

CONTRA COSTA COUNTY PUBLIC WORKS DEPARTMENT

STANDARD PLANS



Last Revised January 28, 2008

Plan updates are available on our website at:
<http://www.co.contra-costa.ca.us/depart/pw/design/standardplans.html>

TABLE OF CONTENTS

Dwg # Title (Plan Date) Page

GENERAL ROAD WORK- (Miscellaneous)

CA01i	Standard Drafting Symbols	(11-27-02)	1
CA10i	Required Clearance at Intersections	(06-12-07)	2
CA20i	Driveway Design Standards	(10-26-06)	3
CA30i	Street Barricade	(06-12-07)	4
CA40i	Street Survey Monument	(03-07-06)	5
CA50i	Typical Road Sections for Subdivisions & Road Acceptance	(12-11-02)	6
CA51i	Typical Asphalt Conform Details for Overlays	(02-28-02)	7
CA52i	Modified Case "B" Curb Ramp	(10-02-07)	8
CA53i	Two Lane Rural Road Guidelines	(02-28-02)	9
CA70i	Standard Sidewalk Details	(06-12-07)	10
CA71i	Median, Curb and AC Dike Details	(11-27-02)	11
CA72i	Driveway Ramp Details	(11-27-02)	12
CA73i	Concrete Valley Gutter and Concrete Lined Ditch Details	(11-27-02)	13
CA74i	Doweling Details for Curb and Sidewalk	(02-28-02)	14
CA90i	Mailbox Details	(02-28-02)	15

GENERAL CONSTRUCTION

CB10i	Temporary Timber Retaining Wall	(02-28-02)	16
-------	---------------------------------	------------	----

GENERAL DRAINAGE – (Road)

CD01i	Strom Drain Trench Detail	(12-11-02)	17
CD03i	Silt Fence and Haybale Sediment Control Details	(02-28-02)	18
CD04i	Back of Curb Flow Diverter	(11-27-02)	19
CD05i	Gutter Flow – for Standard Street Section	(02-28-07)	20
CD06i	Sidewalk Cross Drain & Residential Sidewalk Drain	(10-26-06)	21
CD07i	Storm Drain Utility Crossing at or Below Pipe Soffit	(11-27-02)	22
CD08i	Edge Drain Details	(06-12-07)	23
CD11i	Inlet Frame and Grate	(02-28-02)	24
CD12i	Maintenance Access Opening	(02-28-02)	25
CD16i	Standard Manhole on Type "C" Inlet Base	(11-27-02)	26
CD20i	Type "A" Inlet	(11-27-02)	27
CD21i	Type "B" Inlet	(11-27-02)	28
CD22i	Type "C" Inlet	(02-28-02)	29
CD23i	Type "D" Inlet	(11-27-02)	30
CD24i	Type "E" Inlet	(11-27-02)	31
CD25i	Type "F" Inlet	(10-26-06)	32
CD26i	Type "F" Inlet Details	(10-26-06)	33
CD30i	Pre-cast Manhole and Type I Base	(11-27-02)	34
CD31i	Type II Manhole Base	(11-27-02)	35
CD32i	Type III Manhole Base	(11-27-02)	36

Dwg # Title (Plan Date) Page

GENERAL DRAINAGE – (Flood Control Channels)

CD33i	Type IV Manhole Base	(11-27-02)	37
CD34i	Type V Manhole Base	(10-26-06)	38
CD40i	Rock Slope Protection	(11-21-06)	39
CD50i	Rock Pipe Outfall	(01-28-08)	40
CD52i	Type “M” Headwall	(02-28-02)	41
CD60i	Concrete “V” Ditch	(02-28-02)	42
CD61i	Concrete Ditch Details	(02-28-02)	43

GENERAL LANDSCAPING – (Flood Control Channels)

CH10i	Mitigation Landscaping Details	(02-28-02)	44
CH80i	Typical Landscaping Limits on Creek Embankments	(02-28-02)	45

SIGNING AND STRIPING

CRS1i	Signing & Striping Standards	(06-12-07)	46
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UTILITIES

CU01i	Utility Trench Cut Details	(11-27-02)	47
CU60i	Standard Utility Locations	(02-28-02)	48

Plan updates are available on our website at:

<http://www.co.contra-costa.ca.us/depart/pw/design/standardplans.html>

STANDARD TOPOGRAPHIC SYMBOLS

	Electrifier		Trees
	Fire Hydrant (FH)		Tree & Shrub Line
	Mailbox (MB)		Tree Stump
	Manhole (MH)		Rock Slope Protection (RSP)
	Sanitary Sewer Manhole (SSMH)		Concreted Rock Slope Protection (CRSP)
	Storm Drain Manhole (SDMH)		Slope Line
	Power Pole (PP)		Building
	Power Pole w/guy wire		Bridge
	Transmission Tower		Portland Cement Concrete (PCC)
	Utility Valve		Aggregate Base (AB) or Aggregate Subbase (ASB)
	Water Meter (WM)		
	Two Post Road Sign		
	One Post Road Sign		
	Bore Location		
	Drainage Inlet (DI)		
	Direction of Water Flow		
	Aerial Photo Center		
	Curb or Pavement Edge		
	Curb with gutter		
	Soil Pattern		

RECORD MAP SYMBOLS

	Set R.R. Spike
	Set Iron Pipe (I.P.)
	Set Hub
	Set Nail & Shiner
	Chiseled Cross
	Set County Monument
	Found R.R. Spike
	Found Iron Pipe
	Found Hub
	Found Nail & Shiner
	Found Chiseled Cross
	Standard County Monument
() Parenthesis denotes record data per deed or record. State the recording information of the record data.	
	Relinquishment of abutters rights and private access prohibited.

DETAIL REFERENCE SYMBOLS

	Detail Designation Sheet Number
	State Standard Plan Reference
	County Standard Plan Reference
	Drainage System Number
	Drainage Unit Number
	Sewer System Number
	Note Number

CONTROL POINTS

	Benchmark (BM)
	Horizontal Control Point (HCP)
	Vertical Control Point (VCP)
	Horizontal & Vertical Control Point

LINE STYLES

Miscellaneous Lines	
	Control Line
	City Limits
	State R/W
	R/W
Topographic Lines	
	Guardrail
	Exist Masonry Wall
	Exist Median Barrier
	New Wall
	Railroad
	Original Ground
	Contour Lines
	Culvert
	Ditch Flowline
	Fence
	Fence w/gate

Maurice M. Shiu
 REGISTERED CIVIL ENGINEER
 11/27/2002
 PLANS APPROVAL DATE
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 REGISTERED PROFESSIONAL ENGINEER
 MAURICE M. SHIU
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 Exp. 12/31/05
 CIVIL
 STATE OF CALIFORNIA

Underground Utilities

S	Sewer
T	Telephone
TV	Television
W	Water
E	Electric
GS	Gasoline
G	Natural Gas
O	Oil

ABBREVIATIONS

CMP	Corrugated Metal Pipe
FC	Face of Curb
HDPEP	High Density Polyethylene Pipe
POB	Point of Beginning
POE	Point of Ending
Pt	Point
Reconst	Reconstruct
S	Slope
TCE	Temporary Construction Easement
TFC	Top Face of Curb
w/	With
PC	Portland Cement or Point of Curvature

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

STANDARD DRAFTING SYMBOLS

	2-02	Supersedes Standard Plan CA1	P.W.
		dated 11-99	
NO.	DATE	REVISION DESCRIPTION	BY

SCALE: NO SCALE	DATE: 2-02
DRAWN BY: H. HUSSEY	PLAN NO. CA01i
CHECKED BY: M. HOLLINGSWORTH	

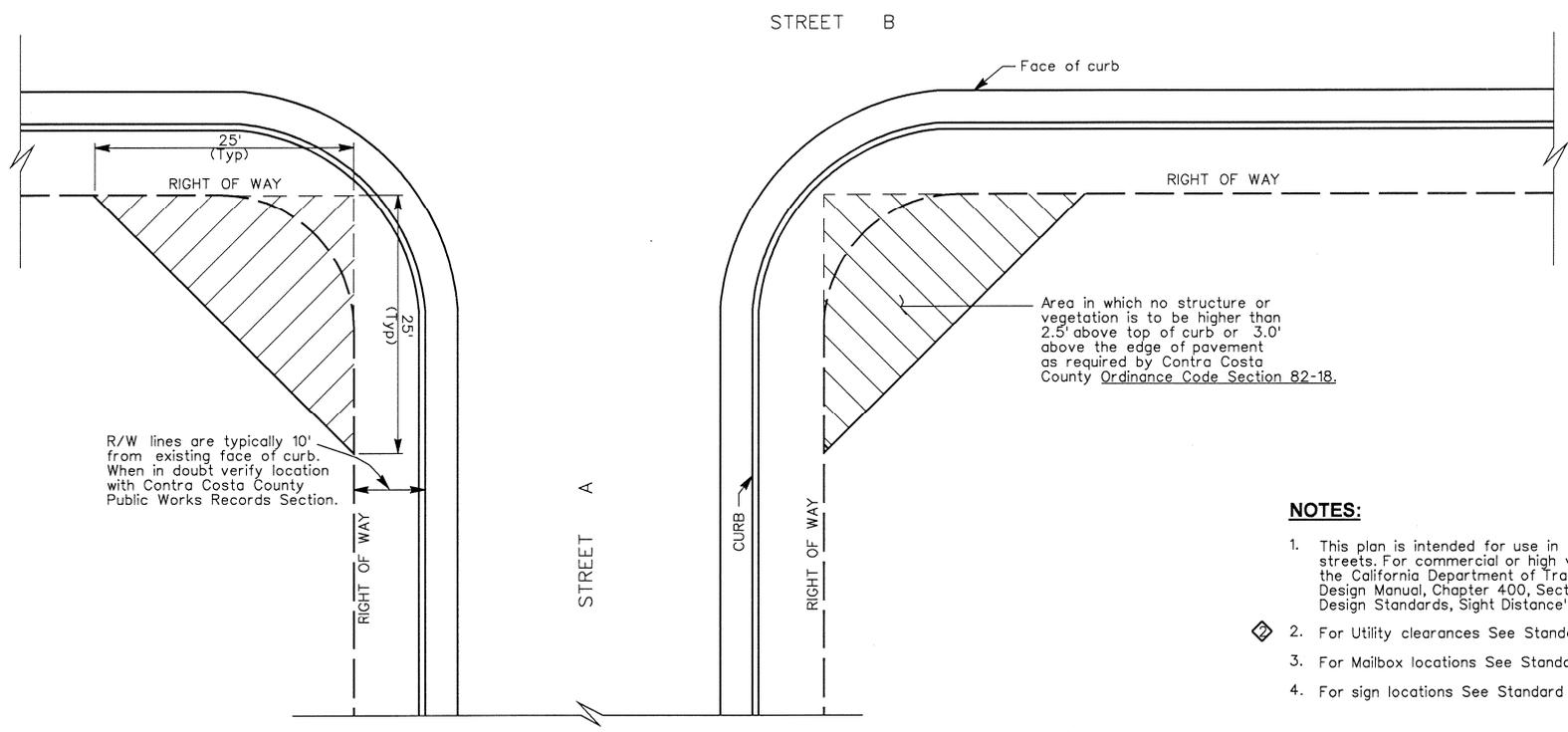
STD. PLAN CA01i

M. Hollingsworth
 PUBLIC WORKS DIRECTOR
 6/12/07
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
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 STATE OF CALIFORNIA

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TYPICAL STREET INTERSECTION



REQUIRED CLEARANCE AT INTERSECTIONS

NOTES:

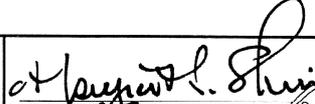
1. This plan is intended for use in low volume subdivision streets. For commercial or high volume streets refer to the California Department of Transportation Highway Design Manual, Chapter 400, Section 405- "Intersection Design Standards, Sight Distance".
2. For Utility clearances See Standard Plan CU60i.
3. For Mailbox locations See Standard Plan CA90i.
4. For sign locations See Standard Plan CRS1i.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

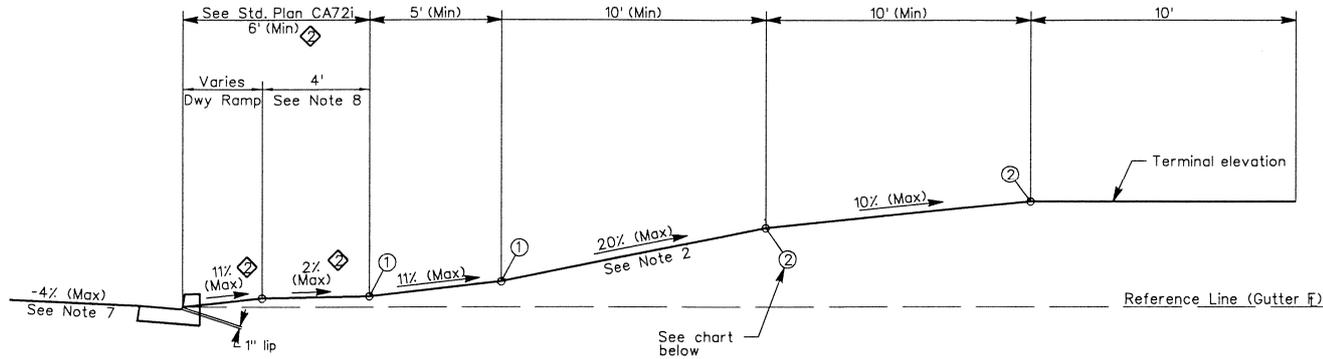
**REQUIRED CLEARANCE
 AT INTERSECTIONS**

NO.	DATE	REVISION DESCRIPTION	BY
2-02		Supersedes Standard Plan CA10 dated 11-99	P.W.
5-07		Change in Std Plan Number	HH

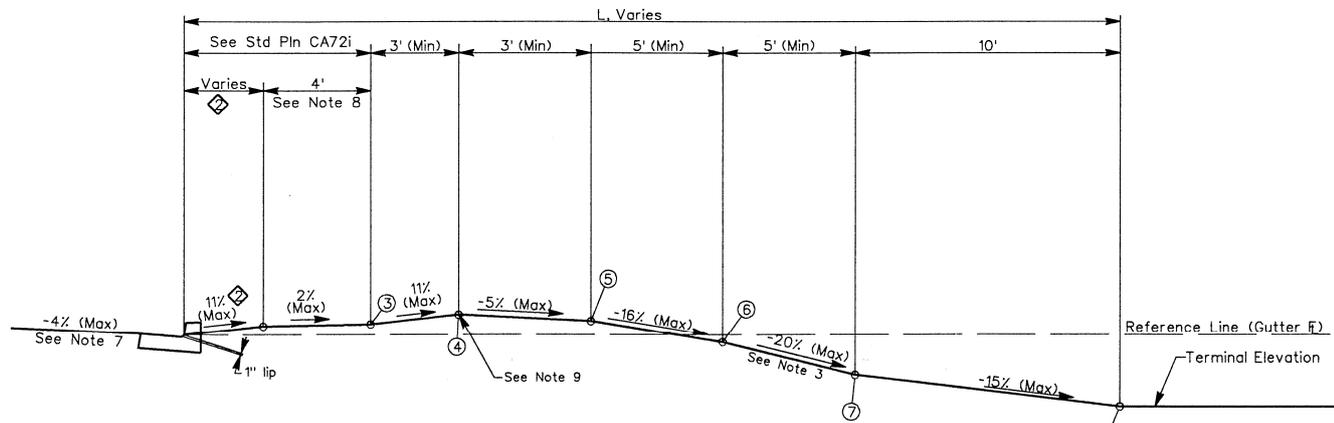
SCALE: NO SCALE DATE: 2-02
 DRAWN BY: H.HUSSEY PLAN NO. CA10i
 CHECKED BY: M.HOLLINGSWORTH


 PUBLIC WORKS DIRECTOR
 10-26-06
 PLANS APPROVAL DATE
 No. 23204
 Exp. 12/31/07
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 REGISTERED PROFESSIONAL ENGINEER

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ASCENDING DRIVEWAY



DESCENDING DRIVEWAY

NOTES:

- Reference line is from top face of depressed curb or edge of pavement where no curb exists.
- For maximum grade breaks see chart on this plan.
- If driveway serves more than one lot, maximum driveway grade is 20%. If driveway serves only one lot, a 25% maximum grade will be allowed. Additional driveway length must be provided to accommodate the excess grade break.
- Car dimensions were obtained from the 1991 edition of "Parking Dimensions," Motor Vehicle Manufacturers Association. This design and construction aid is based on the most unfavorable dimensions of cars listed. For unique or oversized cars, a special design is required.
- L = length of driveway.
- See Standard Plan CA72i for driveway ramp details.
- If pavement cross slope exceeds 4%, a modified driveway profile shall be used with the slope of the driveway ramp reduced such that the difference in slope of the driveway ramp and the slope of a line between the gutter and a point on the roadway 5' from gutter line shall not exceed 15%. Reduce driveway ramp slope, not the gutter slope. Other dimensions shall be modified as approved by the Public Works Department.
- If the Public Works Department determines that no sidewalk will ever be constructed the 4' of 2% may be deleted.
- The grade at (4) shall be a minimum of 0.5' above reference line.

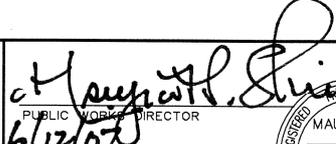
GRADE BREAK CHART

⊕	Maximum grade break
1	9%
2	10%
3	9%
4	16%
5	11%
6	9%
7	10%
8	15%

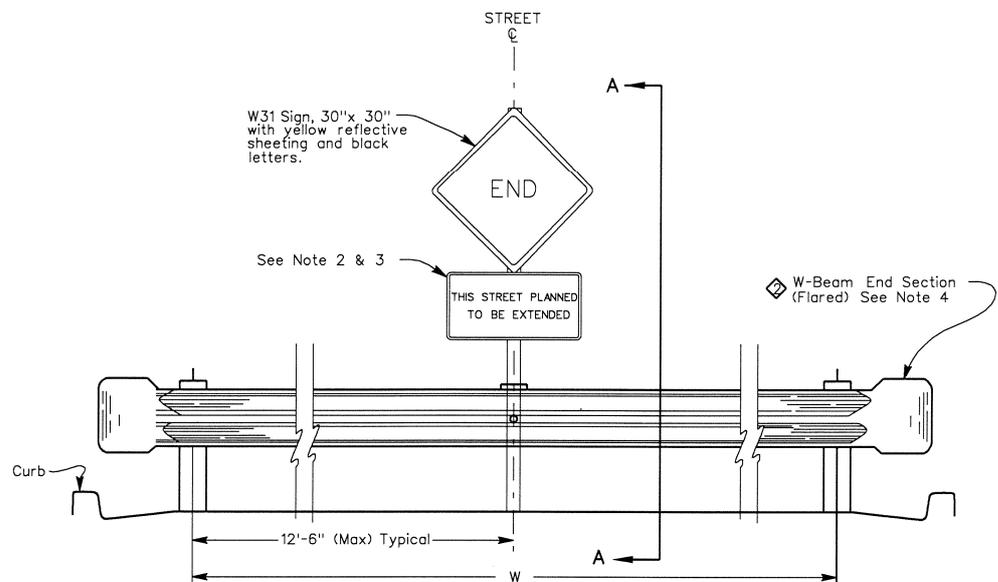
2-02	Supersedes Standard Plan CA20 dated 11-99	P.W.
2-02	Dimension Corrections	H.H.
NO.	DATE	REVISION DESCRIPTION

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN
DRIVEWAY DESIGN STANDARDS
 SCALE: NO SCALE
 DATE: 2-02
 DRAWN BY: H.HUSSEY
 PLAN NO. **CA20i**
 CHECKED BY: M.HOLLINGSWORTH

STD. PLAN CA20I

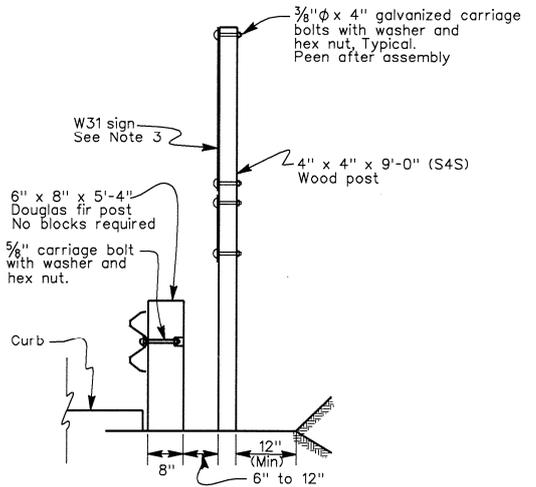

 PUBLIC WORKS DIRECTOR
 6/12/07
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REGISTERED PROFESSIONAL ENGINEER
 MAURICE M. SHIU
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ROAD WIDTH(ft)	W(ft)	NO. POSTS
32 and 36	25	3
40	37' 6"	4
64	50	5

STREET BARRICADE



SECTION A-A

NOTES:

1. Sign, metal beam guardrail, and barricade wood posts shall conform to the current State Standard Specifications.
2. All subdivision streets that are stubbed out for future use shall have a sign posted at the end of the dead end street that reads "THIS STREET PLANNED TO BE EXTENDED". The sign shall be reflectorized with black 2" capital series "E" letters on a white background and measure 1/2' high by 3' wide.
3. All signs shall be installed as per Standard Plan CRS11.
4. End section shall be W-Beam rail end section, Trinity Highway Safety Products, Model 9016 or equivalent.

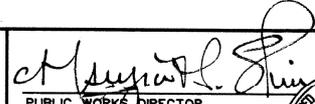
COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

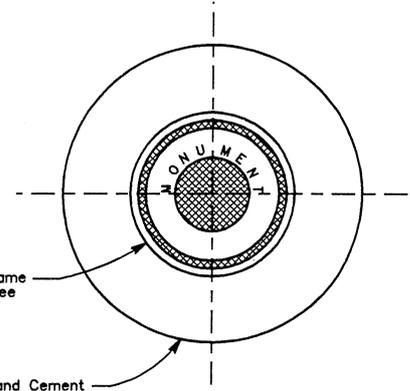
STREET BARRICADE

2-02	Supersedes Standard Plan CA30 dated 11-99	P.W.
4-07	End Section Revisions	MH
NO.	DATE	REVISION DESCRIPTION

SCALE: NO SCALE
 DATE: 4-07
 DRAWN BY: H. HUSSEY
 PLAN NO. CA30i
 CHECKED BY: M. HOLLINGSWORTH

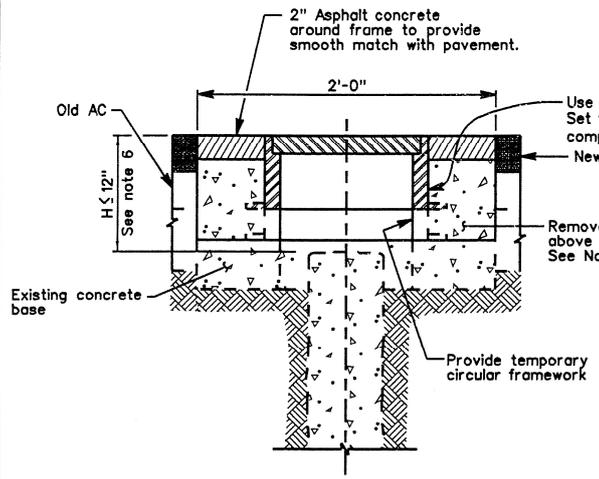
STD. PLAN CA30i


 PUBLIC WORKS DIRECTOR
 3/7/06
 PLANS APPROVAL DATE
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 No. 23204
 Exp. 12/31/05
 CIVIL
 STATE OF CALIFORNIA
 07
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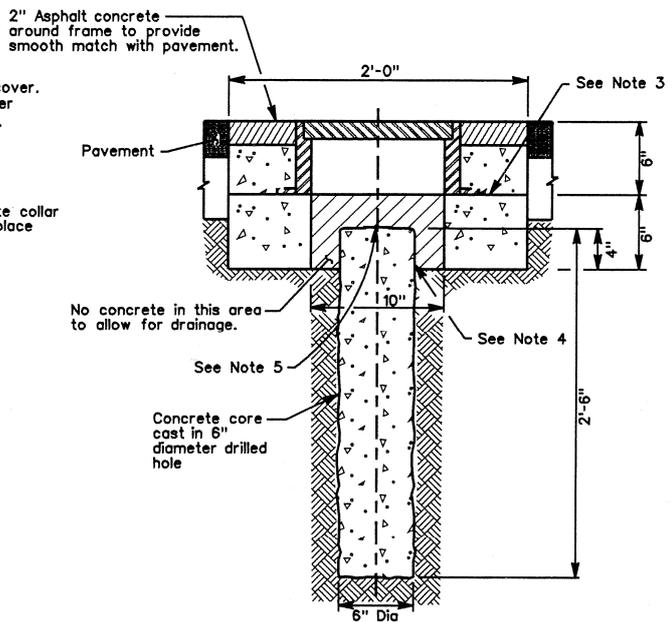


Metal cover and frame (Schematic only)-See Note 2.

2' diameter Portland Cement Concrete jacket covered with 2" of asphalt concrete-See Note 1.



FRAME ADJUSTMENT DETAIL



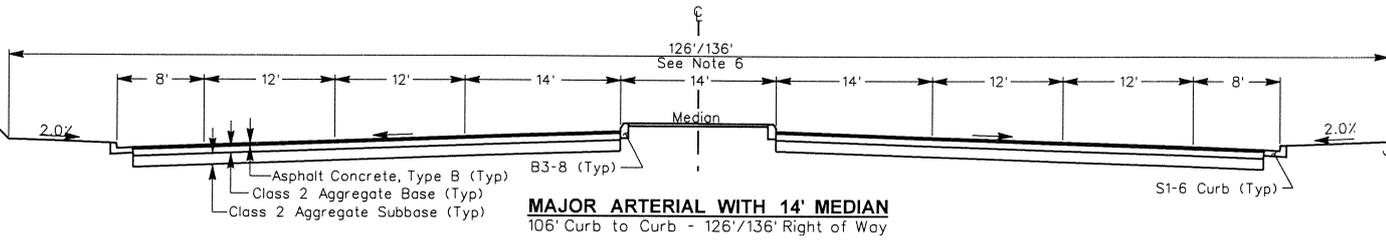
NEW INSTALLATION DETAIL

NOTES:

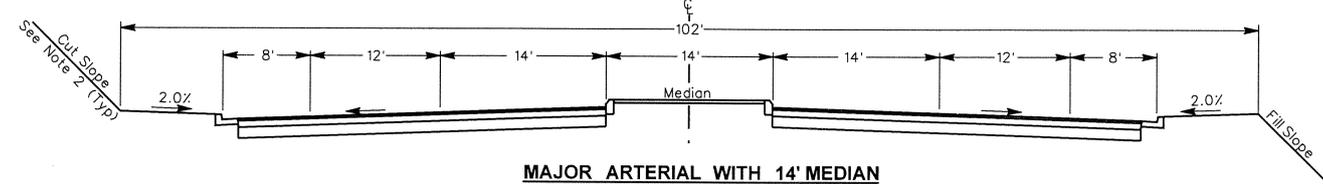
- Portland cement concrete for jacket and core shall be Class 2 (590 lb. PC per cubic yard) with 3/4" maximum aggregate max-medium grading.
- Approved covers and frames are those manufactured by Chrisp Casting, Part No. 9277M or 9279 or approved equivalent. Covers shall be marked "Monument" shall be non-rocking and designed for a 15000 lb. wheel load.
- 30° felt or 1/4" layer of sand to create a "cold joint"
- 6" diameter collar formed with 30° felt.
- Solid brass marker (1 3/8" diameter top and 7/8" x 2" shank) with distinctive punch and R.E. or L.S. number.
- When "H" exceeds 12", a complete reconstruction of monument is required.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN
STREET SURVEY MONUMENT
 SCALE: NO SCALE DATE: 2-02
 DRAWN BY: L.COSTA PLAN NO. CA40i
 CHECKED BY: R. Zwemmer

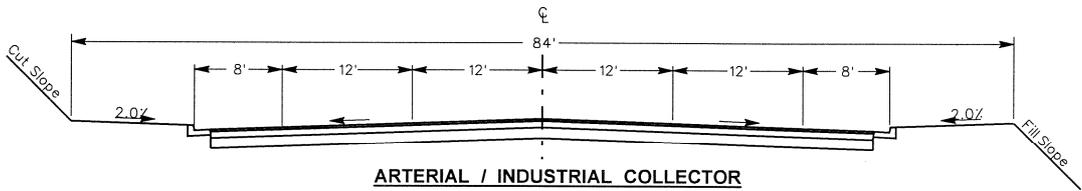
NO.	DATE	REVISION DESCRIPTION	BY
2-02		Supersedes Standard Plan CA40 dated 11-99	P.W.
7-02		Concrete Spec. Revision	HH
1-06		Var. Revisions, especially adjustments	LC



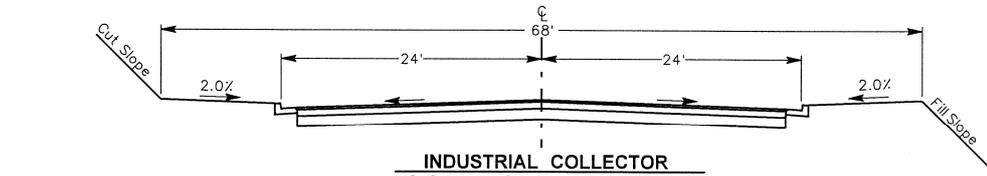
MAJOR ARTERIAL WITH 14' MEDIAN
106' Curb to Curb - 126'/136' Right of Way



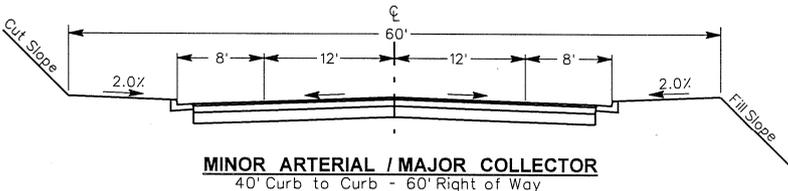
MAJOR ARTERIAL WITH 14' MEDIAN
82' Curb to Curb - 102' Right of Way



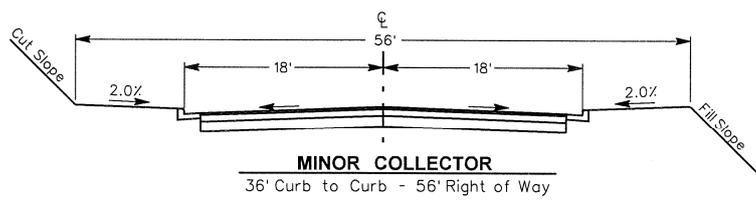
ARTERIAL / INDUSTRIAL COLLECTOR
64' Curb to Curb - 84' Right of Way



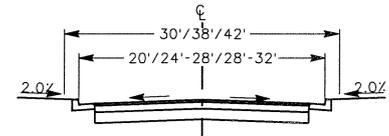
INDUSTRIAL COLLECTOR
48' Curb to Curb - 68' Right of Way



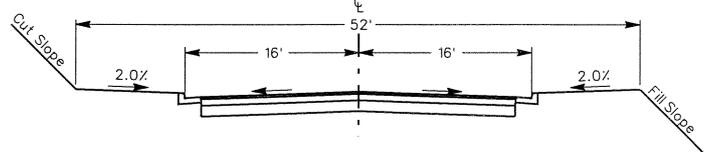
MINOR ARTERIAL / MAJOR COLLECTOR
40' Curb to Curb - 60' Right of Way



MINOR COLLECTOR
36' Curb to Curb - 56' Right of Way



PRIVATE ROADS
20', 24'-28', 28'-32' Curb to Curb - 30', 38', 42' Right of Way



LOCAL ROAD
32' Curb to Curb - 52' Right of Way

NOTES:

1. Typical cross slope for new construction shall be 2%
2. Cut and fill slopes beyond R/W may vary with a maximum of 1/2 horizontal to 1 vertical, for cut slopes, and 2 horizontal to 1 vertical for fill slopes.
3. Pavement structural section shall be designed in accordance with the latest Caltrans Design Manual or "Subdivision Sheet Section" charts maintained by Public Works Department, with minimum asphalt concrete thickness of 0.20', and a minimum aggregate base thickness of 0.50'.
4. For street widths, refer to Section 98-4 of the County Ordinance Code.
5. Roads are defined by guidelines set in the "County Road Standards Matrix", exceptions shall be considered when supported by Section 92-6.002 of the County Ordinance Code.
6. Roads defined as "Parkways" shall have a Right of Way width of 136 feet.

