Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	1	53

ACHSSTP-P190(017)E

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY

IN INYO COUNTY
IN DEATH VALLEY NATIONAL PARK
ABOUT 11 MILES EAST OF PANAMINT SPRINGS
FROM 8.0 TO 8.6 MILES EAST OF
PANAMINT VALLEY ROAD

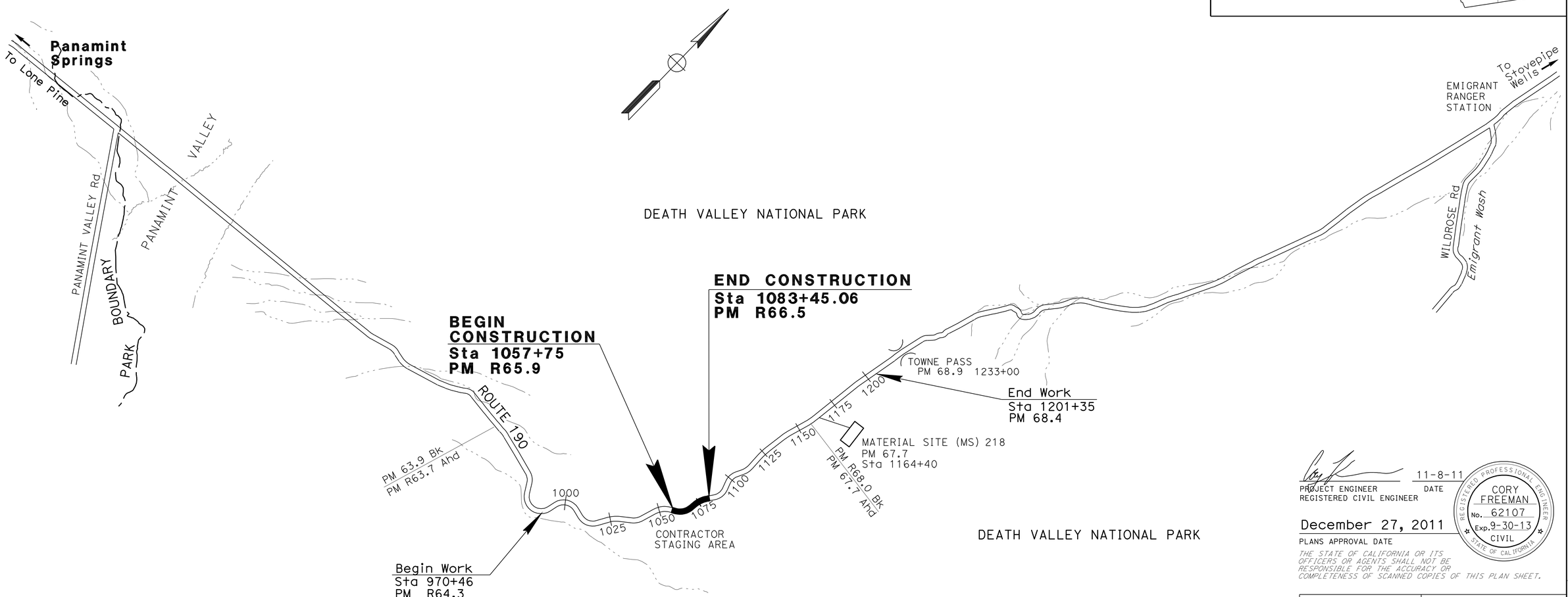
TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2-4	TYPICAL CROSS SECTIONS
5-7	LAYOUTS
8-9	PROFILE AND SUPERELEVATION DIAGRAMS
10-12	CONSTRUCTION DETAILS
13-15	TEMPORARY WATER POLLUTION CONTROL PLAN AND DETAILS
16-23	DRAINAGE PROFILES, DETAILS AND QUANTITIES
24-25	CONSTRUCTION AREA SIGNS
26-34	STAGE CONSTRUCTION PLANS, DETAILS AND QUANTITIES
35	PAVEMENT DELINEATION PLANS AND QUANTITIES
36	SUMMARY OF QUANTITIES
37-53	REVISED AND NEW STANDARD PLANS

THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

LOCATION MAP



NO SCALE

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

PROJECT MANAGER: CEDRIK ZEMITIS
DESIGN ENGINEER: CORY FREEMAN

11-8-11
PROJECT ENGINEER REGISTERED CIVIL ENGINEER — DATE

December 27, 2011
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

CONTRACT No.	09-287504
PROJECT ID	0900000045

LAST REVISION 11-09-11 — DATE PLOTTED => 10-APR-2012 TIME PLOTTED => 15:17

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	2	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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NOTES:

1. DIMENSIONS OF PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATIONS ARE SHOWN ON THE SUPERELEVATION DIAGRAMS.
3. EXACT LOCATIONS AND TYPES OF DIKES AND MBGR ARE SHOWN ON THE LAYOUTS AND IN THE SUMMARY OF QUANTITIES.
4. MATCH Exist CROSS SLOPE AT CONFORMS.

NEW STRUCTURAL SECTION:

		COMMENT
1	0.30′ HMA (TYPE A) 0.50′ Cl 3 AB	MAINLINE & SHOULDERS
2	0.30′ HMA (TYPE A) 3.0′ Cl 3 AB	MAINLINE
3	3.3′ Cl 3 AB	HP

EXISTING STRUCTURAL SECTION:

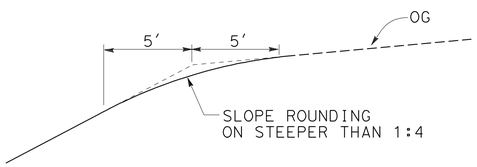
		COMMENT
A	0.30′ AC 0.50′ Cl 3 AB	MAINLINE & SHOULDERS
B	0.30′ AC 2.65′ Cl 3 AB IMPERVIOUS LINER 0.35′ Cl 3 AB	MAINLINE & SHOULDERS 1068+22.09 to 1072+68

ABBREVIATIONS:

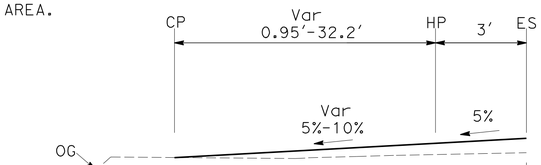
CP - CATCH POINT
OM - ORGANIC MATERIAL
TFESA - Temp FENCE ENVIRONMENTALLY SENSITIVE AREA.

DESIGN DESIGNATION

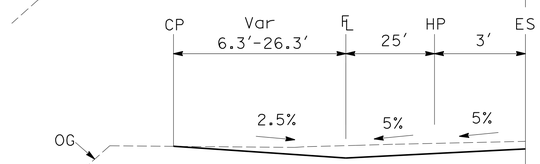
2014 AADT = 960 D = 77.14%
2034 AADT = 1270 T = 3.9%
DHV 2014 = 170 V = 55 mph
TI_{20} = 6.5



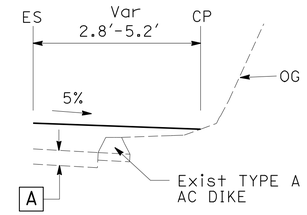
SLOPE ROUNDING DETAIL (TYPICAL)



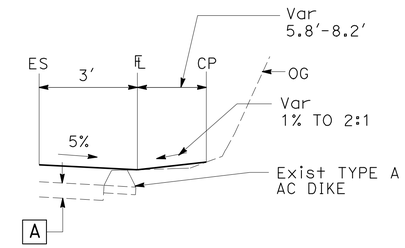
Sta 1061+00 TO 1062+05



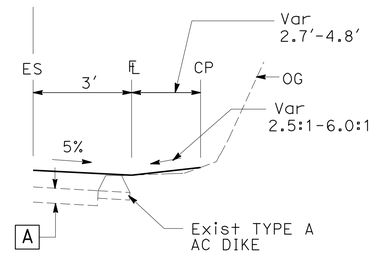
Sta 1058+25 TO 1061+00



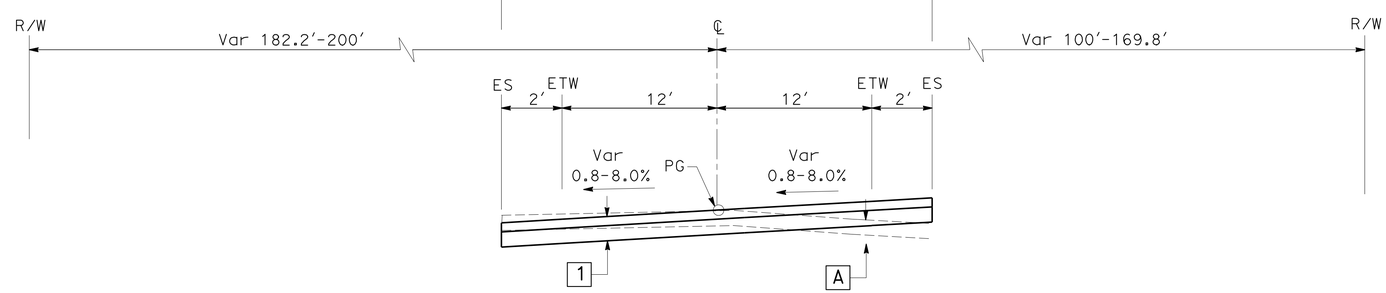
Sta 1059+75 TO 1060+75



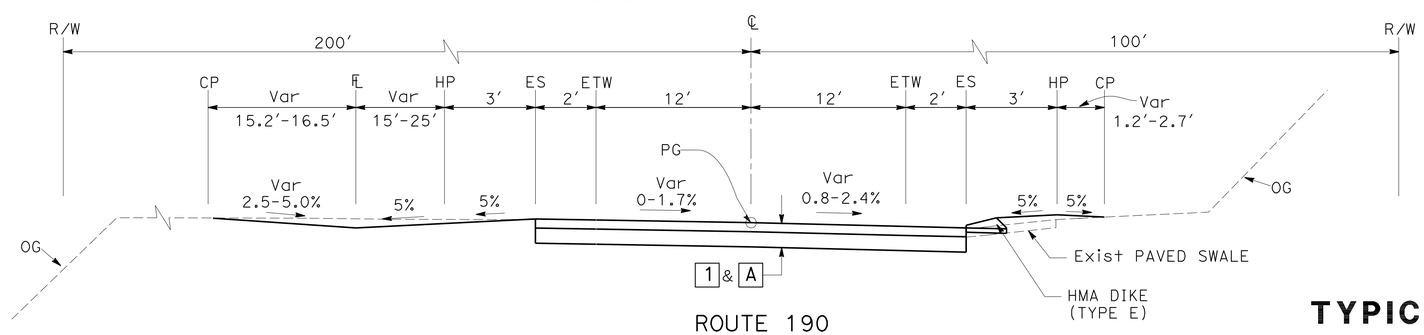
Sta 1060+75 TO 1062+05



Sta 1058+25 TO 1059+75



ROUTE 190
Sta 1058+25 TO 1062+05



ROUTE 190
Sta 1057+75 TO 1058+25

TYPICAL CROSS SECTIONS
NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING
CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: BRIAN WESLING
REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 12:52

