Street Class .....	4-12
4-6	Use of Older Standards for Improvements on In-Fill Developments .....	4-15
4-7	Structural Section .....	4-16
4-8	Profile Standards .....	4-19
4-9	Partial Streets .....	4-21
4-10	Offset Intersections .....	4-21
4-11	Driveways .....	4-22
4-12	Cul-de-Sac .....	4-24
4-13	Elbow Intersections .....	4-25
4-14	Centerline Radii .....	4-25
4-15	Sight Distance at Uncontrolled Intersections .....	4-25
4-16	Intersection Corner Radii and Curb Extensions .....	4-27
4-17	Bus Stop Turnouts .....	4-28
4-18	Sidewalk Ramp and Accessibility Improvements .....	4-28
4-19	Curb and Gutter .....	4-30
4-20	Cross Gutters .....	4-31
4-21	Barrier Curbs .....	4-31
4-22	Sidewalks .....	4-32
4-23	Pedestrian Districts & Commercial Corridors .....	4-33
4-24	Pedestrian Lanes .....	4-36
4-25	Replacing Culverts .....	4-37
4-26	Trenching in Existing Paved Roadways .....	4-37
4-27	Testing of Material .....	4-37
4-28	Street Names .....	4-38
4-29	Street Sign Location .....	4-39
4-30	Traffic Signs .....	4-40
4-31	Roadway & Sidewalk Termination .....	4-40
4-32	Street Trees .....	4-41
4-33	Fences .....	4-43
4-34	Privately Owned Bridge .....	4-43
4-35	Vehicle Access at Street Terminations .....	4-44
4-36	Striped Crosswalks .....	4-44
4-37	Pedestrian Refuge Areas .....	4-45

## **SECTION 4 STREETS**

### **General**

Streets in Sacramento County help to provide clean, safe and thriving neighborhoods and communities. Streets are a key element in providing greater mobility for all modes of travel including walking and bicycling. It is this vision of a safe and efficient transportation system, that serves our citizens and commerce, which shall guide the implementation of the following standards.

#### **4-1 DEVELOPER'S PAVEMENT, SIGNAL, BRIDGE, LANDSCAPING, SIDEWALK AND STREET LIGHT RESPONSIBILITIES**

- A. Where the existing roadway abutting a development does not meet current standards for structural section, centerline profile, width and/or alignment, the Developer shall be responsible for construction or reconstruction of the roadway to the centerline. This responsibility applies to all streets within, adjacent and contiguous to the Developer's project such that those roadway standards are met.

The Developer shall overlay, or remove and replace, any pavement beyond the roadway centerline where the design centerline profile deviates from the existing. In the absence of any project conditions of approval to the contrary, the County will pay for any pavement reconstruction necessary beyond the roadway centerline, where the full structural section is required to be replaced to meet current standards for roadway profile.

The Developer shall also be responsible for overlaying or reconstructing any low pavement areas where the new roadway pavement meets the existing pavement to maintain an acceptable cross slope.

- B. When making connections to existing pavement, the Developer shall be responsible for a one foot minimum saw-cut of the existing pavement along with placement of a minimum of two-feet of new pavement in accordance with Standard Drawing 4-42. When making connections to existing new pavement (within 3 years of resurfacing), 1-1/2" deep grinding shall be performed to the nearest lane line, or center of traffic lane as in accordance with Standard Drawing 4-64 or as required by the Director of County Engineering.

The limit of pavement removal shall extend beyond the one-foot minimum limit as needed to the point where the existing pavement is in good

condition and the cross slope of the existing pavement will approximately match the new pavement section. The area of pavement reconstruction required may be up to the centerline of the road for a length of up to one hundred feet beyond the limit of the Development. Removal shall be made by means of saw cutting.

- C. Roadway construction work shall extend beyond the limits of the Development as needed for vehicle travel lanes, bicycle lanes and sidewalks to make a safe transition to existing facilities.

The end of any roadway construction that abuts a partial street and that terminates a traveled lane shall include construction of pavement sufficient for a safe lane drop. In the direction of travel the lane drop shall be tapered in accordance with the following equations based on the design speed for the roadway:

Less than 45 mph:  $L = WS^2/60$

Greater than or equal to 45 mph:  $L = WS$

Where L = Length of taper beyond the area warning of lane drop (in feet);

W = Width of lane being dropped (in feet); and

S = Design Speed of roadway (in m.p.h.). See Section 4-8(F).

- D. If Developer's required roadway improvements are located within the limits of a future County roadway construction contract (planned to be constructed within two years), the Director of Transportation may require a cash deposit for the roadway and related work in lieu of actual construction and the County will include the work in the County contract. In addition to the cost of the required roadway improvements, the funds deposited shall include appropriate amounts for related design, inspection and material testing.
- E. The Developer shall be responsible for relocating or replacing existing traffic signal facilities, as necessary to conform to standard roadway and intersection geometry.

The County shall participate in the relocation costs for small lot developments (up to one acre in size) in accordance with the following:

<b>Lot Size (Based on Net Acreage of Development)</b>	<b>Amount of County Participation in Relocation Costs</b>
0.14 acre or less	50%
Greater than 0.14 acre and less than 1.00 acre	Straight-line Prorated Value
1.00 acre or more	0%

- F. New traffic signal facilities shall be designed, constructed and installed by the Developer if identified as a mitigation measure by the Development's approved environmental document, or as required the Development's conditions of approval, or as required by the Director of Transportation.
- G. For intersections with traffic signal construction with existing traffic signal interconnect conductors extending to or through the intersection, the new traffic signal installation work shall include connection of the new traffic signal to the existing signal interconnect system. This work may include replacement of existing interconnect cable to the nearest signalized intersection.

For intersections with new traffic signal construction that does not have existing traffic signal interconnect conductors extending to or through the intersection, the new traffic signal construction work shall include the installation of traffic signal interconnect facilities the nearest intersection with a traffic signal if the distance is less than one-half mile. Should there be no existing traffic signal within one-half mile, the new construction work shall include installation of traffic signal interconnect conduit and conductors for future use. Those facilities for future interconnect use shall extend along each Arterial and Thoroughfare street approach to the intersection from the pull boxes associated with the advanced loop detectors for the traffic signal to the intersection's traffic signal controller cabinet. In addition, conduits and conductors for future signal interconnect shall extend from the new traffic signal in one direction for a distance of up to 2,400 feet along a roadway corridor identified by the Department of Transportation on their Traffic Signal Interconnect Master Plan, or as directed by the Department of Transportation.

The design of the traffic signal interconnect facilities shall be subject to the review and approval of the County's Department of Transportation. For additional traffic signal and accessibility improvement requirements see Section 4-18.

- H. New street lighting facilities shall be installed along all street frontages with Class A or Class B improvements, as described in Section 4-5 of these Improvement Standards.
- I. The Developer shall be responsible for constructing or modifying curbed median islands where required by these standards, or as shown on Standard Drawings 4-2 and 4-3, or when required for traffic control as a result of the Development, as determined by the Director of Transportation. Curbed median island construction shall include landscaping and irrigation facilities for those medians that are at least five feet in width for a length of at least thirty feet. Landscaping and irrigation facilities shall conform to County's

water conservation ordinance and meet the approval of the Director of Transportation.

- J. The developer shall be responsible for the construction of bus stops, bus turnouts, and intersection widening as shown on Standard Drawings 4-6, 4-7, 4-8, 4-9, 4-10, 4-12, 4-13, 4-14, 4-43, and 4-44 and in accordance with Section 4-17 of these Standards.
- K. The Developer shall be responsible for all drainage facilities (bridges, pipes, culverts, and appurtenances) crossing new streets within, adjacent, and contiguous to the project. See Section 4-25 for information as to how the County and developers share in the costs for the replacement of cross culverts.
- L. The Developer shall be responsible for installation of sidewalks and sidewalk ramps conforming to the provisions of Sections 4-18, 4-22 and the County's Standard Drawings of these Improvement Standards. The Developer shall be responsible for modification or reconstruction of existing pedestrian facilities in the vicinity of the Development to allow for access for the disabled, including but not limited to:
  - Providing for minimum clear width of sidewalks (minimum 4 feet).
  - Correction of uplifted sidewalks – Modification of sidewalks are required if vertical change in sidewalk area exceeds one-quarter inch but is less than one-half inch. Removal and reconstruction of sidewalks are required if vertical change exceeds one-half inch.
  - Meeting cross-slope standards for sidewalks (no cross slope greater than 2.0%), including portions of driveways that cross sidewalks.
  - Installation or reconstruction of sidewalk ramps to meet current standards.
  - Installation of audible traffic signals.
  - Installation of pedestrian traffic signal push buttons that meet current County standards for accessibility (type of button, height, orientation, distance from extension of crosswalks and distance from accessible area of sidewalk).

#### **4-2 COUNTY COST PARTICIPATION**

With the submittal of improvement plans for checking, the Consulting Engineer shall provide a written request to the County for cost participation if the proposed work is beyond the Developer's responsibility. This application shall show the items of work, the estimated quantities, reimbursable costs, and justification for the request.

The County will notify the Consulting Engineer as to the acceptance and the extent of cost participation. The Consulting Engineer is to submit the County's proposal to the developer for acceptance. Should the Developer not accept the County proposal, negotiations may occur between the Developer and the County to arrive at a mutually acceptable price or a separate course of action will be directed by the County. Once an agreed price for County participation is reached, the Developer and the County will enter into a cost sharing agreement prior to start of construction of the Development's roadway improvements.

Any portion of work shown on the Consulting Engineer's plans, for which the County has agreed to cooperate, shall not be segregated by note or legend, but shall be included in the general contract. The County will reimburse the Developer for these cooperative items after the work has been accepted by the Director and final payment of plan check and inspection fees has been made.

Unit prices prepared for fee and bond calculation and authorized in County Code Section 12.03.080 shall be used as a basis for cooperative work. The Director may negotiate unit or lump sum prices for items not usually encountered, or for unusual field conditions.

#### **4-3 STREET TYPE AND DESIGN WIDTH**

The standard approved street types and design widths for Sacramento County are as follows:

- A. 20-Foot Street (Alley) - A street depressed in the center with a right-of-way and surface width of 20 feet. An alley will be accepted by Sacramento County as a public alley only when it is constructed of a minimum of 6-inch thick Portland cement concrete over a minimum of six inches of aggregate base in accordance with Standard Drawing 4-39 of these Improvement Standards.
- B. 32-Foot Street (Minor Residential) - A street with a right-of-way width of 32 feet measured between the backs of the curbs.

As a standard, Minor Residential streets shall have five foot wide sidewalks attached to the curb (monolithic construction). At the Developer's option, the street may also be constructed with five foot wide sidewalks separated from the curb with six foot wide landscaped buffers. If separated sidewalks are selected for use on Minor Residential streets, the sidewalk buffer is eliminated around the bulb portion of cul-de-sacs and around the outside corner of street elbows. See Standard Drawing 4-1.

Curb extensions, conforming to the geometry shown on Standard Drawings 4-53 and 4-56, shall be constructed at all intersections of Minor Residential

streets with other Minor Residential, Primary Residential, Collector and Major Collector streets.

32-foot streets are normally used when serving fewer than 400 single-family residential units. Some duplexes may be included when the total number of duplexes represents less than ten percent of the residential units served by the street. Each duplex, for this purpose, shall be counted as two residential units.

Where a 32-foot street provides access onto an Arterial or Thoroughfare street, the street approach shall conform to the standard for a 38-foot street. The 38-foot street approach shall be provided for a distance of 100 feet from the cross street right-of-way line along with a 40-foot taper to transition to the standard 32-foot street.

- C. 38-Foot Street (Primary Residential) - A street with a right-of-way width of 38 feet measured between the backs of the curbs.

As a standard Primary Residential streets shall have five foot wide sidewalks attached to the curb (monolithic construction). At the Developer's option, the street may also be constructed with five foot wide sidewalks separated from the curb with six foot wide landscaped buffers. If separated sidewalks are selected for use on Primary Residential streets, the sidewalk buffer is eliminated around the bulb portion of cul-de-sacs and around the outside corner of street elbows. See Standard Drawing 4-1.

Curb extensions, conforming to the geometry shown on Standard Drawings 4-53 and 4-56, shall be constructed at all intersections of Primary Residential streets with other Minor Residential, Primary Residential, Collector and Major Collector streets.

38-foot streets are normally used for serving 400 or more, but less than 700, single family residential units, and for serving duplex developments. A 38-foot street cross-section shall be used as the approach width for 32-foot streets that provide access onto Arterial and Thoroughfare streets.

Where a 38-foot street provides access onto an Arterial or a Thoroughfare street and where left turn movements are allowed for traffic traveling from the smaller street onto the Arterial or Thoroughfare street, the street approach shall conform to the standard for a 48-foot street. The 48-foot street approach shall be provided for a distance of 150 feet from the cross street right-of-way line with an additional 100-foot long taper to transition to the standard 38-foot street.

- D. 48-Foot Street (Collector) - A street with a right-of-way width of 48 feet measured between the backs of the curbs. The street shall have five foot

wide sidewalks separated from the curb by eight foot wide landscaped buffers. See Standard Drawing 4-2. Collector streets are typically striped with 5' wide bicycle lanes as shown on Standard Drawing 4-9.

Curb extensions, conforming to the geometry shown on Standard Drawings 4-53 and 4-56, shall be constructed at all intersections of Collector streets with other Minor Residential, Primary Residential, Collector and Major Collector streets.

A 48-foot street approach shall be used as the approach width for 38-foot streets that provide access onto Arterial and Thoroughfare streets. 48-foot streets are used when serving 700 or more residential units, commercial, industrial, and multiple family developments, and are used in the vicinity of parks, schools and other public facilities in residential areas. Where 48-foot streets provide access onto Arterial and Thoroughfare streets, the street approach shall conform to the standard for a 60-foot street. See Standard Drawing 4-9.

- E. 60-Foot Street (Major Collector) - A street with a right-of-way width of 60 feet measured between the backs of the curbs. The street shall have five foot wide sidewalks separated from the curb by eight foot wide landscaped buffers. See Standard Drawing 4-2. Major Collector streets shall be striped with 5' wide bicycle lanes as shown on Standard Drawing 4-9.

Curb extensions, conforming to the geometry shown on Standard Drawings 4-53 and 4-56, shall be constructed at all intersections of Major Collector streets with other Minor Residential, Primary Residential, Collector and Major Collector streets.

60-foot streets may be required in residential or industrial developments when warranted to provide a continuous 12-foot wide center turn lane or a 12-foot wide raised landscaped median. If a raised landscaped median is used on a Major Collector street, additional roadway widening is required at all street intersections with median breaks to provide room for U-turn movements. A minimum outside clear path of 44 feet of pavement shall be required.

A 60-foot street cross-section shall also be used as the approach width for 48-foot streets that provide access onto Arterial and Thoroughfare streets. See Standard Drawings 4-9.

- F. 74-Foot Street (Arterial) - A street with a right-of-way width of 74 feet measured between the backs of the curbs. The street shall have five foot wide sidewalks separated from the curb by eight foot wide landscaped buffers. See Standard Drawing 4-2. Arterial streets shall be striped with 5' wide bicycle lanes as shown on Standard Drawings 4-10 and 4-11.



74-foot streets shall be required as shown on the Sacramento County Transportation Plan or as required by the project traffic analysis. See Standard Drawings 4-6, 4-7, 4-8, 4-10, 4-11 and 4-12 for intersection widening geometry.

If a raised landscaped median is used on an Arterial street, additional roadway widening is required at all street intersections with median breaks to provide room for U-turn movements. A minimum outside clear path of 44 feet of pavement shall be required.

- G. 96-Foot Street (Thoroughfare) - A street with a right-of-way width of 96 feet measured between the backs of the curbs. The street shall have five foot wide sidewalks separated from the curb by eight foot wide landscaped buffers. See Standard Drawing 4-3. Thoroughfare streets shall be striped with 5' wide bicycle lanes as shown on Standard Drawings 4-13 and 4-14.

96-foot streets shall be required as shown on the Sacramento County Transportation Plan or as required by the project traffic analysis. See Standard Drawings 4-8, 4-9, 4-12, 4-13 and 4-14 for intersection widening geometry.

H. Major Street Design

1. Raised Medians:

96-foot streets (Thoroughfares) shall have a solid non-traversable landscaped median between cross street intersections. 74-foot streets (Arterials) shall have a solid non-traversable landscaped median between cross street intersections when a continuous center turning lane is not required by the Director of Transportation or specified by the development's conditions of approval. The standard width for such medians is twelve feet, measured from top front of median curbing, eleven feet between the backs of median curbs. Median areas that are five feet wide or wider for a distance of thirty feet or more shall include landscaping and irrigation facilities. Landscaping and irrigation facilities shall conform to County's water conservation ordinance and meet the approval of the Director of Transportation.

Decorative hardscape treatment shall be installed in median areas less than five feet in width and along the back of curbing in landscaped portions of the median. The design, color, appearance, and associated construction details for decorative median hardscape treatment shall meet the approval of the Director of Transportation.

Raised medians may also be constructed on 60-foot streets (Major Collectors) where specified by a development's conditions of approval,

where desired by a developer, or where required by the Director of Transportation.

## 2. Median Openings on Major Streets:

Median openings on Arterial and Thoroughfare streets shall be allowed at locations approved by the Director of Transportation and in conformance with the following:

- Median breaks that allow for left turn movements from side streets or driveways shall be allowed only at signalized intersections. The minimum spacing between signalized intersections is 1,200 feet.
- All proposed median breaks shall be analyzed by a traffic study prepared by a qualified Traffic Engineer hired by the Developer. Should the traffic study indicate that traffic signal warrants are met in the cumulative condition, the median break shall be located a minimum of 1,200 feet from the nearest signalized intersection and a minimum of 650 feet from the nearest unsignalized median break.
- Unsignalized median breaks on Arterial or Thoroughfare streets that allow only left turn movements into side streets or driveways may be allowed if all of the follow criteria are met:
  - The Development generates a minimum of 350 peak hour vehicular trips or 3,500 daily trips.
  - Spacing between median breaks shall provide a minimum of 150 feet of full width landscaped median.
  - Median breaks shall be a minimum of 650 feet apart and a minimum of 650 feet from any existing intersection or median break. The spacing is measured along the roadway centerline from the location of the ends of the continuous median between the existing and proposed median breaks.
  - A traffic study shows that the proposed location for a median break does not meet traffic signal warrants for the fully developed (cumulative) condition.
  - Should the median break provide left turn access that could conflict with through traffic on the street that is approaching a signalized intersection within 1,200 feet of the proposed median break, a traffic study shall include queuing, safety, and operational analysis of the proposed left movement turn in both existing and cumulative conditions. The traffic study

must show that both the existing and cumulative condition peak hour queues at the traffic signal will not extend to the location of the proposed median break such that there will be no conflict of the proposed left turning movement with the traffic queue from the neighboring traffic signal.

- Greater consideration will be given to median breaks that provide for joint access to adjacent parcels. If joint access cannot be accomplished then the County reserves the right to require a dedication of a cross access easement between adjacent properties in order to consolidate future driveways.

### 3. Emergency Vehicle Crossings of Raised Medians:

Emergency vehicle median crossings shall be constructed on all streets with raised medians that exceed 1,000 feet in length between median breaks. For the purpose of determining the need for emergency vehicle median crossings, median breaks shall only be those interruptions in median construction at intersections that allow all through and turning movements. Channelized median openings that restrict some traffic movements (such as those shown on drawing 4-17) shall not be considered median breaks for the purpose of locating emergency vehicle median crossings. For medians that exceed one thousand feet in length between median breaks but are less than two thousand feet long, emergency vehicle median crossings shall be located approximately in the middle of the length of the median. For longer medians, multiple emergency median crossings shall be installed such that the maximum spacing between median breaks and emergency crossings, or between adjacent median crossings, does not exceed one thousand feet.

Emergency vehicle median crossings shall be located a minimum of fifty feet clear distance from any existing or planned side street or major driveway. Emergency median crossings shall be twenty-five feet in length and extend across the full width of the median. Mountable curbing (modified type 1A curb shape extending six inches below pavement surface elevation but without the gutter section) shall be placed on both sides of the median for the twenty-five foot length of the emergency median crossing with five foot long curb transitions to match standard median curbing beyond the limits of the emergency median crossing. Expansion joints shall be placed through the curb at each side of the emergency vehicle crossing. Hardscape paving of the median in the area of the emergency vehicle median crossing shall consist of eight inch thick P.C.C. on six inches of aggregate base. The hardscape median paving shall have integral color and a stamped pattern to match

median hardscape appearance at other adjoining median locations along the roadway or as approved by the Director of Transportation.

4. Design of Streets and Driveways Intersecting with Major Streets:

Where intersecting with 74-foot or wider streets, Minor Residential streets shall have a minimum right-of-way width of 38 feet. Where intersecting with 74-foot or wider streets, Primary Residential streets that only have right turn movements onto the larger street shall have a minimum right-of-way width of 38 feet. Street intersections with right turns only onto 74-foot or wider streets should be no closer than 450 feet from each other or from the nearest cross street intersections. Major driveways which will serve significant traffic volume, as determined by the Director of Transportation, shall be considered as intersecting streets and shall be no closer than 450 feet from each other or from cross street intersections. Driveways should be located as far apart as practical with a minimum of 150 feet between driveways or from driveways to intersections. Major driveways that will be signalized shall be designed in accordance with public street intersection standards and shall not have concrete valley gutters.

Pavement widening shall be required where private lanes and where Class C or Class D streets (see Section 4-5) intersect with 74-foot and 96-foot streets in accordance with Standard Drawing 4-41. Major driveways serving significant traffic or truck volumes, and as determined by the Director, shall be considered as intersecting streets with regard to pavement widening on Class C streets.

5. Intersection Widening on Major Streets:

Intersection widening shall be in accordance with Standard Drawings 4-6 through 4-14 and the requirements in these Special Provisions. The transition lengths associated with intersection widening shall be longer than as indicated on the above listed standard drawings on roadways with a curving centerline so as to accommodate the safe travel of vehicles through the transition area at the design speed of the roadway.

6. Roadway Widening for U-Turns on Streets with Raised Medians:

All Arterial and Thoroughfare streets shall be required to accommodate "U" turns at all traffic signals and at locations of breaks in raised medians that allow for left-turn movements from roadway with raised medians. A minimum outside clear path of 44 feet of pavement shall be required. This requirement also applies to Major Collector streets that have raised medians.

- I. Frontage Road - A street located parallel to and abutting a major roadway or freeway which provides service to abutting properties for which direct access to the major roadway or freeway is prohibited or undesirable. Frontage roads adjacent to State freeways shall conform to the full width standards for 50-foot streets, as shown on Standard Drawing 4-3, unless designated as an Arterial or Thoroughfare street on the County's General Plan. All other frontage roads shall have a 28-foot paved surface with a Type 5 vertical curb on the undeveloped side and curb and gutter and a minimum 5-foot sidewalk with an 8 foot landscaped buffer on the developed side (See Standard Drawing 4-3).
- J. School Frontage – Along the roadway frontage of any school development on Arterial or Thoroughfare streets an additional eight feet of roadway and right-of-way, beyond that shown for standard Arterial and Thoroughfare streets, shall be provided. The additional area shall allow for six feet of roadway width adjacent to the gutter section for on-street pick up and drop off of students along the school's roadway frontage plus two feet of clear area between the on-street parking area and the adjoining bicycle lane.
- K. Other Street Designs – Class C street improvements vary in width and are used as interim improvements for roadways sections not yet improved by adjacent development or in rural areas where Class A or Class D improvements are not required. See Standard Drawing 4-4. Class D street improvements also vary in width and are used in certain portions of rural areas within the County's Urban Services Boundary. Class D streets provide enhanced pedestrian facilities over that of Class C streets. See Standard Drawing 4-5. See Section 4-5 for more information on the use of the various classes of street improvements.

#### **4-4 RIGHT-OF-WAY WIDTH**

Building setbacks, landscaping requirements, and parking requirements shall be based on the ultimate right-of-way width regardless of the location of existing public street improvements or right-of-way lines. In case of conflict with any zoning code requirements, the higher standard shall apply.

#### **4-5 STREET CLASS**

The standard approved street classes of Sacramento County are as follows:

- A. Class A Street - Class A street improvements shall be in accordance with Standard Drawings 4-1, 4-2, and 4-3 and shall consist of the following:
  - Asphalt concrete pavement over an aggregate base as required.

- Concrete curb, gutter and sidewalks. Landscaped buffers between the curbing and the sidewalk are standard on all Class A Collector, Major Collector, Arterial and Thoroughfare streets. Landscaped buffers are an option on Minor Residential and Primary Residential streets.
- Street lights in accordance with Section 5.
- Side slopes not steeper than 1-1/2:1 in cuts or 2:1 in fills, or a reinforced concrete or masonry retaining wall beginning at the back of sidewalk line. Pedestrian railings may be required along sidewalks when the adjacent property slopes downward away from the street.

All developments on land zoned or used for duplex, multi-family residential, business and professional, commercial, church, school or industrial uses shall have Class A street improvements.

All roadway frontage within the County's Urban Services Boundary on Arterial and Thoroughfare streets shall have Class A street improvements. In addition, this requirement shall apply to areas with "urban character", as approved by the Board of Supervisors, outside the Urban Services Boundary.

Street improvements for all single family residential lots shall have Class A street improvements unless otherwise allowed to have Class B, Class C or Class D street improvements as detailed below.

- B. Class B Street -- Class B street improvements shall be the same as Class A improvements, including street lights, except that sidewalks and landscaped buffers are omitted. The width of the public easements for a Class B Streets is the same as the width of the public easements on corresponding Class A streets with no reduction in width for the omission of the sidewalk or landscaped buffer area. Class B improvements shall only be allowed at developments where the roadway frontage is currently undeveloped with a length of less than three hundred feet and the roadway has been previously developed with Class B improvements on both sides of the proposed development. Class B street improvements shall conform to Standard Drawing 4-A-1.
- C. Class C Street – Class C street improvements shall be in accordance with Standard Drawing 4-4 and shall consist of the following:
- Asphalt concrete pavement over an aggregate base. Intersection widening of Class C streets at connections to Arterial and to

Thoroughfare streets shall be in accordance with Standard Drawing 4-41. For connections to lesser street widths, the approach and departure tapers may be omitted.

- Side slopes not steeper than 1-1/2:1 in cuts or 2:1 in fills (See Standard Drawing 4-4).
- Street lights in accordance with Section 5 so as to provide for intersection safety lighting.

Class C improvements may be installed along the roadway frontage of any property designated in the County of Sacramento’s Zoning Code as "Agricultural-Residential Land Use Zone" and meeting one of the following criteria:

- Located within the County’s Urban Services Boundary and with a zoning density of less than or equal to AR-5; or
- Located beyond the County’s Urban Services Boundary and with a zoning density of less than or equal to AR-1.

The minimum width of the asphalt concrete surface shall be as follows (See Standard Drawing 4-4):

<u>Street Type</u>	<u>Minimum Pavement Width</u>
Minor Residential, Primary Residential	32 feet
Collector, Major Collector, Arterial & Thoroughfare	36 feet

Where Class C improvements are to be installed all proposed public improvements, including but not limited to roadway surfacing and drainage facilities shall be within the dedicated roadway right-of-way, roadway easements, drainage easements, or other appropriate public easements.

D. Class D Street – Class D street improvements shall be in accordance with Standard Drawing 4 -5 and shall consist of the following:

- Asphalt concrete pavement over an aggregate base. Intersection widening of Class D streets to Arterial and Thoroughfare streets shall be in accordance with Standard Drawing 4-41. For connections to lesser street widths, the approach and departure tapers may be omitted.
- Side slopes not steeper than 1-1/2:1 in cuts or 2:1 in fills (See Standard Drawing 4-5).

- Street lights in accordance with Section 5 so as to provide for intersection safety lighting.

Class D improvements shall be installed along the roadway frontage of any property within the County’s Urban Services Boundary, and with a zoning of AR-1, AR-2, RD1, RD2 and not otherwise required to have Class A street improvements.

The minimum width of the asphalt concrete surface shall be as follows:

<u>Posted Speed Limit of Roadway*</u>	<u>Minimum Pavement Width</u>
Less than or equal to 40 MPH	32 feet
Greater than 40 MPH	36 feet

\* If the roadway has no posted speed limit, the speed limit used shall be the lesser of the prima facia speed limit or the 85<sup>th</sup> percentile speed as determined by an engineering speed study.

Where Class D improvements are to be installed all proposed public improvements, including but not limited to roadway surfacing, drainage facilities and pedestrian walkways shall be within the dedicated roadway right-of-way, roadway easements, or other appropriate public easements.

**4-6 USE OF OLDER STANDARDS FOR IMPROVEMENTS ON IN-FILL DEVELOPMENTS**

The following standards for the design of roadway improvements for developments with relatively short lengths of street frontage may be used upon written request by the developer or their agent and with the written approval of the Director of County Engineering. Locations for which these standards may apply are limited to locations where the roadway is undeveloped (currently a Class C roadway) along the entire frontage of the development and where the length of the proposed development’s street frontage is less than three hundred feet.

For locations on Collector, Major Collector, Arterial and Thoroughfare streets, and meeting the criteria described above, the street frontage may be designed with rolled curb, Type 1A, if the abutting properties on both sides of the proposed development have street frontage constructed with rolled curb.

At locations meeting the criteria described above, the street frontage may be designed with Class B street improvements if the abutting properties on both sides of the proposed development have Class B street improvements.



At locations meeting the criteria described above, the street frontage may be designed with attached sidewalk, without the standard landscaped buffer, if the abutting properties on both sides of the proposed development have attached sidewalk. For those locations for which attached sidewalk is allowed rather than the standard separated sidewalk, the minimum widths of those attached sidewalks shall meet all of the following criteria, as applicable:

- A minimum of five feet wide on Collector and Major Collector streets;
- A minimum of six feet wide on Arterial and Thoroughfare streets;
- A minimum of eight feet wide at schools and hospitals (see section 4-22);
- A minimum of eight feet wide within pedestrian districts (see section 4-23);
- The width determined through the development review process as described in section 4-23 for locations within commercial corridors; and
- Not less than the wider of the existing sidewalk abutting the proposed development.

As noted earlier in these Improvement Standards, type 1A curb and gutter with attached five foot wide sidewalk is the standard roadway improvement for Minor Residential and Primary Residential Streets.

Details of Class B street improvements are located in the appendix to this section of the Improvement Standards. Other than the use of rolled curbing, attached sidewalks and/or Class B street improvements, all other aspects of street improvements for the proposed development shall conform to current County standards as detailed elsewhere in these Improvement Standards.

#### **4-7 STRUCTURAL SECTION**

The following standards for the design of structural sections shall govern the preparation of plans for proposed improvements:

- A. The minimum allowable thickness of the pavement section on 20-foot wide streets (alleys) shall be 6 inches of Portland cement concrete on 6 inches of aggregate base.
- B. Structural sections for all roadways wider than 20 feet shall be designed to conform to the California Department of Transportation Highway Design Manual (Fourth Edition), “Topic 608 - Asphalt Concrete Pavement Structural Section Design” or other method as approved by the Director. The safety factor needed for gravel equivalent increase shall be 0.2 feet for a base type of aggregate base.

- C. The minimum traffic indices (T.I.) used for the calculation of the roadway structural sections shall be as follows:

<u>Street Type by Right-of-Way Width</u>	<u>Minimum Traffic Index</u>
32' and 38' residential streets	5.0
48' and 60' streets without bus routes or high truck traffic	6.0
48' and 60' streets with bus routes or high truck traffic & all cul-de-sacs	6.5
74' streets	9.0
96' streets	10.0

The minimum T.I. for cul-de-sac bulbs shall be 6.5. Special T.I.'s will be provided to the consultant engineer for industrial cul-de-sac bulbs or other special conditions.

74-foot streets may use a T.I. of 8.0 or 8.5 if supported by a traffic study by a registered traffic engineer and subject to the approval of the Director of County Engineering. 96-foot streets may use a T.I. of 9.0 or 9.5 if supported by a traffic study by a registered traffic engineer and subject to the approval of the Director of County Engineering.

- D. A soil report, prepared by a registered geotechnical engineer, citing the "R" value of subgrade of basement soil, along with calculations for structural pavement sections, shall be submitted with any plan indicating construction of roadway. In lieu of a soil report, an "R" value of 5 may be assumed.

With an "R" value of 5, the following minimum structural sections shall be used:

<u>Street Type by Right-of-Way Width</u>	<u>Structural Section</u>
32' and 38' residential streets	3" A.C. on 10" A.B.
48' and 60' streets without bus routes or high truck traffic	3-1/2" A.C. on 13" A.B.
48' and 60' streets with bus routes or high truck traffic, all cul-de-sacs	4" A.C. on 14" A.B.
74' streets	5-1/2" A.C. on 20-1/2" A.B.
96' streets	6-1/2" A.C. on 23" A.B.

- E. As an alternate to the preceding structural sections, a full depth asphalt concrete structural section may be used subject to the approval of the Director. Full depth asphalt concrete sections shall be designed in accordance with the California Department of Transportation Highway

Design Manual (Fourth Edition), “Topic 608 - Asphalt Concrete Pavement Structural Section Design” or other method as approved by the Director. The safety factor needed for gravel equivalent increase shall be 0.1 feet. A soil report of the “R” value of subgrade or basement soil, along with calculations for structural pavement sections, shall be submitted with any plan indicating construction of roadway. In lieu of a soil report, an “R” value of 5 may be assumed.

With an “R” value of 5, the following minimum structural sections shall be used for full depth asphalt concrete design:

<u>Street Type by Right-of-Way Width</u>	<u>Structural Section</u>
32’ and 38’ residential streets	7-1/2” Asphalt concrete
48’ and 60’ streets without bus routes or high truck traffic	9” Asphalt concrete
48’ and 60’ streets with bus routes or high truck traffic, all cul-de-sacs	10” Asphalt concrete
74’ streets	14” Asphalt concrete
96’ streets	16” Asphalt concrete

- F. The use of alternate road building materials will be allowed if supported by a sound pavement design study prepared by a registered geotechnical engineer and approved by the Director of County Engineering. These alternate road building materials may include but not be limited to the following:
- Subgrade stabilizing and/or isolating geotextiles and grids
  - Pavement stress absorbing interlayers
  - In-situ soil and subgrade stabilizing add mixtures
  - The use of recycled materials in the manufacture of subbase, subgrade, and asphalt concrete
  - Rubberized asphalt concrete
  - Subbase drainage facilities
- G. Positive structural section drainage facilities shall be required if the basement soil has permeability less than 100 feet per day. Drainage system design shall be in accordance with California Department of Transportation Highway Design Manual (Fourth Edition) or other method as approved by the Director. At a minimum, subbase drainage shall be provided at all sag points in impermeable soils.
- H. Class C streets, including the shoulders, shall have the same pavement structural section as indicated for the ultimate width of the roadway with full land development.

- I. In transition areas from one street width to another street width standard, the stronger structural section shall be used in the transition area.

#### **4-8 PROFILE STANDARDS**

The following standards for the design of profiles shall govern the preparation of plans for proposed improvements. See Section 3-7(D).

- A. The minimum grade on new streets shall be 0.25 percent except that the minimum curb and gutter grade around intersection corners shall be 0.50 percent. Curb and gutter elevations on crest and sag vertical curves shall be adjusted to meet the 0.25 percent minimum grade. The profile grade around corner returns with curb extensions (which are typically found at intersections of residential and/or collector streets) shall be 0.50 percent including the ten-foot transition areas on each side of the extended curb return.
- B. The minimum grade of gutter sections constructed on existing streets shall be 0.20 percent.
- C. Standard cross slope on new streets shall be 2.0 percent.
- D. The minimum cross slope on street widening shall be 1.5 percent and the maximum cross slope shall be 3.0 percent. The cross slope of the widening shall conform to the cross slope of the existing pavement whenever possible. See Section 4-1 C of these Improvement Standards.
- E. When two streets intersect, neither street shall have a longitudinal grade greater than 3.0 percent for a minimum distance of 40 feet measured from the curb line of the intersecting street, except in unusually rough terrain, as determined by the Director of County Engineering for residential and collector streets and by the Director of Transportation for Arterial and Thoroughfare streets.

At all street intersections the centerline crown of the street with the lesser roadway width shall meet the surface pavement elevation of the intersecting roadway at a point along the projected lip of gutter of the larger roadway. If both roadways have the same street width, the larger roadway shall be the street with the higher projected traffic volume with full land development.

At street intersections of two Arterial and/or Thoroughfare roadways, the cross-slope of both roadways shall be reduced from the standard 2.0% slope to 1.0% as the roadways approach the intersection. The transition on each roadway approach shall begin approximately one hundred feet in advance of the corner return, with full cross-slope transition being achieved at the

corner return on the approach roadway. The one percent cross slope shall be carried through the intersection.

The minimum vertical curve length allowable at the intersection of two grades shall be 50 feet. Vertical curves on residential and collector streets may be omitted where the algebraic difference in grades does not exceed 2.0 percent. Vertical curves on all other streets may be omitted where the algebraic difference in grades does not exceed 1.5%. The minimum vertical curve data to be computed and shown on the plans shall consist of the point of intersection elevation, the tangent gradients, the middle ordinate and the length of curve.

- F. The design speed and minimum stopping sight distance over any segment of urban roadway shall be as follows unless the Director specifically approves a lesser design speed:

<u>Street Type</u>	<u>Minimum Design Speed</u>	<u>Minimum Stopping Sight Distance</u>
32-foot R/W	25 MPH	150 feet
38-foot R/W	30 MPH	250 feet
48-foot R/W	35 MPH	250 feet
60-foot R/W	40 MPH	300 feet
74-foot R/W	45 MPH	360 feet
96-foot R/W	50 MPH	430 feet
Rural & Unposted	55 MPH	500 feet

Unless otherwise approved by the Director of Transportation, on 74-foot (Arterial) and 96-foot (Thoroughfare) roadways, the design speed shall be the greater of either the speed indicated in the table above, or the 85th percentile speed of the existing traffic as measured by an engineering speed survey. Copies of engineering speed surveys for most Collector, Major Collector, Arterial and Thoroughfare streets are available upon request from the County's Department of Transportation.

The minimum design speed for rural and/or unposted roadways shall be 55 MPH or conform to the maximum allowable vehicular speed per the California Vehicle Code. Stopping sight distance for other design speeds shall be in accordance with AASHTO Policy on Geometric Design of Highways and Streets, 2004 Edition, or as approved by the Director.

Stopping sight distance is measured from the driver's eyes, which are assumed to be 3.5 feet above the pavement surface, to an object 2.0-feet high on the road.

#### **4-9 PARTIAL STREETS**

Partial streets may be permitted by the Director of County Engineering along the boundary of a subdivision or property of the developer where the full right-of-way cannot be dedicated or where the complete street cannot be constructed, but will ultimately be constructed with adjacent development.

Partial streets shall be constructed to a complete geometric and structural section for a minimum paving width specified by the following:

- A. On 32 and 38 foot streets with sidewalk on one side of the roadway, the minimum pavement width shall be 28 feet.
- B. On 32 and 38 foot streets without sidewalk on either side of the roadway, the minimum pavement width shall be 32 feet.
- C. On 48-foot streets and on larger streets, the minimum pavement width shall be 36 feet.

The intersection pavement edges shall have a minimum radius of 25 feet for any corner return that lacks curb & gutter at an intersection of residential and/or collector streets. The minimum radius of a corner return of an intersection that includes either an Arterial or a Thoroughfare roadway is 35 feet.

Partial streets shall be terminated with the end of the pavement perpendicular to the street unless otherwise specified below. A 2"x6" redwood header board shall be required at the pavement ending.

Partial streets that terminate adjacent to an intersection or driveway shall be tapered 45 degrees to the street if right-of-way is available.

#### **4-10 OFFSET INTERSECTIONS**

- A. Streets intersecting any 32-foot or 38-foot residential street from opposite sides shall have their centerlines meet, or the offset between intersections shall be a minimum of 150 feet. Lesser distance may be approved for infill projects.
- B. Streets intersecting any 48-foot or 60-foot street from opposite sides shall have their centerlines meet, or the offset between intersections shall be a minimum of 200 feet. Lesser distance may be approved for infill projects.
- C. Streets intersecting any 74-foot street that does not have a raised landscaped median shall have their centerlines meet, or the offset between intersections shall be a minimum of 300 feet. Pursuant to this section major access

driveways shall be considered as streets with respect to offsets. Lesser distance may be approved for infill projects.

- D. See Section 4-3 for intersection spacing requirements for 74-foot streets with raised landscaped medians and for 96-foot streets.

#### **4-11 DRIVEWAYS**

Driveway installations shall be in accordance with Standard Drawings 4-35 thru 4-40 as applicable, and the following standards.

Exceptions from any of the following driveway standards associated with driveways on Arterial or Thoroughfare streets may be granted by the Director of Transportation where use of the driveway standard is technically infeasible. Exceptions from any of the following driveway standards associated with driveways on residential or collector streets may be granted by the Director of County Engineering where use of the driveway standard is technically infeasible. Examples of technical infeasibility are significant conflicts with large oak trees, conflicts with major utility facilities, conflicts with major structures or locations where property frontage geometry does not allow conformance with the standards. Exceptions should be requested as early as possible, prior to submission of improvement plans or development plans, during the period of project development when entitlements and conditions of approval are being considered, as applicable.

- A. Driveways entering Class C or Class D streets shall meet the future back of sidewalk line at such a grade and elevation as to permit conversion to a Class A street without regrading the driveway within the public right-of-way and easement areas.
- B. On roadways which are designated to be ultimately developed with Class A street improvements, concrete driveways will not be permitted within the area between the paved roadway and the location of the future back of sidewalk. On all other roadways, concrete driveways will not be permitted within fifteen feet of the paved roadway.
- C. No driveway (including transition tapers) will be allowed within 5 feet of a side property line. Exceptions may be approved by the Director of County Engineering for joint driveways or in unusual cases. Joint driveways may be required by the Director of County Engineering and a joint use driveway agreement will be required prior to approval of improvement plans.
- D. The minimum width for a single family residential and duplex driveway shall be 16 feet. Maximum single family residential and duplex driveway width shall be 35 feet.

- E. All commercial, industrial, church, school and multiple family developments shall install Type A or Type B driveways except as otherwise provided in this section (see Standard Drawings 4-35 & 4-36).
- F. On streets other than Arterial or Thoroughfare roadways, where existing street frontage improvements include rolled curb (Type 1A curbing as shown on Drawing 4-A-30 in the Appendix to this chapter of the Improvement Standards), Type A or Type B driveways shall be installed for all driveways serving more than six single family dwelling units. Driveways serving six or less single family dwelling units may utilize a driveway connection to the existing rolled curb improvements (if any) or to proposed rolled curb improvements (if applicable).
- G. A minimum 35-foot driveway width is required for all commercial, industrial, school and church developments. A 45-foot driveway width is required along any roadway if significant truck traffic is anticipated to use the driveway. The standard driveway width shall be 45 feet on Arterial and Thoroughfare roadways. A center median in a driveway, up to 10 feet wide, may be approved by the Director of County Engineering. The standard for minimum driveway width will be increased by the width of the median.
- H. The design of major driveways, which will serve significant traffic volume, as determined by the Director of Transportation, shall be based on the width, cross section, and geometrics of a 48-foot public street.
- I. Driveways on Arterial and Thoroughfare streets shall have a minimum clear spacing of 150 feet between driveways. Lesser driveway spacing may be approved by the Director of Transportation where the use of cross access easements are not possible or are not desirable, where major conflicts exist, or where property width limitation make use of the standard driveway spacing technically infeasible.
- J. When driveways are abandoned or relocated, the driveway sections must be removed and replaced with standard curb and gutter, sidewalk, and planters.
- K. The maximum driveway slope shall be twelve percent for residential properties. The maximum driveway slope for commercial properties shall be eight percent. Driveways serving commercial properties on all roads shall have a slope not exceeding five percent for a minimum distance of 20 feet, measured from the back of sidewalk. The maximum algebraic difference in grade at any grade change within the public right-of-way and a driveway or between a driveway and public roadway shall be ten percent. (See Standard Drawing 4-35).



Driveways entering levee roads shall have a slope not exceeding five percent for a minimum distance of 20 feet, measured from the edge of roadway pavement. Driveways normally used by vehicles towing horse or boat trailers shall have special requirements to be determined on an individual basis by the Director of County Engineering.

- L. The nearest edge of driveways shall not be closer than 50 feet, measured laterally, to the end of existing or future traffic medians. Medians shall be reconstructed and/or lengthened to conform to this section if necessary, as determined by the Director of Transportation.
- M. Visibility requirements for driveways shall be in accordance with Standard Drawing 4-18 and Section 4-15.
- N. Major commercial driveways which will serve significant traffic volume, as determined by the Director of Transportation, shall be considered as intersecting streets and shall conform to the requirements of Section 4-10 regarding offsets.
- O. Driveways and private roads accessing public streets with no curbs and gutters and sidewalks shall be paved with dust free surfacing (either asphalt concrete or a double chip seal). Driveways and private roads accessing public roads with sidewalks and/or curbs and gutters shall be paved with concrete or asphalt concrete.
- P. Driveways on residential or collector streets at their intersection with a residential street shall be located a minimum of 10 feet clear from the nearest corner return. Driveways on residential or collector streets at their intersection with a Collector, Major Collector, Arterial or Thoroughfare street shall be located a minimum of 40 feet clear from the nearest corner return.
- Q. Driveways on Arterial or Thoroughfare streets shall be no closer than 125 feet from the nearest present or future intersection corner return.

#### **4-12 CUL-DE-SAC**

Cul-de-sac streets shall be terminated with a bulb, which shall have right-of-way and back of curb radius dimensions conforming to Standard Drawing 4-15 and the following:

No cul-de-sac shall exceed 600 feet in length.

The minimum T.I. for a cul-de-sac shall be 6.5. Special T.I.'s will be provided to the consultant engineer for industrial cul-de-sacs or other special conditions.

Special turnaround designs may be approved by the Director of County Engineering under unusual topographic or other conditions. Where possible a pedestrian connection should be provided from the bulb end of a cul-de-sac to the nearest neighboring roadway. See Section 4-22 of these Improvement Standards.

#### **4-13 ELBOW INTERSECTIONS**

Elbows shall be required at right angle intersections in accordance with Standard Drawing 4-16. Only under unavoidable or extreme conditions will an elbow other than  $90^{\circ} \pm 5^{\circ}$  be permitted by the Director of County Engineering.

#### **4-14 CENTERLINE RADII**

The curve data (delta angle, length, tangent, and radius) for all centerline curves shall be computed and shown on the plans.

The minimum radius curve for 32-foot streets shall be 200 feet.

The minimum radius curve for 38-foot streets shall be 350 feet with the exception that 38-foot streets exceeding 1,000 feet in length and connecting to Arterial or Thoroughfare streets shall have a minimum radius curve of 500 feet.

The minimum radius curve for 48 streets shall be 500 feet.

The minimum radius curve for 60-foot streets shall be 800 feet.

The minimum radius curve for 74-foot and 96-foot streets shall be 2,000 feet. With the approval of the Director of Transportation, the minimum radius curve for 74-foot and 96-foot streets may be reduced to 1,400 feet.

A minimum tangent length of 200 feet is required between reversing curves on 48-foot and larger streets.

Special consideration will be given to unusually difficult alignment problems. Any exception to the above minimum radius requirements must be approved by the Director of Transportation. Where a centerline radius on an Arterial or Thoroughfare street that is less than the above requirements is approved by the Director of Transportation, superelevation may be required.

#### **4-15 SIGHT DISTANCE AT UNCONTROLLED INTERSECTIONS**

Streets that approach uncontrolled intersections, those intersections without all-way stop control or traffic signals, should not be designed to intersect the inside of curves or at any location where in general, sight distance will be inadequate for drivers to tell if they can safely enter the traffic flow or cross the street. The

minimum distance from an intersection to a curve should be the applicable minimum sight distance listed below. Exceptions may be made by the Director for especially difficult design circumstances, only if visibility easements to provide adequate sight distances are dedicated. Minimum intersection design sight distance standards shall be as follows:

<u>Type of Street Being Entered</u>	<u>Recommended Design Speed</u>	<u>Minimum Sight Distance*</u>
Minor Residential	25 MPH	280 feet
Primary Residential	30 MPH	330 feet
Collector	35 MPH	390 feet
Major Collector	40 MPH	440 feet
Arterial	45 MPH	500 feet
Thoroughfare	50 MPH	550 feet

\*Distance measured from an entering driver's eye position to the position of the closest approaching vehicle's far front corner.

The entering driver's eye position shall be assumed 3 feet to the right of the entering street's centerline, 3.5 feet above the pavement surface, and 11 feet clear of the nearest vehicle lane on the street being entered. The position of the closest approaching vehicle's far front corner shall be assumed 3 feet from the edge of the nearest approaching vehicle lane and 4.25 feet above the pavement surface for each direction of travel.

Major driveways serving significant traffic volume, as determined by the Director of Transportation, shall be considered as intersecting streets with regard to intersection sight distance requirements. Minor driveways and private streets should provide the recommended intersection sight distance, and at a minimum, shall provide for stopping sight distance.

All streets and driveways shall conform to Standard Drawings 4-16 & 4-18 for corner visibility requirements, as well as to the requirements herein. Visibility easements shall describe an area to be maintained clear of any and all obstructions to a clear view from the adjacent streets except as exempted by the County Code. No sign, hedge, structure, natural growth, fence, or other obstruction of any kind whatsoever to a clear view, higher than 2 1/2 feet above the nearest pavement surface (or traveled area where no pavement exists) shall be installed or maintained or shall be permitted to be installed or maintained within the sight visibility control area. As shown on Standard Drawing 4-18, any trees planted within sight visibility control areas shall have all branches, and foliage above an elevation six feet higher than the nearest roadway surface.

Sight distance at controlled intersections, those intersections with all-way stop control or traffic signals, shall conform to the requirements of Standard Drawing 4-18 for corner visibility requirements.

Visibility easements shall be recorded on subdivision maps when required, or by separate document if no map will be recorded.

All visibility easement areas between fences or walls and curbs or sidewalks shall be improved as follows:

- A. Standard Portland cement concrete sidewalk shall be placed in all areas having a width of 3 feet or less, and in all areas within intersection corner roundings.
- B. All areas having a width greater than 3 feet and not within intersection corner roundings shall be surfaced with 2 inches of asphalt concrete or other impervious, non-raveling surfacing subject to the approval of the Director of Transportation. Soil sterilization shall be applied in accordance with Section SS33-04 of the Standard Construction Specifications.

In lieu of the above described surface treatments for areas within visibility control areas, low profile landscaping may be used providing that area is maintained by a responsible public entity and the landscape plans receive approval from the County.

**4-16 INTERSECTION CORNER RADII and CURB EXTENSIONS**

Minimum right-of-way and edge of pavement radii for intersection corner roundings shall be in accordance with the Standard Drawings and the following:

<b>Street Type</b>	<b>Intersecting Street Type</b>	<b>R/W Radius</b>	<b>Radius at Lip of Gutter (Class A Street)</b>
Minor Residential, Primary Residential, Collector or Major Collector	Minor Residential, Primary Residential, Collector, or Major Collector	20 feet	17 feet
Minor Residential	Arterial or Thoroughfare	24 feet	27 feet
Primary Residential, Collector, Major Collector, Arterial or Thoroughfare	Arterial or Thoroughfare	31 feet	34 feet

Curb extensions conforming to the geometry shown on Standard Drawings 4-53 and 4-56 shall be constructed at all intersections (except elbow intersections) of

Minor Residential, Primary Residential, Collector and Major Collector streets (any combination thereof).

All intersection pavement edges on partial streets, and at all intersection corner returns on all other Class C and Class D streets, shall have a minimum radius of 25 feet measured along the edge of pavement with the following exception. Where a Class C or a Class D street intersects with an Arterial or a Thoroughfare roadway, the minimum radius of the corner return shall be 35 feet. See Standard Drawing 4-41.

#### **4-17 BUS STOP TURNOUTS**

Bus stop turnouts shall be required on Arterial streets at all intersections with Arterial or Thoroughfare streets. Bus stop turnouts may also be required on Arterial streets at intersections with Collector and Major Collector streets as determined by the Director of Transportation. Bus stop turnouts shall be required on Thoroughfare streets at all intersections with Collector, Major Collector, Arterial and Thoroughfare streets. Bus stop turnouts may also be required at other locations along Arterial and Thoroughfare streets, as determined by the Director of Transportation, such that bus stop facilities are provided at approximately one-quarter mile intervals. Bus stop turnouts shall be located on the far right hand side of the intersection and shall be in accordance with Standard Drawings 4-43 & 4-44. Intersection geometry with bus stop turnouts shall conform to the geometry shown on Standard Drawings 4-6, 4-7, 4-8, 4-10, 4-12, 4-13 and 4-14.

Where intersections along Arterial and Thoroughfare streets are too widely spaced to provide satisfactory bus stop intervals, as determined by the Director of Transportation, mid-block bus stop turnouts may be required. Mid-block bus stop turnouts shall conform to the geometry shown on Standard Drawing 4-43.

#### **4-18 SIDEWALK RAMP AND ACCESSIBILITY IMPROVEMENTS**

Sidewalk ramps (also commonly referred to as “curb ramps”) shall be constructed at all street intersections and at other locations where required by the Director of County Engineering, in accordance with Standard Drawings 4-16 and 4-50 thru 4-57, as applicable.

At "T" intersections of residential and/or collector streets, one ramp shall be constructed in the appropriate position on the far side of the through street, opposite the ramps at the corner rounding of the intersecting street. The preferred location for that sidewalk ramp is on the side of the street such that pedestrians are encouraged to cross the through street on the leg unaffected by left-turning traffic from the intersecting street. See Standard Drawings 4-55 and 4-56.

All corners at all intersections of any street with an Arterial or Thoroughfare street shall have two sidewalk ramps per corner as shown on Standard Drawing 4-53. An exception to this requirement is for those intersections with roadway that has a raised median extending through the intersection. Those locations require only one ramp per corner.

In accordance with the requirements of the American with Disabilities Act (ADA), California Code of Regulations, Title 24 and the California Manual on Uniform Traffic Control Devices, any modification of any portion of an intersection shall require access improvements to all corners of that intersection. For the purpose of this requirement, modifications include, but are not limited to:

- Roadway widening through the intersection;
- Widening of a portion of the intersection;
- Construction of corner improvements (curbs, gutter, and/or sidewalks) in any portion of the intersection;
- Construction of a new traffic signal;
- Modification of an existing traffic signal;
- Resurfacing the pavement with an asphalt concrete overlay in any portion of the intersection; and
- Removal, replacement or construction of any storm drain facility within any corner return or any portion of a storm drain facility within any portion of a corner return.

Access improvements to the intersection include, but are not limited to, the construction of sidewalk ramps. Should there be existing sidewalk ramps prior to the modification of the intersection, it shall be the responsibility of the Developer to survey the existing sidewalk ramps to ensure that they comply with the current requirements of the ADA for existing ramps. If the Developer believes that any existing ramp on any corner of any intersection being modified as a part of their development meets current requirements of the ADA, that information, along with photographs and measurements of the subject sidewalk ramp(s), shall be provided to the County for review with the submittal of the development's roadway improvement plans for review. Should any existing ramp fail to meet those requirements, that ramp shall be removed and replaced with a sidewalk ramp that conforms to current County standards.

If an intersection is modified, as defined above, and if that intersection has an existing traffic signal, access improvements shall include the installation of ADA compliant pedestrian push buttons, should they not exist. Those push buttons shall conform to the ADA and County requirements including height, orientation, location relative to sidewalk areas, location relative to sidewalk ramps and location relative to the extension of crosswalk stripes.

Access improvement shall include the installation of audible pedestrian traffic signal at all intersections with existing traffic signals for which the work includes the modification of the traffic signal facilities.

#### **4-19 CURB AND GUTTER**

Curb and gutter shall be installed adjacent to all developments in accordance with Standard Drawing 4-30 and the following:

Type 1A Curb and Gutter: Type 1A Curb and Gutter has a curb that has a rolled shape so as to allow vehicle access across the curbing, as with a driveway, at any location. Type 1A Curb and Gutter shall be standard on Minor Residential and Primary Residential streets with attached (monolithic) sidewalk. On all other streets, Type 1A Curb and Gutter shall be allowed at developments where the roadway frontage is located within an area of undeveloped roadway with a length of less than three hundred feet and the roadway has been previously developed with rolled curb on both sides of the proposed development. Use of Type 1A curbing on any street other than a Minor Residential or Primary Residential street, or at “in-fill” locations as described above, shall require written approval of the Director of County Engineering.

Type 2 Curb and Gutter: Type 2 Curb and Gutter shall be required on all Class A streets of all street widths with the following exceptions:

- Type 1A Curb and Gutter with attached sidewalk may be used on 32-foot streets (Minor Residential) and 38-foot streets (Primary Residential). At the developer’s option, separated sidewalk with landscaped buffer areas may be constructed on residential streets. If separated sidewalk is used on residential streets, Type 2 Curb and Gutter shall be installed.
- Type 1A Curb and Gutter may be used along cul-de-sac bulbs and the outside portion of elbow intersections where attached (sidewalk) is used. See Standard Drawing 4-15 and 4-16.
- Type 1A Curb and Gutter may be used along the frontage of “in-fill” developments as described in section 4-6 of these Improvement Standards.

Type 2 Reinforced Curb and Gutter, as detailed on Standard Drawing 4-30, shall be installed in areas of bus turnouts as shown on Standard Drawing 4-43.

Type 2 Reinforced Curb and Gutter shall also be used in areas of areas of curb extensions (found at intersections of residential and collector streets) as shown on Standard Drawings 4-53 and 4-56. Regardless of the type of

curbing used on residential streets, either Type 1A or Type 2, the curb extensions on those streets shall have Type 2 Reinforced Curb and Gutter.

#### **4-20 CROSS GUTTERS**

Cross gutters may be permitted on 32-foot and 38-foot streets with the specific approval of the Director of County Engineering when the intersection cannot reasonably be drained to an underground system. See Standard Drawing 4-40. No cross gutter will be allowed on 48-foot or greater streets.

Cross gutters will not be allowed on any approach to a signalized intersection.

#### **4-21 BARRIER CURBS**

Barrier curbs shall be in accordance with these standards and Standard Drawing 4-30 (Type 3, 4, or 5 curb). Barrier curbs shall be required at all locations where parking will be allowed in a front yard. See Standard Drawing 4-33 for planter and barrier curb details.

A barrier curb shall be required at the back of sidewalk along landscaped corridors, and at the back of sidewalk along all commercial, industrial, church, school and multi-family residential properties, where landscape planters containing soil and/or mulch are adjacent to the sidewalk. A barrier curb is typically not required at the back of sidewalk adjacent to lawn.

A barrier curb shall be required at bus stops behind a sidewalk where the slope is toward the sidewalk (to prevent sheet flow across the sidewalk).

On residential developments, Under Sidewalk Drains may be used to remove drainage collected at the back of the barrier curb, as necessary to prevent any flow across the sidewalk. See Standard Drawing 4-34. On commercial, industrial, church and school developments, an on-site drainage system shall be utilized to collect drain waters which may otherwise collect at the back of the barrier curb.

A barrier curb shall be required behind a sidewalk where the slope behind the sidewalk is steeper than 6:1 and the slope is away from the sidewalk (for pedestrian safety). Where a retaining wall is allowed, creating a drop-off adjacent to the sidewalk, a minimum 36-inch high barrier fence is required in lieu of the barrier curb at the back of the sidewalk (see Section 4-31). Lot grading shall be done so as to not require fencing immediately adjacent to intersections and driveways in violation of the sight distance and visibility requirements of Standard Drawings 4-16 and 4-18 and Section 4-15.



## **4-22 SIDEWALKS**

Sidewalks shall be in accordance with these standards and the geometry shown on the Standard Drawings.

All school developments shall have 8-foot wide sidewalks along all frontages, with the exception that 5-foot wide sidewalks may be used along fenced play areas where no pedestrian access to the school site is provided, as determined by the Director of County Engineering. If the use of the public street frontage along a school development will include the drop or pick up of students by school busses, then a plaza area shall be provided adjacent to the sidewalk and sufficient in size to accommodate student waiting and assembly exclusive of the sidewalk area.