Maurice M. Shiu
PUBLIC WORKS DIRECTOR
12/11/02
PLANS APPROVAL DATE

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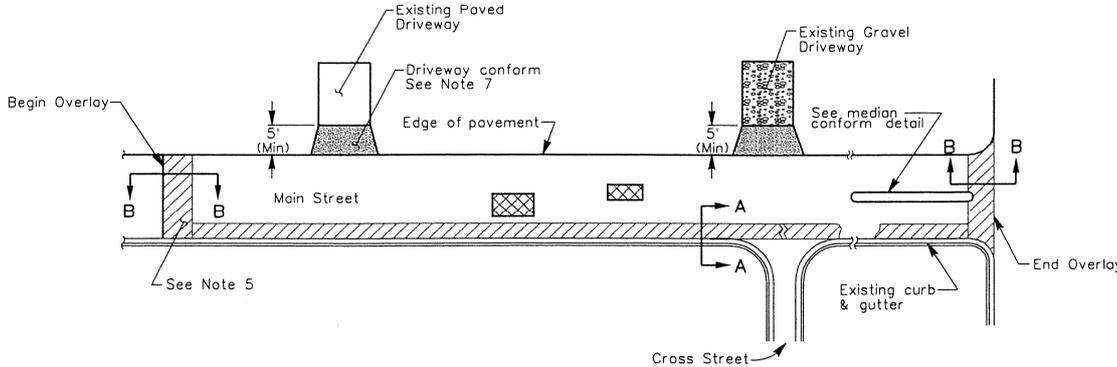
STD. PLAN CA501

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA
STANDARD PLAN

**TYPICAL ROAD SECTIONS
FOR SUBDIVISIONS
& ROAD ACCEPTANCE**

2-02	Supersedes Standard Plan CA50 dated 11-99	P.W.
12-05	Change in County Ordinance Code section callout	H.H.
NO.	DATE	REVISION DESCRIPTION

SCALE: NO SCALE
DATE: 12-02
DRAWN BY: H. HUSSEY
CHECKED BY: M. HOLLINGSWORTH
PLAN NO. CA501



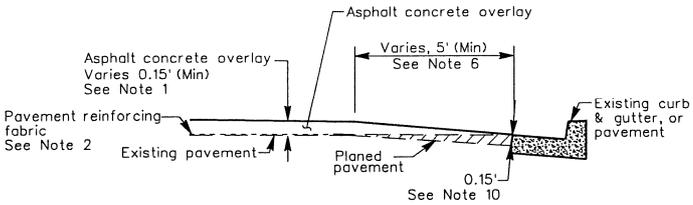
PLANED ASPHALT CONFORM DETAILS

- LEGEND**
- Pavement Failure Repair
 - Tapered Conform - Cold Planed
 - Tapered AC

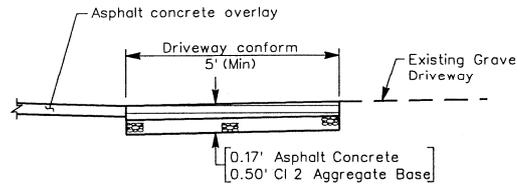
R. Mitchell
 PUBLIC WORKS DIRECTOR
2-28-02
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 R. MITCH AVALON
 No. 31422
 Exp. 12/31/04
 CIVIL
 STATE OF CALIFORNIA

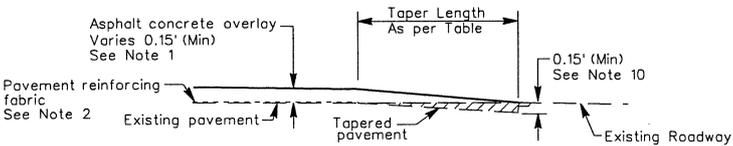
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SECTION A-A TAPERED KEYCUT CONFORM DETAIL with Curb

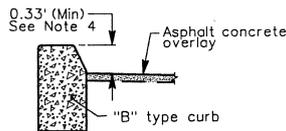


GRAVEL DRIVEWAY CONFORM DETAIL

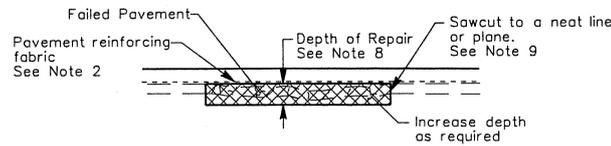


SECTION B-B LENGTH OF TAPER DETAIL

LENGTH OF TAPER BY DESIGN SPEED		
Overlay Thickness (feet)	Taper Length speed < 45mph (feet)	Taper Length speed > 45mph (feet)
0.10	10	20
0.12	12	24
0.15	15	30
0.20	20	40
0.25	25	50
0.30	30	60
0.35	35	70
0.40	40	80



MEDIAN CONFORM DETAIL



PAVEMENT FAILURE REPAIR DETAIL

NOTES:

- Asphalt concrete overlay thickness shall be as specified by the Public Works Department.
- Pavement reinforcing fabric shall be as required by the Public Works Department.
- Paving at the gutter lip shall be placed as per Standard Plan CA70i "Detail "A" when conforming to S1-6 or S1-8 curb, or PCC valley gutters.
- When conforming to median curb, the minimum remaining curb height shall be 0.33'. When 0.33' cannot be obtained "Modified B3-8 Curb" shall be used, See Standard Plan CA7ii.
- For design speeds of 45 mph or less maximum grade break of taper shall not exceed 1%. For design speeds greater than 45 mph grade of taper shall not exceed 0.5%. Use "Length of Taper by Design Speed" table.
- Dimensions shown shall be such that the slope of shoulder does not exceed 5.0%.
- Asphalt concrete driveway conforms shall be tapered and no planing is required, unless otherwise specified by the Public Works Department.
- Depth and dimensions of pavement failure repair shall be as specified by the Public Works Department.
- Removal of failed pavement by cold planing the required depth and dimensions, or by sawcutting around failure to a neat line and removing failed pavement.
- Conform thickness shall be 0.15' unless otherwise specified by the Public Works Department.

STD. PLAN CA51i

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

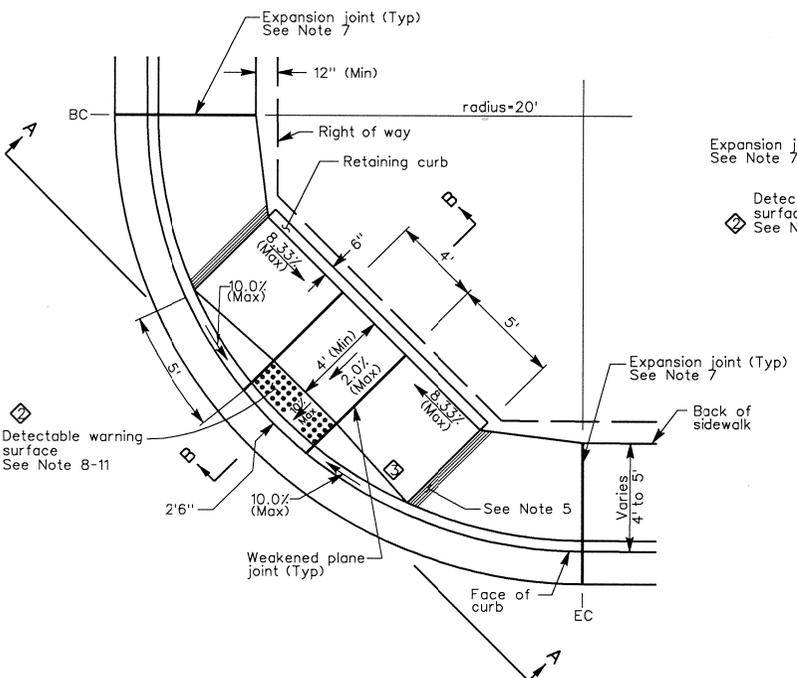
TYPICAL ASPHALT CONFORM DETAILS for OVERLAYS

2-02	Supersedes Standard Plan CA51 dated 11-99	P.W.
NO.	DATE	REVISION DESCRIPTION
SCALE: NO SCALE		DATE: 2-02
DRAWN BY: H. HUSSEY		PLAN NO. CA51i
CHECKED BY: W. HOLLINGSWORTH		

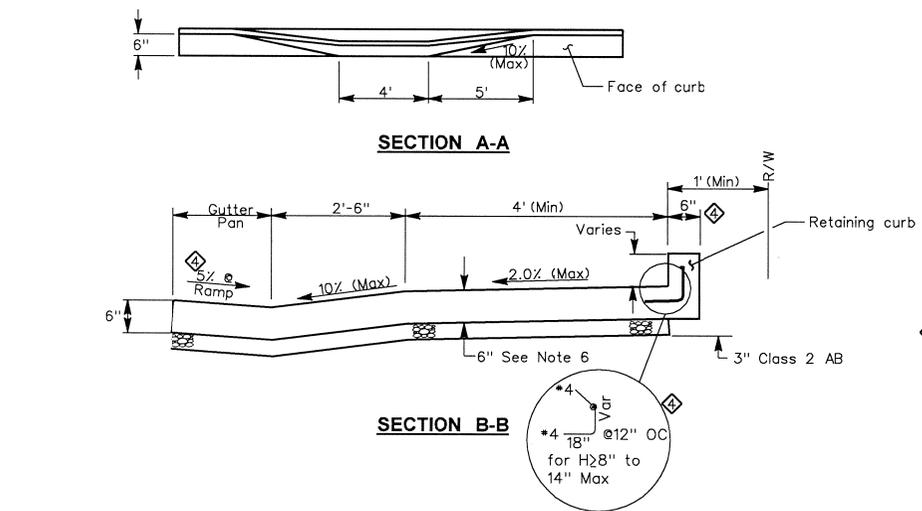
Maurice M. Shiu
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 CIVIL
 STATE OF CALIFORNIA

PUBLIC WORKS DIRECTOR
 10/2/07
 PLANS APPROVAL DATE

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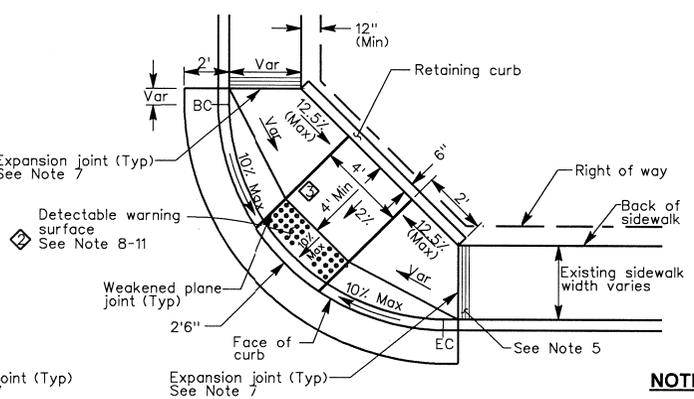


MODIFIED CASE "B" CURB RAMP
 20 foot curb radius or larger

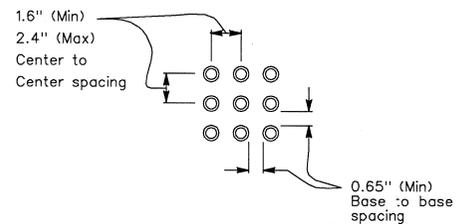


SECTION A-A

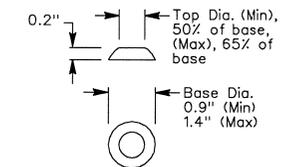
SECTION B-B



MODIFIED CASE "B" CURB RAMP
 10 foot curb radius

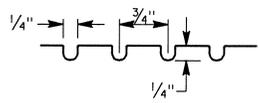


RAISED TRUNCATED DOME PATTERN (IN-LINE)



RAISED TRUNCATED DOME

DETECTABLE WARNING SURFACE



GROOVING DETAIL

NOTES:

- In general, this ramp shall only be used when retrofitting existing curb returns. Use State Standard Plan A88A or A88B for curb ramps used in new construction.
- All ramps shall be constructed to current ADA standards.
 - No utility boxes or above ground utilities shall be installed in the sidewalk area between the B.C. and E.C. of the curb return in either residential or commercial areas.
 - Use of modified Type "B" curb ramps shall be approved by the Public Works Department.
 - A maximum slope of 10.0% is allowed for a rise of 3".
 - Curb ramps shall have a 12" border with 1/4" grooves approximately 3/4" on center. See "Grooving Detail".
 - All sidewalk shall be 6" Min thickness from BC to EC.
 - Expansion joints required at both curb returns. See Standard Plan CA701 for joint details.
 - Curb ramps shall have a detectable warning surface that extends the full width and 2'-0" depth at center of curb ramp, and shall be attached using the manufactures recommendations.
 - The edge of the detectable warning surface nearest the street shall be 6" from the gutter flowline.
 - Detectable warning surface shall be prefabricated tiles set directly in newly poured concrete, and shall be in conformance with the requirements established by the Department of General Services, Division of State Architect. Surface applied tiles or stamped into surface detectable warning surfaces shall not be allowed.
 - The color of the detectable warning surface shall be yellow conforming to Federal Standard 595B, Color No. 3353B.
 - Retaining curb height shall match existing ground at back of sidewalk. Retaining curbs shall have a 1:6 batter and finish similar to S1-6 curb, per County Standard Plan CA711. Retaining curb with a H > 8" shall be reinforced as shown on this plan.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

MODIFIED CASE "B" CURB RAMP

2-02	Supersedes Standard Plan CA52 dated 11-99	P.W.
5-04	Detectable Warning Surface	H.H.
8-05	Grooving Locations	
9-07	Dimension & Detail Changes	
NO.	DATE	REVISION DESCRIPTION

SCALE: NO SCALE
 DATE: 5-04
 DRAWN BY: H.HUSSEY
 PLAN NO. CA52i
 CHECKED BY: M. HOLLINGSWORTH

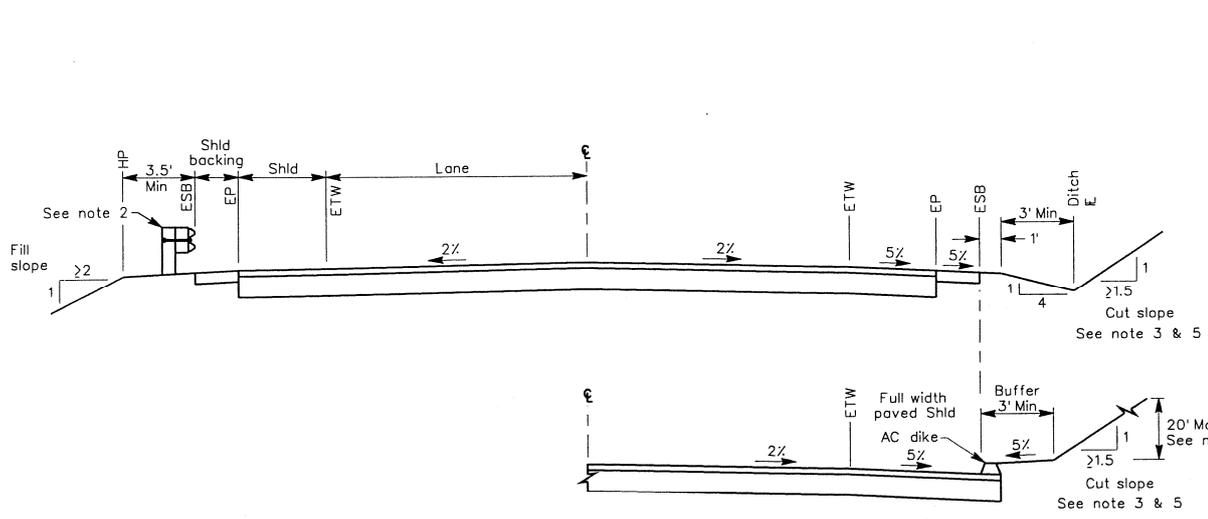

 PUBLIC WORKS DIRECTOR
2-28-02
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 R. MITCH AVALON
 No. 31422
 Exp. 12/31/04
 CIVIL
 STATE OF CALIFORNIA

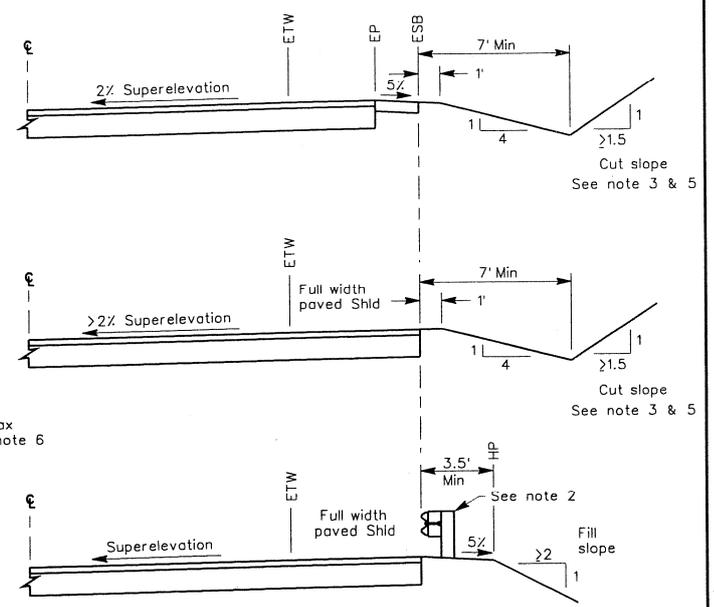
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TWO LANE RURAL SHOULDER/LANE WIDTHS

	ADT < 250	< 400	< 1000	< 3000	< 6000	> 6000
MINIMUM (Shld backing/Shld/Lane)	1.5'/0'/11'	0'/1'/11'	2'/1'/11'	2'/2'/12'	3'/4'/12'	3'/5'/12'
DESIRABLE * (Shld backing/Shld/Lane)	0'/1'/11'	2'/1'/11'	2'/4'/12'	2'/5'/12'	2'/6'/12'	0'/8'/12'



TYPICAL RURAL 2-LANE ROAD SECTION



TYPICAL RURAL 2-LANE ROAD SUPERELEVATED SECTION

NOTES:

1. These guidelines do not override County Ordinance Code requirements for development projects.
2. Guardrail may be required, depending on embankment height and slope. (See Caltrans Guidelines)
3. Distance to cut slope from ETW may be increased for sight distance in curves. (See Caltrans Design Manual)
4. Use desirable if it does not significantly increase R/W or construction costs, especially where there is high percentage of trucks.
5. A wider swale and/or buffer between toe of slope and roadway should be considered where there is potential rock fall, the slope is highly erosive or there is significant longitudinal surface flows.
6. If cut slope is > 20' to bench or top of cut, buffer width shall be increased.
7. Design ADT shall be approved by the Public Works Department.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA
 STANDARD PLAN

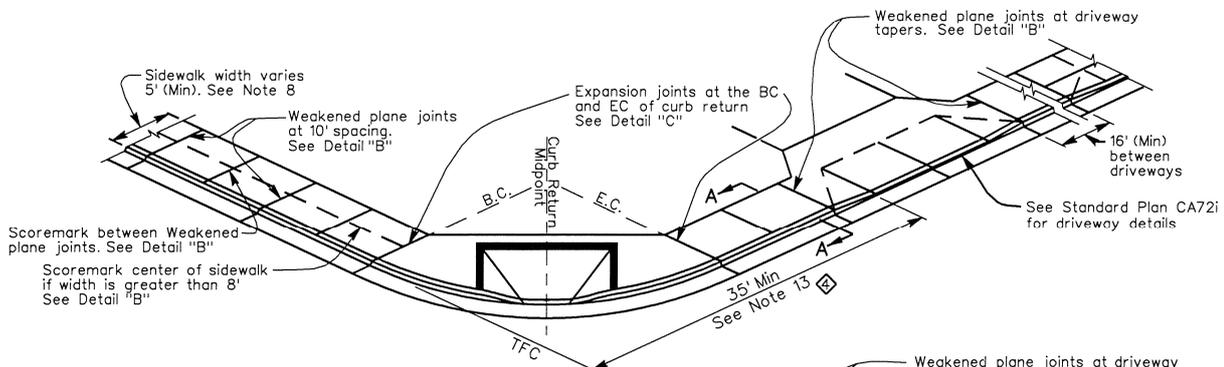
TWO LANE RURAL ROAD GUIDELINES

NO.	DATE	REVISION DESCRIPTION	BY

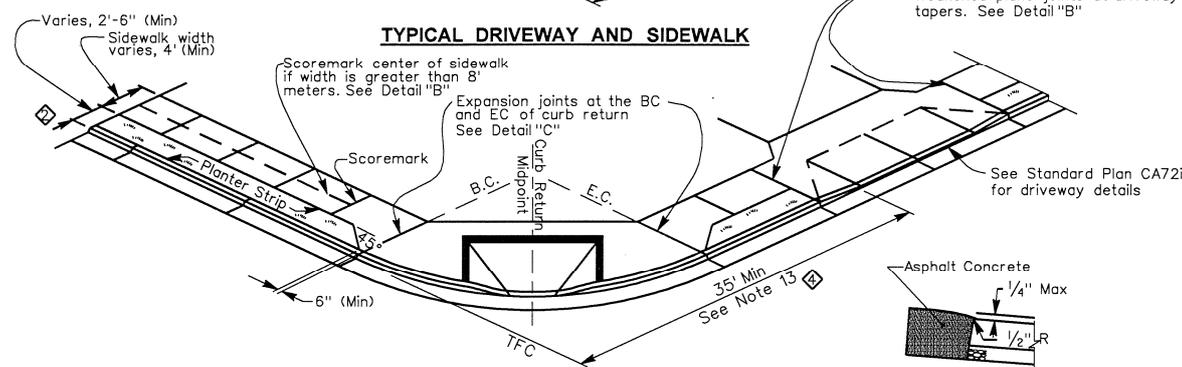
◇	2-02	Supersedes Standard Plan CA53 dated 11-99	P.W.

SCALE: NO SCALE	DATE: 2-02
DRAWN BY: L. COSTA	PLAN NO.
CHECKED BY: M. HOLLINGSWORTH	CA53i

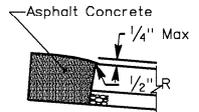
STD. PLAN CA53I



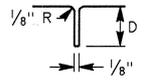
TYPICAL DRIVEWAY AND SIDEWALK



TYPICAL SEPARATED SIDEWALK

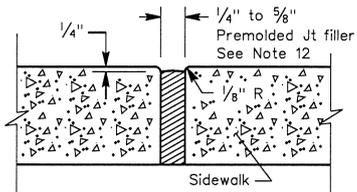


DETAIL A
Gutter Lip Paving

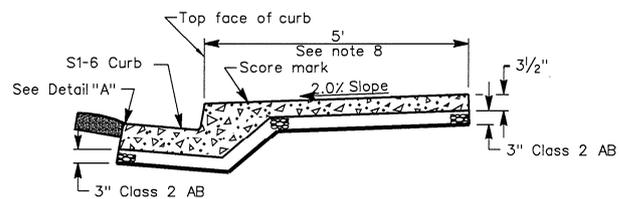


D=1" for Weakened Plane Joint
D=1/4" for Scoremarks

DETAIL B
Scoremarks and Weakened Plane Joints



DETAIL C
Expansion joint



CURB AND SIDEWALK
TYPICAL SECTION A-A

NOTES:

1. Class 3 Portland Cement Concrete (505 lb PC per cubic yard, 1" maximum aggregate) shall be used for all construction detailed on this plan. New curb and adjoining sidewalk shall be constructed monolithically.
2. Transverse scoremarks shall be made at 10' intervals on the sidewalk (including the portion in the driveway area) and a longitudinal scoremark shall be made along the centerline of any sidewalk which is 8' or more in width, weakened plane joints shall be provided at 10' intervals in curb and sidewalk (including the portion in the driveway area) See Detail "B" and "Typical Sidewalk Details".
3. Curb reference stakes shall not be offset more than 3' from the back of curb or more than 2' from the back of the sidewalk.
4. Where there is a planter strip between the sidewalk and the curb, the curb in a driveway depression shall be constructed monolithically with the driveway.
5. When the street slopes away from a curb, the gutter slope shall match the cross slope of the street.
6. Paving at the gutter lip shall conform to "Detail A" except when the street slopes away from the curb, the paving shall match the gutter lip.
7. Meter boxes, poles, and fire hydrants locations shall conform to locations shown on Standard Plan CU60i.
8. Minimum sidewalk widths are 5'-0" for residential; 6'-6" for multiple zoned; 10'-0" for retail business and commercial areas; 8'-0" in retail and commercial areas where right of way is limited.
9. A 3" layer of Class 2 aggregate base or subbase shall be placed under all curb and sidewalk sections unless otherwise noted.
10. Expansion joint "Detail C" shall be installed at the BC and EC of all returns and the back of sidewalk at driveways.
11. See Standard Plan CA71i for curb details.
12. Premolded joint filler material for expansion joints shall conform to Section 51-1.12C "Premolded Expansion Fillers," of the State Standard Specifications.
13. 35' is the minimum offset on low volume, low speed residential streets. For higher volume, higher speed roads, the 35' dimension shall increase to comply with Topic 405 "Intersection Design Standards", 405.1 Sight Distance of the California Department of Transportation, Highway Design Manual.

Maurice M. Shiu
PUBLIC WORKS DIRECTOR
6/12/07
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
MAURICE M. SHIU
No. 23204
Exp. 12/31/07
CIVIL
STATE OF CALIFORNIA

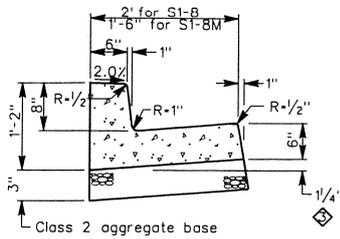
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COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA
STANDARD PLAN

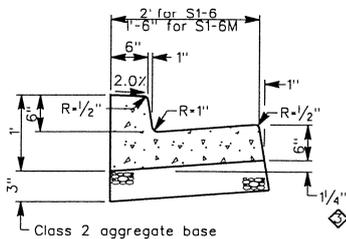
**STANDARD SIDEWALK
DETAILS**

2-02	Supersedes Standard Plan CA70 dated 11-99	P.W.
6-02	Revised Dimension	HH
7-02	Concrete Spec. Revision	HH
4-07	Driveway Location	MH
4-07	Change in plan reference number	HH
NO. DATE	REVISION DESCRIPTION	BY

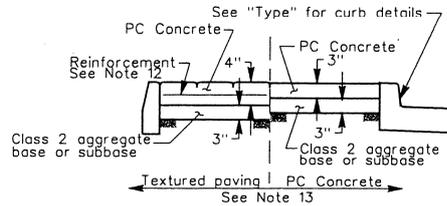
SCALE: NO SCALE
DATE: 4-07
DRAWN BY: H.HUSSEY
PLAN NO. **CA70i**
CHECKED BY: M.HOLLINGSWORTH



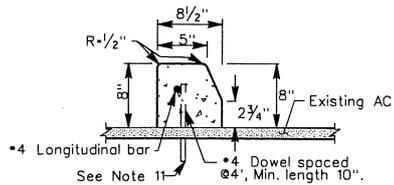
TYPE S1-8 & S1-8M



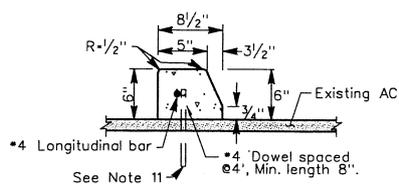
TYPE S1-6 & S1-6M



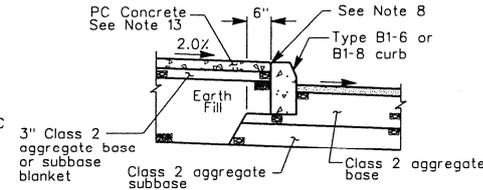
TYPICAL MEDIAN PAVING DETAIL



TYPE B3-8 CURB



TYPE B3-6 CURB

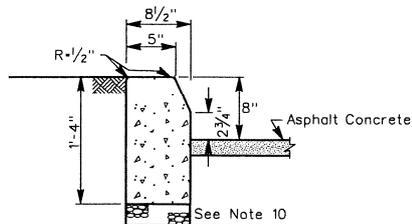


TYPE A TRAFFIC MEDIAN

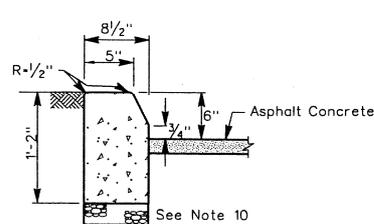
Half Section

NOTES:

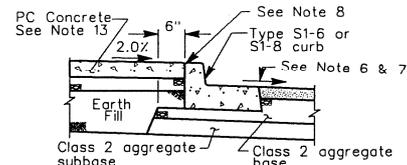
- Class 3 Portland Cement Concrete (505 lb. PC per cu. yard) shall be used for all concrete construction detailed on this plan.
- Weakened plane joints shall be provided at 10' intervals on all curbs. See Standard Plan CA70i, "Detail B".
- Curb reference stakes shall not be offset more than 3' from the back of the curb.
- Curb removed for driveway construction shall be sawcut at the weakened plane joint or scoremark nearest to the full width of the driveway; the entire curb shall be removed between the cut lines.
- The curb in the depression at the driveway shall be constructed monolithically with the driveway.
- When the street slopes away from the curb, the gutter slope shall match the cross slope of the street.
- Paving at the gutter lip shall conform to "Standard Plan CA70i Detail A", except that where the street slopes away from the curb, the paving shall match the gutter lip.
- Curb may be constructed monolithically with the median paving, in which case a scoremark conforming to Standard Plan CA70i "Detail B" shall be provided along the back of the curb.
- Type "B3" curb shall be used only when placed on existing or overlaid pavement.
- A 3" layer of Class 2 aggregate base or subbase shall be placed under Type "B1" curb unless otherwise noted.
- Place dowels in 1" diameter drilled hole filled with 1:1 sand grout. Omit dowels when curb is extruded.
- Reinforcement shall be #4 bars at 18" OC each way or 6" x 6", 8" x 8", 10 gage welded wire fabric.
- Median paving may be "textured" as specified by the Public Works Department. See "Typical Median Paving Detail".
- Width of asphalt concrete path shall be a minimum of 4' measured from top face of curb.
- All new curb which conforms to existing facilities shall be doweled as per Standard Plan CA74i.
- Dowels shall be placed in a 1" diameter drilled hole filled with 1:1 sand cement grout.



TYPE B1-8 CURB

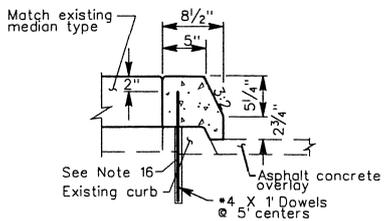


TYPE B1-6 CURB

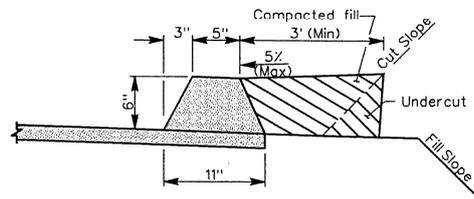


TYPE B TRAFFIC MEDIAN

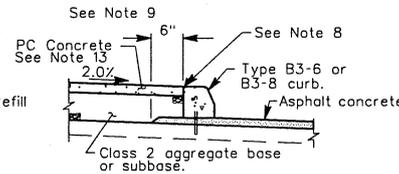
Half Section



MODIFIED TYPE B3-8 CURB

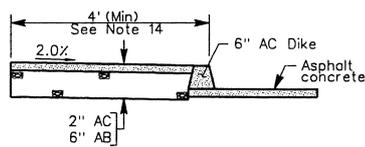


6" AC DIKE

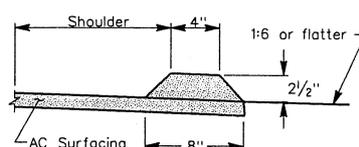


TYPE C TRAFFIC MEDIAN

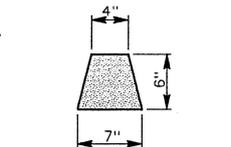
Half Section



AC PATH WITH AC DIKE



2 3/8" AC DIKE



MODIFIED 6" AC DIKE

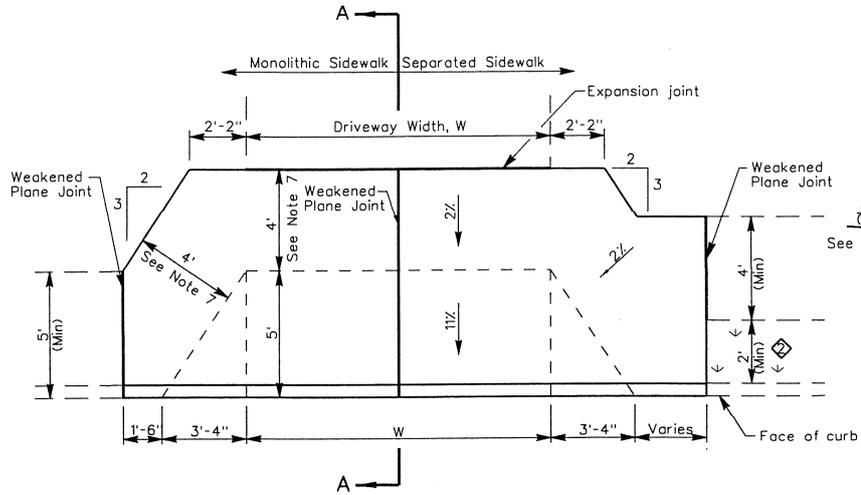
PUBLIC WORKS DIRECTOR
 11/27/2002
 PLANS APPROVAL DATE
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STD. PLAN CA71i

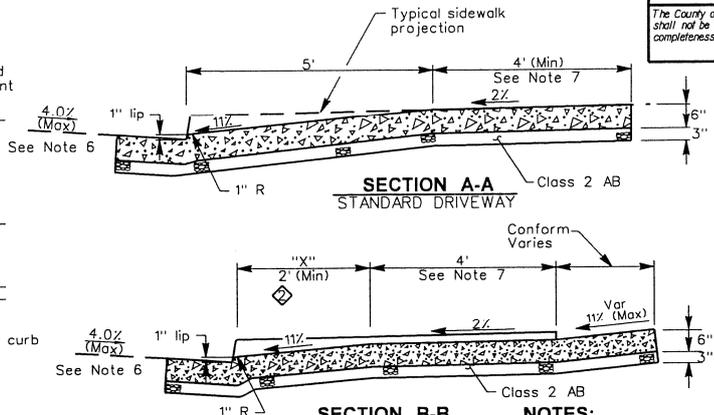
COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN
MEDIAN, CURB AND AC DIKE DETAILS
 SCALE: NO SCALE
 DATE: 11-02
 DRAWN BY: H. HUSSEY
 PLAN NO. **CA71i**
 CHECKED BY: M. HOLLINGSWORTH

NO.	DATE	REVISION DESCRIPTION	BY
2-02		Supersedes Standard Plan CA71 dated 11-99	P.W.
7-02		Concrete Spec. Revision	HH
11-02		Corrected Dimension	

PUBLIC WORKS DIRECTOR
 11/27/2002
 PLANS APPROVAL DATE
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STANDARD DRIVEWAY RAMP

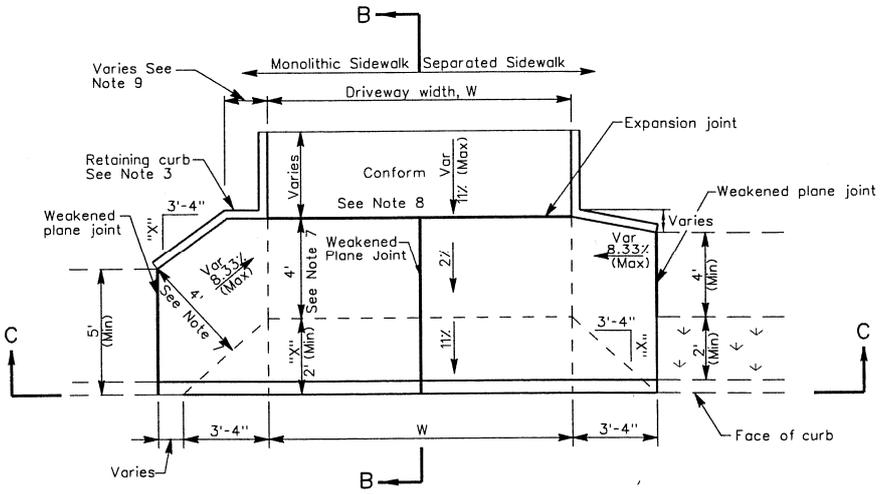


SECTION A-A
STANDARD DRIVEWAY
SECTION B-B
MODIFIED DRIVEWAY
See Note 4

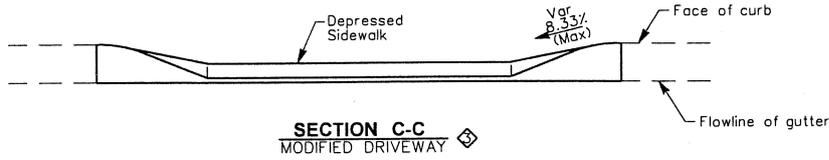
NOTES:

1. New depressed curb and driveway ramps shall be constructed monolithically.
2. The modified driveway may be used when approved by the Public Works Department. "X" shall be as large as possible.
3. Retaining curbs and driveway conforms as required by the Public Works Department.
4. For depressed driveways (section B-B) the sidewalk shall be a minimum of 3 3/8" ("X"-2") above the gutter flowline grade. Depth of gutter flows shall be calculated and compared to proposed depressed sidewalk elevations during design.
5. See Standard Plan CA70I for weakened plane joint expansion joint, and scoremark details.
6. If pavement cross slope exceeds 4.0%, the modified driveway shall be used with the slope of the driveway ramp reduced such that the difference in slope of the driveway ramp and the slope of a line between the gutter and a point on the roadway 5' from gutter flowline shall not exceed 15%. Reduce driveway ramp slope, not the gutter slope. Other dimensions shall be modified as approved by the Public Works Department.
7. Minimum width of clear passage shall be 4' with a 2% cross slope. Where right of way restrictions, natural barriers or other restrictions create an unreasonable hardship, the clear width may be reduced to 3' with a 2% cross slope, with approval of the Public Works Department.
8. Acquisition of construction easement may be necessary where right of way is limited to construct conform.
9. Dimension is 18" for a sidewalk width of 4', 23" for a sidewalk width of 5', and 14" for a sidewalk width of 3'.