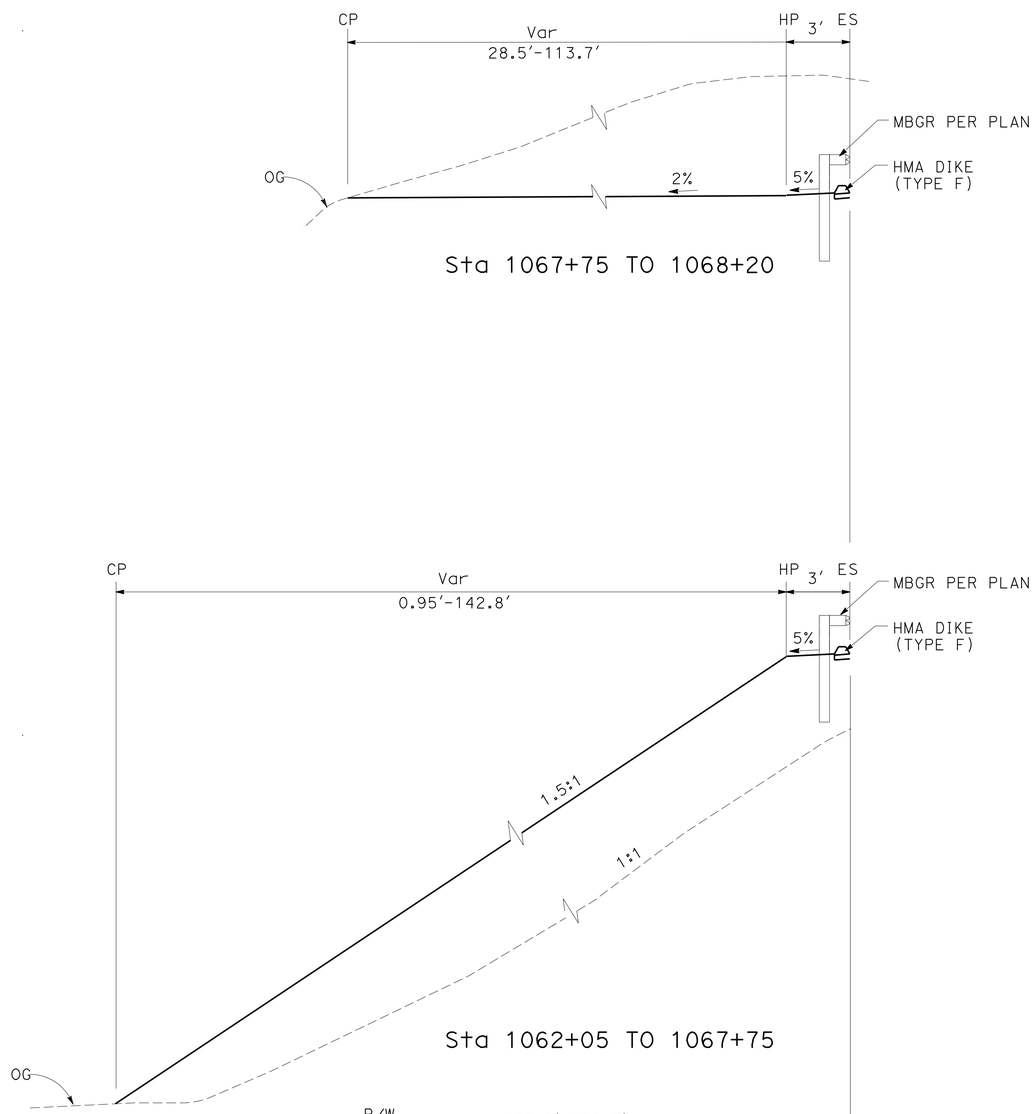
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	3	53

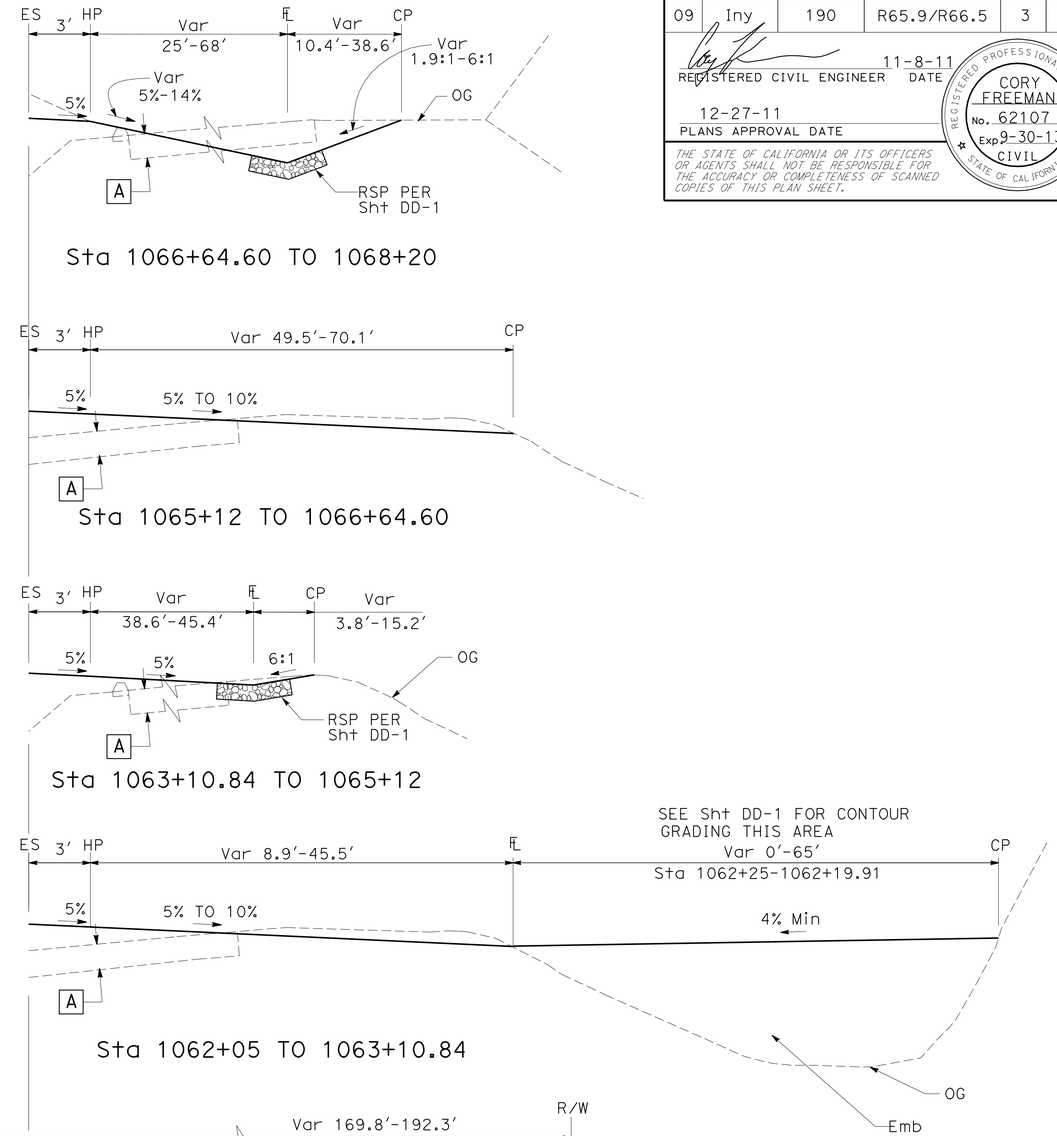
REGISTERED CIVIL ENGINEER 11-8-11 DATE

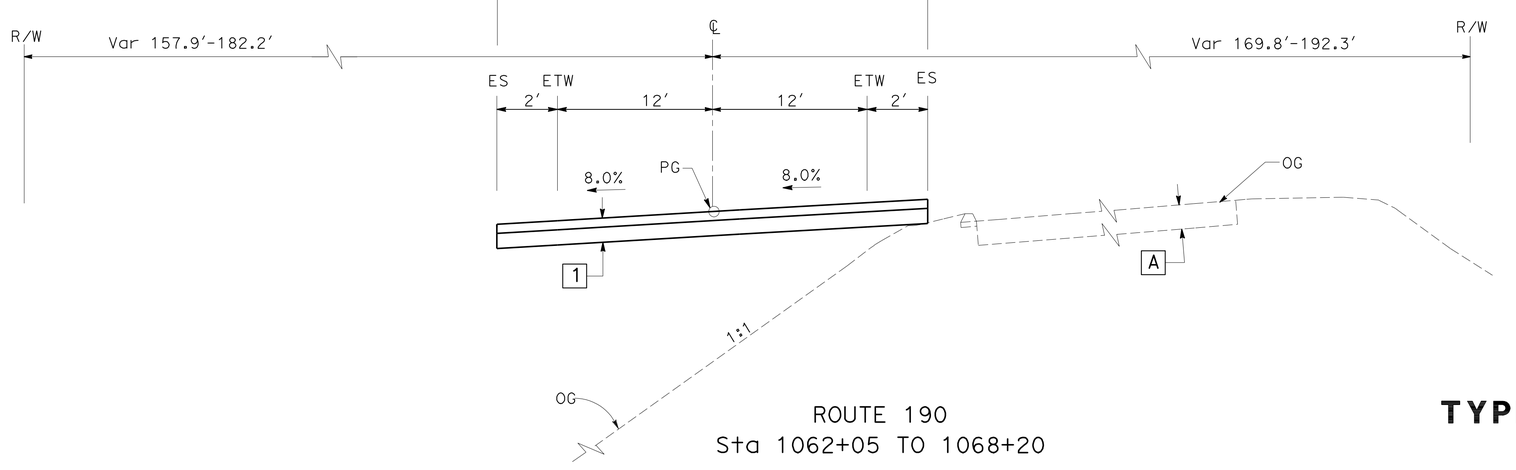
12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.







ROUTE 190
Sta 1062+05 TO 1068+20

TYPICAL CROSS SECTIONS X-2

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING
CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: BRIAN WESLING
REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 12:52

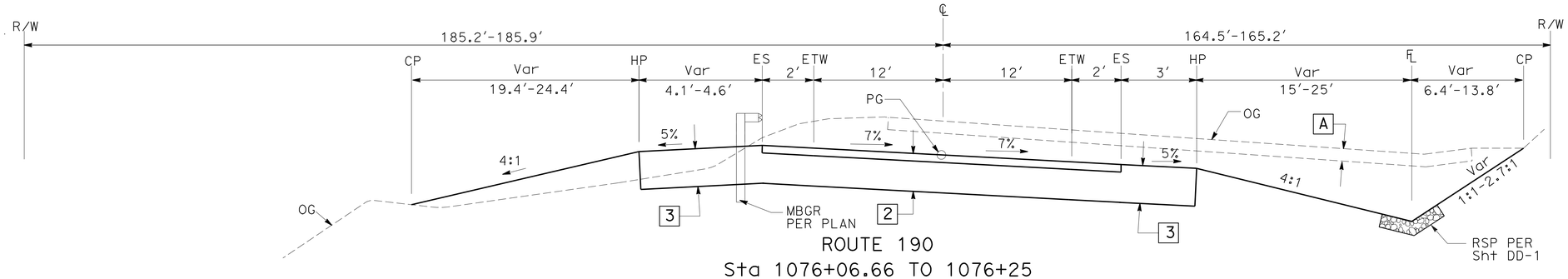
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	4	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

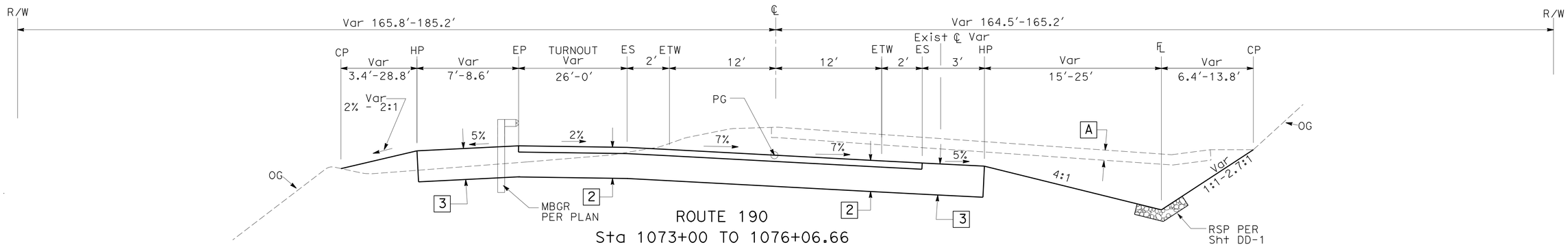
12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp 9-30-13 CIVIL STATE OF CALIFORNIA