Sidewalks within areas of pedestrian districts, as defined in Section 4-23 of these Improvement Standards, shall have 8-foot wide sidewalks.

For standard sidewalks separated from the roadway curbing by a landscaped buffer, no utility pole, guy wire, cabinet, hydrant, sign or other above ground facility shall be located within the sidewalk area. Traffic signal poles may be located with sidewalk areas to allow for pedestrian access to pedestrian push buttons, however four-foot minimum pedestrian clearance around poles must be provided.

For standard sidewalks that are attached to the roadway curbing (monolithic), all utility poles, guy wires, cabinets, hydrants, signs and other above ground facilities shall be located behind the sidewalk, within the easement for public utilities and public facilities, where possible. If such is not possible, the conflicting facility shall be located such that there is a minimum of four feet clear space for pedestrian use of the sidewalk. Where it is necessary to widen the sidewalk beyond its standard width to attain the 4-foot minimum clearance, the widened area shall extend a minimum of 10 feet beyond each side of the obstruction and a 10-foot taper on each side of the widening shall be provided.

The alignment of separated sidewalk may be altered from the standard roadway geometry so as to avoid conflict with an existing tree or a major utility facility. Realignment of up to three feet shall conform to the details shown on Standard Drawing 4-60. Realignments of separated sidewalk of more than three feet shall require the approval of the Director of County Engineering and shall utilize curving geometry departing from the standard sidewalk alignment by use of 150 foot minimum radii curves that extend to tangent points along the standard sidewalk geometry.

Bus benches located in or near sidewalk areas shall be situated such that there is six feet minimum clear width of sidewalk in front of the bench.

With approval by the Director, sidewalks may be separated from the curb by approved landscaping areas in excess of that indicated in the Standard Drawings.

The minimum width of the sidewalk will remain unchanged from the standard sidewalk for the roadway. The distance between the back of the curb and the edge of the sidewalk can vary, but shall not be more than 28 feet, except at transitions. The separated sidewalks will be designed such that the sidewalk will either:

- have least a 2-foot wide straight path along the alignment of the sidewalk and a 10-foot minimum distance at the back of walk between landscaped areas, or
- have no abrupt changes in direction and will be constructed using tangents of any length and inside radii of at least 150 feet.

Sidewalks separated from the back of curb in excess of twelve feet may require additional pedestrian scaled lighting facilities, including additional provisions for funding the maintenance and operation of those facilities. Determination of the need for additional lighting for non-standard sidewalks shall be determined by the Director of County Engineering. The Director of County Engineering may approve other configurations of separated sidewalks to save existing trees or for special design applications.

Where sidewalks end between intersections without continuity to an existing sidewalk, an AC sidewalk conform shall be provided so as to allow pedestrian access to the roadway shoulder beyond the limit of sidewalk construction (See Standard Drawings 4-58 and 4-59). At locations where sidewalks end between intersections without continuity to an existing sidewalk and a vertical drop off, such as a roadside ditch or swale, will exist beyond the limit of sidewalk, then a sidewalk barricade shall be provided in addition to the AC sidewalk conform (See Standard Drawing 4-61).

**4-23 PEDESTRIAN DISTRICTS & COMMERCIAL CORRIDORS**

Sidewalks within areas of pedestrian districts shall be 8-feet wide. Pedestrian districts are at the following locations within Sacramento County as specified in the Pedestrian Master Plan adopted by the County’s Board of Supervisors:

<b>Pedestrian District Segment</b>	<b>From</b>	<b>To</b>
47th Avenue	Franklin Boulevard	Martin Luther King Jr. Blvd.
47th Avenue	44th Street	Steiner Drive
48th Street	County Line near Baker Avenue	Yosemite Avenue
Alta Arden Expressway	Bell Street	Watt Avenue
American River Drive	Mering Court	Wyndgate Road
Archer Avenue	Plumeria Ave	Fair Oaks Boulevard
Arden Avenue	Hesket way	Fulton Avenue
Auburn Boulevard	County Line near Kitty Lane	County Line (Citrus Heights)
Auburn Boulevard	Bell Street	Pasadena Avenue

<b>Pedestrian District Segment</b>	<b>From</b>	<b>To</b>
Bridge Street	Fair Oaks Boulevard	Grand Avenue
Butano Drive	El Camino Avenue	Cottage Way
Cottage Way	Cortez Lane	Weldon Way
Cron dall Drive	Estates Drive	Cul De Sac Near Exeter Street
Cypress Avenue	George Road	Manzanita Avenue
El Camino Avenue	Winsford Lane	Carmichael Way
El Camino Avenue	Ethan Way	Butano Drive
Elkhorn Boulevard	34th Street	Stoneman Drive
Elsie Avenue	Stockton Boulevard	Iona Way
Fair Oaks Boulevard	Vine Grove Lane	Sunrise Boulevard
Fair Oaks Boulevard	El Camino Avenue	Marshall Avenue
Fair Oaks Boulevard	County Line (Near Howe Avenue)	San Lucas Way
Florin Road	Franklin Boulevard	Florin Perkins Road / French Rd.
Folsom Boulevard	Watt Avenue	County Line (Rancho Cordova)
Folsom Boulevard	Sunrise Boulevard	Aerojet Road
Franklin Boulevard	County Line (near 41st Avenue)	Florin Road
Freedom Park Drive	34th Street	Watt Avenue
Fulton Avenue	Auburn Boulevard	Arden Way
Fulton Avenue	Fair Oaks Boulevard	Sierra Boulevard
Garfield Avenue	Leader Avenue	White Fir Way
Gerber Road	Stockton Boulevard	Fernridge Drive
Greenback Lane	Fair Oaks Boulevard	County Line – East of Main Ave.
Howe Avenue	Marconi Avenue	Cottage Way
Howe Avenue	Spanos Court	Fair Oaks Boulevard
Locust Avenue	Younger Way	Manzanita Avenue
M Street	Rio Linda Boulevard	8 <sup>th</sup> Street
Madison Avenue	Harrison Street	Hemlock Street
Madison Avenue	Almaden Way	1/8 Mi. East of Fair Oaks Blvd.
Madison Avenue	Walnut Avenue	Main Avenue
Main Avenue	1/8 Mi. North of Orangevale Ave.	Madison Avenue
Manzanita Avenue	Bourbon Drive	Fair Oaks Boulevard
Marconi Avenue	Garfield Avenue	Fair Oaks Boulevard
Marconi Avenue	Wright Street	Corabel Lane
Martin Luther King Jr. Blvd	35th Avenue	47th Avenue
Morse Avenue	Cottage Way	Maison Way
North River Way	Ashton Drive	American River Frontage
Old Winding Way	Winding Way	Fair Oaks Blvd
Orange Grove Avenue	Roseville Road	Palomino Lane
Orange Grove Avenue	Creek Road	Sycamore Ave
Palm Drive	Fair Oaks Boulevard	Panama Avenue
Pasadena Avenue	Orange Grove Avenue	Arcade Creek
Plumeria Avenue	West end of Plumeria Avenue	Fair Oaks Boulevard
Pope Avenue	Edison Avenue (extend westerly)	Watt Avenue

<b>Pedestrian District Segment</b>	<b>From</b>	<b>To</b>
Power Inn Road	Elsie Avenue	County Line (Elk Grove)
Rio Linda Boulevard	Elkhorn Boulevard	M Street
Roosevelt Avenue	44th Street	Stockton Boulevard
Roseville Road	1/4 Mi. So. of Orange Grove Ave	Madison Avenue
Sacramento Street	Watkins Drive	Fair Oaks Boulevard
Shangrilla Drive	Fair Oaks Boulevard	Dietz Way
Southwest Avenue	Nina Way	Stockton Boulevard
Stevenson Avenue	E. Stockton Boulevard	Neisa Way
Stockton Boulevard	Southwest Avenue	County Line near McMahon Dr.
Stockton Boulevard	County Line near Patterson Way	Elsie Ave
Sunset Avenue	Livoti Avenue	Tommar Drive
Sutter Avenue	Horton Lane	California Avenue
Watkins Drive	Sacramento Street	Fair Oaks Boulevard
Watt Avenue	Antelope Road / U Street	Roseville Road
Watt Avenue	Auburn Boulevard	Arden Way
Watt Avenue	Fair Oaks Boulevard	The American River
Winding Way	Hackberry Lane	Mary Lynn Lane
Winding Way	Sunrise Boulevard	Fair Oaks Boulevard

Commercial corridors are areas within Sacramento County for which roadway development may be required to exceed the standards described elsewhere in these Improvement Standards. The possible higher level of development standards for the affected roadways may include additional right-of-way, additional width of easements for public facilities and utilities, greater width of street roadways, wider sidewalks, additional landscaping features, additional street lighting, enhanced drainage facilities and improved streetscape features.

Additional time and coordination with County staff will be required to identify special development standards which may apply to specific projects located within the identified commercial corridors.

The following locations are designated as commercial corridors:

<b>Commercial Corridor Segment</b>	<b>From</b>	<b>To</b>
47 <sup>th</sup> Avenue	County Line (near Stockton Blvd.)	Martin Luther King Jr. Blvd.
65 <sup>th</sup> Street Expressway	County Line (Sac. City Limit)	Florin Road
Alta Arden Expressway	Wright Street	Watt Avenue
Arden Way	Hesket Way	El Nido Way
Auburn Blvd	County Line (near Kitty Lane)	Manzanita Avenue
Auburn Blvd	Howe Avenue	Pasadena Avenue
Calvine Rd	Golden State Highway (SR 99)	Short Road
El Camino Ave	Winsford Lane	Carmichael Way
El Camino Ave	Ethan Way	Butano Drive
Elsie Ave	Stockton Boulevard	Iona Way
Fair Oaks Blvd	Vine Grove Lane	Sunrise Boulevard

<b>Commercial Corridor Segment</b>	<b>From</b>	<b>To</b>
Fair Oaks Blvd	El Camino Avenue	Marshall Avenue
Fair Oaks Blvd	Howe Avenue	San Lucas Way
Fair Oaks Boulevard	Sun Tree Lane	Woodlake Hills Drive
Florin Road	Franklin Boulevard	Florin Perkins Road / French Rd.
Folsom Boulevard	Sunrise Boulevard	Aerojet Road
Folsom Boulevard	Watt Avenue	County Line (Rancho Cordova)
Franklin Boulevard	County Line (near 41st Avenue)	Florin Road
Fulton Avenue	Auburn Boulevard	Arden Way
Fulton Avenue	Fair Oaks Boulevard	Monroe Street
Greenback Lane	Fair Oaks Boulevard	County Line (East of Main Ave.)
Hazel Avenue	Fortuna Way	Cerezo Drive
Howe Avenue	Spanos Court	Fair Oaks Boulevard
Madison Avenue	Harrison Street	Hemlock Street
Madison Avenue	Almaden Way	1/8 Mile East of Fair Oaks Blvd.
Main Avenue	1/8 Mi. North of Orangevale Ave.	Madison Avenue
Manzanita Avenue	Bourbon Drive	Fair Oaks Boulevard
Power Inn Road	Junipero Street	Loucreta Drive
Stockton Boulevard	Southwest Avenue	County Line near McMahon Dr.
Stockton Boulevard	County Line near Patterson Way	66th Avenue
Stockton Boulevard	14 <sup>th</sup> Avenue	21 <sup>st</sup> Avenue
Sunrise Boulevard	Fair Oaks Boulevard	Winding Way
Watt Avenue	Antelope Road / U Street	I-80
Watt Avenue	Auburn Boulevard	Arden Way
Watt Avenue	San Lucas Way	La Riviera Drive

#### **4-24 PEDESTRIAN LANES**

Pedestrian lanes within a development shall be constructed with a minimum of 3-5/8 inches of Portland cement concrete on six inches of aggregate base for the full width of the easement, unless otherwise approved by the Director of County Engineering.

The maximum grade for pedestrian lanes shall be 5.0 percent. The minimum grade shall be 0.5 percent.

Pedestrian lanes, where situated between lots, shall be fenced from the street right of way to the back lot line. Fencing materials shall be decorative and shall be acceptable to the Director of County Engineering. Fences shall be 6 feet high from the building setback line to the back lot line and 36 inches high from the building setback line to the limit of the public easement area behind the back of sidewalk.

Cross fencing to control access shall be placed at the street ends of all pedestrian lanes in accordance with Standard Drawing 4-78.

All pedestrian lanes shall have lighting installed in accordance with Section 5-7(C).

#### **4-25 REPLACING CULVERTS**

The County will cooperate in the replacement of highway cross culverts for the same length as the existing culverts as follows (See Section 4-2):

- A. The entire cost for inflowing cross culverts to the property under development that must be replaced.
- B. The entire cost for out-flowing cross culverts if the existing culvert is of unsatisfactory size and has unsatisfactory grade.
- C. If the existing out-flowing cross culvert is to a satisfactory grade but unsatisfactory size, the County will pay for the cost of the pipe only.
- D. If the existing out-flowing cross culvert is of satisfactory size, the County will not participate in the cost to replace the culvert.
- E. The Sacramento County Water Agency Code allows for credit / reimbursement of certain truck drainage facilities, excluding culverts and bridges. Such credit / reimbursement will be by Agreement with the Water Agency.

#### **4-26 TRENCHING IN EXISTING PAVED ROADWAYS**

Crossings other than perpendicular crossings of existing roadways and all trenching in high traffic locations shall include the use of select backfill material and increased structural section depth over the standard for that particular roadway. Boring may be required on Arterial and Thoroughfare streets where, in the opinion of the Director of Transportation, high peak hour traffic volumes or other unusual conditions exist. The Developer may be required to coordinate trenching work schedules to avoid cutting new pavement in instances where repaving is planned by the County.

No pavement cuts or trenching will be permitted on any street that has been constructed or has been overlaid within the last three years. Special pavement replacement requirements exist for street cuts or trenching in streets that have been constructed or overlaid within a period of three to five years prior to the time of work. See Standard Drawing 4-64 for standard trench sections.

#### **4-27 TESTING OF MATERIAL**

Testing of materials to be utilized in work performed under the Standard Construction Specifications shall be performed in accordance with the methods of the Laboratory of the State of California, Department of Transportation. Signed

copies of the test results, as required, shall be submitted to the Director. Test results shall show the name of the individual and firm performing the tests, as well as the name of the project, the date of sampling, and the date of testing. Tests performed by the County Materials Laboratory will be charged to the Developer as part of inspection billing.

The tests indicated in the Standard Construction Specifications will be the minimum required. In large developments, or those developments presenting special problems, a more comprehensive and extensive testing program may be required. Such conditions will be evaluated and an appropriate testing program prescribed on an individual basis. Two copies of any Federal Housing Administration required soils tests shall be submitted with proposed improvement plans.

#### **4-28 STREET NAMES**

All roads and streets within a development shall be named by the Developer subject to the approval of the Director of County Engineering. No duplication of names already in use or previously proposed will be permitted. Sound-alike names or names with more than 13 characters (including word spaces) are not acceptable. Street names at intersections shall be continued on both sides of the intersecting streets.

Street name signs shall be furnished and erected by the Developer. Street name signs shall conform to the requirements of the Standard Construction Specifications, as shown on the Standard Drawings, and as specified in these Improvement Standards.

Block numbering shall be required on all street name signs.

Private roads that serve seven or more residences shall have street name signs installed in accordance with Section 4-29 below. Street name signs for private roads may be the same as for public streets (See Standard Drawing 4-70) except the words "Sacramento County" must be omitted. Also, a separate additional sign must be placed on the same post saying "Not a County Road" which shall be 9 inches wide, 8 inches high, and have 1-3/4 inch high black letter on a white background.

Private roads that serve two to six or residences shall have address numbers posted at the private road entry that are visible from both directions of vehicular travel on the public road. Block numbering, 4 inches in height minimum, shall be provided.

## **4-29 STREET SIGN LOCATION**

Street names and street name sign locations shall appear on plans submitted for approval. Sign shall be located in accordance with Standard Drawings 4-71, 4-72, and 4-73.

Street sign locations must also conform to the following:

- A. Two street name sign installations (with four sign plates on each post) are required at each intersection where one or both of the intersecting streets is an Arterial or Thoroughfare roadway. At a four-way intersection, the installations shall be located on both far right-hand corners of the intersection relative to the street having the greater right-of-way width, or relative to the street with the greater volume of daily vehicle traffic if right-of-way widths are equal.

At a "T" intersection, the first installation shall be located on the far right-hand corner of the intersection, relative to the through street, and the second installation shall be located adjacent to the through street at a point in line with the centerline of the terminating street. One sign plate should be omitted from the standard four-plate installation at the "T" intersection sign locations where an approach street does not exist.

- B. One street name sign installation (with four sign plates on each post) is required at each intersection where neither roadway is an Arterial or a Thoroughfare street. At a four-way intersection, the installation shall be located on one of the far right-hand corners of the intersection relative to the street having the greater right-of-way width or relative to street with the greater volume of daily vehicle traffic if the right-of-way widths are equal. At a "T" intersection, the installation shall be located on the far right-hand corner relative to the through street.
- C. For streets with frontage roads, the street name sign installations shall be located in the divider strip between the frontage road and the main traveled lanes of the roadway. All other requirements shall be as outlined above, except that only one sign will be required (in the divider strip in line with the centerline of the intersecting street) when there is no opening in the divider strip for access to the main roadway.
- D. Standard Drawings 4-71 through 4-73 show placement details for street name signs. The street name sign installations are to be located adjacent to the more important street, at the end of the curb return.
- E. Street name signs shall be placed on street light poles wherever possible, in accordance with Standard Drawings 4-73 and 4-74



- F. At signalized intersections, street name signs shall be placed on all four corners of four-legged intersections and on three corners on “T” intersections. Signs shall be suspended from traffic signal mast arms and be made using highly reflective sheeting. Letter size shall be 10-inch for upper case and 8-inch for lower case letters, Clearview 5-W-R font.

#### **4-30 TRAFFIC SIGNS**

The Developer shall be 100% responsible for the procurement and installation of all necessary traffic signs and pavement striping generated by their development. Traffic signs and pavement striping shall conform to the “Manual of Uniform Traffic Control Devices”, “MUTCD State of California Supplement”, and as required by the County’s Department of Transportation. A traffic signing and striping plan, if applicable, shall be included in the improvement plans submitted for approval by the County’s Department of Transportation. A striping plan is required for all developments on Collector, Major Collector, Arterial and Thoroughfare roadways because these streets have standard roadway striping (including striped bicycle lanes).

All cul-de-sac and dead-end (stub) streets greater than 300 feet in length and all cul-de-sac and dead-end (stub) streets less than 300 feet in length where the curb at the centerline of the end of the street is not visible from the standard driver's eye position at the entering intersection shall be posted with a standard 24" x 24" code W14-2 (No Outlet) sign. The bottom of the sign shall be a minimum of 7 feet above the sidewalk. The standard location for the W14-2 sign is on the right hand side at the tangent point of the corner rounding, 6 inches (minimum) from the back of sidewalk.

See Standard Drawings 4-75 and 4-76 for sign post embedment and sign height details.

#### **4-31 ROADWAY & SIDEWALK TERMINATION**

Where roadway improvements are terminated on a street planned to be extended in the future creating a stub street (a “dead end” road), the improvements shall include a street barricade at the end of the street extending completely across the right-of-way to prohibit access and to serve as a warning to the public. The barricade shall be constructed, erected, painted, and signed in accordance with Standard Drawing 4-63. If the stub street includes sidewalk, then the street barricade shall extend across the sidewalk area in addition to crossing the terminated roadway. Barricades for such roads shall be a combination of street and sidewalk barricades conforming to both Standard Drawings 4-61 and 4-63.

Gates may be required where streets stub into public park areas or other like areas.

If the stub street is 150 feet or longer, provisions for the turning around of emergency vehicles shall be provided at the end of the stub street. At a minimum, a cul-de-sac constructed with a radius of 33 feet measured from center of bulb to edge of pavement with the bulb signed for “no parking” shall be constructed. Other designs for the safe operation of emergency vehicles may be used subject to the approval of the Director of County Engineer and the local fire authority.

Timber barricades, in accordance with Standard Drawing 4-63, shall be required where partial street widening in excess of eight feet in roadway width terminates without conform to an existing roadway. The barricade is only required on the side of the street termination that faces traffic after the traffic passes the frontage of the development. If the ground beyond the pavement constriction is free of fixed objects and relatively flat, the Director of Transportation may approve the placement of delineators on 6-foot spacing as shown on Standard Drawing 4-62 in lieu of a timber barricade.

Where sidewalks end between intersections without continuity to an existing sidewalk, an AC sidewalk conform shall be provided so as to allow pedestrian access to the roadway shoulder beyond the limit of sidewalk construction. See Standard Drawings 4-58 and 4-59. At locations where sidewalks end between intersections without continuity to an existing sidewalk and a vertical drop off, such as a roadside ditch or a fill slope steeper than 1:20, will exist beyond the limit of sidewalk, then a sidewalk barricade shall be provided in addition to the AC sidewalk conform. See Standard Drawing 4-61.

#### **4-32 STREET TREES**

Permission to remove any tree in County right-of-ways or public easements shall be obtained from the Director of Transportation in advance. A Tree Removal Permit Encroachment Permit is required. All trees removed from within the ultimate right-of-way (including areas of public easements) shall be replaced with trees from the approved street tree list if required per the project conditions of approval or required by the Director.

Trees shall not be planted any closer than five feet from the back of sidewalks adjacent to County streets unless approved by the Director. If trees are approved to be planted closer than 5 feet, then a root control barrier shall be installed along the back of the sidewalk. A 20-foot wide panel shall be centered on the trunk of each tree planted. Root control panels adjacent to sidewalks shall be 24” deep minimum.

Root control panels are required around all sides of landscaped medians that include tree plantings. Root control panels are required around all sides of

landscaped buffer areas between curbing and sidewalk. Root control panels shall be 24” deep minimum.

Approved trees for planting in County rights-of-way and public easements are listed as follows (desired trees not listed may be planted with the approval of the Director of the Department of Transportation):

DECIDUOUS STREET TREES

<u>Botanical Name</u>	<u>Common Name</u>
Acer platanoides	Norway Maple
Acer platanoides "Crimson King"	Red Leaf Norway Maple
Acer platanoides "Deborah"	Deborah Maple
Acer rubrum	Red Maple
Acer rubrum "Autumn Flame"	Autumn Flame Maple
Acer rubrum "October Glory"	October Glory Maple
Acer rubrum "Red Sunset"	Red Sunset® Maple
Carpinus betulus	European Hornbeam
Carpinus betulus "Fastigiata"	Pyramidal European Hornbeam
Celtis occidentalis	Hackberry
Celtis sinensis	Chinese Hackberry
Fraxinus americana "Autumn Purple"	Autumn Purple Ash
Fraxinus uhdei	Evergreen Ash
Nyssa sylvatica	Tupelo/Sour Gum
Pistacia chinensis	Chinese pistache
Platanus acerifolia "Bloodgood"	London PlaneTree
Platanus acerifolia "Columbia"	Columbia PlaneTree
Platanus acerifolia "Yarwood"	London PlaneTree
Pyrus calleryana "Aristocrat"	Aristocrat
PearPyrus calleryana "Capital"	Capital Pear
Pyrus calleryana "Chanticleer"	Chanticleer Pear
Quercus cerris	Turkey Oak
Quercus coccinea	Scarlet Oak
Quercus lobata	Valley Oak
Quercus macrocarpa	Burr Oak
Quercus phellos	Willow Oak
Quercus robur	English Oak
Quercus rubra	Red Oak
Sapium sebiferum	Chinese Tallow Tree
Tilia americanaAmericana	American Linden

EVERGREEN STREET TREES

<u>Botanical Name</u>	<u>Common Name</u>
Laurus nobilis	Grecian Laurel
Magnolia grandiflora	Southern Magnolia

### EVERGREEN STREET TREES (continued)

<u>Botanical Name</u>	<u>Common Name</u>
Magnolia grandiflora "St. Mary's"	St. Mary's Magnolia
Quercus agrifolia	Coast Live Oak
Quercus ilex	Holly Oak
Quercus suber	Cork Oak
Quercus wislizenii	Interior Live Oak
Umbellularia California	California Bay

### CONIFER STREET TREES

<u>Botanical Name</u>	<u>Common Name</u>
Calocedrus decurrens	Incense Cedar
Pinus halepensis	Allepo Pine

### STREET TREES UNDER POWER LINES

<u>Botanical Name</u>	<u>Common Name</u>
Acer palmatum	Japanese Maple
Acer buergeranum	Trident Maple
Cercis occidentalis	Western Redbud
Cercis Canadensis	Eastern Redbud
Lagerstroemia indica (tree standard)	Crape Myrtle
Olea europae 'Fruitless'	Fruitless Olive
Prunus species (tree standard)	Flowering plums
Pyrus kawakamii	Evergreen Pear

## **4-33 FENCES**

The location for fences or walls along public streets shall conform to the requirements of the Sacramento County Zoning Code, Article 5: REGULATIONS PERTAINING TO WALLS AND FENCES. Fences or walls shall not encroach upon visibility easements required by Section 4-15 as well as Standard Drawings 4-16 and 4-18. All fences and walls are subject to the visibility requirements of the Sacramento County Code (Title 12). Fences and walls may require modification to accommodate street light poles and/or foundations.

## **4-34 PRIVATELY OWNED BRIDGE**

A bridge intended for the sole use of the occupants of a multi-family type development shall be located beyond the limits of the public right-of-way and beyond the limits of any adjoining public easements. Privately owned bridges shall be designed to withstand HS20-44 loading, unless specifically approved by the

Director of County Engineering for a lesser loading. Other design features of the bridge, including but not limited to widths, railings, clearances and materials shall be in conformance with County and State Standards. A soil report prepared by a qualified soil engineer will be required. Design calculations signed by the Consulting Engineer and including the registration number shall be required.

#### **4-35 VEHICLE ACCESS AT STREET TERMINATIONS**

Vehicular access to private property shall not be permitted from the end of a stubbed street. To obtain vehicular access to such properties, the street must be extended through the property or properly terminated with a standard cul-de-sac bulb.

#### **4-36 STRIPED CROSSWALKS**

Striped crosswalks shall be installed at all pedestrian crossings at intersections with traffic signals. Striped crosswalks may be installed at street intersections without traffic signals with the approval of the Director of the Department of Transportation and subject to the Department of Transportation's guidelines.

Striped crosswalks may also be installed at mid-block locations on roadways where high demand for pedestrian crossing is anticipated (adjacent to bus stops, near schools, adjacent to libraries, parks, shopping districts, etc.). All locations of mid-block crossings shall require approval of the Director of Transportation. Mid-block crossings of Arterial and Thoroughfare streets also require the installation of traffic signal controls.

Where a striped crosswalk leads to a sidewalk that is not at the same grade as the roadway surface, a sidewalk ramp conforming to Standard Drawings 4-50 thru 4-55, as applicable, shall be constructed. The terminal ends of the striped crosswalks shall be located such that the fully lowered portion of the associated sidewalk ramp, at the extension of the back of curb, is within the extension of the crosswalk stripes.

All installations of striped crosswalks shall result in crosswalks that have straight alignments, without any change in direction between the terminal ends of the crosswalks. Any modification to a corner return with an existing striped crosswalk shall not result in a change to the existing crosswalk that would introduce a change in direction within the crosswalk's alignment. Modification of a corner return with a crosswalk that exists with a "crooked" alignment, one with a change of direction within the limits of the crosswalk, shall include the necessary modifications to allow for the restriping of that crosswalk such that it will have a straight alignment.

New drain inlets shall be located such that they are a minimum of five feet clear of the location of any crosswalk. New drain inlets should be located on the upstream side of the corner return. Existing drain inlets that are within a crosswalk area

should be either relocated out of the crosswalk or modified such that the grate configuration and the surrounding grades for pavement and gutter meet ADA walkway requirements. If an existing drain inlet is proposed to remain in an area that will be a pedestrian pathway (within a crosswalk) and so is proposed to be modified to conform to ADA walkway requirements, then an additional drain inlet is to be placed in the vicinity of the existing inlet, outside of the crosswalk area so as to provide drain inlet capacity lost by the modification of the existing inlet.

If a new mid-block pedestrian crossing is proposed, modifications to the existing drainage system on the roadway may be required in order to accommodate the storm water flow in the gutters in the vicinity of the new pedestrian connections.

#### **4-37 PEDESTRIAN REFUGE AREAS**

Pedestrian Refuge Areas are locations within raised roadway medians for pedestrians to wait to assist them in crossing streets. Pedestrian Refuge Areas shall conform to the guidelines of the Department of Transportation and are subject to the approval of the Director of Transportation. In general, Pedestrian Refuge Areas may be considered for use at the following locations:

- Unsignalized mid-block locations on Major Collector streets that have raised medians and where frequent pedestrian crossings occur or are expected to occur;
- Unsignalized intersections on Major Collector streets that have raised medians extending across the intersection such that turn movements from the side streets that could conflict with the pedestrian movement are prohibited, and where frequent pedestrian crossings occur or are expected to occur;
- Unsignalized intersections on Arterial streets that have raised medians extending across the intersection such that turn movements from the side streets that could conflict with the pedestrian movement are prohibited, and where frequent pedestrian crossings occur or are expected to occur;
- Signalized mid-block locations on streets with raised medians; and
- Signalized intersections on Major Collector, Arterial and/or Thoroughfare streets where sufficient additional width exists within the raised median in the vicinity of crosswalk(s).

Pedestrian Refuge Areas shall conform to the geometry shown on Standard Drawing 4-37.

## SECTION 4 – STANDARD DRAWINGS, TABLE OF CONTENTS

<b>Drawing Number</b>	<b>Drawing Title</b>
4 – 1	Typical Sections, Residential Streets, Class A
4 – 2	Typical Sections, Arterial & Collector Streets, Class A
4 – 3	Typical Sections, Thoroughfare Streets and Frontage Roads, Class A
4 – 4	Typical Section, Class C Streets
4 – 5	Typical Sections, Class D Streets
4 – 6	Right-of-Way for Arterial Streets At Collector Street Intersections
4 – 7	Right-of-Way for Arterial Streets at Various Street Intersections
4 – 8	Right –of-Way for Thoroughfare Streets at Various Intersections
4 – 9	Typical Striping for Collector Streets at Major Street Intersections
4 – 10	Typical Striping for Arterial Streets at Intersections with Collector Streets with Bus Turnouts
4 – 11	Typical Striping for Arterial Streets at Intersections with Collector Streets without Bus Turnouts
4 – 12	Typical Striping for Arterial Streets at Intersections with Major Streets
4 – 13	Typical Striping for Thoroughfare Streets at Intersections with Collector Streets
4 – 14	Typical Striping for Thoroughfare Streets at Intersections with Major Streets
4 – 15	Cul-de-Sac
4 – 16	Elbow Intersection
4 – 17	Typical Median Geometry for Limiting Access
4 – 18	Visibility Restrictions at Driveways & Intersections
	4 – 19 through 4 – 29, Intentionally Left Blank
4 – 30	Sidewalk, Curb & Gutter Sections
4 – 31	Median Details
4 – 32	Concrete Joint Details
4 – 33	Barrier Curb Detail
4 – 34	Under Sidewalk Drain
4 – 35	Type A Driveway
4 – 36	Type B Driveway
4 – 37	Pedestrian Refuge Area
4 – 38	Residential Driveways Sections, Class A, Class C and Class D Streets
4 – 39	Alley Details
4 – 40	Cross Gutter

## SECTION 4 – STANDARD DRAWINGS, TABLE OF CONTENTS (CONTINUED)

<b>Drawing Number</b>	<b>Drawing Title</b>
4 – 41	Class C & D Street Intersection with Major Street
4 – 42	Pavement Widening Detail
4 – 43	Bus Turnouts
4 – 44	Bus Stop Details
	4 – 45 through 4 – 48, Intentionally Left Blank
4 – 49	Sidewalk Ramp Installation Detail, AC Conforms in Existing Pavement
4 – 50	Sidewalk Ramp Details, Plaza Style
4 – 51	Sidewalk Ramp Details, Parallel Style
4 – 52	Sidewalk Ramp Placement
4 – 53	Typical Curb Extension for Residential & Collector Streets
4 – 54	Sidewalk Ramp Details for Retrofit of Existing 4' Wide Sidewalks
4 – 55	Sidewalk Ramps at “T” Intersections for Arterial Streets & Thoroughfare Streets
4 – 56	Sidewalk Ramps at “T” Intersections for Residential Streets & Collector Streets
4 – 57	Pedestrian Landings at Class D Streets
4 – 58	Sidewalk Conforms
4 – 59	Sidewalk Conform, End of Separated Sidewalk
4 – 60	Sidewalk Flair at Utility Structure or Other Major Conflict
4 – 61	Sidewalk Barricade
4 – 62	Signing of Locations with Abrupt Change of Pavement Width
4 – 63	Street Closure Barricade
4 – 64	Trench Sections
	4 – 65 through 4 – 69, Intentionally Left Blank
4 – 70	Street Name Sign
4 – 71	Street Name Sign Location Requirements
4 – 72	Street Name Sign Placement Details on Wood Pole Installations
4 – 73	Street Name Placement Details on Street Light Pole Installations
4 – 74	Street Name Sign Installation on Street Light Pole
4 – 75	Sign Post Embedment Details, Pedestrian Areas
4 – 76	Sign Post Embedment Details, Non-Pedestrian Areas
4 – 77	Striping and Pavement Marking Details



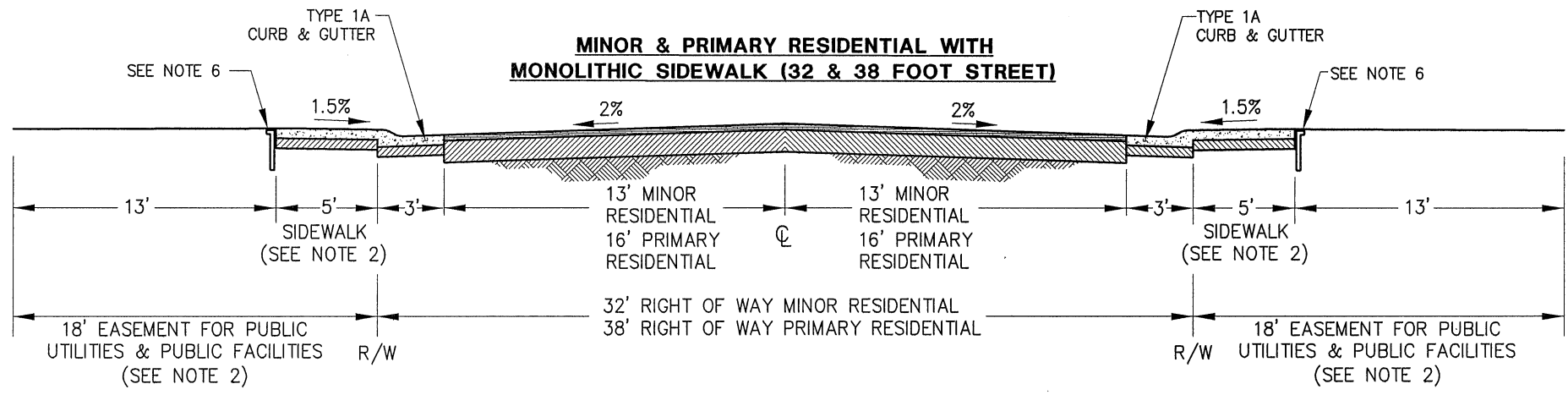
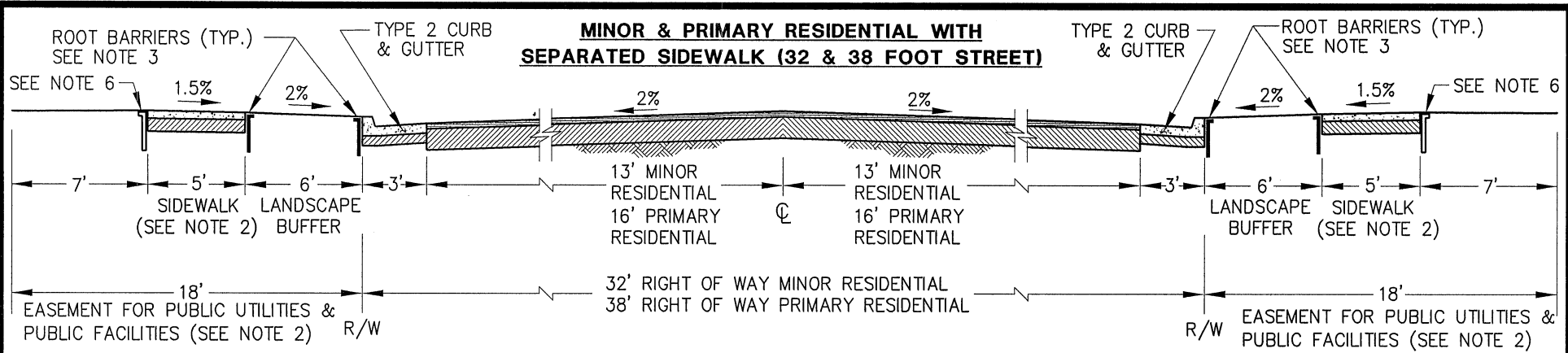
## SECTION 4 – STANDARD DRAWINGS, TABLE OF CONTENTS (CONTINUED)

<b>Drawing Number</b>	<b>Drawing Title</b>
4 – 78	Pedestrian Lane with Bike Barrier
	4 – 79, Intentionally Left Blank
4 – 80	Utility Pole Placement Locations Details
4 – 81	Utility Pole Placement Locations, Notes

## SECTION 4 – APPENDIX, STANDARD DRAWINGS, TABLE OF CONTENTS

The following drawings are only to be used on streets with attached sidewalks. Attached sidewalks may be used on Minor Residential and Primary Residential streets, or along street frontage of certain infill development projects (projects with less than three hundred feet of street frontage with existing substandard improvements on both sides of the proposed development). Use of these drawings at any other location requires written permission of either the Director of County Engineering or the Director of Transportation.

<b>Drawing Number</b>	<b>Drawing Title</b>
4 – A – 1	Typical Section, Residential Streets, Class B
4 – A – 2	Typical Sections, Arterial & Collector Streets, Class A
4 – A – 3	Typical Sections, Thoroughfare Streets & Frontage Roads, Class A
4 – A – 15	Cul-de-Sac
4 – A – 16	Elbow Intersection
4 – A – 18	Visibility Restrictions at Driveways & Intersections
4 – A – 33	Barrier Curb Detail
4 – A – 34	Under Sidewalk Drain
4 – A – 35	Type A Driveway
4 – A – 36	Type B Driveway
4 – A – 38	Typical Street Sections at Residential Driveways
4 – A – 39	Alley Details
4 – A – 50	Sidewalk Ramp Detail for Plaza Areas
4 – A – 52	Sidewalk Ramp Placement
4 – A – 56	Sidewalk Ramps at “T” Intersections for Residential Streets & Collector Streets
4 – A – 61	Sidewalk Barricade
4 – A – 72	Street Name Sign Placement Details on Wood Pole Installations
4 – A – 73	Street Name Sign Placement Detail on Street Light Pole Installations



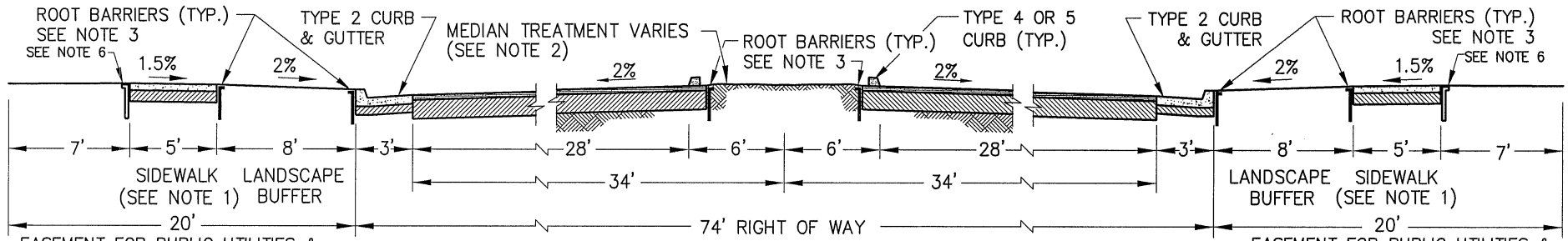
**NOTES:**

1. FOR MINOR RESIDENTIAL & PRIMARY RESIDENTIAL STREETS, THE STANDARD INSTALLATION INCLUDES ATTACHED (MONOLITHIC) SIDEWALK. AT THE DEVELOPER'S OPTION, SEPARATED SIDEWALK, AS SHOWN ABOVE, MAY BE USED.
2. SIDEWALK WIDTH SHALL BE 8' AND PUBLIC EASEMENT SHALL BE 21' AT SCHOOLS, HOSPITALS, AND PEDESTRIAN DISTRICTS AS SET FORTH IN SECTION 4-23 OF THE IMPROVEMENT STANDARDS.
3. 24" ROOT BARRIERS SHALL BE PLACED CONTINUOUSLY ON ALL SIDES OF LANDSCAPED BUFFERS.
4. LANDSCAPED BUFFER AREAS ARE FOR LANDSCAPING AND IRRIGATION FACILITIES. OTHER THAN FIRE HYDRANTS, COUNTY ROAD SIGNS, STREET LIGHTS, AND PERPENDICULAR CROSSINGS (SUCH AS SERVICE LATERALS) NO UTILITY FACILITIES (NOR COMMERCIAL SIGNS) SHALL BE INSTALLED IN LANDSCAPED BUFFER AREAS.
5. NO ABOVE GROUND FACILITY (CABINET, HYDRANT, POLE, SIGN, ETC.) SHALL BE INSTALLED IN SIDEWALK AREAS.
6. USE ROOT BARRIER ALONG BACK OF SIDEWALK FOR A LENGTH OF TWENTY FEET WHERE TREE TRUNK IS WITHIN FIVE FEET OF BACK OF SIDEWALK.

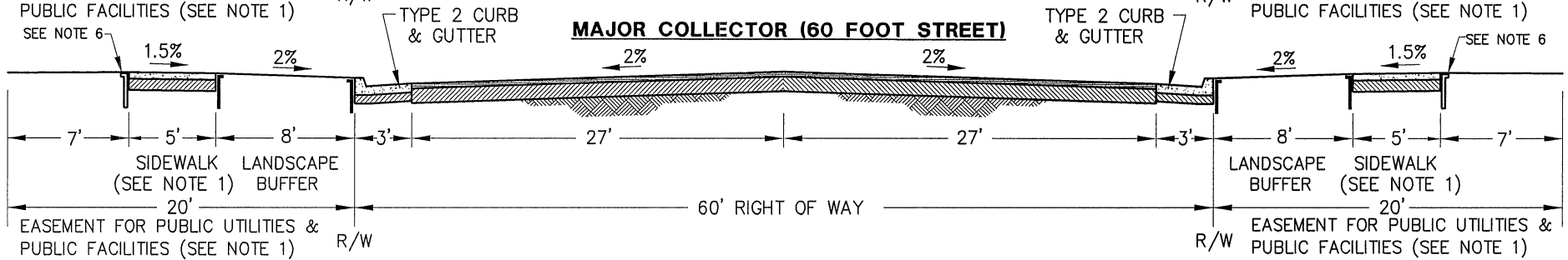
  
 CHIEF, DEPT. OF TRANSPORTATION

<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>TYPICAL SECTIONS RESIDENTIAL STREETS CLASS A</b>	
SCALE: NONE DATE: 05/29/09 DRAWN BY: B.R. & TRU P.	<b>4-1</b>

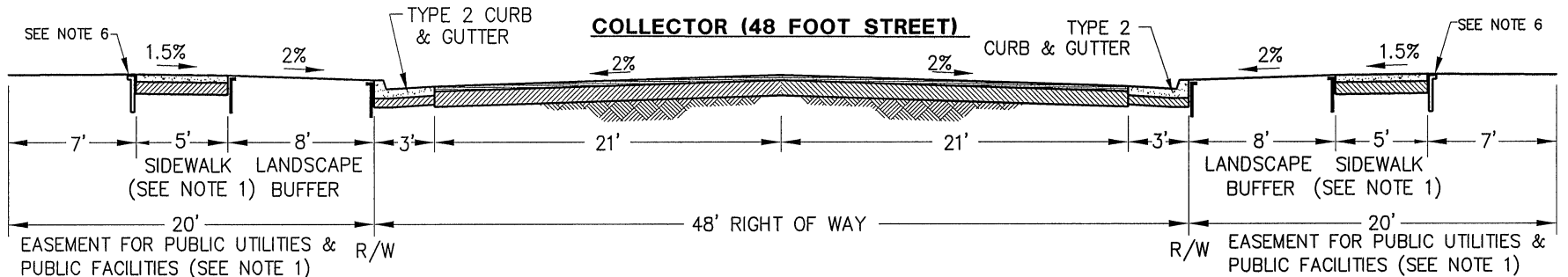
**ARTERIAL WITH MEDIAN (74 FOOT STREET)**



**MAJOR COLLECTOR (60 FOOT STREET)**




**COLLECTOR (48 FOOT STREET)**

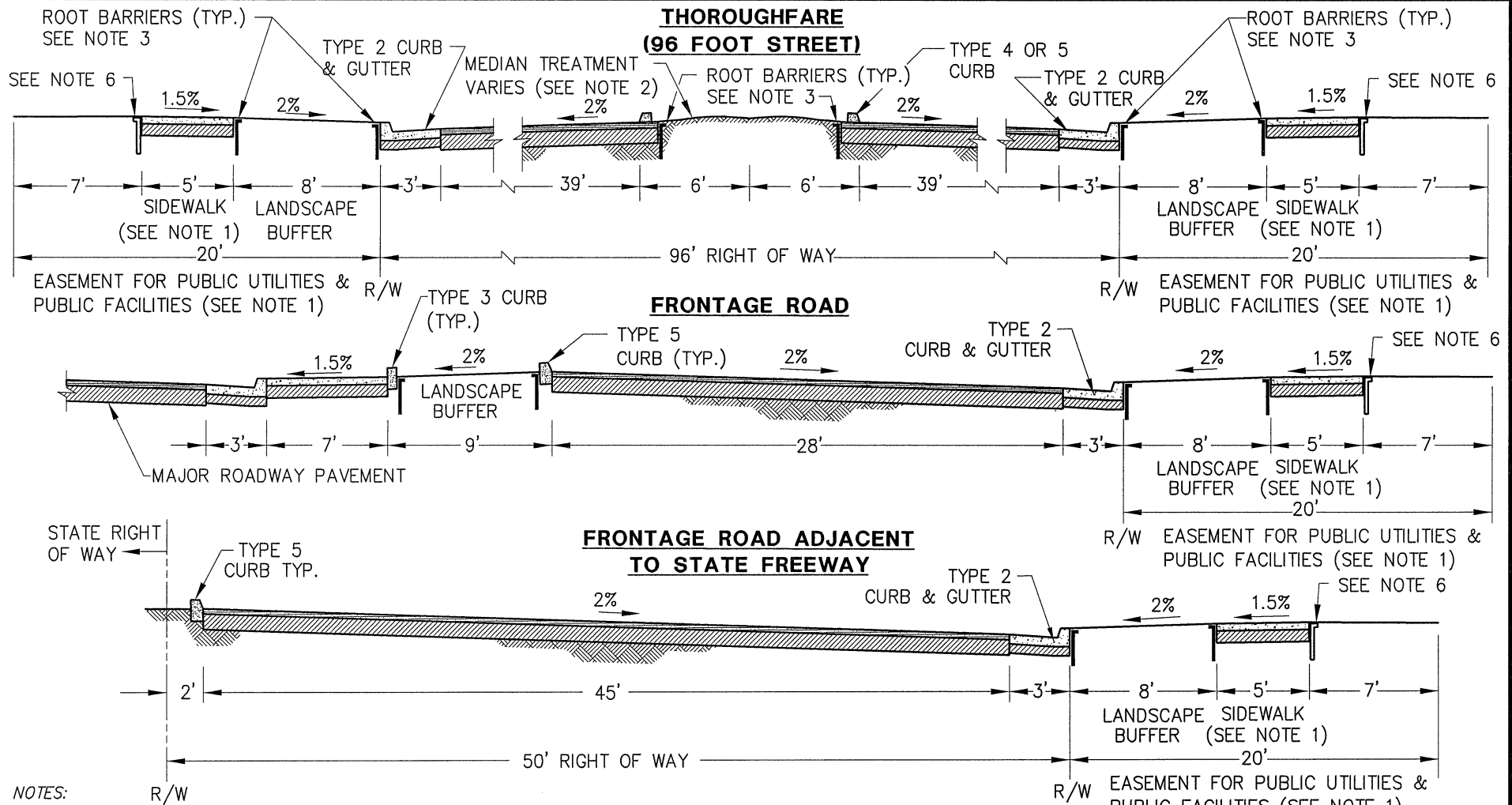


**NOTES:**

1. SIDEWALK WIDTH SHALL BE 8' AND PUBLIC EASEMENT SHALL BE 23' AT SCHOOLS, HOSPITALS, AND PEDESTRIAN DISTRICTS AS SET FORTH IN SECTION 4-23 OF THE IMPROVEMENT STANDARDS.
2. MEDIAN LANDSCAPING, IRRIGATION, AND FLATWORK SHALL MEET THE REQUIREMENTS OF THE DEPARTMENT OF TRANSPORTATION. USE OF CENTER TWO-WAY LEFT TURN LANE MAY BE USED IN LEU OF RAISED LANDSCAPE MEDIAN WITH WRITTEN PERMISSION FROM THE DIRECTOR OF THE DEPARTMENT OF TRANSPORTATION.
3. 24" ROOT BARRIERS SHALL BE PLACED CONTINUOUSLY ON ALL SIDES OF LANDSCAPED BUFFERS.
4. LANDSCAPED BUFFER AREAS ARE FOR LANDSCAPING AND IRRIGATION FACILITIES. OTHER THAN FIRE HYDRANTS, COUNTY ROAD SIGNS, STREET LIGHT, AND PERPENDICULAR CROSSINGS (SUCH AS SERVICE LATERALS) NO UTILITY FACILITIES (NOR COMMERCIAL SIGNS) SHALL BE INSTALLED IN LANDSCAPING BUFFER AREA.
5. NO ABOVE GROUND FACILITY (CABINET, HYDRANT, POLE, SIGN, ETC.) SHALL BE INSTALLED IN SIDEWALK AREA.
6. USE ROOT BARRIER ALONG BACK OF SIDEWALK FOR A LENGTH OF TWENTY FEET WHERE TREE TRUNK IS WITHIN FIVE FEET OF BACK OF SIDEWALK.

<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>TYPICAL SECTIONS ARTERIAL &amp; COLLECTOR STREETS, CLASS A</b>	
SCALE: NONE DATE: 06/08/09 DRAWN BY: B.R. & TRU P.	<b>4-2</b>

  
 CHIEF, DEPT. OF TRANSPORTATION



**NOTES:**

1. SIDEWALK WIDTH SHALL BE 8' AND PUBLIC EASEMENT SHALL BE 23' AT SCHOOLS, HOSPITALS, AND PEDESTRIAN DISTRICTS AS SET FORTH IN SECTION 4-23 OF THE IMPROVEMENT STANDARDS.
2. MEDIAN LANDSCAPING, IRRIGATION, AND FLATWORK SHALL MEET REQUIREMENTS OF THE DEPARTMENT OF TRANSPORTATION.
3. 24" ROOT BARRIERS SHALL BE PLACED CONTINUOUSLY ON ALL SIDES OF LANDSCAPED BUFFERS.
4. LANDSCAPED BUFFER AREAS ARE FOR LANDSCAPING AND IRRIGATION FACILITIES. OTHER THAN FIRE HYDRANTS, COUNTY ROADSIGNS, STREET LIGHTS, AND PERPENDICULAR CROSSINGS (SUCH AS SERVICE LATERALS) NO UTILITY FACILITIES (NOR COMMERCIAL SIGNS) SHALL BE INSTALLED IN LANDSCAPED BUFFER AREAS.
5. NO ABOVE GROUND FACILITY (CABINET, HYDRANT, POLE, SIGN, ETC.) SHALL BE INSTALLED IN SIDEWALK AREAS.
6. USE ROOT BARRIER ALONG BACK OF SIDEWALK FOR A LENGTH OF TWENTY FEET WHERE TRUNK IS WITHIN THE FIVE FEET OF BACK OF SIDEWALK.

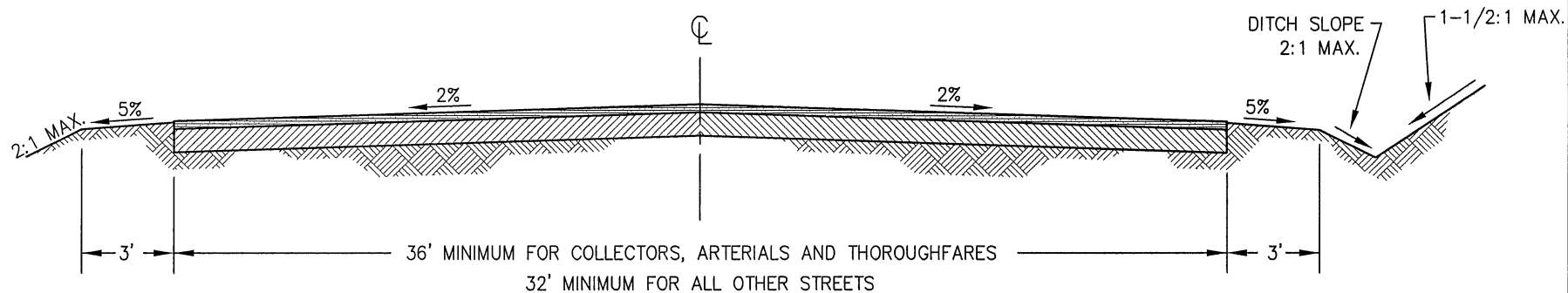
**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**TYPICAL SECTIONS  
THOROUGHFARE STREETS  
AND FRONTAGE ROADS  
CLASS A**

SCALE: NONE DATE: 06/08/09 DRAWN BY: B.R. & TRU P.	4-3
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 CHIEF, DEPT. OF TRANSPORTATION

**CLASS C STREET**



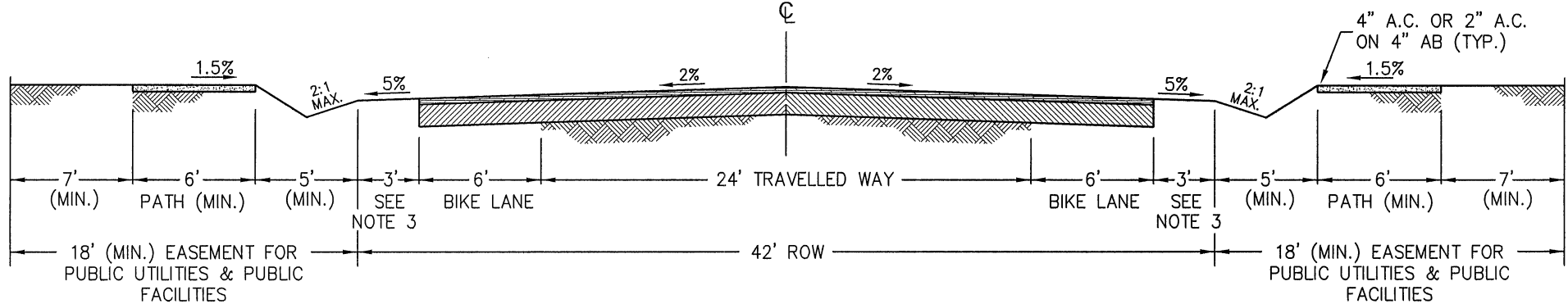
COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY

TYPICAL SECTION  
CLASS C STREETS

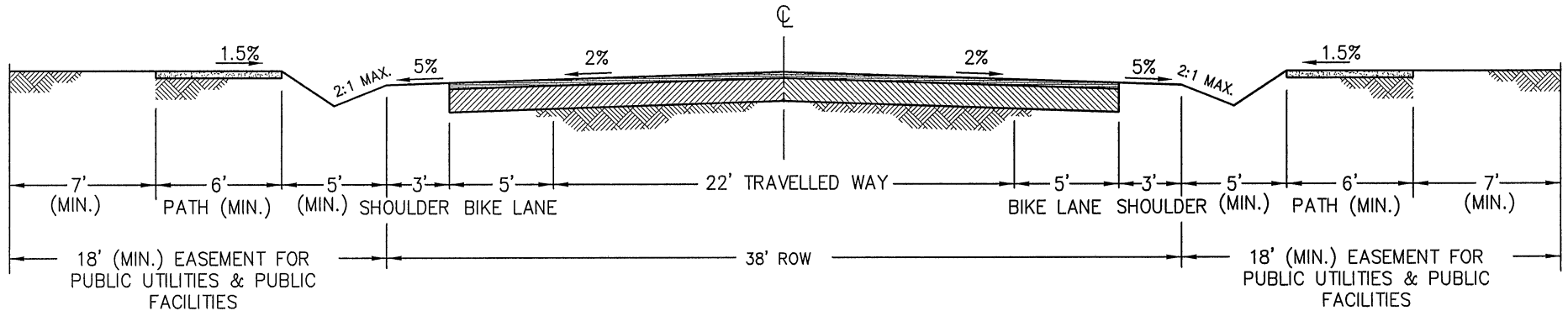
SCALE: NONE  
DATE: 06/08/09  
DRAWN BY: TRU P.

  
CHIEF, DEPT. OF TRANSPORTATION

**CLASS D STREET  
GREATER THAN 40 MPH (see NOTE 2)**



**CLASS D STREET  
40 MPH OR LESS (see NOTE 2)**



**NOTES:**

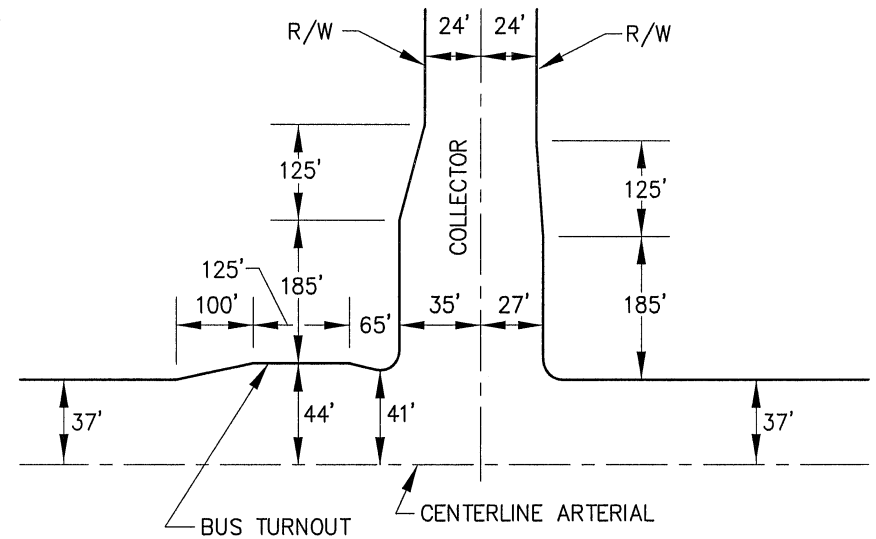
1. USE CLASS D ON ALL STREETS THAT ARE WITHIN THE URBAN SERVICE BOUNDARY AND ARE ZONED AR-1, AR-2, RD1, RD2 AND NOT OTHERWISE REQUIRED TO HAVE CLASS A STREET IMPROVEMENTS.
2. POSTED SPEED LIMIT. IF NO POSTED SPEED LIMIT MAY USE THE LESSOR OF 85TH PERCENTILE SPEED OR PRIMA FACIA SPEED LIMIT.
3. THREE FOOT DIRT SHOULDER MAY BE REDUCED OR ELIMINATED IF FULL DEPTH AC IS USED IN ROAD CONSTRUCTION.
4. FOR INTERSECTION GEOMETRY OF CLASS D ROADWAYS SEE STANDARD DRAWING 4-41 & 4-57.

<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>TYPICAL SECTIONS CLASS D STREETS</b>	
SCALE: NONE	<b>4-5</b>
DATE: 07/15/09 DRAWN BY: TRU P. & B.R.	