12



MODIFIED DRIVEWAY RAMP
See Note 2



SECTION C-C
MODIFIED DRIVEWAY

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

DRIVEWAY RAMP DETAILS

2-02	Supersedes Standard Plan CA72 dated 11-99	P.W.
5-02	Revised Dimension 3' to 2' & linework	HH
8-02	Added Section C-C	P.W.
NO.	DATE	REVISION DESCRIPTION

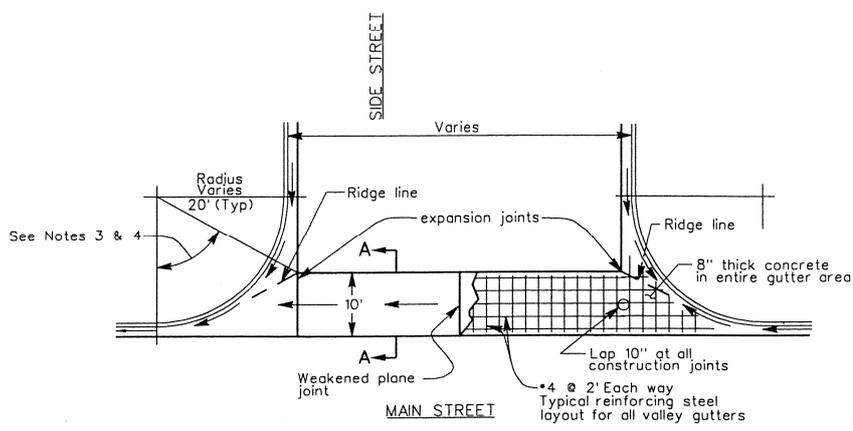
SCALE: NO SCALE	DATE: 2-02
DRAWN BY: H.HUSSEY	PLAN NO. CA72i
CHECKED BY: M.HOLLINGSWORTH	

STD. PLAN CA72I

Maurice M. Shiu
 MAURICE M. SHIU
 REGISTERED PROFESSIONAL ENGINEER
 No. 23204
 Exp. 12/31/05
 CIVIL
 STATE OF CALIFORNIA

PUBLIC WORKS DIRECTOR
 11/27/2002
 PLANS/APPROVAL DATE

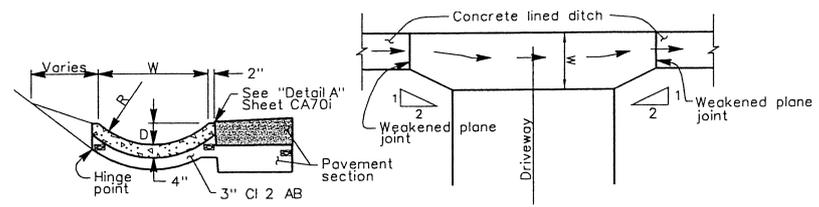
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TYPICAL PLAN - VALLEY GUTTER

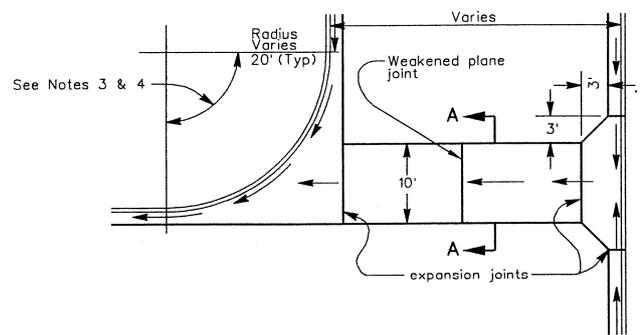
CONCRETE LINED DITCH 4" thick no reinforcement			
Type	W	R	D
A	24"	20"	4"
B	30"	26"	5"
C	36"	30"	6"

DRIVEWAY CONNECTION 6" thick 6" X 6" 10Ga wire mesh			
Type	W	R	D
A	36"	63"	3"
B	48"	72"	4"
C	60"	90"	5"

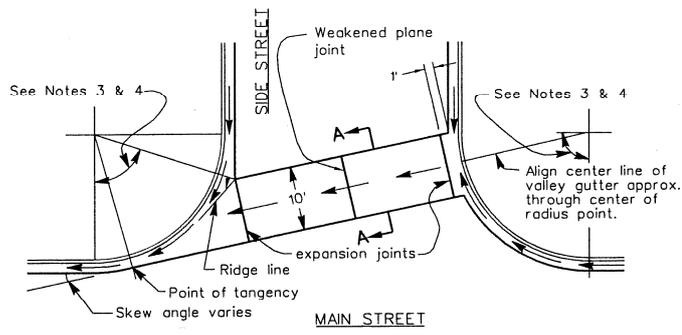


DITCH SECTION DRIVEWAY SECTION

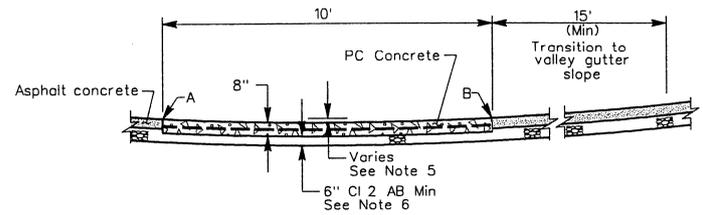
CONCRETE LINED DITCH



JUNCTION PLAN - VALLEY GUTTER



SKEWED JUNCTION - VALLEY GUTTER



Points A & B shall be at the same elevation.

SECTION A-A

NOTES:

- Class 2 Portland Cement Concrete (590 lb PC per cu. yard, 3/4" maximum aggregate) shall be used for all construction detailed on this plan.
- Weakened plane joints shall be provided at 10' intervals in curbs and concrete lined ditches.
- The curb return profile within limits shown must conform to the main street profile.
- Height of curb face around curb returns shall not exceed 6".
- Depth of valley gutter shall be 1/8" when main street grade is 2% or less, 2 3/4" when main street grade exceeds 2%. In areas with curb ramps valley gutter cross slope shall not exceed 2%.
- If total pavement thickness of side street exceeds 14", aggregate base thickness shall be increased to match total side street pavement thickness.
- For weakened plane joint and expansion joint details see Standard Plan CA70i "Detail C".
- Use skewed junction configuration to minimize flooding of main street caused by excessive runoff originating on side street. Divert major portion of side street flow to upstream end of valley gutter when possible.
- Valley gutters shall only be used on local roads or roads with a low volume of traffic.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

**CONCRETE VALLEY GUTTER
 AND CONCRETE LINED
 DITCH DETAILS**

SCALE: NO SCALE	DATE: 7-02
DRAWN BY: H. HUSSEY	PLAN NO. CA73i
CHECKED BY: M. HOLLINGSWORTH	

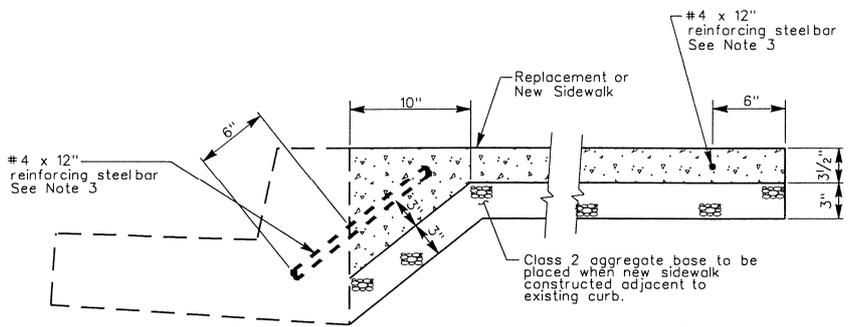
NO.	DATE	REVISION DESCRIPTION	BY
2-02		Supersedes Standard Plan CA73 dated 11-99	P.W.
7-02		Concrete Spec. Revision	HH

STD. PLAN CA73i

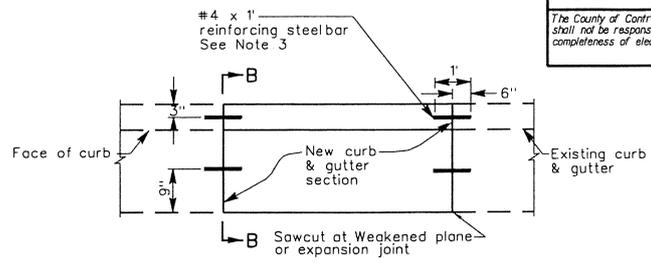
R. Mitch Avalon
 PUBLIC WORKS DIRECTOR
2-28-02
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 R. MITCH AVALON
 No. 31422
 Exp. 12/31/04
 CIVIL
 STATE OF CALIFORNIA

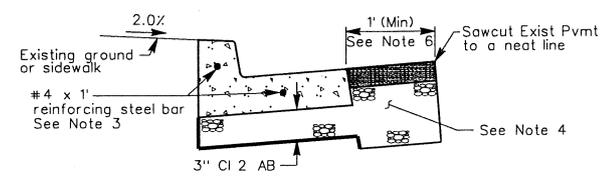
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SECTION A-A



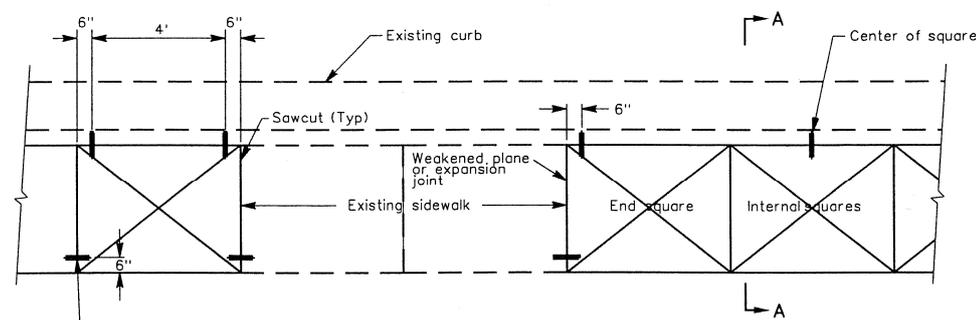
DOWELING LOCATION FOR NEW CURB ADJACENT TO EXISTING CURB



SECTION B-B

NOTES:

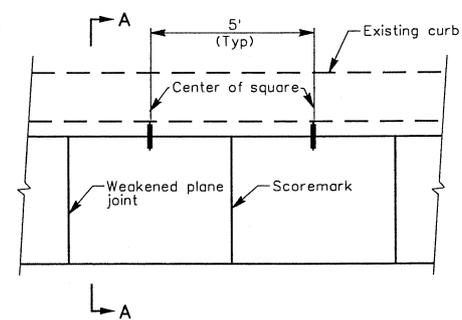
1. All curb, gutter, and sidewalk shall conform to Standard Plans CA70i and CA71i.
2. Concrete removed for replacement construction shall be sawcut to a neat line at the weakened plane joint or scoremark nearest to the full width of replacement.
3. Dowels shall be placed in a 3/4" diameter drilled hole filled with 1:1 sand cement grout.
4. Asphalt concrete and aggregate base shall be placed to the thickness as required by the Public Works Department. Minimum section shall be 0.5' AC for curb replacement.
5. Paving at the gutter lip shall conform to "Detail A" of Standard Plan CA70i. When the street slopes away from the curb, the paving shall match the gutter lip.
6. The asphalt concrete conform for new or replacement curb shall be a minimum width of 1' measured from new gutter lip or face of "B" type curb or 1' inside existing edge of pavement whichever is greater.



REPLACEMENT OF ONE SQUARE

REPLACEMENT OF TWO OR MORE SQUARES

LOCATIONS FOR REPLACEMENT SIDEWALK



DOWEL LOCATIONS FOR NEW SIDEWALK ADJACENT TO EXISTING CURB

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

DOWELING DETAILS FOR CURB AND SIDEWALK

◇	2-02	Supersedes Standard Plan CA74 dated 11-99	P.W.
NO.	DATE	REVISION DESCRIPTION	BY

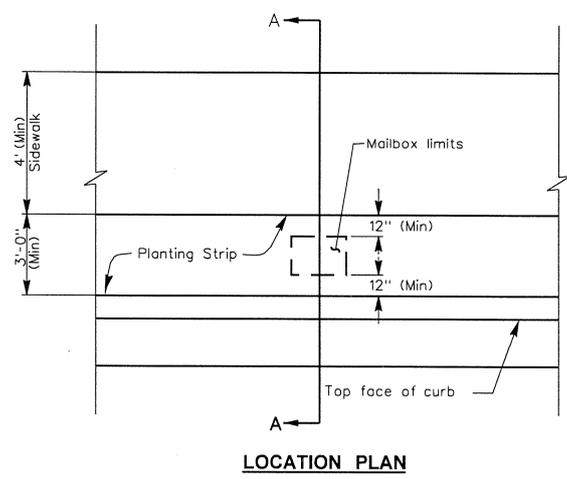
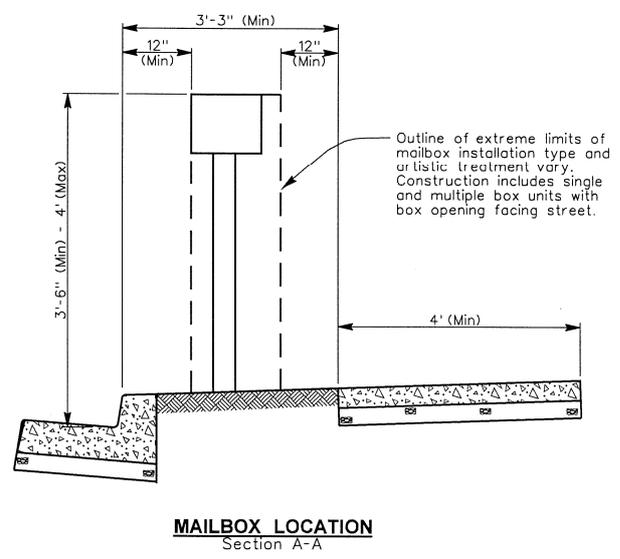
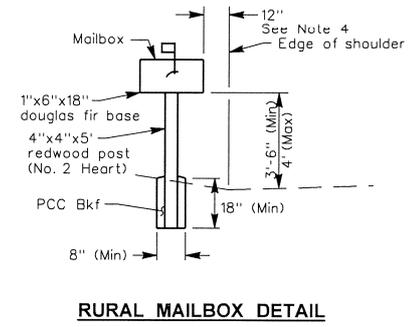
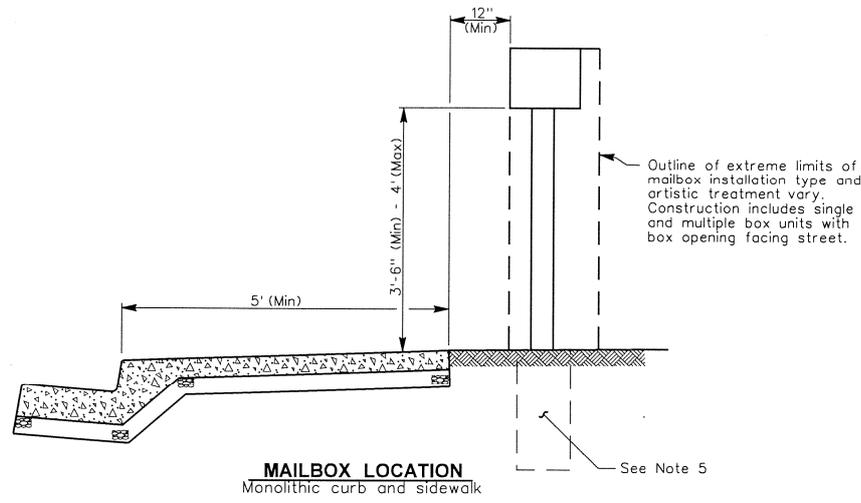
SCALE: NO SCALE
 DRAWN BY: H. HUSSEY
 CHECKED BY: M. HOLLINGSWORTH

DATE: 2-02
 PLAN NO. **CA74i**

R. Mitch Avalon
 PUBLIC WORKS DIRECTOR
2-28-02
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 R. MITCH AVALON
 No. 31422
 Exp. 12/31/04
 CIVIL
 STATE OF CALIFORNIA

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- NOTES:**
- Distances are established by Postal regulations and may vary depending on jurisdiction. Check with local Postal office for current regulations.
 - Encroachment permit is required if mailbox is to be installed in existing sidewalk, or if installation requires modification of dimensions shown on this plan.
 - See Standard Plan CA70i & CA71i for sidewalk and curb details.
 - Where AC dike or curb is placed at edge of pavement, the minimum distance is measured from the face of curb.
 - Post depth shall be as required to adequately support mailbox to be installed. Minimum 24" depth without PCC Blk.

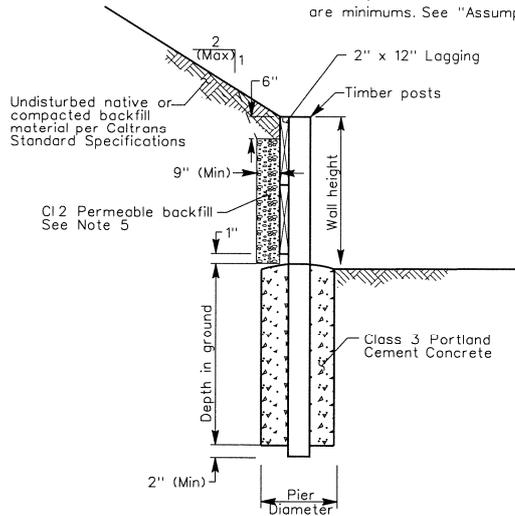
COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

MAILBOX DETAILS

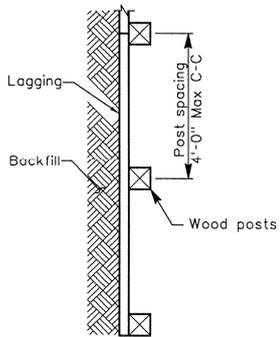
2-02	Supersedes Standard Plan CA90 dated 11-99	P.W.
SCALE: NO SCALE	DATE: 2-02	
DRAWN BY: H.HUSSEY	PLAN NO.	CA90i
CHECKED BY: W.HOLLINGSWORTH		

WALL HEIGHT	TIMBER POSTS		PIPE POSTS		PIER DIMENSIONS		LAGGING	
	POST SIZE (in)	POST GRADE *	POST DIAMETER (in)	PCC PIER DIAMETER (in)	DEPTH IN GROUND (ft)	LAGGING SIZE (in)	LAGGING GRADE *	
(ft)								
1	2 x 4	*2	1 1/2	8	1.5	2 x 12	*2	
2	4 x 4	*2	1 1/2	10	3.0	2 x 12	*2	
3	4 x 6	Structural	2 1/2	12	4.5	2 x 12	Structural	
4	6 x 6	Structural	3	14	6.0	2 x 12	Structural	
5	6 x 8	Structural	4	18	6.5	2 x 12 &	Structural	
						3 X 12 (Bot)		

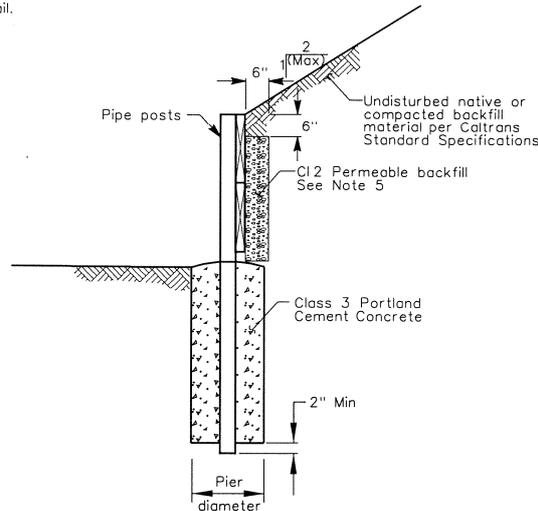
* Note: Lumber gradings are based on designations from the West Coast Lumber Inspection Bureau (WCLIB), and the Western Wood Products Association (WWPA) design values. Grades shown are minimums. See "Assumptions" for more detail.



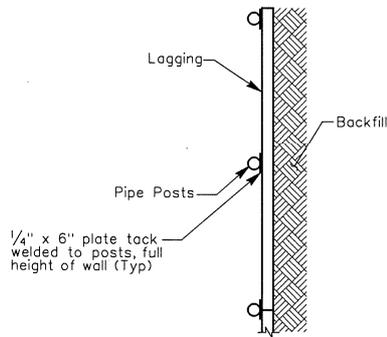
SECTION



**PLAN
TIMBER POSTS**



SECTION



**PLAN
PIPE POSTS**

R. Mitch Avalon
PUBLIC WORKS DIRECTOR
2-28-02
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
R. MITCH AVALON
No. 31422
Exp. 12/31/04
CIVIL
STATE OF CALIFORNIA

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DESIGN CRITERIA:

The standard plan for "Timber Retaining Wall" is designed as a temporary structure, in place for 5 years or less, in areas which can sustain wall movements up to 1/2 inch. The following assumptions were made in the design. If these assumptions cannot be met for the installation site, then the wall should be designed for actual site conditions by a Registered Professional Engineer in consultation with a Geotechnical Engineer.

ASSUMPTIONS:

- Soil Parameters used were for soils exhibiting an equivalent fluid pressure of 40 lb./ft³ and a passive pressure of 300 lb./ft³.
- 1994 Uniform Building Code values for timber members:

Pressure Treated Douglas Fir #2:	Fb = 930 psi
	Fv = 80 psi
Pressure Treated Douglas Fir Structural Select:	Fb = 1450 psi
	Fv = 95 psi
- Design includes 2' soil surcharge, drained conditions.
- Pipe posts shall be standard weight, or higher, steel pipe conforming to ASTM designation: A53, Grade B. (Metal chain link fence posts are not acceptable.)

NOTES:

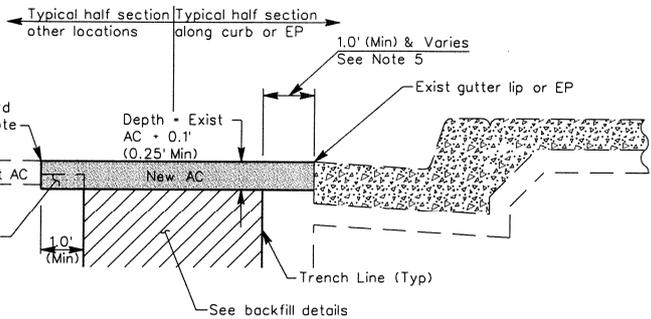
- All posts spaced at 4' on center, maximum.
- All posts and lagging shall be pressure treated Douglas Fir, rough.
- All sizes and depths are minimum.
- Do not drill holes in pipe posts. Connections to lagging shall be made through steel plate.
- Permeable material shown shall be placed behind all walls, when wall height is greater than 1'. Permeable material shall be in conformance with the latest Caltrans Standard Specifications. Class 1 permeable material wrapped in filter fabric maybe used in place of Class 2 permeable material.
- Portland Cement Concrete shall be Class 3 concrete (5.4 sacks PC per cubic yard), as per Caltrans Standard Specifications.

COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA
STANDARD PLAN

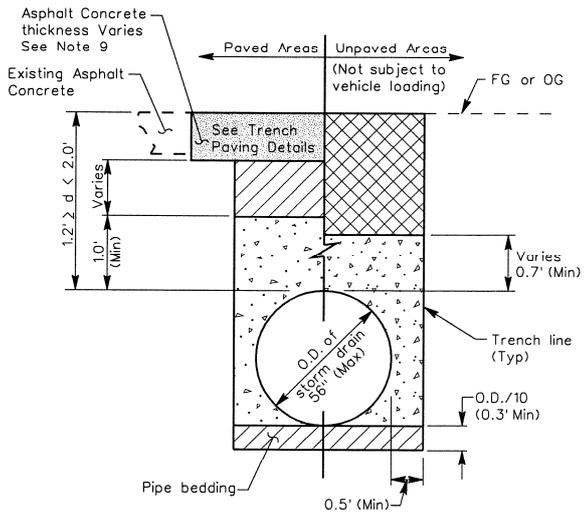
**TEMPORARY TIMBER
RETAINING WALL**

2-02	Supersedes Standard Plan CB10 dated 11-99	P.W.	
NO.	DATE	REVISION	DESCRIPTION

SCALE: NO SCALE	DATE: 2-02
DRAWN BY: H.HUSSEY	PLAN NO. CB10i
CHECKED BY: W. HOLLINGSWORTH	



TRENCH PAVING DETAILS

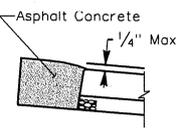


SHALLOW TRENCH BACKFILL DETAILS

TYPICAL HALF SECTIONS
1.2' ≥ d < 2.0'
See Note 4

LEGEND

- Asphalt Concrete Paving
- Class 2 Aggregate Base (AB)
- Class 3 PCC Backfill See Note 7
- Class 2 Aggregate Base (AB), or suitable native backfill material with a minimum sand equivalent of 20.
- Suitable native material, no solid materials (rock, concrete) larger than 4 inches in greatest dimension or organic matter.



DETAIL A
Gutter Lip Paving

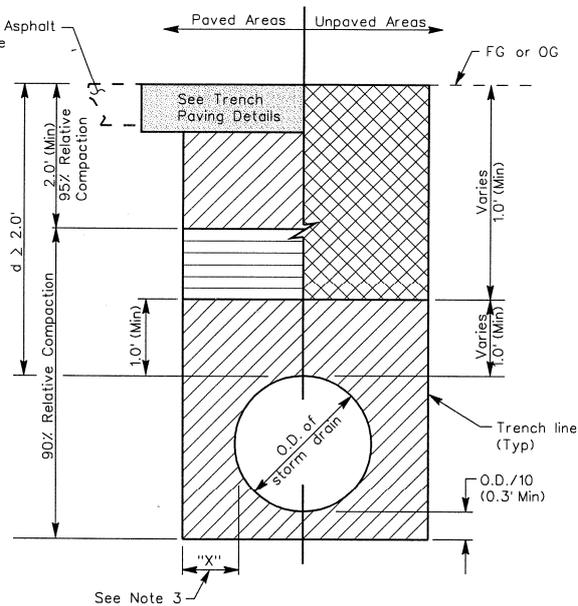
CONFORM NOTES:

The pavement conform shall be as follows:
STANDARD CONFORM:
 The asphalt concrete shall be cut through the full depth of existing asphalt concrete to a neat straight line at least 1.0 foot outside the trench line. Pavement edges damaged during construction shall be re-cut to neat lines prior to paving. Point binder (tack coat) shall be applied to all vertical surfaces in accordance with the latest edition of Caltrans Standard Specifications.
ALTERNATE CONFORM:
 The existing asphalt concrete outside the trench line may be ground to a minimum depth of 0.20 feet to a neat straight line at least 1.0 foot outside the trench line. The existing asphalt concrete at the trench lines shall be cut through the full depth of the existing asphalt concrete to a neat straight line. Any pavement edges, including ground edges, damaged during construction shall be re-cut or re-ground to neat lines prior to paving. Point binder (tack coat) shall be applied to all vertical surfaces in accordance with the latest edition of Caltrans Standard Specifications.

NOTES:

1. An encroachment permit is required for all work not performed under County contract, within County road right of way. The permit shall be obtained prior to beginning work.
2. Unsuitable native material shall be excavated below the limit of excavation and replaced with suitable backfill material when directed by the Public Works Department.
3. "X" shall be as a minimum, the dimensions shown below for the storm drain "O.D.".

O.D.	"x"
under 1.0'	0.5'
1.0' to 4.5'	1.0'
over 4.5'	2.0'
4. If cover is less than 1.2' or the storm drain O.D. exceeds 56 inches in shallow installations, a special design is required with approval by the Public Works Department.
5. Where the trench parallels curb and the nearest trench line is less than 3 feet from the gutter lip, all existing asphalt concrete shall be replaced to the gutter lip. For gutter lip paving detail see Detail "A".
6. Asphalt concrete shall be 1/2-inch Type A asphalt concrete unless otherwise specified in the County contract, encroachment permit's Special Road Encroachment Permit Conditions or as directed by the Public Works Department.
7. Class 3 PCC backfill shall comply with latest edition of Caltrans Standard Specifications.
8. This standard plan shall govern over encroachment permit's Standard Road Encroachment Permit Conditions, and General Permit Conditions- Attachment 1. County contract Special Provisions and Plans, or Encroachment permit's Special Road Encroachment Permit Conditions shall govern over this standard plan.
9. Asphalt concrete thickness shall be existing asphalt concrete plus 0.1'. If PCC backfill encroaches into this specified thickness, the asphalt concrete thickness may be reduced, except the minimum asphalt concrete thickness shall not be less than 0.20'.



STANDARD TRENCH BACKFILL DETAILS

TYPICAL HALF SECTIONS
d ≥ 2.0'

NO.	DATE	REVISION DESCRIPTION	BY

Maurice M. Shiu
 PUBLIC WORKS DIRECTOR
 12/11/02
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 MAURICE M. SHIU
 No. 23204
 Exp. 12/31/05
 CIVIL
 STATE OF CALIFORNIA

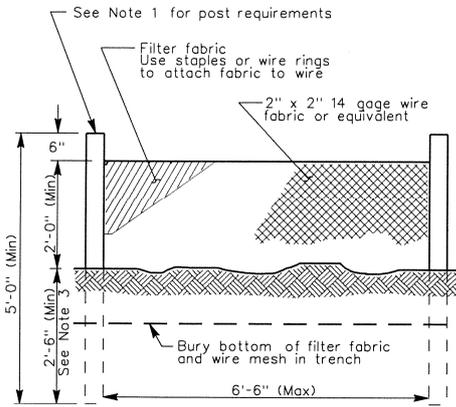
The County of Contra Costa or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

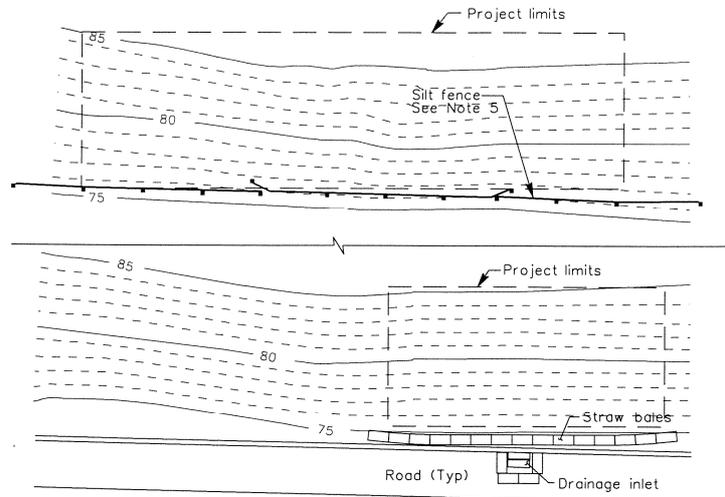
STORM DRAIN TRENCH DETAILS

SCALE: NO SCALE DATE: 7-02
 DRAWN BY: H.HUSSEY PLAN NO. CD01i
 CHECKED BY: M.HOLLINGSWORTH

STD. PLAN CD01i



SILT FENCE DETAIL



TYPICAL SITE PLAN

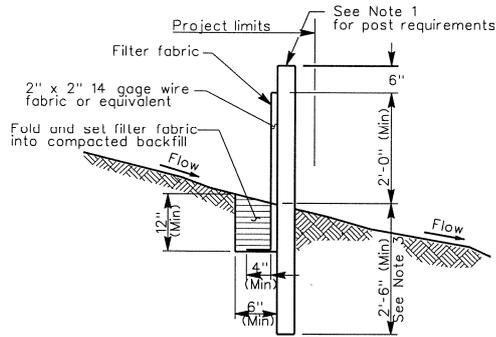
R. Mitch Avalon
 PUBLIC WORKS DIRECTOR
2-28-02
 PLANS APPROVAL DATE

PROFESSIONAL ENGINEER
 R. MITCH AVALON
 No. 31422
 Exp. 12/31/04
 CIVIL
 STATE OF CALIFORNIA

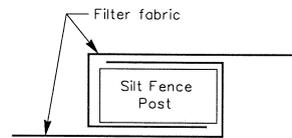
The County of Contra Costa or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

NOTES:

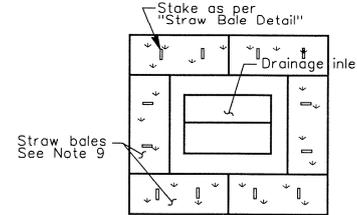
1. Minimum size of posts shall be 2" x 2" treated wood or steel posts with projections for fasteners ASTM Designation: A702 "Class B", or approved equivalent. Do not staple fabric or wire mesh to tree in lieu of required posts.
2. Fasteners shall be 1" long heavy duty staples or hog rings.
3. Post depths are established minimums and may vary depending on site conditions.
4. When one continuous roll of filter fabric cannot be used fabric shall be spliced at post as shown in "Fabric Joint Detail" of this plan.
5. Silt fences shall be installed parallel to the contours.
6. Silt fences shall be cleaned after any rainfall or when 8" of silt has accumulated at any point along the fence.
7. All straw bales shall be staked and entrenched to a minimum depth of 4".
8. Silt fence may be installed as alternative protection and shall be installed as shown on this plan.
9. Straw bales shall be butted together. Any gaps remaining shall be filled by wedging loose straw between bales.
10. These details are not a substitute for a project specific Storm Water Pollution Prevention Plan. Additional sediment and erosion controls will most likely be required to satisfy local, State, and Federal clean water requirements and regulations.