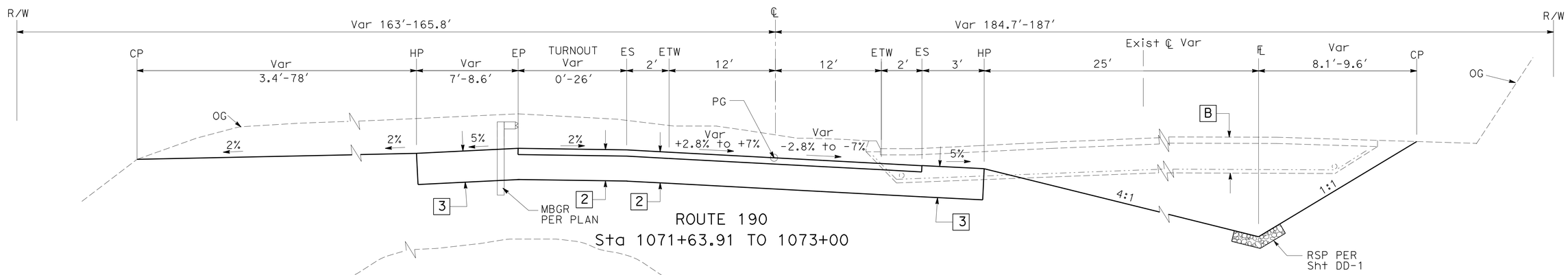
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



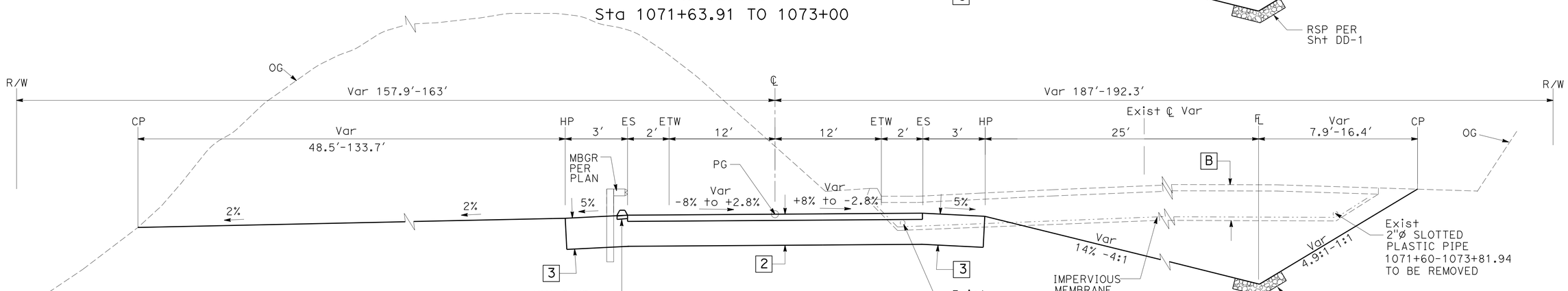
ROUTE 190
Sta 1076+06.66 TO 1076+25



ROUTE 190
Sta 1073+00 TO 1076+06.66



ROUTE 190
Sta 1071+63.91 TO 1073+00



ROUTE 190
Sta 1068+20 TO 1071+63.91

TYPICAL CROSS SECTIONS
NO SCALE

X-3

REVISED BY	DATE REVISED
CORY FREEMAN	BRIAN WESLING
CALCULATED-DESIGNED BY	CHECKED BY
FUNCTIONAL SUPERVISOR	BRIAN WESLING

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
DESIGN
Caltrans

LAST REVISION 11-09-11 | DATE PLOTTED => 28-DEC-2011 | TIME PLOTTED => 12:52

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	5	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp 9-30-13 CIVIL STATE OF CALIFORNIA

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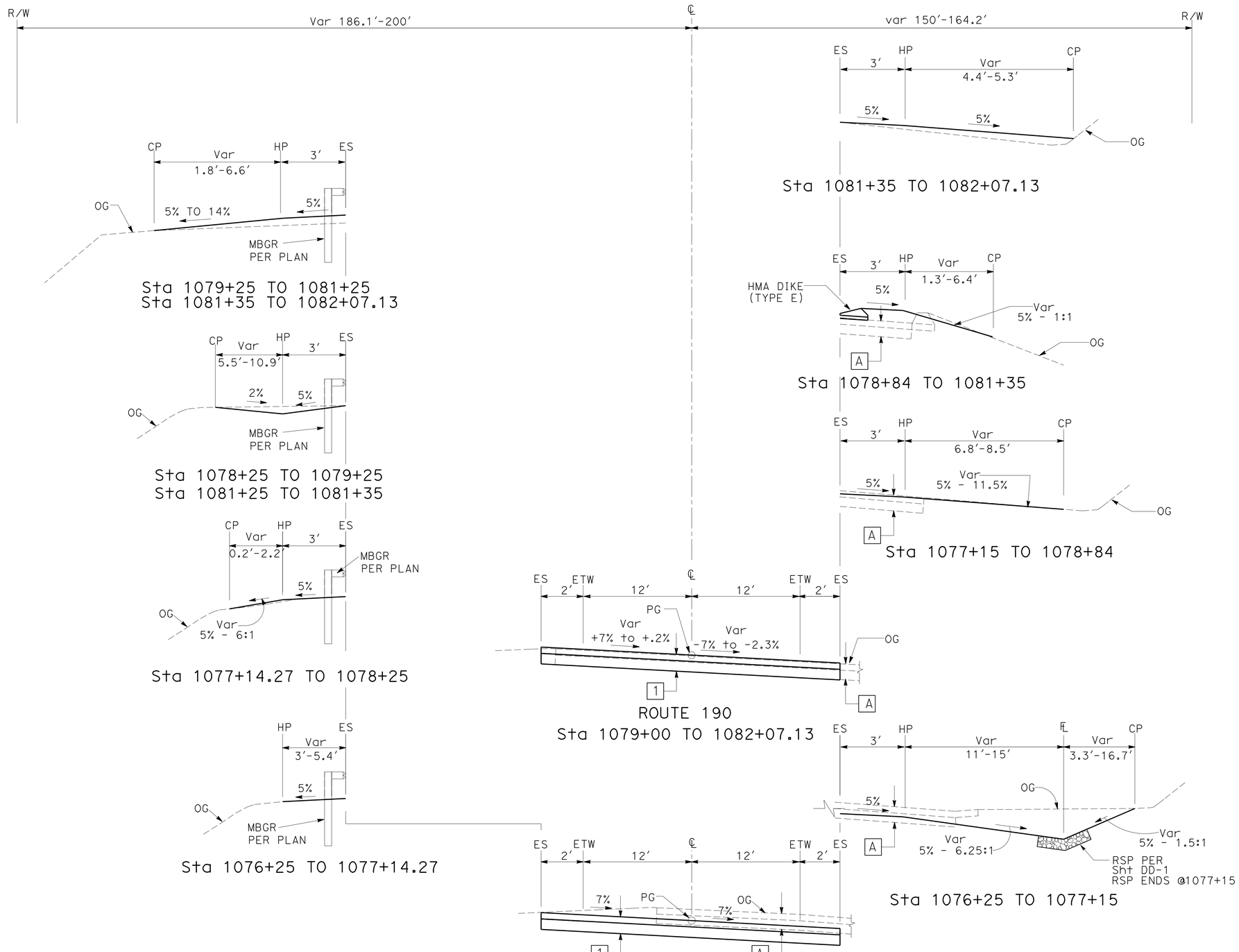

TYPICAL CROSS SECTIONS X-4

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING
CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: BRIAN WESLING
REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 12:52

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	6	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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NOTES:

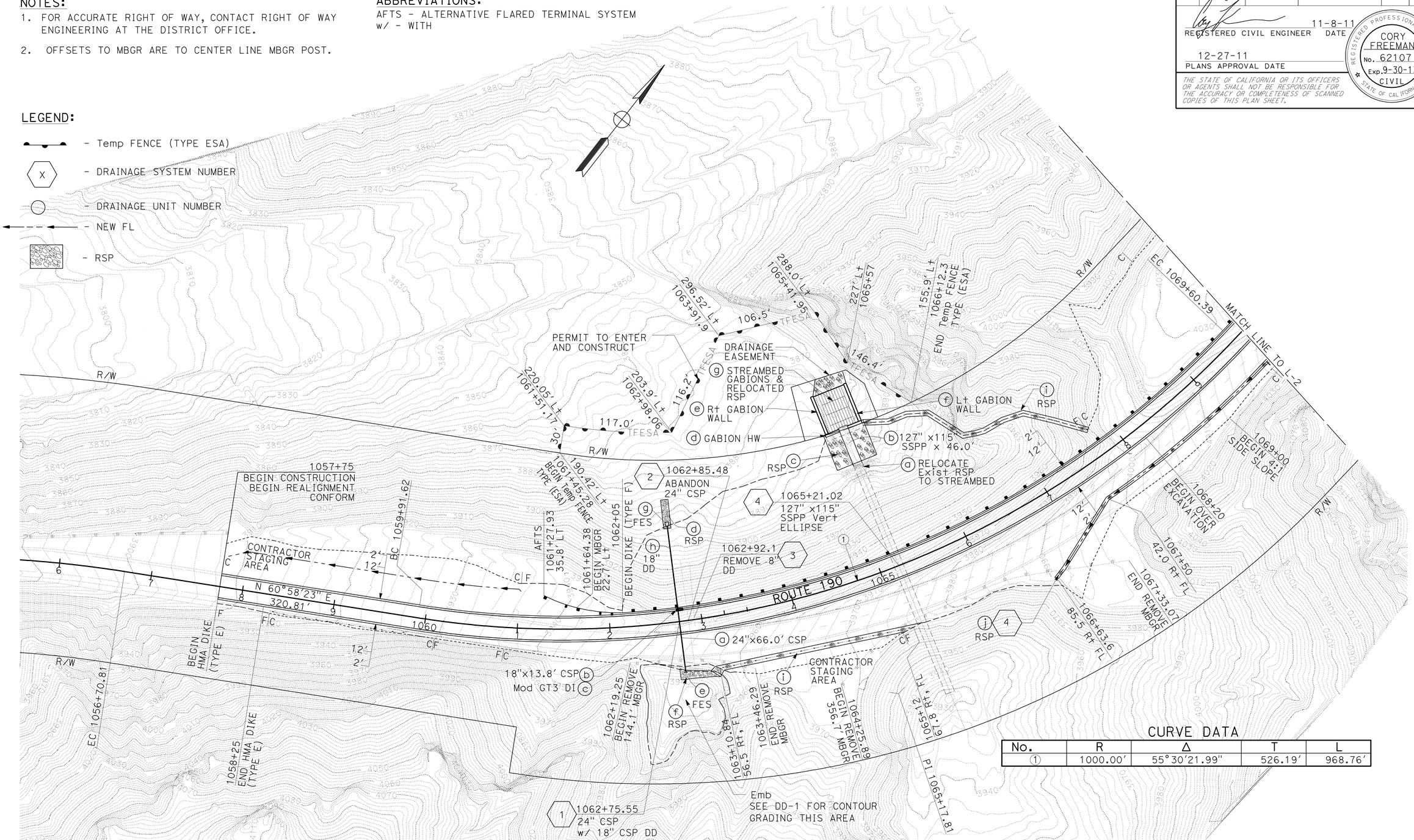
1. FOR ACCURATE RIGHT OF WAY, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. OFFSETS TO MBGR ARE TO CENTER LINE MBGR POST.