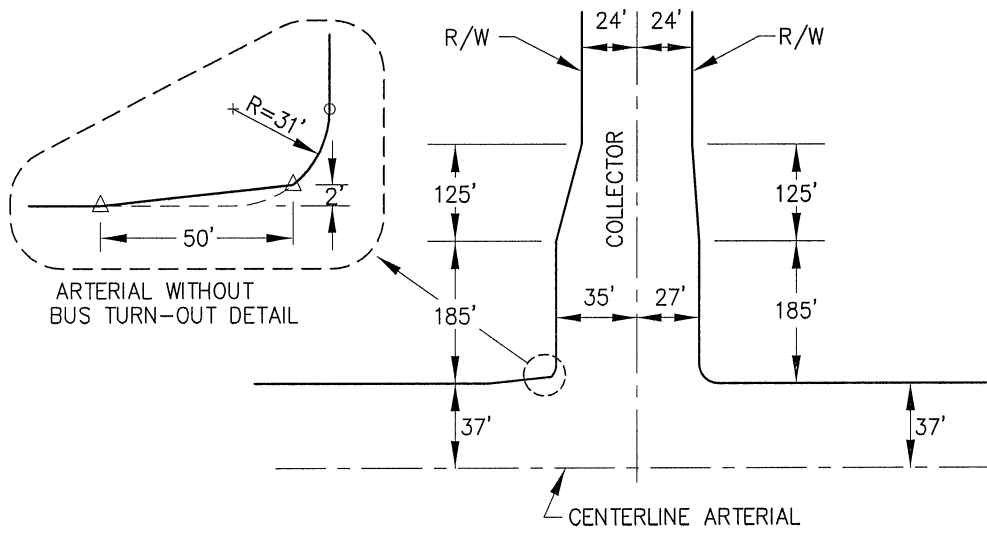
  
 CHIEF, DEPT. OF TRANSPORTATION

NOTES:

1. RIGHT OF WAY IS MEASURED TO THE STANDARD BACK OF CURB LOCATION.
2. RADIUS AT CORNERS IS 31'.
3. FOR BUS TURNOUT DIMENSIONS, SEE DRAWING 4-43.
4. PUBLIC EASEMENTS PER STANDARD DRAWINGS 4-2 & 4-3.



**WITH BUS TURNOUT**



**WITHOUT BUS TURNOUT**

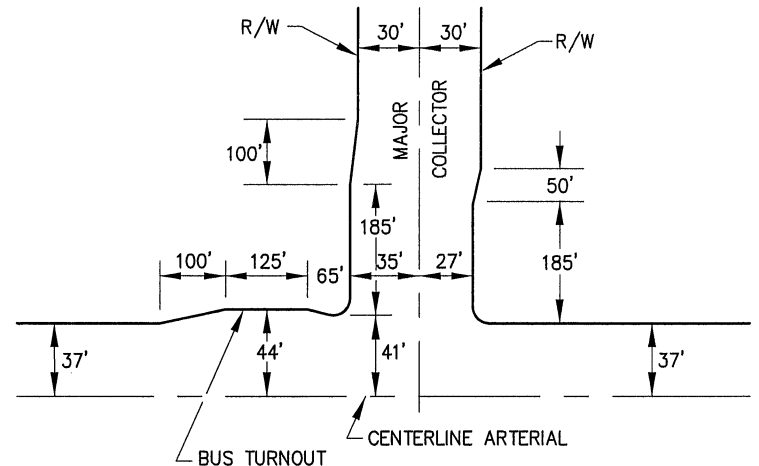
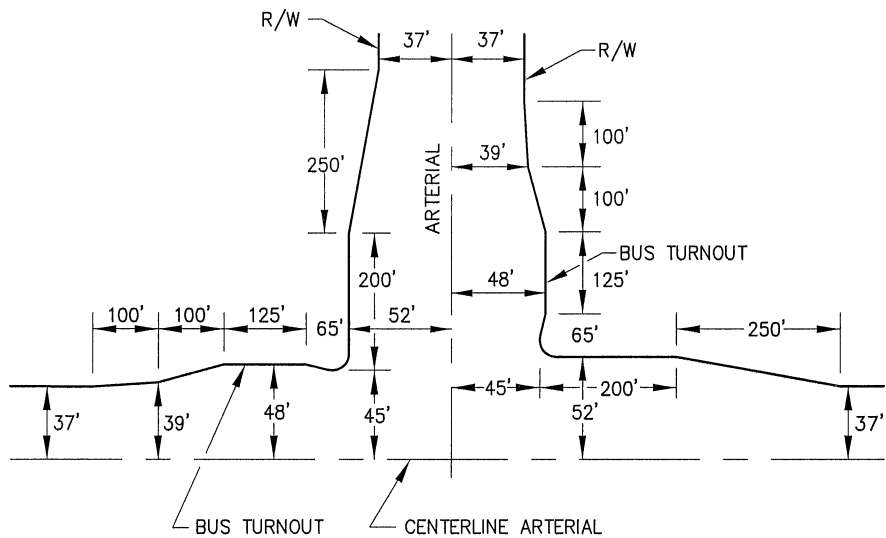
COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY

RIGHT-OF-WAY FOR ARTERIAL  
STREETS AT COLLECTOR  
STREET INTERSECTIONS

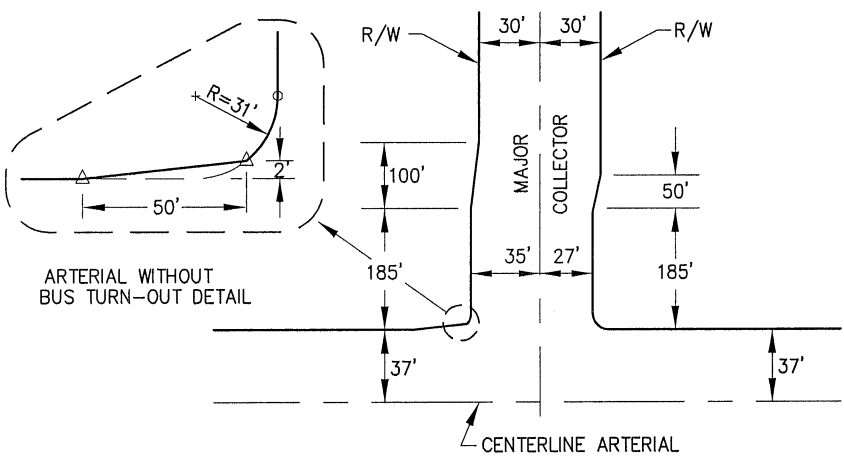
SCALE: NONE  
DATE: 06/08/09  
DRAWN BY: TRU P.

**4-6**

*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION



**WITH BUS TURNOUT**



**WITHOUT BUS TURNOUT**

**NOTES:**

1. RIGHT OF WAY IS MEASURED TO THE STANDARD BACK OF CURB LOCATION.
2. RADIUS AT CORNERS IS 31'.
3. FOR BUS TURNOUT DIMENSIONS, SEE DRAWING 4-43.
4. PUBLIC EASEMENTS PER STANDARD DRAWINGS 4-1 TO 4-4.

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

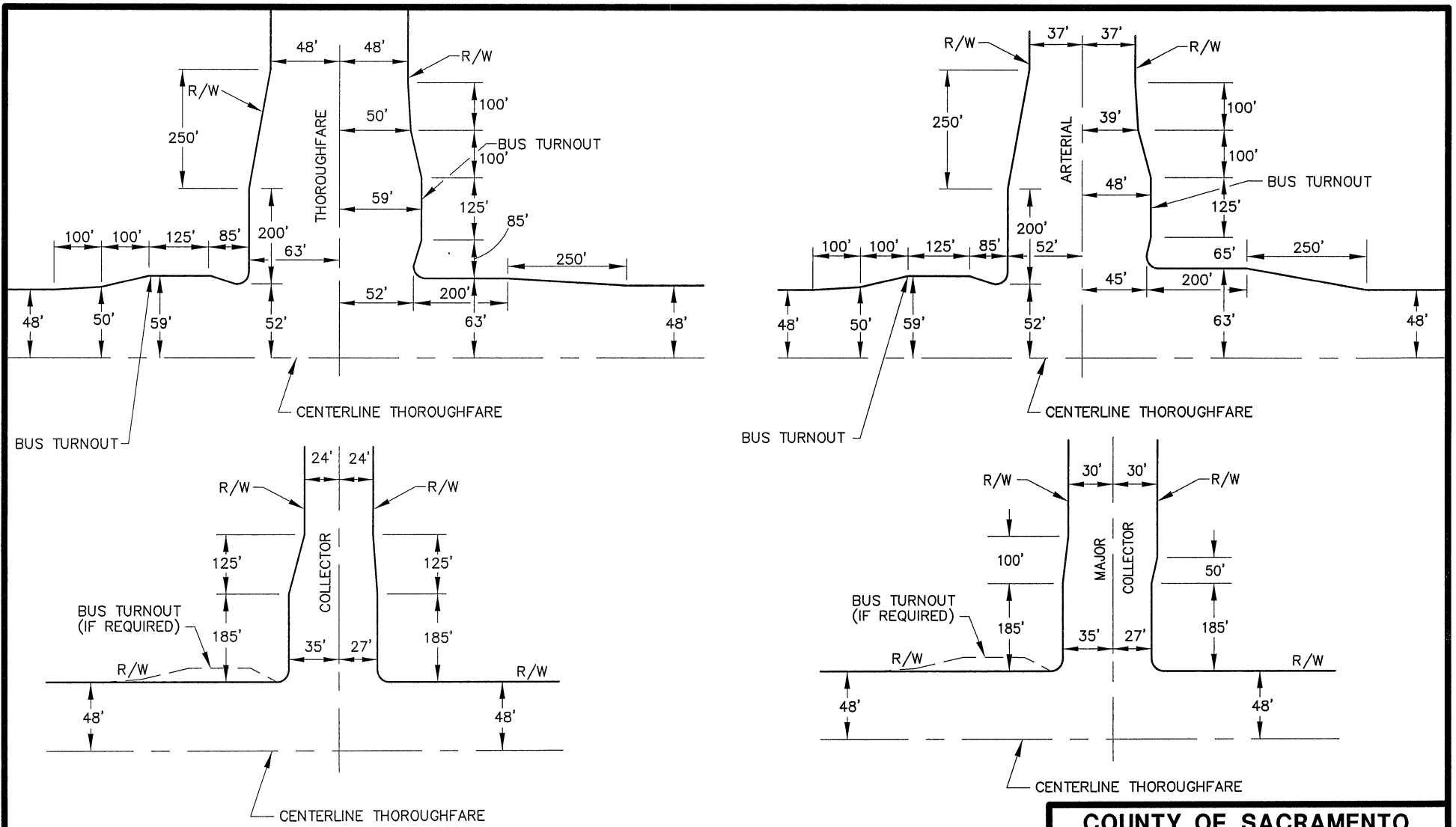
**RIGHT-OF-WAY FOR  
ARTERIAL STREETS AT VARIOUS  
STREET INTERSECTIONS**

SCALE: NONE  
DATE: 06/08/09  
DRAWN BY: TRU P.

**4-7**

*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION



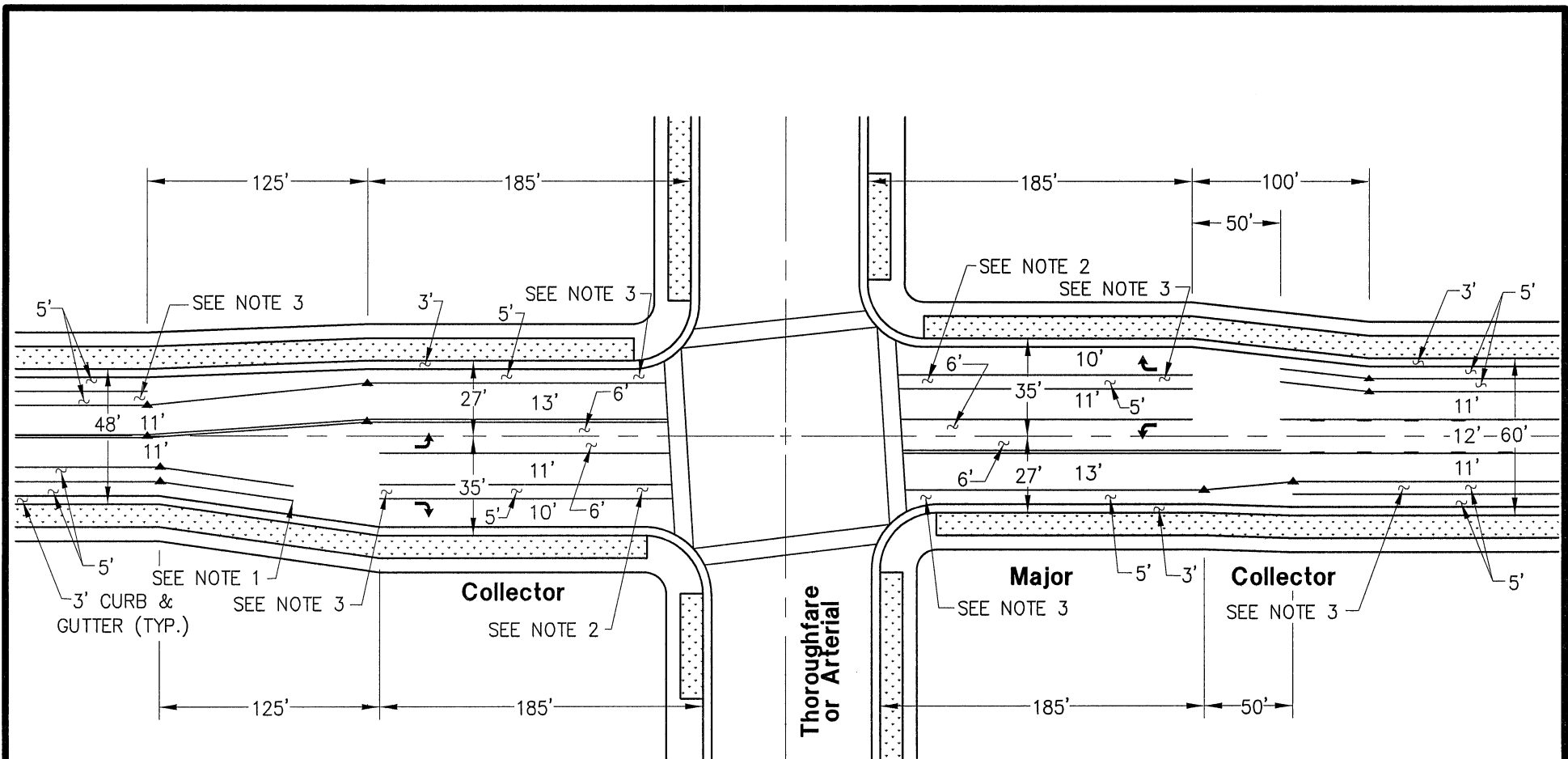


**NOTES:**

1. RIGHT OF WAY IS MEASURED TO THE STANDARD BACK OF CURB LOCATION.
2. RADIUS AT CORNERS IS 31'.
3. FOR BUS TURNOUT DIMENSIONS, SEE DRAWING 4-43.
4. PUBLIC EASEMENTS PER STANDARD DRAWINGS 4-1 TO 4-4.

  
 CHIEF, DEPT. OF TRANSPORTATION

<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>RIGHT-OF-WAY FOR THOROUGHFARE STREETS AT VARIOUS INTERSECTIONS</b>	
SCALE: NONE DATE: 07/15/09 DRAWN BY: TRU P.	<b>4-8</b>

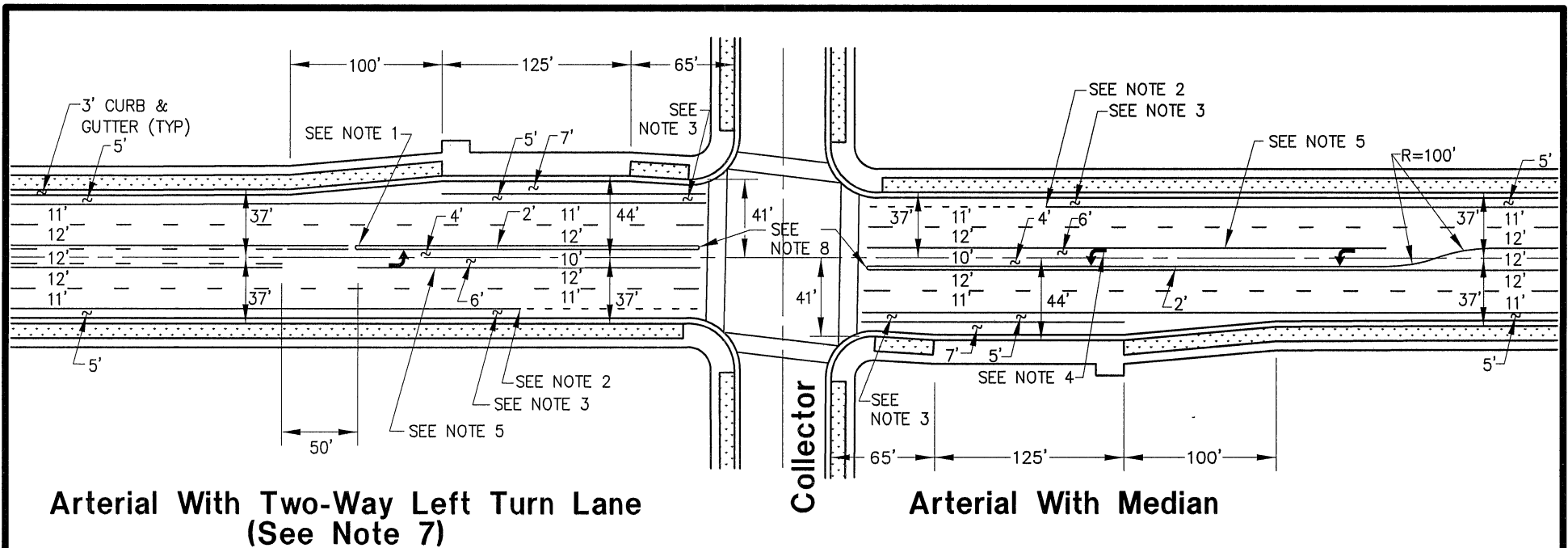


NOTES:

1. BIKE LANE STRIPE TO BE DISCONTINUED 50' FROM RIGHT-TURN LANE AND RESUMED AT BEGINNING OF RIGHT-TURN-ONLY LANE.
2. INSTALL BICYCLE LOOP DETECTOR SYMBOL OVER DETECTOR LOCATIONS, 3' CLEAR OF STOP BAR.
3. INSTALL "BIKE", "LANE" AND "→" PAVEMENT LEGENDS AT THE FOLLOWING LOCATIONS:
  - APPROXIMATELY 10' PAST CROSSWALKS;
  - AT 10' PAST START OF BICYCLE LANE ADJOINING RIGHT-TURN LANES.
4. STRIPE DIMENSIONS ARE TO CENTERLINE OF STRIPES OR LIP OF GUTTER. STREET WIDTH DIMENSIONS ARE TO BACK OF CURB.

CHIEF, DEPT. OF TRANSPORTATION

<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>TYPICAL STRIPING FOR COLLECTOR STREETS AT MAJOR STREET INTERSECTIONS</b>	
SCALE: NONE DATE: 06/08/09 DRAWN BY: TRU P.	<b>4-9</b>



**Arterial With Two-Way Left Turn Lane  
(See Note 7)**

**Arterial With Median**

**NOTES:**

1. END OF RAISED MEDIAN MAY BE MOVED AS NECESSARY FOR DRIVEWAY LOCATIONS. SEE IMPROVEMENT STANDARD SECTION 4-11(L).
2. BIKE LANE STRIPING TO BE DASHED BEGINNING 120' FROM STOP BAR.
3. INSTALL "BIKE", "LANE", AND "→" PAVEMENT LEGENDS AT THE FOLLOWING LOCATIONS:
  - APPROXIMATELY 10' PAST CROSSWALKS;
  - BEFORE START OF DASHED BICYCLE LANE STRIPING.
4. INSTALL ADDITIONAL LEFT-TURN ARROW MIDWAY IN THE LENGTH OF THE TURN LANE IF IT EXCEEDS 250'.
5. LENGTH OF TURN POCKET IS TO BE SIZED ACCORDING TO TRAFFIC NEEDS, 180' MINIMUM 300' MAXIMUM. SEE 3-10 (H) OF DEPARTMENT OF TRANSPORTATION DESIGN PRACTICE GUIDE.
6. STRIPE DIMENSIONS ARE TO CENTERLINE OF STRIPES OR LIP OF GUTTER. STREET WIDTH DIMENSIONS ARE TO BACK OF CURB.
7. USE OF TWO WAY LEFT TURN LANE ON ARTERIAL STREETS, INSTEAD OF RAISED CENTER MEDIAN, REQUIRES WRITTEN PERMISSION OF THE DIRECTOR OF THE DEPARTMENT OF TRANSPORTATION.
8. MEDIAN END SET BACK 5' FROM CROSSWALK. INSTALL 5' OF DOUBLE YELLOW STRIPING BETWEEN MEDIAN END AND CROSSWALK.

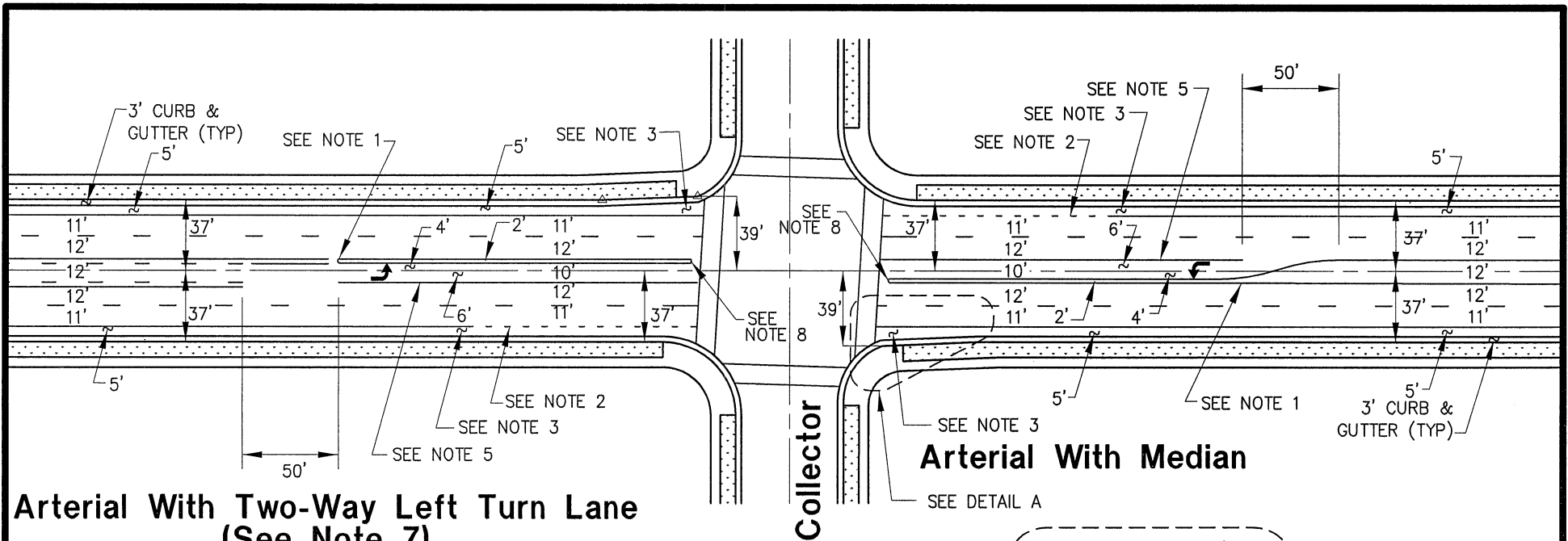
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**TYPICAL STRIPING FOR ARTERIAL  
STREETS AT INTERSECTIONS  
WITH COLLECTOR STREETS  
WITH BUS TURNOUTS**

SCALE: NONE  
DATE: 06/08/09  
DRAWN BY: TRU P. & B.R.

**4-10**



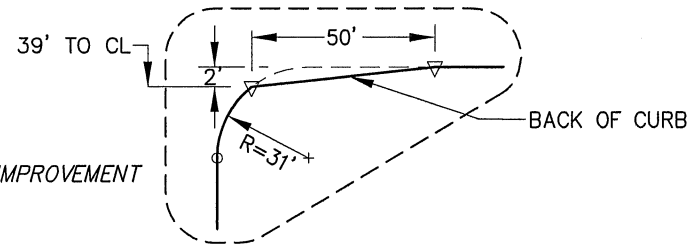
**Arterial With Two-Way Left Turn Lane  
(See Note 7)**

**Arterial With Median**

**Collector**

**NOTES:**

1. END OF RAISED MEDIAN MAY BE MOVED AS NECESSARY FOR DRIVEWAY LOCATIONS. SEE IMPROVEMENT STANDARD SECTION 4-11(L).
2. BIKE LANE STRIPING TO BE DASHED BEGINNING 120' FROM STOP BAR.
3. INSTALL "BIKE", "LANE", AND "→" PAVEMENT LEGENDS AT THE FOLLOWING LOCATIONS:
  - APPROXIMATELY 10' PAST CROSSWALKS;
  - BEFORE START OF DASHED BICYCLE LANE STRIPING.
4. INSTALL ADDITIONAL LEFT-TURN ARROW MIDWAY IN THE LENGTH OF THE TURN LANE IF IT EXCEEDS 250'.
5. LENGTH OF TURN POCKET IS TO BE SIZED ACCORDING TO TRAFFIC NEEDS, 180' MINIMUM 300' MAXIMUM. SEE 3-10 (H) OF DEPARTMENT OF TRANSPORTATION DESIGN PRACTICE GUIDE.
6. STRIPE DIMENSIONS ARE TO CENTERLINE OF STRIPES OR LIP OF GUTTER. STREET WIDTH DIMENSIONS ARE TO BACK OF CURB.
7. USE OF TWO WAY LEFT TURN LANE ON ARTERIAL STREETS, INSTEAD OF RAISED CENTER MEDIAN, REQUIRES WRITTEN PERMISSION OF THE DIRECTOR OF THE DEPARTMENT OF TRANSPORTATION.
8. MEDIAN END SET BACK 5' FROM CROSSWALK. INSTALL 5' OF DOUBLE YELLOW STRIPING BETWEEN MEDIAN END AND CROSSWALK.



**Detail A**

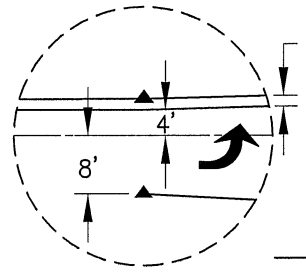
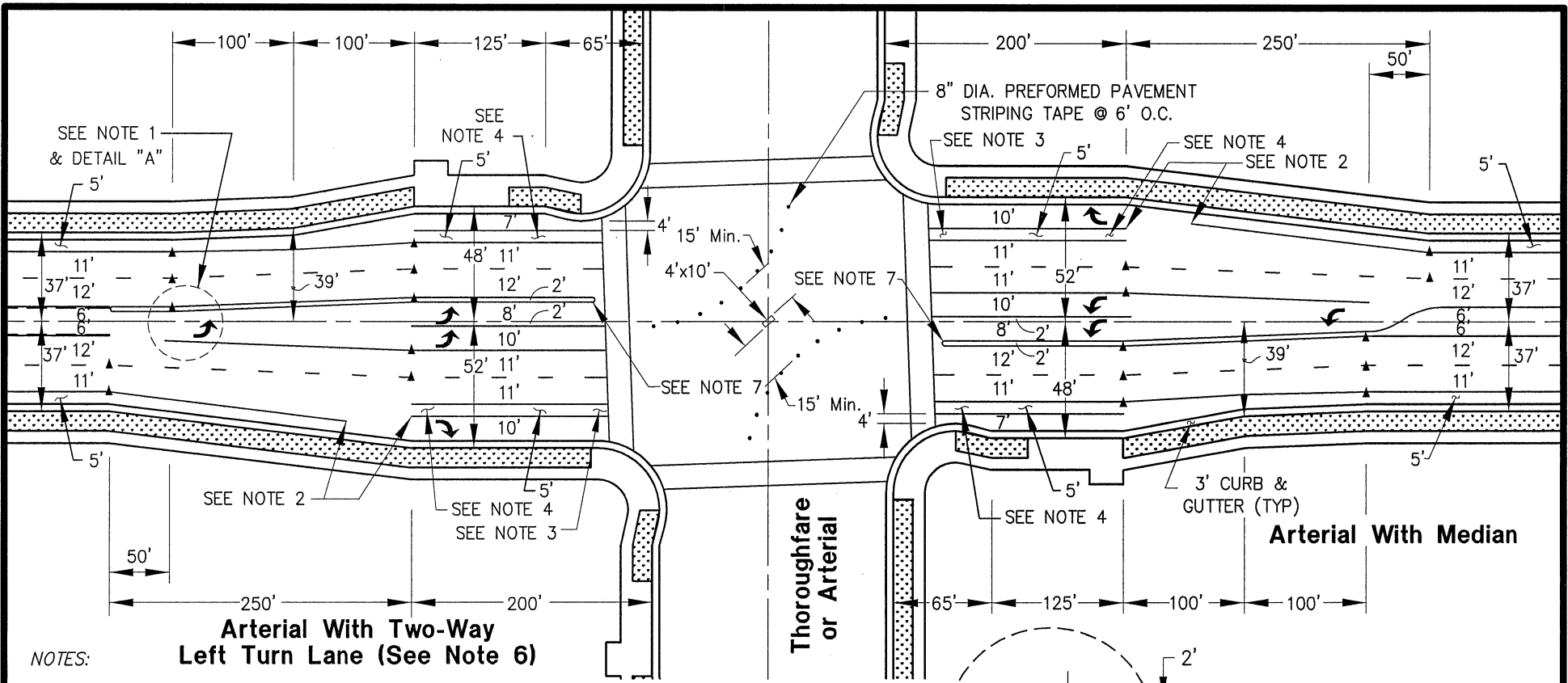
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**TYPICAL STRIPING FOR ARTERIAL  
STREETS AT INTERSECTIONS  
WITH COLLECTOR STREETS  
WITHOUT BUS TURNOUTS**

SCALE: NONE  
DATE: 06/08/09  
DRAWN BY: TRU P. & B.R.

**4-11**



**NOTES:**

1. END OF RAISED MEDIAN MAY BE EXTENDED AS NECESSARY FOR DRIVEWAY LOCATIONS. SEE IMPROVEMENT STANDARD SECTION 4-11(L).
2. BIKE LANE STRIPE TO BE DISCONTINUED FIFTY FEET FROM START OF RIGHT-TURN LANE AND RESUMED AT BEGINNING OF RIGHT-TURN ONLY LANE.
3. INSTALL BICYCLE LOOP DETECTOR SYMBOL OVER DETECTOR LOCATIONS, TYPICALLY THREE FEET BACK OF STOP BAR.
4. INSTALL "BIKE", "LANE" AND "→" PAVEMENT LEGENDS AT THE FOLLOWING LOCATIONS:
  - APPROXIMATELY 10' PAST CROSSWALKS;
  - AT 10' PAST START OF BICYCLE LANE ADJOINING RIGHT-TURN LANES.
5. STRIPE DIMENSIONS ARE TO CENTERLINE OF STRIPES OR LIP OF GUTTER. STREET WIDTH DIMENSIONS ARE TO BACK OF CURB.
6. USE OF TWO WAY LEFT TURN LANE ON ARTERIAL STREETS, INSTEAD OF RAISED CENTER MEDIAN, REQUIRES WRITTEN PERMISSION OF THE DIRECTOR OF THE DEPARTMENT OF TRANSPORTATION.
7. MEDIAN END SET BACK 5' FROM CROSSWALK. INSTALL 5' OF DOUBLE YELLOW STRIPING BETWEEN MEDIAN END AND CROSSWALK.

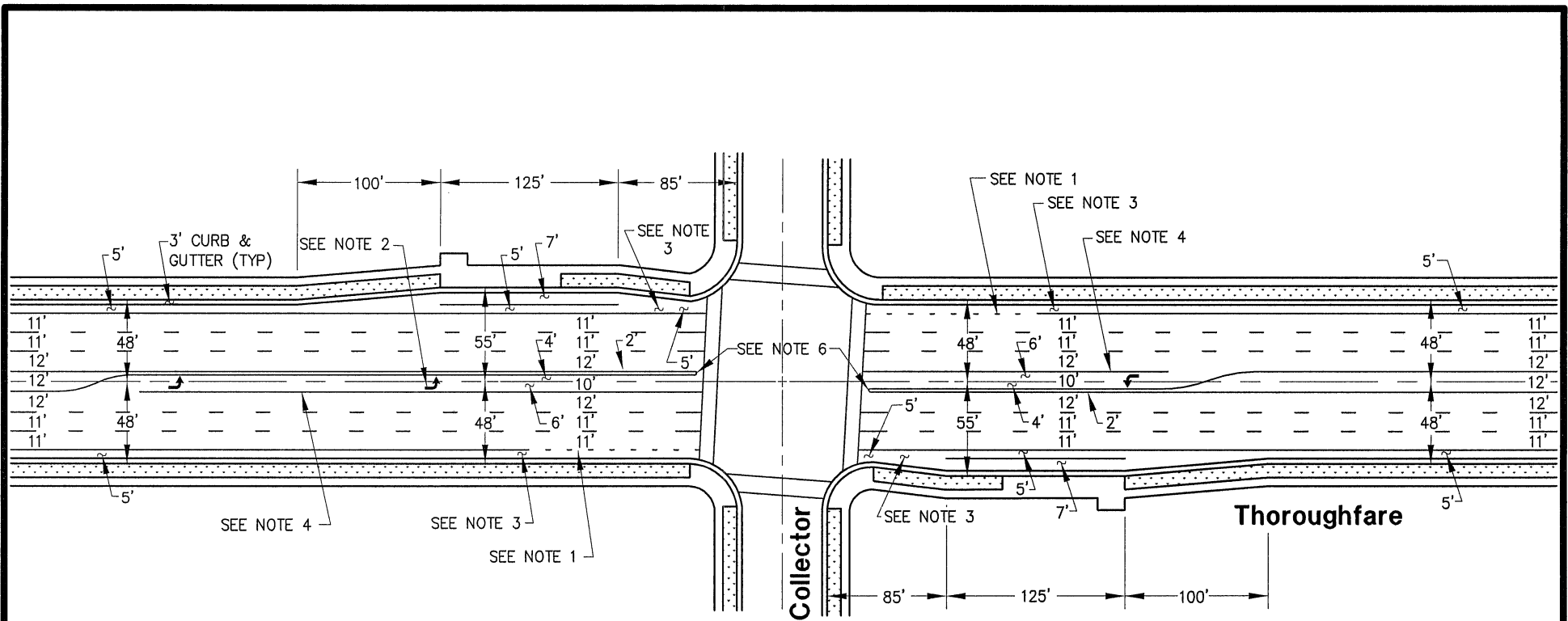
  
 CHIEF, DEPT. OF TRANSPORTATION

**Detail "A"**

**COUNTY OF SACRAMENTO  
 MUNICIPAL SERVICES AGENCY**

**TYPICAL STRIPING FOR  
 ARTERIAL STREETS AT  
 INTERSECTIONS WITH  
 MAJOR STREETS**

SCALE: NONE DATE: 03/05/09 DRAWN BY: TRU P. & B.R.	<b>4-12</b>
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**NOTES:**

1. BIKE LANE STRIPE TO BE DASHED BEGINNING 120' FROM STOP BAR.
2. INSTALL ADDITIONAL LEFT TURN ARROW MIDWAY IN THE LENGTH OF THE TURN LANE IF IT EXCEEDS 250'.
3. INSTALL "BIKE", "LANE" AND "➡" PAVEMENT LEGENDS AT THE FOLLOWING LOCATIONS:
  - APPROXIMATELY 10' PAST CROSSWALKS;
  - BEFORE START OF DASHED BICYCLE LANE STRIPING IF INTERSECTION IS SIGNALIZED.
4. LENGTH OF TURN POCKET IS TO BE SIZED ACCORDING TO TRAFFIC NEEDS, 180' MINIMUM 300' MAXIMUM. SEE 3-10 (H) OF TRANSPORTATION DIVISION DESIGN PRACTICE GUIDE.
5. STRIPE DIMENSIONS ARE TO CENTERLINE OF STRIPES OR LIP OF GUTTER. STREET WIDTH DIMENSIONS ARE TO BACK OF CURB.
6. MEDIAN END TO BE SET BACK 5' FROM CROSSWALK. INSTALL 5' OF DOUBLE YELLOW STRIPING BETWEEN MEDIAN END AND CROSSWALK.

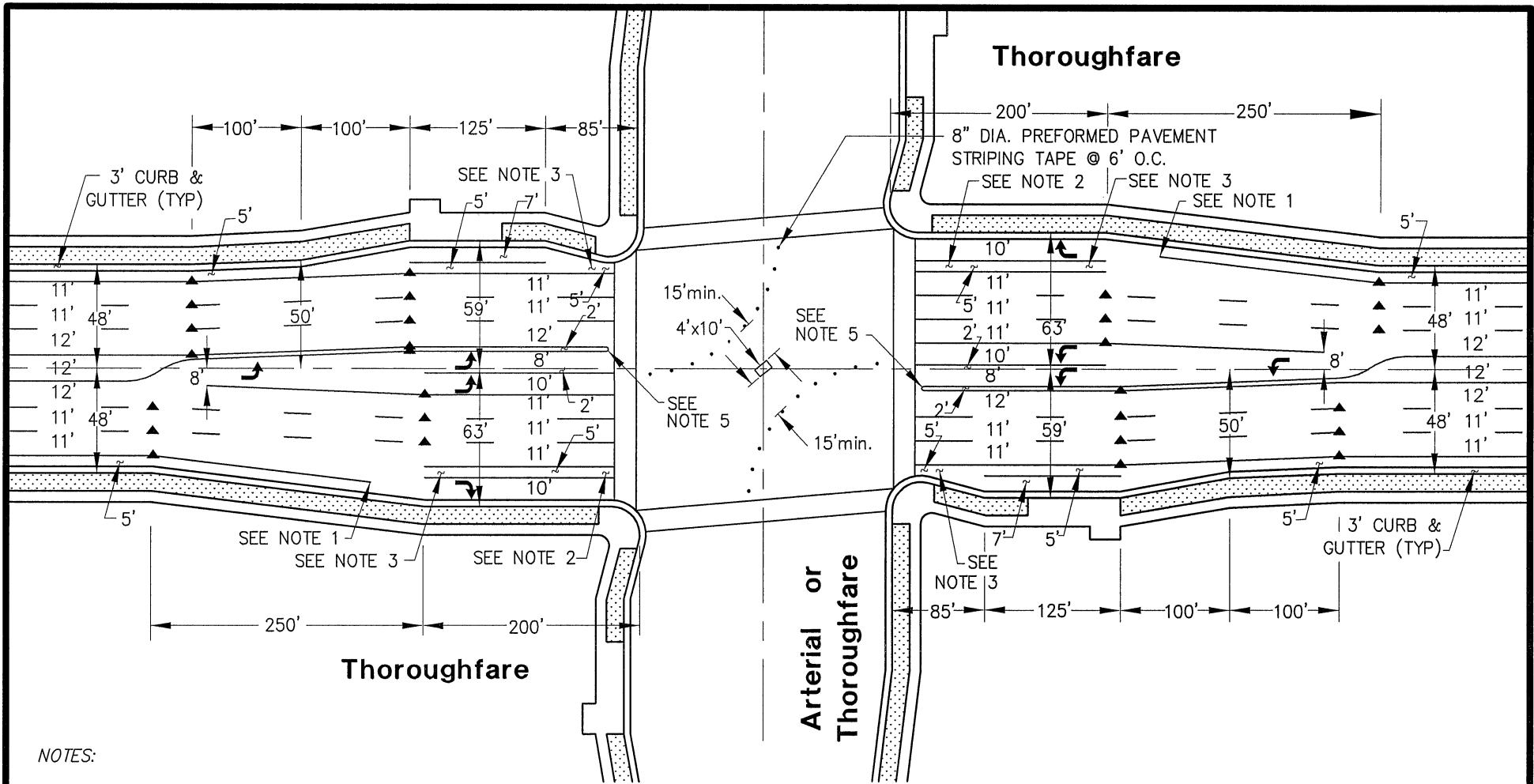
  
 CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**TYPICAL STRIPING FOR  
THOROUGHFARE STREETS AT  
INTERSECTIONS WITH  
COLLECTOR STREETS**

SCALE: NONE  
DATE: 03/05/09  
DRAWN BY: TRU P. & B.R.

**4-13**



**NOTES:**

1. BIKE LANE STRIPE TO BE DISCONTINUED FIFTY FEET FROM RIGHT-TURN LANE AND RESUMED AT BEGINNING OF RIGHT-TURN-ONLY LANE.
2. INSTALL BICYCLE LOOP DETECTOR SYMBOL OVER DETECTOR LOCATIONS, TYPICALLY THREE FEET BACK OF STOP BAR.
3. INSTALL "BIKE", "LANE", AND "→" PAVEMENT LEGENDS AT THE FOLLOWING LOCATIONS:
  - APPROXIMATELY 10' PAST CROSSWALKS;
  - AT 10' PAST START OF BICYCLE LANE ADJOINING RIGHT-TURN LANES.
4. STRIPE DIMENSIONS ARE TO CENTERLINE OF STRIPES OR LIP OF GUTTER. STREET WIDTH DIMENSIONS ARE TO BACK OF CURB.
5. MEDIAN END SET BACK 5' FROM CROSSWALK. INTSALL 5' OF DOUBLE YELLOW STRIPING BETWEEN MEDIAN END AND CROSSWALK.

  
 CHIEF, DEPT. OF TRANSPORTATION

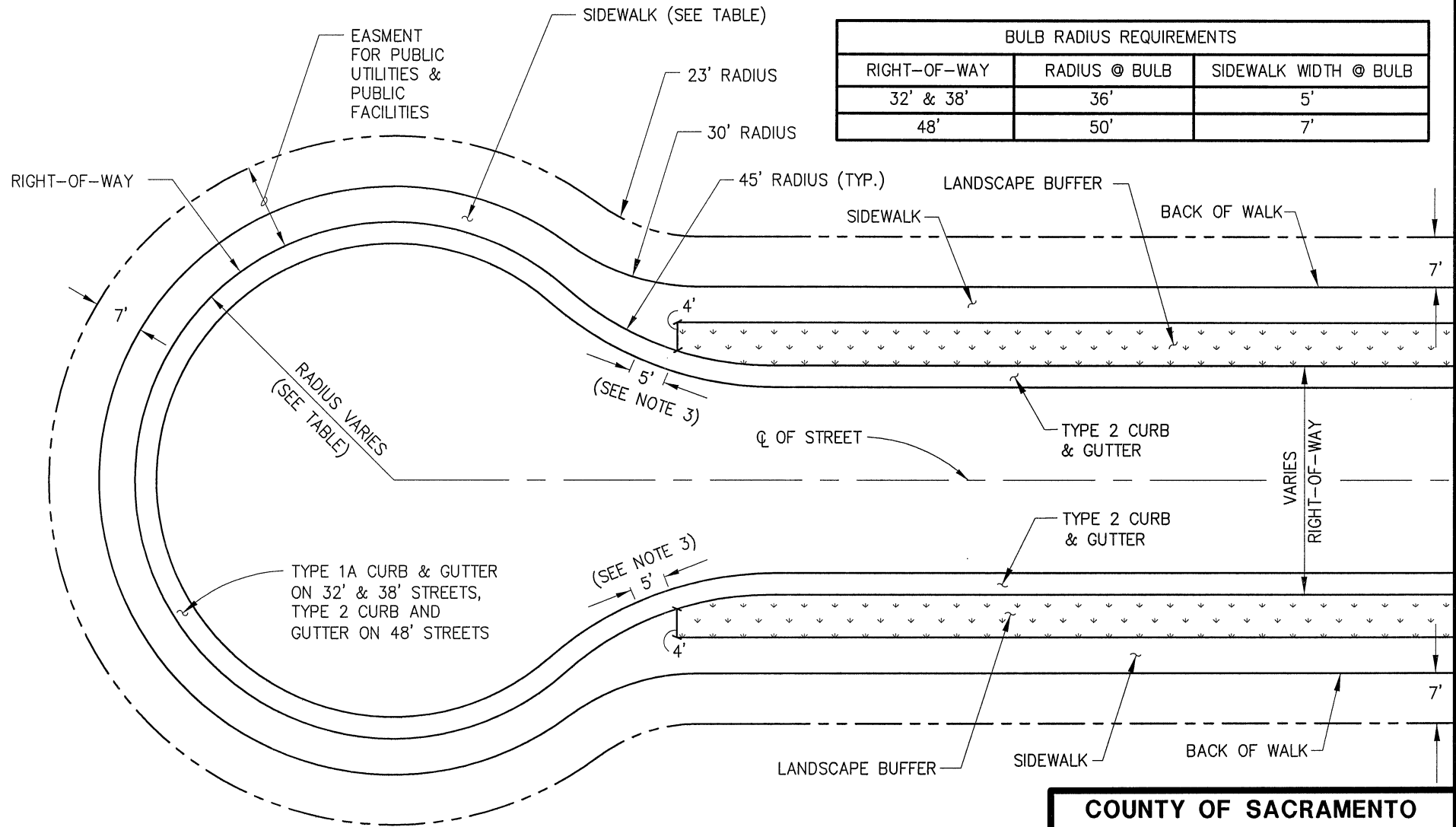
**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**TYPICAL STRIPING FOR  
THOROUGHFARE STREETS AT  
INTERSECTIONS WITH  
MAJOR STREETS**

SCALE: NONE  
DATE: 03/05/09  
DRAWN BY: TRU P. & B.R.

**4-14**

BULB RADIUS REQUIREMENTS		
RIGHT-OF-WAY	RADIUS @ BULB	SIDEWALK WIDTH @ BULB
32' & 38'	36'	5'
48'	50'	7'



**NOTES:**

1. A STANDARD W 14-1 "DEAD END" SIGN MAY BE REQUIRED AT THE ENTRANCE TO THE CUL-DE-SAC (SEE SECTION 4-30).
2. INCREASED STRUCTURAL SECTION REQUIRED IN CUL-DE-SAC BULB SEE SECTIONS 4-7(C) AND 4-12 OF IMPROVEMENT STANDARDS.
3. TRANSITION FROM TYPE 2 TO TYPE 1A OVER 5' OUTSIDE OF LANDSCAPE BUFFER AREA, EXCEPT ON 48' R.O.W.

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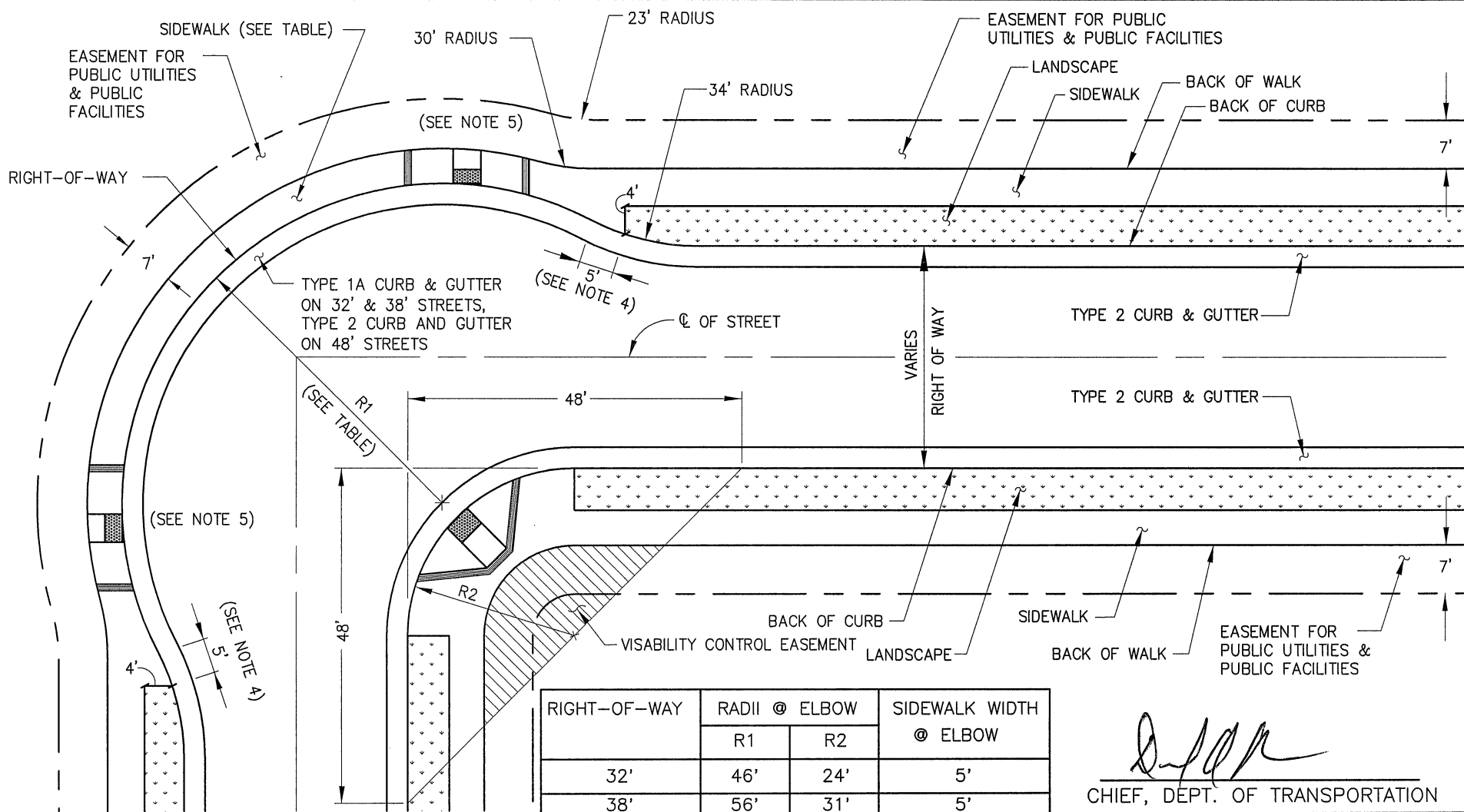
**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**CUL-DE-SAC**

SCALE: NONE  
DATE: 07/20/09  
DRAWN BY: TRU P. & B.R.

**4-15**





**NOTES:**

1. INTERSECTION ELBOWS ARE NOT REQUIRED WHERE THE CENTERLINE RADIUS MEET THE MINIMUM REQUIREMENTS IN SECTION 4-14.
2. INTERSECTION ANGLE SHALL BE  $90^\circ \pm 5'$
3. SHADED AREA SHALL HAVE VISIBILITY CONTROL EASEMENT IN ACCORDANCE WITH SECTION 4-15 AND STANDARD DRAWING 4-18 (PERMANENT BUILDINGS EXCEPTED WITHIN SETBACK LINE).
4. TRANSITION FROM TYPE 2 TO TYPE 1A OVER 5' OUTSIDE OF LANDSCAPE BUFFER AREA, EXCEPT ON 48' R.O.W.
5. ONLY ONE SIDEWALK RAMP ON OUTSIDE OF CURVE REQUIRED.

RIGHT-OF-WAY	RADI @ ELBOW		SIDEWALK WIDTH @ ELBOW
	R1	R2	
32'	46'	24'	5'
38'	56'	31'	5'
48'	64'	31'	7'

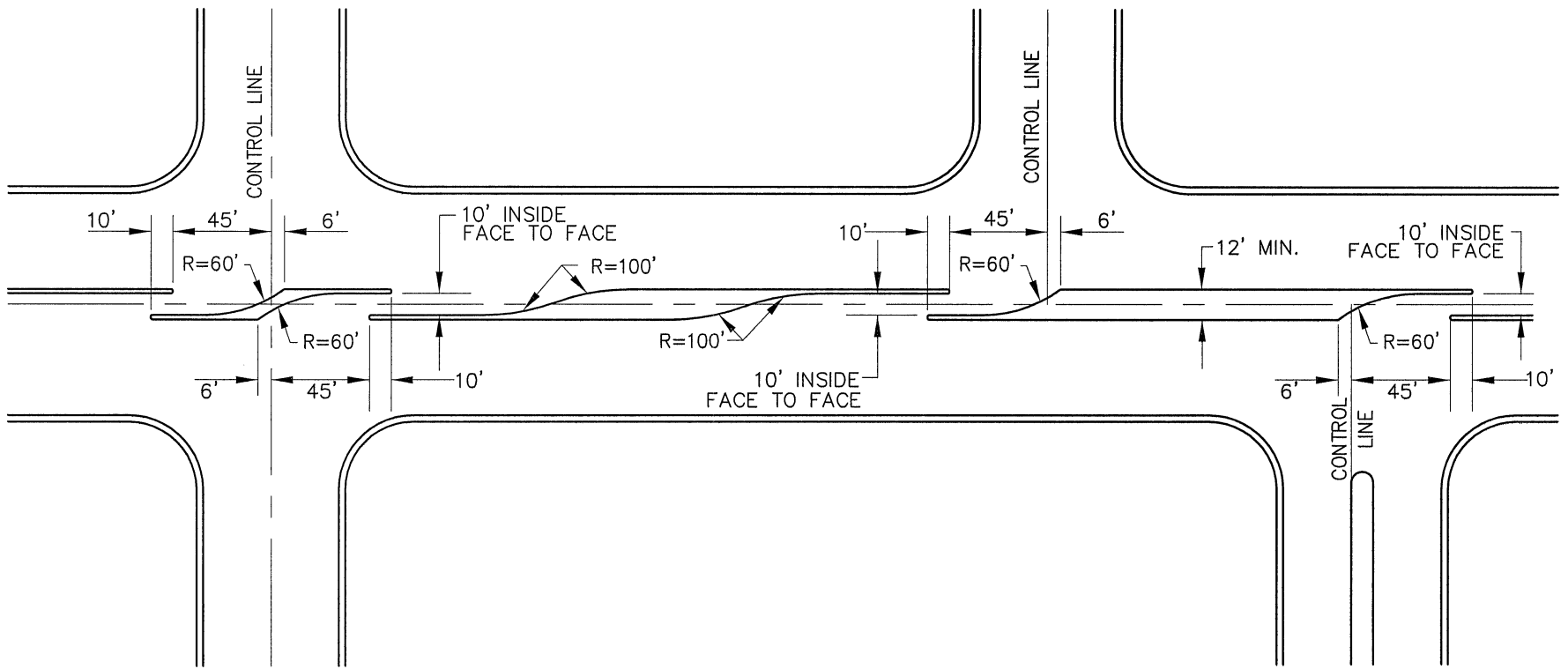
  
 CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**ELBOW INTERSECTION**

SCALE: NONE  
 DATE: 07/15/09  
 DRAWN BY: B.R. & TRU P.

**4-16**



**NOTES:**

1. MINIMUM LENGTH OF TURN POCKET (LENGTH WITH FULL WIDENING AND STRIPING OF TURN LANE) IS 180'.
2. SEE SECTION 4-3H OF THE IMPROVEMENT STANDARDS FOR RESTRICTIONS ON LOCATION OF MEDIAN BREAKS.

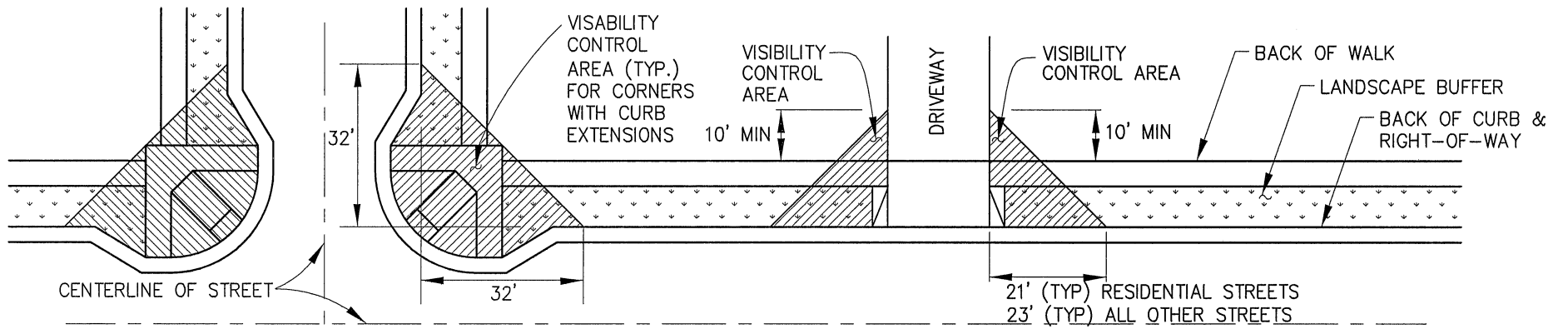
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

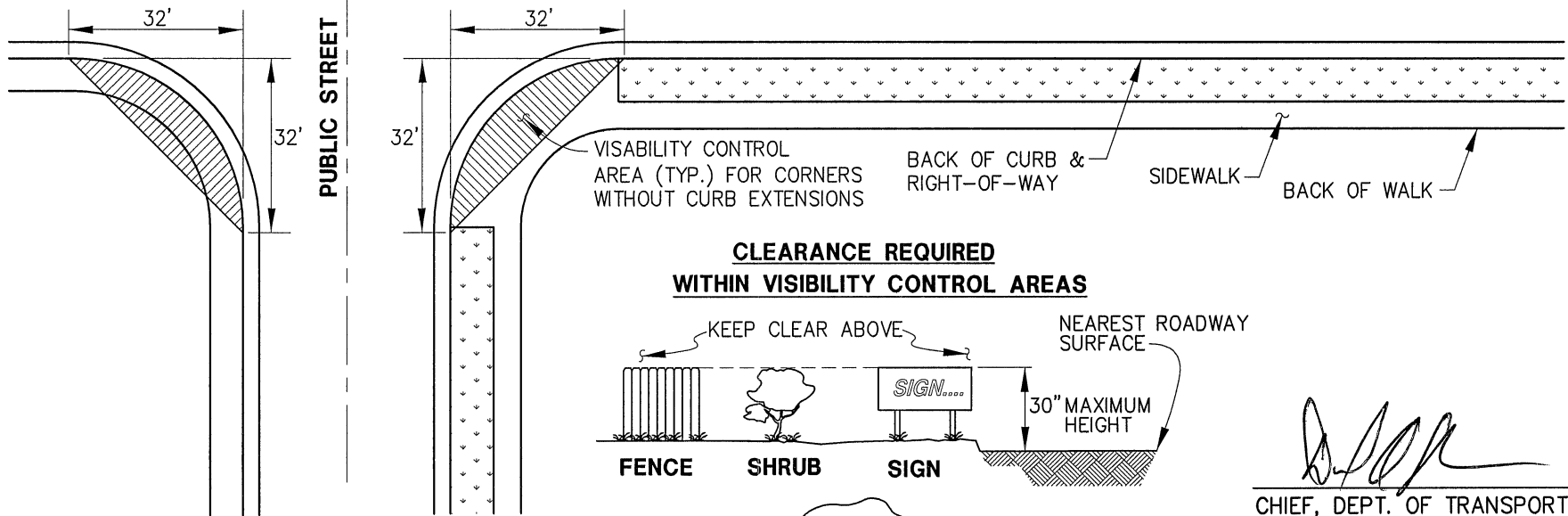
**TYPICAL MEDIAN GEOMETRY  
FOR LIMITING ACCESS**

SCALE: NONE  
DATE: 01/21/09  
DRAWN BY: TRU P. & B.R.