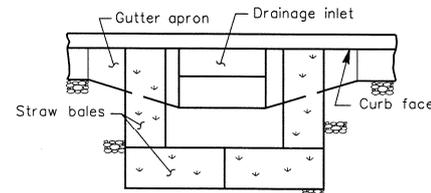
SILT FENCE SECTION



FABRIC JOINT DETAIL
for silt fence fabrics

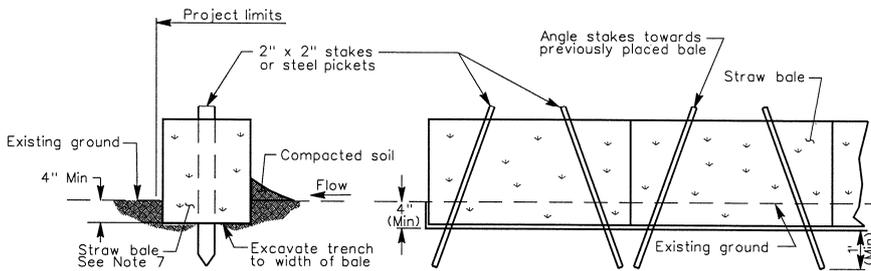


DRAINAGE INLET PROTECTION
Field (Type "C") Inlet



NOTE: Detail only valid when road surface is unpaved in a sump condition and road is closed to traffic.

DRAINAGE INLET PROTECTION
Road (Type "A") Inlet



STRAW BALE SECTION

STRAW BALE DETAIL

2-02	Supersedes Standard Plan CD03 dated 11-99	P.W.
NO.	DATE	REVISION DESCRIPTION

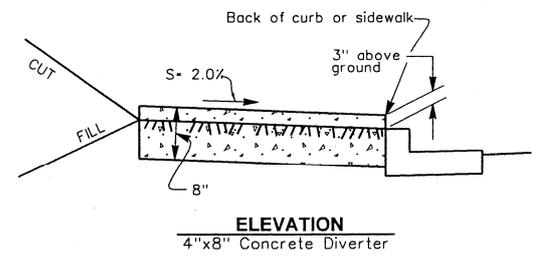
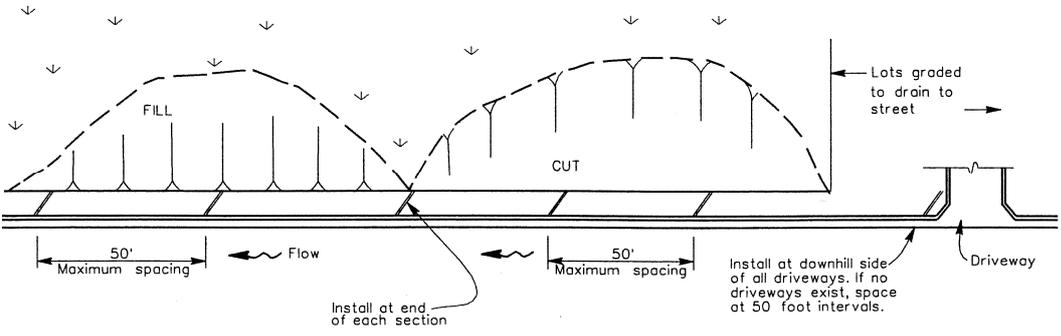
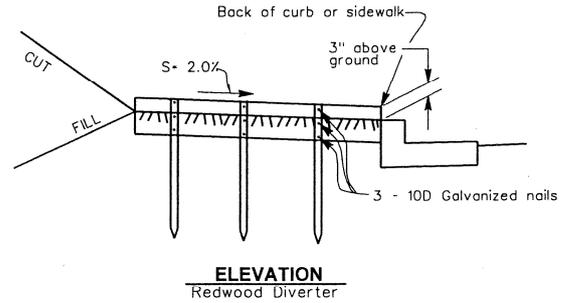
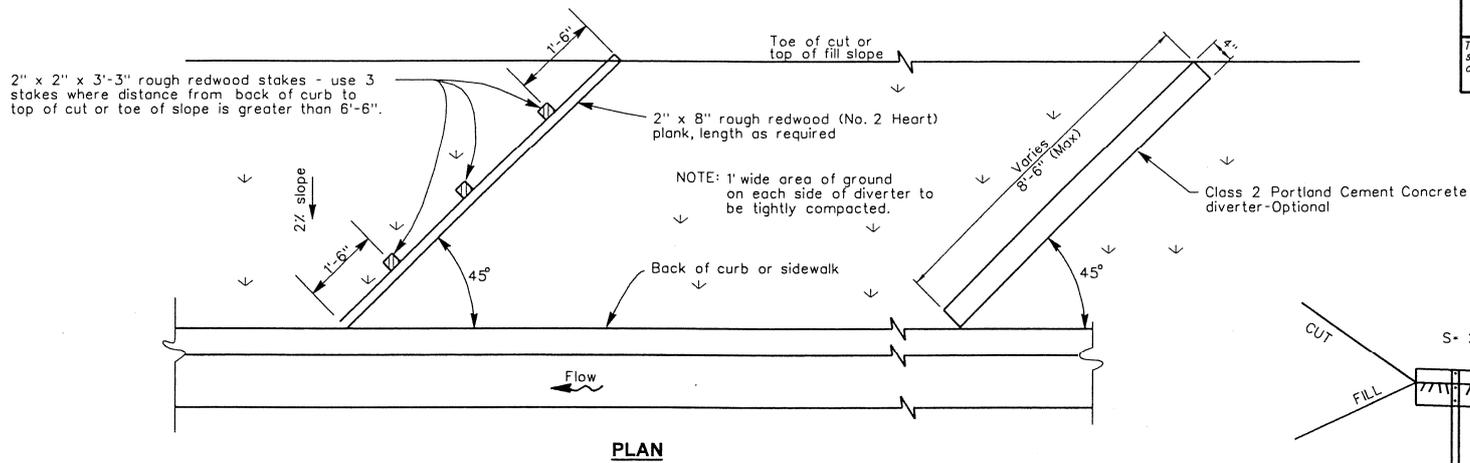
COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

**SILT FENCE AND HAYBALE
 SEDIMENT CONTROL DETAILS**

SCALE: NO SCALE
 DATE: 2-02
 DRAWN BY: H.HUSSEY
 PLAN NO. **CD03i**
 CHECKED BY: M. HOLLINGSWORTH



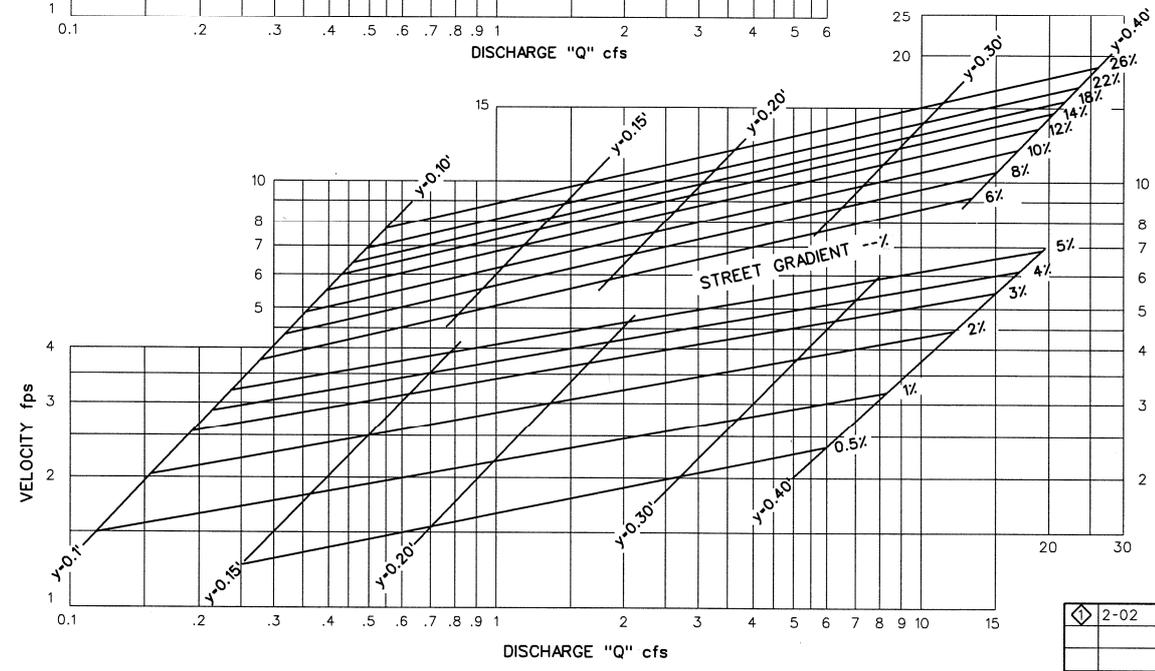
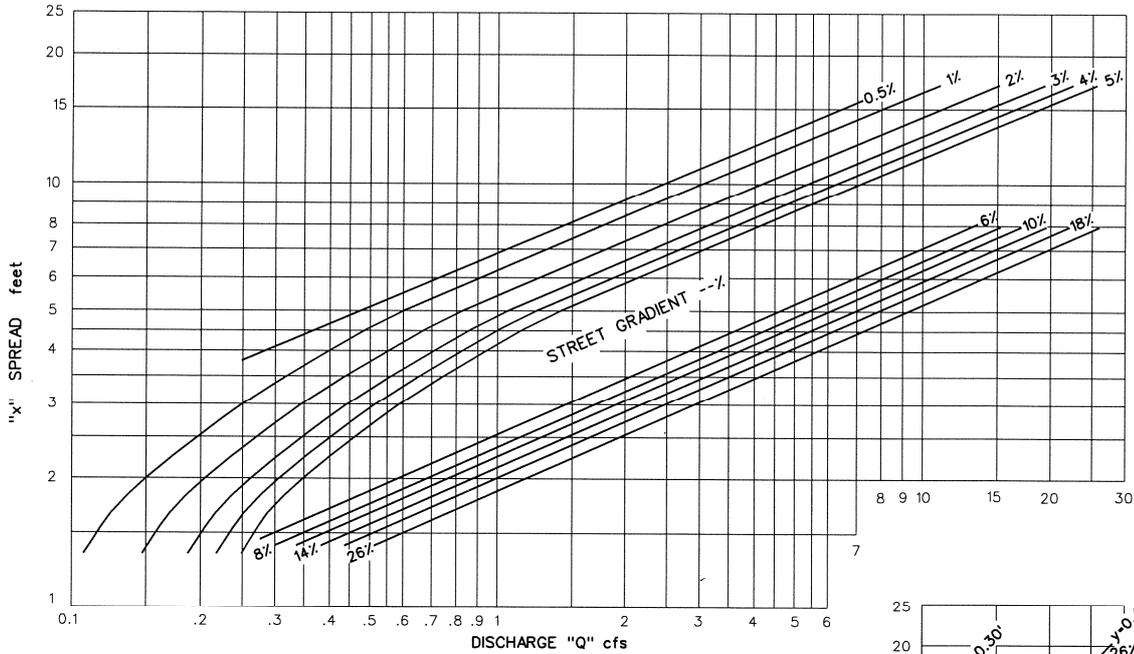
 PUBLIC WORKS DIRECTOR
 11/27/2002
 PLANS APPROVAL DATE
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- NOTES:**
- Concrete used for diverter shall be Class 2 (590 lb. PC per cubic yard).

2-02	Supersedes Standard Plan CD04 dated 11-99	P.W.
7-02	Concrete Spec. Revision	HH
NO.	DATE	REVISION DESCRIPTION

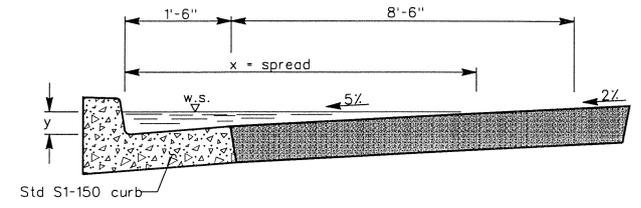
COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN
BACK OF CURB FLOW DIVERTER
 SCALE: NO SCALE
 DRAWN BY: H.HUSSEY
 CHECKED BY: M.HOLLINGSWORTH
 DATE: 7-02
 PLAN NO. **CD04i**



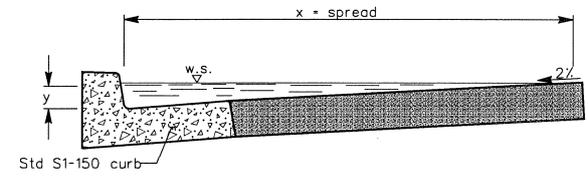
R. Mitch Avalon
 PUBLIC WORKS DIRECTOR
2-28-02
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 R. MITCH AVALON
 No. 31422
 Exp. 12/31/04
 CIVIL
 STATE OF CALIFORNIA

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STREET GRADIENT > 6%



STREET GRADIENT < 6%

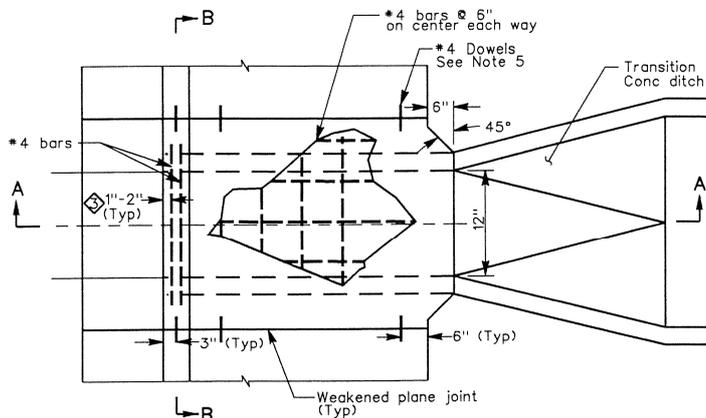
STD. PLAN CD05i

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

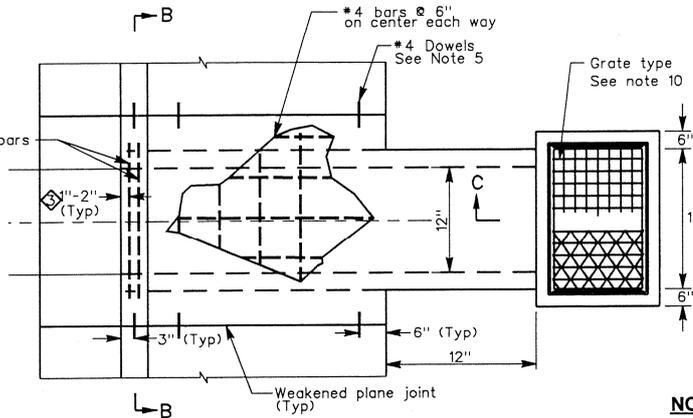
**GUTTER FLOW
 FOR STANDARD STREET SECTION**

SCALE: NO SCALE DATE: 2-02
 DRAWN BY: H.HUSSEY PLAN NO. **CD05i**
 CHECKED BY: M.HOLLINGSWORTH

2-02	Supersedes Standard Plan CD05 dated 11-99	P.W.
NO.	DATE	REVISION DESCRIPTION



SIDEWALK CROSS DRAIN (SCD) WITH CONCRETE DITCH

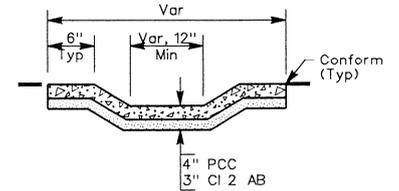


SCD WITH AREA DRAIN

Maurice M. Shiu
 PUBLIC WORKS DIRECTOR
10-26-06
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 MAURICE M. SHIU
 No. 23204
 Exp. 12/31/07
 CIVIL
 STATE OF CALIFORNIA

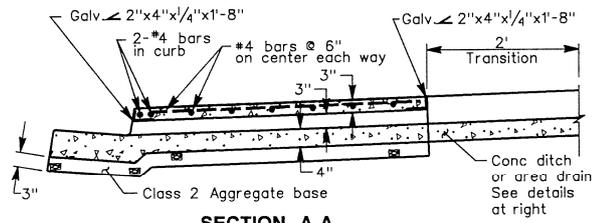
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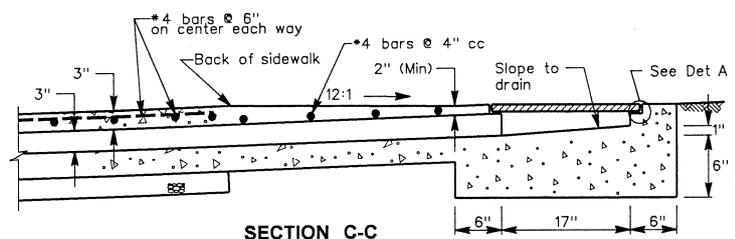
CONCRETE DITCH

NOTES:

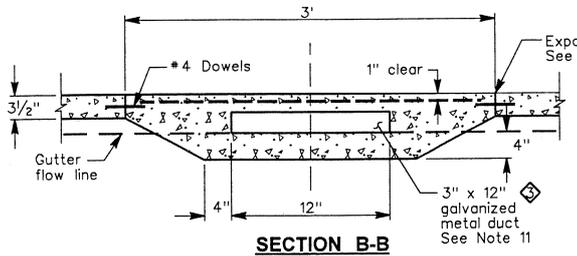
- Class 3 Portland Cement Concrete (505 lb. PC per cu. yard) shall be used for all concrete construction detailed on this plan.
- PVC pipe shall be capped if drain connection will be made at a later date.
- See Standard Plan CA70i "Detail A" for weakened plane joint.
- All sidewalk drains which conform to existing facilities shall be doweled as shown. Dowels shall be placed in a 1" drilled hole filled with 1:1 sand cement grout.
- Concrete removed for construction of sidewalk drains shall be sawcut to a neat line at the weakened plane joint or scoremark nearest to the full width of the sidewalk or residential drain. New concrete shall be doweled to existing as per Standard Plan CA74i.
- Drain may be skewed as directed by the Public Works Department.
- See Standard Plan CA71i for S1-6 curb detail.
- See Standard Plan CA70i for expansion joint details.
- For additional capacity adjacent drains may be installed and the width of inlet shall be increased as required. Minimum clearance between drains at curb face shall be 6". Adjacent drains shall be the same type.
- In traffic areas, the grate shall be Irving "Heavyweld" with end band as recommended by the manufacturer, or approved alternate. In non-traffic areas, the grate shall be Irving "Reticulene" Aluminum Type WH with end band (bearing bar thickness $\frac{3}{16}$ " or approved alternate. Each grate shall be provided with a minimum of 2 Irving Type C fasteners or approved alternate.
- Metal duct form shall be supported from distortion during pouring of concrete. Collapsible removable form may be used in lieu of 19 GA. metal duct.



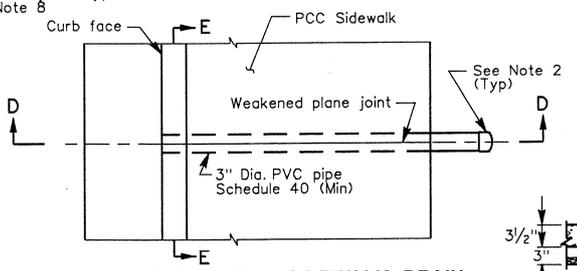
SECTION A-A



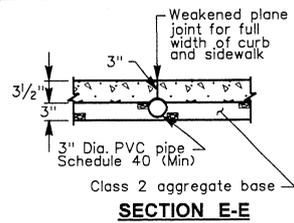
SECTION C-C



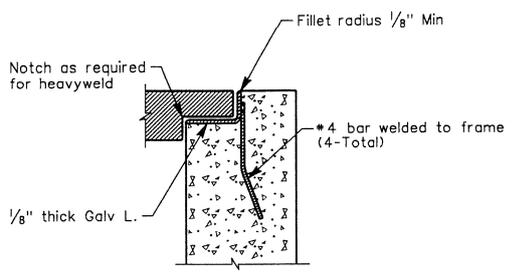
SECTION B-B



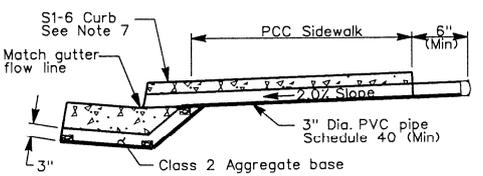
RESIDENTIAL SIDEWALK DRAIN



SECTION E-E



DETAIL A



SECTION D-D

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA

STANDARD PLAN

SIDEWALK CROSS DRAIN & RESIDENTIAL SIDEWALK DRAIN

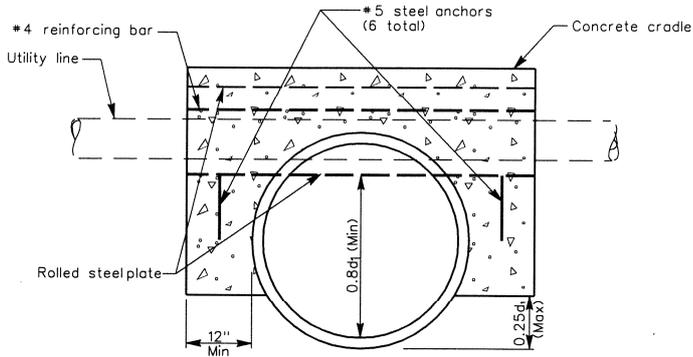
2-02	Supersedes Standard Plan CD06 dated 11-99	P.W.
7-02	Concrete Spec. Revision	HH
12-04	Dimension correction	

SCALE: NO SCALE DATE: 7-02
 DRAWN BY: H.HUSSEY PLAN NO. CD06i
 CHECKED BY: M.HOLLINGSWORTH

Maurice M. Shiu
 PUBLIC WORKS DIRECTOR
 11/27/2002
 PLANS APPROVAL DATE

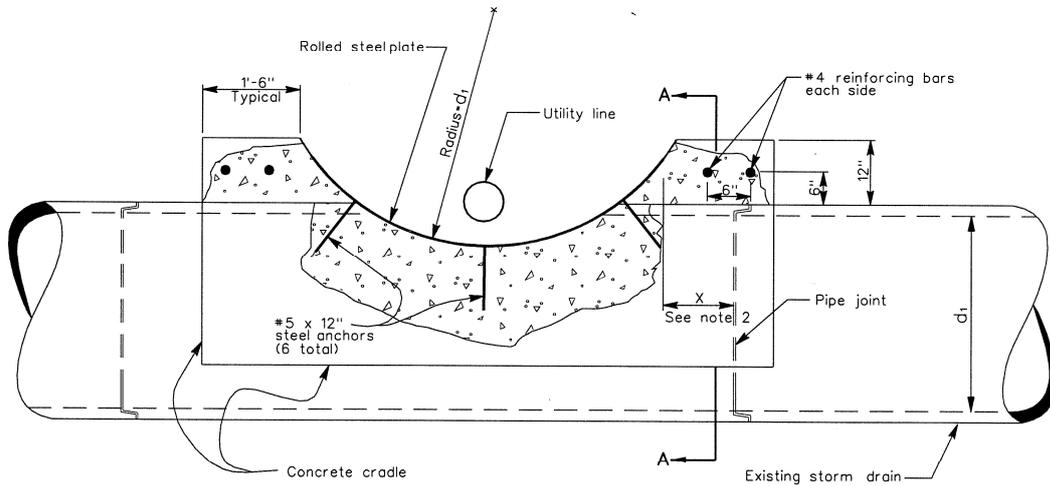
REGISTERED PROFESSIONAL ENGINEER
 MAURICE M. SHIU
 No. 23204
 Exp. 12/31/05
 CIVIL
 STATE OF CALIFORNIA

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SECTION A-A

This standard plan specifically approved for _____
 by _____
 of the Public Works Department on _____



STORM DRAIN PROFILE

NOTES:

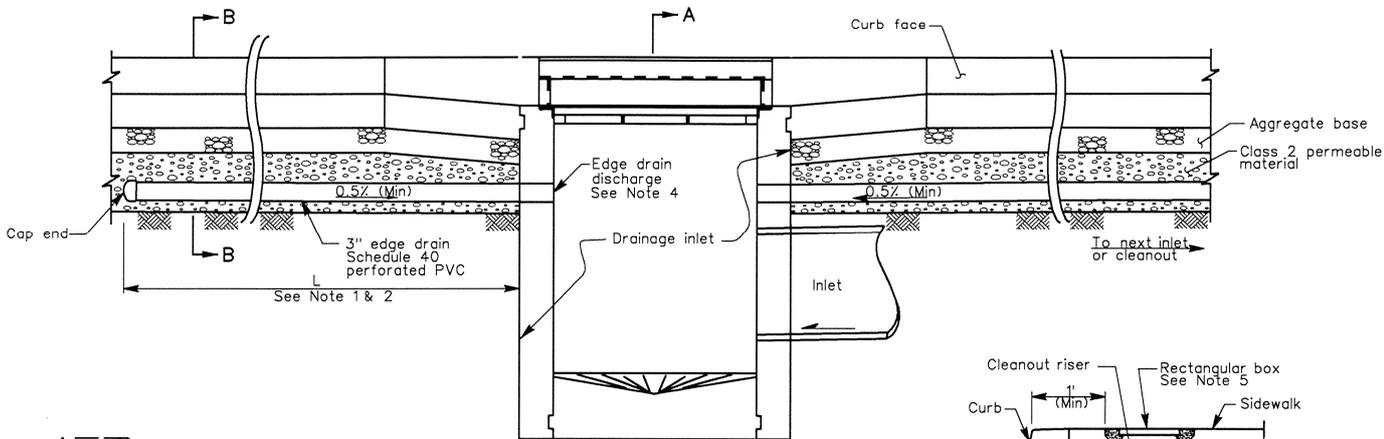
1. Class 3 Portland Cement Concrete (505 lb. PC per cu. yard) shall be used for all construction detailed on this plan.
2. This plan shall be used ONLY with the submittal of calculations showing economic evaluations that clearly show there are no other feasible design alternatives, the pipe is still hydraulically adequate and is approved by the Public Works Department. This plan is not valid unless signed by a representative of Public Works.
3. If dimension "X" is less than 18", concrete cradle shall be extended 18" past pipe joint.
4. Rolled steel plate to be painted with two applications of bituminous material after plate is installed and utility line is not yet in place.
5. Rolled steel plate minimum thickness shall be 3/8".
6. All exposed pipe reinforcement shall be bent into concrete cradle prior to pouring.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

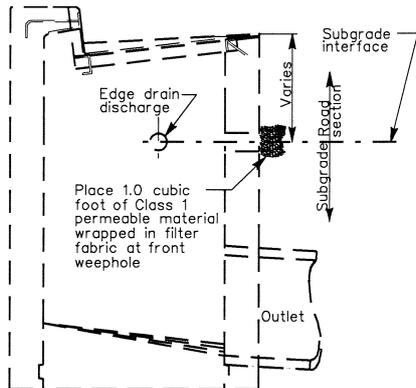
**STORM DRAIN UTILITY
 CROSSING AT OR BELOW
 PIPE SOFFIT**

SCALE: NO SCALE	DATE: 7-02
DRAWN BY: H.HUSSEY	PLAN NO. CD07i
CHECKED BY: M.HOLLINGSWORTH	

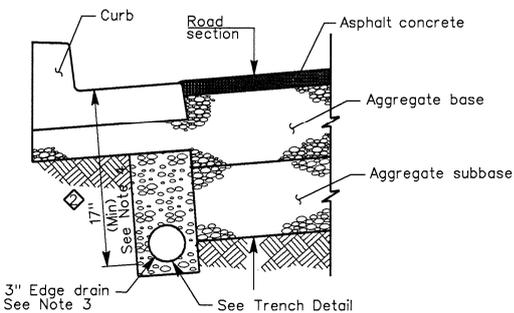
NO.	DATE	REVISION DESCRIPTION	BY
2-02		Supersedes Standard Plan CD07	P.W.
		dated 11-99	
7-02		Concrete Spec Revision	HH



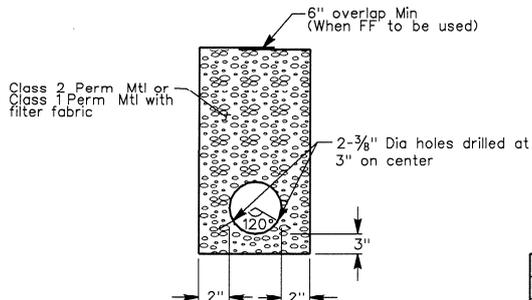
EDGE DRAIN SECTION VIEW



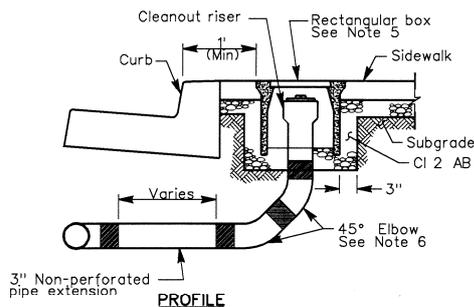
SECTION A-A



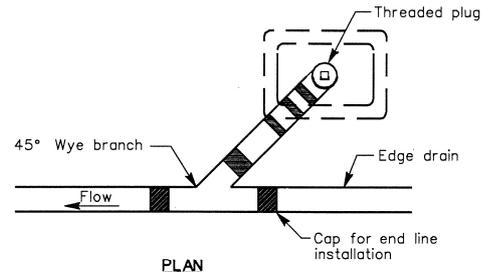
SECTION B-B



EDGE DRAIN TRENCH DETAIL



IN-LINE CLEANOUT



PLAN

NOTES:

1. Edge drains shall be installed to the lengths (L) as directed by the Public Works Department, or as shown on project construction plans.
2. Place cap at end when dimension "L" is less than 250'. For "L" greater than 250', place clean out every 250'.
3. Edge drain pipe shall conform to the current State Standard Specifications, Section 68 "Subsurface Drains", or as approved by the Public Works Department.
4. Edge drain elevation varies depending on depth of the adjoining pavement section. It shall be at, or slightly below, the pavement section subgrade elevation with a minimum depth of 17" below curb flowline and a minimum slope of 0.3%.
5. Rectangular box (10 5/8" x 17 1/2") shall be Christy, Model B9 or equivalent. See Standard Plan CU601 for box clearances.
6. No single elbow shall be installed with a bend greater than 45 degrees.