ABBREVIATIONS:

AFTS - ALTERNATIVE FLARED TERMINAL SYSTEM
w/ - WITH

LEGEND:

- Temp FENCE (TYPE ESA)
- X - DRAINAGE SYSTEM NUMBER
- DRAINAGE UNIT NUMBER
- NEW FL
- RSP



CURVE DATA				
No.	R	Δ	T	L
1	1000.00'	55°30'21.99"	526.19'	968.76'

LAYOUT

SCALE: 1" = 50'

L-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING
CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: ENRICO DE JESUS
REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 12:53

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	7	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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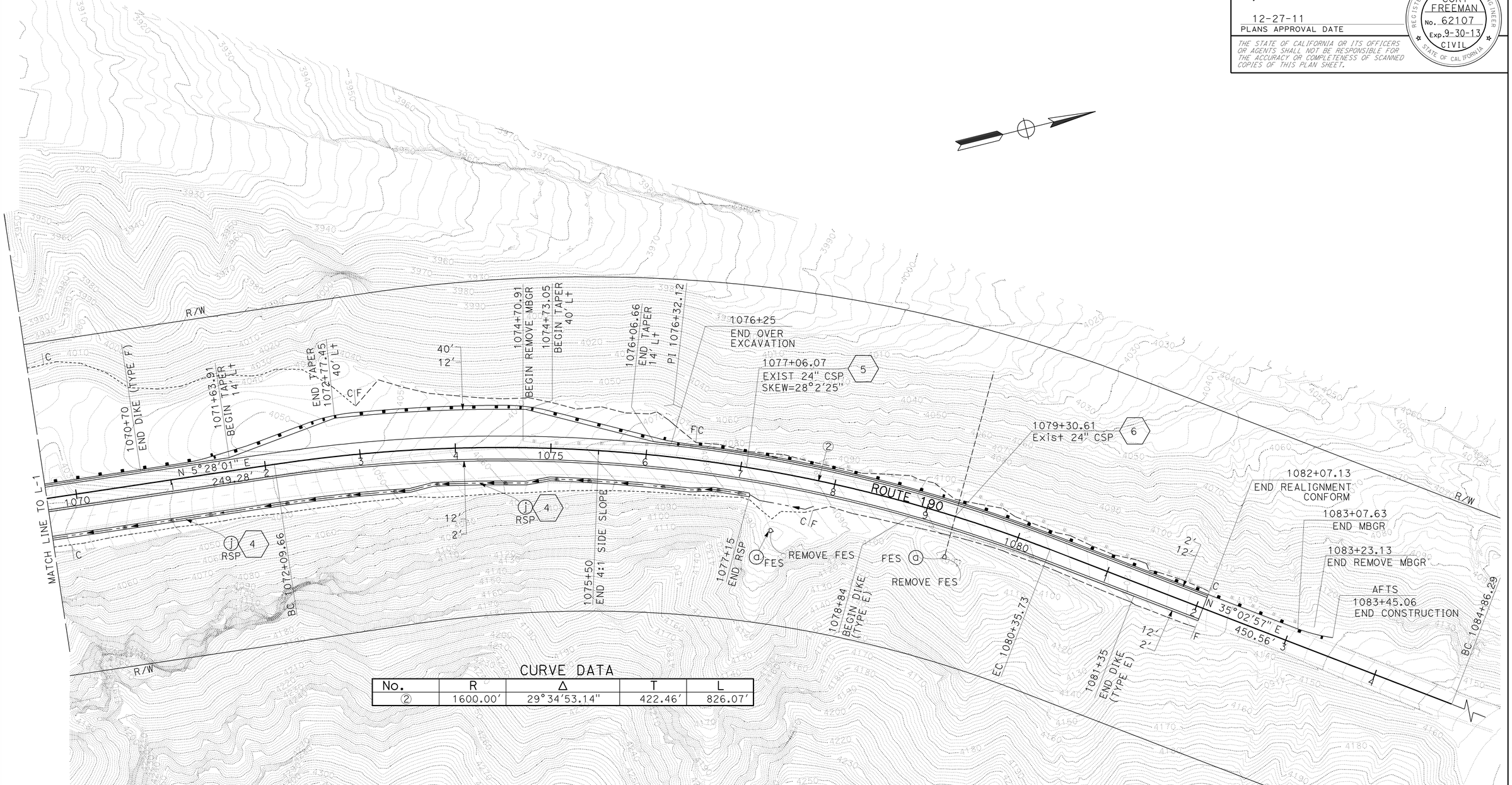
NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



CURVE DATA

No.	R	Δ	T	L
②	1600.00'	29°34'53.14"	422.46'	826.07'

LAYOUT

SCALE: 1" = 50'

L-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING

CALCULATED-DESIGNED BY: CORY FREEMAN

CHECKED BY: ENRICO DE JESUS

REVISED BY

DATE REVISED

LAST REVISION 11-09-11

DATE PLOTTED => 28-DEC-2011

TIME PLOTTED => 12:53

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	8	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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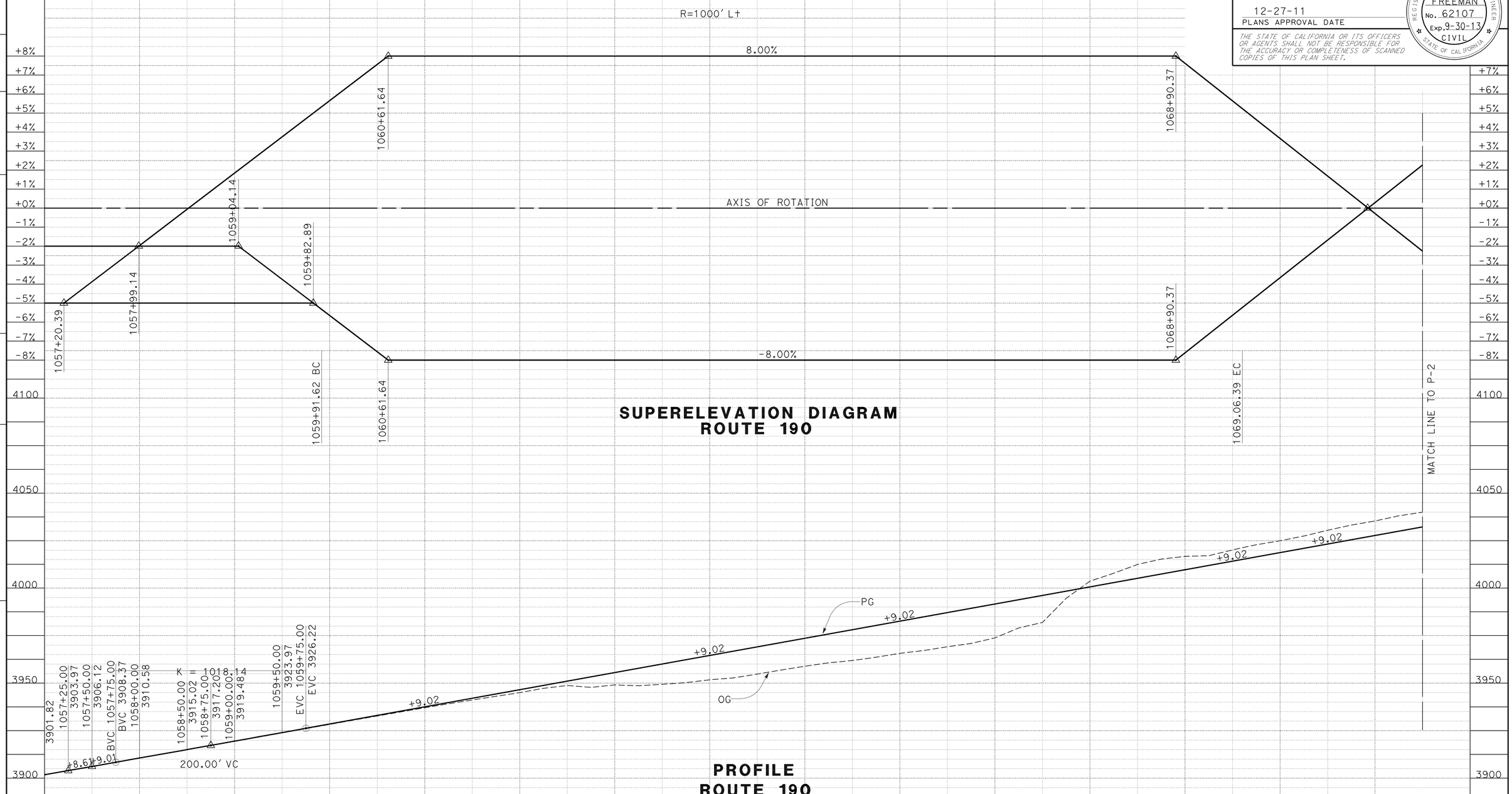
NOTE:
ALL ELEVATIONS ARE BASED ON NGVD88, ZONE 4.



SUPERELEVATION DIAGRAM
ROUTE 190

PROFILE
ROUTE 190

PROFILE AND SUPERELEVATION DIAGRAM

SCALE: Horiz 1" = 50'
Vert 1" = 25'

PS-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING
CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: BRIAN WESLING
REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 29-DEC-2011
TIME PLOTTED => 11:19

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	9	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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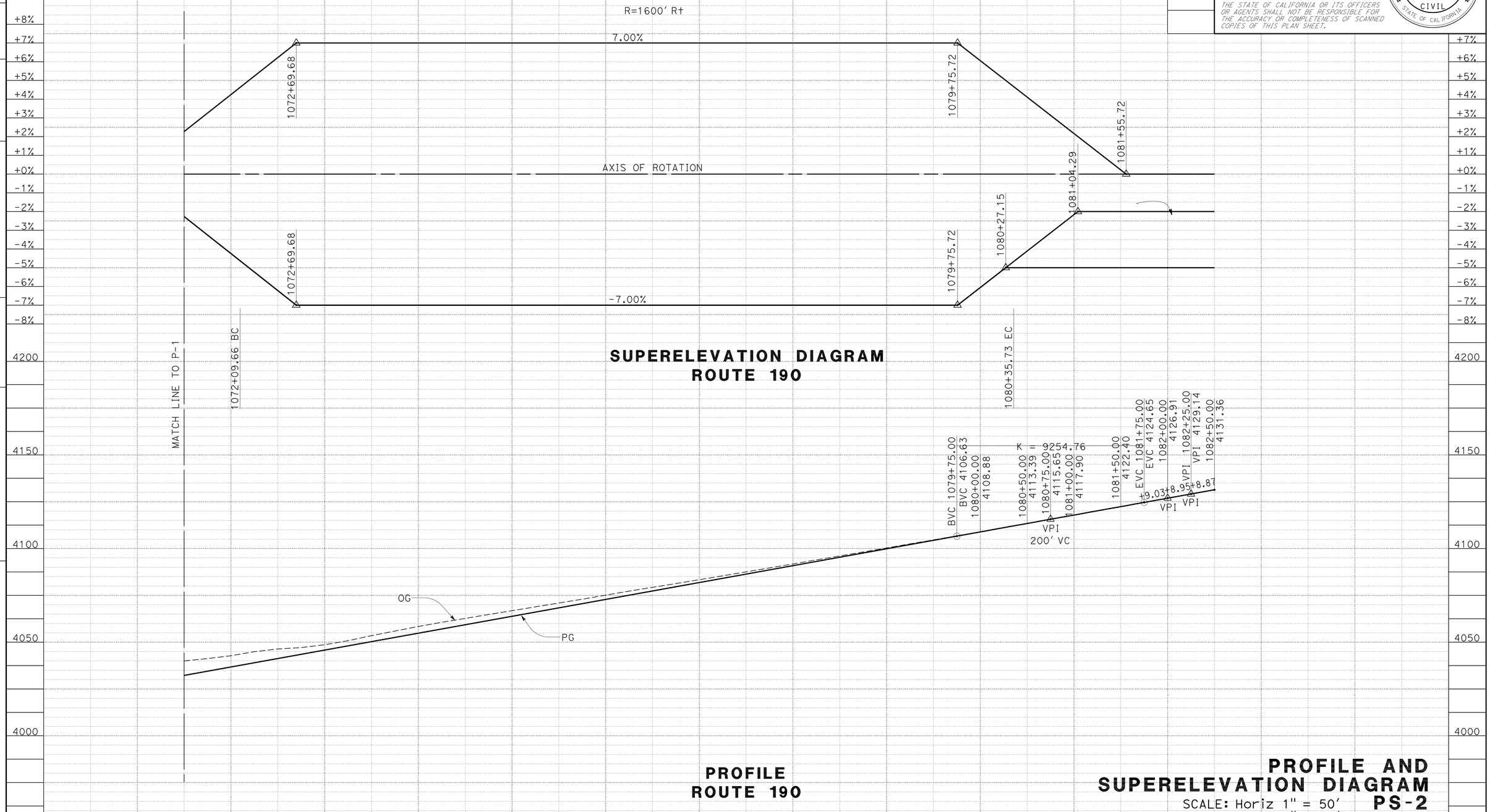