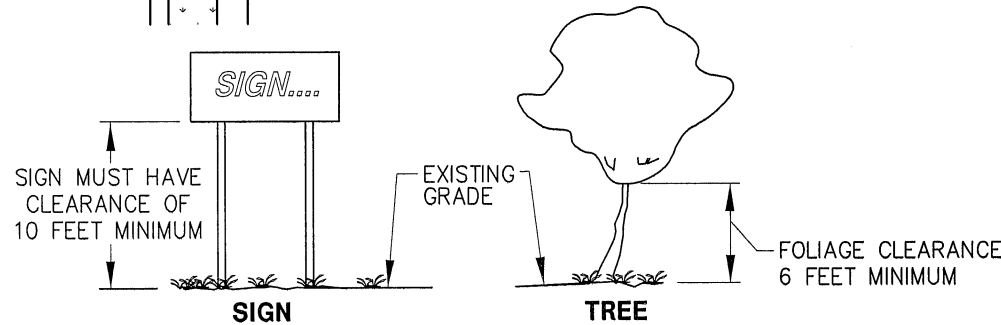
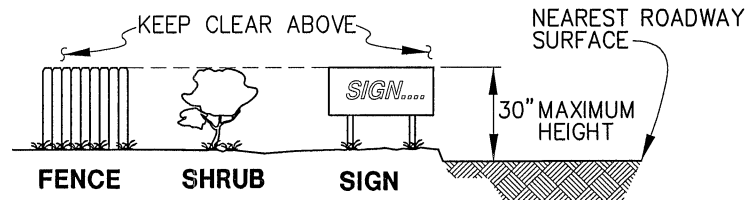
**4-17**



**PUBLIC STREET**



**CLEARANCE REQUIRED  
WITHIN VISIBILITY CONTROL AREAS**

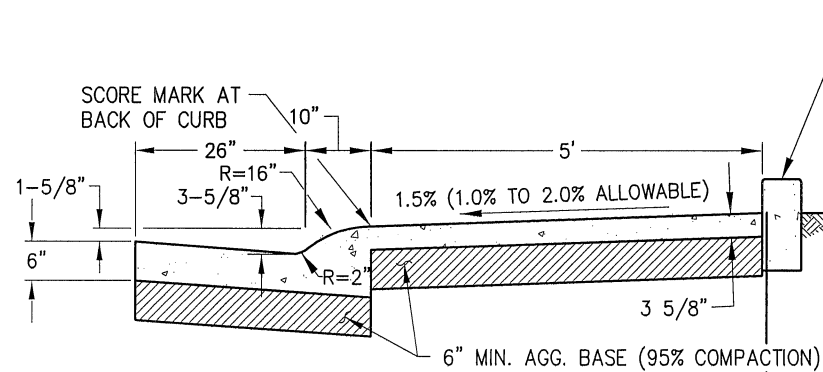


CHIEF, DEPT. OF TRANSPORTATION

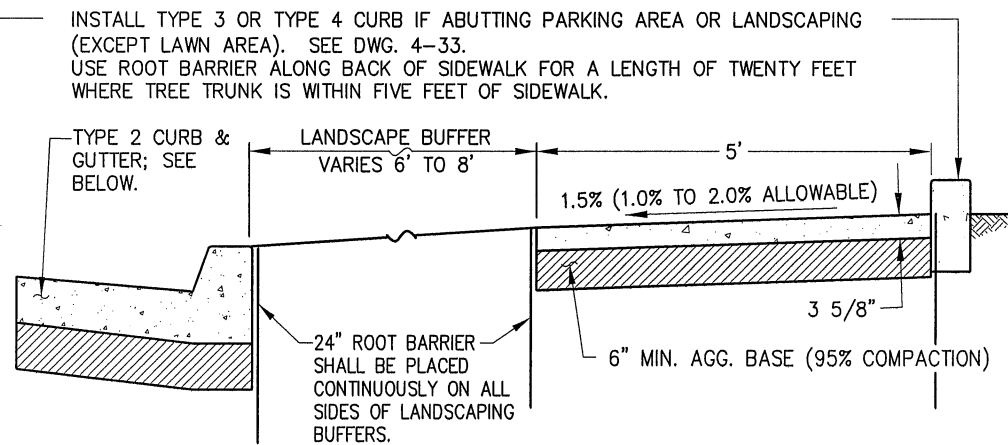
**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**VISIBILITY RESTRICTIONS  
AT DRIVEWAYS &  
INTERSECTIONS**

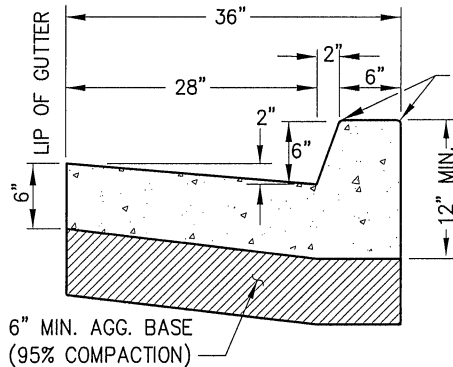
SCALE: NONE  
DATE: 7/20/09  
DRAWN BY: B.R. & TRU P.



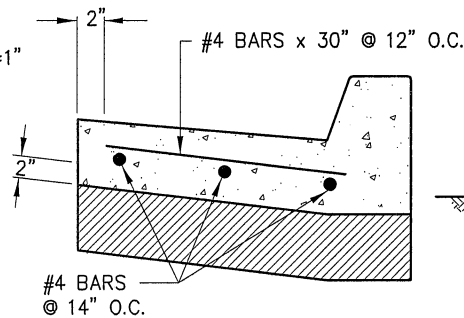
**TYPE 1A CURB & GUTTER  
WITH ATTACHED SIDEWALK**



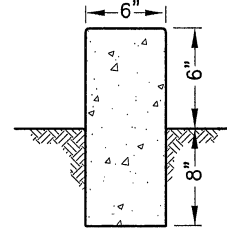
**BIFURCATED SIDEWALK WITH  
TYPE 2 CURB & GUTTER**



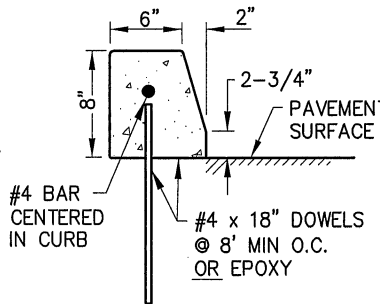
**TYPE 2**



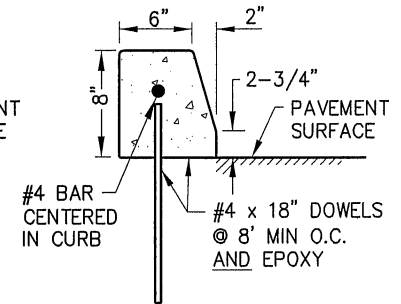
**TYPE 2 REINFORCED**



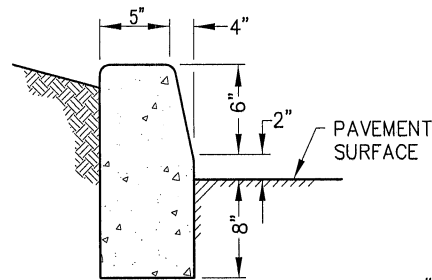
**TYPE 3**



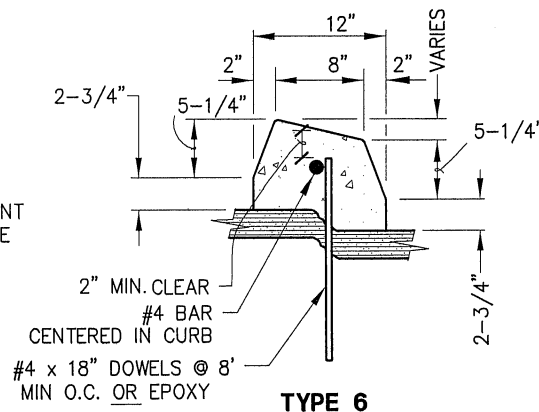
**TYPE 4**



**TYPE 4A**



**TYPE 5**



**TYPE 6**

**NOTES:**

1. SEE SECTION 27-3.01 OF STANDARD CONSTRUCTION SPECIFICATIONS FOR REQUIREMENT FOR EXPANSION JOINTS, WEAKENED PLANE JOINTS AND SCORE MARKS. 1/2" RADIUS ON EXPOSED EDGES UNLESS NOTED OTHERWISE.
2. SEE DRAWING 4-31 FOR ADDITIONAL MEDIAN CURB DETAILS.

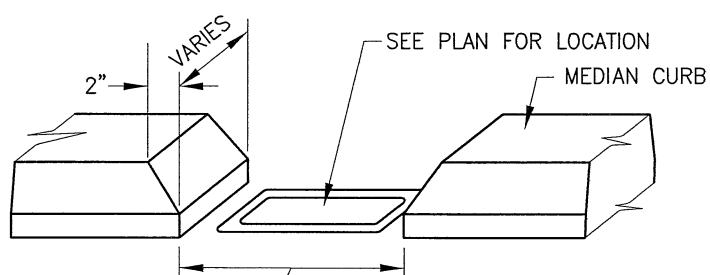
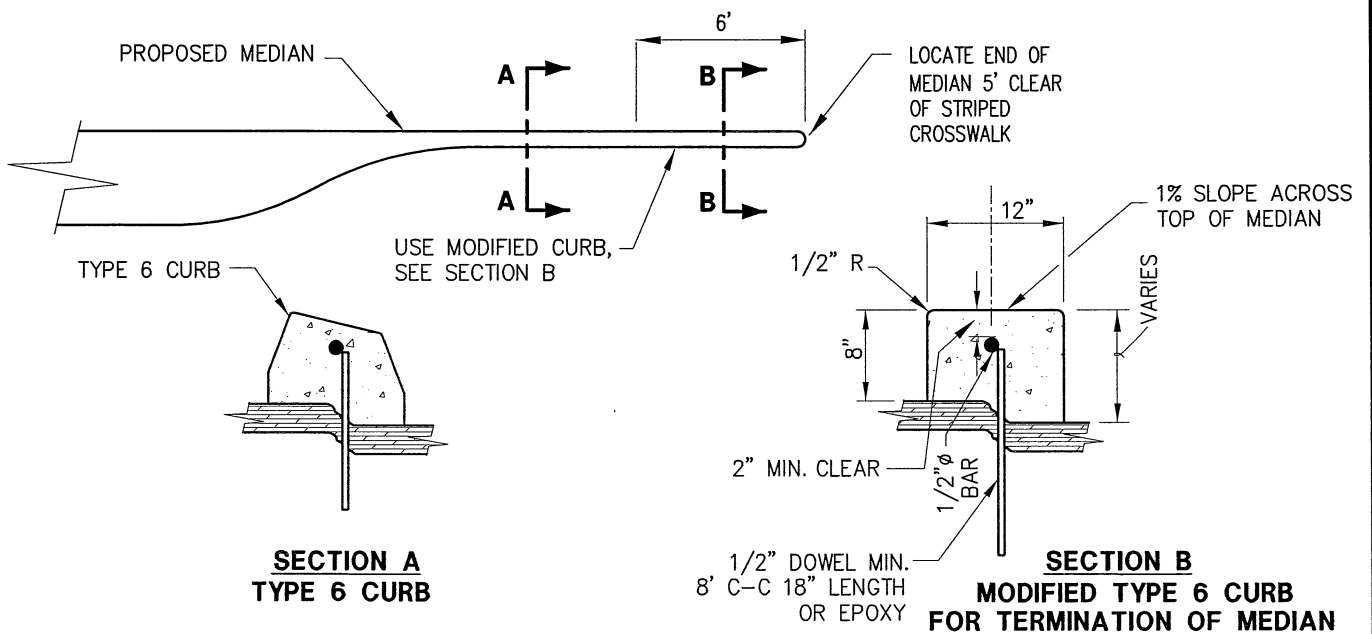
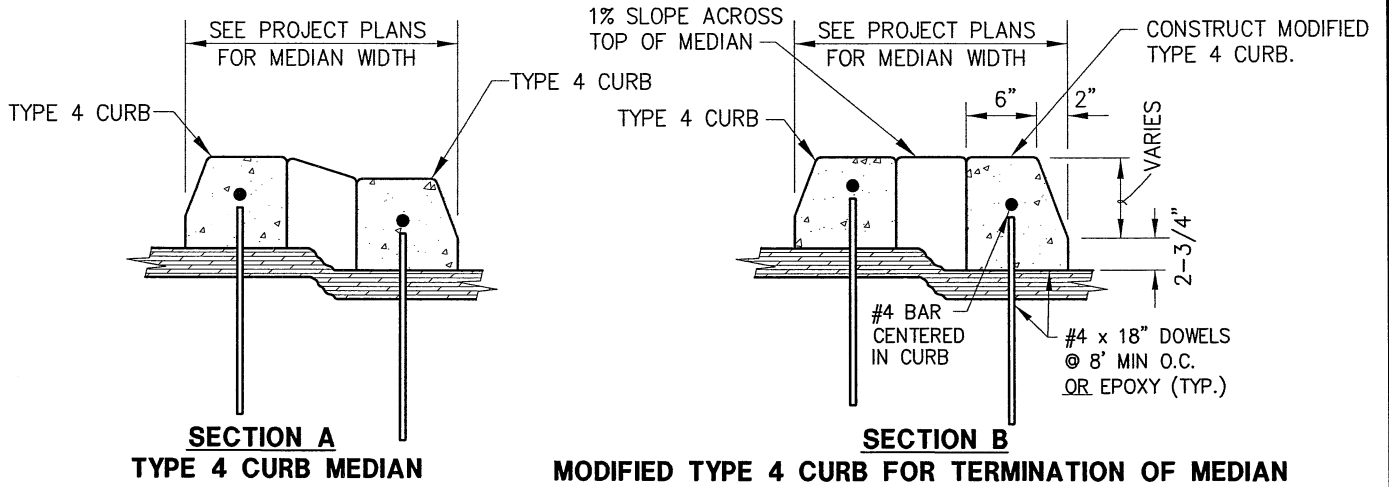
*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**SIDEWALK  
CURB & GUTTER  
SECTIONS**

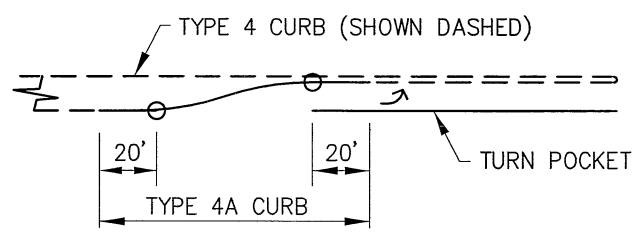
SCALE: NONE  
DATE: 07/20/09  
DRAWN BY: B.R. & TRU P.

**4-30**



MEDIAN OPENING, SEE TABLE FOR TYPE AND WIDTH.

**OPENING IN MEDIAN**



**PLAN FOR TYPICAL PLACEMENT OF TYPE 4A CURB**

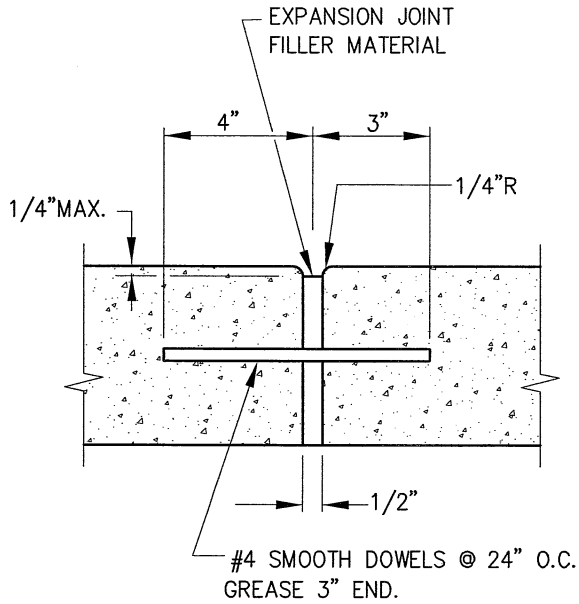
OPENING TYPE	OPENING WIDTH
DRAINAGE	1'-0"
PULL BOX - #5(T)	3'-0"
PULL BOX - #6(T)	3'-6"

*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

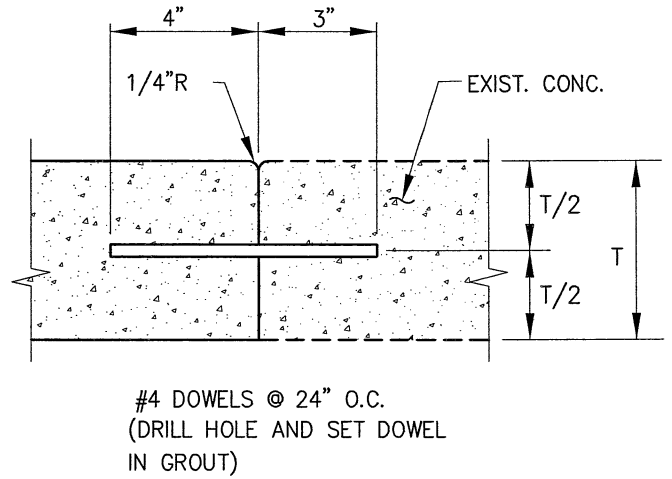
**MEDIAN DETAILS**

SCALE: NONE  
DATE: 01/26/09  
DRAWN BY: B.R & N.S.



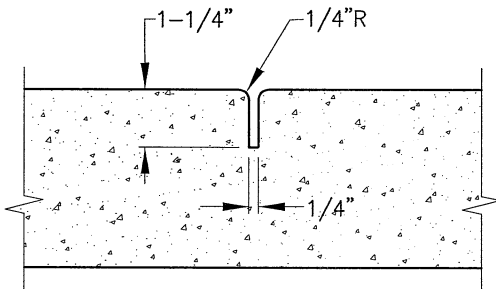
**EXPANSION JOINT**

USE AT 60' ON CENTER IN SIDEWALK CURB & GUTTER, MEDIAN CURBS, & MEDIAN FLATWORK. ALSO USE AT MAJOR CORNER RETURNS, SIDES OF RAMPS, DRIVEWAYS & LOCATIONS SHOWN ON PLANS & AS SPECIFIED IN SPECIFICATIONS.

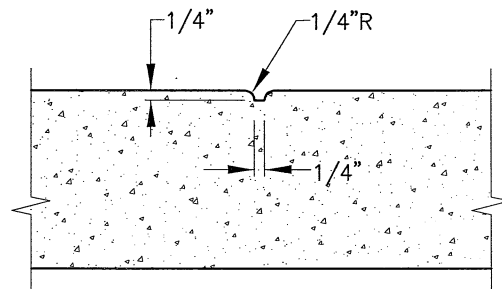


**SIDEWALK CONTACT JOINT**

USE WHERE NEW CONSTRUCTION OF SIDEWALK, RAMP AND/OR CURB & GUTTER ABUTTS EXISTING IMPROVEMENTS.



**WEAKENED PLANE JOINT**



**SCORE MARK**

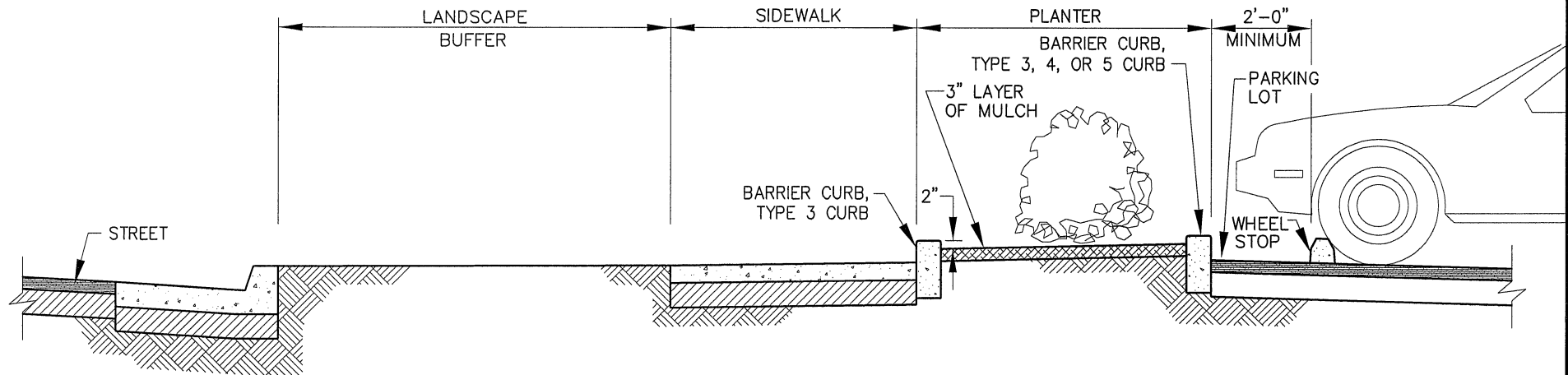
  
CHIEF, DEPT. OF TRANSPORTATION

COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY

CONCRETE  
JOINT DETAILS

SCALE: NONE  
DATE: 07/18/08  
DRAWN BY: TRU P.

4-32

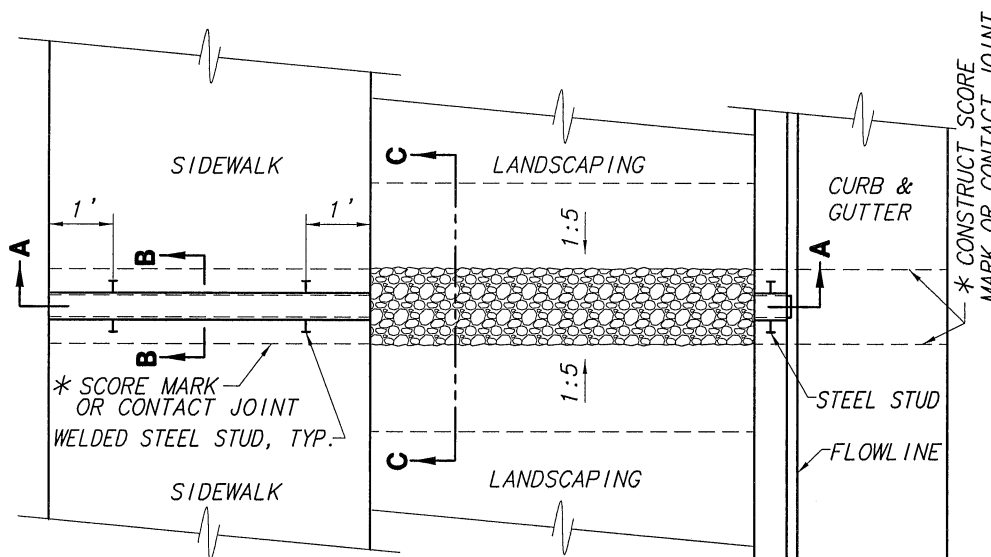


**NOTES:**

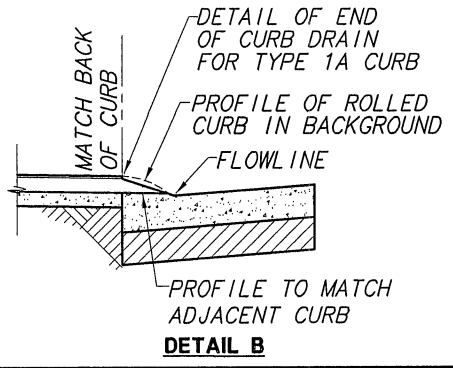
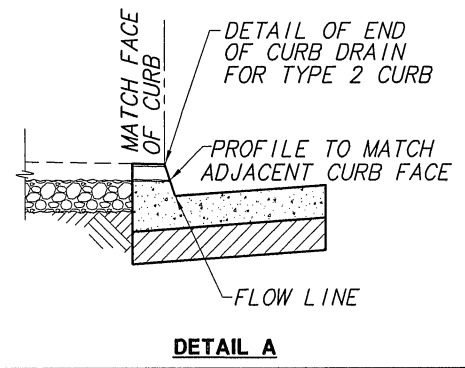
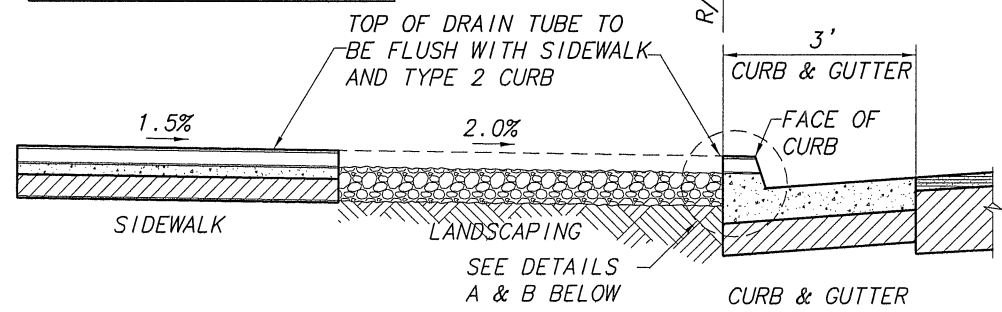
1. USE BARRIER CURB ADJACENT TO SIDEWALK ON ALL ARTERIAL AND THOROUGHFARE STREETS AND ALONG ALL COMMERCIAL DEVELOPMENTS.
2. SEE SECTION 4-21 OF COUNTY IMPROVEMENT STANDARDS FOR REQUIREMENTS.
3. TYPE 3 CURB AT THE BACK OF SIDEWALK MAY BE OMITTED IF LAWN IS PLANTED TO THE BACK OF SIDEWALK.
4. 24" ROOT BARRIERS ARE REQUIRED ON ALL SIDES OF LANDSCAPED BUFFER AREAS AND ALONG BACK OF SIDEWALK IF TREE IS WITHIN 5' (NOT SHOWN).

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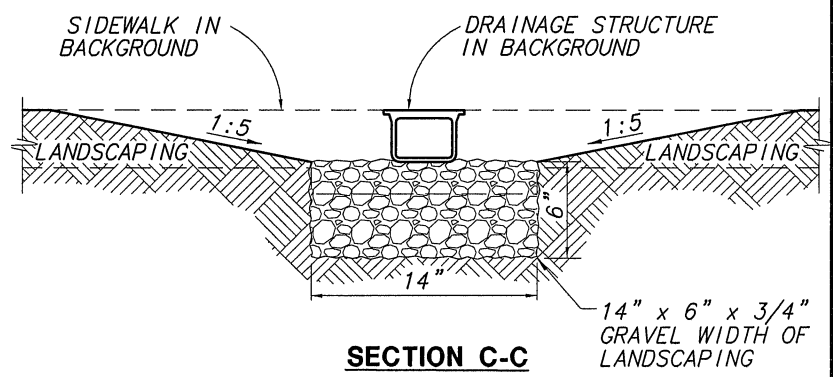
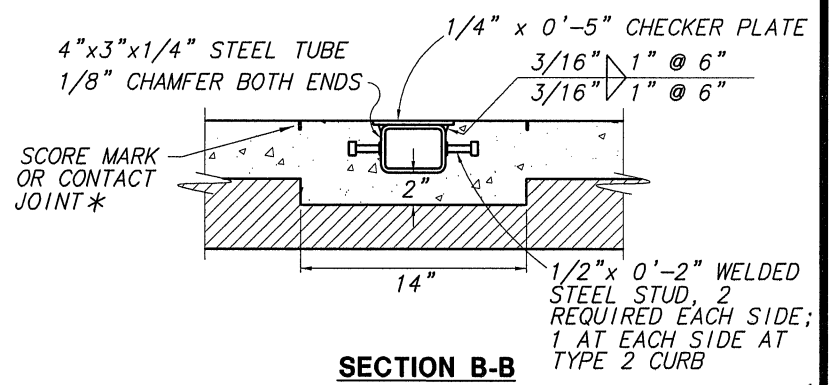
<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>BARRIER CURB DETAIL</b>	
SCALE: NONE	<b>4-33</b>
DATE: 01/21/09 DRAWN BY: TRU P. & B.R.	



\* CONSTRUCT CONTACT JOINT WHEN INSTALLED INTO EXISTING CURB & GUTTER PER STD. DWG. 4-32



**NOTE:**  
UTILIZE MIN. G-90 GALVANIZED ELEMENTS  
GALVANIZE WELDS AFTER FABRICATION



*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION

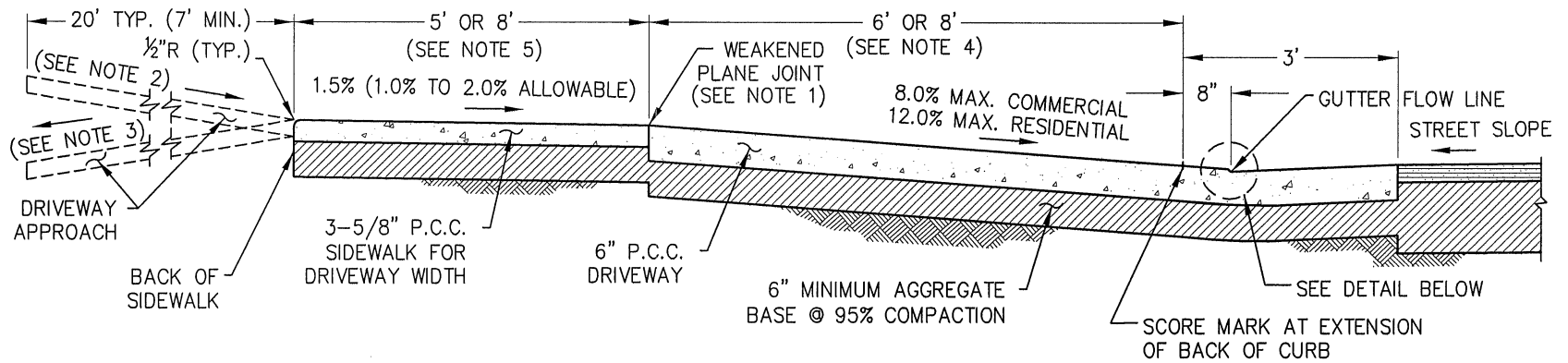
**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**UNDER  
SIDEWALK DRAIN**

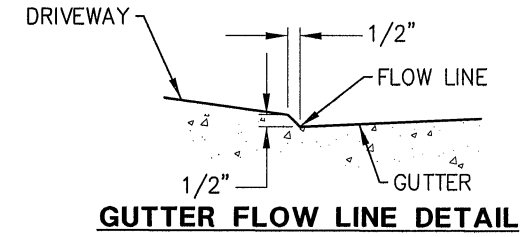
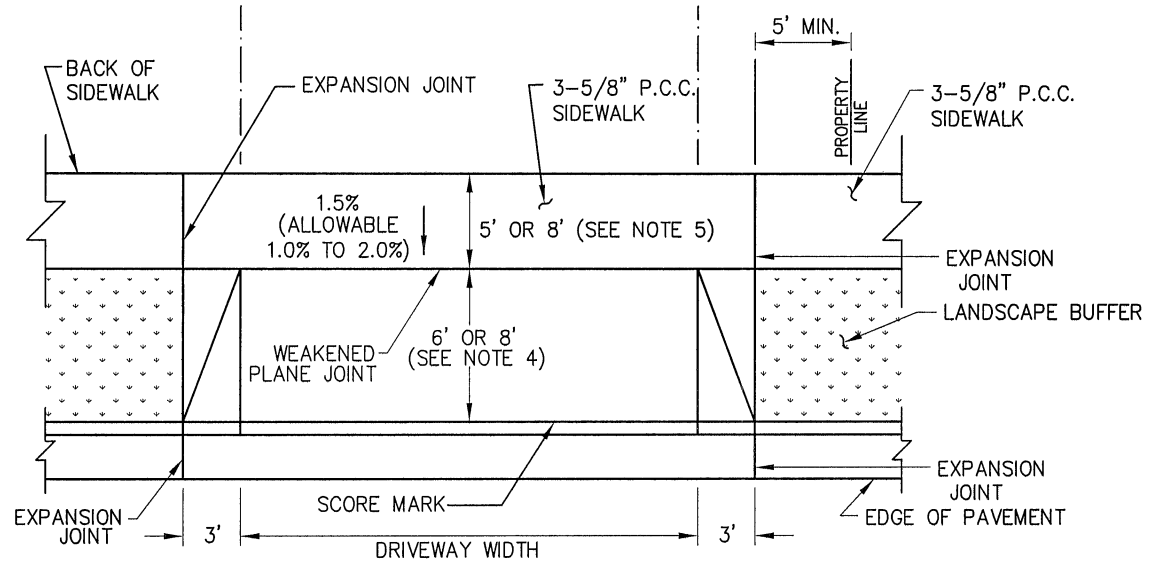
SCALE: NONE  
DATE: 08/05/08  
DRAWN BY: R. GOODRICH

**4-34**





**TYPICAL DRIVEWAY SECTION**



**GUTTER FLOW LINE DETAIL**

*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
 MUNICIPAL SERVICES AGENCY**

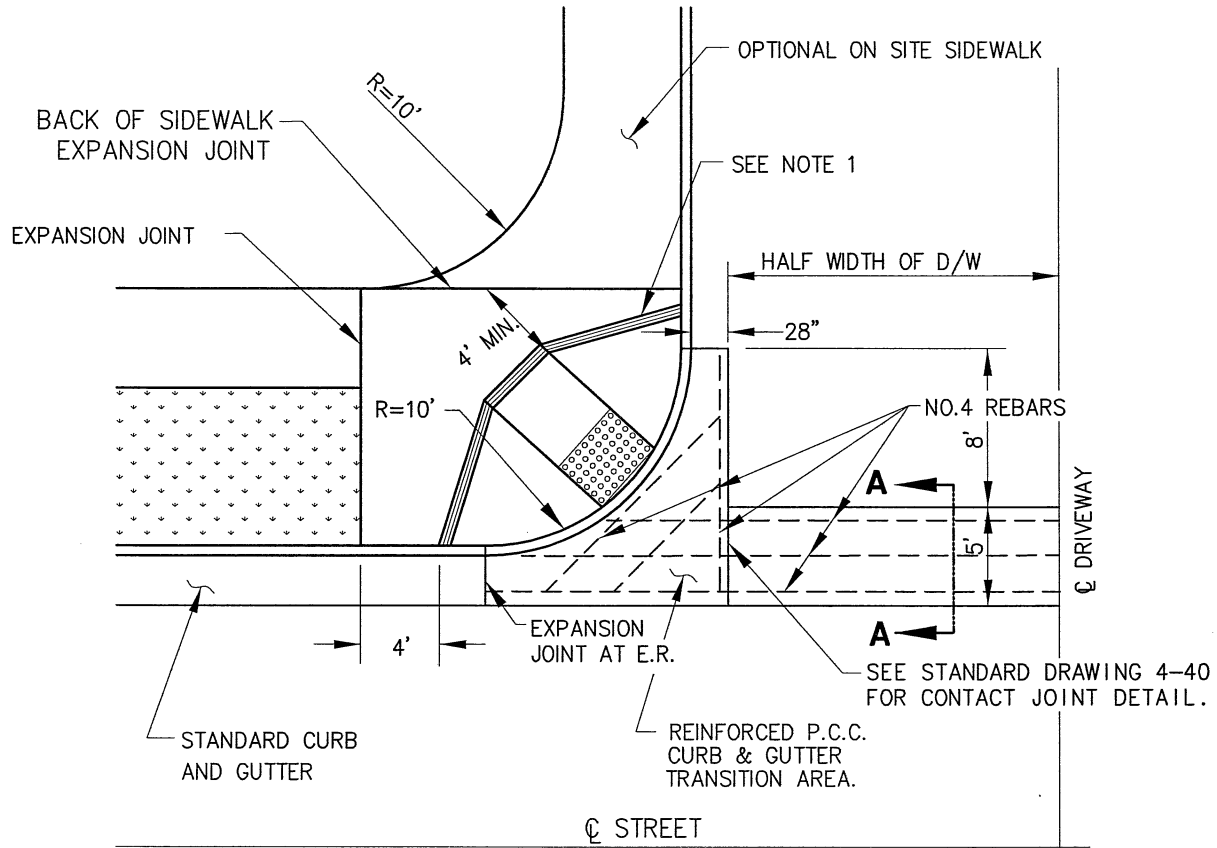
**TYPE A  
 DRIVEWAY**

SCALE: NONE  
 DATE: 01/21/09  
 DRAWN BY: B.R. & TRU P.

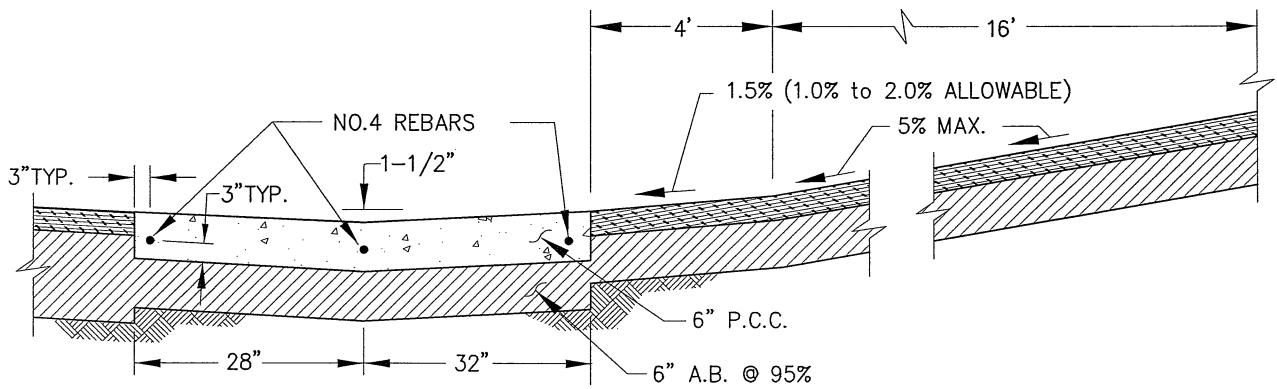
**4-35**

**NOTES:**

1. FRONT OF WALK SHALL BE A MINIMUM OF SIX INCHES ABOVE GUTTER FLOW LINE.
2. DRIVEWAY APPROACH SLOPES: 5% MAXIMUM COMMERCIAL & LEVEE AND 12% MAXIMUM RESIDENTIAL SLOPE.
3. DRIVEWAY APPROACH SLOPES: -5% MAXIMUM COMMERCIAL & LEVEE AND -8% MAXIMUM RESIDENTIAL SLOPE.
4. SEE TYPICAL SECTION STANDARD PLANS 4-1 TO 4-3 FOR STANDARD WIDTH.
5. SIDEWALK STANDARD WIDTH IS 5', EXCEPT SIDEWALK WIDTH SHALL BE 8' AT SCHOOLS, HOSPITALS, AND IN PEDESTRIAN DISTRICTS.



**PLAN VIEW**



**SECTION A-A**

**NOTES:**

1. FOR DETAILS OF PLAZA RAMP SEE DRAWING 4-50.

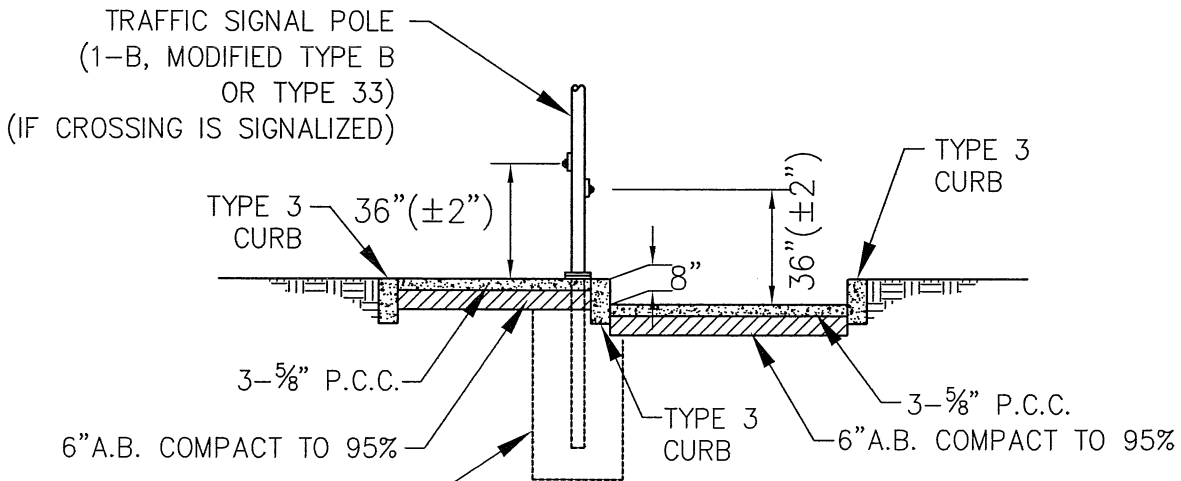
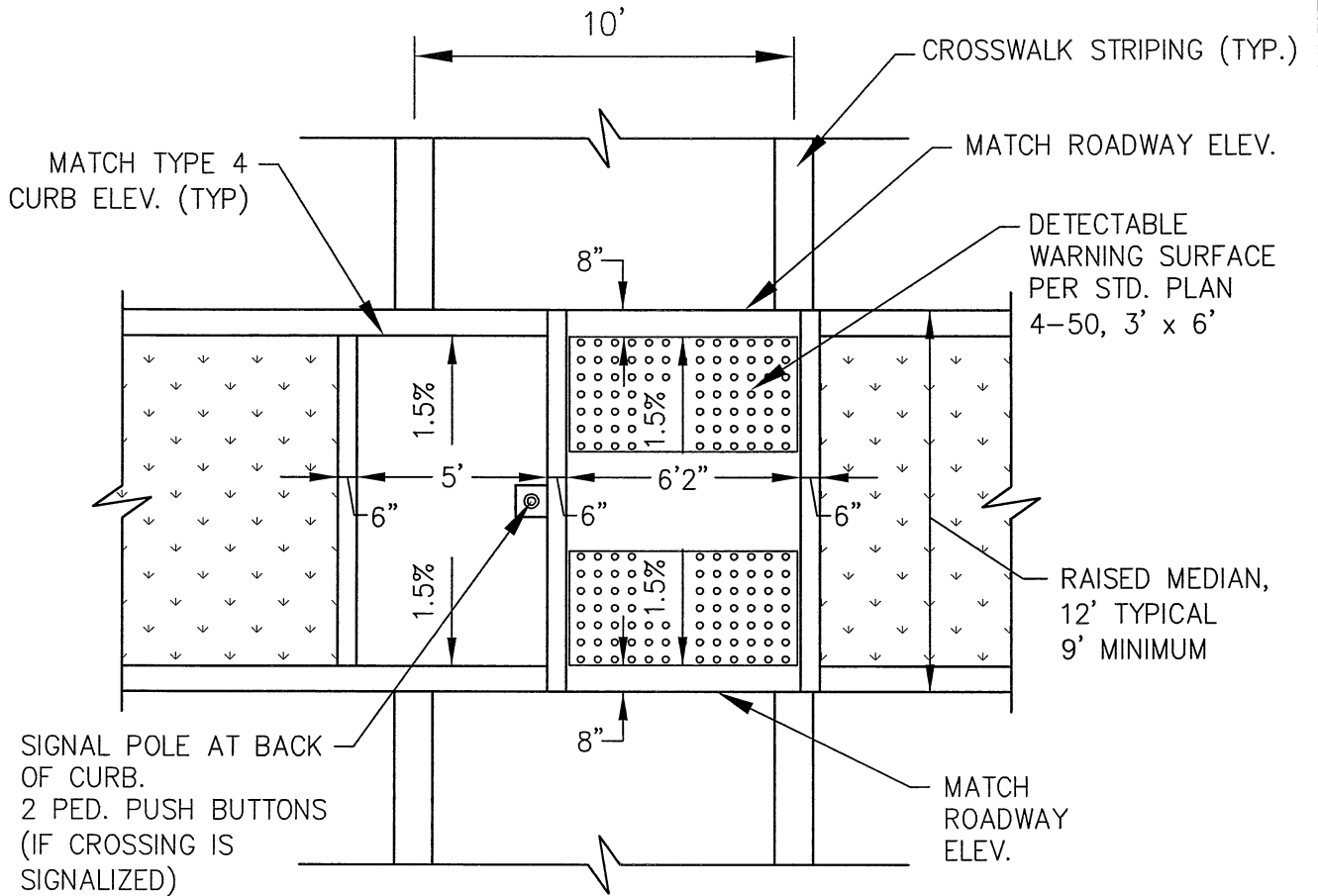
*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
 MUNICIPAL SERVICES AGENCY**

**TYPE B DRIVEWAY**

SCALE: NONE  
 DATE: 08/06/08  
 DRAWN BY: TRU P.

**4-36**

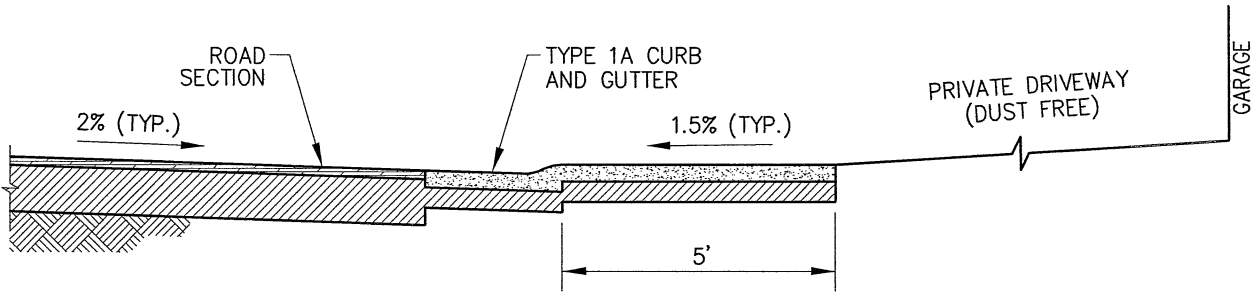


POLE FOUNDATION PER CALTRANS STANDARD (IF CROSSING IS SIGNALIZED)

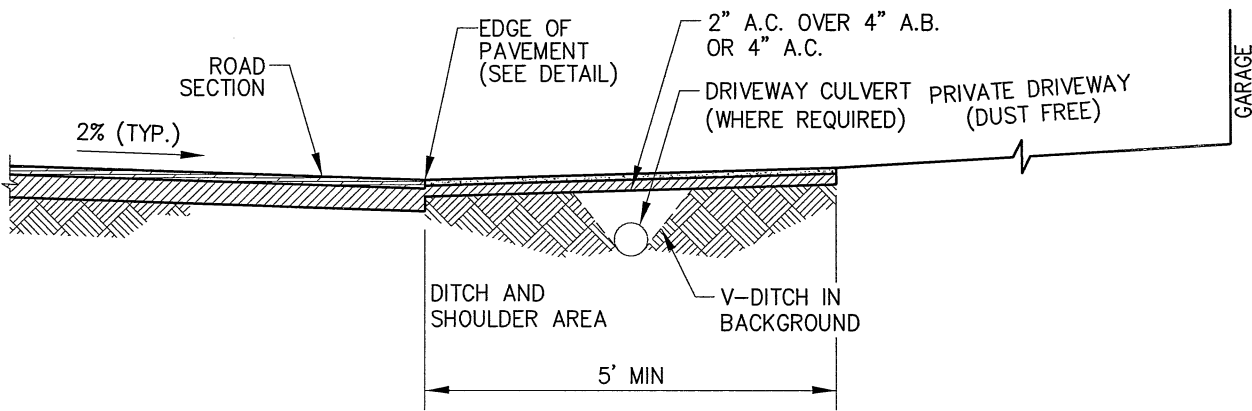
### SECTION VIEW

*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

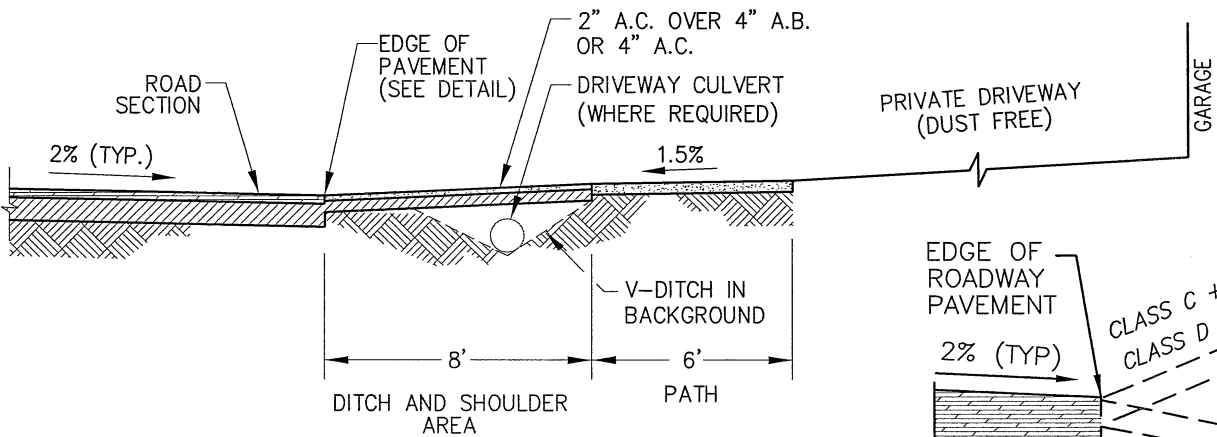
<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>PEDESTRIAN REFUGE AREA</b>	
SCALE: NONE DATE: 07/15/09 DRAWN BY: GODO C.	<b>4-37</b>



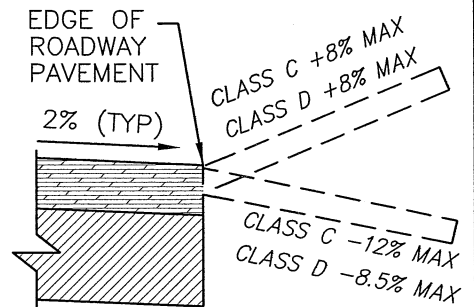
**CLASS A**



**CLASS C**



**CLASS D**



**EDGE OF PAVEMENT DETAIL**

**NOTES:**

1. SEE SACRAMENTO COUNTY IMPROVEMENT STANDARDS SECTION 4-11 FOR DRIVEWAY REQUIREMENTS.
2. NO CONCRETE DRIVEWAYS WITHIN 15' OF EDGE OF PAVEMENT WITHOUT PRIOR WRITTEN APPROVAL BY THE DIRECTOR OF COUNTY ENGINEERING.
3. MAXIMUM ALGEBRAIC DIFFERENCE OF A GRADE CHANGE BETWEEN ANY INTERSECTING ROADWAY AND A DRIVEWAY AND OR ANY PORTION OF PUBLIC RIGHT OF WAY AND A DRIVEWAY SHALL NOT BE GREATER THAN 10% (SEE EDGE OF PAVEMENT DETAIL).

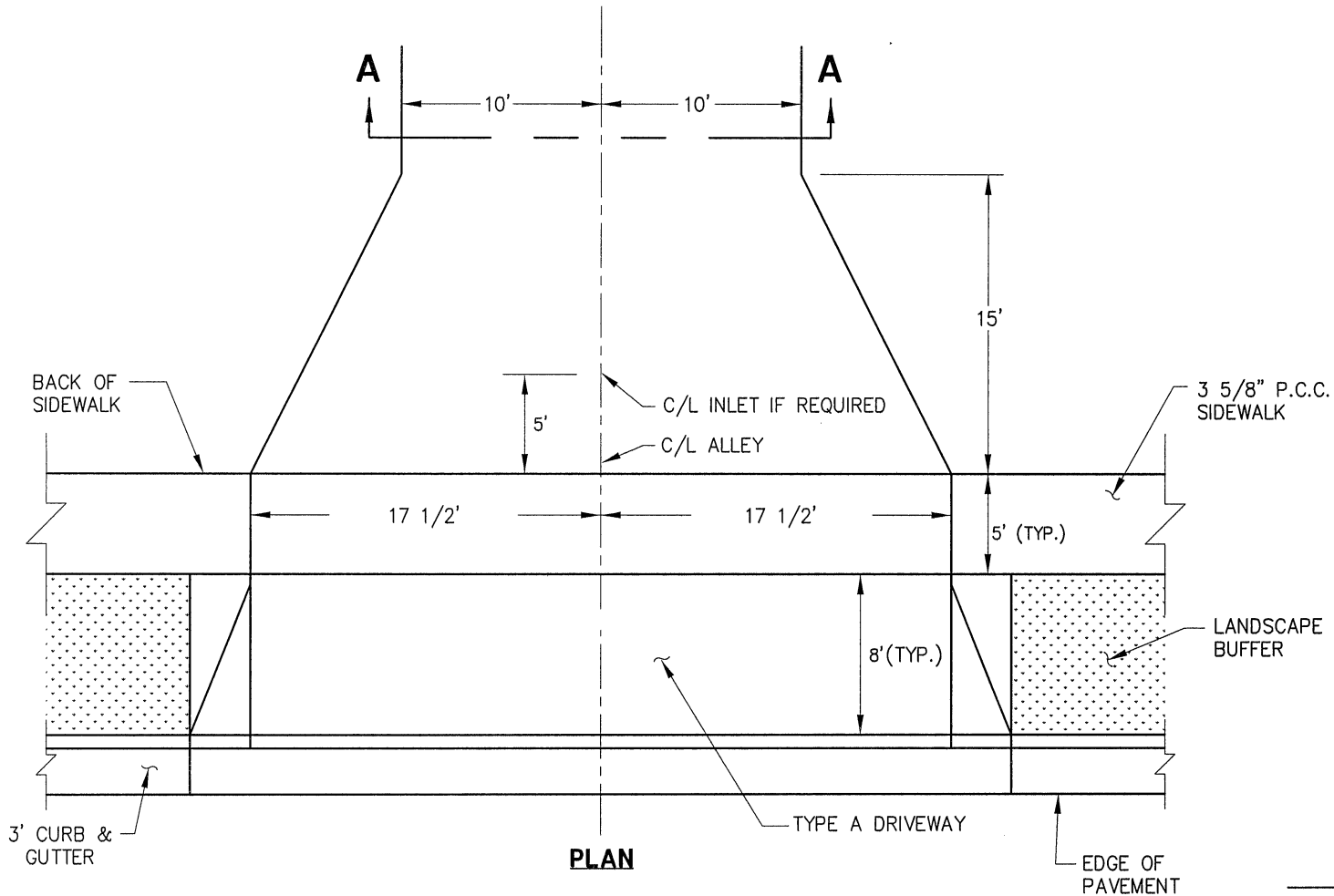
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

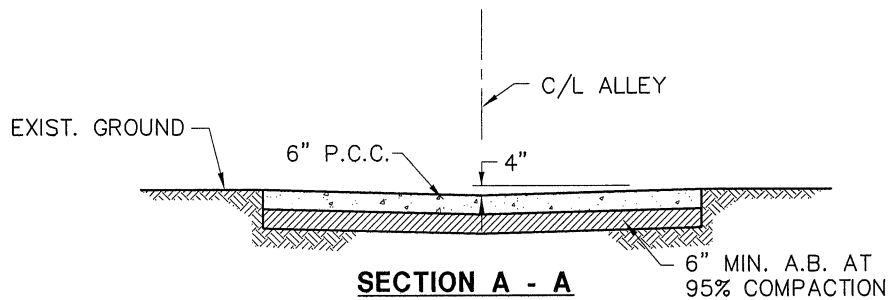
**RESIDENTIAL DRIVEWAY  
SECTIONS: CLASS A,  
CLASS C AND D STREETS**

SCALE: NONE  
DATE: 06/11/2009  
DRAWN BY: TRU P.

**4-38**



**PLAN**



**SECTION A - A**

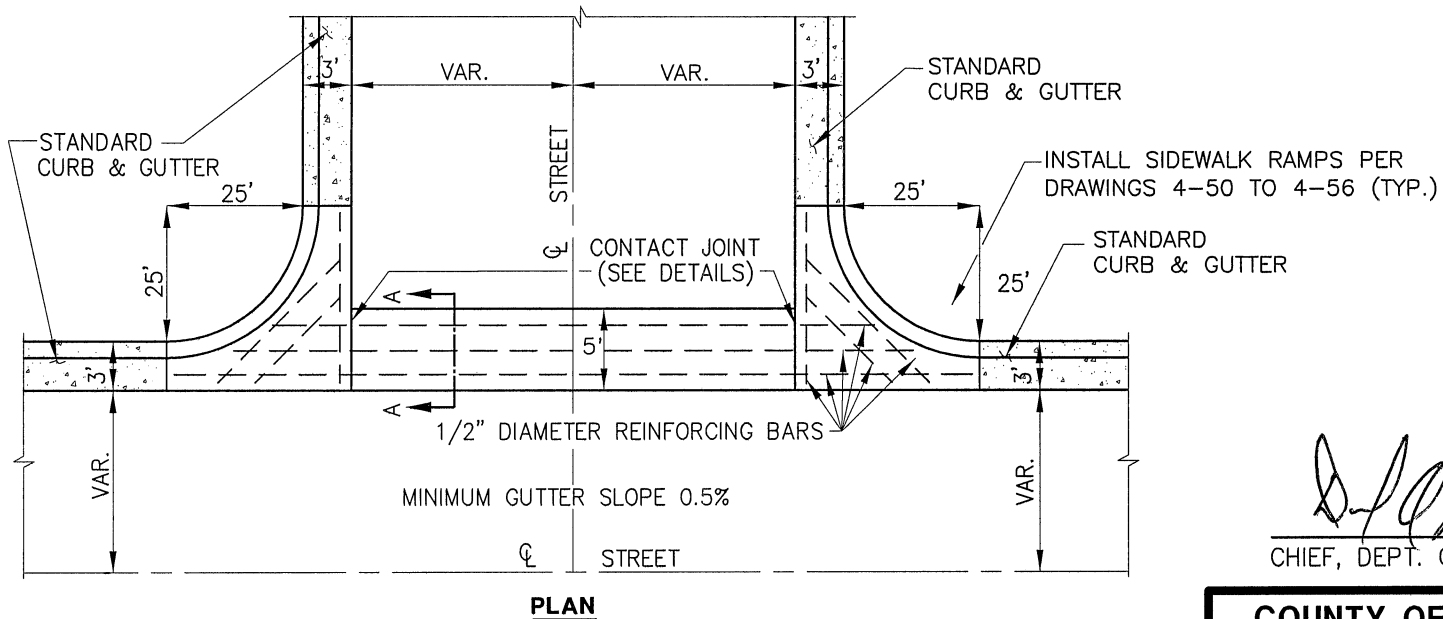
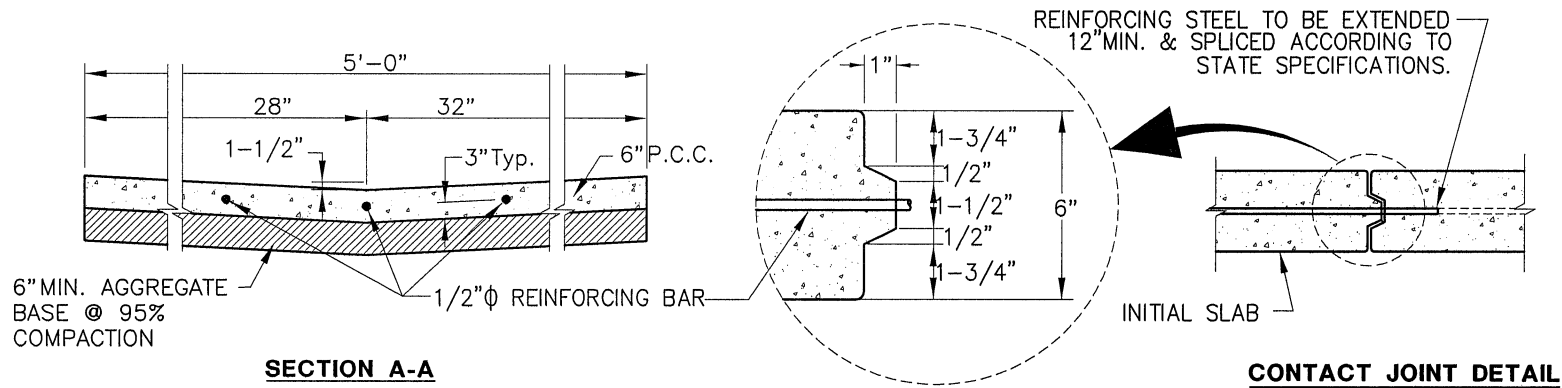
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**ALLEY DETAILS**

SCALE: NONE  
DATE: 07/18/2008  
DRAWN BY: TRU P.