M. Shiu
 PUBLIC WORKS DIRECTOR
 6/12/09
 PLANS APPROVAL DATE

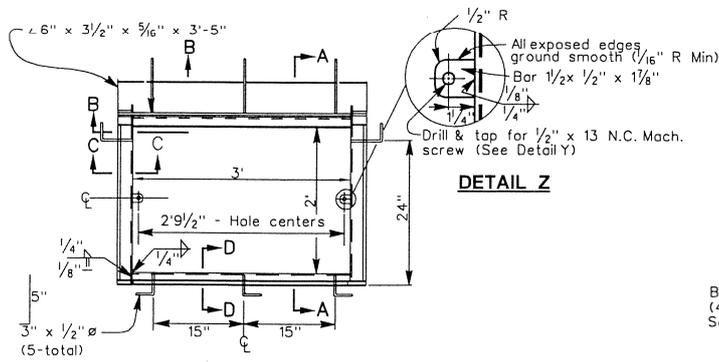
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COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

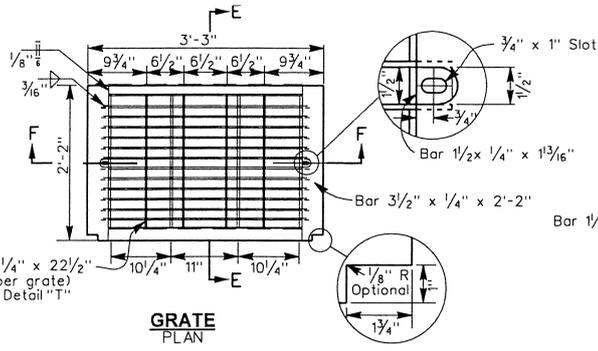
EDGE DRAIN DETAILS

SCALE: NO SCALE DRAWN BY: H. HUSSEY CHECKED BY: M. HOLLINGSWORTH	DATE: 4-02 PLAN NO. CD08i
--	-------------------------------------

NO.	DATE	REVISION DESCRIPTION	BY
2-02		Supersedes Standard Plan CD08 dated 11-99	P.W.
4-02		Revise Notes & Dimensions	HH
4-07		Change in plan reference number	HH



TYPE "A" FRAME
 for Type "A" and Type "B" Inlets

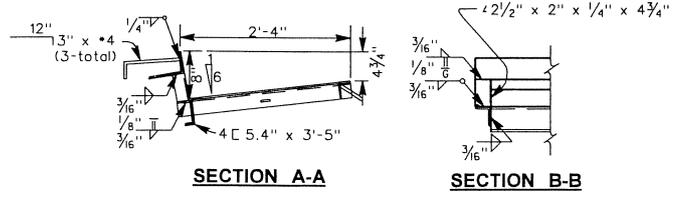
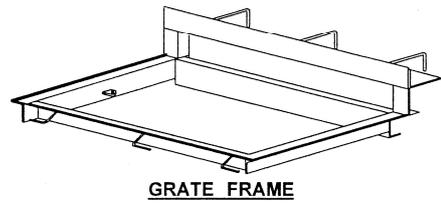
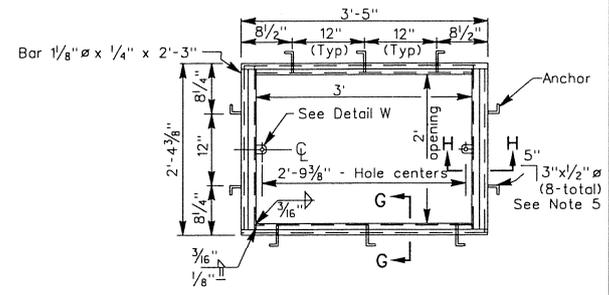


GRATE PLAN

Professional Engineer
 R. MITCH AVALON
 No. 31422
 Exp. 12/31/04
 CIVIL
 STATE OF CALIFORNIA

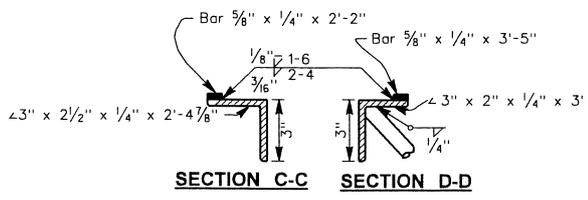
Public Works Director
 2-2B-02
 PLANS APPROVAL DATE

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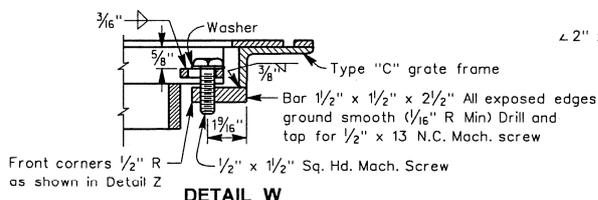
SECTION A-A

SECTION B-B



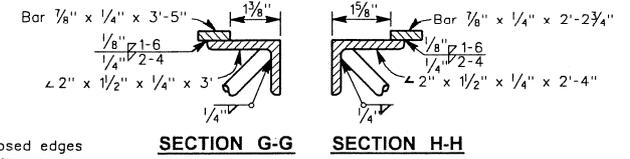
SECTION C-C

SECTION D-D



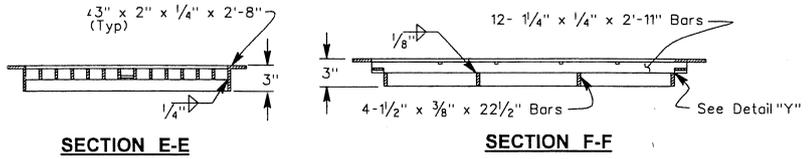
DETAIL W

Grate Fastening Lug for Type "C" Inlet Frame



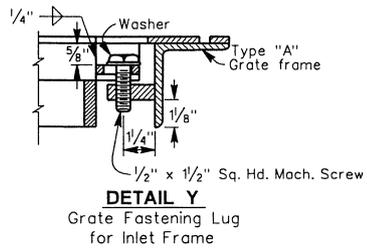
SECTION G-G

SECTION H-H



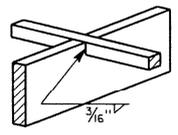
SECTION E-E

SECTION F-F



DETAIL Y

Grate Fastening Lug for Inlet Frame



NOTES:

- All materials, fabrication, galvanizing, and surface treatment shall be in accordance with Sections 75 and 95 of the State Standard Specifications.
- Frames and covers shall fit together without rocking.
- Fabricator shall supply fastening screws with frames.
- Weights: Type "A" grate frame 88 lbs., Grate 86 lbs..
- 1/2" x 5/4" Nelson-Type studs may be used in lieu of 1/2" x 5" x 3" anchors.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

INLET FRAME AND GRATE

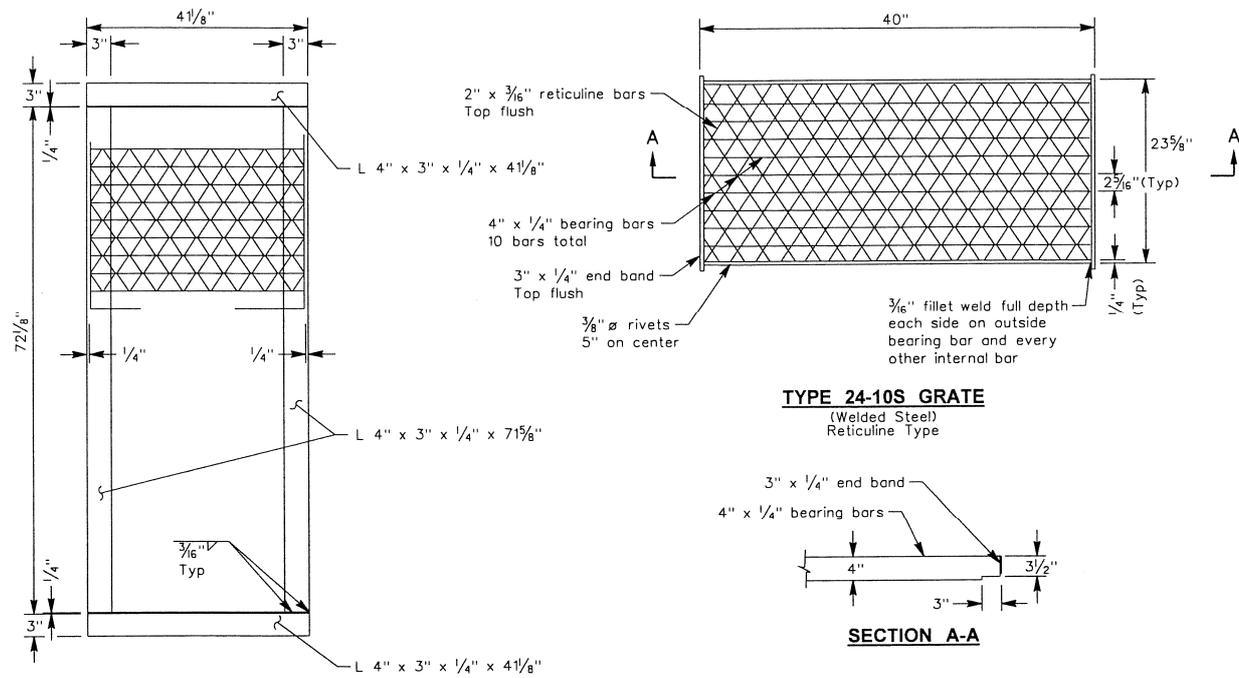
2-02	Supersedes Standard Plan CD11 dated 11-99	P.W.
NO.	DATE	REVISION DESCRIPTION

SCALE: NO SCALE
 DRAWN BY: H. HUSSEY
 CHECKED BY: M. HOLLINGSWORTH
 DATE: 2-02
 PLAN NO. **CD11i**

R. Mitch Avalon
 PUBLIC WORKS DIRECTOR
2-28-02
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 R. MITCH AVALON
 No. 31422
 Exp. 12/31/04
 CIVIL
 STATE OF CALIFORNIA

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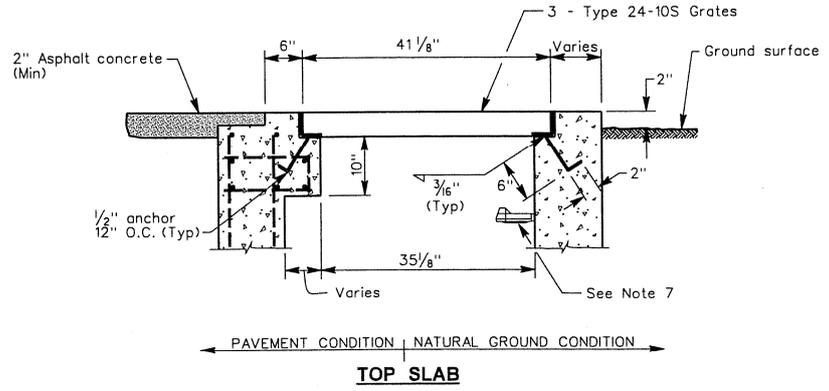
TYPE 24-10S GRATE
 (Welded Steel)
 Reticuline Type

SECTION A-A

NOTES:

1. All materials, fabrication, galvanizing and surface treatment shall be in accordance with sections 75 and 96 of the current issue of the Standard Specifications of the State of California, Business and Transportation Agency, Department of Transportation.
2. Frames and covers shall fit together without rocking.
3. Weights: Frame - 109 lbs., Grate - 182 lbs. designed for full traffic loading.
4. This standard grate is equivalent to the State Type 600-10S grate. See State drawing D77B.
5. This Standard Plan is to be used for ease of maintenance on those manhole bases where a potential debris problem is anticipated. The grate is not intended to be used as a drain.
6. For manhole base steel details see Standard Plan CD32i.
7. For step details and layout see Standard Plan CD30i.

CAST-IN GALVANIZED FRAME



USE TOP SLAB:

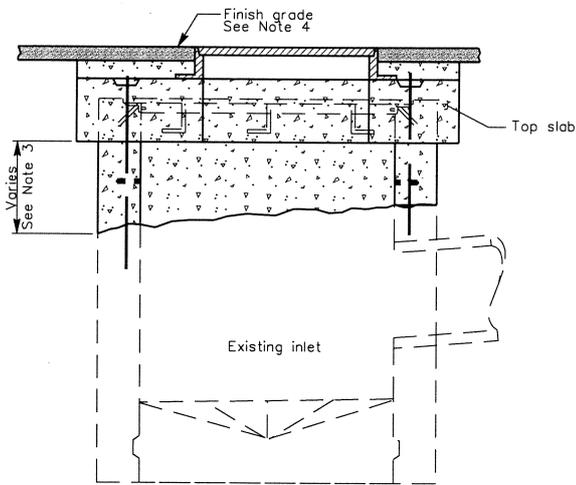
1. Where there is not sufficient clearance between the top of the manhole base and finish grade for a precast section and manhole cover frame.
2. When placing a Type "A" or Type "C" inlet opening on a Type "III" manhole base. The opening in the top slab shall conform to the inside dimensions of the inlet to be used.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

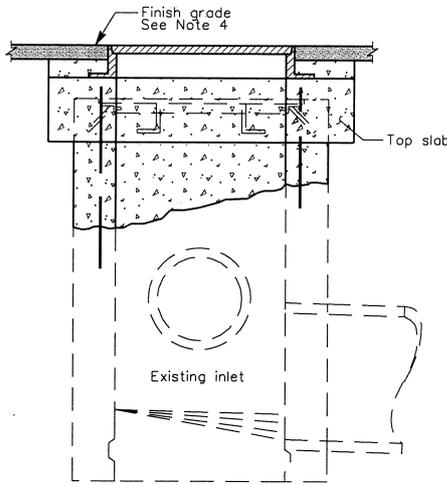
**MAINTENANCE ACCESS
 OPENING**

SCALE: NO SCALE DATE: 2-02
 DRAWN BY: P. WARDEN PLAN NO. **CD12i**
 CHECKED BY: M. HOLLINGSWORTH

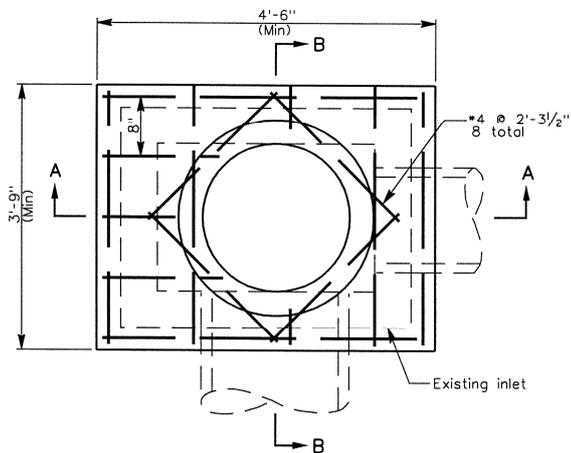
NO.	DATE	REVISION DESCRIPTION	BY
1	2-02	SUPERCEDES STD PLAN CC3010B	HH



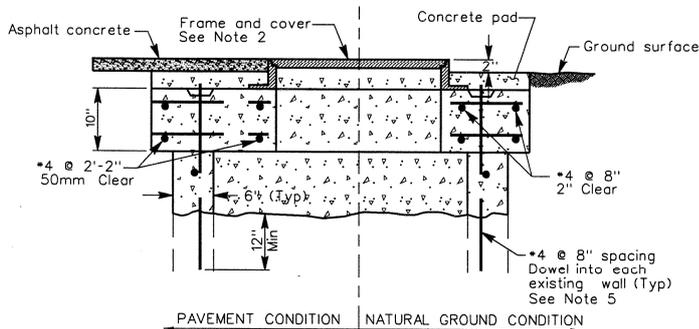
SECTION A-A



SECTION B-B



PLAN



TOP SLAB
DETAILS

Maurice M. Shiu
 PUBLIC WORKS DIRECTOR
 11/27/2002
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 MAURICE M. SHIU
 No. 23204
 Exp. 12/31/05
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 STATE OF CALIFORNIA

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NOTES:

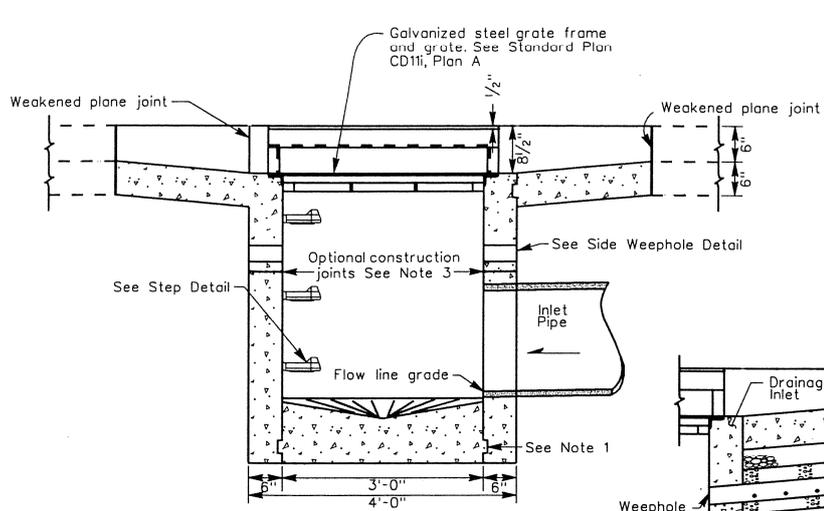
1. All reinforced concrete shall be Class 2 (590 lbs. Portland Cement per cubic yard).
2. See Standard Plan CD30i for manhole frame and cover detail.
3. Distance varies depending on side opening dimension.
4. Manhole cover frame shall be adjusted to conform to grade and cross slope of pavement.
5. Dowels shall be placed in 3/4" diameter drilled holes with 1:1 sand cement grout.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

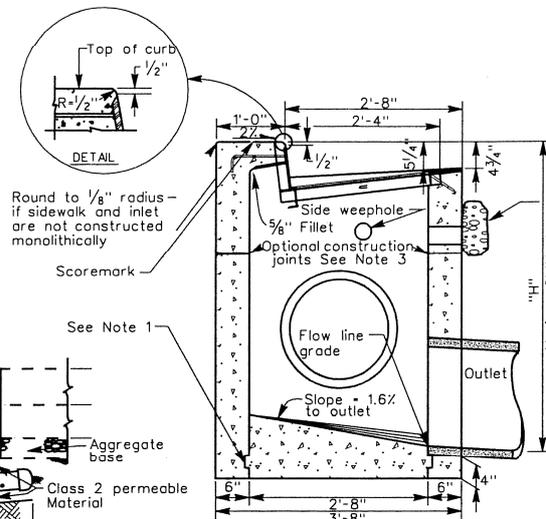
**STANDARD MANHOLE
 ON EXISTING TYPE "C"
 INLET BASE**

2-02	Supersedes Standard Plan CD16 dated 11-99	P.W.
	Concrete Spec. Revision	HH
NO.	DATE	REVISION DESCRIPTION
		BY

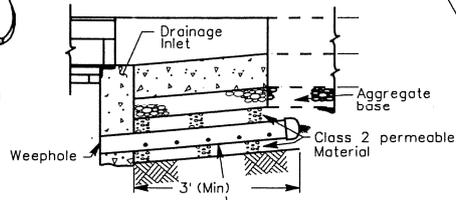
SCALE: NO SCALE	DATE: 7-02
DRAWN BY: H.HUSSEY	PLAN NO.
CHECKED BY: M.HOLLINGSWORTH	CD16i



SECTION A-A
NO SCALE



SECTION B-B
NO SCALE
GRATE NOT SHOWN

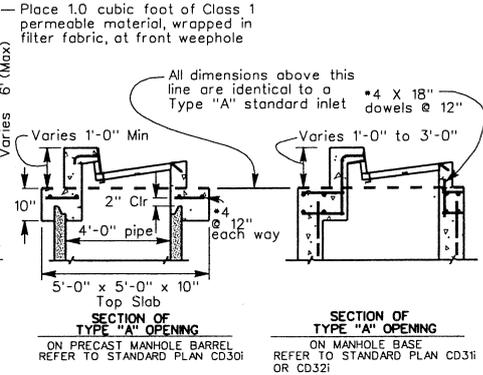


SIDE WEEPHOLE DETAIL
See Note 4

Maurice M. Shiu
PUBLIC WORKS DIRECTOR
11/27/2002
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
MAURICE M. SHIU
No. 23204
Exp. 12/31/05
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STATE OF CALIFORNIA

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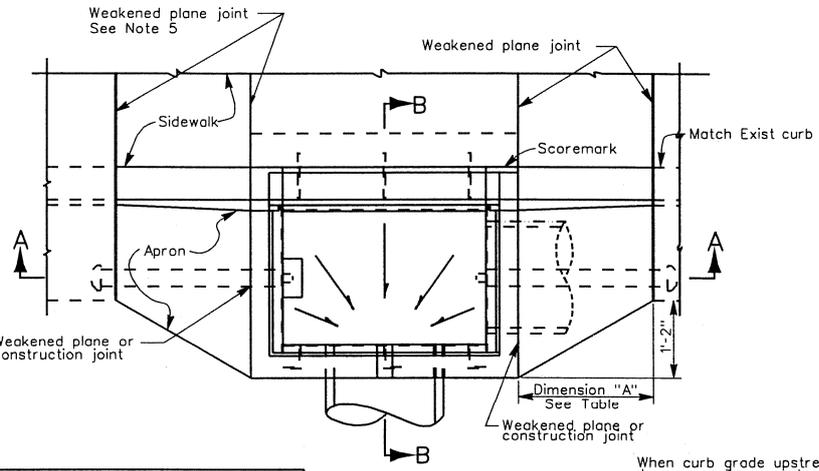


SECTION OF TYPE "A" OPENING
ON PRECAST MANHOLE BARREL
REFER TO STANDARD PLAN CD301

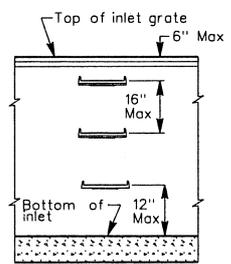
SECTION OF TYPE "A" OPENING
ON MANHOLE BASE
REFER TO STANDARD PLAN CD311
OR CD321

NOTES:

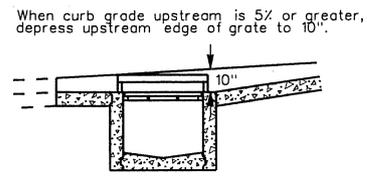
- Construction joints are optional where shown, other locations are subject to the approval of the Public Works Department. Key dimension - $\frac{3}{4}$ " X $1\frac{1}{2}$ ".
- When dimension "H" exceeds 6', use a manhole base with a type "A" inlet top.
- Construction joints shown are permitted when top portion of inlet is to be constructed monolithically with curb and sidewalk, in which case the following shall apply:
 - A. Concrete above construction joint shall be Class 3 (505 lbs. PCC per cubic yard).
 - B. Concrete below construction joint shall be Class 2 (590 lbs. PCC per cubic yard).
 - C. Concrete joint shall be located at pavement subgrade.
 When inlet is constructed as a single unit, all concrete shall be Class 2.
- Weephole elevation varies depending on the depth of the adjoining pavement section. It shall be at, or slightly below, the pavement section subgrade elevation with a minimum depth of 15" below the curb inlet flowline. The side weephole detail shall be used at all "sump" locations. Edge drains or side weephole detail at other locations may be required as shown on the construction plans or by the Public Works Department. See Standard Plan CD08i for edge drain details. Where the side weephole detail or edge drains are not required, these weepholes shall conform to the front weephole details shown on this plan.
- See Standard Plan CA70i for weakened plane joint detail.
- Step shall be steel reinforced polypropylene plastic, Santa Rosa Cast Products Co. Dwg. No. PS2-PF or equivalent. Steps to be cast in place or press fitted into provided holes as per manufacturer. Install steps with lowest rung 12" maximum above the floor and highest rung not more than 6" below top of inlet. The spacing between steps shall not exceed 16" and shall be uniform throughout the length of the wall. Place steps in the wall without an opening. Steps shall not be installed on back wall. No steps required where distance from floor of inlet to top of grate is 4' or less.
- All inlets shall have an "anti-pollution" thermoplastic decal applied as directed by the inspector or resident engineer. The decal shall be applied following manufacturer's recommendations, except PCC surfaces may be mechanically cleaned in lieu of sandblasting. The decal may be provided by the Public Works Department, check your permit conditions or contract Special Provisions.



PLAN
NO SCALE
GRATE NOT SHOWN



STEP DETAIL
See Note 6



DETAIL FOR STEEP CURB SLOPE

DIMENSION "A" (in)		
UPSTREAM CURB GRADE	"A" UPSTREAM	"A" DOWNSTREAM
2% and less	24	24
$\frac{3}{2}$	36	24
$4\frac{1}{2}$	48	24
5%	60	24
6%	72	24
7%	84	12
8%	96	12
9%	108	12
10% and greater	120	12

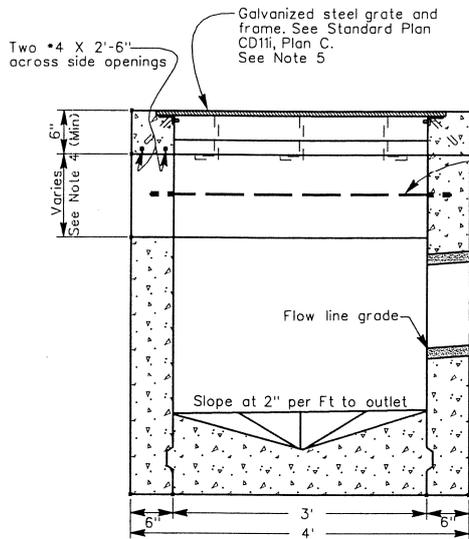
See "DETAIL FOR STEEP CURB SLOPE"

NO.	DATE	REVISION DESCRIPTION	BY
2-02		Supersedes Standard Plan CD20 dated 11-99	P.W.
4-02		Revised Details & Notes	HH
7-02		Concrete Spec. Revision	HH

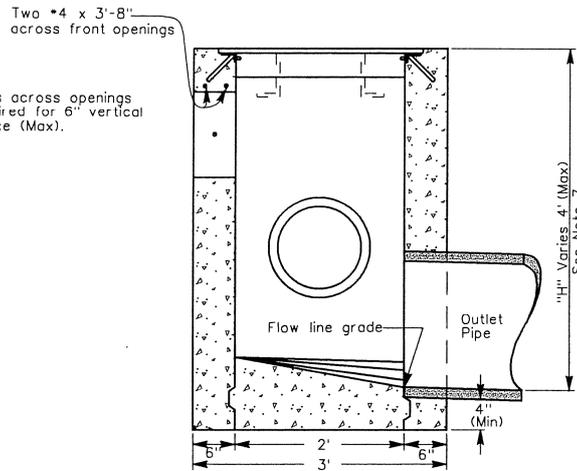
COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA
STANDARD PLAN

TYPE "A" INLET

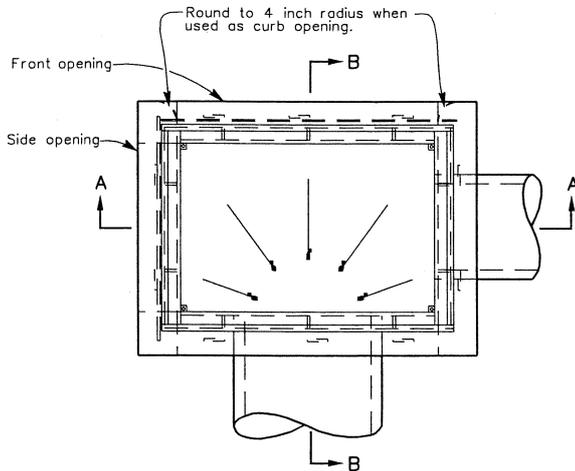
SCALE: NO SCALE
DATE: 7-02
DRAWN BY: H.HUSSEY
CHECKED BY: M.HOLLINGSWORTH
PLAN NO. **CD20i**



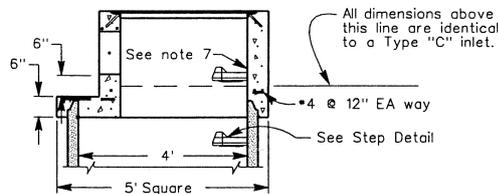
SECTION A-A



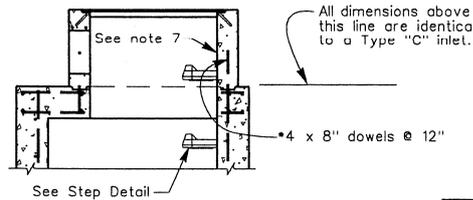
SECTION B-B



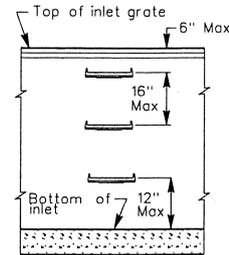
PLAN
GRATE NOT SHOWN



SECTION OF TYPE "C" OPENING
ON PRECAST MANHOLE BARREL
REFER TO STANDARD PLAN CD30



SECTION OF TYPE "C" OPENING
ON MANHOLE BASE
REFER TO STANDARD PLAN CD31



STEP DETAIL
See Note 9

NOTES:

- Construction joints are optional where shown. Other locations are subject to the approval of the Public Works Department. Key dimensions - 7/4" x 2 1/2".
- Clearance shall be 2" for all reinforcing steel.
- Inlet and outlet pipes shall not intercept a box through a corner. If the pipe is too large or the skew angle is too great to permit the opening to be made in a single wall. Use a manhole base with a Type "C" inlet opening on top.
- Location and size of opening to be as shown on plans, or as directed by the Public Works Department.
- All inlets shall be constructed with grates. Inlets installed in a pedestrian area shall be Type "D".
- Precast inlet conforming to Santa Rosa Cast Products Co. Drawing No. TYPE C or equivalent, can be substituted for cast-in-place inlet.
- Maximum depth for Type "C" inlet shall be 4'. For depths greater than 4' use a manhole base with a Type "C" top. The Type "C" inside wall with steps shall be flush with manhole base inside wall.
- Details apply to all metal, plastic, and concrete pipe.
- Step shall be steel reinforced polypropylene plastic, Santa Rosa Cast Products Co., Dwg. No. PS2-PF or equivalent. Steps to be cast in place or press fitted into provided holes as per manufacturer. Install steps with lowest rung 12" Max above the floor and highest rung not more than 6" below top of inlet. The spacing between steps shall not exceed 16" and shall be uniform throughout the length of the wall. Place steps in the wall without an opening. No steps required where distance from floor of inlet to top of inlet is 4'-0" or less.
- All inlets shall have an "anti-pollution" thermoplastic decal applied as directed by the inspector or resident engineer. The decal shall be applied following manufacturer's recommendations, except PCC surfaces may be mechanically cleaned in lieu of sandblasting. The decal may be provided by the Public Works Department, check your permit conditions or contract Special Provisions.

R. Mitchell
PUBLIC WORKS DIRECTOR
2-28-02
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
R. MITCH AVALON
No. 31422
Exp. 12/31/04
CIVIL
STATE OF CALIFORNIA

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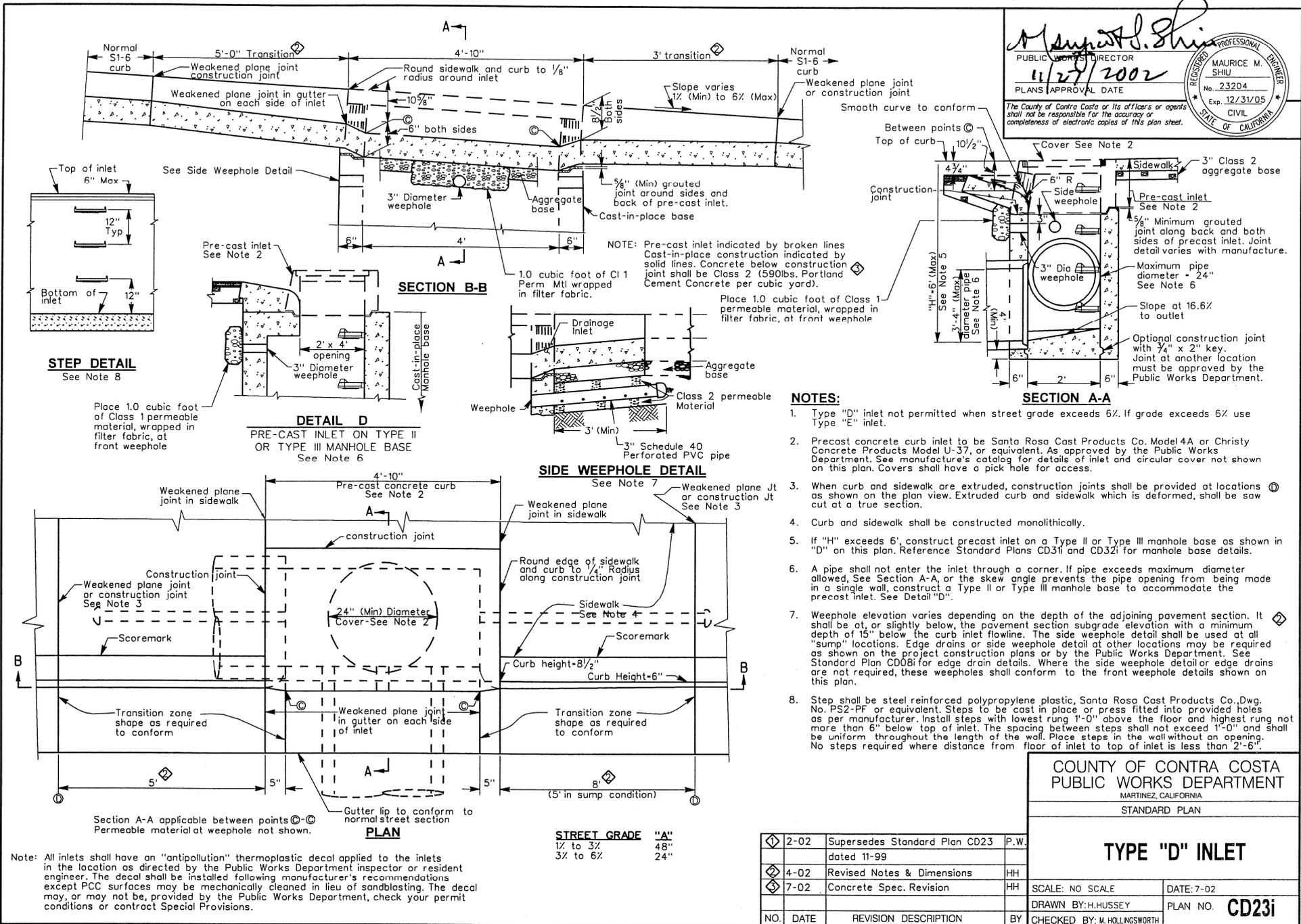
COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA
STANDARD PLAN

TYPE "C" INLET

SCALE: NO SCALE DATE: 2-02
DRAWN BY: H.HUSSEY PLAN NO. **CD22i**
CHECKED BY: M.HOLLINGSWORTH

2-02	Supersedes Standard Plan CD22 dated 11-99	P.W.
NO.	DATE	REVISION DESCRIPTION

STD. PLAN CD22i



Maurice M. Shiu
 PUBLIC WORKS DIRECTOR
 11/27/2002
 PLANS APPROVAL DATE
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REGISTERED PROFESSIONAL ENGINEER
 MAURICE M. SHIU
 No. 23204
 Exp. 12/31/05
 CIVIL
 STATE OF CALIFORNIA

- NOTES:**
- Type "D" inlet not permitted when street grade exceeds 6%. If grade exceeds 6% use Type "E" inlet.
 - Precast concrete curb inlet to be Santa Rosa Cast Products Co. Model 4A or Christy Concrete Products Model U-37, or equivalent. As approved by the Public Works Department. See manufacturer's catalog for details of inlet and circular cover not shown on this plan. Covers shall have a pick hole for access.
 - When curb and sidewalk are extruded, construction joints shall be provided at locations ① as shown on the plan view. Extruded curb and sidewalk which is deformed, shall be saw cut at a true section.
 - Curb and sidewalk shall be constructed monolithically.
 - If "H" exceeds 6', construct precast inlet on a Type II or Type III manhole base as shown in "D" on this plan. Reference Standard Plans CD31f and CD32f for manhole base details.
 - A pipe shall not enter the inlet through a corner. If pipe exceeds maximum diameter allowed, See Section A-A, or the skew angle prevents the pipe opening from being made in a single wall, construct a Type II or Type III manhole base to accommodate the precast inlet. See Detail "D".
 - Weep hole elevation varies depending on the depth of the adjoining pavement section. It shall be at, or slightly below, the pavement section subgrade elevation with a minimum depth of 15" below the curb inlet flowline. The side weep hole detail shall be used at all "sump" locations. Edge drains or side weep hole detail at other locations may be required as shown on the project construction plans or by the Public Works Department. See Standard Plan CD08f for edge drain details. Where the side weep hole detail or edge drains are not required, these weep holes shall conform to the front weep hole details shown on this plan.
 - Step shall be steel reinforced polypropylene plastic, Santa Rosa Cast Products Co., Dwg. No. PS2-PF or equivalent. Steps to be cast in place or press fitted into provided holes as per manufacturer. Install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below top of inlet. The spacing between steps shall not exceed 1'-0" and shall be uniform throughout the length of the wall. Place steps in the wall without an opening. No steps required where distance from floor of inlet to top of inlet is less than 2'-6".