SUPERELEVATION DIAGRAM
ROUTE 190

PROFILE
ROUTE 190

PROFILE AND SUPERELEVATION DIAGRAM
SCALE: Horiz 1" = 50'
Vert 1" = 25'
PS-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING

CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: BRIAN WESLING

REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 12:53

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	10	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

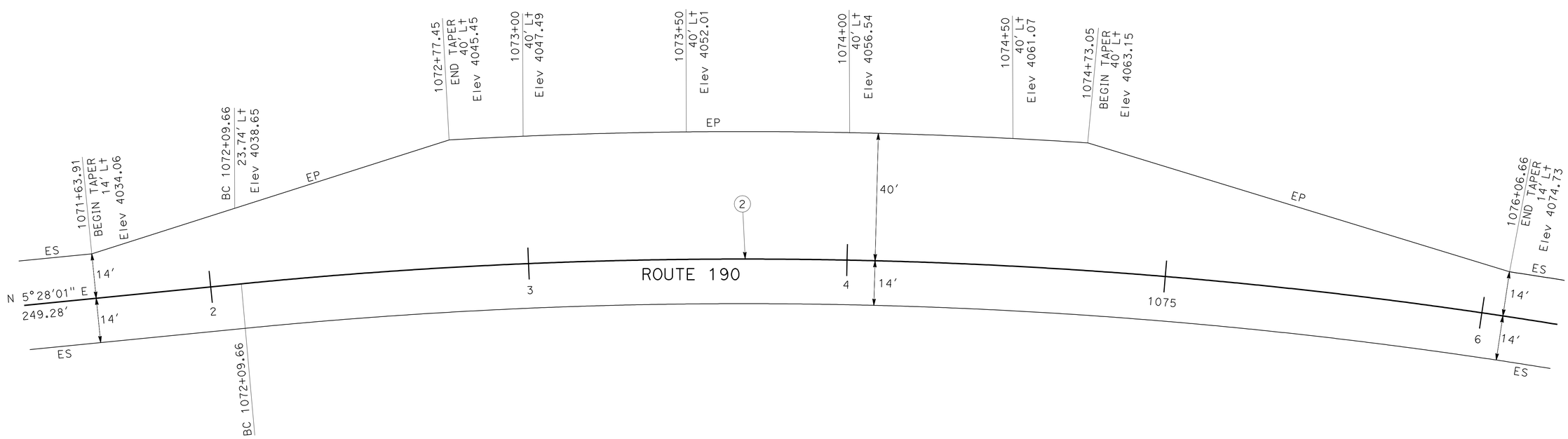
12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
CORY FREEMAN
No. 62107
Exp. 9-30-13
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTE:

1. HORIZONTAL & VERTICAL DATUMS USED NAD83 1991.35, NGVD88, zone 4



TURN OUT

CURVE DATA

No.	R	Δ	T	L
②	1600.00'	29°34'53.14"	422.46'	826.07'

CONSTRUCTION DETAILS

NO SCALE

C-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING

CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: BRIAN WESLING

REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 12:49

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	11	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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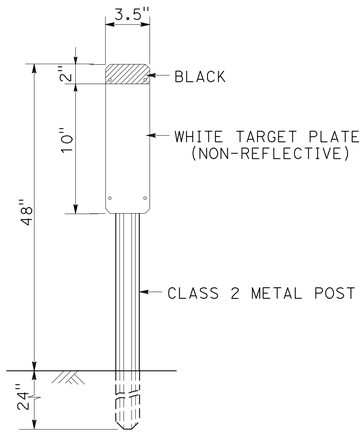
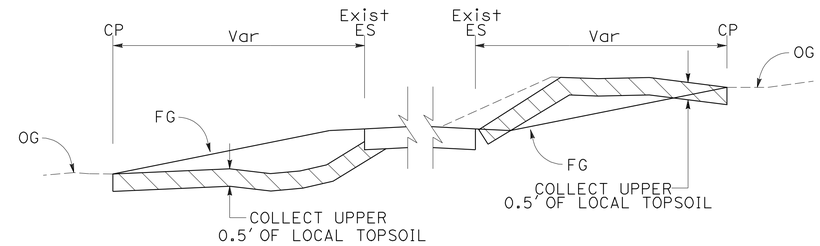
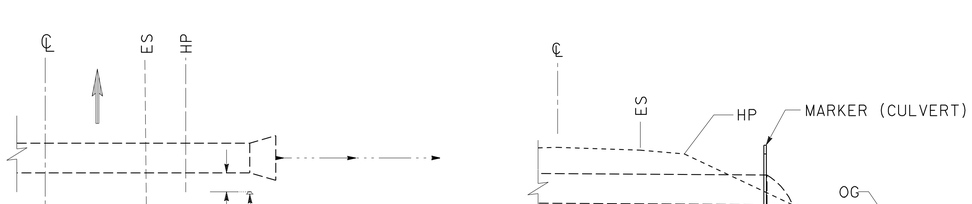


MARKER (CULVERT) PLATE AND POST DETAIL



Sta Lt 1062+05 TO Sta Lt 1073+00

LOCAL TOP SOIL DETAIL



TYPICAL MARKER (CULVERT) PLACEMENT

CONSTRUCTION DETAILS

NO SCALE

C-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING

CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: BRIAN WESLING

REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 12:49

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	12	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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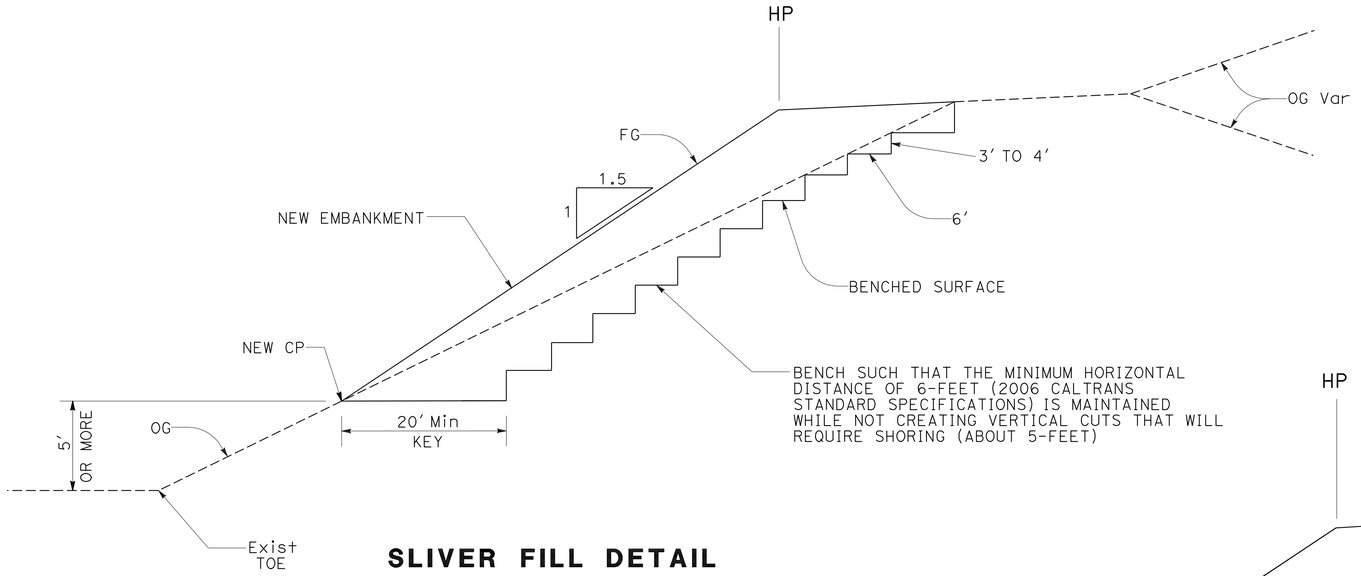
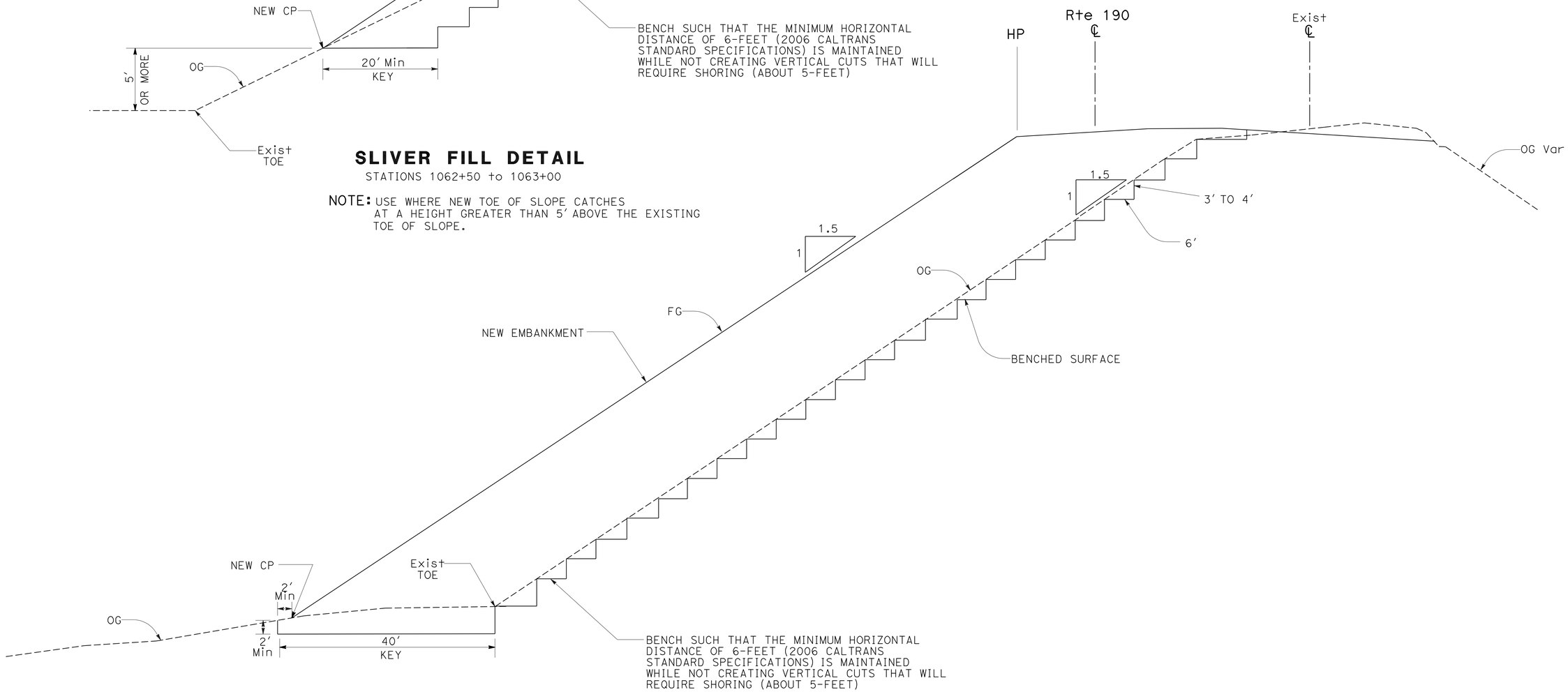


SLIVER FILL DETAIL

STATIONS 1062+50 to 1063+00

NOTE: USE WHERE NEW TOE OF SLOPE CATCHES AT A HEIGHT GREATER THAN 5' ABOVE THE EXISTING TOE OF SLOPE.