**4-39**



*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
 MUNICIPAL SERVICES AGENCY**

**CROSS GUTTER**

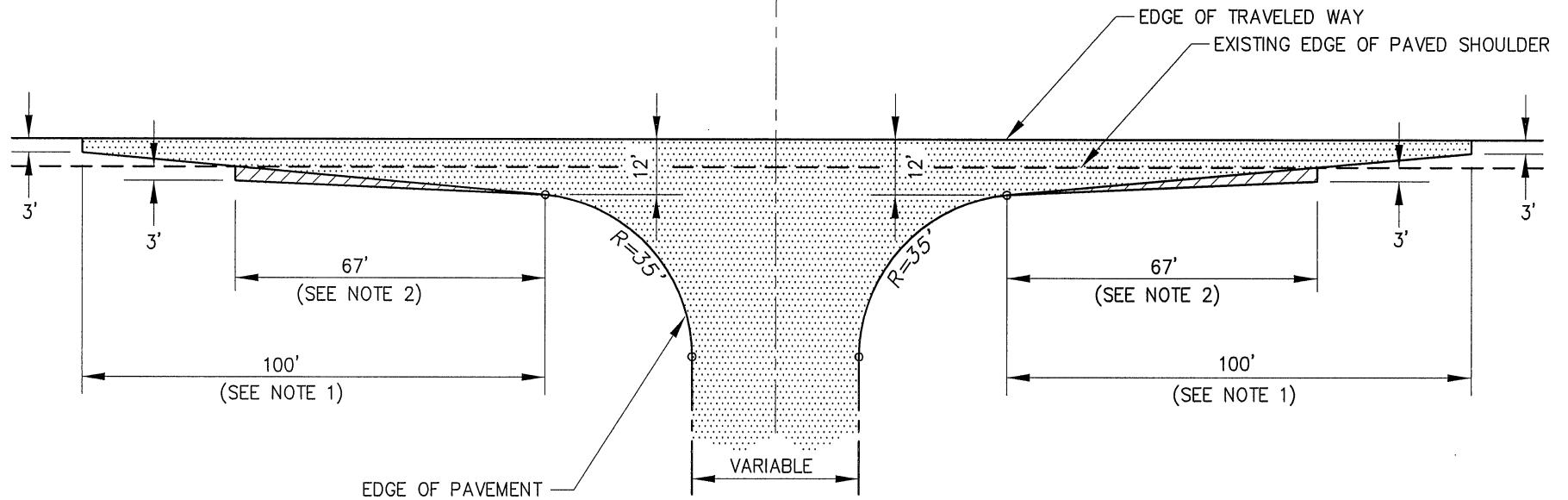
NOTE:  
 CROSS GUTTERS ARE NOT ALLOWED WITHIN  
 A SIGNALIZED INTERSECTION.

SCALE: NONE  
 DATE: 09/02/2008  
 DRAWN BY: TRU P.

**4-40**

# ARTERIAL AND THOROUGHFARE STREETS

(FOR STREETS CLASSIFIED LESS THAN ARTERIAL, SEE NOTE 4)

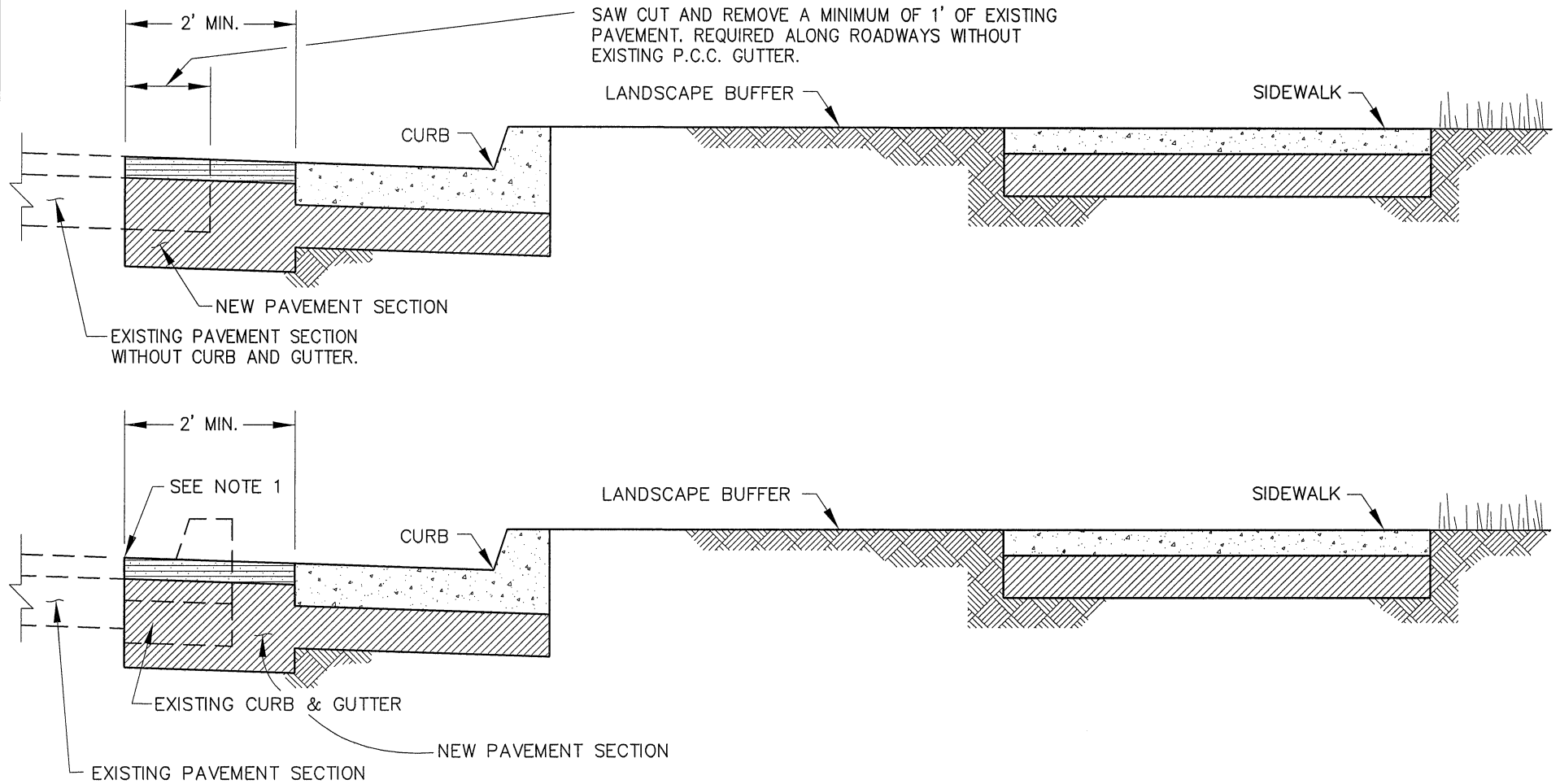


**NOTES:**

1. USE 100' PAVEMENT TAPER SECTION WHEN MAJOR STREET SHOULDER IS UNPAVED OR SEAL COATED, OR WHERE PAVED SHOULDER IS LESS THAN 4' WIDE.
2. USE 67' PAVEMENT TAPER SECTION WHEN MAJOR STREET SHOULDER IS FULLY PAVED, AND A MINIMUM OF 4' WIDE.
3. FULL ROADBED STRUCTURAL SECTION TO BE PLACED IN ACCORDANCE WITH COUNTY STANDARDS FOR AREA TO BE PAVED.
4. PAVEMENT TAPER SECTION MAY BE DELETED WHERE NEW STREET INTERSECTS WITH MINOR OR COLLECTOR STREETS. MINIMUM RADIUS AT THESE INTERSECTION SHALL BE 25'.

*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>CLASS C &amp; D STREET INTERSECTION</b>	
SCALE: NONE DATE: 06/08/09 DRAWN BY: TRU P.	<b>4-41</b>



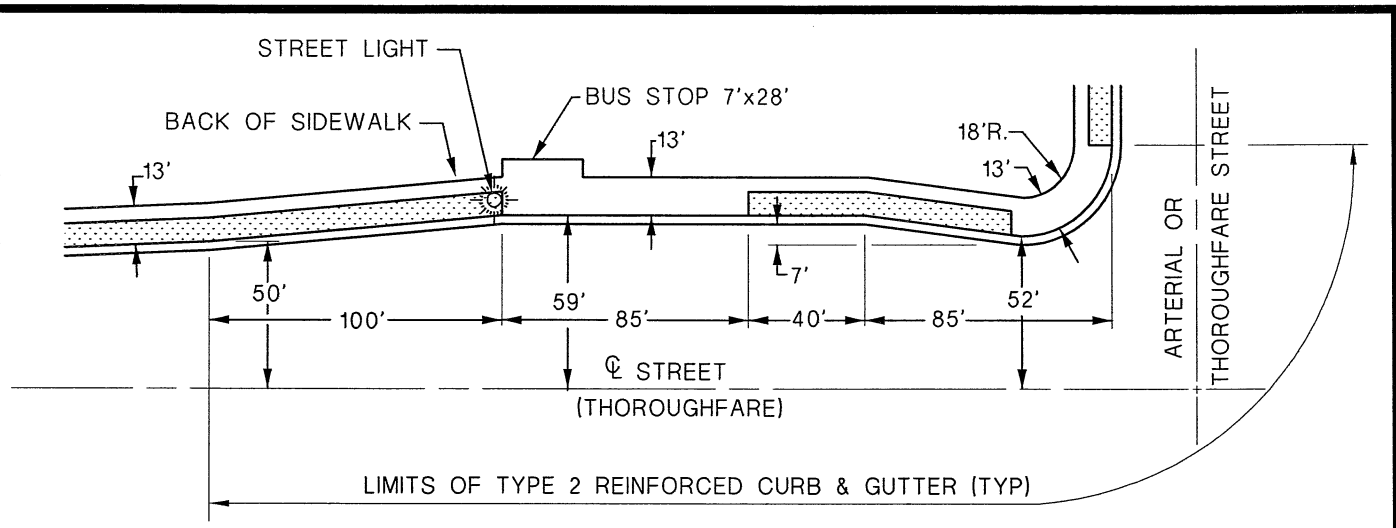
**NOTE:**

1. SAW CUT AT EDGE OF PAVEMENT PRIOR TO REMOVAL OF EXISTING GUTTER. IF CONDITION OF EXISTING PAVEMENT AT EXISTING LIP OF GUTTER IS UNACCEPTABLE FOR PAVEMENT WIDENING, SAW CUT AND REMOVE ADDITIONAL PAVEMENT WIDTH AS DIRECTED BY THE ENGINEER.

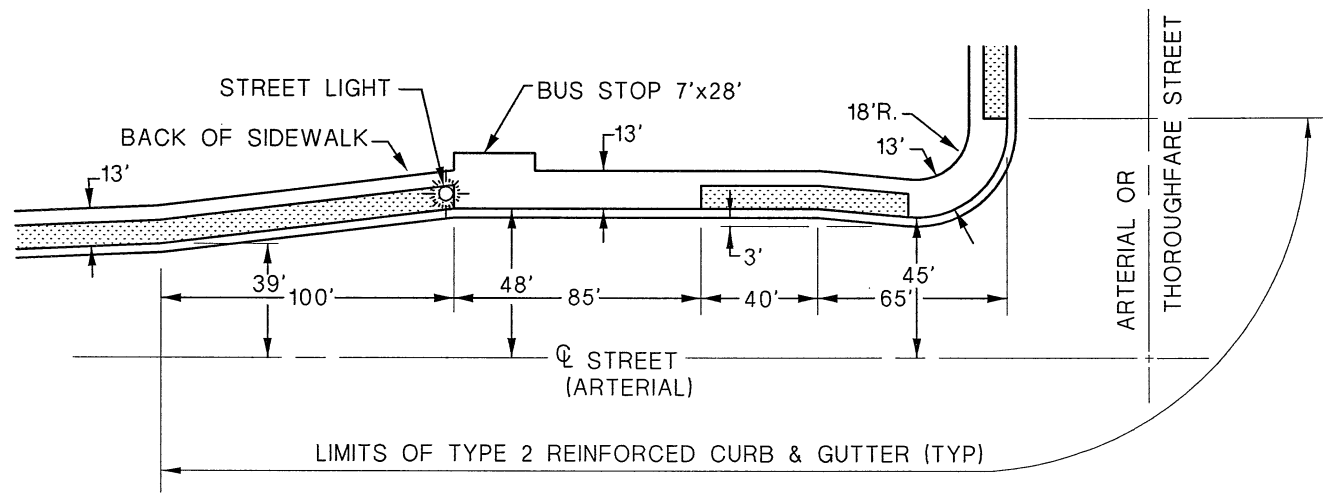
CHIEF, DEPT. OF TRANSPORTATION

<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>PAVEMENT WIDENING DETAIL</b>	
SCALE: NONE	<b>4-42</b>
DATE: 01/21/09 DRAWN BY: TRU P. & B.R.	

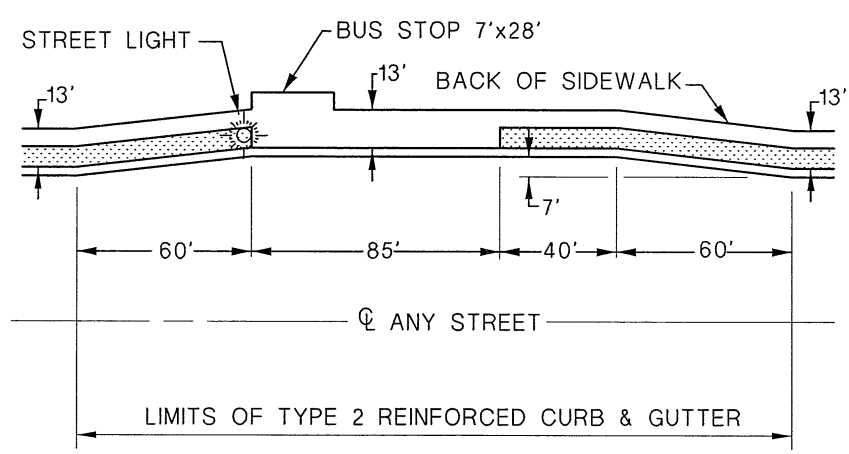




**BUS TURNOUT ON THOROUGHFARE STREETS**



**BUS TURNOUT ON ARTERIAL STREETS**



**TYPICAL MID-BLOCK BUS TURNOUT**

- NOTES:
1. SEE DRAWINGS 4-6 THRU 4-8, 4-10, 4-12 THRU 4-14 FOR ADDITIONAL BUS STOP GEOMETRY.
  2. USE SIMILAR LIMITS FOR REINFORCED TYPE 2 CURB ALONG BUS STOPS ON ARTERIAL AND THOROUGHFARE STREETS THAT INTERSECT WITH COLLECTOR STREETS.

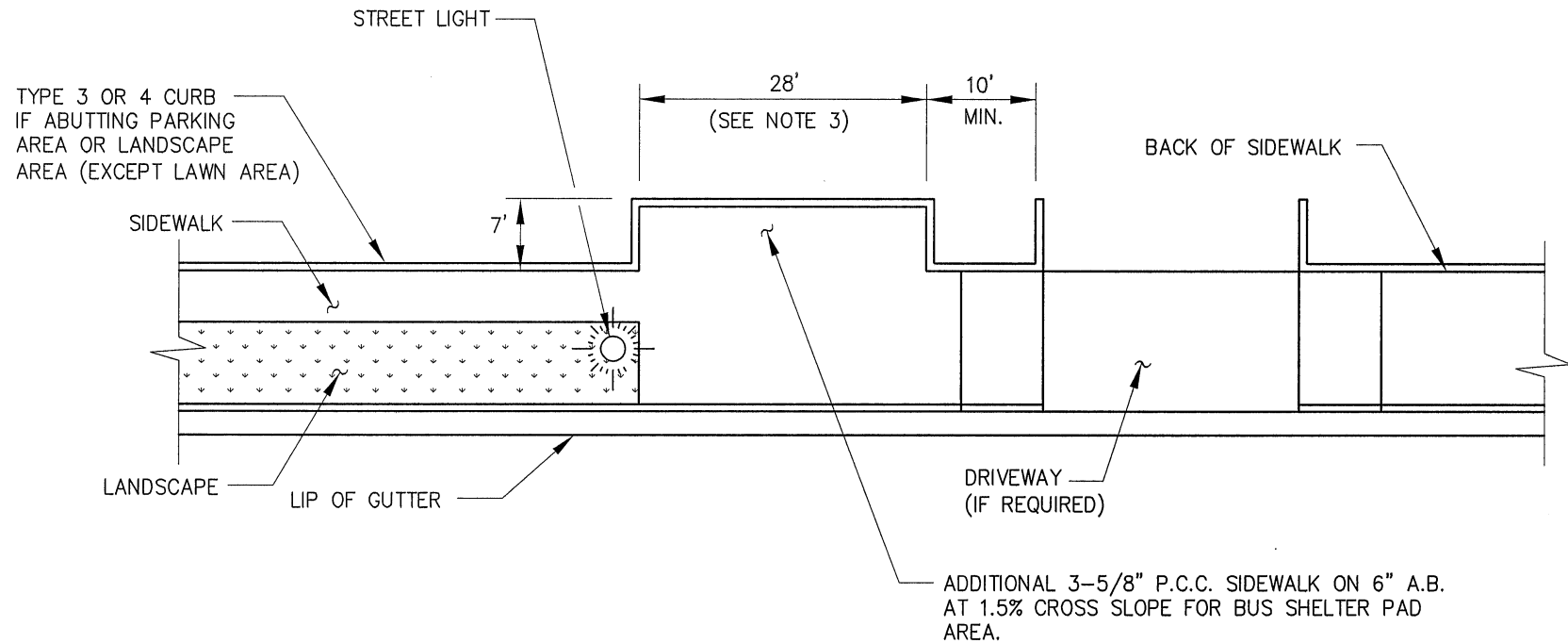
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**BUS TURNOUTS**

SCALE: NONE  
DATE: 07/15/09  
DRAWN BY: TRU P.

**4-43**



**NOTES:**

1. FOR BUS STOPS WITHOUT TURNOUTS, TYPE 2 REINFORCED CURB & GUTTER SECTION SHALL BE USED FOR 100' EACH SIDE OF BUS STOP SIGN.
2. SEE STANDARD DRAWING 4-43 FOR APPLICATIONS OF TYPE 2 REINFORCED CURB & GUTTER AT BUS STOP TURNOUTS.
3. PAD LENGTH MAY BE 14' AT MINOR STREET INTERSECTIONS & MID BLOCK LOCATIONS.

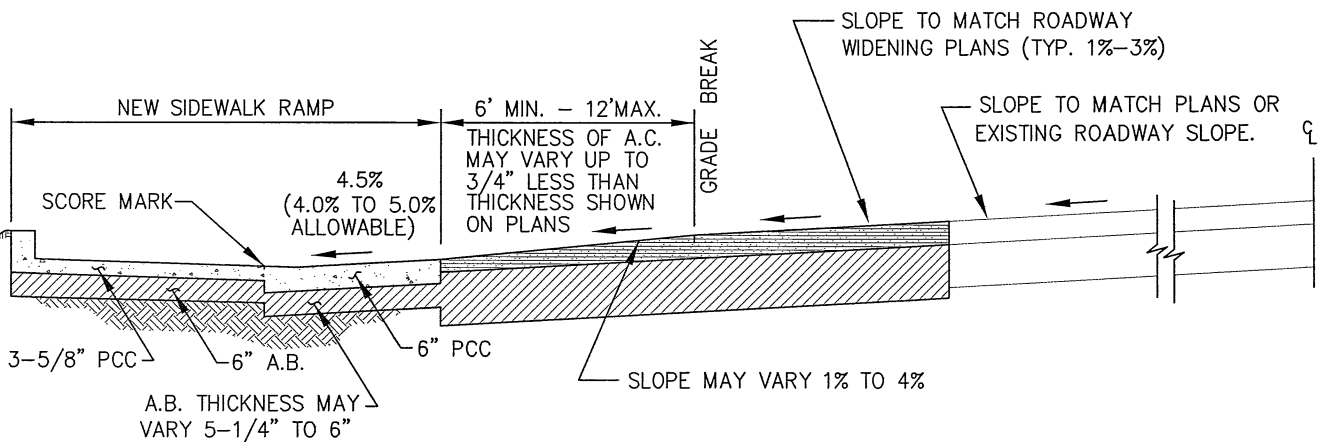
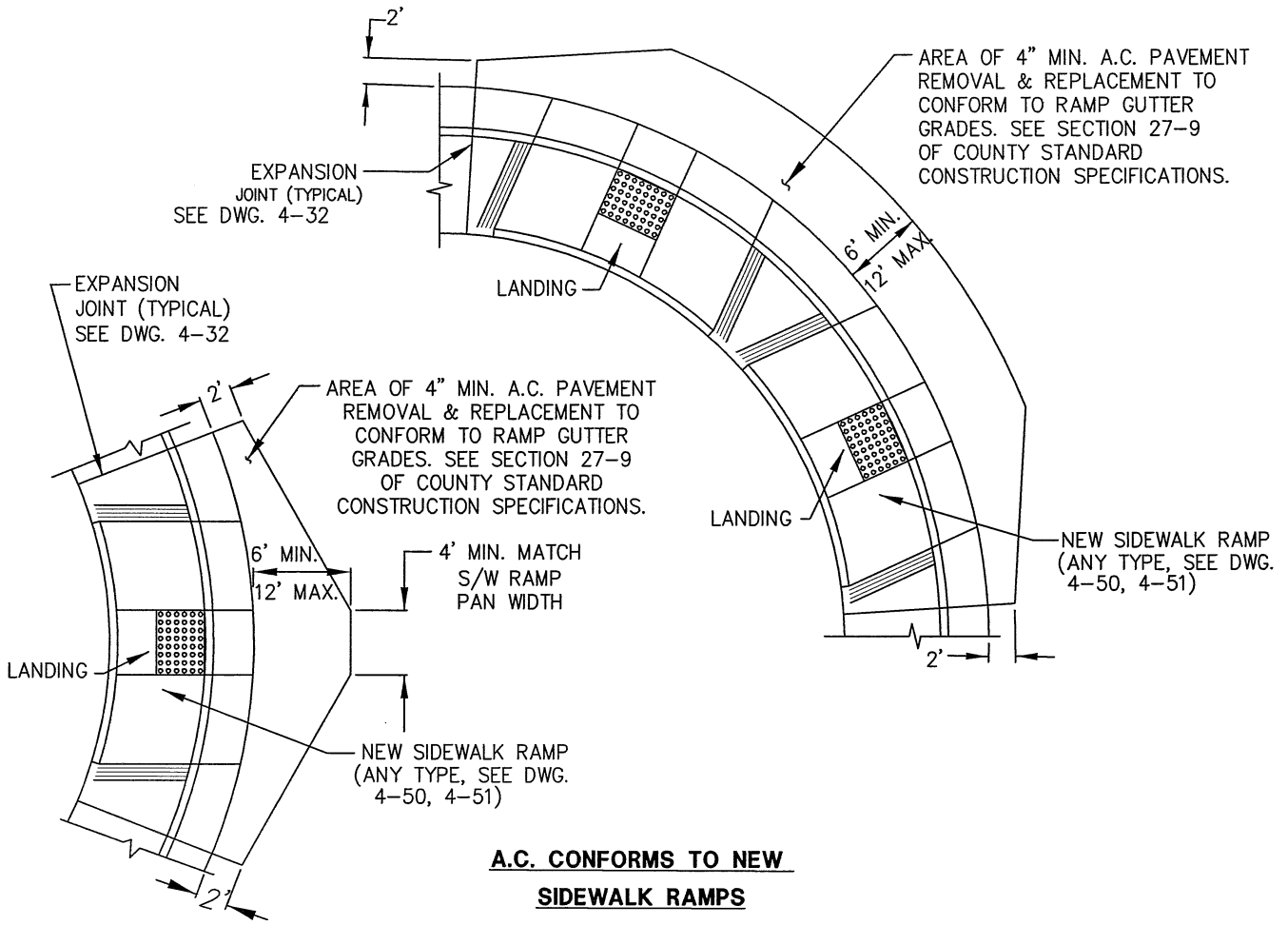
  
 CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**BUS STOP DETAILS**

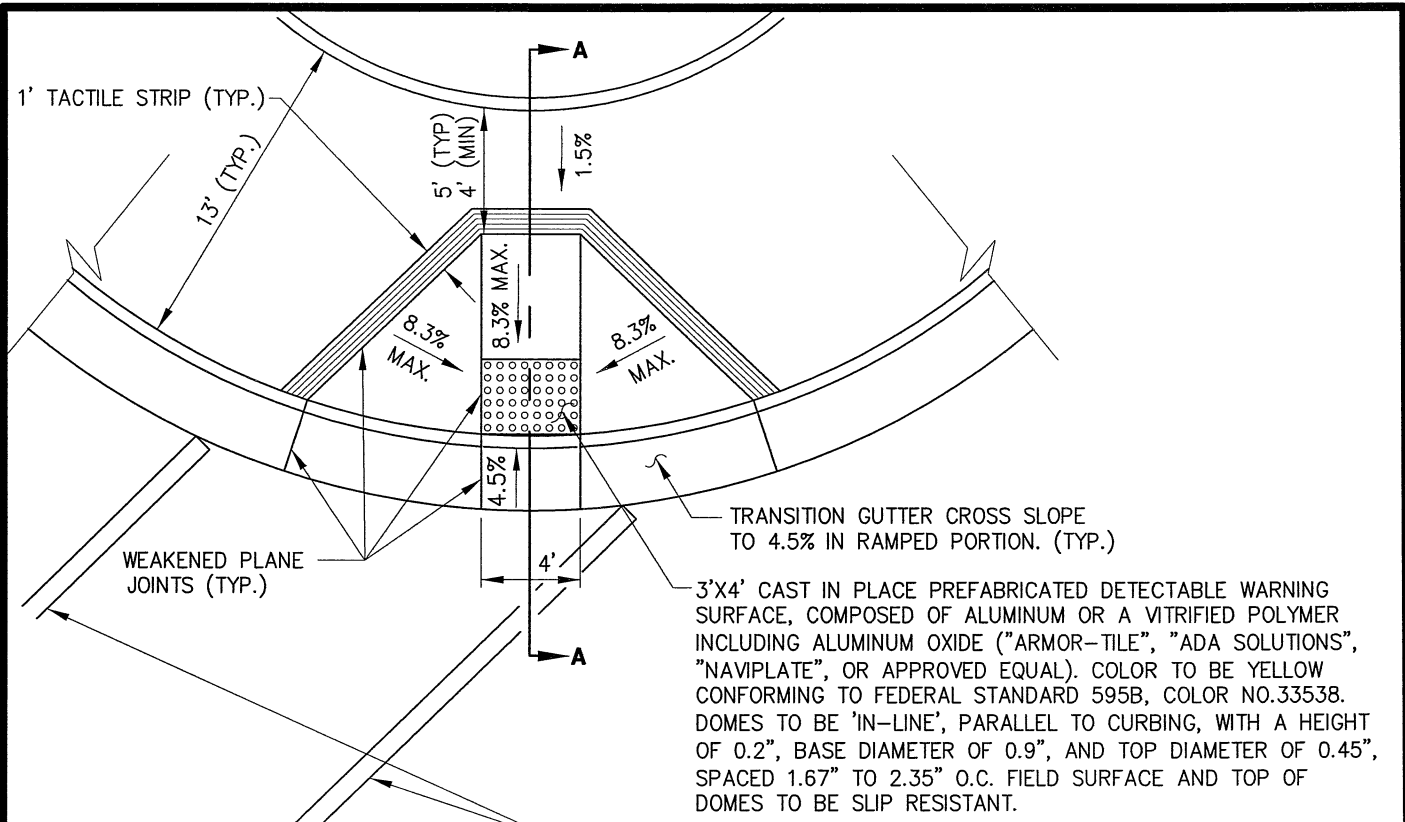
SCALE: NONE  
DATE: 06/08/09  
DRAWN BY: TRU P.

**4-44**



*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>SIDEWALK RAMP INSTALLATION DETAIL - AC CONFORMS IN EXISTING PAVEMENT</b>	
SCALE: NONE DATE: 01/09/09 DRAWN BY: TRU P. & B.R.	<b>4-49</b>

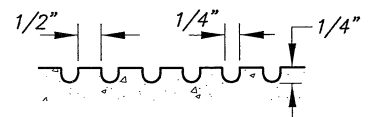
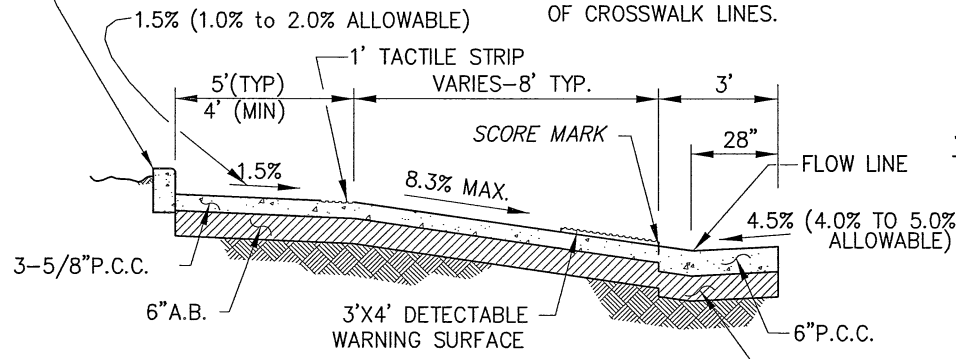


TRANSITION GUTTER CROSS SLOPE TO 4.5% IN RAMPED PORTION. (TYP.)

3'X4' CAST IN PLACE PREFABRICATED DETECTABLE WARNING SURFACE, COMPOSED OF ALUMINUM OR A VITRIFIED POLYMER INCLUDING ALUMINUM OXIDE ("ARMOR-TILE", "ADA SOLUTIONS", "NAVIPLATE", OR APPROVED EQUAL). COLOR TO BE YELLOW CONFORMING TO FEDERAL STANDARD 595B, COLOR NO.33538. DOMES TO BE 'IN-LINE', PARALLEL TO CURBING, WITH A HEIGHT OF 0.2", BASE DIAMETER OF 0.9", AND TOP DIAMETER OF 0.45", SPACED 1.67" TO 2.35" O.C. FIELD SURFACE AND TOP OF DOMES TO BE SLIP RESISTANT.

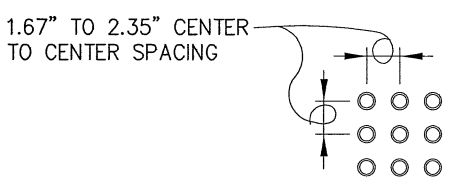
TYPE 3 OR 4 CURB REQUIRED IF ABUTTING PARKING AREA OR LANDSCAPE AREA (EXCEPT LAWN AREA)

CROSSWALK LOCATED FROM TRAFFIC SIGNAL DESIGN PLANS. ALL OF 4' WIDE RAMP PATHWAY SHALL FALL WITHIN EXTENSION OF CROSSWALK LINES.



**TACTILE STRIP GROOVE DETAIL**

**SECTION A-A**  
N.T.S.



**RAISED TRUNCATED DOME PATTERN (IN-LINE)**  
N.T.S.

**NOTES:**

1. SEE DWG. 4-51 TO 4-56 FOR RAMP PLACEMENT REQUIREMENTS.
2. NO PULL BOX, UTILITY VAULT, UTILITY POLE, MANHOLE, TRAFFIC SIGNAL POLE, OR SIMILAR APPURTENANCE SHALL BE LOCATED WITHIN SIDEWALK RAMP AREA.
3. IT IS DESIRABLE TO LOCATE ALL DRAIN INLETS OUT OF SIDEWALK RAMP AREA. USE OF DRAIN INLET WITHIN RAMP AREA REQUIRES SPECIAL DESIGN OF INLETS.

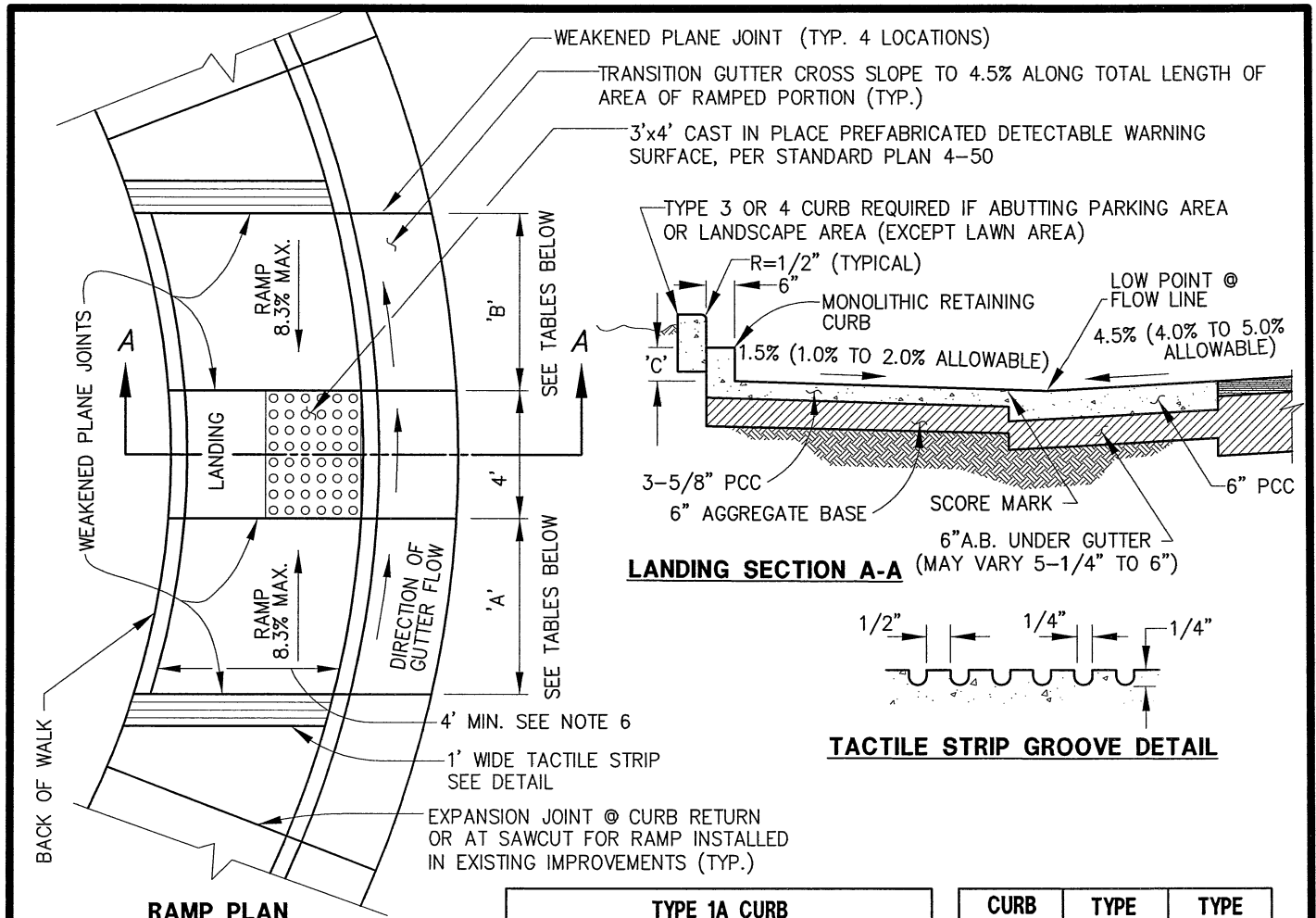
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**SIDEWALK RAMP DETAILS  
PLAZA STYLE**

SCALE: NONE  
DATE: 07/15/2009  
DRAWN BY: TRU P.

**4-50**



**RAMP PLAN**

TYPE 2 CURB			
SLOPE OF GUTTER		APPROX. RAMP LENGTH	
FROM (%)	TO (%)	A	B
0.5%	1.0%	7'-6"	6'-0"
1.0%	1.5%	8'-0"	6'-0"
1.5%	1.8%	8'-6"	5'-6"
1.8%	2.1%	9'-0"	5'-6"
2.1%	2.7%	10'-0"	5'-0"
2.7%	3.2%	11'-0"	5'-0"
3.2%	3.7%	12'-6"	4'-6"
3.7%	4.1%	14'-0"	4'-6"
4.1%	4.7%	15'-0"	4'-6"
> 4.7%		SEE NOTE #4	

TYPE 1A CURB			
SLOPE OF GUTTER		APPROX. RAMP LENGTH	
FROM (%)	TO (%)	A	B
0.5%	1.0%	4'-6"	4'-0"
1.0%	1.7%	5'-0"	3'-6"
1.7%	2.2%	5'-6"	3'-6"
2.2%	2.7%	6'-0"	3'-0"
2.7%	3.1%	6'-6"	3'-0"
3.1%	3.4%	7'-0"	3'-0"
3.4%	3.7%	7'-6"	3'-0"
3.7%	3.9%	8'-0"	3'-0"
3.9%	4.3%	9'-0"	3'-0"
4.3%	5.0%	10'-0"	2'-6"
5.0%	6.0%	15'-0"	2'-6"
> 6.0%		SEE NOTE #4	

CURB TYPE	TYPE 1A	TYPE 2
DIM 'C' *	3-5/8"	6"

\* OR AS NEEDED TO MATCH EXISTING ON SITE IMPROVEMENTS, 8" MAX.

**NOTES:**

1. DIMENSION 'A' IS THE LENGTH OF THE INCLINED PORTION OF THE RAMP THAT SLOPES IN THE SAME DIRECTION AS THE FLOW OF THE GUTTER.
2. DIMENSION 'B' IS THE LENGTH OF THE INCLINED PORTION OF THE RAMP THAT SLOPES IN THE OPPOSITE DIRECTION AS THE FLOW OF THE GUTTER.
3. RAMPS SHALL HAVE A HEAVY BROOM FINISH TRANSVERSE TO THEIR SLOPE.
4. REQUIRES SPECIAL DESIGN APPROVAL BY THE CHIEF OF THE DEPARTMENT OF TRANSPORTATION.
5. NO PULL BOX, UTILITY VAULT, UTILITY POLE, TRAFFIC SIGNAL POLE, MANHOLE, OR SIMILAR APPURTENANCE SHALL BE LOCATED WITHIN SIDEWALK RAMP AREA.
6. FOR CURB RETURNS WITH 4' SIDEWALK SEE DRAWING 4-54.

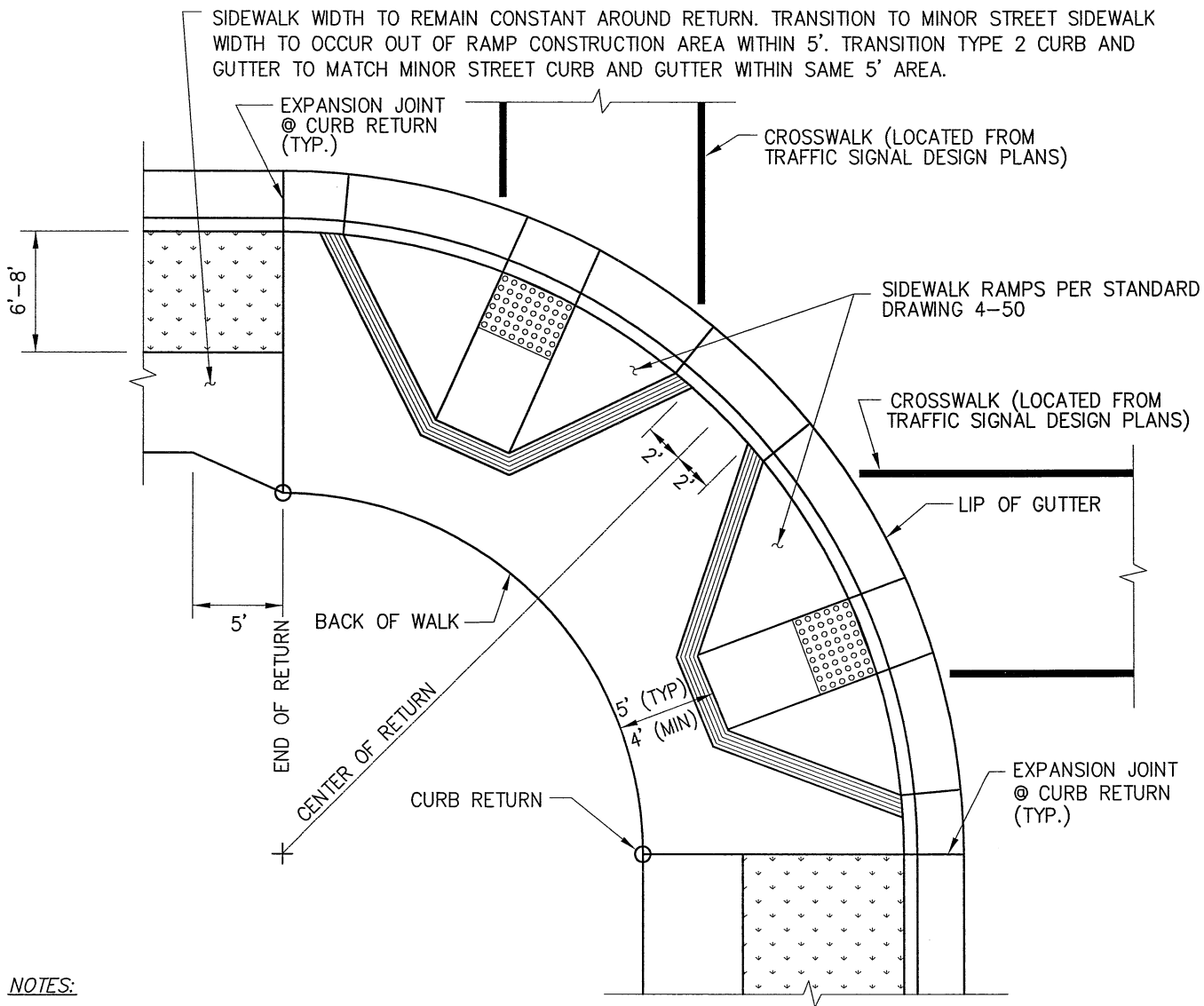
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**SIDEWALK RAMP DETAILS  
PARALLEL STYLE**

SCALE: NONE  
DATE: 07/28/09  
DRAWN BY: TRU P. & B.R.

**4-51**



**NOTES:**

1. AT INTERSECTIONS WITH ARTERIALS AND/OR THOROUGHFARES, THE CORNER RETURNS SHALL HAVE TWO (2) RAMPS AS SHOWN. EXCEPTIONS SEE NOTES 4 & 5.
2. AT INTERSECTIONS WITH NO ARTERIAL OR THOROUGHFARE STREET, SINGLE RAMPS AT THE CENTER OF THE RETURNS MAY BE USED. SEE STANDARD DRAWINGS 4-53, 4-54, 4-56, 4-57.
3. FULL WIDTH OF RAMP SHALL BE LOCATED WITHIN THE EXTENSION OF THE ASSOCIATED CROSSWALK STRIPES, WHERE STRIPED CROSSWALKS EXIST.
4. ON STREETS WITH A CONTINUOUS RAISED MEDIAN ACROSS THE INTERSECTION, A SINGLE SIDEWALK RAMP IS TO BE INSTALLED ON EACH CORNER AT THE CENTER OF RETURN.
5. FOR CORNERS WITH TWO STRIPED CROSSWALKS AND WITH OBSTRUCTIONS THAT PREVENT THE CONSTRUCTION OF TWO STANDARD RAMPS, A SINGLE SIDEWALK RAMP MAY BE INSTALLED CENTERED IN THE TWO CROSSWALKS. THE WIDTH OF RAMP IS TO BE 6'. THE WARNING SURFACE MATERIAL SHALL BE THREE FEET BY SIX FEET. USE OF THIS OPTION REQUIRES PRIOR WRITTEN APPROVAL BY CHIEF OF THE DEPARTMENT OF TRANSPORTATION.

  
 CHIEF, DEPT. OF TRANSPORTATION

<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>SIDEWALK RAMP PLACEMENT MAJOR STREET INTERSECTION</b>	
SCALE: NONE	<b>4-52</b>
DATE: 04/02/2009	
DRAWN BY: B.R. & TRU P.	

## PLAZA CONSTRUCTION NOTE

1. GRADE PLAZA AREA BEHIND RAMP AND ASSOCIATED SIDEWALK CONFORMS TO DRAIN. TYPICAL SLOPE IS 1.5% TOWARD STREET. MAXIMUM SLOPE IS 2.0% IN EITHER DIRECTION.

## CURB EXTENSION OFFSETS

STREET DESIGNATION	APPROACH OFFSET	DEPARTURE OFFSET
MINOR RESIDENTIAL	11'	13'
PRIMARY RESIDENTIAL	11'	13'
COLLECTOR	15'	15'
MAJOR COLLECTOR	22'	22'

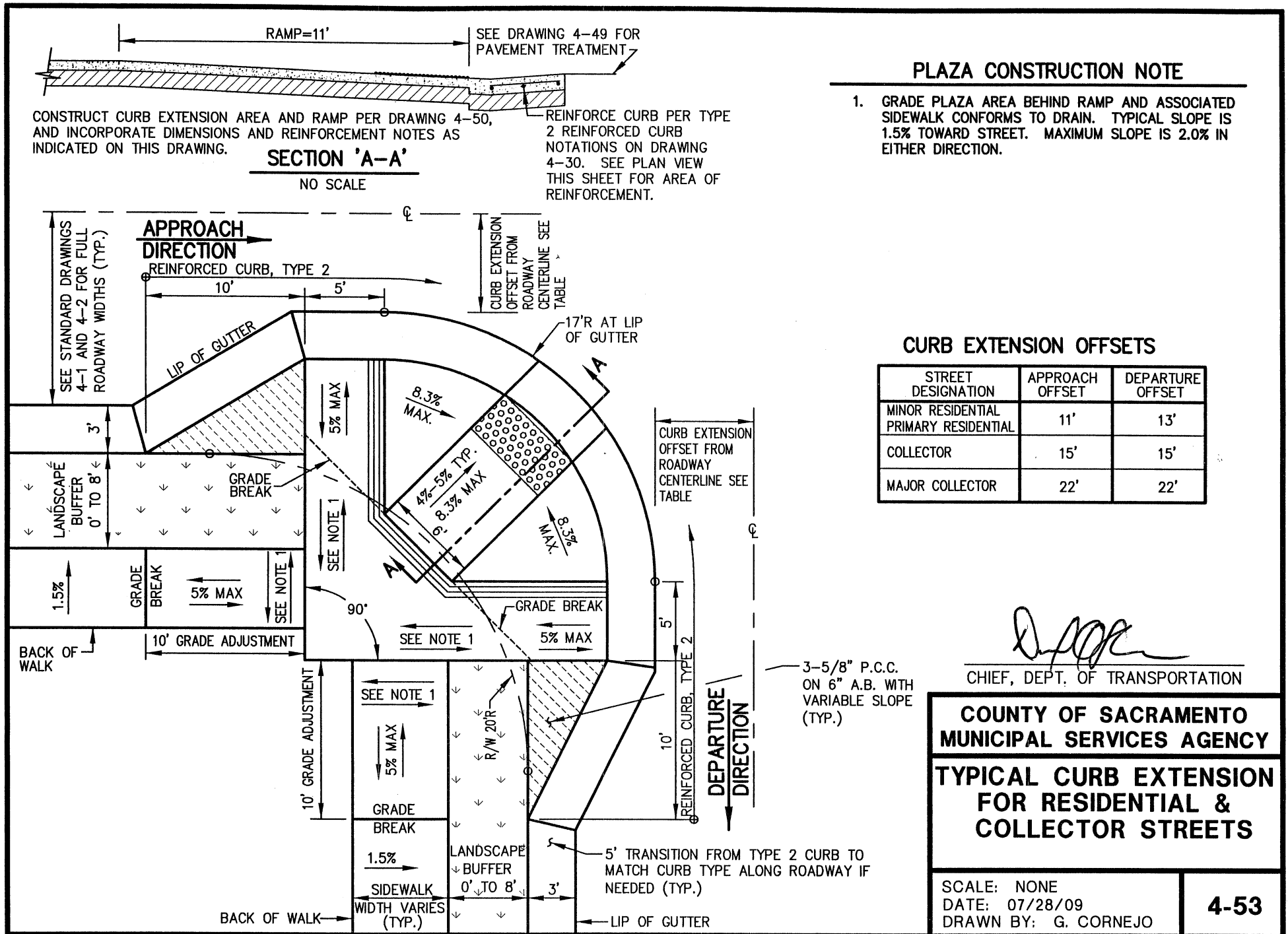
*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION

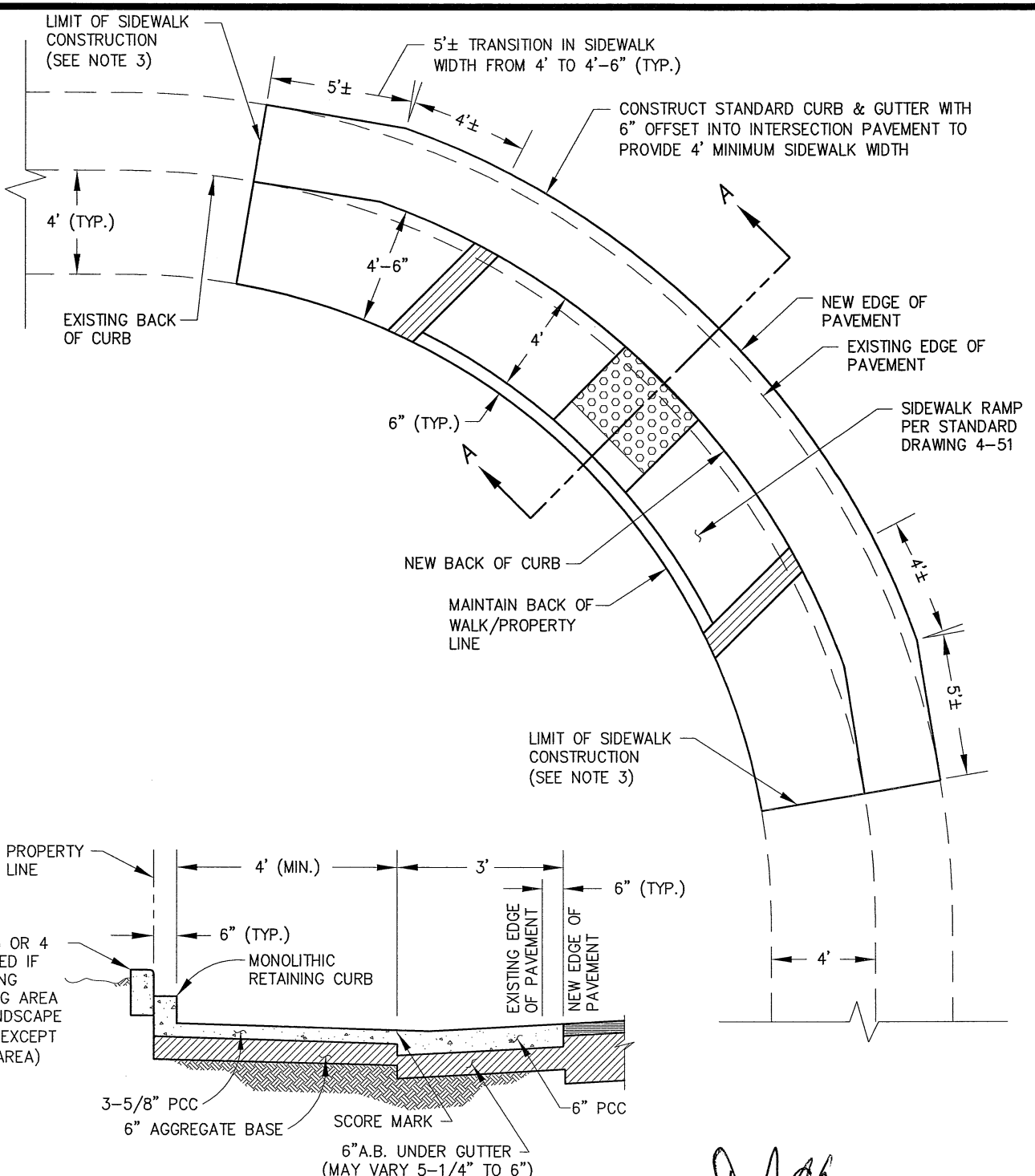
**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**TYPICAL CURB EXTENSION  
FOR RESIDENTIAL &  
COLLECTOR STREETS**

SCALE: NONE  
DATE: 07/28/09  
DRAWN BY: G. CORNEJO

**4-53**





**LANDING SECTION A-A**

**NOTES:**

1. RAMPS SHALL HAVE A HEAVY BROOM FINISH TRANSVERSE TO THEIR SLOPE.
2. NO PULL BOX, UTILITY VAULT, UTILITY POLE, TRAFFIC SIGNAL POLE, MANHOLE, OR SIMILAR APPURTENANCE SHALL BE LOCATED WITHIN SIDEWALK RAMP AREA.
3. REMOVE AND REPLACE SIDEWALK TO NEAREST JOINT (CONSTRUCTION, EXPANSION, OR WEAKENED PLANE). DOWELL TO EXISTING PER DRAWING 4-32.
4. ASPHALT CONCRETE RECONSTRUCTION ALONG NEW RAMP SHALL CONFORM TO DRAWING 4-49.
5. USE THIS DETAIL WHERE CURB EXTENSION (STANDARD DRAWING 4-53) IS NOT USED WITH PERMISSION OF DIRECTOR OF COUNTY ENGINEERING.

*[Handwritten Signature]*

CHIEF, DEPT. OF TRANSPORTATION

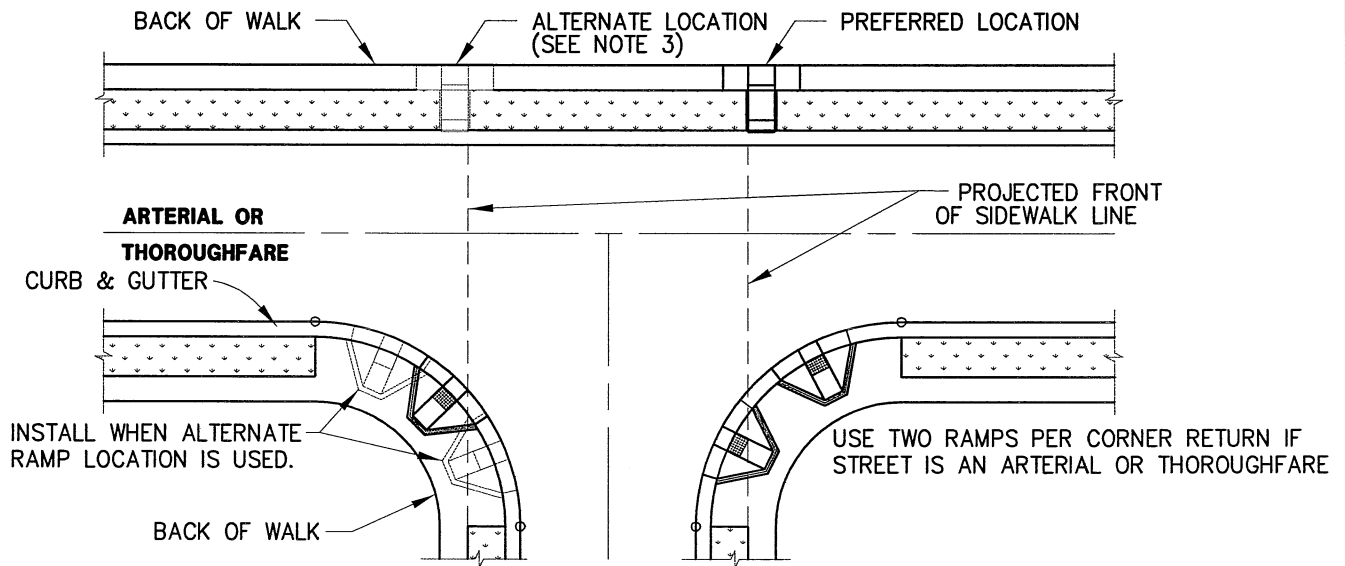
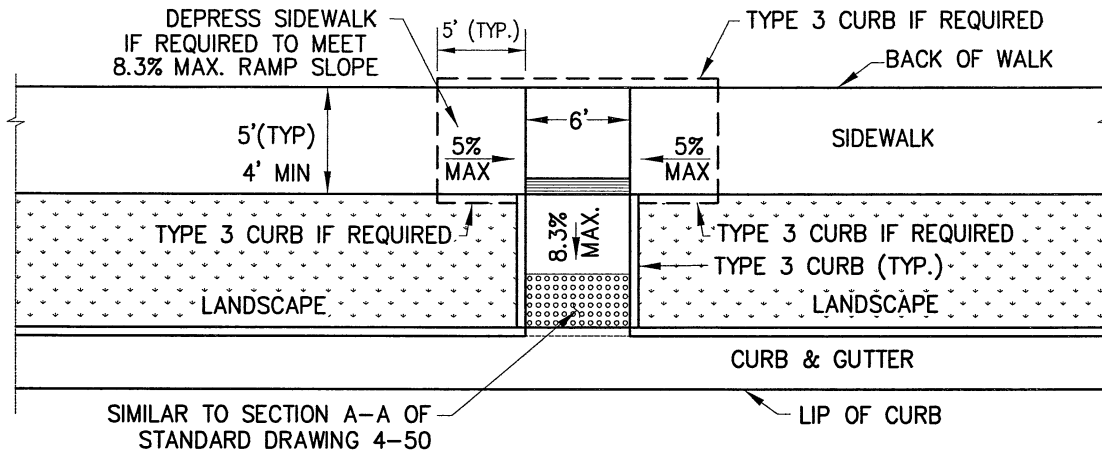
**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**SIDEWALK RAMP DETAILS  
FOR RETROFIT OF EXISTING  
4' WIDE SIDEWALKS**

SCALE: NONE  
DATE: 04/21/09  
DRAWN BY: B.R.