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

TYPE "D" INLET

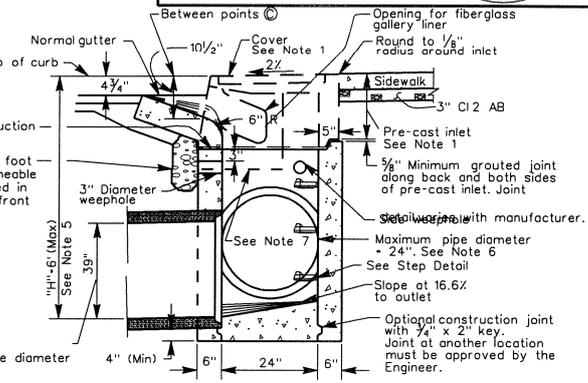
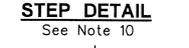
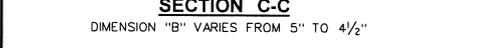
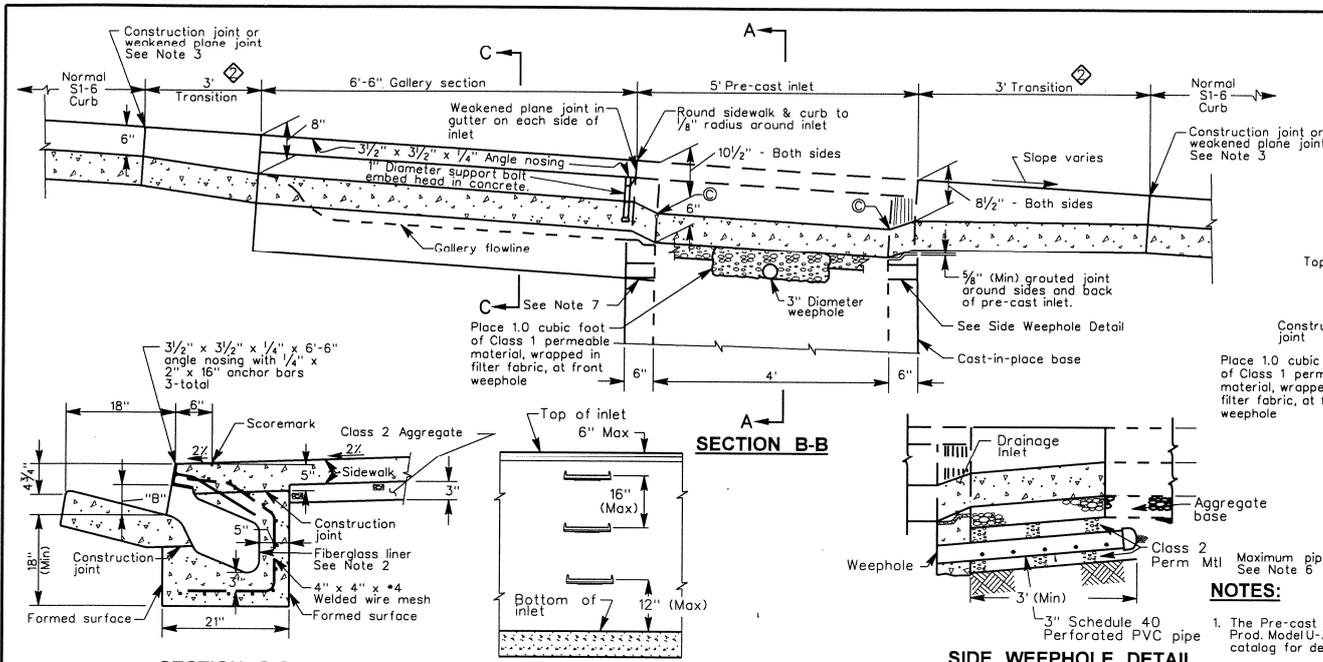
①	2-02	Supersedes Standard Plan CD23 dated 11-99	P.W.	
②	4-02	Revised Notes & Dimensions	HH	
③	7-02	Concrete Spec. Revision	HH	
				SCALE: NO SCALE
				DATE: 7-02
				DRAWN BY: H.HUSSEY
				PLAN NO. CD23i
NO.	DATE	REVISION DESCRIPTION	BY	CHECKED BY: M. HOLLINGSWORTH

STD. PLAN CD23i

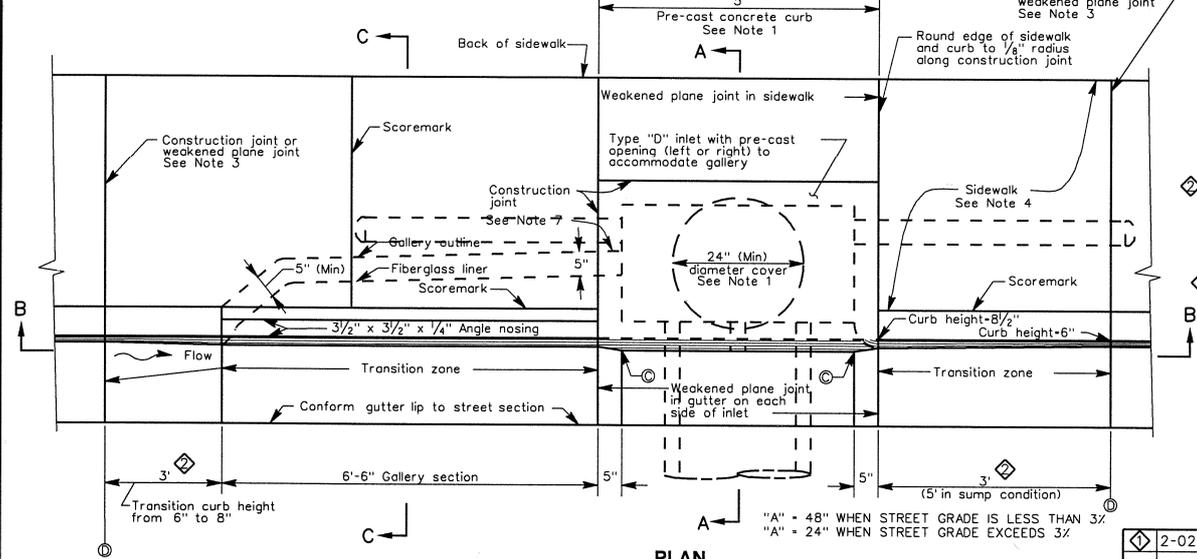
Maurice M. Shiu
MAURICE M. SHIU
 REGISTERED PROFESSIONAL ENGINEER
 No. 23204
 Exp. 12/31/05
 CIVIL
 STATE OF CALIFORNIA

PUBLIC WORKS DIRECTOR
 11/27/2002
 PLANS APPROVAL DATE

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- NOTES:**
- The Pre-cast concrete curb inlet shall be Santa Rosa Cast Products Co. Model 4A, or Christy Concrete Prod. Model U-37, or equal as approved by the Public Works Department. See Manufacturer's catalog for details of inlet and circular cover not shown on this plan. Provide pick hole for cover.
 - Fiberglass liner for gallery shall be Santa Rosa Cast Products Co. Model 6Y or approved equivalent.
 - When curb and sidewalk are extruded, construction joints shall be provided at locations (C) as shown on plan view. Extruded curb and sidewalk which is deformed, shall be saw cut at a true section.
 - Curb and gallery section and sidewalk shall be constructed monolithically.
 - If "H" exceeds 6', construct pre-cast inlet on a Type II or Type III manhole base as shown in Detail "D" on Standard Plan CD231, "Type D Inlet". Reference Standard Plans CD31 and CD32 for manhole base details.
 - A pipe shall not enter the inlet through a corner. If pipe exceeds maximum diameter allowed (See Section A-A), or the skew angle prevents the pipe opening from being made in a single wall, construct a Type II or III manhole base to accommodate the precast inlet. See "Detail B" on Standard Plan CD231.
 - Block out portion of cast-in-place base as required to permit construction of gallery to inside face of base, and fill in when gallery concrete is placed.
 - Weephole elevation varies depending on the depth of the adjoining pavement section. It shall be at, or slightly below, the pavement section subgrade elevation with a minimum depth of 15" below the curb inlet flowline. The side weephole detail shall be used at all "sump" locations. Edge drains or side weephole detail at other locations may be required as shown on the construction plans or by the Public Works Department. See Standard Plan CD08 for edge drain details. Where the side weephole detail or edge drains are not required, these weepholes shall conform to the front weephole details shown on this plan.
 - Concrete below construction joint shall be Class 2 (590 lbs. Portland Cement Concrete per cubic yard) Concrete above construction joint shall be Class 3 (505 lbs. Portland Cement Concrete per cubic yard).
 - Step shall be steel reinforced polypropylene plastic, Santa Rosa Cast Products, Dwg. No. PS2-PF or equivalent. Steps to be cast in place or press fitted into provided holes as per manufacturer. Install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below top of inlet. The spacing between steps shall not exceed 1'-0" and shall be uniform throughout the length of the wall. Place steps in the wall without an opening. No steps required where distance from floor of inlet to top of inlet is less than 2'-6".



Note: All inlets shall have an "antipollution" thermoplastic decal applied to the inlets in the location as directed by the Public Works Department inspector or resident engineer. The decal shall be installed following manufacturer's recommendations except PCC surfaces may be mechanically cleaned in lieu of sandblasting. The decal may, or may not be, provided by the Public Works Department, check your permit conditions or contract Special Provisions.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

2-02	Supersedes Standard Plan CD24	P.W.
	dated 11-99	
4-02	Revise Notes & Dimensions	HH
7-02	Concrete Spec. Revision	HH
NO.	DATE	REVISION DESCRIPTION
		BY

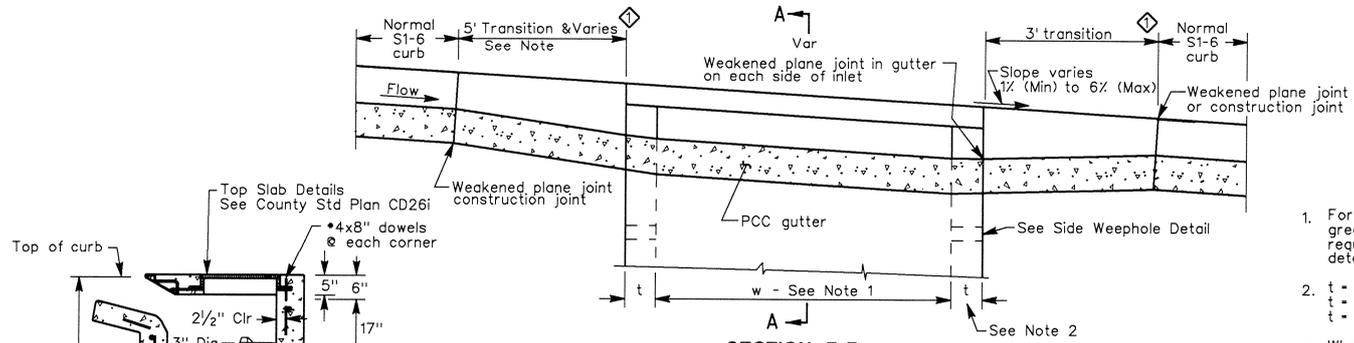
TYPE "E" INLET

SCALE: NO SCALE
 DATE: 7-02
 DRAWN BY: H.HUSSEY
 PLAN NO. **CD24i**
 CHECKED BY: M.HOLLINGSWORTH

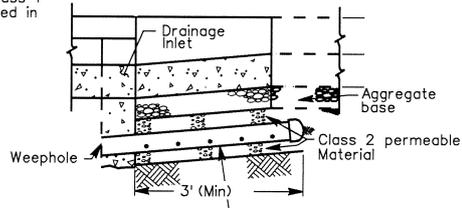
STD. PLAN CD24i

ct Maurie M. Shiu
 PUBLIC WORKS DIRECTOR
10-26-06
 PLANS APPROVAL DATE
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 Exp. 12/31/07
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SECTION B-B



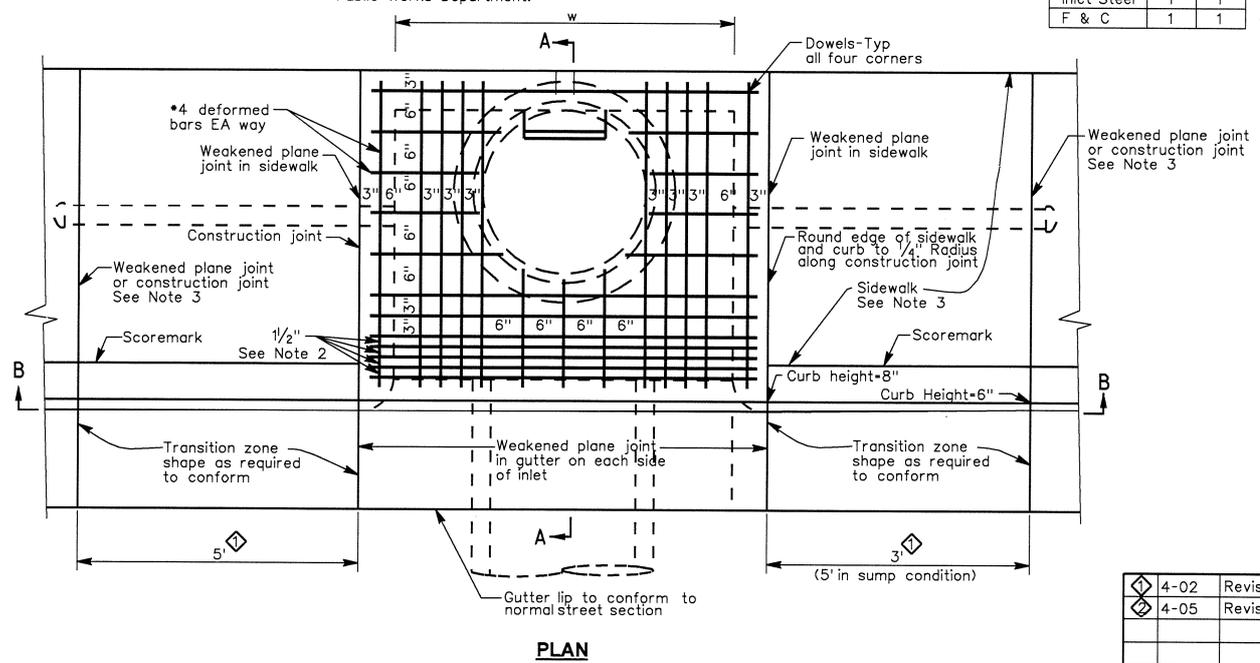
SIDE WEEPHOLE DETAIL
See Note 6

STEEL LIST

Material	Quantity	
	w=4'	w=7'
*4 deformed bars		
L=4'-8"	7	
L=3'-2"	10	16
L=1'-1"	3	3
L=1'-6"	4	
L=1'-3"	4	
L=0'-8"	4	4
L=7'-8"		7
L=2'-9"		4
L=3'-0"		4
Inlet Steel		
F & C	1	1

NOTES:

- For street grades less than or equal to 6%, "w"=4'-0". For street grades greater than 6%, "w"=7'-0". For "w" = 7'-0" see Steel Schedule for required steel and County Standard Plan CD26i for expanded inlet steel details.
- t = 6 inches if h is 4 feet or less.
t = 8 inches if h is greater than 4 feet and less than 8 feet.
t = 10 inches if h is greater than 8 feet and less than 12 feet.
- When curb and sidewalk are extruded, construction joints shall be provided at locations as shown on the plan view. Extruded curb and sidewalk which is deformed, shall be saw cut at a true section.
- Curb and sidewalk shall be constructed monolithically. When the basin is to be constructed within the limits of a proposed sidewalk or is contiguous with the sidewalk using the same class of concrete as in the sidewalk.
- If "h" exceeds 12', construct precast inlet on a Type III manhole base see Standard Plans CD31i and CD32i for manhole details.
- A pipe shall not enter the inlet through a corner. If pipe exceeds 36" in diameter, or the skew angle prevents the pipe opening from being made in a single wall, construct a Type III manhole base per County Standard Plan CD32i.
- Weephole elevation varies depending on the depth of the adjoining pavement section. It shall be at, or slightly below, the pavement section subgrade elevation with a minimum depth of 15" below the curb inlet flowline. The side weephole detail shall be used at all "sump" locations. Edge drains or side weepholes detail at other locations may be required as shown on the project construction plans or by the Public Works Department. See Standard Plan CD08i for edge drain details. Where weepholes detail or edge drains are not required, these weepholes shall conform to the front weephole details shown on this plan.
- Step shall be steel reinforced polypropylene plastic, Santa Rosa Cast Products Co. Dwg. No. PS2-PF or equivalent. Steps to be cast in place or press fitted into provided holes as per manufacturer. Install steps with lowest rung 12" maximum above floor and highest rung not more than 6" below top of inlet. The spacing between steps shall not exceed 16" and shall be uniform throughout the length of the wall. Place steps in the wall without an opening. Steps shall not be installed on back wall. No steps required where distance from floor of inlet to top of grate is 2'6" or less.
- Curvature of the lip and sidewalls at gutter opening shall be formed by curved forms and shall not be made by plastering.
- Inlet and outlet pipes shall be trimmed to the final shape and length before concrete is poured.
- All exposed surfaces in the basin shall conform in slope, grade, color, finish, and scoring to existing or proposed curb and sidewalk adjacent to the inlet.
- When the basin is to be constructed within the limits of a proposed sidewalk or is contiguous to such a sidewalk, the top of the basin shall be poured monolithically with the sidewalk using the same class of concrete as in the sidewalk.
- See County Standard Plan CD26i for top slab details, and catch basin inlet and steel.



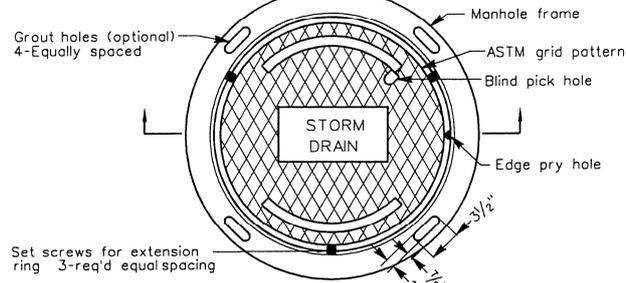
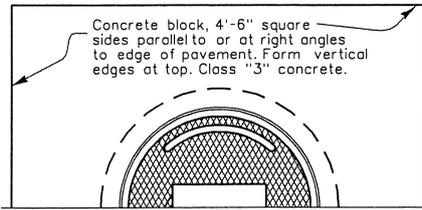
PLAN

NO.	DATE	REVISION DESCRIPTION	BY
4-02		Revise Notes & Dimensions	HH
4-05		Revise Dimension	HH

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

TYPE "F" INLET

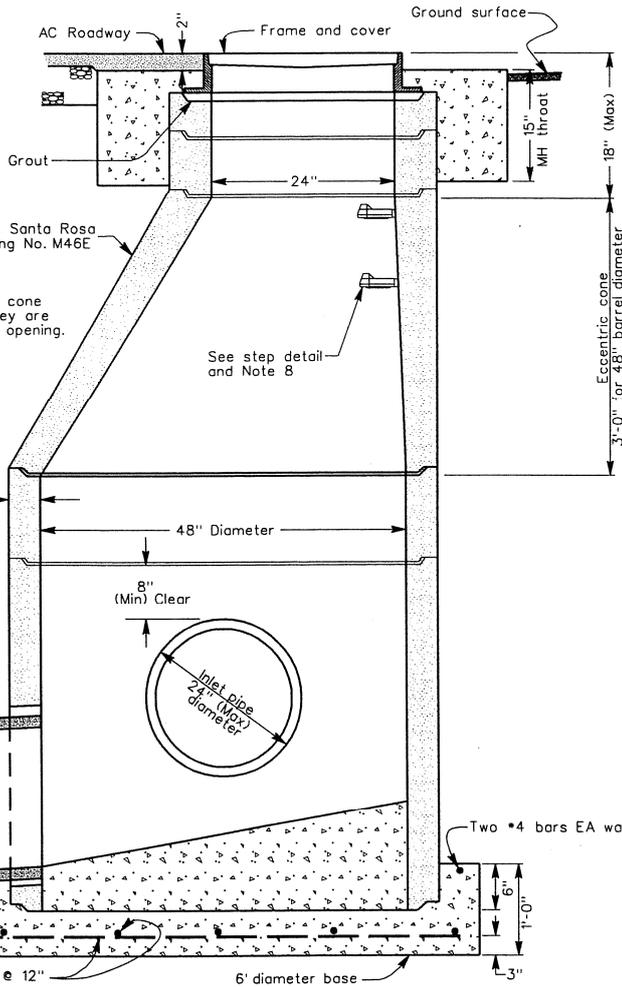
SCALE: NO SCALE
 DATE: 4-02
 DRAWN BY: P. WARDEN
 PLAN NO. **CD25i**
 CHECKED BY: M. HOLLINGSWORTH



Maurice M. Shiu
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 Exp. 12/31/05
 CIVIL
 STATE OF CALIFORNIA

PUBLIC WORKS DIRECTOR
 11/27/2002
 PLANS APPROVAL DATE

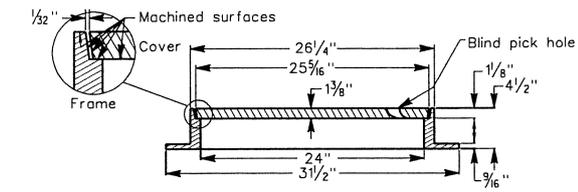
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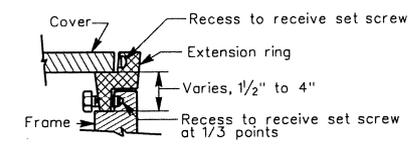
Precast inlet shall be Santa Rosa Cast Products Drawing No. M46E or equivalent.

Note: Orient eccentric cone for steps so they are not over a pipe opening.

See step detail and Note 8



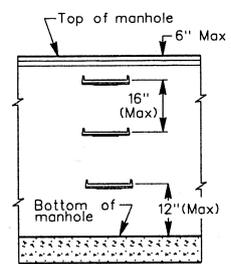
TYPICAL FRAME AND COVER DETAIL



TYPICAL CAST IRON EXTENSION RING
 See Note 7

NOTES:

- All reinforced concrete shall be Class "2" (590 lbs. PC per cubic yard).
- All concrete joints shall be cleaned, wetted, and mortared prior to setting next section. Joints shall then be patched, troweled, and brushed smooth.
- Type "I" manhole bases are for use with pipes to 24" in diameter and where there is sufficient cover to use minimum length manhole barrel, eccentric cone, and cover frame. Type "II" manhole bases (Std Pln CD31i) are for use with pipes to 42" in diameter. Type "III" manhole bases (Std Pln CD32i) are for use with pipes to 60" in diameter. Manhole bases for pipes larger than 60" in diameter shall require a special design.
- Frame and extension rings must be secured by pavement or concrete block.
- Manhole cover frame shall be adjusted to conform to grade and cross slope of pavement.
- Manhole frame and cover shall be Phoenix Iron (Oakland) Model P-1090 or South Bay Foundry (Lodi) Model A-640 or approved equivalent.
- Use of extension rings are limited by 18" maximum manhole throat length. Extension rings are allowed for conforms to pavement overlays only.
- Step shall be steel reinforced polypropylene plastic, Santa Rosa Cast Products Co. Dwg. No. PS2-PF or equivalent. Steps to be cast in place or press fitted into provided holes as per manufacture. Install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below top of manhole. The spacing between steps shall not exceed 1'-0" and shall be uniform throughout the length of the wall. Place steps in the wall without a pipe opening. No steps required where distance from floor of manhole to top of manhole is less than 2'-6".



STEP DETAIL
 See Note 8

34

PRECAST MANHOLE WITH TYPE I BASE

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA

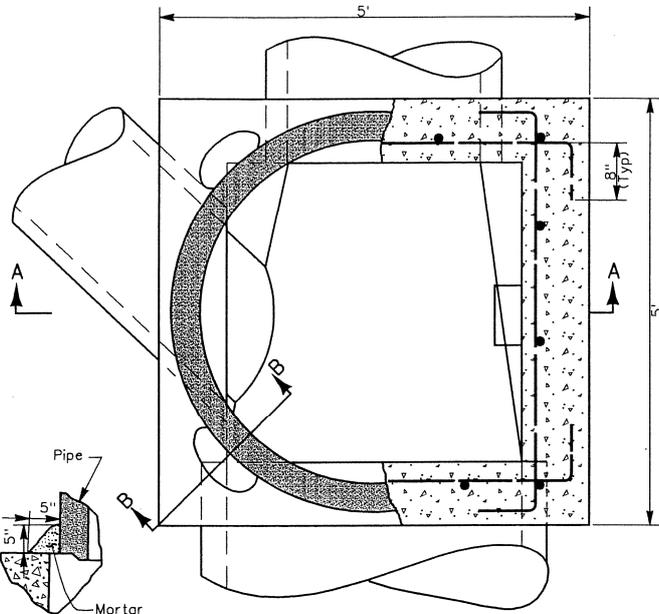
STANDARD PLAN

**PRECAST MANHOLE,
 TYPE I BASE,
 FRAME & COVER**

SCALE: NO SCALE DATE: 7-02
 DRAWN BY: H.HUSSEY PLAN NO. CD30i
 CHECKED BY: M.HOLLINGSWORTH

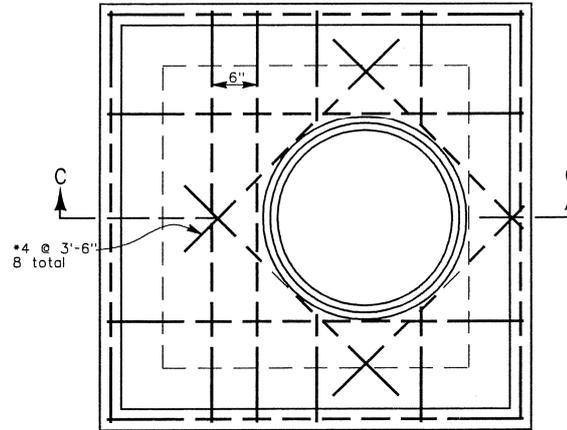
NO.	DATE	REVISION DESCRIPTION	BY
2-02		Supersedes Standard Plan CD30 dated 11-99	P.W.
7-02		Concrete Spec. Revision	HH

STD. PLAN CD30i

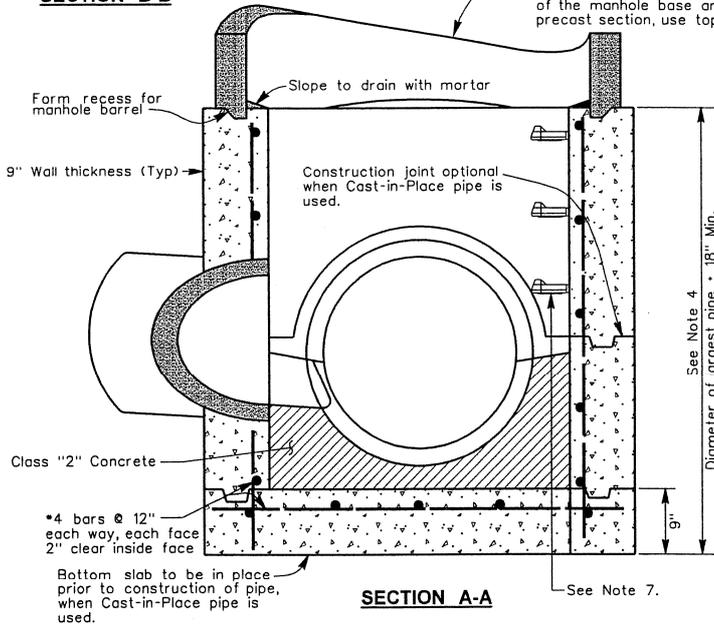


SECTION B-B

PLAN

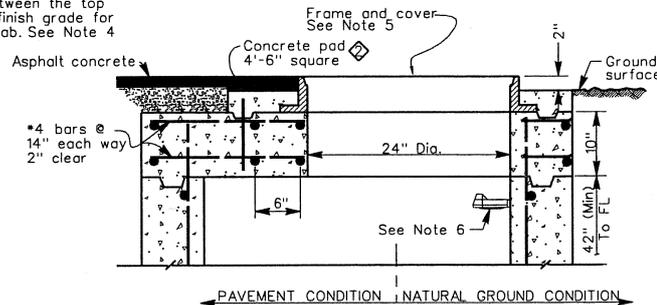


PLAN



SECTION A-A

Precast manhole section. When there is not sufficient clearance between the top of the manhole base and finish grade for precast section, use top slab. See Note 4



**SECTION C-C
TOP SLAB**

USE TOP SLAB:

1. Where there is not sufficient clearance between the top of the manhole base and finish grade for a precast section and section manhole cover frame.
2. When placing a Type "A" or Type "C" inlet opening on a Type "II" manhole base. The opening in the slab shall conform to the inside dimensions of the inlet to be used.

Maurice M. Shiu
 PUBLIC WORKS DIRECTOR
 11/27/02
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
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NOTES:

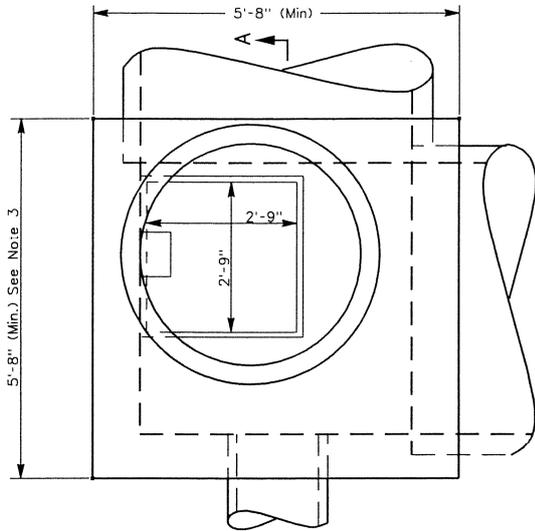
1. All reinforced concrete shall be Class "2" (590 lbs. PCC per cubic yard).
2. Construction joints are optional where shown. Other locations are subject to approval by the Public Works Department. Key dimensions are 1/2" x 3".
3. Inlet and outlet pipes shall not intercept a manhole base through a corner. If skew angle is too great to permit the opening to be made in a single wall use a Type "III" manhole base. (See Std Plan CD321).
4. Type "II" manhole bases (Std Plan CD30i) are for use with pipes to 24" in diameter and where there is sufficient cover to use a minimum length manhole barrel, eccentric cone, and cover frame. Type "III" manhole bases are for use with pipes to 60" in diameter. Manhole bases for pipes larger than 60" in diameter shall require a special design.
5. For details of manhole frame and cover, See Standard Plan CD30i. Orient frame directly above steps.
6. See Standard Plan CD30i for step details and location.
7. Step shall be steel reinforced polypropylene plastic, Santa Rosa Cast Products Co. Dwg. No. PS2-PF or equivalent. Steps to be cast in place or press fitted into provided holes as per manufacture. Install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below top of manhole. The spacing between steps shall not exceed 16" and shall be uniform throughout the length of the wall. Place steps in the wall without a pipe opening. No steps required where distance from floor of manhole to top of manhole is less than 2'-6".

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

**TYPE II
 MANHOLE BASE**

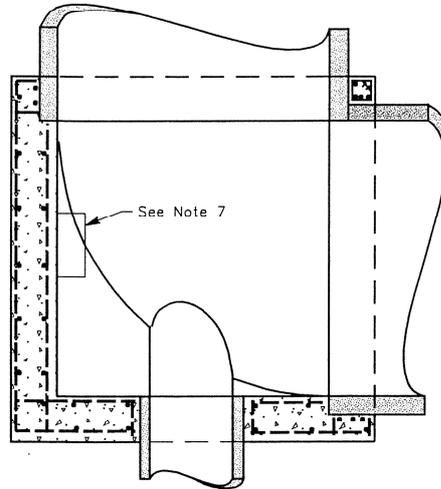
2-02	Supersedes Standard Plan CD31 dated 11-99	P.W.
6-02	Revised Dimension	HH
7-02	Concrete Spec. Revision	HH
NO.	DATE	REVISION DESCRIPTION

SCALE: NO SCALE	DATE: 7-02
DRAWN BY: H. HUSSEY	PLAN NO. CD31i
CHECKED BY: M. HOLLINGSWORTH	

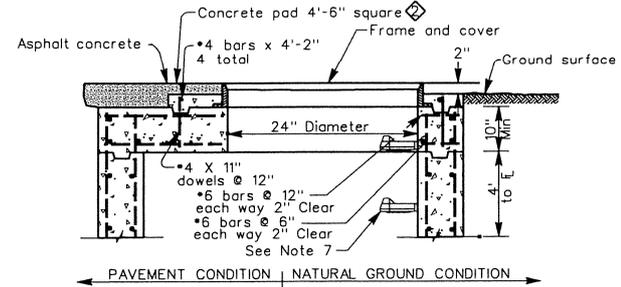


PLAN

Precast manhole section. Where there is not sufficient clearance between the top of the manhole base and finish grade for a precast section and manhole cover frame, use a top slab.



PLAN SECTION

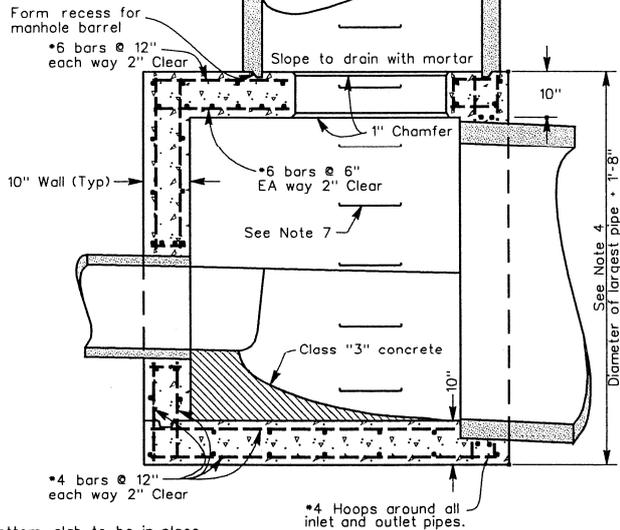


TOP SLAB

- USE TOP SLAB:
1. Where there is not sufficient clearance between the top of the manhole base and finish grade for a precast section and manhole cover frame.
 2. When placing a Type "A" or Type "C" inlet opening on a Type "III" manhole base. The opening in the top slab shall conform to the inside dimensions of the inlet to be used.

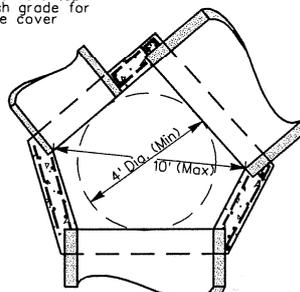
NOTES:

1. All reinforced concrete shall be Class 2 (590 lbs. PCC per cubic yard).
2. Construction joints are optional where shown. Other locations are subject to approval by the Public Works Department. Key dimensions are 1/2" X 3/2".
3. Inlet and outlet pipes shall not intersect a manhole base through a corner. If skew angle is too great to permit the opening to be made in a single wall, the wall may be lengthened or relocated as explained in "SPECIAL APPLICATIONS OF TYPE "III" MANHOLE BASES" on this plan.
4. Type "III" manhole bases (Std Plan CD30i) are for use with pipes to 24" in diameter and where there is sufficient cover to use a minimum length manhole barrel, eccentric cone and cover frame. Type "III" manhole bases (Std Plan CD31i) are for pipes to 42" in diameter. Type "III" manhole bases are for pipes to 60" in diameter. Manhole bases for pipes larger than 60" in diameter shall require a special design.
5. For details of precast manhole. See Standard Plan CD30i.
6. For details of manhole frame and cover, see Standard Plan CD30i. Orient frame directly above steps.
7. For step details and location see Standard Plan CD30i.

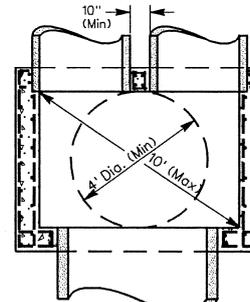


SECTION A-A

Bottom slab to be in place prior to construction of pipe where Cast-in-place is used.