NOTE: THIS DETAIL IS APPLICABLE WHERE CP CATCHES AT A HEIGHT OF 5' OR LESS ABOVE THE EXISTING TOE OF SLOPE

TYPICAL EMBANKMENT DETAIL

STATIONS 1063+00 to 1066+25
STATIONS 1067+25 to 1067+50

CONSTRUCTION DETAILS

NO SCALE

C-3

REVISED BY	DATE REVISED
CORY FREEMAN	BRIAN WESLING
CALCULATED-DESIGNED BY	CHECKED BY
FUNCTIONAL SUPERVISOR	BRIAN WESLING

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

LAST REVISION 11-09-11 | DATE PLOTTED => 28-DEC-2011 | TIME PLOTTED => 12:49

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	13	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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NOTE:

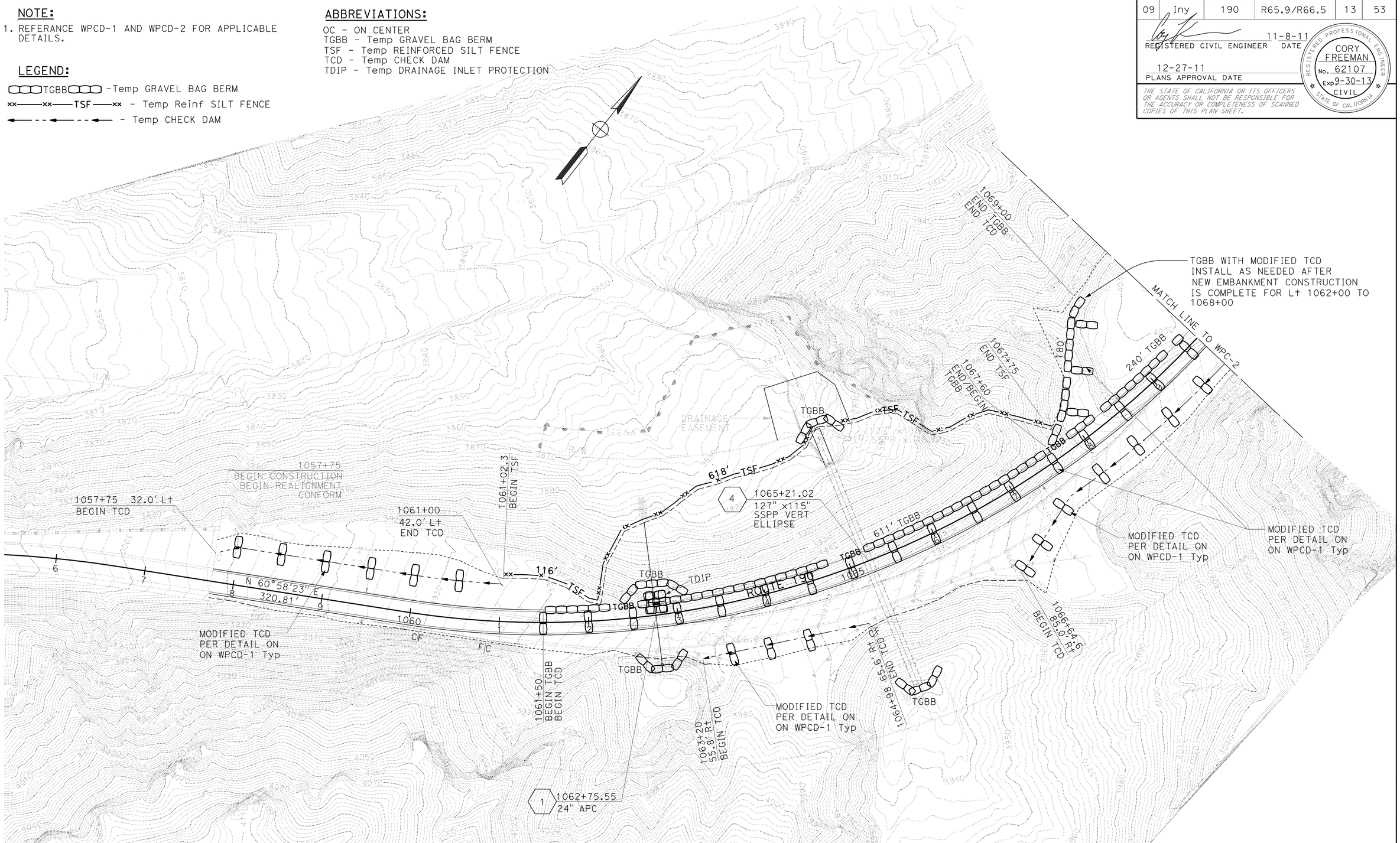
1. REFERANCE WPCD-1 AND WPCD-2 FOR APPLICABLE DETAILS.

ABBREVIATIONS:

OC - ON CENTER
TGBB - Temp GRAVEL BAG BERM
TSF - Temp REINFORCED SILT FENCE
TCD - Temp CHECK DAM
TDIP - Temp DRAINAGE INLET PROTECTION

LEGEND:

TGBB - Temp GRAVEL BAG BERM
TSF - Temp Reinf SILT FENCE
- Temp CHECK DAM



TEMPORARY WATER POLLUTION CONTROL PLAN

SCALE: 1" = 50'

WPC-1

THIS PLAN ACCURATE FOR TEMPORARY WATER POLLUTION CONTROL WORK ONLY.

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FUNCTIONAL SUPERVISOR: BRIAN WESLING
CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: CORY FREEMAN
REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 29-DEC-2011
TIME PLOTTED => 11:19

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	14	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
CORY FREEMAN
No. 62107
Exp. 9-30-13
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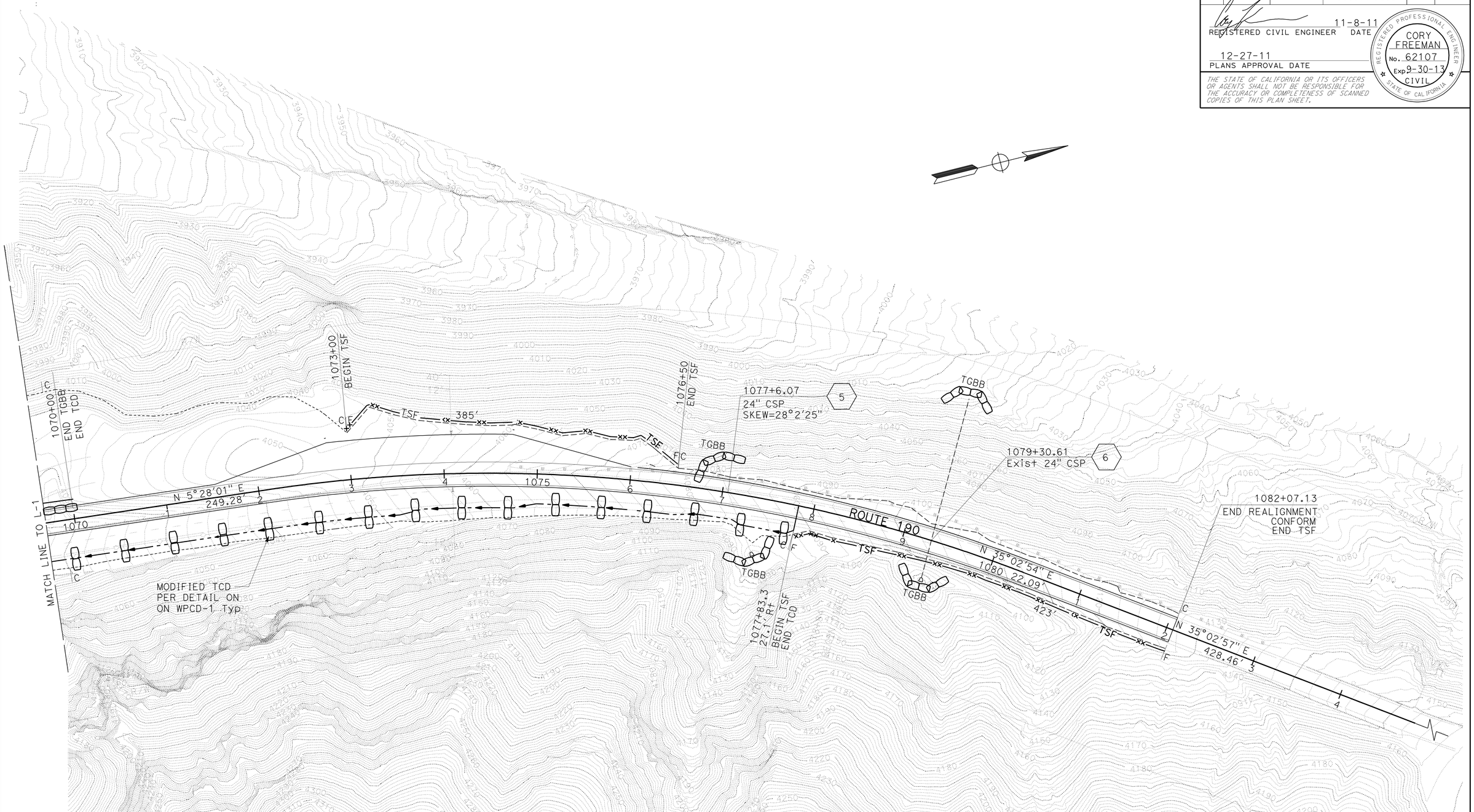

WATER POLLUTION CONTROL PLAN

SCALE: 1" = 50'

WPC-2

THIS PLAN ACCURATE FOR TEMPORARY WATER POLLUTION CONTROL WORK ONLY.