**4-54**





*[Handwritten Signature]*

CHIEF, DEPT. OF TRANSPORTATION

NOTES:

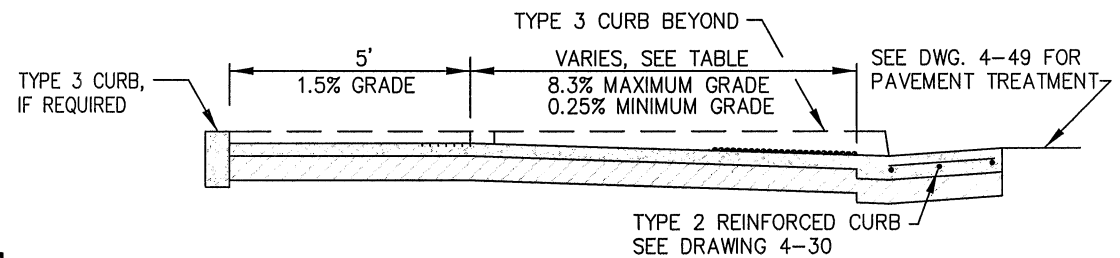
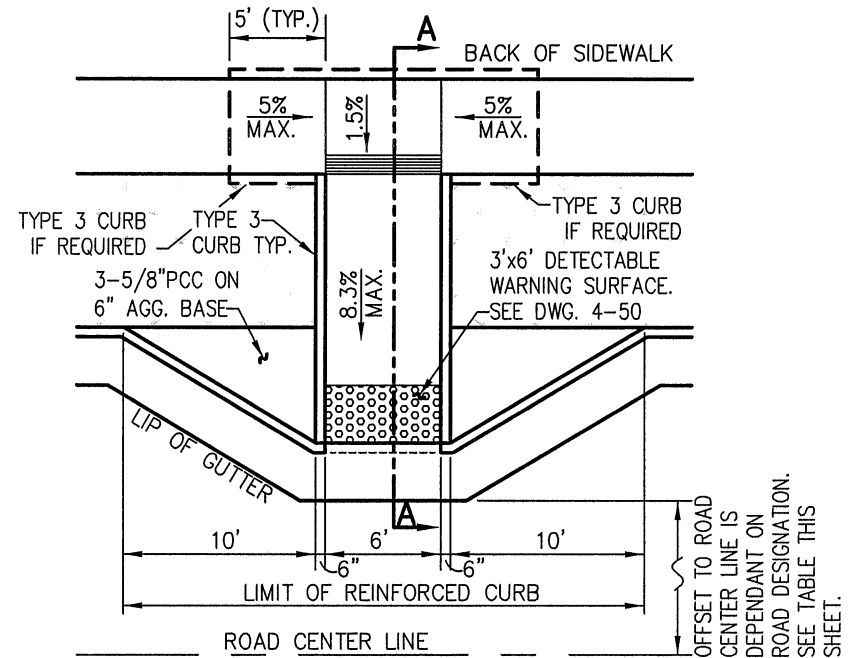
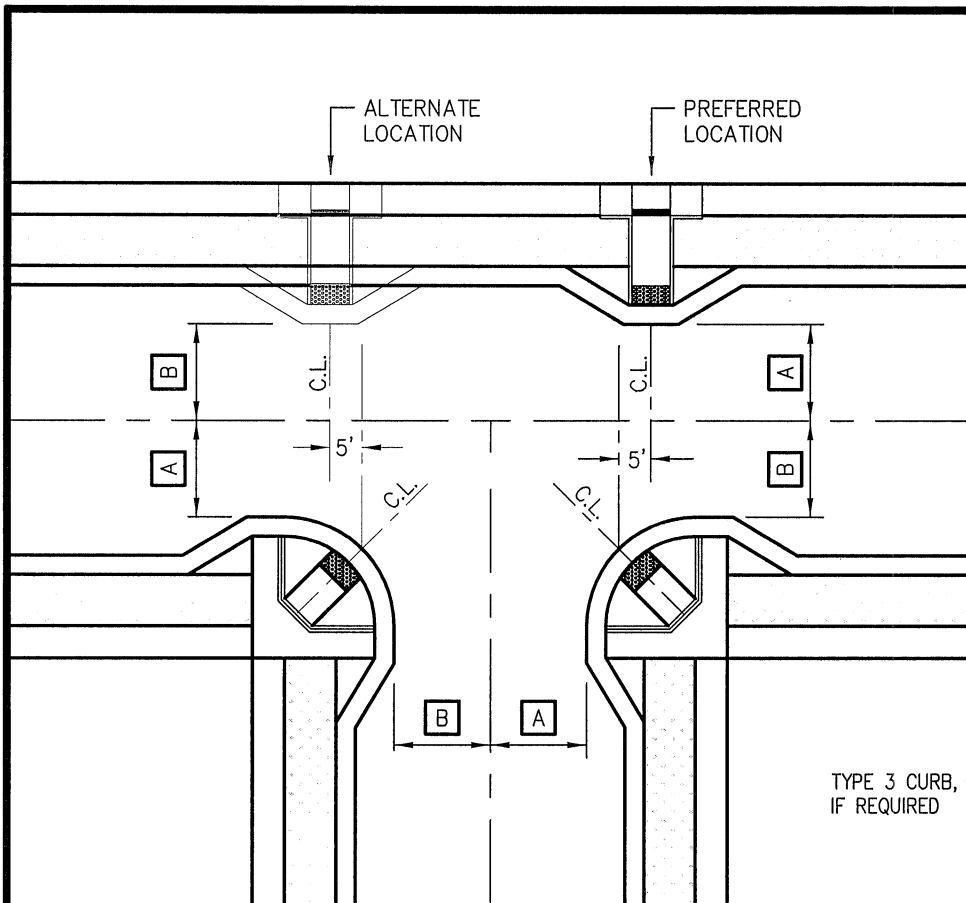
1. MARKED CROSSWALKS SHALL HAVE RAMPS AT BOTH ENDS WITH THE RAMP TERMINATING WITHIN THE MARKED CROSSWALK.
2. AT "T" INTERSECTIONS WITH UNMARKED CROSSWALKS ONLY 1 RAMP (REFERRED TO AS THE "T-RAMP") IS REQUIRED AT THE TOP OF THE "T" INTERSECTION.
3. AT "T" INTERSECTIONS ADJACENT TO SCHOOLS TWO RAMPS ARE REQUIRED AT TOP OF THE "T" WHETHER THE CROSSWALK IS MARKED OR UNMARKED
4. WHEN CROSSWALK IS UNMARKED, THE T-RAMP SHOULD BE LOCATED IN LINE WITH THE EXTENSION OF THE SIDEWALK FROM ACROSS THE STREET.
5. THIS DETAIL SHALL BE USED IN LOCATIONS WHERE NO CURB EXTENSION EXISTS.

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**SIDEWALK RAMPS AT  
"T" INTERSECTIONS FOR  
ARTERIAL STREETS &  
THOROUGHFARE STREETS**

SCALE: NONE  
DATE: 04/01/09  
DRAWN BY: TRU P. & B.R.

**4-55**



**SECTION 'A-A'**  
NO SCALE

	A	B
STREET DESIGNATION	APPROACH OFFSET	DEPARTURE OFFSET
MAJOR COLLECTOR	22'	22'
COLLECTOR	15'	15'
MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL	11'	13'

SEE DWG. 4-53 FOR TYPICAL CORNER EXTENSION DESIGN.

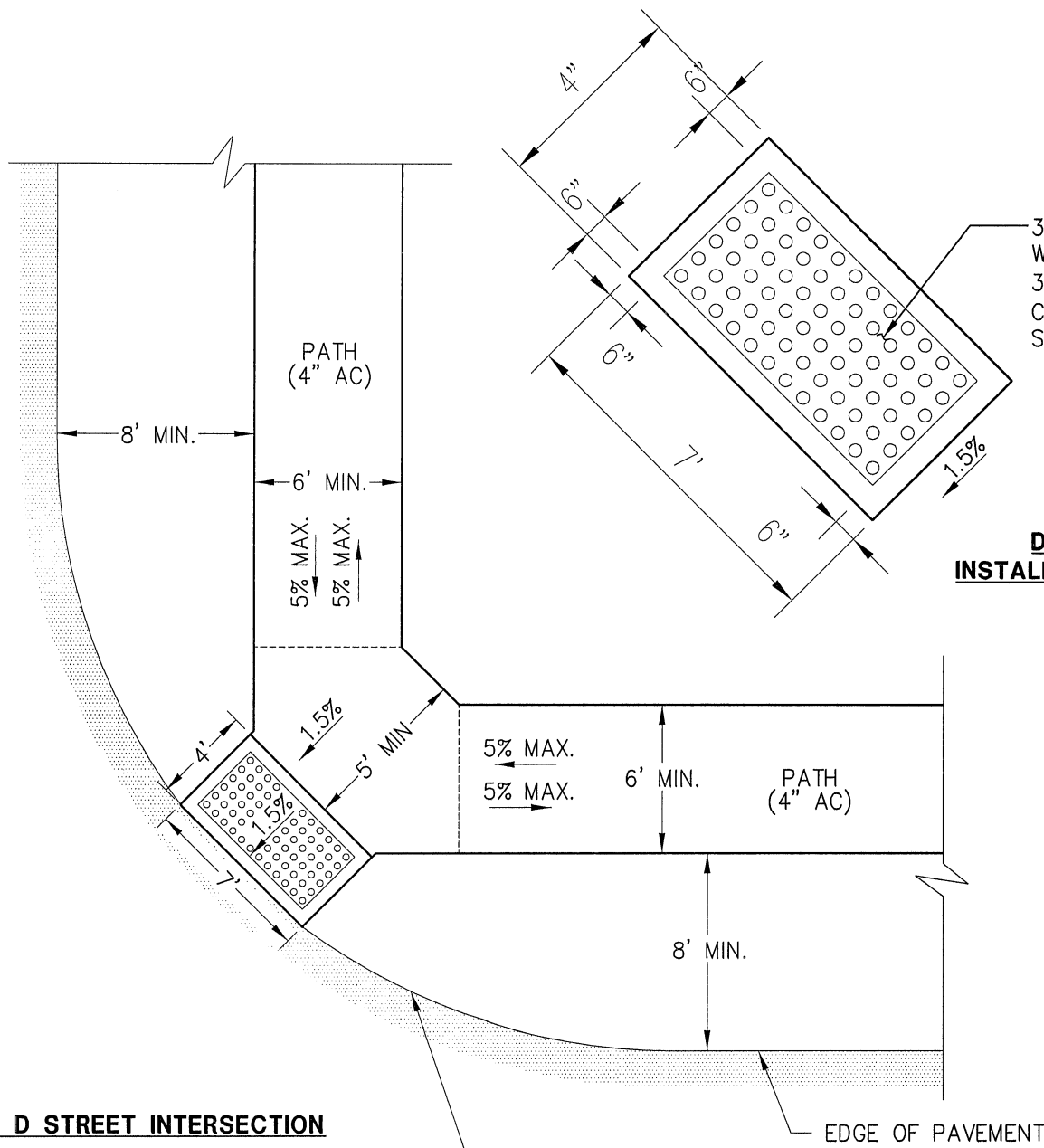
**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**SIDEWALK RAMPS AT  
"T" INTERSECTIONS FOR  
RESIDENTIAL STREETS &  
COLLECTOR STREETS**

SCALE: NONE  
DATE: 01/22/09  
DRAWN BY: G. CORNEJO

**4-56**

*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION



3'x6' CAST IN PLACE DETECTABLE WARNING SURFACE; INSTALL IN 3-5/8" PCC ON 6" AGG. BASE, COMPACTED TO 95%, WITH 6" PCC; SLOPE AT 1.5% TOWARDS ROADWAY.

**DETECTABLE WARNING SURFACE  
INSTALLATION DETAIL AT AC PED LANDINGS**

CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**PEDESTRIAN LANDINGS  
AT CLASS D STREETS**

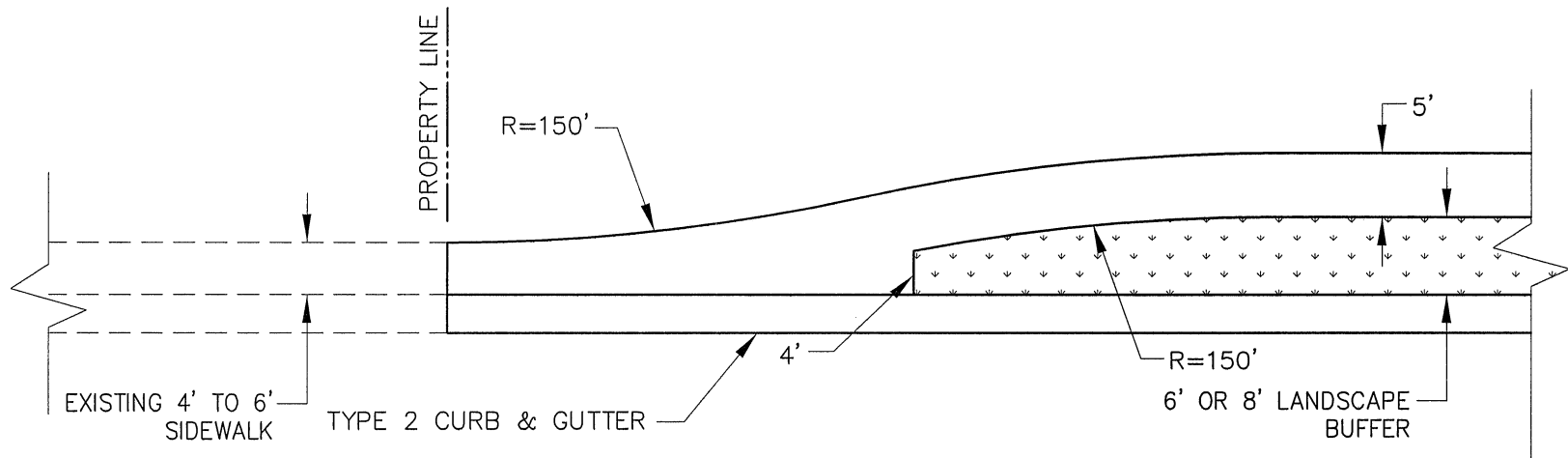
SCALE: NONE  
DATE: 04/01/2009  
DRAWN BY: J.S.

**4-57**

**CLASS D STREET INTERSECTION**

R=25' MIN.;  
R=35' MIN. AT ARTERIAL  
OR THOROUGHFARES

EDGE OF PAVEMENT



**CLASS A STREET WITH SEPARATED SIDEWALK TO**  
**CLASS A STREET WITH ATTACHED SIDEWALK**

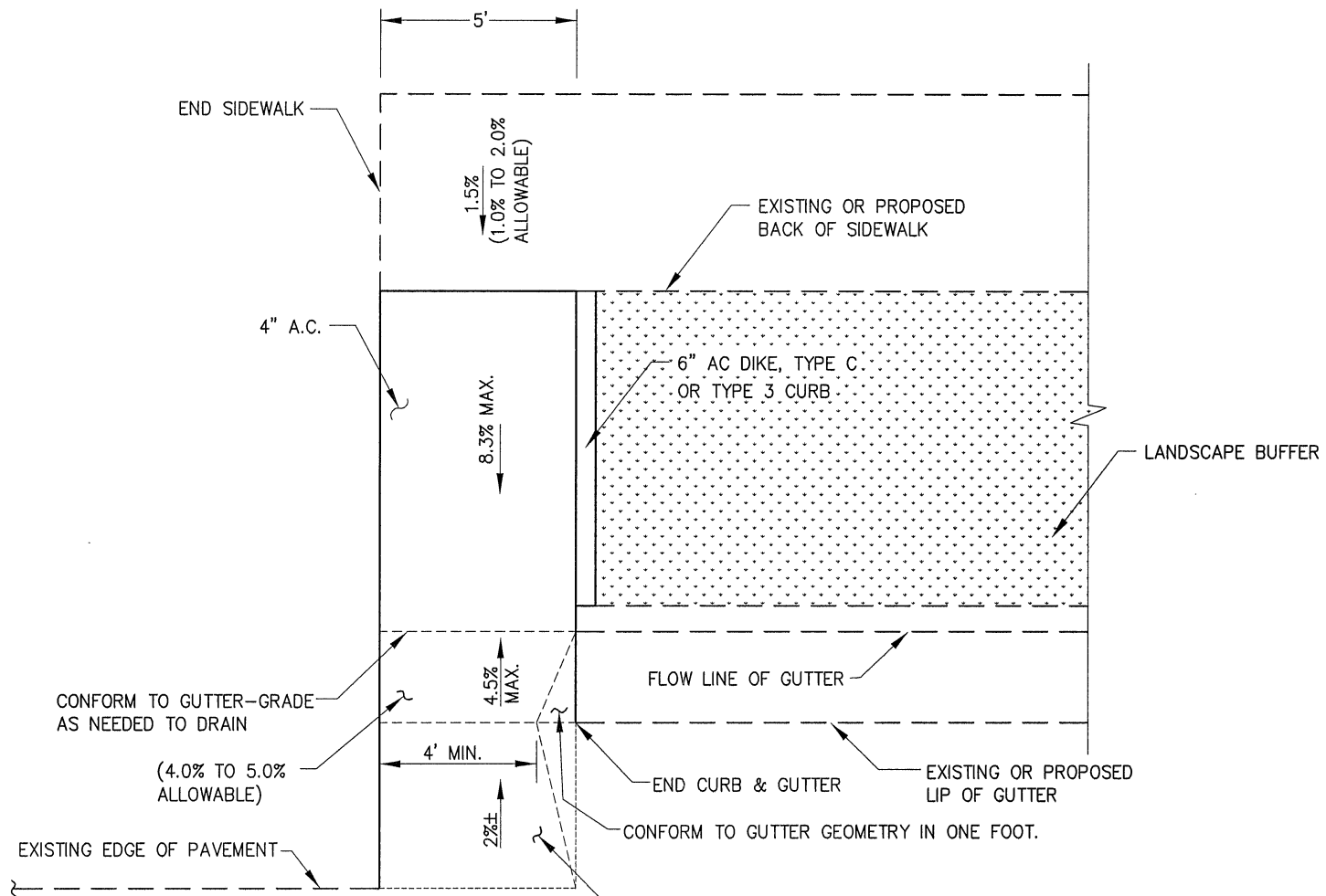
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO**  
**MUNICIPAL SERVICES AGENCY**

**SIDEWALK CONFORMS**

SCALE: NONE  
 DATE: 04/01/09  
 DRAWN BY: TRU P.

**4-58**



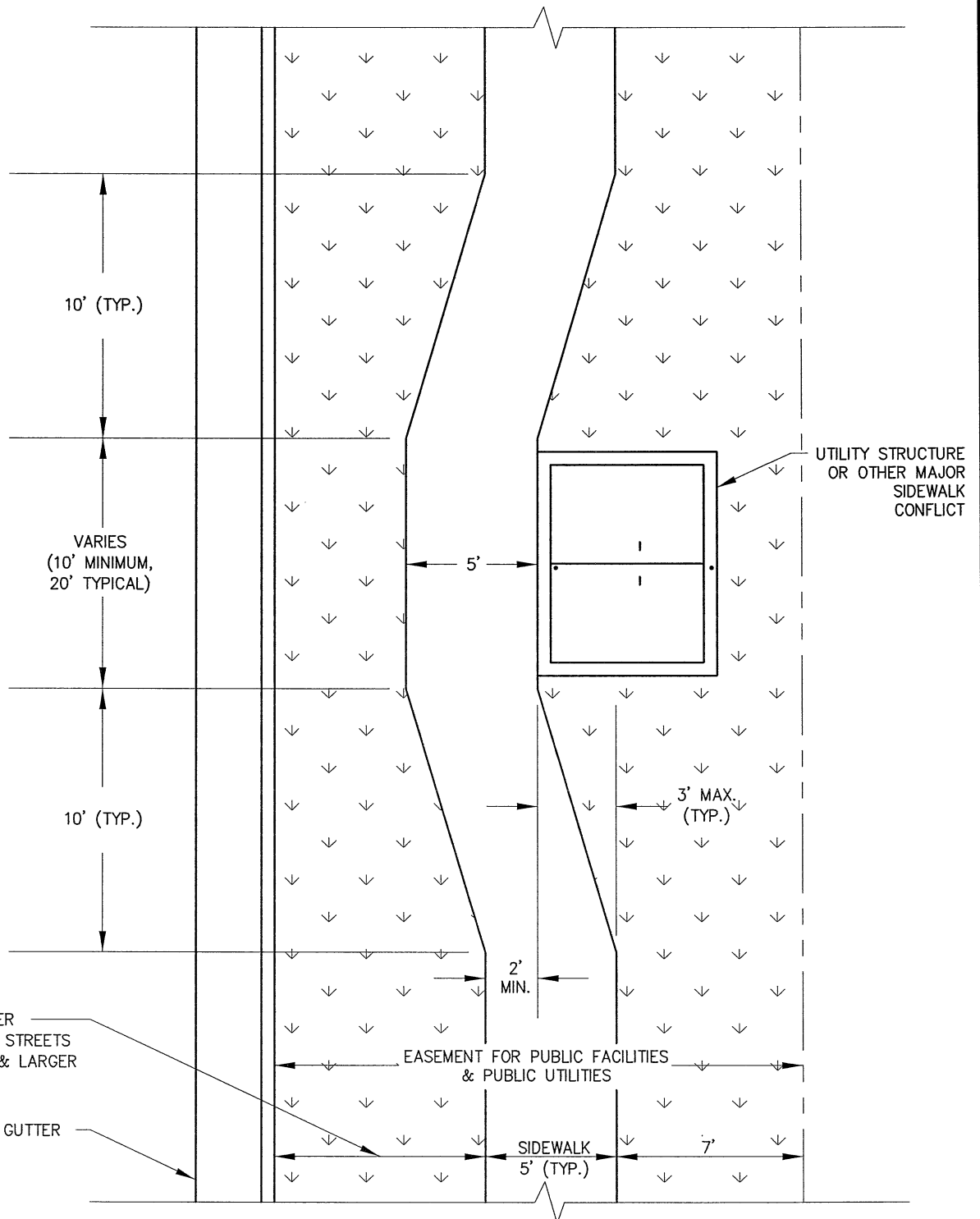
NOTE: A SIDEWALK BARRICADE SHALL BE REQUIRED IF THE END OF THE A.C. SIDEWALK CONFORM ABUTS A DRAINAGE DITCH OR ANY OTHER SURFACE THAT WOULD POSE A HAZARD TO PEDESTRIANS.

SEE DWG. 4-62 FOR ROADSIDE NARROWING STANDARDS

CONSTRUCT PORTION OF AC SIDEWALK CONFORM BEYOND EXTENSION OF LIP OF GUTTER TO ROADWAY STANDARDS IF CONSTRUCTED WITH ROADWAY WIDENING.

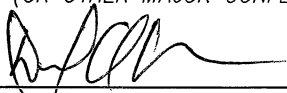
*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>SIDEWALK CONFORM END OF SEPARATED SIDEWALK</b>	
SCALE: NONE	<b>4-59</b>
DATE: 04/01/09 DRAWN BY: B.R. & TRU P.	



**NOTES:**

1. THIS DETAIL IS TO BE USED TO RESOLVE CONFLICTS BETWEEN SEPARATED SIDEWALKS AND UTILITY STRUCTURES (OR OTHER MAJOR CONFLICTS).
2. WHERE REASONABLY POSSIBLE, LOCATE UTILITY FACILITIES OUTSIDE OF SIDEWALK AREA OR WITHIN SIDEWALK AT SIDEWALK GRADE TO MINIMIZE USE OF THIS DETAIL.
3. INSTALL EXPANSION JOINTS ACROSS FULL WIDTH OF SIDEWALK ON BOTH SIDES OF THE UTILITY STRUCTURE (OR OTHER MAJOR CONFLICTING FACILITY).

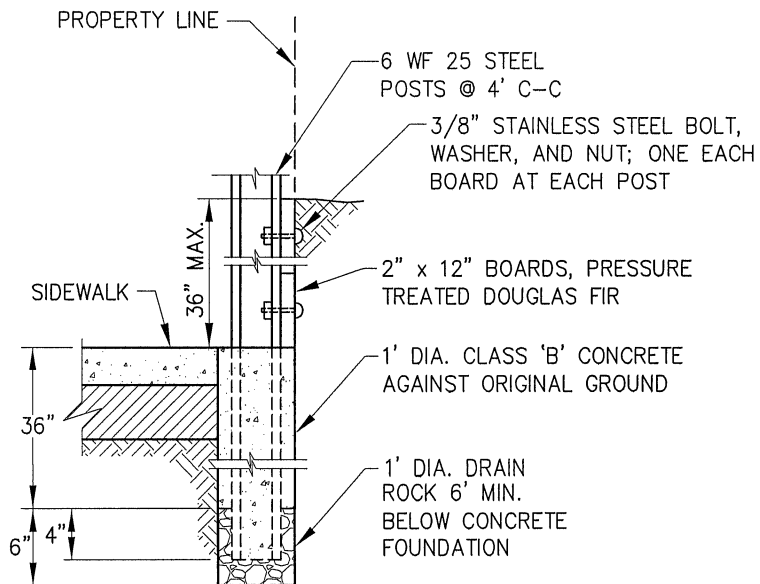
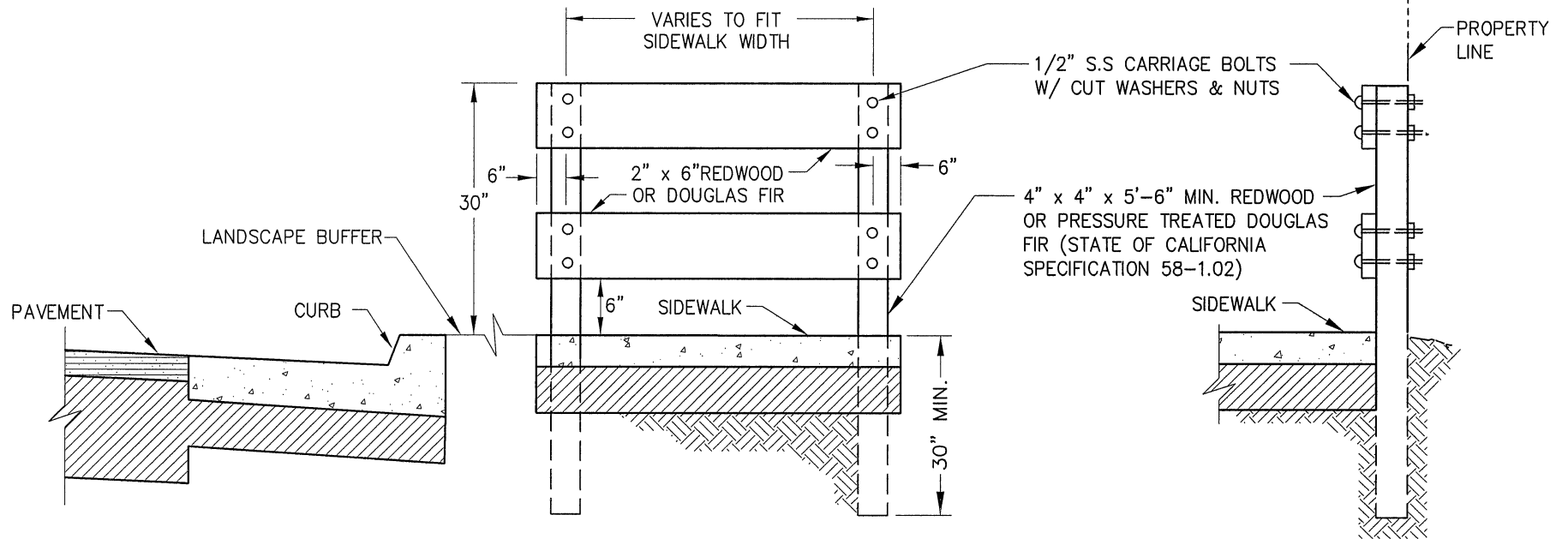
  
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**SIDEWALK FLAIR AT UTILITY  
STRUCTURE OR OTHER  
MAJOR CONFLICT**

SCALE: NONE  
DATE: 05/29/09  
DRAWN BY: B.R.

**4-60**



**DETAIL FOR SIDEWALK BARRICADE  
WITH RETAINING WALL**

NOTES:

1. SIDEWALK BARRICADES TO BE ERECTED AT EACH LOCATION WHERE SATISFACTORY PROVISION CAN NOT BE MADE FOR PEDESTRIAN TO CONTINUE BEYOND THE TERMINUS OF A SIDEWALK AND A HAZARD IS PRESENT.
2. ALL EXPOSED SURFACES TO BE PAINTED WITH TWO (2) COATS OF WHITE PAINT CONFORMING TO SECTION 91-3 OF STATE SPECIFICATIONS.

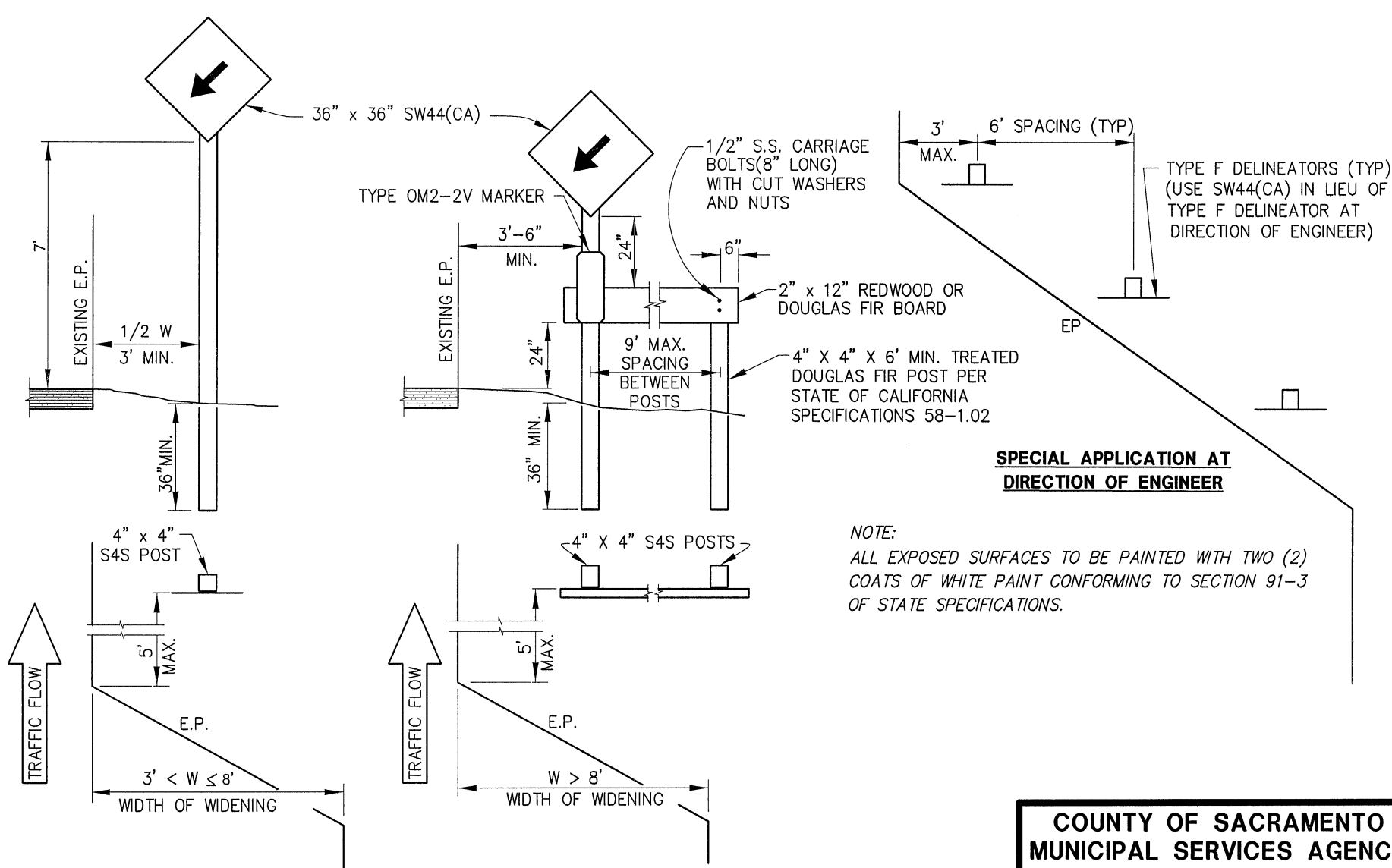
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**SIDEWALK BARRICADE**

SCALE: NONE  
DATE: 07/24/08  
DRAWN BY: TRU P.

**4-61**



**SPECIAL APPLICATION AT  
DIRECTION OF ENGINEER**

*NOTE:  
ALL EXPOSED SURFACES TO BE PAINTED WITH TWO (2)  
COATS OF WHITE PAINT CONFORMING TO SECTION 91-3  
OF STATE SPECIFICATIONS.*

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

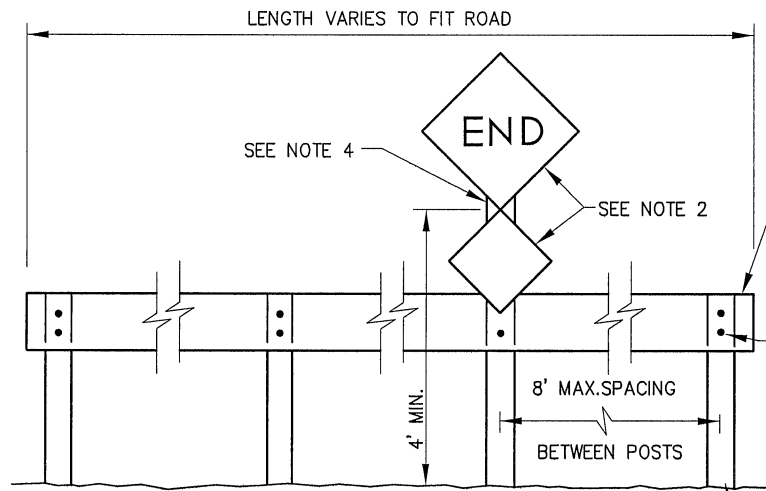
**SIGNING OF LOCATIONS  
WITH ABRUPT CHANGE  
OF PAVEMENT WIDTH**

SCALE: NONE  
DATE: 08/06/08  
DRAWN BY: TRU P.

**4-62**

*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION



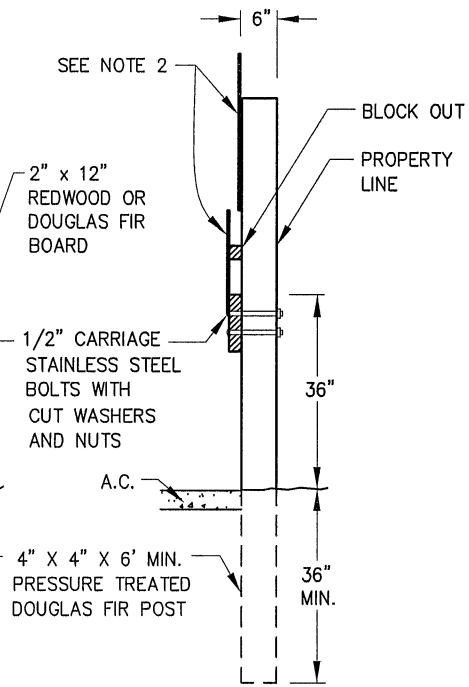


**NUMBER AND SIZE OF SIGNS**

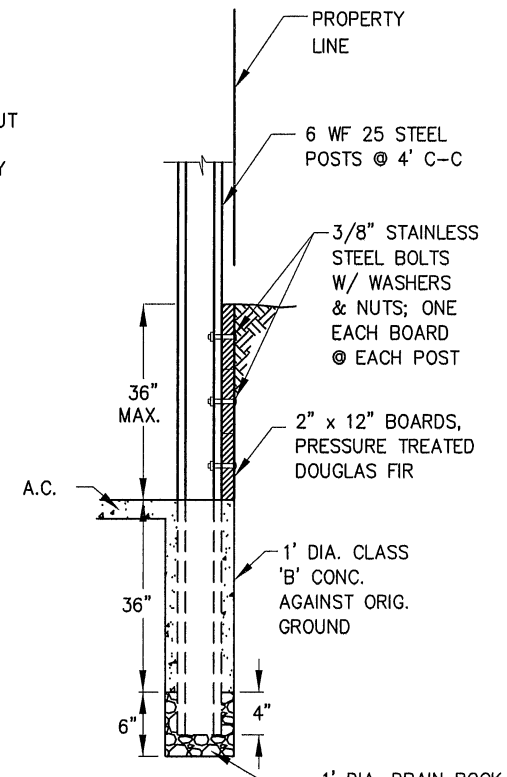
PAVEMENT WIDTH	W31(CA)		OM4-3		R11-2	
	SIZE	NO.	SIZE	NO.	SIZE	NO.
26'	30"	1	18"	1	36" x 24"	1
36' - 56'	30"	1	18"	1	36" x 24"	1
66'	30"	2	18"	2	48" x 30"	1
90' - 110'	30"	3	18"	3	48" x 30"	1

**NOTES:**

1. WHERE PERMISSION HAS BEEN GRANTED TO CLOSE AN EXISTING PUBLIC STREET, A R11-2 "ROAD CLOSED" SIGN MAY BE REQUIRED ON THE CENTERLINE OF THE ROAD IN ADDITION TO THE W31(CA) "END" SIGN.
2. 30" x 30" W31(CA) SIGN AND 18" x 18" OM4-3 MARKER. BLOCK OUT AS NECESSARY FOR OM4-3 MARKER TOP MOUNTING BOLT (BOTTOM MOUNTING BOLT NORMALLY THROUGH BARRIER RAIL). OM4-3 MARKER TO HAVE SOLID RED REFLECTIVE BACKGROUND WITHOUT ADDED REFLECTORS.
3. ALL EXPOSED SURFACES OF BARRICADE SHALL BE PAINTED WITH WHITE PAINT CONFORMING TO STATE STANDARD SPECIFICATION 91-3.
4. POST AT CENTER OR NEAREST TO CENTER ON RIGHT HAND SIDE TO BE EXTENDED TO PROVIDE MOUNTING FOR SIGNS.
5. POSTS SHALL BE PRESSURE TREATED PER STATE SPECIFICATION 58-1.02



**SIDE VIEW**



**STREET ENDING IN CUT WHERE SLOPE NOT OBTAINABLE**

*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
 MUNICIPAL SERVICES AGENCY**

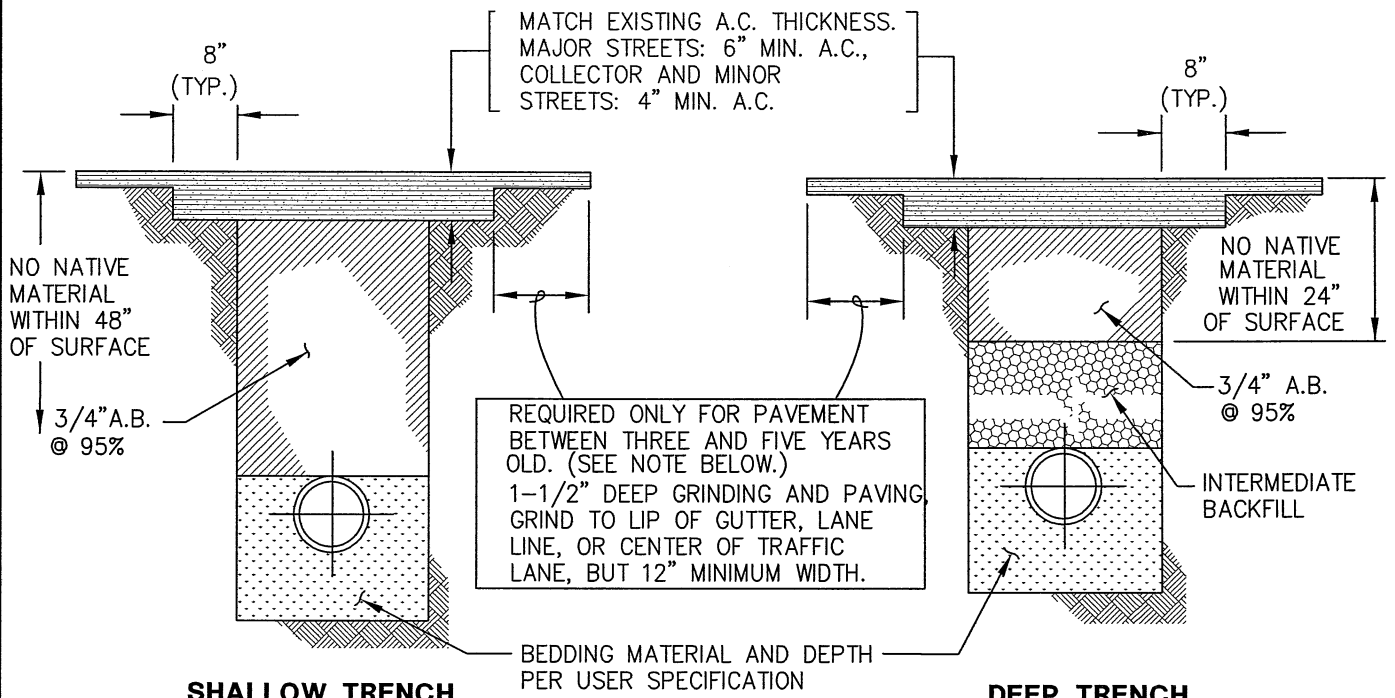
---

**STREET CLOSURE  
 BARRICADE**

---

SCALE: NONE  
 DATE: 04/28/09  
 DRAWN BY: TRU P. & B.R.

**4-63**

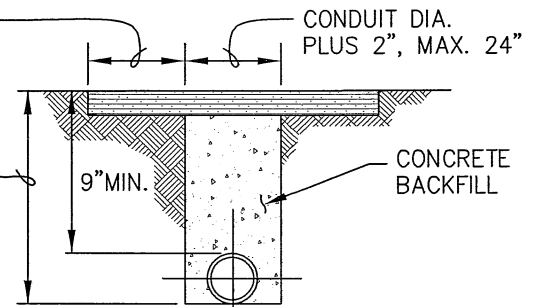


**SHALLOW TRENCH**  
IN EXISTING PAVEMENT  
(LESS THAN 4' COVER)

**DEEP TRENCH**  
IN EXISTING PAVED AREAS  
AND OTHER TRENCHING  
(4' OR MORE COVER)

REQUIRED ONLY FOR PAVEMENT BETWEEN THREE AND FIVE YEARS OLD. (SEE NOTE BELOW.)  
1-1/2" DEEP GRINDING AND PAVING. GRIND TO LIP OF GUTTER IF CENTER OF TRENCH IS WITHIN 20" OF LIP OF GUTTER, OTHERWISE 6" MINIMUM.

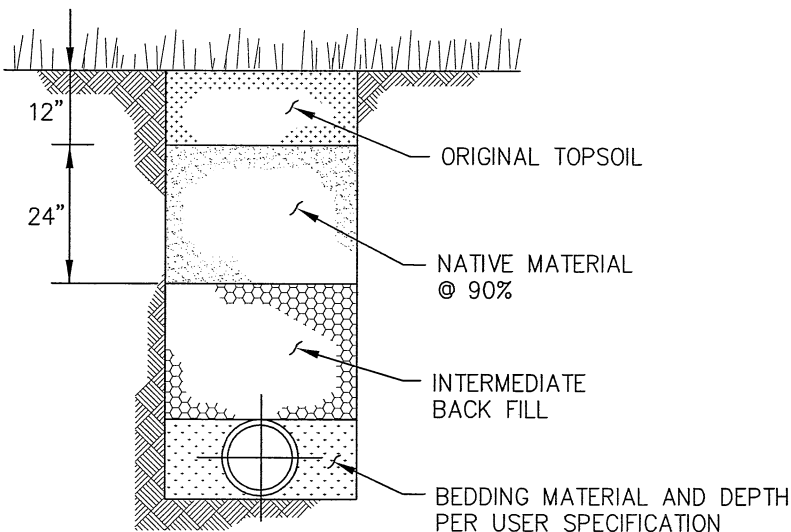
MAXIMUM DEPTH 15" OR ROADWAY STRUCTURAL SECTION LESS 2", WHICHEVER IS GREATER



**EARTH SAW TRENCH SECTION**

(SEE SECTION 49-2.02)

**NOTE:**  
NO PAVEMENT CUTS OR TRENCHES ARE ALLOWED IN PAVEMENT LESS THAN THREE YEARS OLD.



**HORTICULTURE, LAWN, OR CULTIVATED AREAS**

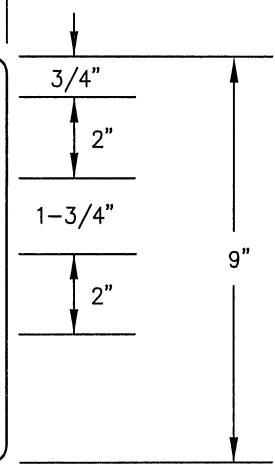
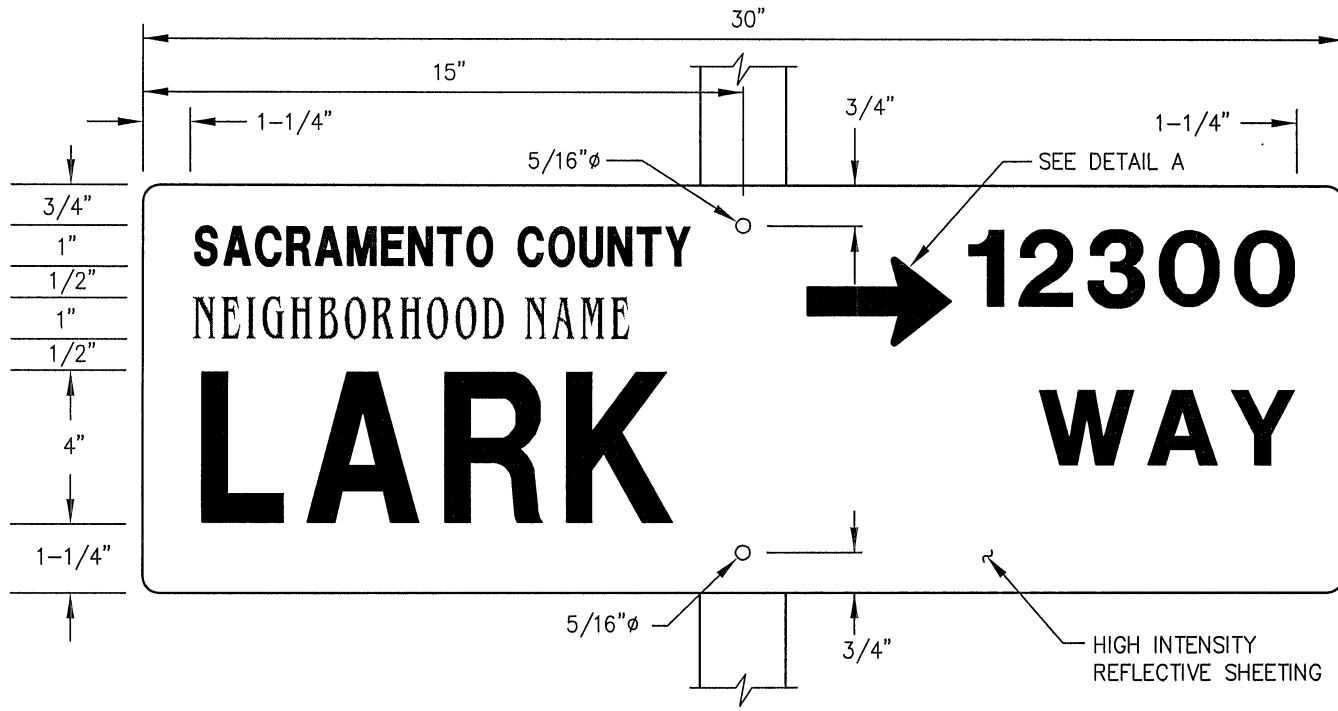
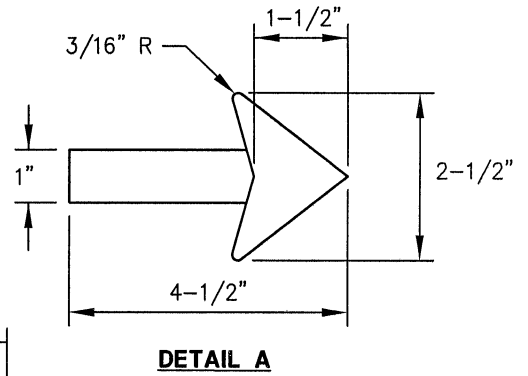
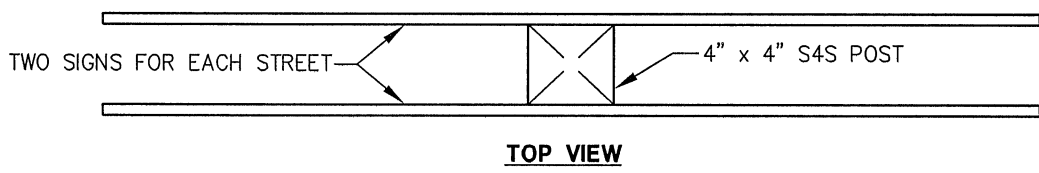
*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**TRENCH SECTIONS**

SCALE: NONE  
DATE: 04/28/09  
DRAWN BY: TRU P. & B.R.

**4-64**

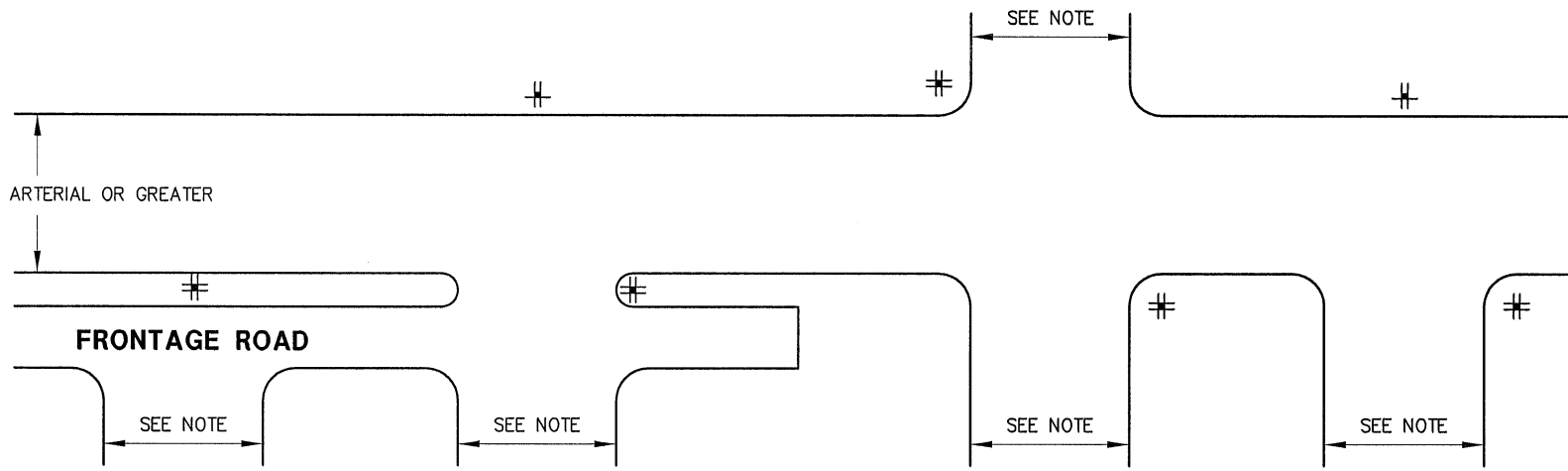


CHIEF, DEPT. OF TRANSPORTATION

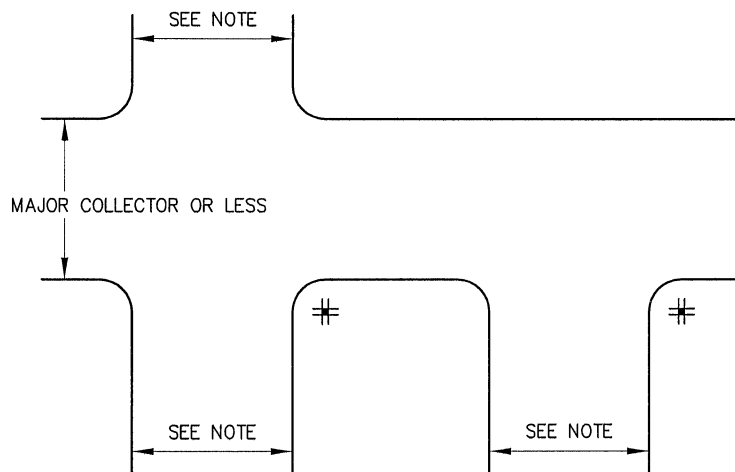
<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>STREET NAME SIGN</b>	
SCALE: NONE DATE: 06/08/2009 DRAWN BY: TRU P. & B.R.	<b>4-70</b>

**NOTES:**

1. ALUMINUM SHEET ALLOY 6061-T6 0.080" GAUGE ROUNDED CORNERS 1/4" RADIUS.
2. FOR TWO (2) STREETS, PLACE SECOND PAIR OF SIGNS AT 90° TO SIGNS AS SHOWN.
3. POSTS SHALL BE REDWOOD OR TREATED DOUGLAS FIR (STATE OF CALIFORNIA SPEC. NO. 56-2.02B).
4. FONTS FOR LETTERING AND NUMBERS SHALL BE "HIGHWAY C" EXCEPT FOR THE NEIGHBORHOOD NAME WHICH SHALL BE "BENGEL MD".
5. USE "NEIGHBORHOOD NAME" WHERE NEIGHBORHOOD DESIGNATION EXISTS. CONFIRM APPROPRIATE NEIGHBORHOOD NAME WITH DEPARTMENT OF TRANSPORTATION PRIOR TO SIGN FABRICATION.



**STREETS CLASSIFIED AS ARTERIAL OR GREATER**



**STREETS CLASSIFIED AS MAJOR COLLECTOR OR LESS**

NOTE:

SIDE STREETS INDICATED ARE CLASSIFIED EQUAL TO OR LESS THAN THROUGH STREET AS SHOWN ON THE PLAN.

LEGEND:

✦ STANDARD STREET NAME SIGN INSTALLATION. FOUR (4) SIGN PLATES ON 4" x 4" POST OR ON STREET LIGHT POLE.

✦ THREE (3) SIGN PLATES ON 4" x 4" POST OR ON STREET LIGHT POLE.

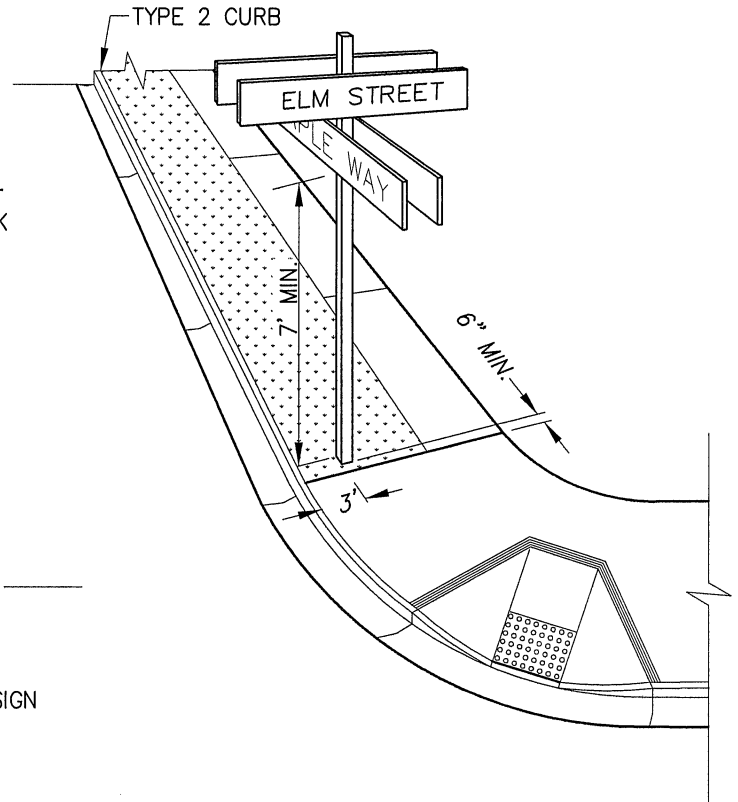
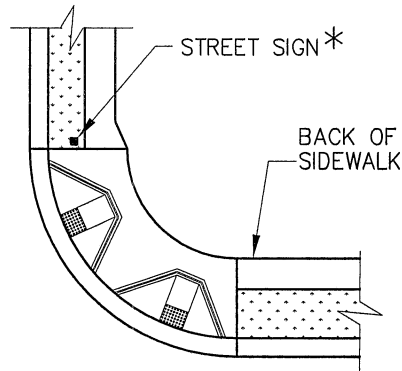
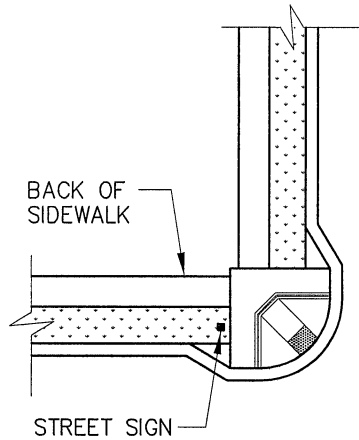
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**STREET NAME SIGN  
LOCATION REQUIREMENTS**

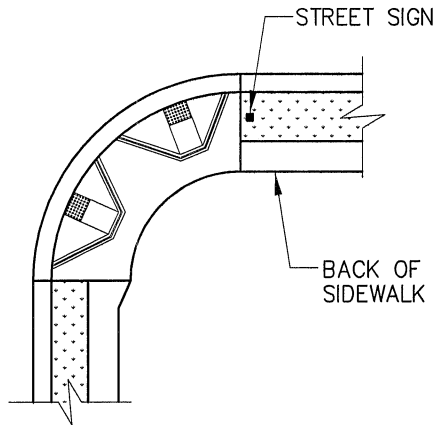
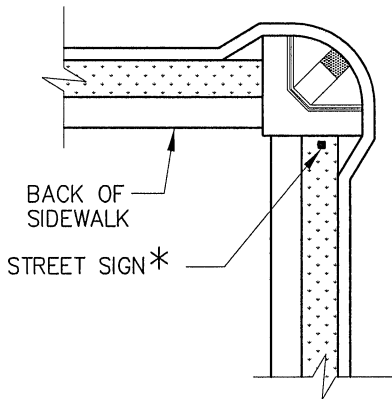
SCALE: NONE  
DATE: 07/18/2008  
DRAWN BY: TRU P.

**4-71**



LARGER STREET (OR GREATER TRAFFIC VOLUME FOR EQUAL WIDTH STREETS)

SMALLER STREET (OR LESSER TRAFFIC VOLUME FOR EQUAL WIDTH STREETS)



\* ADDITIONAL STREET SIGN NEEDED IF LARGER STREET IS AN ARTERIAL OR THOROUGHFARE.

NOTE: IN LIEU OF INSTALLATION OF STREET NAME SIGNS ON NEW POST, SIGNS MAY BE INSTALLED ON STREET LIGHT POLES PER DWG. 4-73.

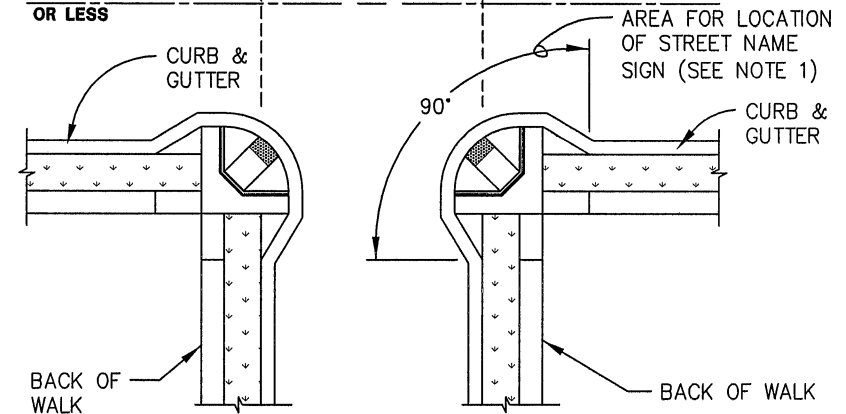
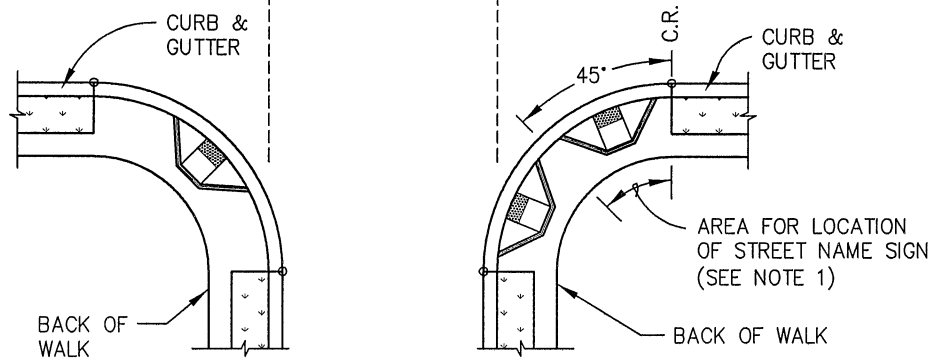
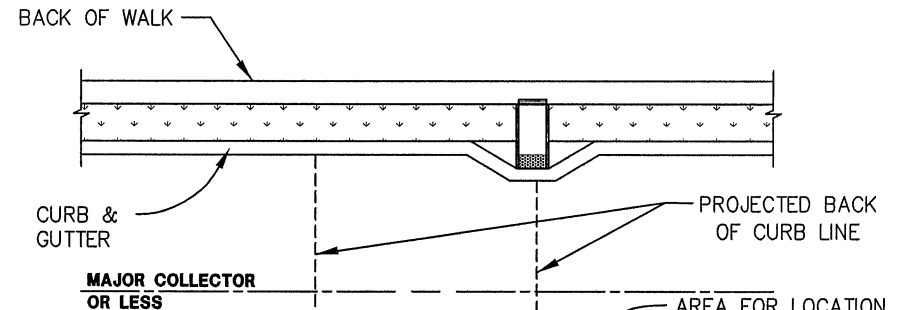
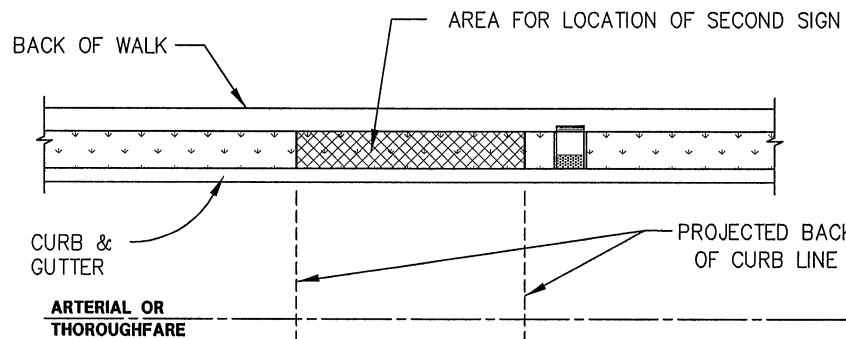
*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION

COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY

STREET NAME SIGN  
PLACEMENT DETAILS ON  
WOOD POLE INSTALLATIONS

SCALE: NONE  
DATE: 07/20/09  
DRAWN BY: B.R. & TRU P.