PLAN SECTION



PLAN SECTION

SPECIAL APPLICATIONS OF TYPE "III" MANHOLE BASES

When unusual circumstances, such as excessive skew or parallel pipes prevent the use of a normal Type "III" manhole base. The walls may be lengthened or relocated to accommodate the pipes, provided the following criteria are met:

1. The inside dimensions of the base shall be such that a 48 inch diameter circle will lay flat on the floor as shown.
2. The maximum distance between any two inside corners shall be 10 feet, as shown
3. Reinforcement and floor, wall and top thickness shall remain the same as for a normal Type "III" manhole base.
4. No pipe shall exceed 60 inches (inside diameter).

If any one of these criteria cannot be met, a special design will be required.

2-02	Supersedes Standard Plan CD32 dated 11-99	P.W.
6-02	Revised Dimension	III
7-02	Concrete Spec. Revision	HH
NO.	DATE	REVISION DESCRIPTION
		BY

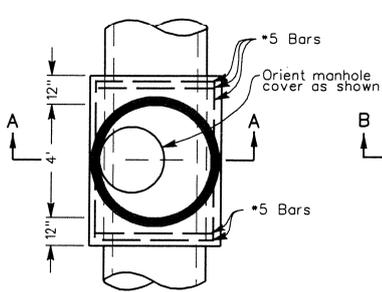
Maurice M. Shiu
 PUBLIC WORKS DIRECTOR
 11/27/02
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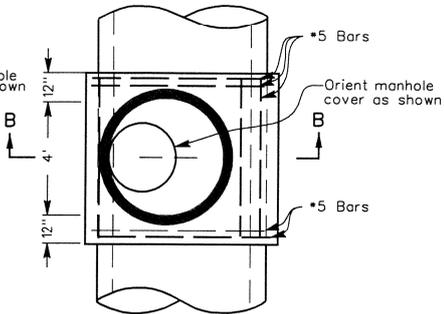
COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

**TYPE III
 MANHOLE BASE**

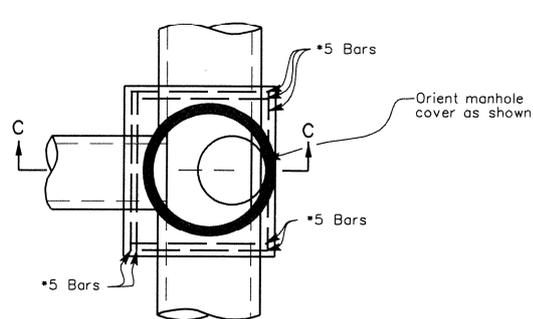
SCALE: NO SCALE
 DATE: 7-02
 DRAWN BY: H. HUSSEY
 PLAN NO. **CD32i**
 CHECKED BY: M. HOLLINGSWORTH



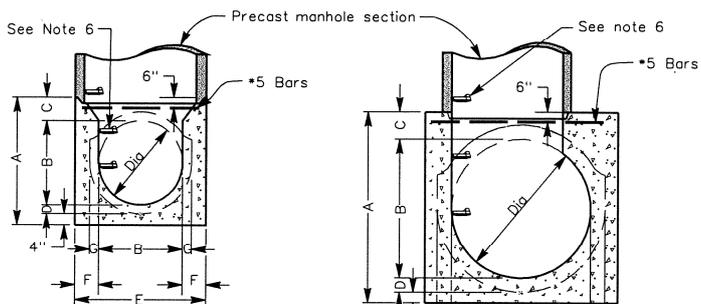
TYPICAL MANHOLE BASE
30" thru 48" Dia



TYPICAL MANHOLE BASE
54" thru 120" Dia

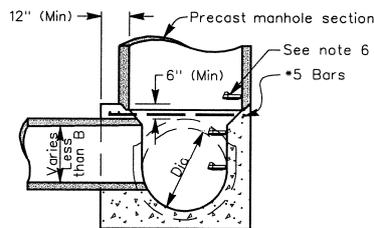


TYPICAL LATERAL CONNECTION



SECTION A-A

SECTION B-B



SECTION C-C

DIMENSION TABLE (in)									
Dia	A	B	C	D	E	F	G	H	J
30	46	30	9	3	56	13	3	56	30
36	53	36	9 1/2	3 1/2	56	10	3 1/2	56	36
42	60	42	10	4	60	9	4	60	42
48	67	48	11	5/8	66	9	5	60	48
54	75	54	11 1/2	5 1/2	75	10 1/2	5 1/2	69	48
60	82	60	12	6	82	11	6	70	48
66	89	66	12 1/2	6 1/2	89	11 1/2	6 1/2	71	48
72	96	72	13	7	96	12	7	72	48
84	110	84	14	8	110	13	8	74	48
96	124	96	15	9	124	14	9	76	48
120	154	120	18	12	154	17	12	82	48

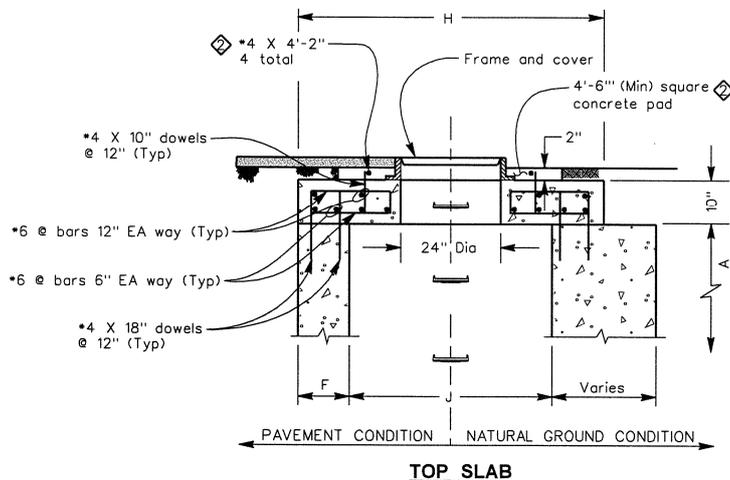
USE OF AN "A" > 154" REQUIRES A SPECIAL DESIGN

USE OF TOP SLAB:

- Where there is not sufficient clearance between the top of the manhole base and finish grade for a pre-cast manhole section. Orient manhole opening directly above steps.
- Dimension "A" may be increased beyond that specified in order to conform to finish grade. Use of a larger "A" will require modifying the corresponding dimensions in accordance with the dimension table.
- When placing a Type "A" or a Type "C" inlet on a Type "IV" manhole base the opening in the top slab shall conform to the inside dimension of the inlet being placed.

NOTES:

- All concrete shall be Class 2 (590 lbs. P.C.C per cubic yard).
- Clearance shall be 2" for all steel, unless otherwise noted.
- The Type "IV" manhole base (Std Plan CD33i), shall be used only on straight runs of C.I.P of the same diameter.
- For details of precast manhole, see Standard Plan CD30i.
- For details of manhole frame and cover, see Standard Plan CD30i.
- For step detail see Standard Plan CD30i.



TOP SLAB

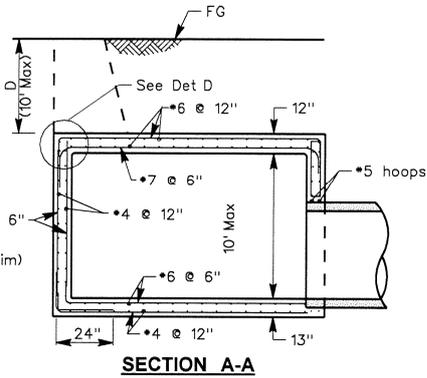
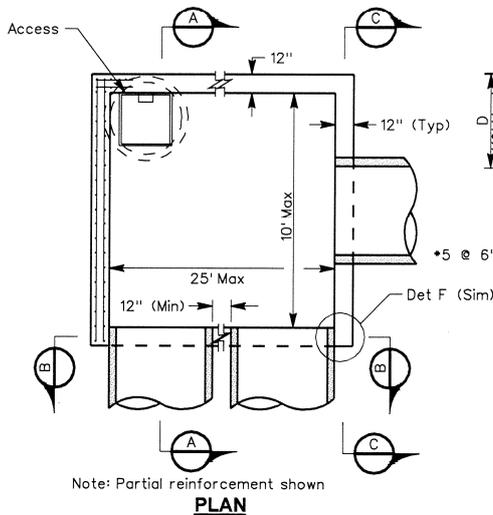
COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA
STANDARD PLAN

TYPE IV MANHOLE BASE

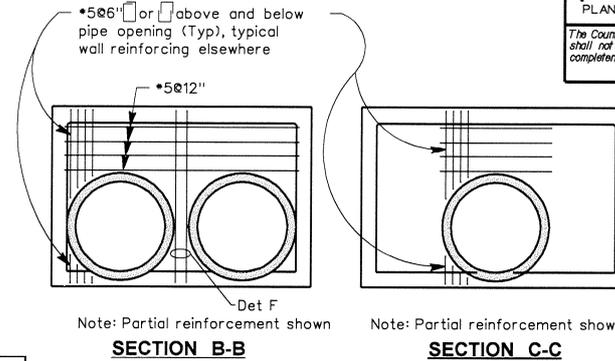
NO.	DATE	REVISION DESCRIPTION	BY
2-02		Supersedes Standard Plan CD33 dated 11-99	P.W.
6-02		Revised Dimension	HH
7-02		Concrete Spec. Revision	HH

SCALE: NO SCALE	DATE: 7-02
DRAWN BY: H. HUSSEY	PLAN NO. CD33i
CHECKED BY: M. HOLLINGSWORTH	

STD. PLAN CD33i



NOTE: Section A-A steel is structurally designed and limited to a 10' internal span.

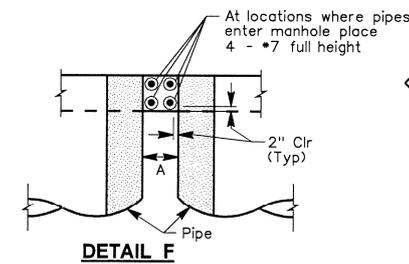
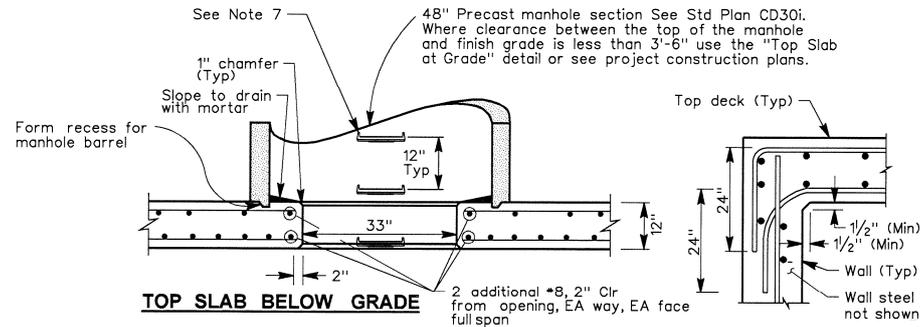


*5 @ 12" above and below pipe opening (Typ), typical wall reinforcing elsewhere

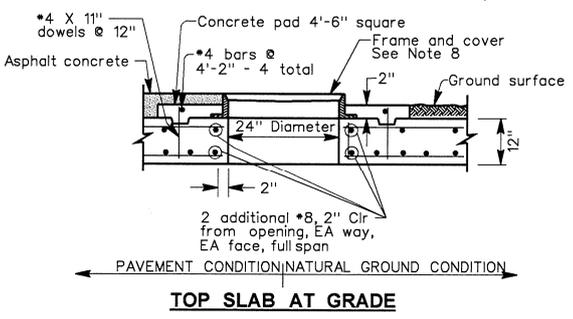
Maurice M. Shiu
 PUBLIC WORKS DIRECTOR
 10-16-06
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 MAURICE M. SHIU
 No. 23204
 Exp. 12/31/07
 CIVIL
 STATE OF CALIFORNIA

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A = 8" (Min)
 When A > 12" use Std wall reinforcing between vertical #7's



NOTES:

- Soil parameters used for design are limited to the following:
 Active equivalent fluid pressure of 45 lbs./ft³ up to a saturated condition of 62 lbs./ft³.
 Passive equivalent fluid pressure of 300 lbs./ft³.
 Structures to be constructed in soils not exhibiting these characteristics shall be designed by a registered professional engineer under consultation with a registered geotechnical engineer.
- Interior wall height shall not exceed 10 feet
- Depth to top of deck "D" shall not exceed 10 feet
- Minimum Strength:
 Steel: f_y = 60000 psi
 PCC: f_c = 3000 psi
- Reinforcing steel placement shall be as directed in American Concrete Institute, Building Code and Commentary 318-95.
- Inlet and outlet pipes shall not intercept a manhole base through a corner. If skew angle is too great to permit the opening to be made through a single wall a special design will be required.
- Step shall be steel reinforced polypropylene plastic, Santa Rosa Cast Products Co. Dwg. No. PS2-PF or equivalent. Steps to be cast in place or press fitted into provided holes as per manufacturer. Install steps with lowest rung 1'-0" above the floor and highest rung no more than 6" below top of manhole. The spacing between steps shall be uniform throughout the length of the wall. Place steps in the wall without an opening. No steps required where distance from floor of manhole to top of manhole is less than 2'-6". See Standard Plan CD30i for step detail.
- For details of manhole frame and cover, see Standard Plan CD30i.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

TYPE V MANHOLE BASE

SCALE: NO SCALE DATE: 2-02
 DRAWN BY: P. WARDEN PLAN NO. CD34i

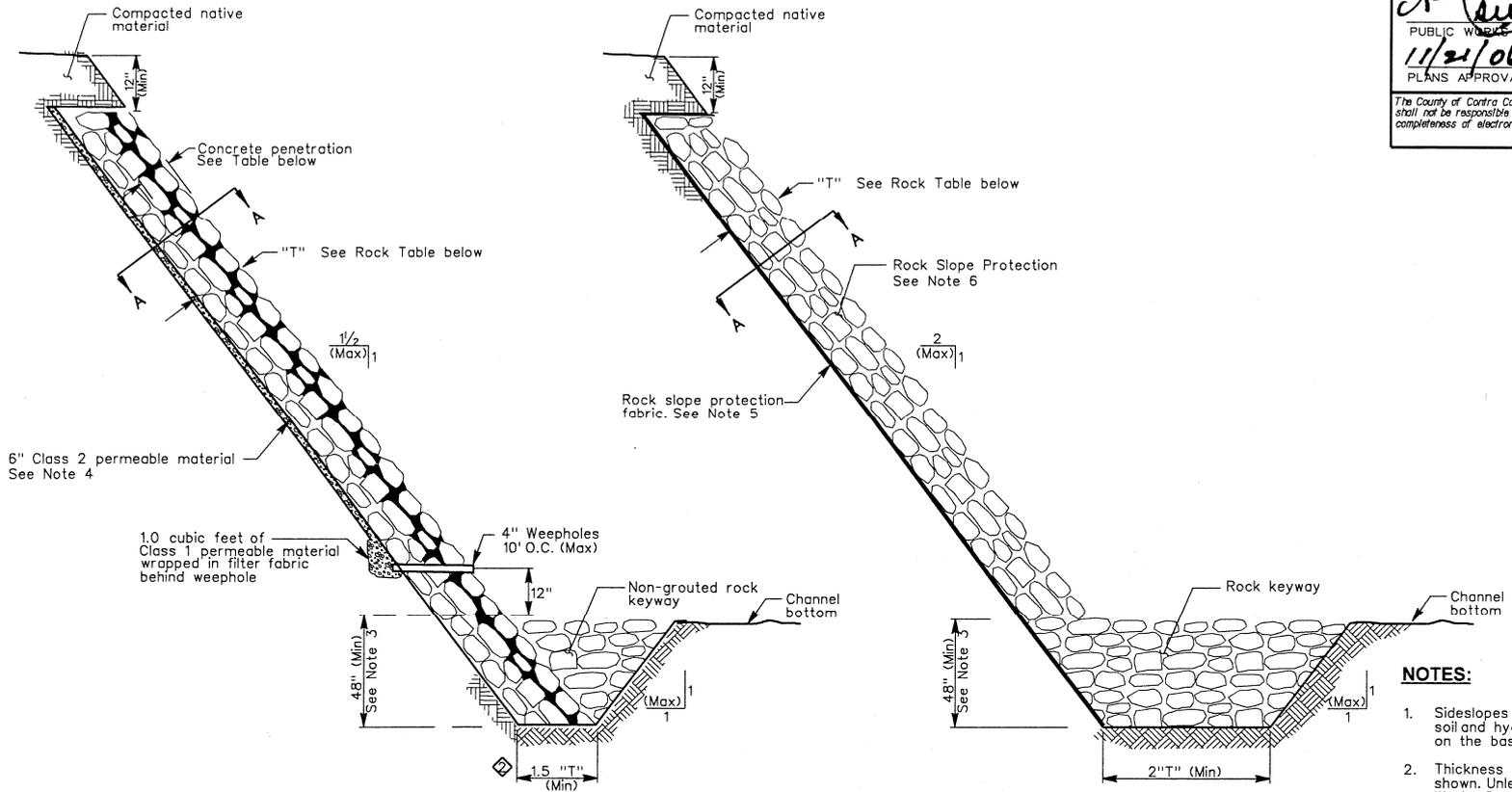
NO.	DATE	REVISION DESCRIPTION	BY
2-04		Revised Note	M.H.

CHECKED BY: M. HOLLINGSWORTH

Maurice M. Shiu
 PUBLIC WORKS DIRECTOR
 11/21/06
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 MAURICE M. SHIU
 No. 23204
 Exp. 12/31/07
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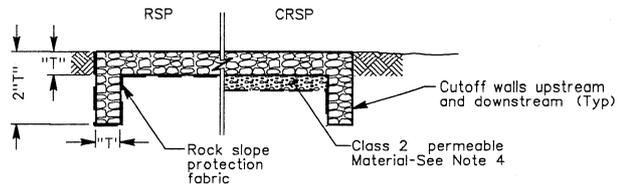


ROCK TABLE

Rock Grading	Concrete penetration depth in in. (Min)	"T" (in)
1/2 Ton	18	48
1/4 Ton	14	36
Light	10	30
Facing	8	18

CONCRETED-ROCK SLOPE PROTECTION (CRSP)

ROCK SLOPE PROTECTION (RSP)



SECTION A-A - CUTOFF WALL DETAIL

NOTES:

- Sideslopes and toe depth are dependent on soil and hydraulic conditions and may be varied on the basis of supporting Engineering data.
- Thickness "T" shall conform to the Table as shown. Unless otherwise directed by the Public Works Department.
- Depth of keyway may vary. The 48" minimum may decrease in the event bed rock is less than 48" below channel bed.
- Class 2 permeable material shall be required unless otherwise directed by the Public Works Department.
- Rock slope protection fabric shall be placed in accordance with Section 72-2 of the State Standard Specifications.
- Soil cover as required by the Public Works Department.

NO.	DATE	REVISION DESCRIPTION	BY
2-02		Supersedes Standard Plan CD40 dated 11-99	P.W.
5-02		Dimension changed	HH
5-06		Dimension changed	HH

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

ROCK SLOPE PROTECTION

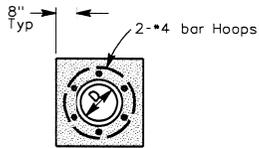
SCALE: NO SCALE
 DATE: 5-02
 DRAWN BY: H.HUSSEY
 PLAN NO. **CD40i**
 CHECKED BY: M.HOLLINGSWORTH

Maurice M. Shiu
 PUBLIC WORKS DIRECTOR
 1-28-08
 PLANS APPROVAL DATE

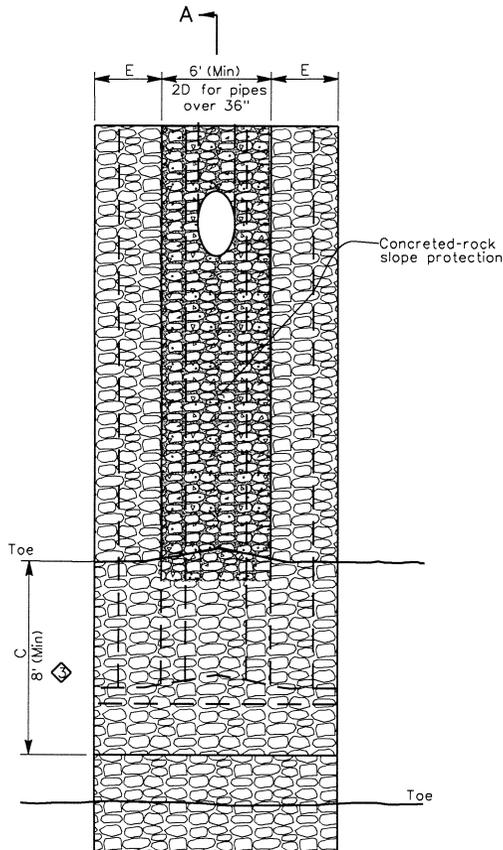
H (ft)	E (ft)
2 to 7	2
7 to 14	4
Over 14	8

REGISTERED PROFESSIONAL ENGINEER
 MAURICE M. SHIU
 No. 23204
 Exp. 12/31/09
 CIVIL
 STATE OF CALIFORNIA

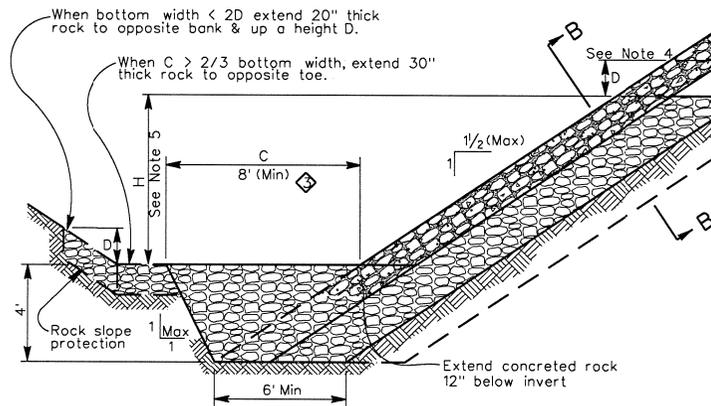
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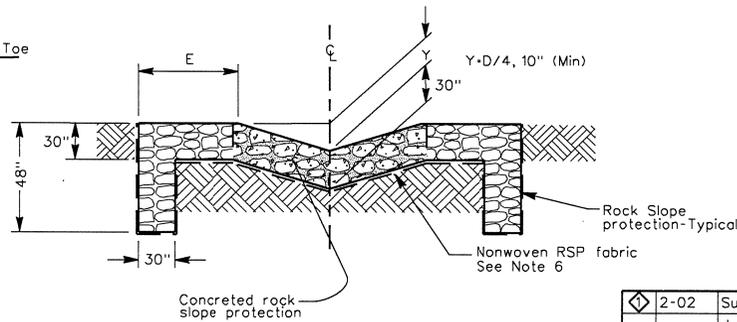
COLLAR DETAIL



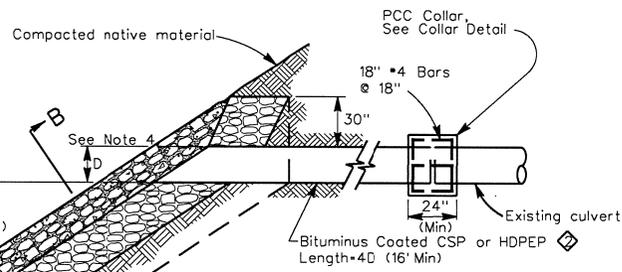
PLAN



SECTION A-A



SECTION B-B



NOTES:

1. Concreted-Rock Slope Protection and Rock Slope Protection shall conform to the State Standard Specifications. Unless otherwise specified, the rock class shall be light. When the channel conditions warrant the use of any rock class other than light, proper documentation must be submitted for approval by the Public Works Department. Larger rock will require increase in detail dimensions as per table on Standard Plan CD40i.
2. Lap rock slope protection fabric in accordance with the manufactures requirements.
3. Concrete shall be placed in accordance with State Standard Specifications.
4. Minimum pipe diameter "D" shall be 18" unless otherwise approved by the Public Works Department.
5. Dimension "H" shall be a minimum of 24" unless otherwise approved by the Public Works Department.
6. Fabric shall comply to State Standard Specification 72-2 "Rock Slope Protection."

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

ROCK PIPE OUTFALL

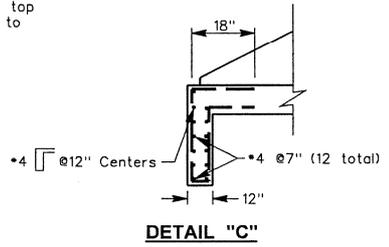
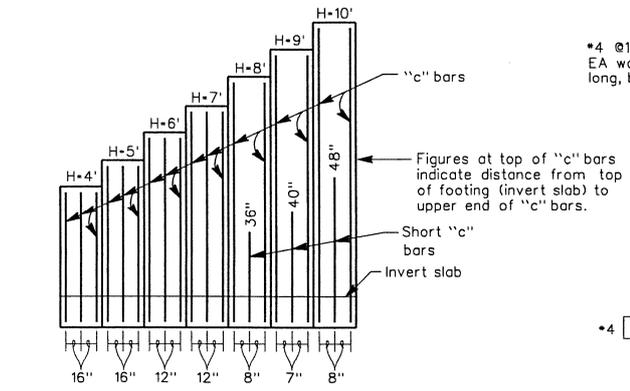
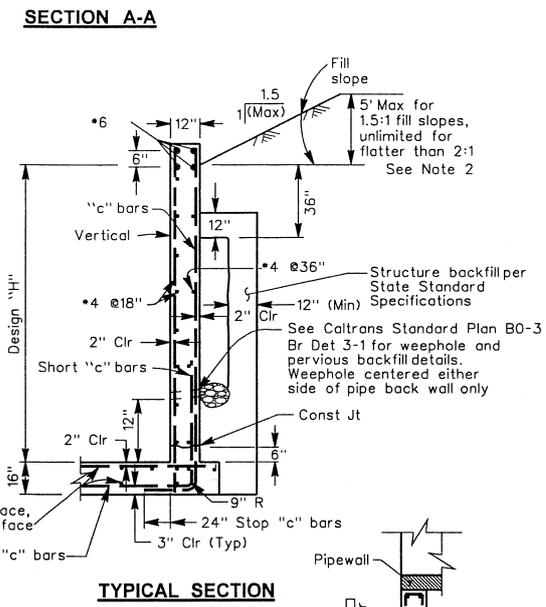
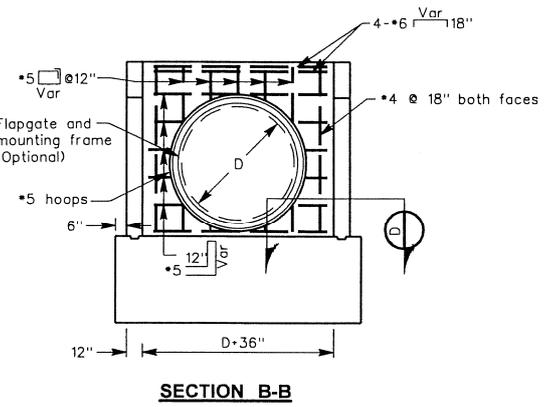
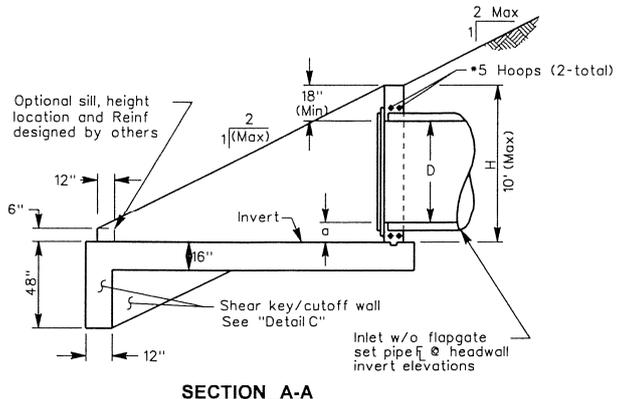
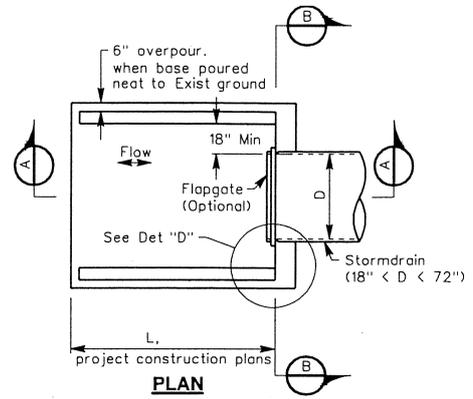
◇	2-02	Supersedes Standard Plan CD50 dated 11-99	P.W.
◇		Change in note dated 8/06	HH
◇		Change in dimension 1/28/08	HH
NO.	DATE	REVISION DESCRIPTION	BY

SCALE: NO SCALE
 DATE: 2-02
 DRAWN BY: L.COSTA
 PLAN NO. **CD50i**
 CHECKED BY: M. HOLLINGSWORTH

R. Mitch Avalon
 PUBLIC WORKS DIRECTOR
2-28-02
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 R. MITCH AVALON
 No. 31422
 Exp. 12/31/04
 CIVIL
 STATE OF CALIFORNIA

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REINFORCED CONCRETE WALLS

"H" (m)	4'	5'	6'	7'	8'	9'	10'
"c" Bars	#5 ϕ 16"	#5 ϕ 16"	#5 ϕ 12"	#5 ϕ 12"	#5 ϕ 8"	#5 ϕ 7"	#6 ϕ 8"

NOTE
 Slab reinforcement not shown for clarity.

GENERAL NOTES

USE:
 This headwall can be used in a variety of locations: channel outlet, basin outlet, and side channel outfall. This standard plan does not address the various facets unique to its planned use, e.g. these items shall be included in the specific project construction plans approved by the Public Works Department.

Items to address include, but are not limited to:

- Safety pipe railing details for basin inlets and outlets or chainlink railing details for channel outlets and outfalls. (The railings placed above the pipe shall be gated to allow maintenance access.)
- Flapgate details, if required.
- Rock slope protection (RSP) layout, type and dimensions.
- Pipe flowline orientation, dimension "a", invert slope and top of wall elevation.
- Finish grades behind walls. (A level area above the headwall may be needed to service trash racks or flapgates.)
- Trash rack details, if needed.

PLAN NOTES

1. Unit Stresses: $f_s=60,000$ psi, $f_c=3000$ psi.
2. Walls designed for 2' liveload surcharge, 1.5:1 sloping surcharge not to exceed 5' in elevation plus 2' liveload surcharge, or unlimited 2:1 surcharge.
3. Dimension "H" is shown on the project or construction plans.
4. Wall height may be exceeded by 6" before going to next greater "H".
5. "D" maximum = 6', "D" minimum = 18"
6. a = 9" minimum for basin or creek inlet structures. For basin outlet structures, pipe flowline shall be depressed to structure invert.
 *5 hoops shall be placed in invert in such instances.
7. Riprap type shall be determined by the Engineer of Record.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

**TYPE "M" HEADWALL
 STRUCTURE DETAILS**

SCALE: NO SCALE	DATE: 2-02
DRAWN BY: P.WARDEN	PLAN NO. CD52i
CHECKED BY: M.HOLLINGSWORTH	

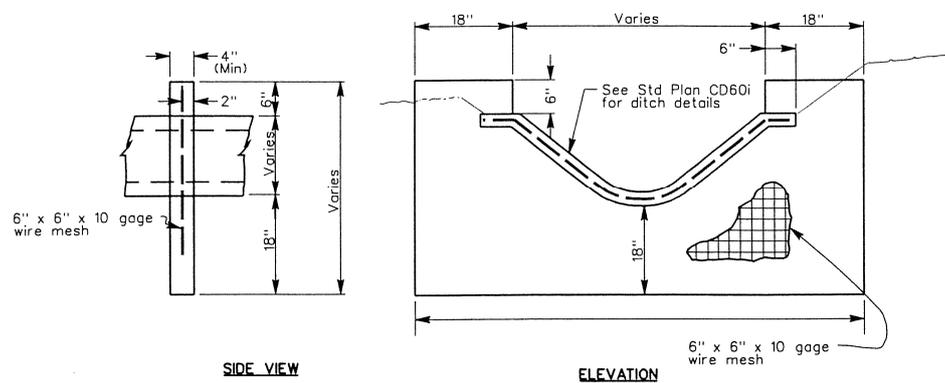
NO.	DATE	REVISION	DESCRIPTION	BY

STD. PLAN CD52i

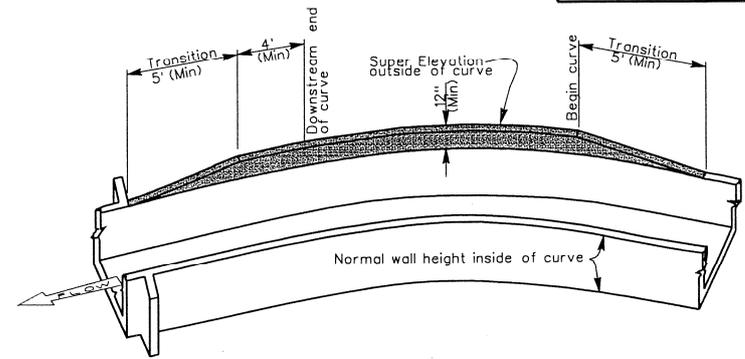
R. Mitchell
 PUBLIC WORKS DIRECTOR
2-28-02
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 R. MITCH AVALON
 No. 31422
 Exp. 12/31/04
 CIVIL
 STATE OF CALIFORNIA

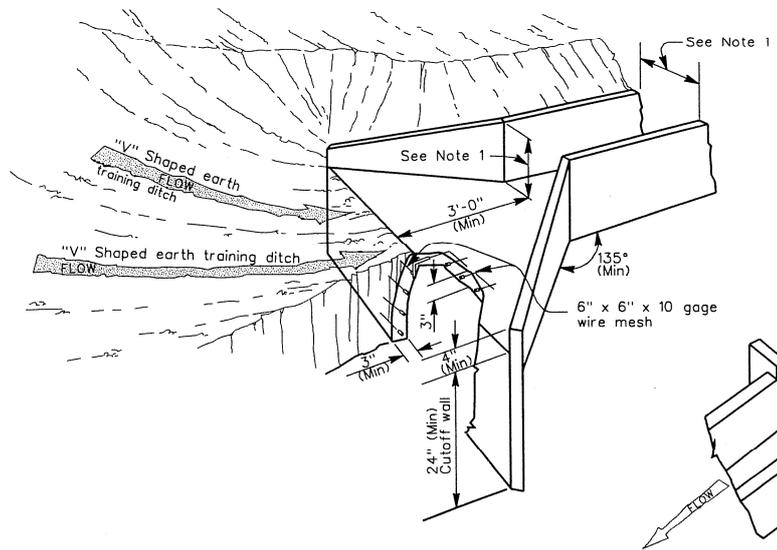
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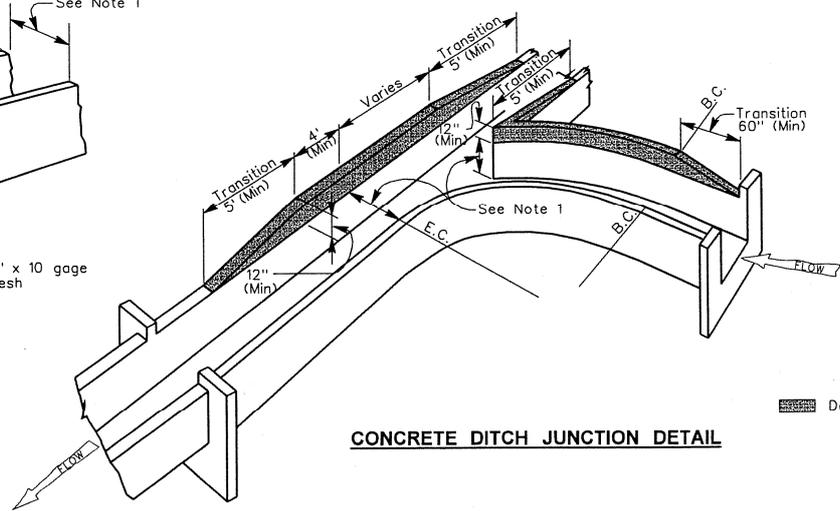
CONCRETE DITCH CUTOFF WALL



SUPERELEVATION OF CONCRETE DITCH CURBS



CONCRETE DITCH INLET STRUCTURE
 FOR SMALL DEPRESSIONS AND LAND FOLDS



CONCRETE DITCH JUNCTION DETAIL

- NOTES:**
- Channel shape shall conform to Standard Plan CD60i. Shape of channel shown for clarity.
 - Location of cutoff walls shall be as follows:
 - At the transition from earth to concrete lined ditches.
 - Below all wyes and junctions.
 - At the E.C. of all vertical curves or below any abrupt break in steep to flatter gradient.
 - At the E.C. of sharp horizontal curves or abrupt turns.
 - At such other locations along a concrete lined ditch where in the opinion of the Public Works Department, cutoff walls are necessary to direct or contain the flow within the ditch.
 - The location shall be approved by the Public Works Department, after excavation, but before concrete is poured.
 - Inlet structure to be used with all concrete lined ditches.
 - Superelevation sections apply to all concrete lined ditches.
- Denotes super-elevated portion of channel wall

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

CONCRETE DITCH DETAILS

NO.	DATE	REVISION DESCRIPTION	BY
2-02		Supersedes Standard Plan CD61 dated 11-99	P.W.