REVISED BY | DATE REVISED

CORY FREEMAN | CALCULATED-DESIGNED BY

ENRICO DE JESUS | CHECKED BY

FUNCTIONAL SUPERVISOR

BRIAN WESLING

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

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11-09-11 | TIME PLOTTED => 11:19

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	15	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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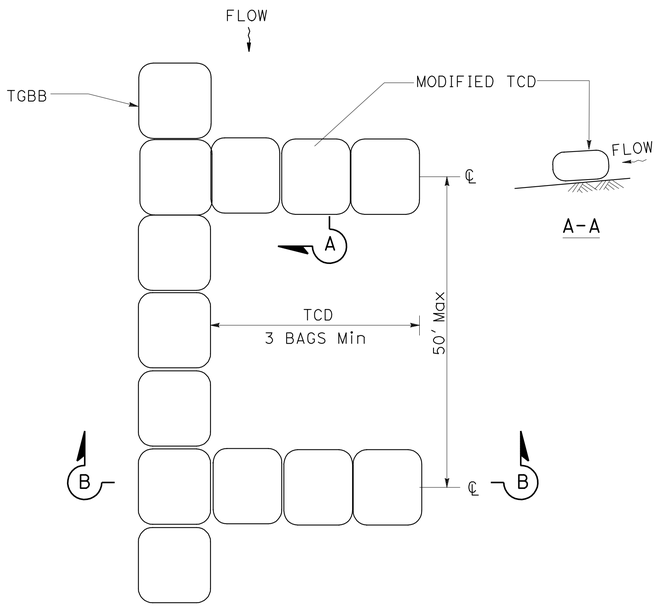
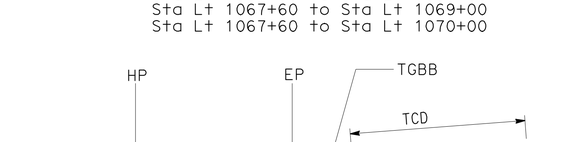
ABBREVIATIONS:

TGBB - TEMPORARY GRAVEL BAG BERM
TCD - TEMPORARY CHECK DAM



Typ PLAN VIEW OF TGBB WITH MODIFIED TCD
STAGE I AND II CONSTRUCTION

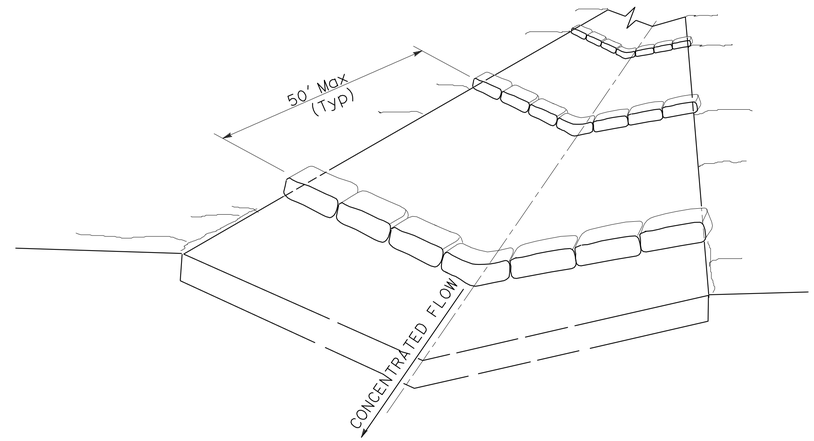
Sta Lt 1061+50 to Sta Lt 1067+60
Sta Lt 1067+60 to Sta Lt 1069+00
Sta Lt 1067+60 to Sta Lt 1070+00



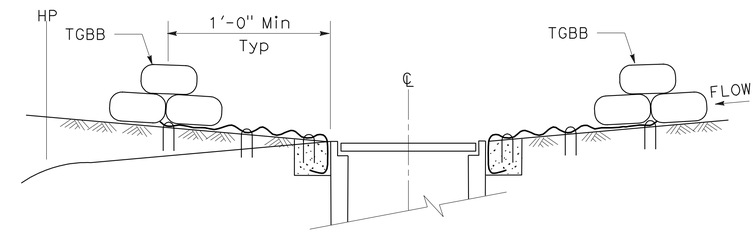
B-B

TYPICAL TGBB DETAIL AT LARGE EMBANKMENT
STAGE I AND II CONSTRUCTION

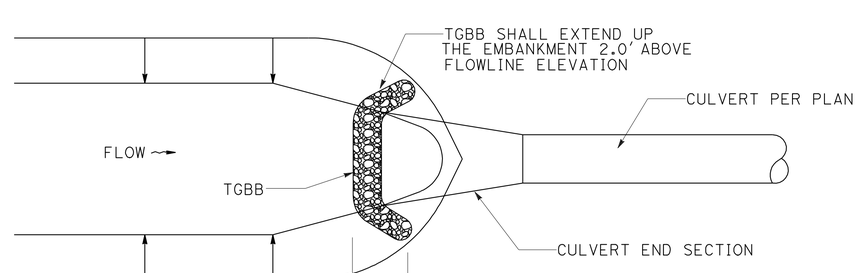
DETAIL SHOWS STAGE 1 CONDITION BETWEEN Sta Lt 1061+50 to Lt 1068+00
OTHER LOCATIONS ARE SIMILAR.



PERSPECTIVE
TEMPORARY CHECK DAM (TYPE 2)
(TOTAL OF 3 CHECK DAMS SHOWN)
SEE T57 FOR ADDITIONAL INFO NOT SHOWN

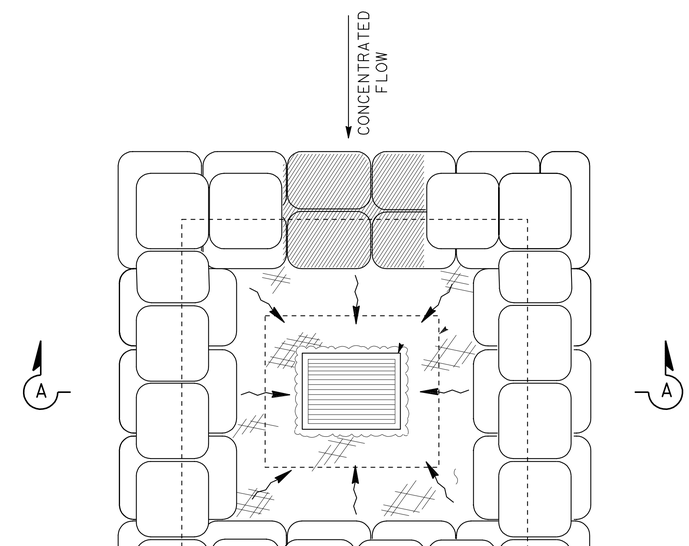


SECTION A-A



TYPICAL CULVERT INLET/OUTLET PROTECTION

INLET SHOWN; OUTLET SIMILAR



PLAN

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 3B)

FOR STAGE I AND II CONSTRUCTION
SEE T62 FOR ADDITIONAL INFO NOT SHOWN

TGBB NOTES:

1. CONSTRUCT TGBB BY TIGHTLY ABUTTING GRAVEL-FILLED BAGS TO ELIMINATE GAPS AND VOIDS.
2. ADD ADDITIONAL TGBB TO INCREASE HEIGHT AS DIRECTED BY THE ENGINEER, STAGGERING JOINTS

WATER POLLUTION CONTROL DETAILS

NO SCALE

WPCD-1

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CALCULATED-DESIGNED BY: CORY FREEMAN
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LAST REVISION 11-09-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 12:50

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	16	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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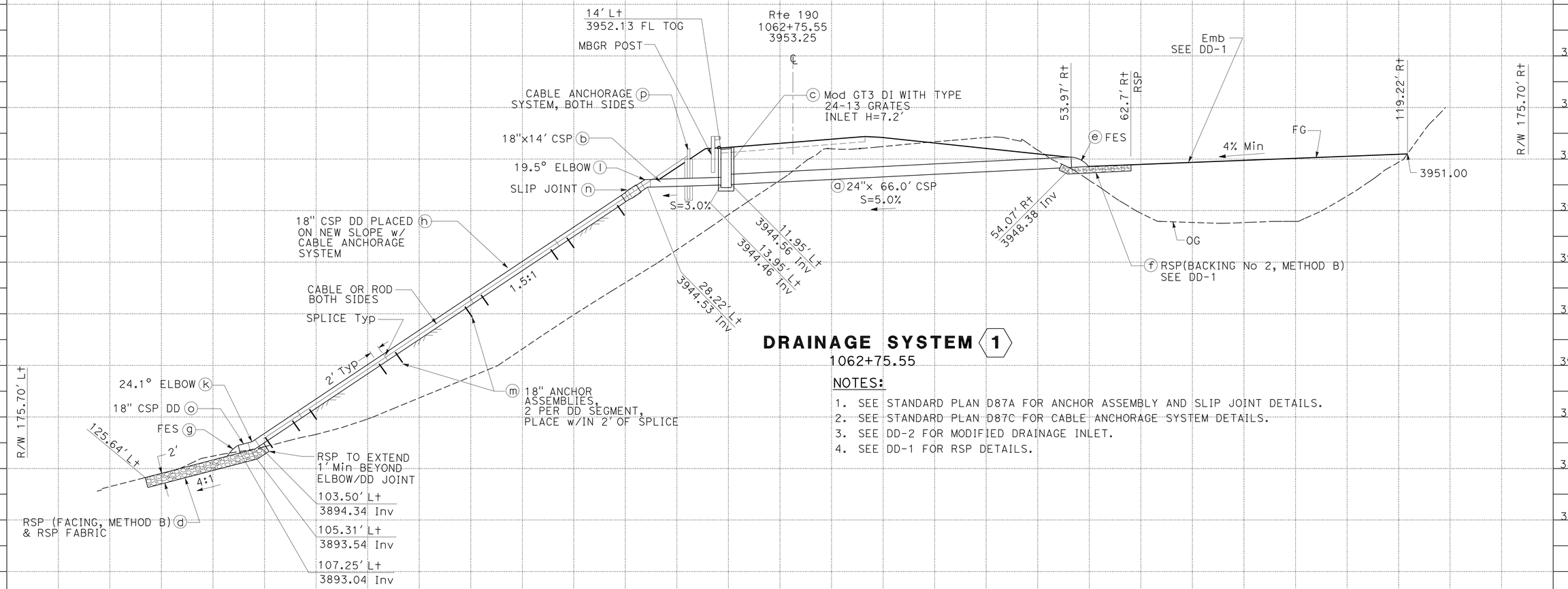
NOTES:

1. ALL STATION, OFFSETS, AND CORRESPONDING SHOWN LEADER LINES ARE TO THE CENTER OF BOX (COB) OR FLOW LINE AT CURB (FLC) UNLESS OTHERWISE SHOWN.
2. ALL DRAINAGE STRUCTUES ARE RADIAL TO THE REFERENCED ALIGNMENT UNLESS OTHERWISE SHOWN.

ABBREVIATION:

OC - ON CENTER
w/ - WITH
TOG - TOP OF GRATE



DRAINAGE SYSTEM (1)

1062+75.55

NOTES:

1. SEE STANDARD PLAN D87A FOR ANCHOR ASSEMBLY AND SLIP JOINT DETAILS.
2. SEE STANDARD PLAN D87C FOR CABLE ANCHORAGE SYSTEM DETAILS.
3. SEE DD-2 FOR MODIFIED DRAINAGE INLET.
4. SEE DD-1 FOR RSP DETAILS.