4-72



**NOTES:**

1. STREET NAME SIGNS SHALL BE INSTALLED ON STREET LIGHT POLES WHEN THEY ARE LOCATED WITHIN THE LOCATION LIMITS DEFINED ON THIS DETAIL.
2. ALL OTHER STREET NAME SIGN REQUIREMENTS IN SECTIONS 4-28 & 4-29 AND IN DRAWINGS 4-70, 4-71, 4-72 & 4-74 SHALL APPLY.

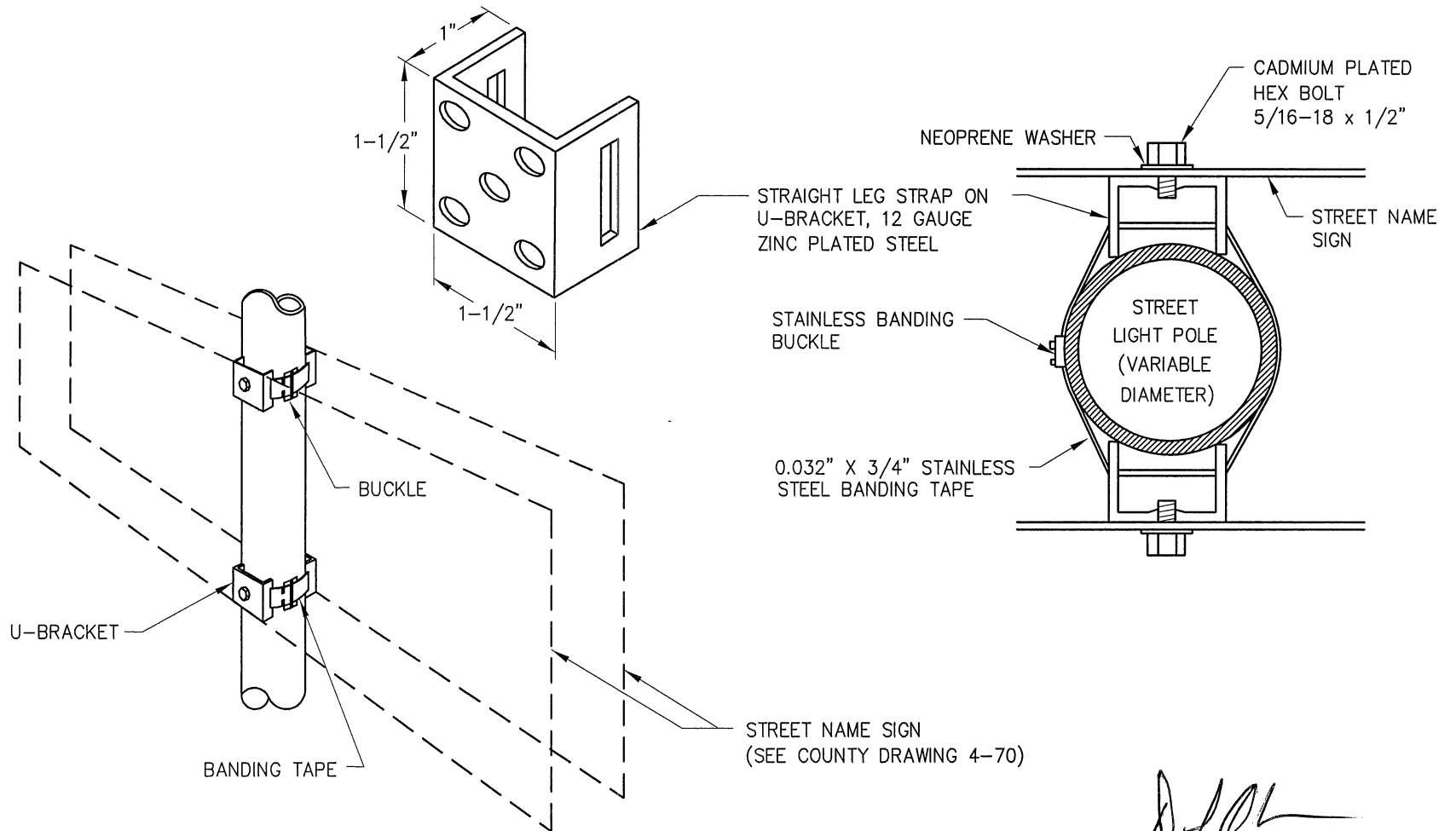
  
 CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**STREET NAME PLACEMENT  
DETAILS ON STREET LIGHT  
POLE INSTALLATIONS**

SCALE: NONE  
DATE: 07/20/09  
DRAWN BY: B.R. & TRU P.

**4-73**



**NOTES:**

1. *DETAIL SHOWN IS FOR A TWO SIGN INSTALLATION. FOUR SIGN INSTALLATIONS MAY BE MADE, WHERE APPLICABLE, BY FASTENING A SECOND PAIR OF SIGNS IN THE SAME MANNER.*
2. *STANDARD CLEARANCE TO BOTTOM OF LOWEST SIGN IS 7 FEET MINIMUM.*

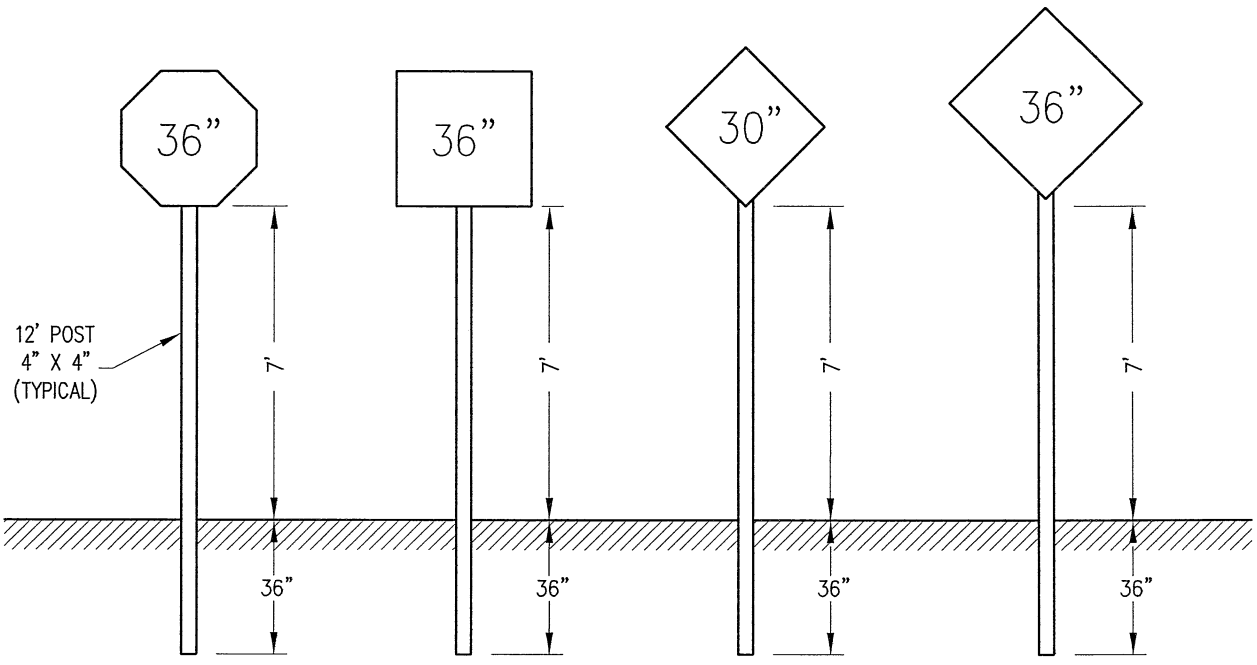
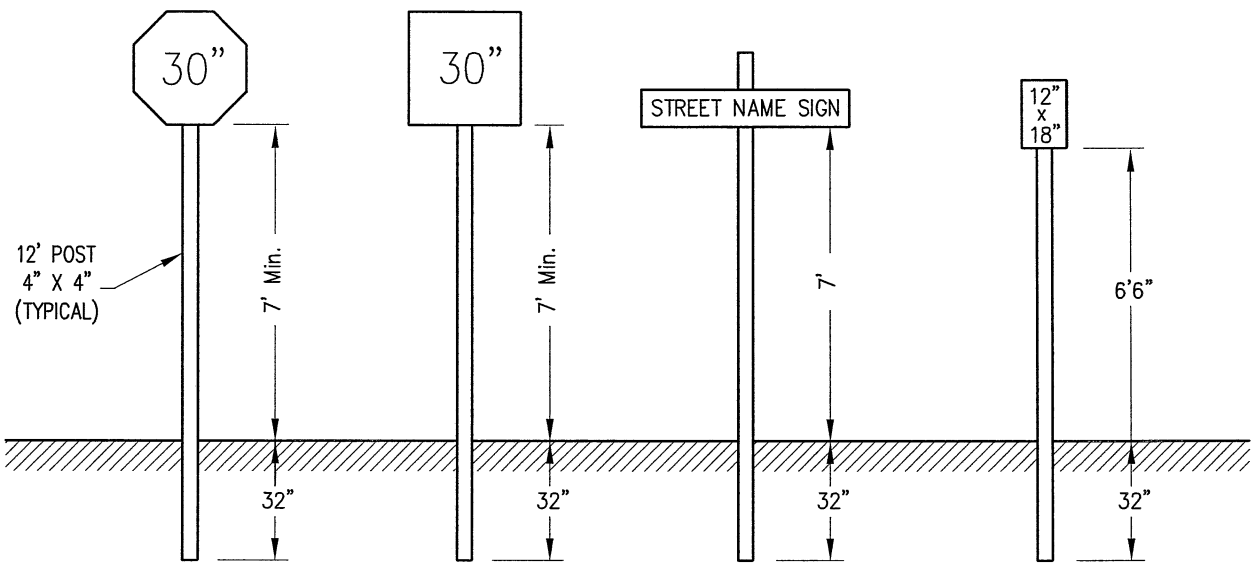
  
 CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**STREET NAME SIGN  
INSTALLATION ON  
STREET LIGHT POLE**

SCALE: NONE  
 DATE: 07/18/2008  
 DRAWN BY: TRU P.

**4-74**

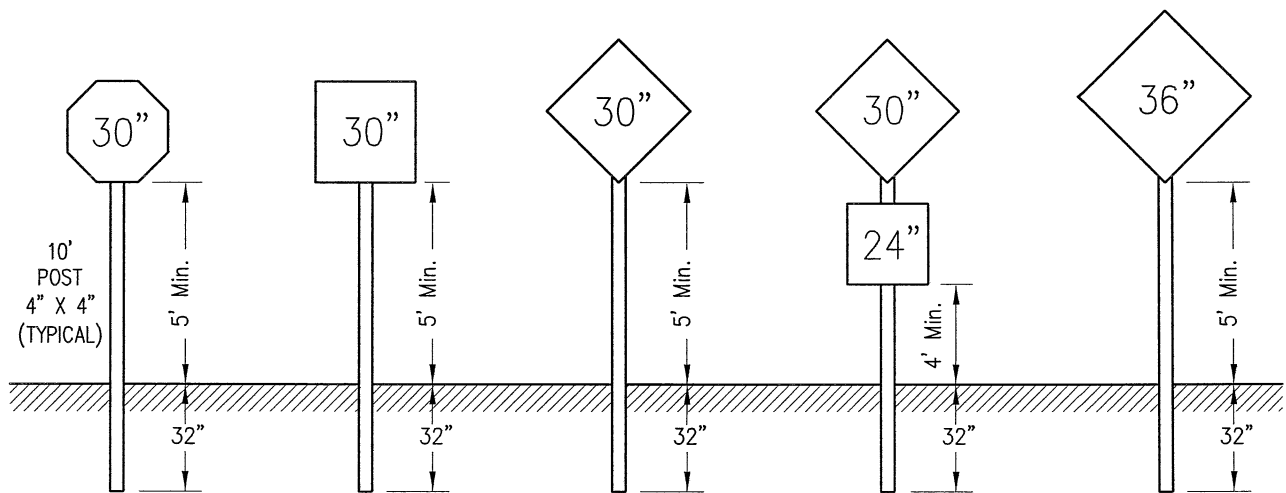
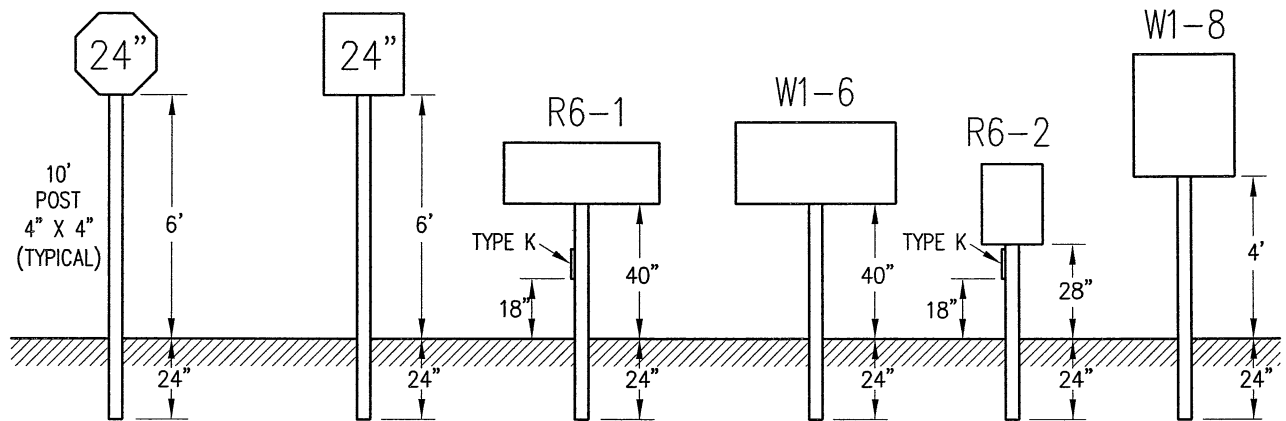


NOTE: USE THIS DETAIL WHERE ANY PORTION OF SIGN EXTENDS OVER ANY PAVED ROADWAY SURFACE, SIDEWALK OR WALKWAY.

  
 CHIEF, DEPT. OF TRANSPORTATION

<b>COUNTY OF SACRAMENTO MUNICIPAL SERVICES AGENCY</b>	
<b>SIGN POST EMBEDMENT DETAILS PEDESTRIAN AREAS</b>	
SCALE: NONE DATE: 07/18/2008 DRAWN BY: TRU P.	<b>4-75</b>





NOTE: USE THIS DETAIL WHERE ANY PORTION OF SIGN DOES NOT EXTEND OVER ANY PAVED ROADWAY SURFACE, SIDEWALK OR WALKWAY.

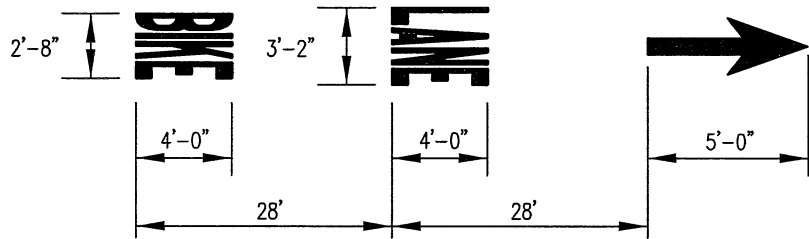
*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
 MUNICIPAL SERVICES AGENCY**

**SIGN POST EMBEDMENT  
 DETAILS  
 NON-PEDESTRIAN AREAS**

SCALE: NONE  
 DATE: 07/22/08  
 DRAWN BY: TRU P.

**4-76**



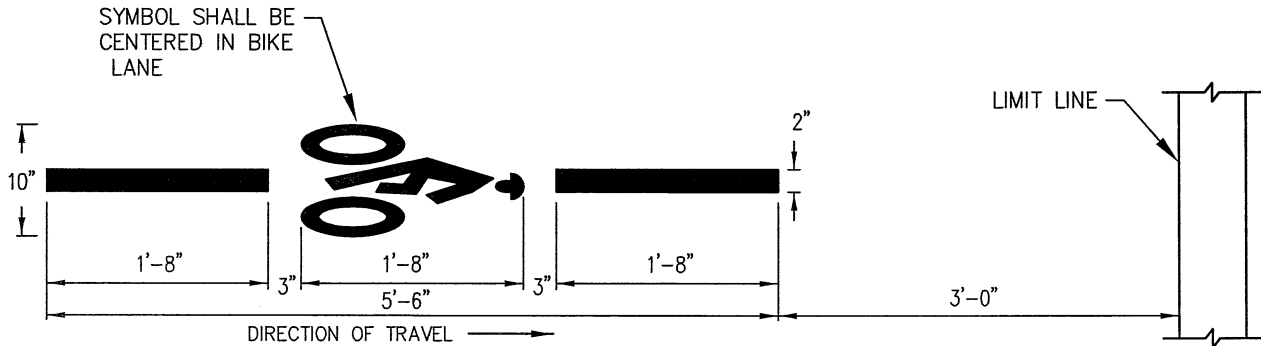
**BIKE LANE LEGEND DETAIL**

SEE CALTRANS STANDARD PLAN A24A AND A24D FOR PAVEMENT MARKING WORDS AND ARROW.

**BIKE LANE LEGEND**

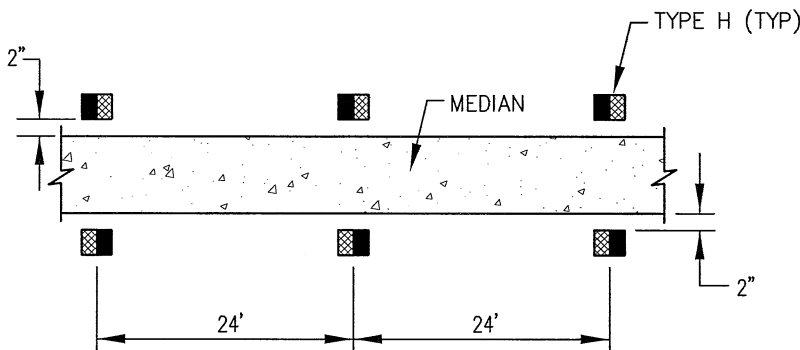
**TYPICAL LOCATIONS:**

- 10' AFTER START OF BIKE LANE AT INTERSECTION
- 10' AFTER START OF BIKE LANE ALONG RIGHT TURN LANE
- BEFORE 39A STRIPE AT APPROACH TO A TRAFFIC SIGNAL WITHOUT RIGHT TURN LANE



**BICYCLE LOOP DETECTOR SYMBOL**

SEE CALTRANS STANDARD PLAN A24C FOR PAVEMENT MARKINGS SYMBOLS.



**DETAIL MODIFIELD 26 - FOR USE ADJACENT TO MEDIANS**

SEE CALTRANS STANDARD PLAN A20B FOR PAVEMENT MARKER TYPE.

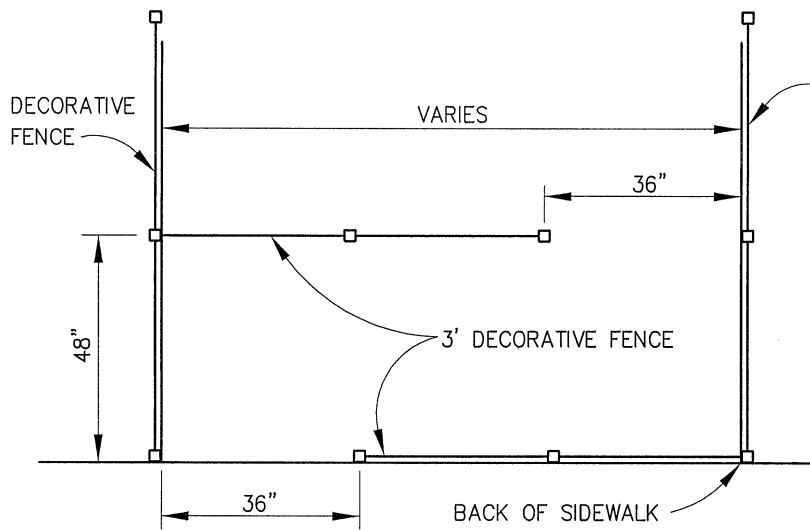
*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

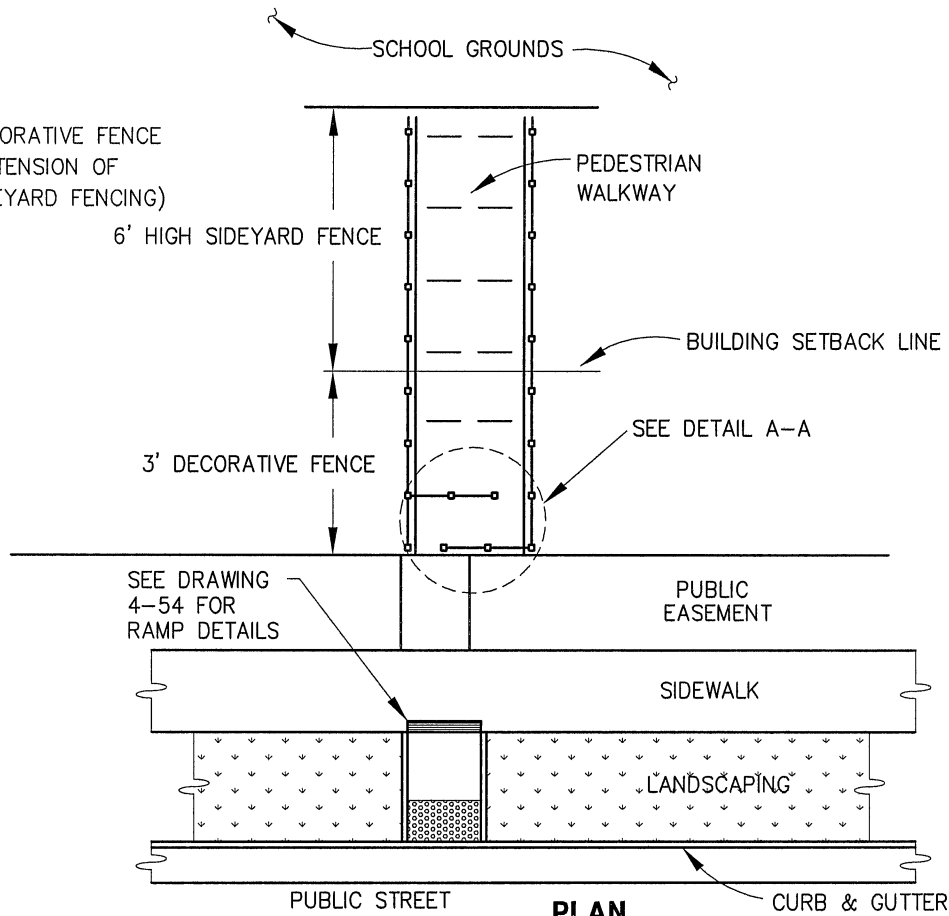
**STRIPING AND PAVEMENT  
MARKING DETAILS**

SCALE: NONE  
DATE: 03/30/2009  
DRAWN BY: TRU P.

**4-77**



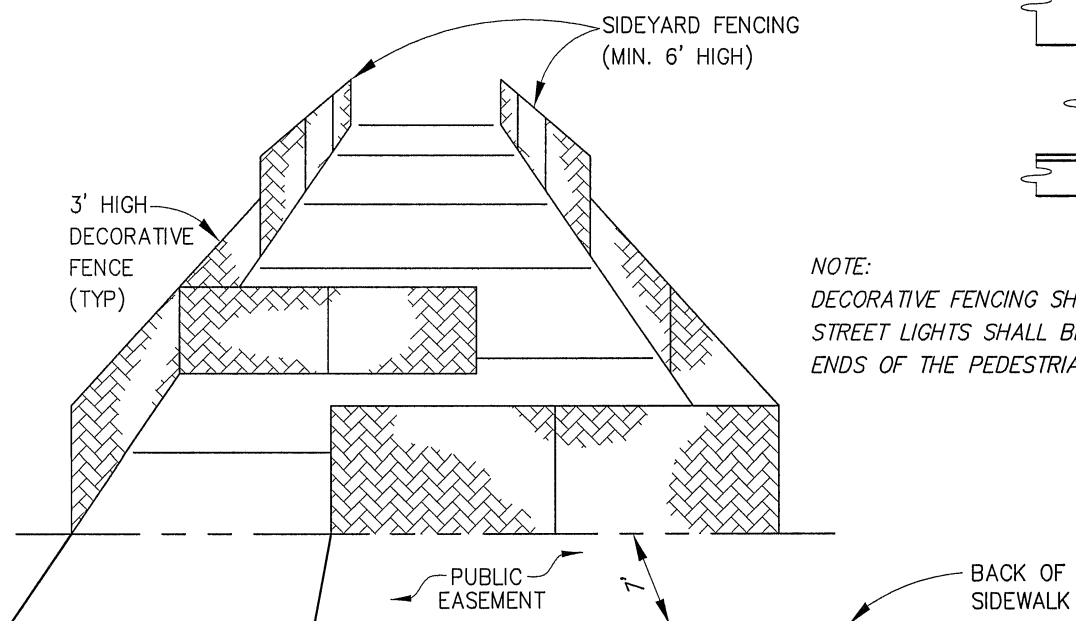
**DETAIL A-A**



**PLAN**

*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

*NOTE:  
 DECORATIVE FENCING SHALL BE 3 FT. HIGH.  
 STREET LIGHTS SHALL BE PLACED AT BOTH  
 ENDS OF THE PEDESTRIAN LANE.*



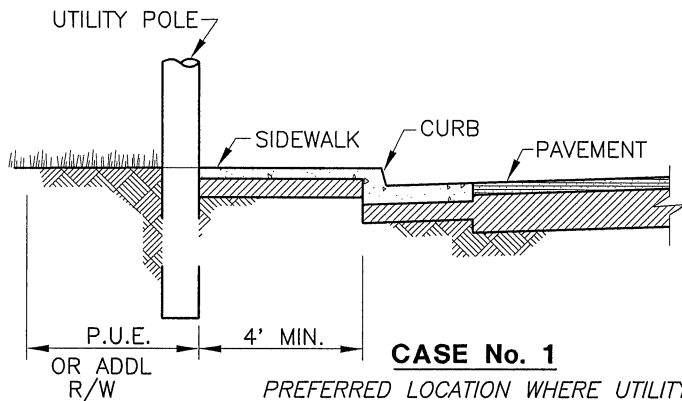
**PICTORIAL VIEW**

**COUNTY OF SACRAMENTO  
 MUNICIPAL SERVICES AGENCY**

**PEDESTRIAN LANE  
 WITH  
 BIKE BARRIER**

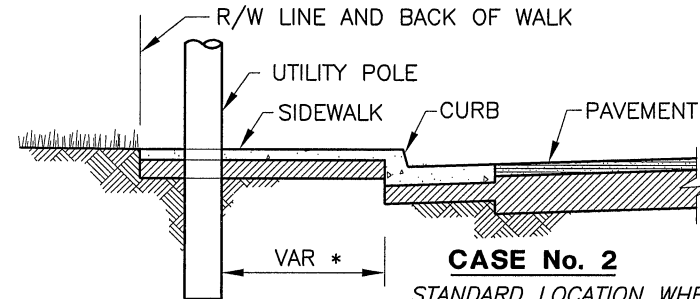
SCALE: NONE  
 DATE: 01/21/2009  
 DRAWN BY: B.R. & TRU P.

**4-78**



**CASE No. 1**

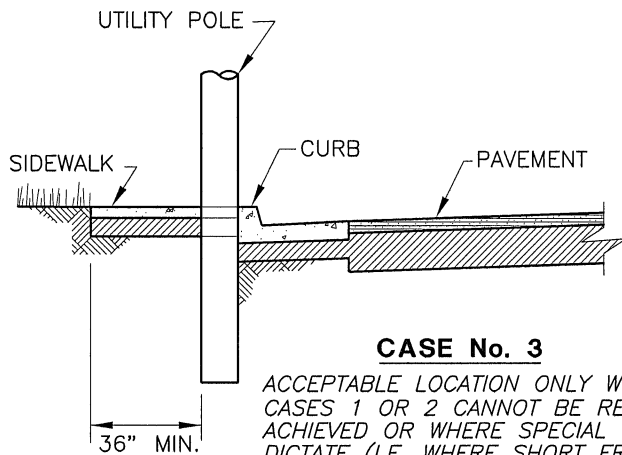
PREFERRED LOCATION WHERE UTILITY CONFLICTS AND PHYSICAL CONDITIONS ALLOW AND AN EASEMENT OR RIGHT OF WAY EXISTS BEHIND WALK.



**CASE No. 2**

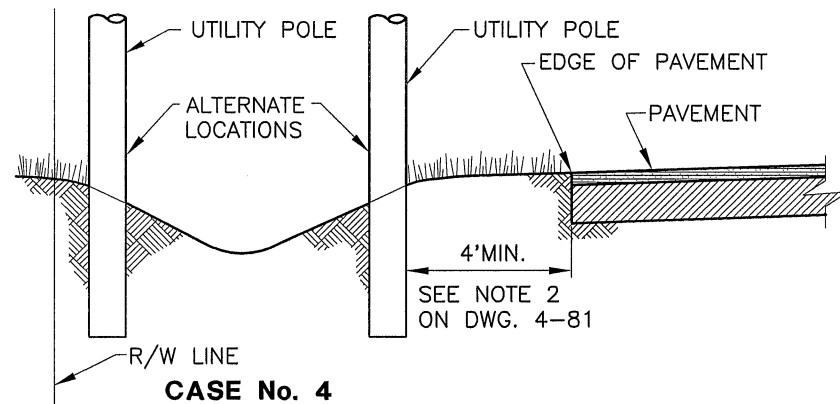
STANDARD LOCATION WHERE CASE #1 IS NOT REASONABLY ACHIEVABLE

\* PEDESTRIAN CLEARANCE OF 36" MINIMUM IN FRONT OF THE POLE IS DESIRABLE. POLE CAN BE PLACED 12" MINIMUM FROM BACK OF CURB IF 36" MINIMUM PEDESTRIAN CLEARANCE IS PROVIDED BEHIND POLE. POLE TO BE PLACED WITH BACK OF POLE FLUSH WITH BACK OF WALK IF NOT IN CONFLICT WITH OTHER UTILITIES.



**CASE No. 3**

ACCEPTABLE LOCATION ONLY WHERE CASES 1 OR 2 CANNOT BE REASONABLY ACHIEVED OR WHERE SPECIAL CONDITIONS DICTATE (I.E. WHERE SHORT FRONTAGE IMPROVEMENT CAUSES SIGNIFICANT DEVIATION FROM POLE LINE RESULTING IN UNDESIRABLE GUYING REQUIREMENTS).



**CASE No. 4**

REFER TO NOTE 1 ON DWG. 4-81

SEE NOTE 2 ON DWG. 4-81

SEE 4-81 FOR NOTES

  
CHIEF, DEPT. OF TRANSPORTATION

COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY

UTILITY POLE  
PLACEMENT LOCATIONS  
DETAILS

SCALE: NONE  
DATE: 01/20/09  
DRAWN BY: TRU P. & B.R.

4-80

NOTES:

1. WHERE STREET IMPROVEMENTS WILL ULTIMATELY BE CLASS A OR B, THE POLE SHOULD BE LOCATED IN CONFORMANCE TO THE APPROPRIATE CASE #1 OR #2 BASED ON THE FUTURE LOCATION OF THE STREET IMPROVEMENTS. IN THE CASE WHERE NO CURBS WOULD EVER BE ANTICIPATED, THE POLE SHOULD BE LOCATED 4 FEET MINIMUM FROM THE EDGE OF PAVEMENT SO AS NOT TO ENCROACH IN AN ADJACENT DITCH AS SHOWN IN CASE #4.
2. WITH ROAD WIDENING PROJECTS, UTILITY POLES MAY BE ALLOWED TO REMAIN AT THE EDGE OF PAVEMENT, WITH 0.5 FEET MINIMUM CLEARANCE (CASE #4). HOWEVER, WHERE THE PRE-PROJECT UTILITY POLE LOCATION IS WITHIN THE PROPOSED PAVEMENT SECTION, UTILITY POLES SHOULD BE RELOCATED TO THE ULTIMATE LOCATION PER CASE #1 OR #2, IN ORDER TO AVOID RELOCATION OF THE UTILITY POLE IN THE FUTURE.
3. UTILITY POLE PLACEMENT UNDER THE FOLLOWING CONDITIONS IS SUBJECT TO APPROVAL BY THE CHIEF OF THE DEPARTMENT OF TRANSPORTATION:
  - A- POLES IN VISIBILITY CONTROL AREAS (SEE STANDARD DRAWING 4-18).
  - B- POLES LARGER THAN 18 INCHES IN DIAMETER WITHIN 9 FEET OF EDGE OF PAVEMENT IN CLASS A OR CLASS B STREETS.
  - C- POLES LARGER THAN 18 INCHES IN DIAMETER WITHIN 9 FEET OF THE EDGE OF TRAVELED WAY ON CLASS C STREETS.
  - D- POLES LOCATED ON THE OUTSIDE OF SHARP CURVES, OR IN THE TANGENT OF THE CURVES WITHIN 200 FEET OF THE BEGINNING OR END OF CURVE (FOR 45 MPH OR GREATER SPEED LIMIT) OR 100 FEET (FOR A LESSER SPEED LIMIT). IN THESE CASES, SPECIAL DELINEATION AND/OR A GUARDRAIL MAY BE REQUIRED. FOR PURPOSES OF THIS SECTION, SHARP CURVES SHALL BE CONSIDERED THOSE WITH RADII OF LESS THAN 800 FEET FOR URBAN 2 LANE STREETS, AND WITH RADII OF LESS THAN 2000 FEET FOR RURAL ROADS OR MULTI-LANE STREETS.
4. RISERS PROPOSED IN A LOCATION THAT WOULD REDUCE PEDESTRIAN CLEARANCE TO LESS THAN 36 INCHES SHALL NOT BE ALLOWED.
5. FOR LOCATIONS WITH SEPERATED SIDEWALK, UTILITY FACILITIES SHALL BE PLACED OUTSIDE OF THE SIDEWALK AREA. SIDEWALK LOCATION MAY BE ADJUSTED TO RESOLVE CONFLICT WITH EXISTING UTILITIES WITH WRITTEN APPROVAL OF DIRECTOR OF COUNTY OF ENGINEERING.



CHIEF, DEPT. OF TRANSPORTATION

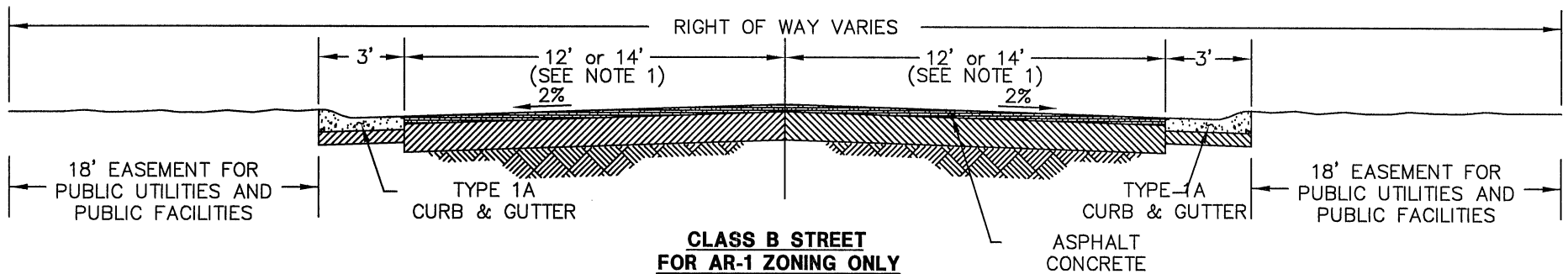
**SEE 4-80 FOR DETAILS**

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**UTILITY POLE  
PLACEMENT LOCATIONS  
NOTES**

SCALE: NONE  
DATE: 01/20/09  
DRAWN BY: TRU P. & B.R.

**4-81**



NOTES:

1. STREET WIDTH ON INFILL DEVELOPMENT TO MATCH LARGER EXISTING ROAD WIDTH ON EITHER SIDE OF PROPERTY.

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

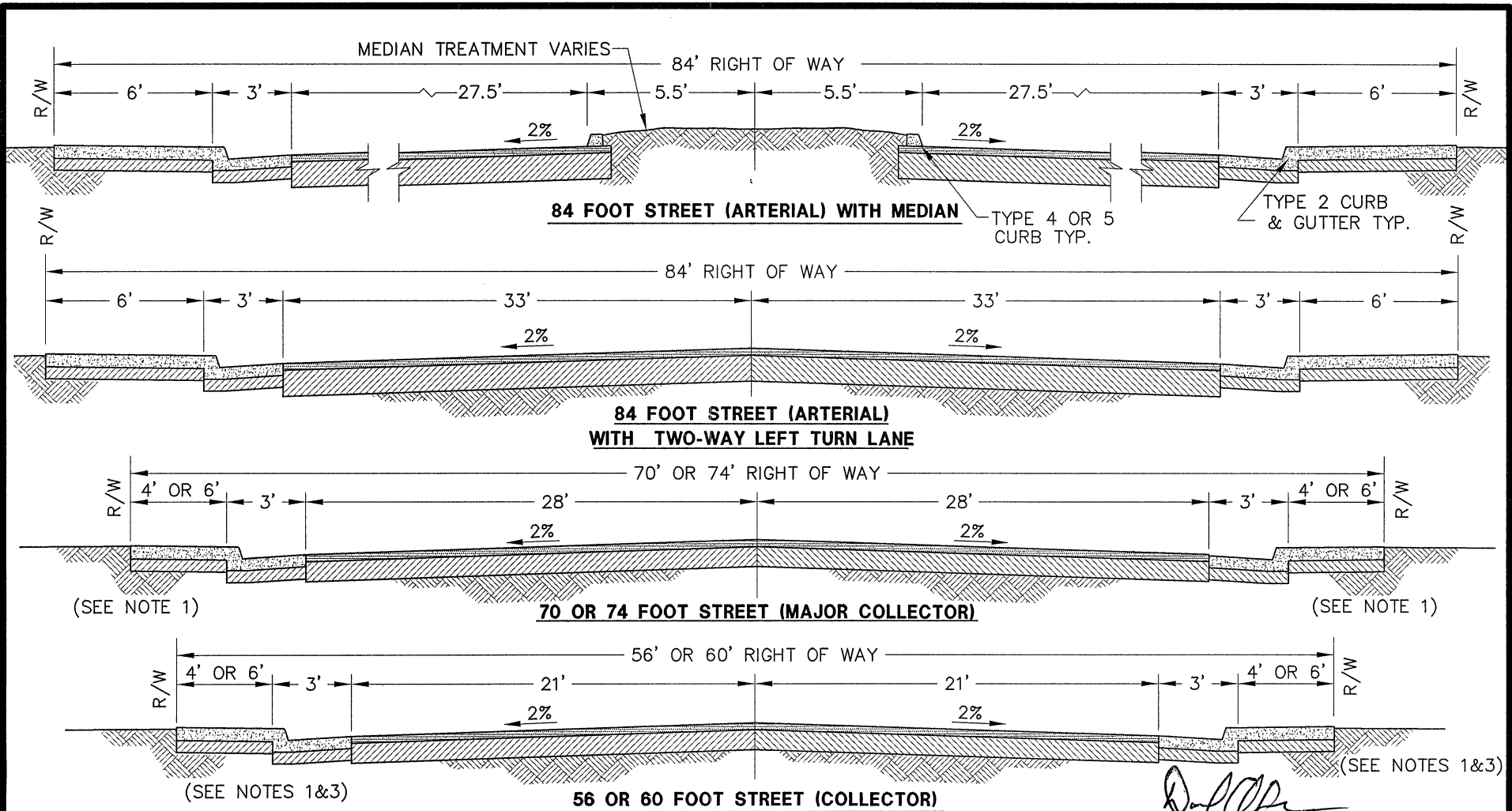
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**TYPICAL SECTION  
RESIDENTIAL STREETS  
CLASS B**

SCALE: NONE  
DATE: 07/21/09  
DRAWN BY: TRU P.

**4-A-1**



**NOTES:**

1. SIDEWALK MAY BE 4 FEET WIDE ONLY IN SINGLE FAMILY RESIDENTIAL AREAS, DUPLEX RESIDENTIAL AREAS, AND INDUSTRIAL AREAS.
2. SEE SECTION 4-18 OF IMPROVEMENT STANDARDS FOR REQUIREMENTS REGARDING USE OF VERTICAL CURB (TYPE 2).
3. TYPE 1A CURB & GUTTER MAY BE USED ON 56' AND ON 60' STREETS THAT HAVE FRONT ON DEVELOPMENT OF SINGLE FAMILY RESIDENTIAL UNITS OR FRONT ON DUPLEX RESIDENTIAL UNITS.

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

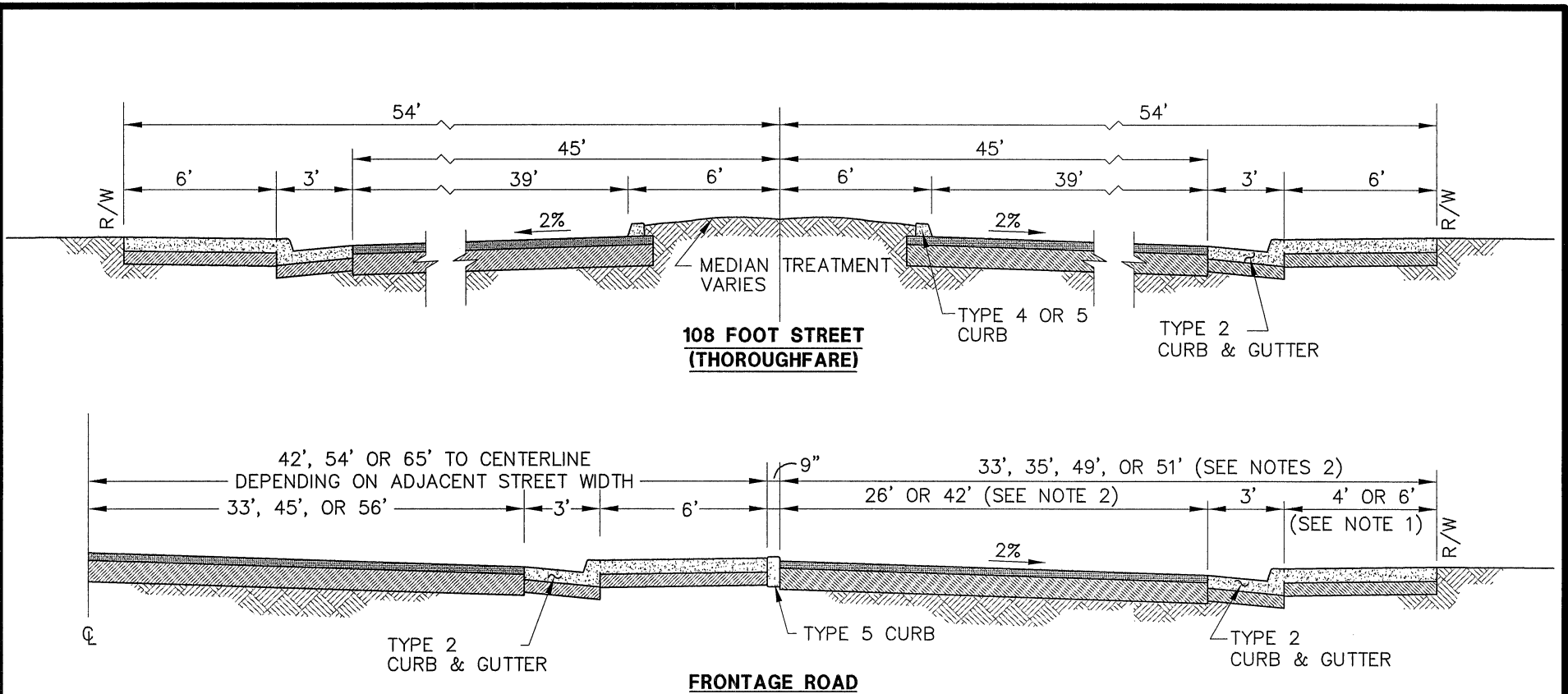
*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
 MUNICIPAL SERVICES AGENCY**

**TYPICAL SECTIONS  
 ARTERIAL & COLLECTOR  
 STREETS, CLASS A**

SCALE: NONE  
 DATE: 07/21/09  
 DRAWN BY: TRU P.

**4-A-2**



*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

**NOTE:**

1. SIDEWALK MAY BE 4 FEET WIDE IN SINGLE FAMILY AND DUPLEX RESIDENTIAL AREAS ONLY.
2. FRONTAGE ROADS ADJACENT TO STATE FREEWAYS SHALL CONFORM TO THE FULL WIDTH STANDARDS FOR 56 FEET AND 60 FEET STREETS SEE STANDARD DRAWING 4-A-2

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

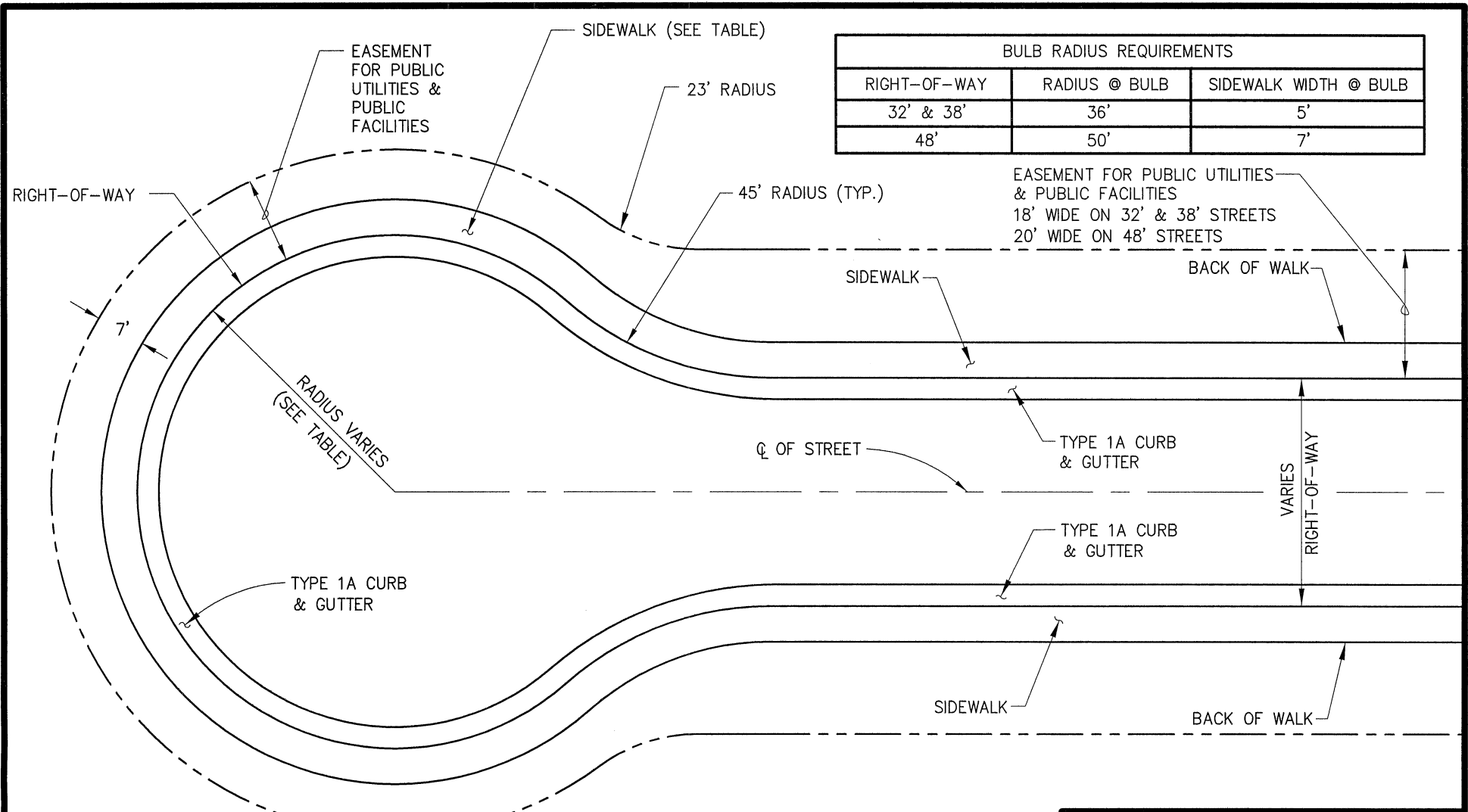
**COUNTY OF SACRAMENTO  
 MUNICIPAL SERVICES AGENCY**

**TYPICAL SECTIONS  
 THOROUGHFARE STREETS  
 & FRONTAGE ROADS, CLASS A**

SCALE: NONE  
 DATE: 07/21/09  
 DRAWN BY: TRU P.

**4-A-3**





BULB RADIUS REQUIREMENTS		
RIGHT-OF-WAY	RADIUS @ BULB	SIDEWALK WIDTH @ BULB
32' & 38'	36'	5'
48'	50'	7'

EASEMENT FOR PUBLIC UTILITIES & PUBLIC FACILITIES  
 18' WIDE ON 32' & 38' STREETS  
 20' WIDE ON 48' STREETS

**NOTES:**

1. A STANDARD W 14-1 "DEAD END" SIGN MAY BE REQUIRED AT THE ENTRANCE TO THE CUL-DE-SAC (SEE SECTION 4-30).
2. INCREASED STRUCTURAL SECTION REQUIRED IN CUL-DE-SAC BULB SEE SECTIONS 4-7(C) AND 4-12 OF IMPROVEMENT STANDARDS.

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

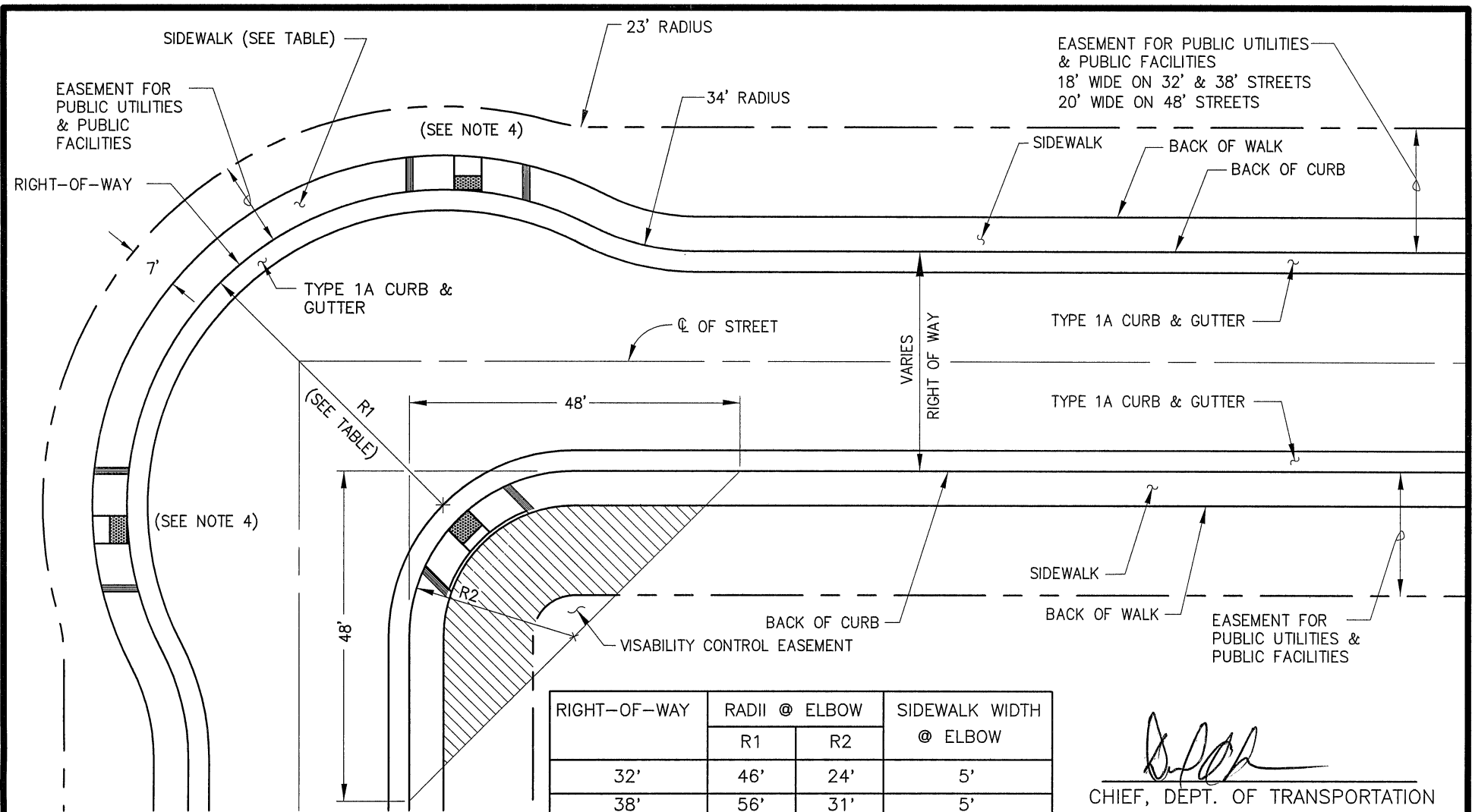
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
 MUNICIPAL SERVICES AGENCY**

**CUL-DE-SAC**

SCALE: NONE  
 DATE: 07/30/09  
 DRAWN BY: TRU P. & B.R.

**4-A-15**



RIGHT-OF-WAY	RADII @ ELBOW		SIDEWALK WIDTH @ ELBOW
	R1	R2	
32'	46'	24'	5'
38'	56'	31'	5'
48'	64'	31'	7'

**NOTES:**

1. INTERSECTION ELBOWS ARE NOT REQUIRED WHERE THE CENTERLINE RADIUS MEET THE MINIMUM REQUIREMENTS IN SECTION 4-14.
2. INTERSECTION ANGLE SHALL BE 90° ± 5°.
3. SHADED AREA SHALL HAVE VISIBILITY CONTROL EASEMENT IN ACCORDANCE WITH SECTION 4-15 AND STANDARD DRAWING 4-18 (PERMANENT BUILDINGS EXCEPTED WITHIN SETBACK LINE).

4. ONLY ONE SIDEWALK RAMP ON OUTSIDE OF CURVE REQUIRED

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

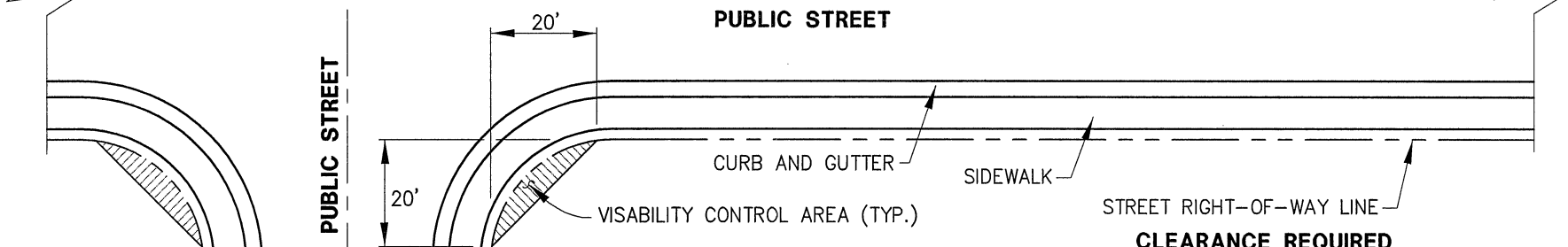
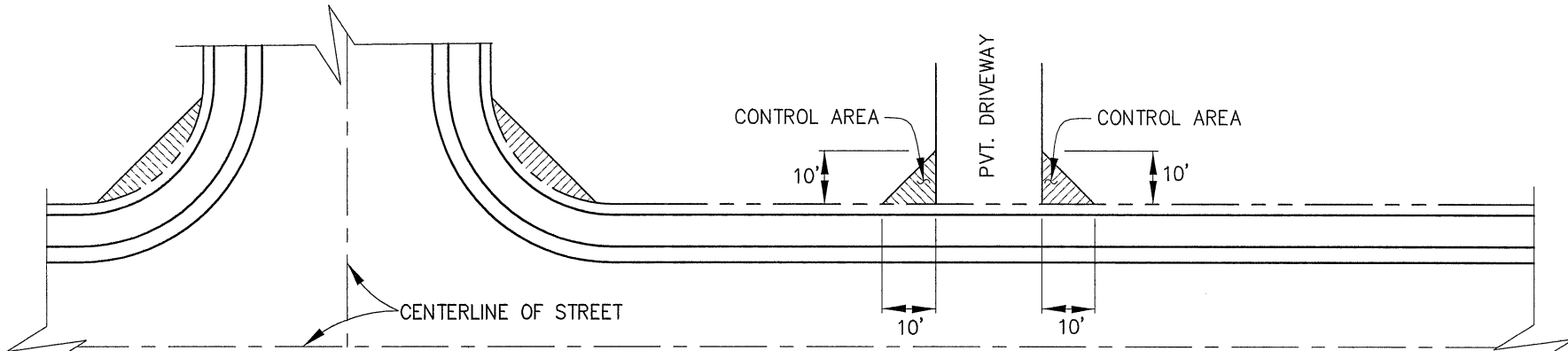
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

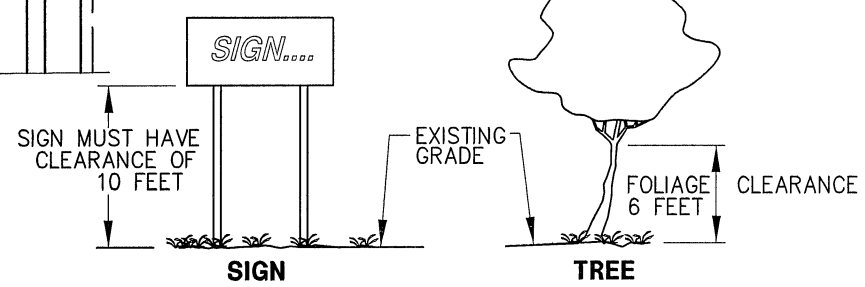
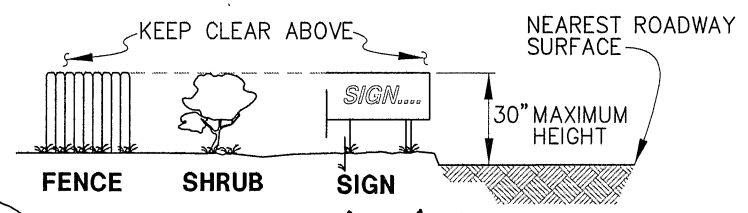
**ELBOW INTERSECTION**

SCALE: NONE  
DATE: 07/30/09  
DRAWN BY: B.R. & TRU P.