SCALE: NO SCALE DATE: 2-02
 DRAWN BY: H. HUSSEY PLAN NO. **CD61i**
 CHECKED BY: M. HOLLINGSWORTH

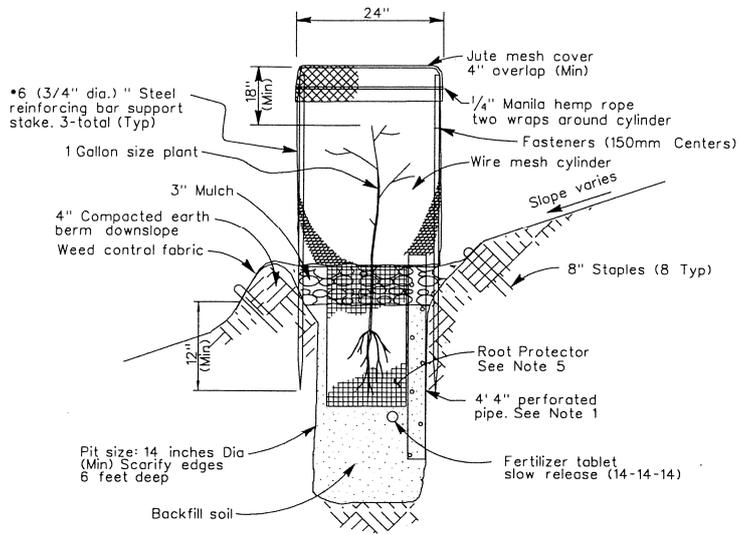
43

STD. PLAN CD61i

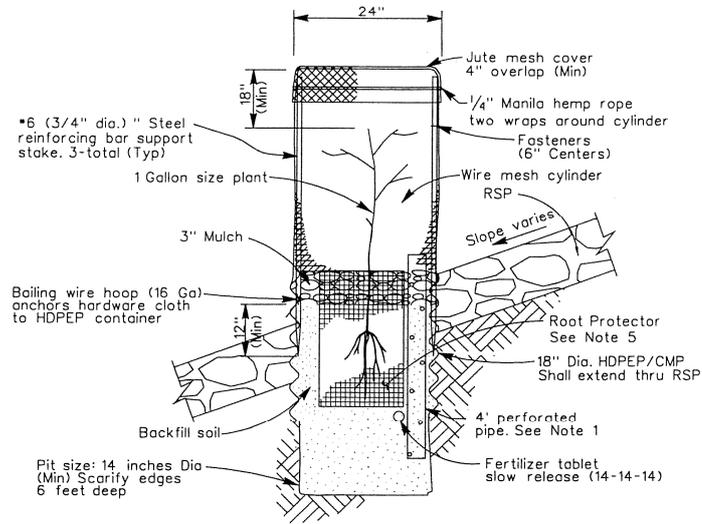
R. Mitch Avalon
 PUBLIC WORKS DIRECTOR
2-28-02
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 R. MITCH AVALON
 No. 31422
 Exp. 12/31/04
 CIVIL
 STATE OF CALIFORNIA

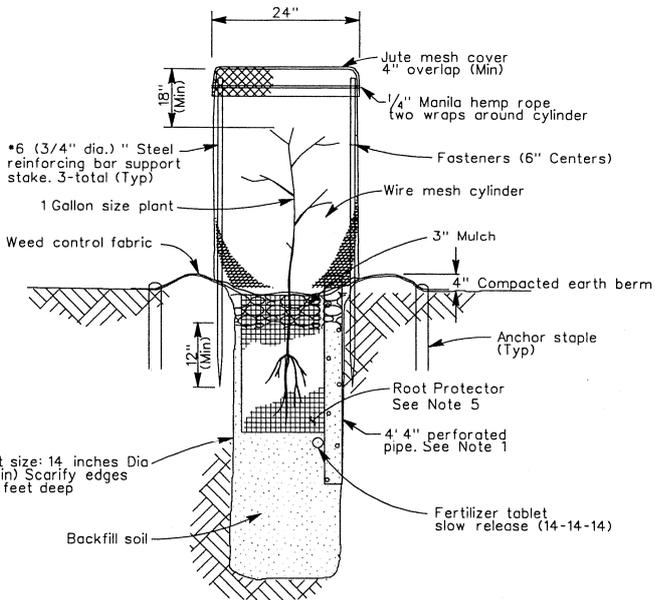
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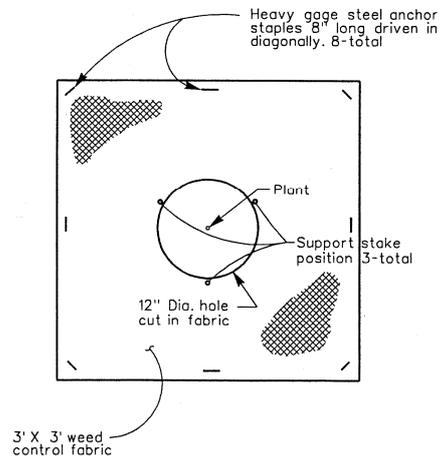
TREE & SHRUB SLOPE PLANTING DETAIL



TREE & SHRUB ROCK SLOPE PLANTING DETAIL



TREE & SHRUB PLANTING DETAIL



WEED CONTROL FABRIC DETAIL

NOTES:

1. Perforated pipe shall be positioned so that it is a minimum of 1" from finish grade of planting pit, and wire mesh deformed such that it lies outside of the wire mesh foliage protector.
2. Foliage protector shall be a minimum of 4' high and 18" clear from top of plant.
3. All plants shall be as shown on project plans, or as specified by the Public Works Department.
4. Minimum spacing between trees shall be 10' all ways. Minimum spacing between shrubs shall be 5' all ways. All plants shall be 1-Gallon size unless otherwise specified.
5. Install root protectors when shown on project plans, when specified in project special provisions, or as directed by the Public Works Department. Root protector shall be fabricated from 1", hexagonal pattern, 20-gauge wire mesh having a diameter that will provide a minimum clearance of 6" between the root ball and all sides of the basket. Basket shall extend 3" above finished grade.

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

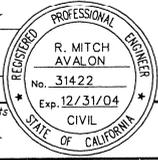
**MITIGATION LANDSCAPING
 DETAILS**

2-02	Supersedes Standard Plan CH10 dated 11-99	P.W.
NO.	DATE	REVISION DESCRIPTION

SCALE: NO SCALE DATE: 2-02
 DRAWN BY: HUSSEY/COSTA PLAN NO. **CH10i**
 CHECKED BY:

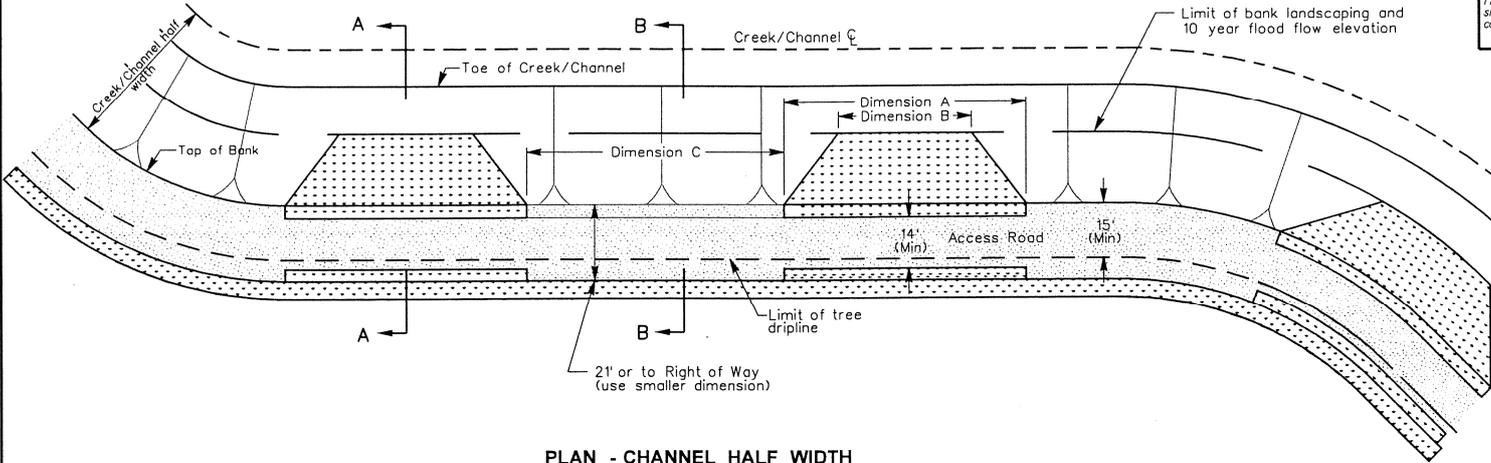
STD. PLAN CH10i

R. Mitch Avalon
 PUBLIC WORKS DIRECTOR
 2-28-02



PLANS APPROVAL DATE

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PLAN - CHANNEL HALF WIDTH

LANDSCAPING DIMENSIONS

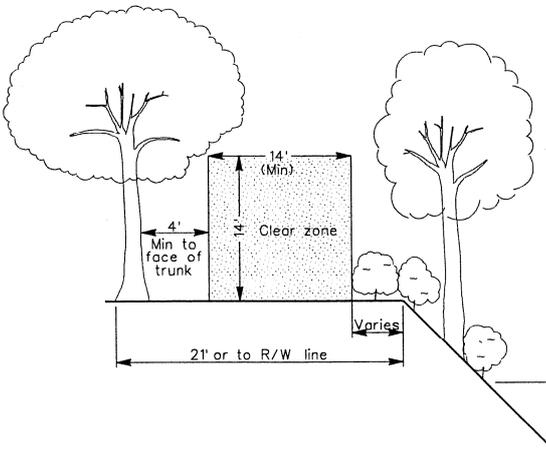
Channel half width(ft)	Tree grouping limits		Clear distance C(ft)
	A(ft)	B(ft)	
20 and under	65	36	70
20 to 40	50	36	90
40 and over	25	20	110

NOTES:

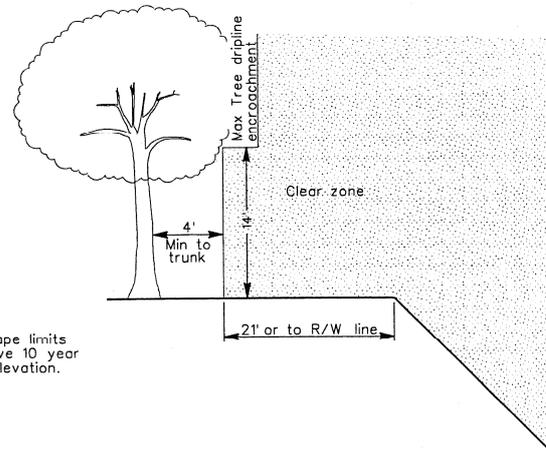
1. No plants, trees, branches or other vegetation shall encroach into clear zone.
2. Clear zone must be within creek/channel right of way.
3. Channel bank landscaping shall not be placed adjacent to side drains greater than 24" in diameter.
4. This plan applies to earth lined, non-leveed channels.
5. Landscaping areas that occur on both sides of the channel shall be staggered, not opposite each other.

LEGEND

- ALLOWABLE LIMITS OF LANDSCAPING
- CLEAR ZONE



TREE GROUPING AREA
SECTION A-A



CLEAR ZONE
SECTION B-B

STD. PLAN CH80i

45

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 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA

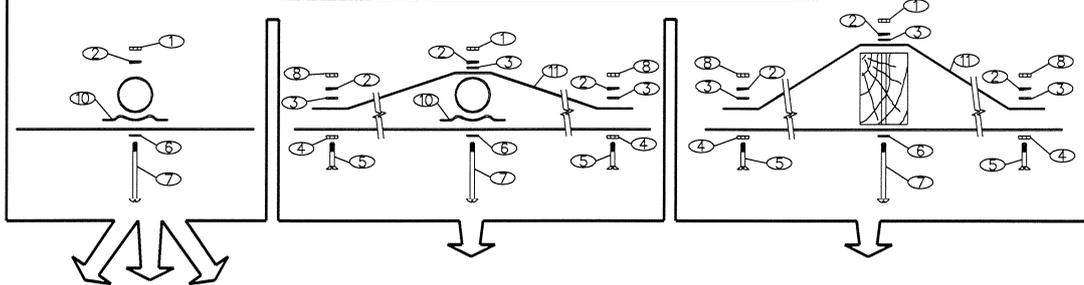
STANDARD PLAN

TYPICAL LANDSCAPING LIMITS ON CREEK/CHANNEL EMBANKMENTS

SCALE: NO SCALE DATE: 2-02
 DRAWN BY: H.HUSSEY PLAN NO. CH80i
 CHECKED BY: M.HOLLINGSWORTH

2-02	Supersedes Standard Plan CH80 dated 11-99	P.W.
NO.	DATE	REVISION DESCRIPTION

TRAFFIC SIGN AND HARDWARE ASSEMBLY DETAILS



HARDWARE SCHEDULE

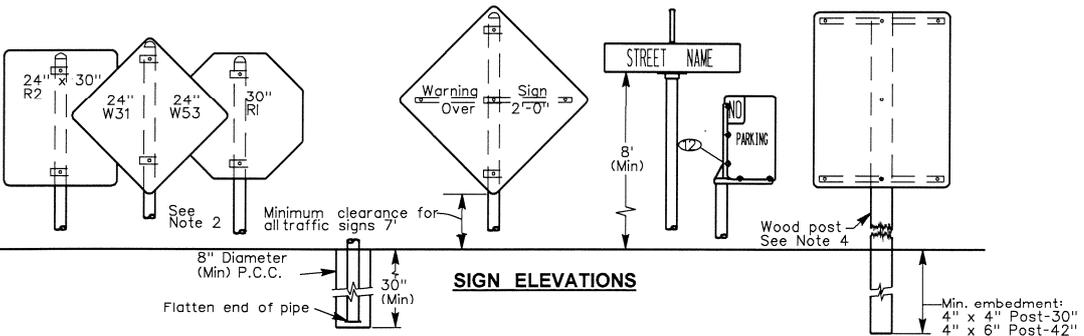
- ① 2" nut (galv.)
- ② Lock washer (galv.)
- ③ Flat washer (galv.)
- ④ Finishing washer (nickle plated)
- ⑤ 1/4" x 1" brass flathead bolt
- ⑥ Fiber washer
- ⑦ 2" x 3/2" button head bolt (galv.)
- ⑧ 1/4" brass nut
- ⑨ 2" x 6/2" button head bolt (galv.)
- ⑩ Standard sign saddle (galv.)
- ⑪ Standard sign back brace (galv.)
- ⑫ Standard cast aluminum "L" bracket

Maurice M. Shiu
 PUBLIC WORKS DIRECTOR
 6/12/87
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 MAURICE M. SHIU
 No. 23204
 Exp. 12/31/07
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 STATE OF CALIFORNIA

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SIGN ELEVATIONS

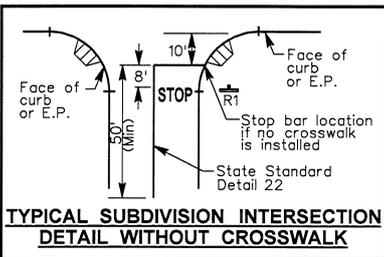
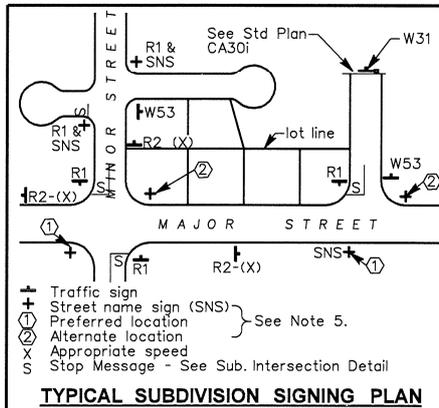
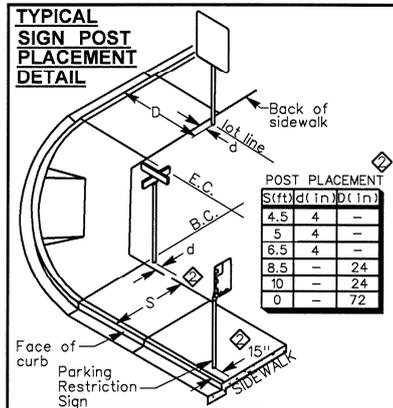
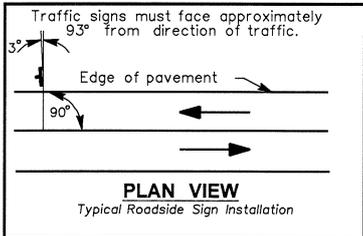


PIPE FOUNDATION

WOOD POST FOUNDATION

NOTES:

- Street name and traffic signs shall conform to the current Contra Costa County Ordinance Specifications.
- All sign support posts shall be 2 3/8" O.D. galvanized iron pipe except as noted on this plan. 2" (12 gauge) "Unistrut" or "Ulti-mate" square sign post systems approved for highway sign use by the FHWA are an acceptable substitution.
- Posts supporting street name signs and traffic signs, shall not be painted.
- Wood posts shall be used in rural locations only and shall conform to Section 56 of current State Standard Specifications for grade, species, and preservative treatment.
 - a. Use 4" x 4" wood posts with any size R7 sign.
 - b. Use 4" x 6" wood post with any 36" x 42" R-2 sign. A hole must be drilled at the base in accordance with State Standard Plan RS2 "Breakaway Feature".
- Street name signs shall be installed on the corner with the greatest sight distance and which favors the major street
- One street name sign assembly shall be installed at the intersection of County-maintained roads with two or more lanes in each direction.
- Where sign posts are to be installed within an existing sidewalk, the sidewalk shall be sawcut to a neat appearance when finished to surrounding grade.
- Where conditions permit, street name signs (SNS) may be installed on the same sign post with a STOP (R1) sign.
- Pavement markings shall be thermoplastic and shall conform to the current State Standard Specifications.
- For G7 sign use 6" U.C. and 4/2inch L.C. lettering.
- The first 3' of all island noses shall be painted with reflective white paint.
- Striping details and markings shall conform to the current State Standard Plans.
- Carriage bolts shall be peened after assembly.



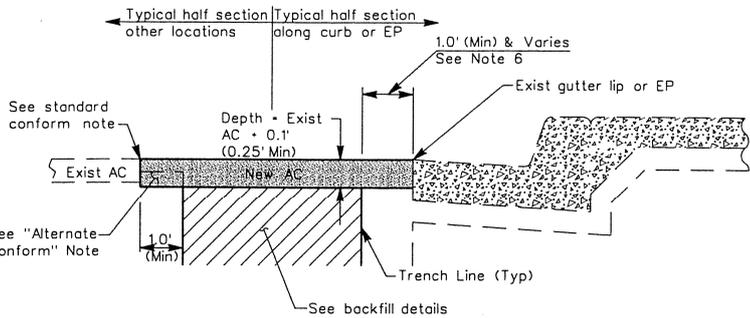
Note: Crosswalk shall be centered on the curb ramps, or as directed by the Public Works Department.

②	2-02	Supersedes Standard Plan CRS1 dated 11-99	P.W.
④	4-07	Sign Post Placement Revisions	MH
NO.	DATE	REVISION DESCRIPTION	BY

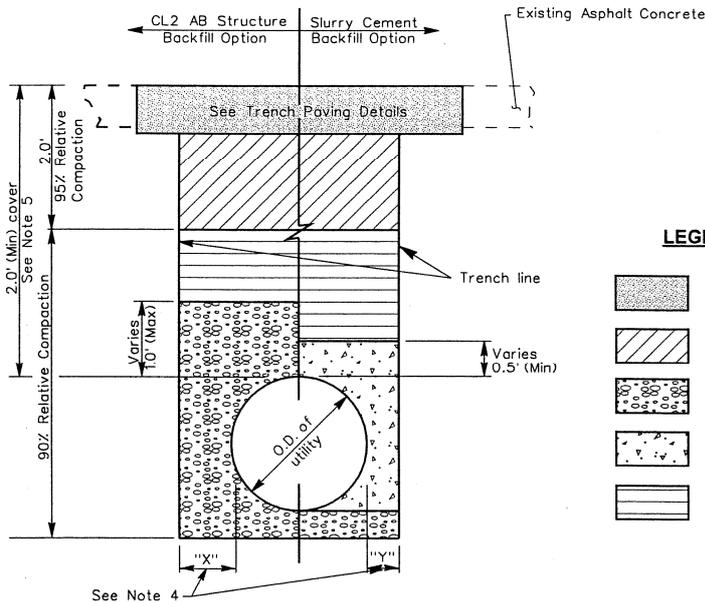
COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

SIGNING & STRIPING STANDARDS

SCALE: NO SCALE DATE: 4-07
 DRAWN BY: H. HUSSEY PLAN NO. **CRS1i**
 CHECKED BY: L. BURKS



TRENCH PAVING DETAIL



TRENCH BACKFILL DETAILS
TYPICAL HALF SECTIONS

LEGEND

-  Asphalt Concrete Paving
See Note 7
-  Class 2 Aggregate Base (AB)
-  Utility Spec'd Material
See Note 2
-  Slurry Cement Backfill
See Note 8
-  Class 2 Aggregate Base (AB),
or suitable native backfill material
as approved by Public Works Department

CONFORM NOTES:

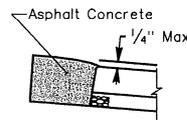
The pavement conform shall be as follows:

STANDARD CONFORM:

The asphalt concrete shall be cut through the full depth of existing asphalt concrete to a neat straight line at least 1.0 foot outside the trench line. Pavement edges damaged during construction shall be re-cut to neat lines prior to paving. Paint binder (tack coat) shall be applied to all vertical surfaces in accordance with the latest edition of Caltrans Standard Specifications.

ALTERNATE CONFORM:

The existing asphalt concrete outside the trench line may be ground to a minimum depth of 0.20 feet to a neat straight line at least 1.0 foot outside the trench line. The existing asphalt concrete at the trench lines shall be cut through the full depth of the existing asphalt concrete to a neat straight line. Any pavement edges, including ground edges, damaged during construction shall be re-cut or re-ground to neat lines prior to paving. Paint binder (tack coat) shall be applied to all vertical surfaces in accordance with the latest edition of Caltrans Standard Specifications.



DETAIL A
Gutter Lip Paving

NOTES:

1. An encroachment permit is required for all work within County road right of way. The permit shall be obtained prior to beginning work.
2. Backfill material and any bedding material shall be as specified by the utility owner, and approved by the Public Works Department. In no case shall "pea" gravel be allowed.
3. Unsuitable native material shall be excavated below the limit of excavation and replaced with suitable backfill material when directed by the Public Works Department.
4. "X" and "Y" shall be as a minimum, the dimensions shown below for the utility "O.D.".

O.D.	"x"	"y"
under 1.0'	0.5'	0.25'
1.0' to 4.5'	1.0'	0.5'
over 4.5'	2.0'	1.0'
5. Minimum cover over utilities is governed by the California Public Utilities Commission. Utility owners shall consider placing their utility line at a greater depth to avoid future relocation due to street/road reconstruction. The increased depth should include sufficient clearance between the utility and pavement structural section subgrade to prevent damage by construction equipment. The Public Works Department recommends a minimum of 4.0 feet of cover in arterial roads and 3.0 feet elsewhere. If cover is less than 2.0 feet, a special design is required with approval by the Public Works Department.
6. Where the trench parallels curb and the nearest trench line is less than 3 feet from the gutter lip, all existing asphalt concrete shall be replaced to the gutter lip. For gutter lip paving detail see Detail "A".
7. Asphalt concrete shall be 1/2-inch Type A asphalt concrete unless otherwise specified in the encroachment permit's Special Road Encroachment Permit Conditions or as directed by the Public Works Department.
8. Slurry cement backfill shall comply with latest edition of Caltrans Standard Specifications.
9. This standard plan shall govern over encroachment permit's Standard Road Encroachment Permit Conditions, and General Permit Conditions - Attachment 1. Encroachment permit's Special Road Encroachment Permit Conditions shall govern over this standard plan.

M. Hussey

PUBLIC WORKS DIRECTOR
11/27/2002
PLANS APPROVAL DATE

PROFESSIONAL ENGINEER
MAURICE M. SHIU
No. 23204
Exp. 12/31/05
CIVIL
STATE OF CALIFORNIA

The County of Contra Costa or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

NO.	DATE	REVISION DESCRIPTION	BY

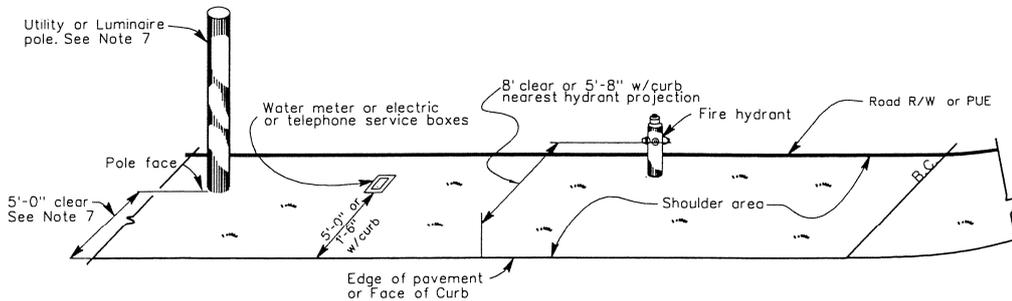
COUNTY OF CONTRA COSTA
PUBLIC WORKS DEPARTMENT
MARTINEZ, CALIFORNIA

STANDARD PLAN

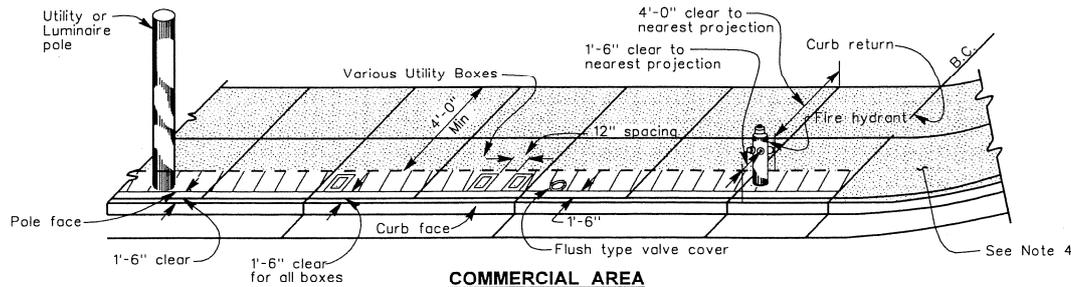
UTILITY TRENCH
CUT DETAILS

SCALE: NO SCALE	DATE: 7-02
DRAWN BY: H. HUSSEY	PLAN NO. CU01i
CHECKED BY: M. HOLLINGSWORTH	

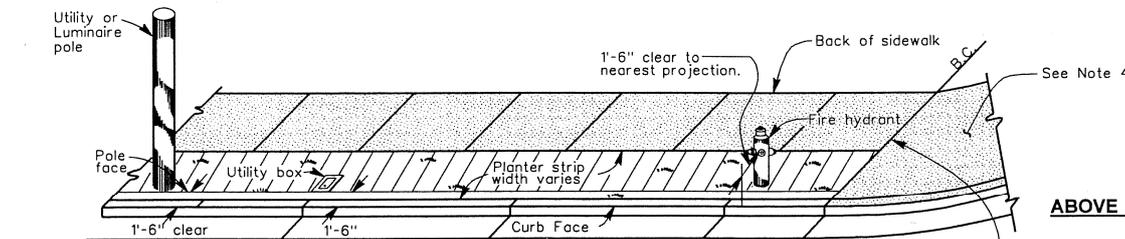
STD. PLAN CU01i



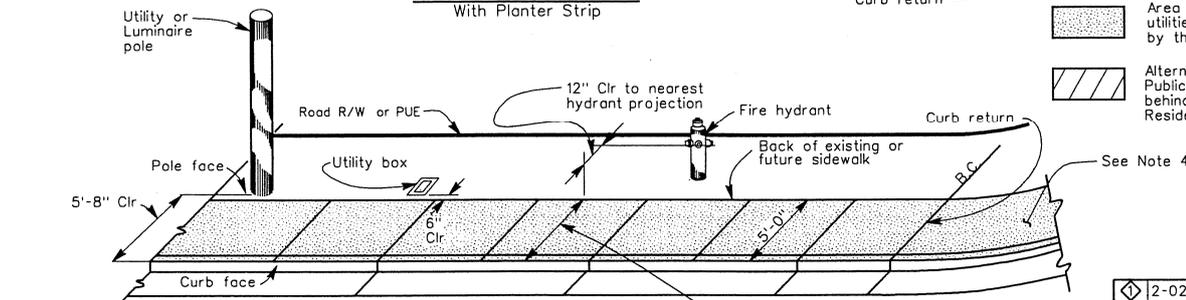
NON-SIDEWALK AREAS



COMMERCIAL AREA

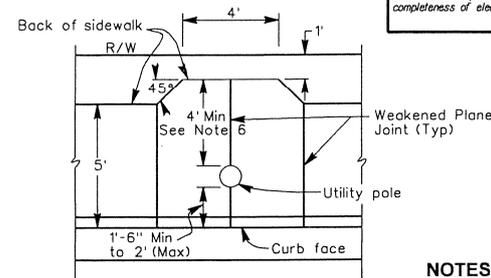


RESIDENTIAL AREA - 1
With Planter Strip



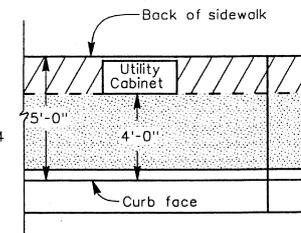
RESIDENTIAL AREA - 2
Sidewalk adjacent to curb

Sidewalk width varies with jurisdiction.



SIDEWALK IMPROVEMENTS

See Note 3



ABOVE GROUND UTILITY CABINET DETAIL

Area of sidewalk to remain clear of all utilities, including boxes, unless approved by the Public Works Department.

Alternate utility location as approved by the Public Works Department. Preferred location is behind the back of sidewalk as shown for Residential Area - 2.

R. Mitch Avalon
PUBLIC WORKS DIRECTOR
2-28-02
 PLANS APPROVAL DATE

PROFESSIONAL ENGINEER
 R. MITCH AVALON
 No. 31422
 Exp. 12/31/04
 CIVIL
 STATE OF CALIFORNIA

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NOTES:

- All distances shown are minimums established by the County. Any exceptions must be approved by the Public Works Department.
- Width of sidewalk and planter strip vary. See specific project plans for widths.
- Detail to be used when new sidewalk is installed and utility relocation is not possible, and approved by the Public Works Department.
- No utility boxes or above ground utilities shall be installed in the sidewalk area between the B.C. and E.C. of the curb return in either residential or commercial areas.
- Positioning of facilities along the street frontage is optional with the utility involved and may be adjusted as required to avoid driveways, lot development, and other utilities.
- With approval by the Public Works Department this dimension may be reduced to 3'.
- As rights of way allow, utility poles shall be set back as far from the roadway as possible. The minimum being 5' from edge of pavement, not traveled way. Locating poles and luminaire on the outside of curves shall be avoided whenever possible.

2-02	Supersedes Standard Plan CA60 dated 11-99	P.W.
NO.	DATE	REVISION DESCRIPTION

COUNTY OF CONTRA COSTA
 PUBLIC WORKS DEPARTMENT
 MARTINEZ, CALIFORNIA
 STANDARD PLAN

STANDARD UTILITY LOCATIONS

SCALE: NO SCALE DATE: 2-02
 DRAWN BY: H. HUSSEY PLAN NO. **CU60i**
 CHECKED BY: M. HOLLINGSWORTH