**4-A-16**



**CLEARANCE REQUIRED  
WITHIN CONTROLLED AREA**



*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

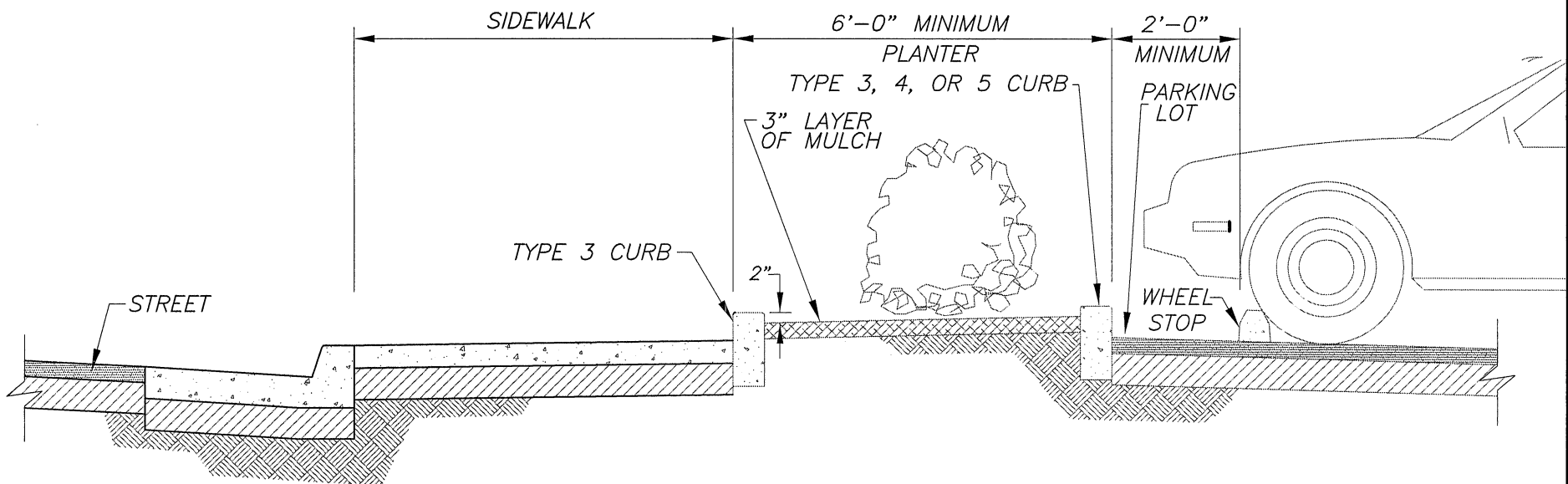
**VISIBILITY RESTRICTIONS AT  
DRIVEWAYS & INTERSECTIONS**

SCALE: NONE  
DATE: 07/21/09  
DRAWN BY: TRU P.

**4-A-18**

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.



NOTES:

1. USE BARRIER CURB ADJACENT TO SIDEWALK ON ALL 84', 108' AND 130' STREET WIDTHS AND ON ALL COMMERCIAL DEVELOPMENT.
2. SEE SECTION 4-21 OF COUNTY IMPROVEMENT STANDARDS FOR REQUIREMENTS.
3. TYPE 3 CURB AT THE BACK OF SIDEWALK MAY BE OMITTED IF LAWN IS PLANTED TO THE BACK OF SIDEWALK.

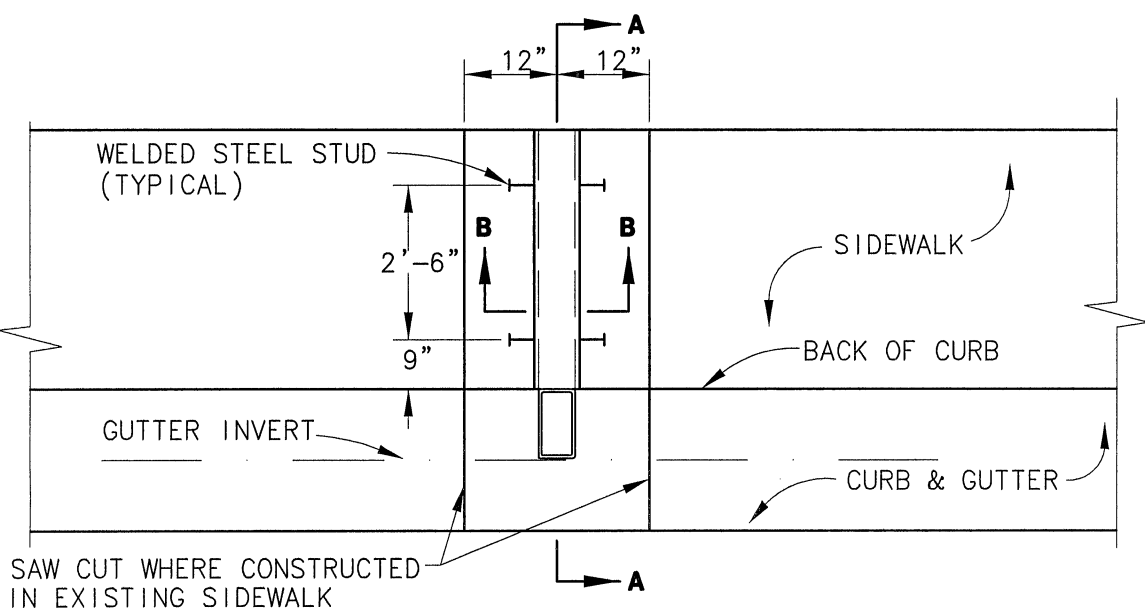
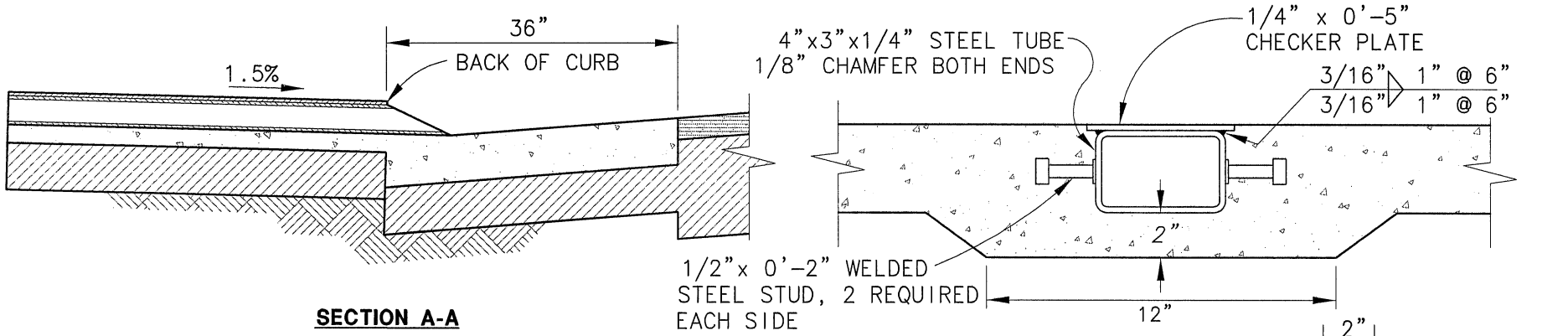
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**BARRIER CURB DETAIL**

SCALE: NONE  
DATE: 07/21/09  
DRAWN BY: TRU P.

**4-A-33**



**PLAN VIEW OF CURB, GUTTER & SIDEWALK**

DETAIL OF END OF CURB DRAIN FOR TYPE 2 CURB

DETAIL OF CURB END OF DRAIN FOR TYPE 1A CURB

**NOTE:**  
GALVANIZE AFTER FABRICATION

*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION

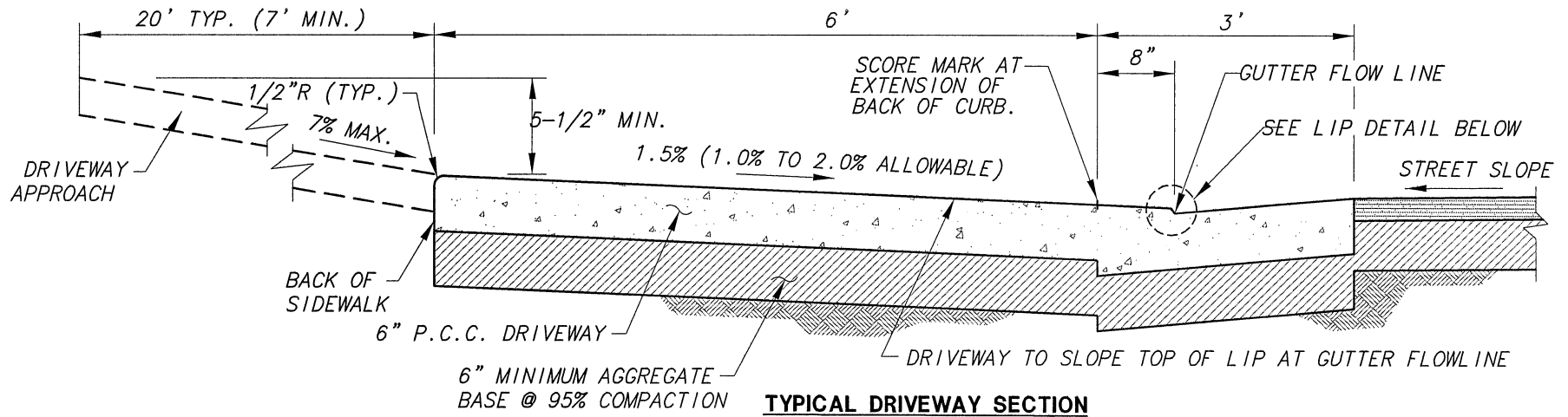
**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**UNDER  
SIDEWALK DRAIN**

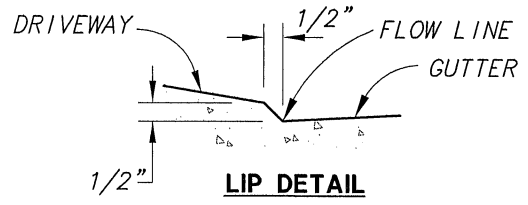
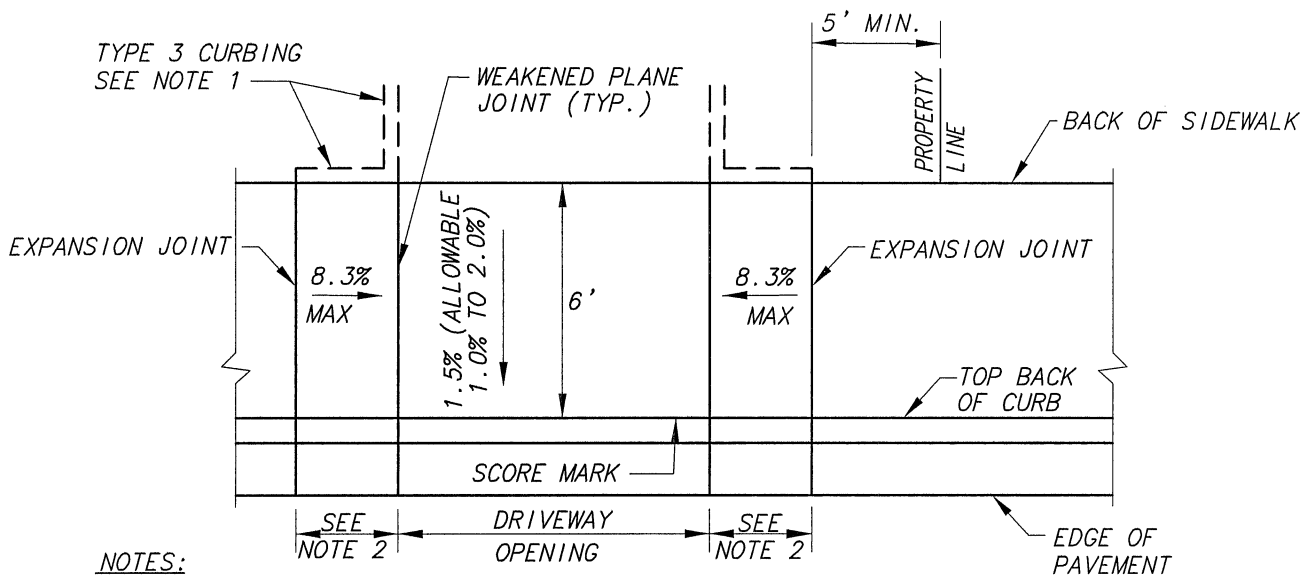
USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

SCALE: NONE  
DATE: 07/22/2009  
DRAWN BY: TRU P.

**4-A-34**



**TYPICAL DRIVEWAY SECTION**



**LIP DETAIL**

*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

**NOTES:**

1. TYPE 3 CURBING ON SITE SHALL EXTEND TO WHERE THE DRIVEWAY APPROACH IS A MINIMUM OF FOUR INCHES ABOVE THE BACK OF SIDEWALK ELEVATION AT THE DRIVEWAY.
2. SEE DRAWING 4-51 FOR APPROX. LENGTH OF INCLINED PORTION OF DRIVEWAY.

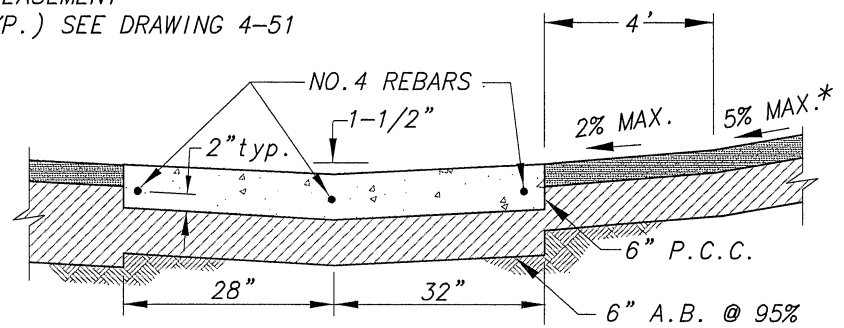
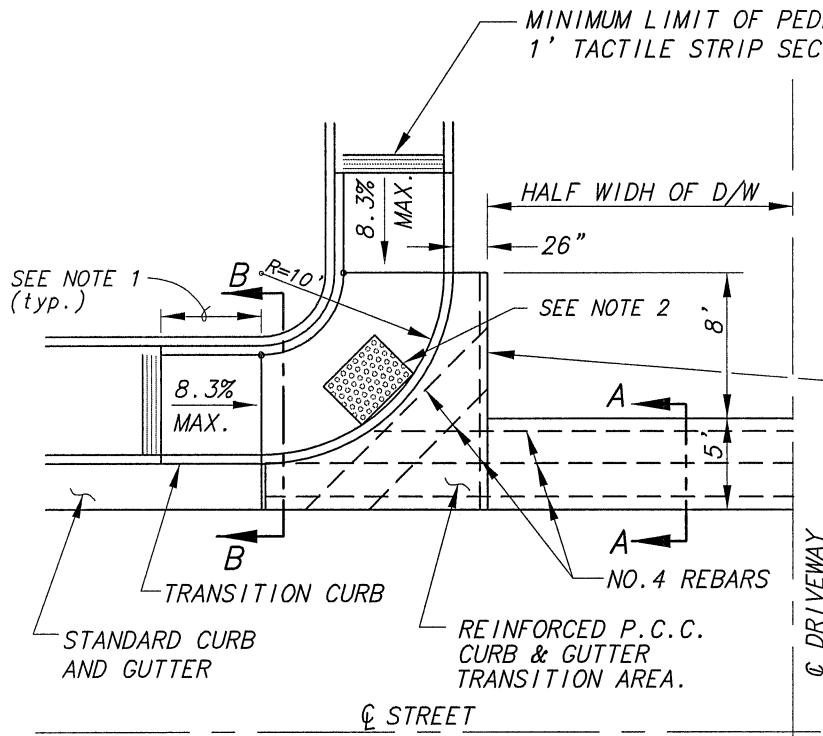
USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

**COUNTY OF SACRAMENTO  
 MUNICIPAL SERVICES AGENCY**

**TYPE A DRIVEWAY**

SCALE: NONE  
 DATE: 07/21/2009  
 DRAWN BY: B.R.

**4-A-35**



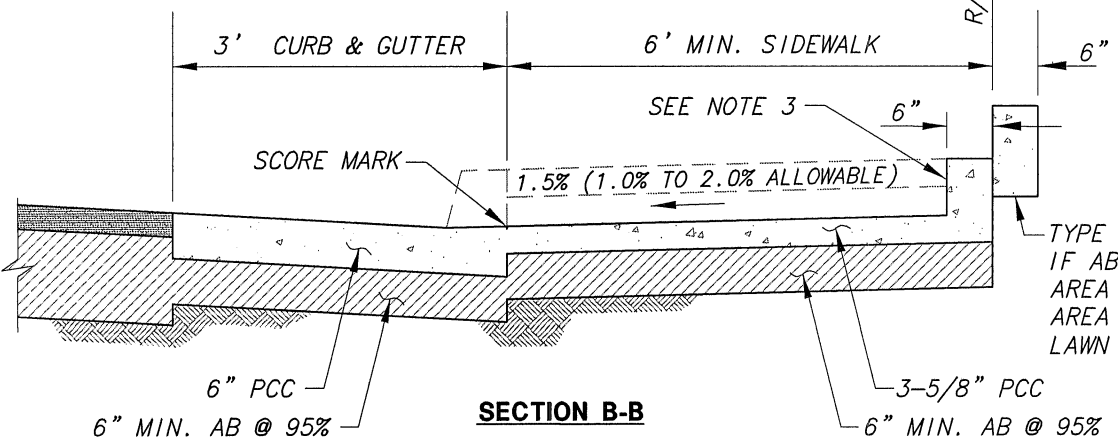
**SECTION A-A**

\* DRIVEWAY SLOPE NOT TO EXCEED 5% FOR A MINIMUM OF 20' FROM EDGE OF PAVEMENT. DRIVEWAY SLOPE SHALL NOT EXCEED 2% WITHIN FOUR FEET OF VALLEY GUTTER.

**NOTE:**

1. FOR APPROX. LENGTH OF RAMP SEE DRAWING 4-51
2. 4'x3' DETECTABLE WARNING MATERIAL LOCATED AT CENTER OF RETURN. SEE DRAWING 4-51
3. SEE DRAWING 4-51 FOR RETAINING CURB
4. USE OF THIS DETAIL REQUIRES A PEDESTRIAN EASEMENT

**PLAN VIEW**



**SECTION B-B**

*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION

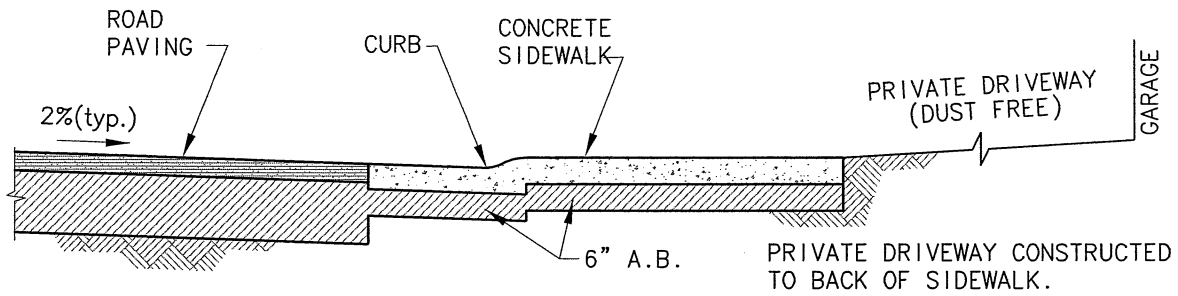
**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**TYPE B DRIVEWAY**

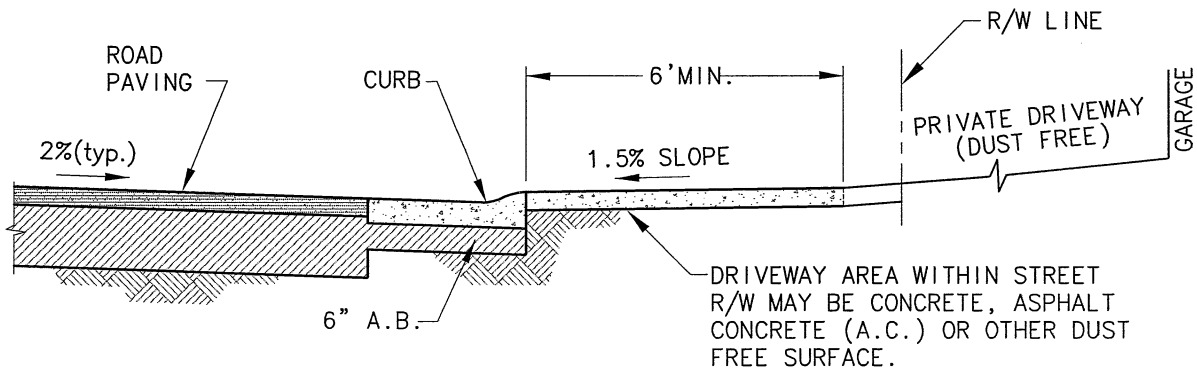
SCALE: NONE  
DATE: 07/21/2009  
DRAWN BY: TRU P.

**4-A-36**

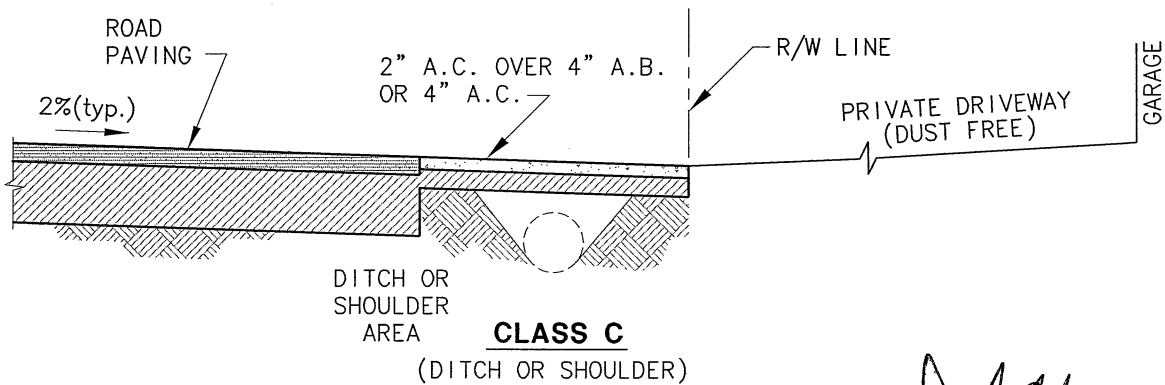
USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.



**CLASS A**  
(CURB, GUTTER & SIDEWALK)




**CLASS B**  
(CURB & GUTTER)



1. SEE SACRAMENTO COUNTY IMPROVEMENT STANDARDS SECTION 4-11 FOR DRIVEWAY REQUIREMENTS.

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

  
CHIEF, DEPT. OF TRANSPORTATION

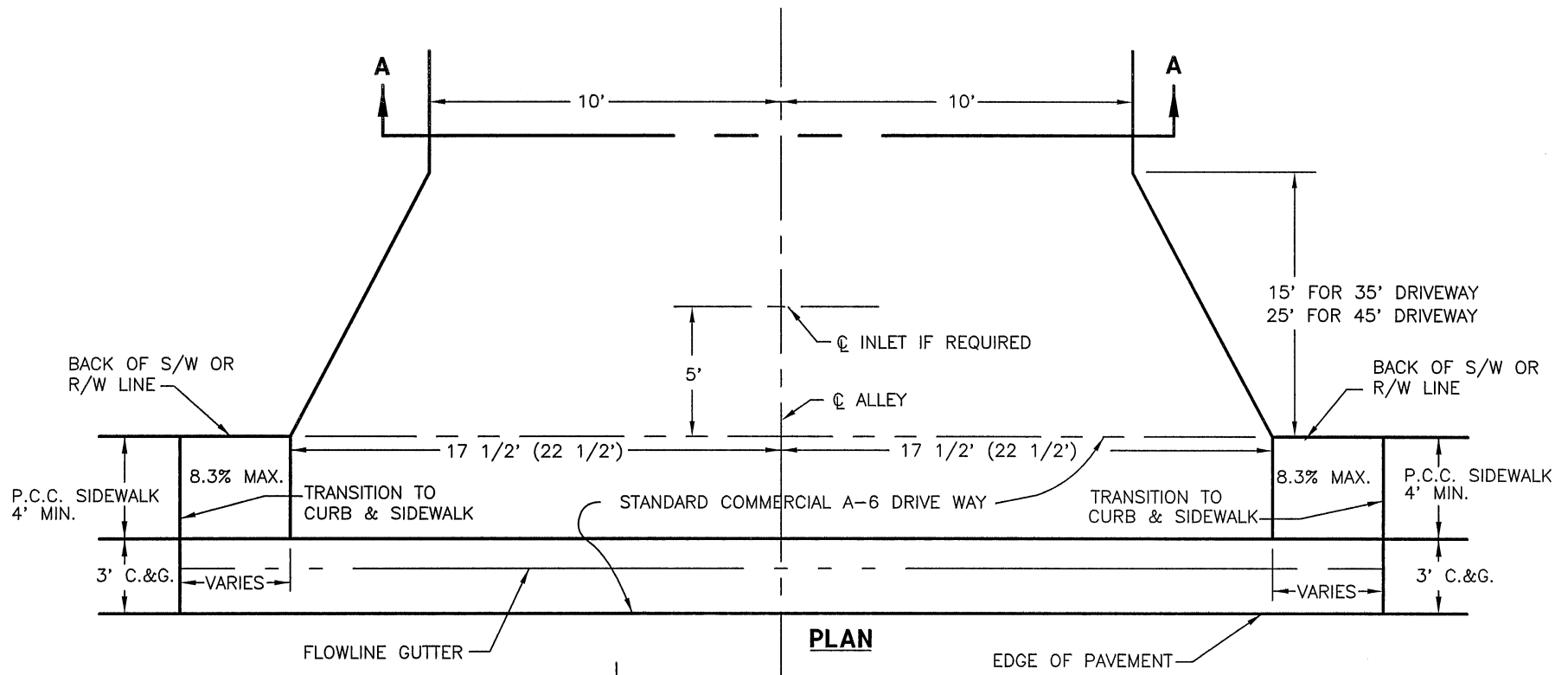
**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**TYPICAL STREET  
SECTIONS AT  
RESIDENTIAL DRIVEWAYS**

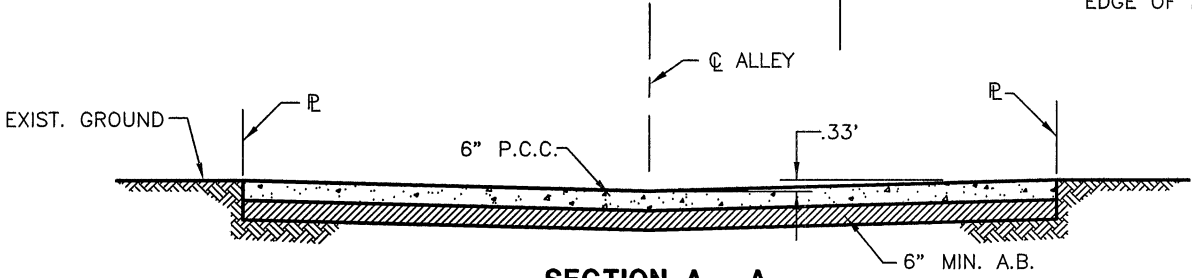
SCALE: NONE  
DATE: 07/21/09  
DRAWN BY: TRU P.

**4-A-38**





**PLAN**



**SECTION A - A**

*[Signature]*  
 CHIEF, DEPT. OF TRANSPORTATION

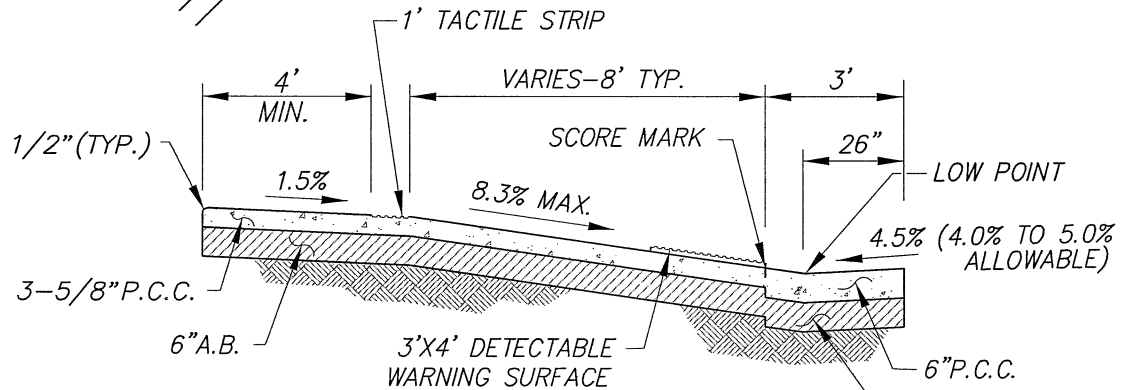
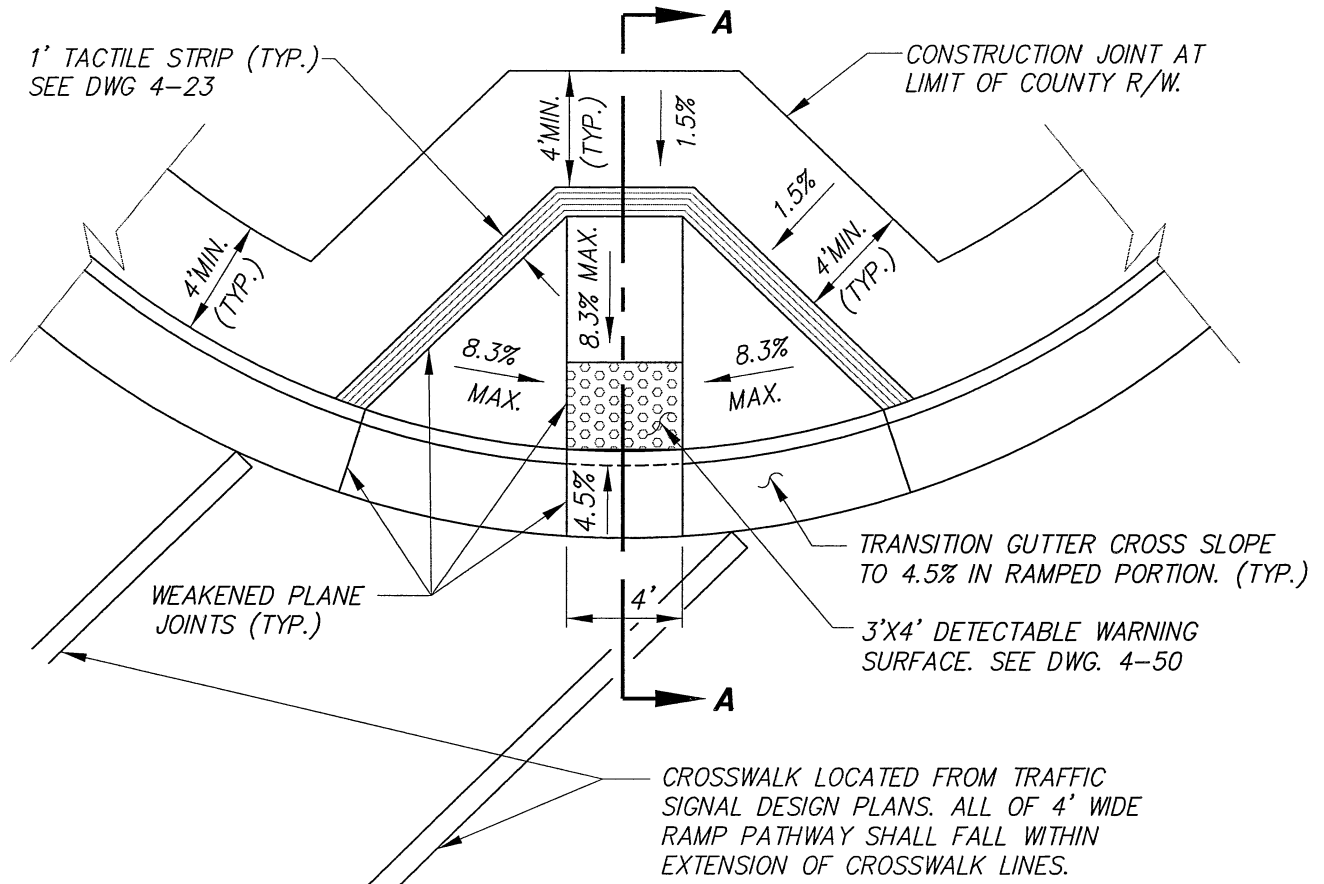
**COUNTY OF SACRAMENTO  
 MUNICIPAL SERVICES AGENCY**

**ALLEY DETAILS**

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

SCALE: NONE  
 DATE: 07/21/09  
 DRAWN BY: TRU P.

**4-A-39**



**NOTES:**

1. USE OF THIS DETAIL WITHIN COUNTY REQUIRES ADDITIONAL AREA OF COUNTY R/W OR SIDEWALK EASEMENT
2. SEE DWG. 4-50 FOR FINISH & MATERIAL REQUIREMENTS.
3. SEE DWG. 4-A-53 FOR RAMP PLACEMENT REQUIREMENTS. IF TWO RAMPS OF THIS DESIGN ARE TO BE LOCATED ON ONE CORNER, RAMPS SHALL BE A MINIMUM OF 5' APART AT BACK OF CURB.
4. NO PULL BOX, UTILITY VAULT, UTILITY POLE, MANHOLE, TRAFFIC SIGNAL POLE, OR SIMILAR APPURTENANCE SHALL BE LOCATED WITHIN SIDEWALK RAMP AREA.
5. IT IS DESIREABLE TO LOCATE ALL DRAIN INLETS OUT OF SIDEWALK RAMP AREA. USE OF DRAIN INLET WITHIN RAMP AREA REQUIRES SPECIAL DESIGN OF INLETS.
6. SEE DWG. 4-A-30 FOR SIDEWALK GRADE TOLERANCE.

**SECTION A-A**  
N.T.S. 6" A.B. (MAY VARY 5-1/4" TO 6")

CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

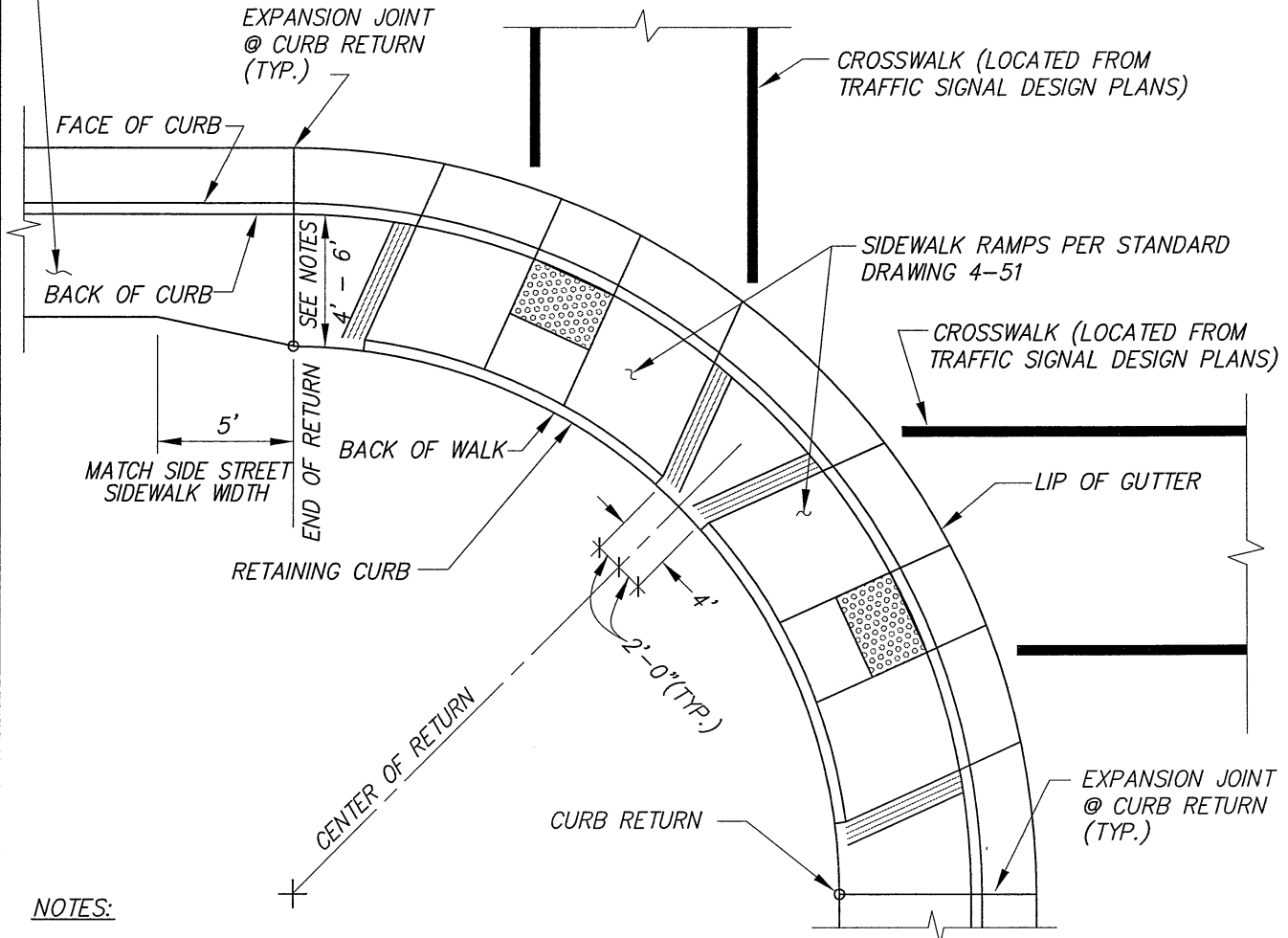
**SIDEWALK RAMP DETAIL  
FOR PLAZA AREAS**

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

SCALE: NONE  
DATE: 07/21/09  
DRAWN BY: TRU P.

**4-A-50**

SIDEWALK WIDTH TO REMAIN CONSTANT AROUND RETURN. TRANSITION TO MINOR STREET SIDEWALK WIDTH TO OCCUR OUT OF RAMP CONSTRUCTION AREA WITHIN 5'. TRANSITION TYPE 2 CURB AND GUTTER TO MATCH MINOR STREET CURB AND GUTTER WITHIN SAME 5' AREA.



**NOTES:**

1. AT INTERSECTIONS HAVING A STREET WITH A RIGHT-OF-WAY WIDTH OF 80 FEET OR GREATER, THE CORNER RETURNS SHALL HAVE TWO (2) RAMPS AS SHOWN, AND TYPE 2 CURB & GUTTER AROUND THE RETURNS, AND SIDEWALK WIDTH SHALL BE 6' AROUND THE RETURNS. EXCEPTIONS - SEE NOTES 5 & 6.
2. AT INTERSECTIONS WITH NO MAJOR (84, 108, OR 130 FOOT) STREET, A SINGLE RAMP AT THE CENTER OF THE RETURNS AND TYPE 1 OR 1A CURB & GUTTER MAY BE USED. SIDEWALK WIDTH AROUND RETURNS SHALL BE 4' FOR INTERSECTIONS OF STREETS WITH SINGLE FAMILY RESIDENTIAL DEVELOPMENT.
3. THE PLANS SHALL SHOW THE CORRECT NUMBER & LOCATION OF RAMPS ON EACH CORNER.
4. FULL WIDTH OF RAMP PAN (THE FULLY DEPRESSED PORTION OF RAMP) SHALL BE LOCATED WITHIN THE EXTENSION OF THE ASSOCIATED CROSSWALK STRIPES, WHERE CROSSWALKS EXIST.
5. ON MAJOR STREETS (AS DEFINED IN NOTE #1 ABOVE) WITH A CONTINUOUS RAISED MEDIAN ACROSS THE INTERSECTION, A SINGLE STANDARD SIDEWALK RAMP IS TO BE INSTALLED. LOCATE RAMP AT CENTER OF RETURN.
6. FOR CORNERS WITH TWO STRIPED CROSSWALKS AND WITH OBSTRUCTIONS THAT PREVENT THE CONSTRUCTION OF TWO STANDARD RAMPS, A SINGLE SIDEWALK RAMP MAY BE INSTALLED CENTERED IN THE TWO CROSSWALKS. THE WIDTH OF RAMP PAN (THE FULLY DEPRESSED PORTION OF RAMP) IS TO BE 6'. THE WARNING SURFACE MATERIAL SHALL BE THREE FEET BY SIX FEET. USE OF THIS OPTION REQUIRES PRIOR WRITTEN APPROVAL BY CHIEF OF THE DEPARTMENT OF TRANSPORTATION.

  
 CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

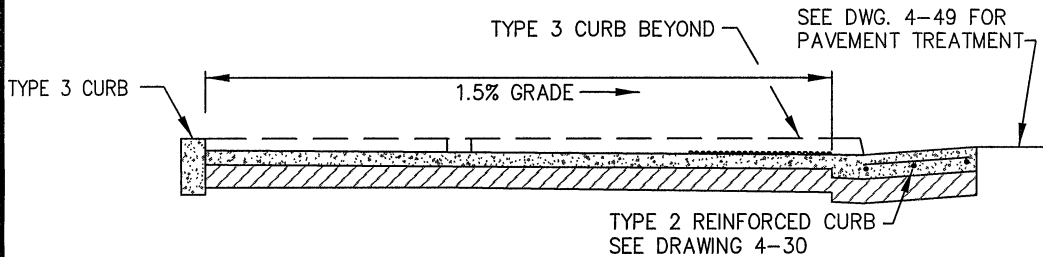
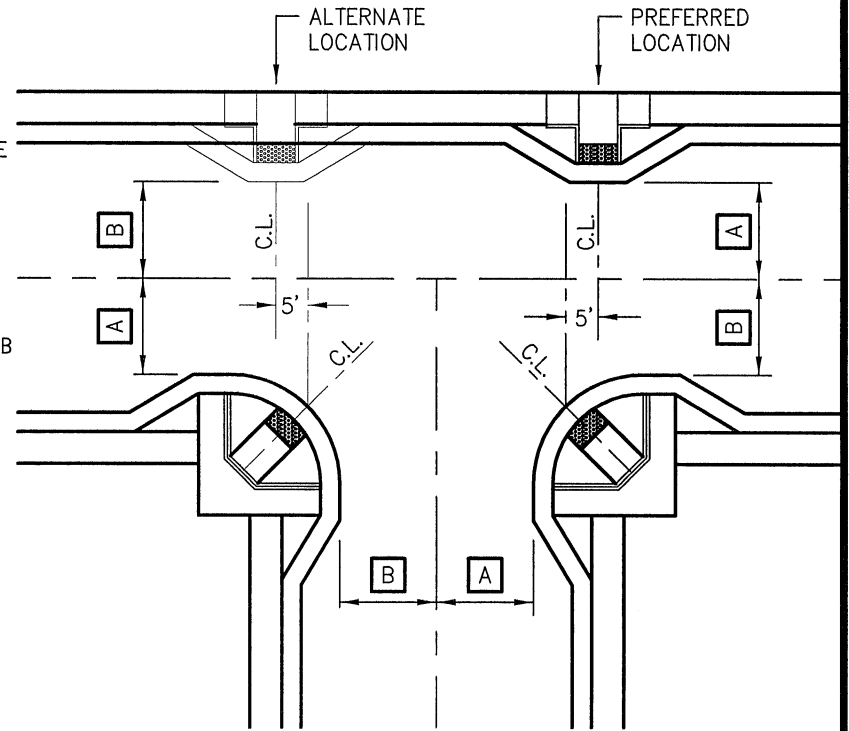
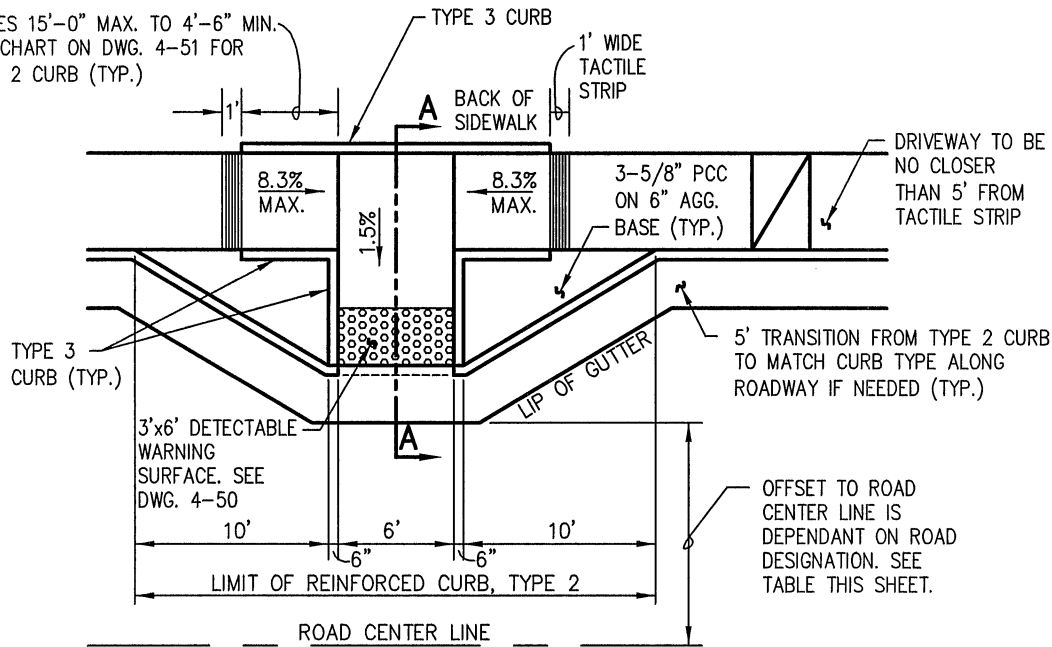
**SIDEWALK RAMP  
PLACEMENT**

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

SCALE: NONE  
DATE: 07/21/09  
DRAWN BY: TRU P.

**4-A-52**

VARIES 15'-0" MAX. TO 4'-6" MIN.  
SEE CHART ON DWG. 4-51 FOR  
TYPE 2 CURB (TYP.)



**SECTION 'A-A'**  
NO SCALE

STREET DESIGNATION	APPROACH OFFSET	DEPARTURE OFFSET
MAJOR COLLECTOR	22'	22'
COLLECTOR	15'	15'
MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL	11'	13'

SEE DWG. 4-53 FOR TYPICAL CORNER EXTENSION DESIGN.

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

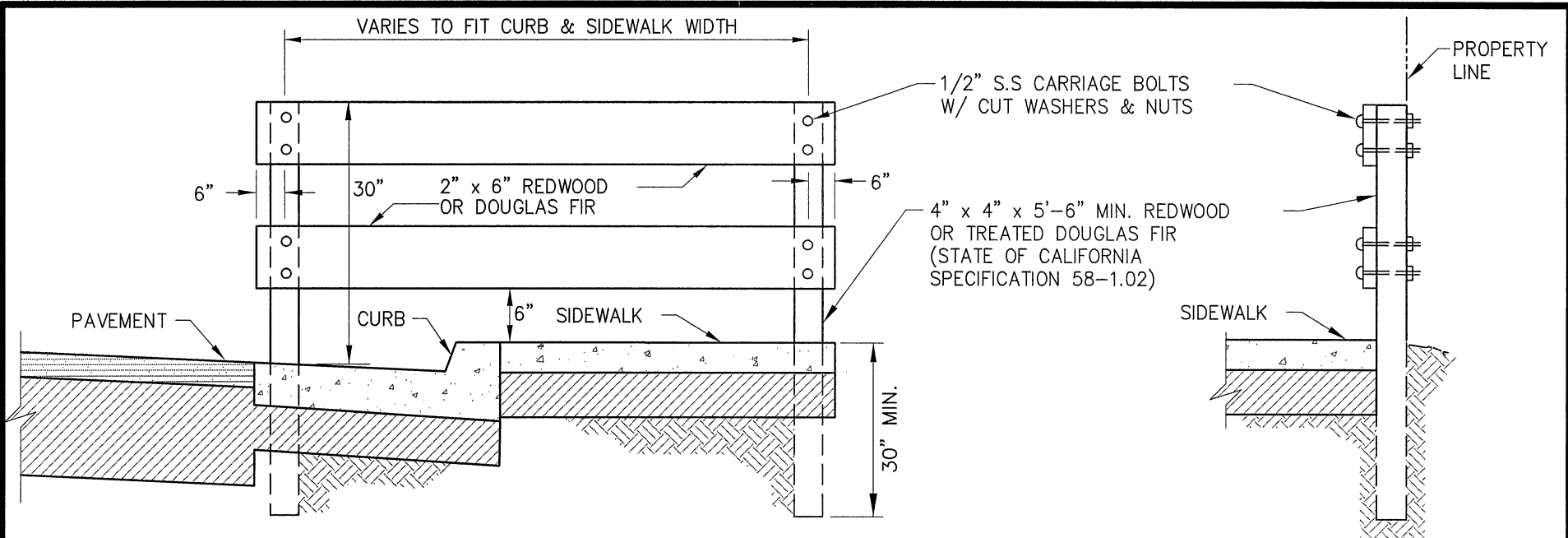
*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**SIDEWALK RAMPS AT  
"T" INTERSECTIONS FOR  
RESIDENTIAL STREETS &  
COLLECTOR STREETS**

SCALE: NONE  
DATE: 07/30/09  
DRAWN BY: G. C. & B.R.

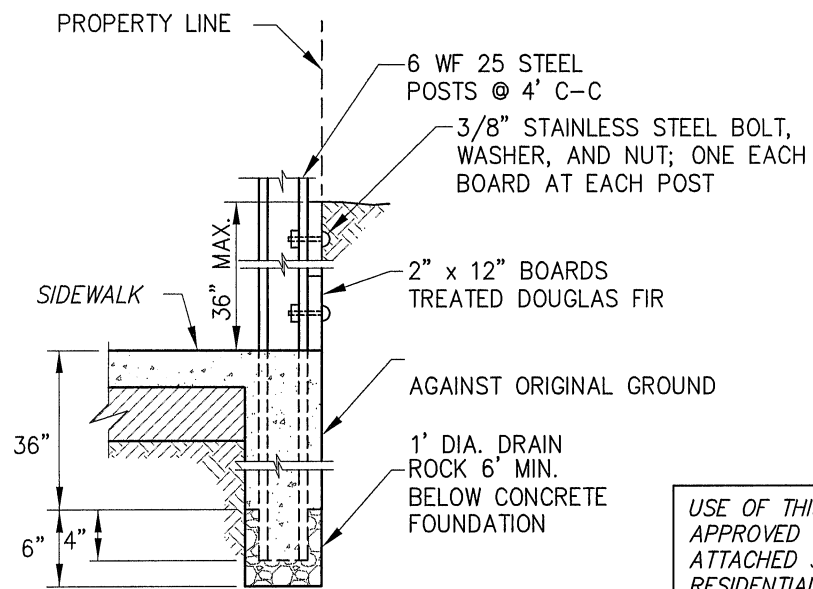
**4-A-56**



**NOTES:**

1. SIDEWALK BARRICADES TO BE ERECTED AT EACH LOCATION WHERE SATISFACTORY PROVISION CAN NOT BE MADE FOR PEDESTRIAN TO CONTINUE BEYOND THE TERMINUS OF A SIDEWALK AND A HAZARD IS PRESENT.
2. ALL EXPOSED SURFACES TO BE PAINTED WITH TWO (2) COATS OF WHITE PAINT CONFORMING TO SECTION 91-3 OF STATE SPECIFICATIONS.

  
 CHIEF, DEPT. OF TRANSPORTATION



**DETAIL FOR SIDEWALK BARRICADE WITH RETAINING WALL**

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

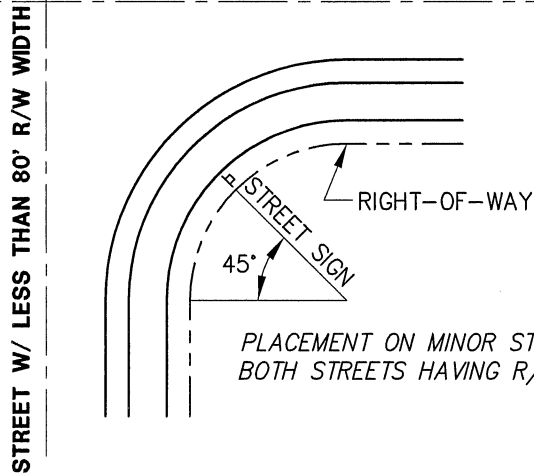
**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**SIDEWALK BARRICADE**

SCALE: NONE  
 DATE: 07/22/09  
 DRAWN BY: TRU P.

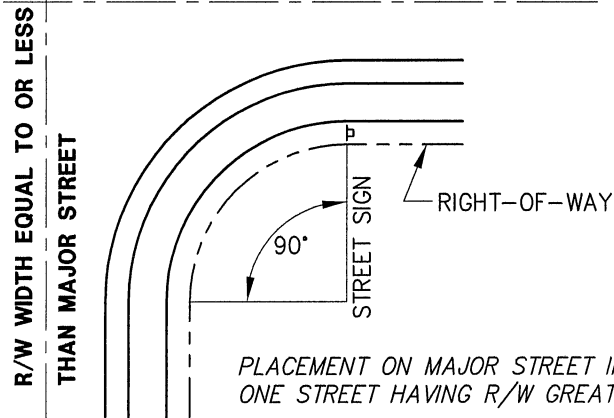
**4-A-61**

**STREET W/ LESS THAN 80' R/W WIDTH**

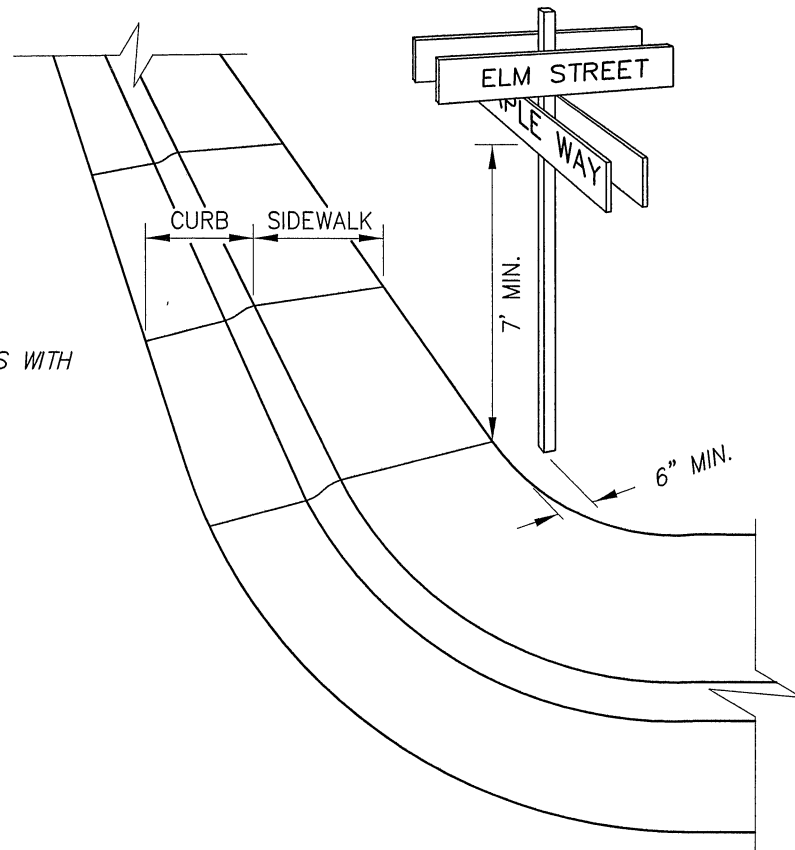


PLACEMENT ON MINOR STREET INTERSECTIONS WITH BOTH STREETS HAVING R/W LESS THAN 80'.

**MAJOR STREET 80' OR GREATER R/W WIDTH**



PLACEMENT ON MAJOR STREET INTERSECTIONS WITH AT LEAST ONE STREET HAVING R/W GREATER THAN 80'.



NOTE: IN LIEU OF INSTALLATION OF STREET NAME SIGNS ON NEW POST, SIGNS MAY BE INSTALLED ON STREET LIGHT POLES PER DWG. 4-A-73

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

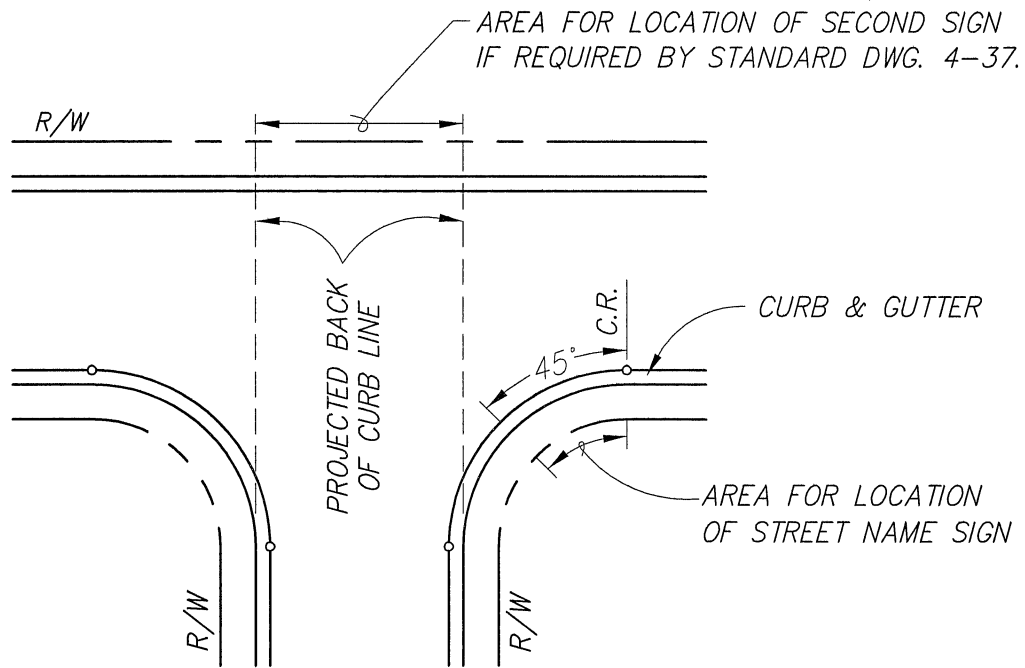
*[Signature]*  
CHIEF, DEPT. OF TRANSPORTATION

COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY

STREET NAME SIGN  
PLACEMENT DETAILS ON  
WOOD POLE INSTALLATIONS

SCALE: NONE  
DATE: 07/21/09  
DRAWN BY: TRU P.

4-A-72



NOTES:

1. STREET NAME SIGNS SHALL BE INSTALLED ON STREET LIGHT POLES WHEN THEY ARE LOCATED WITHIN THE LOCATION LIMITS DEFINED ON THIS DETAIL.
2. ALL OTHER STREET NAME SIGN REQUIREMENTS IN SECT'S 4-26 & 4-27 AND IN DRAWINGS 4-70, 4-A-72, 4-74 & 4-71 OF THE SACRAMENTO COUNTY IMPROVEMENT STANDARDS SHALL APPLY.

USE OF THIS DRAWING IS RESTRICTED TO LOCATIONS APPROVED TO BE BUILT WITH ATTACHED SIDEWALK. ATTACHED SIDEWALK MAY ONLY BE USED ON MINOR RESIDENTIAL AND PRIMARY RESIDENTIAL STREETS, OR ALONG INFILL PROJECTS WITH WRITTEN APPROVAL OF THE DIRECTOR OF COUNTY ENGINEERING OR THE DIRECTOR OF TRANSPORTATION.

CHIEF, DEPT. OF TRANSPORTATION

**COUNTY OF SACRAMENTO  
MUNICIPAL SERVICES AGENCY**

**STREET NAME SIGN  
PLACEMENT DETAIL ON STREET  
LIGHT POLE INSTALLATIONS**

SCALE: NONE  
DATE: 07/21/09  
DRAWN BY: TRU P.

**4-A-73**