DRAINAGE PROFILE

SCALE: Horiz 1" = 10'
Vert 1" = 10'

DP-1

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FUNCTIONAL SUPERVISOR: BRIAN WESLING

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	17	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
CORY FREEMAN
No. 62107
Exp. 9-30-13
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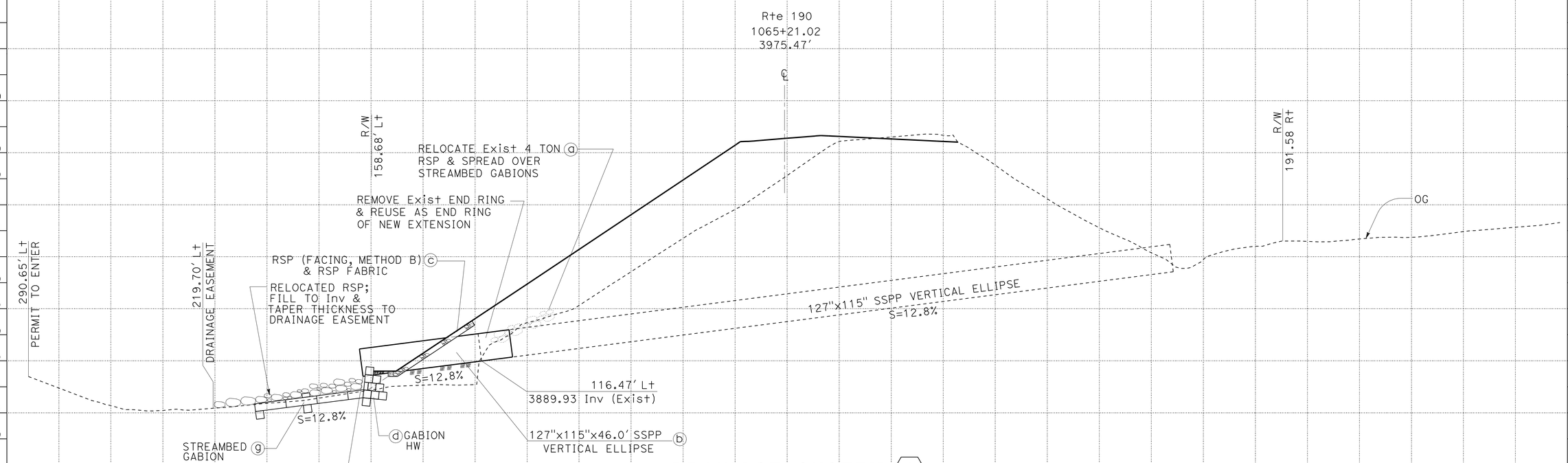

DRAINAGE SYSTEM (4)

1065+21.02

NOTES:

1. SEE DRAINAGE DETAIL SHEET DD-3 AND DD-4 FOR GABION DETAILS.
2. REMOVE EXISTING END RING PLATES TO ACHIEVE TWO FOOT STAGGER WITH NEW PLATES FOR EXTENSION. REUSE EXISTING END RING PLATES AT OUTLET END OF NEW EXTENSION.
3. THE EXISTING & NEW SSPP IS A VERTICAL ELLIPSE & NOT A ROUND SHAPE. THE VERTICAL AXIS IS 5% LONGER THAN THE HORIZONTAL AXIS.

DRAINAGE PROFILE

SCALE: Horiz 1" = 20'
Vert 1" = 20'

DP-2

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DESIGN
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	18	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

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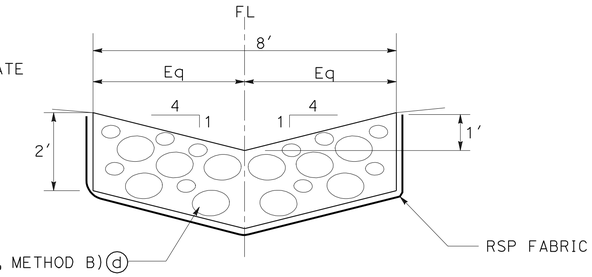
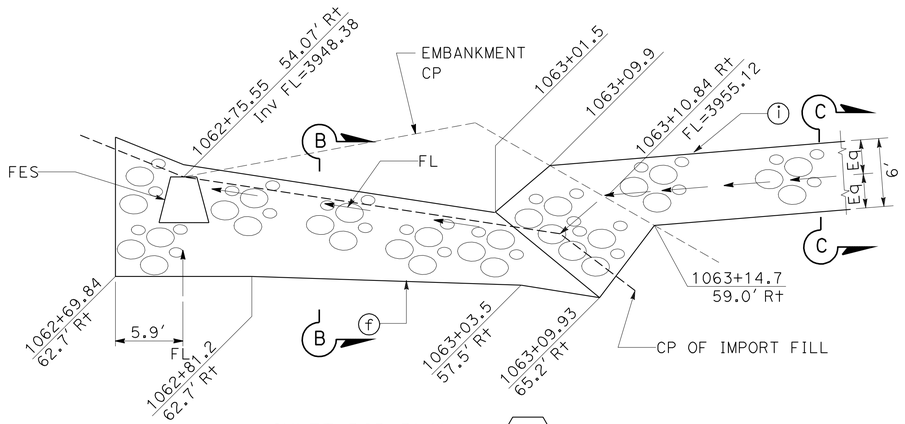
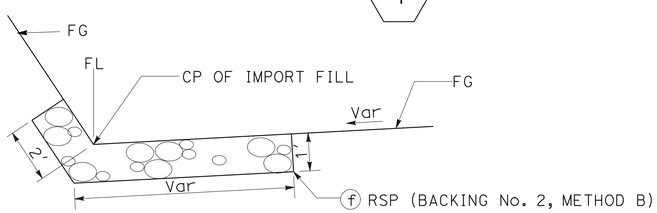
ABREVIATIONS
TOG - TOP OF GRATE
OC - ON CENTER
Eq - Equal
w/ - WITH



OUTLET RSP SECTION (1) (d)

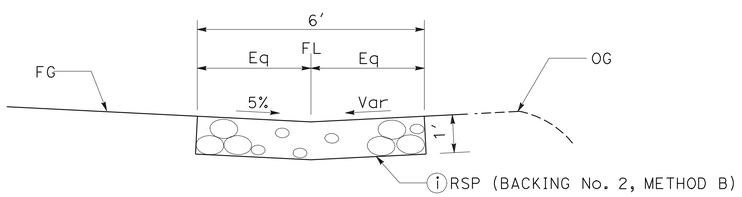


INLET RSP PLAN (1)



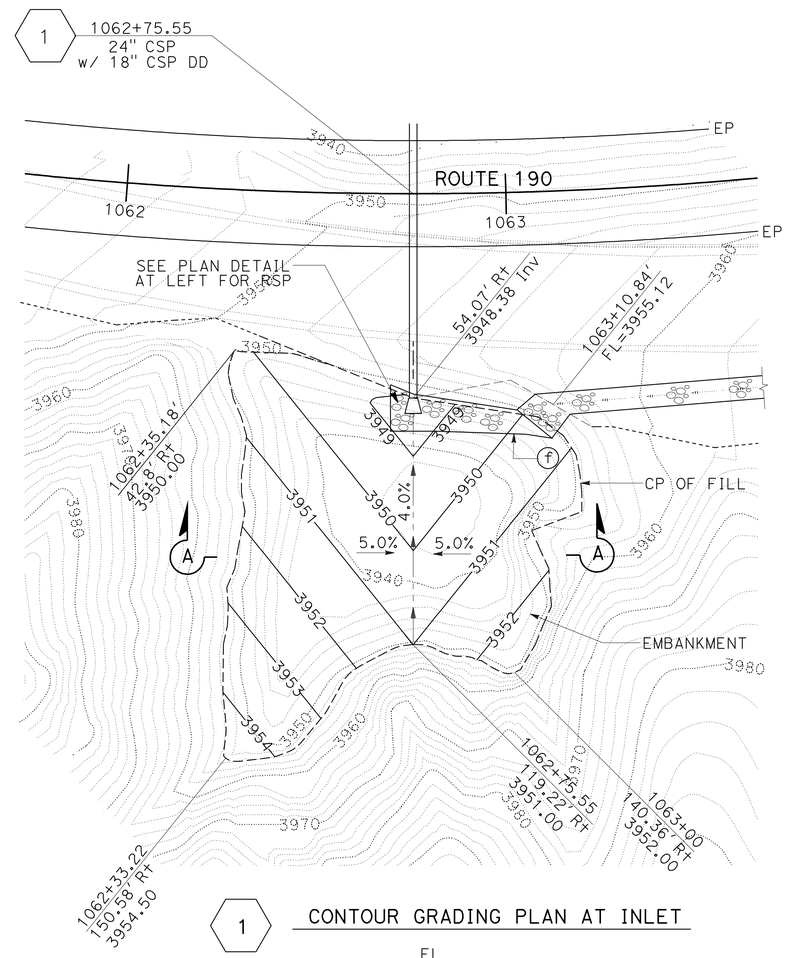
STA 1062+69.84 TO STA 1063+09.93

B-B
RSP
(1) (f)

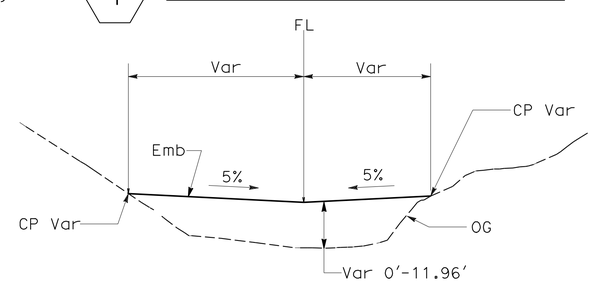


STA 1063+10.84 TO STA 1065+12

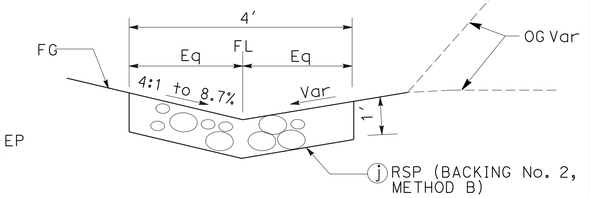
C-C
RSP
(1) (i)



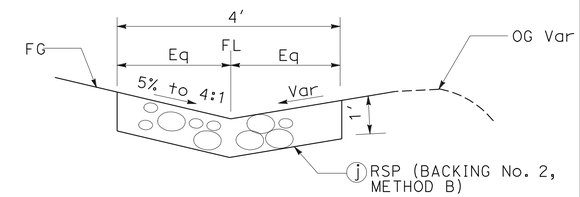
(1) CONTOUR GRADING PLAN AT INLET



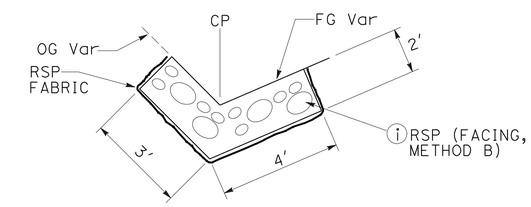
A-A
INLET EMBANKMENT
CROSS SECTION
(1)



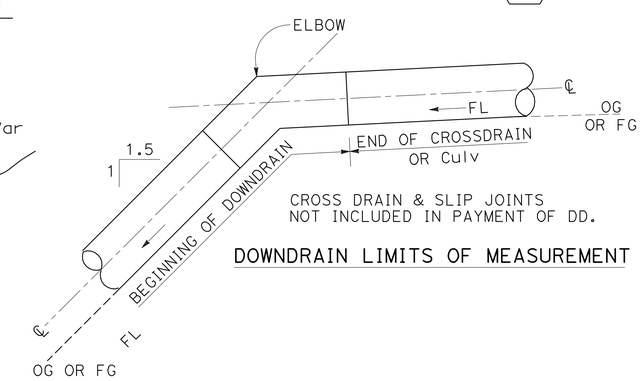
RSP SECTION ALONG FL (4) (j)
STA 1069+00 TO STA 1077+15



RSP SECTION ALONG FL (4) (j)
STA 1063+63.60 TO STA 1069+00



RSP SECTION
NEW EMBANKMENT & Exist (4) (i)



CROSS DRAIN & SLIP JOINTS
NOT INCLUDED IN PAYMENT OF DD.

DOWNDRAIN LIMITS OF MEASUREMENT

DRAINAGE SYSTEM No. (1) (d) (f) (i)

DRAINAGE SYSTEM No. (4) (i) (j)

DRAINAGE DETAIL
NO SCALE **DD-1**

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Caltrans® **DESIGN**

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CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: BRIAN WESLING
REVISED BY
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LAST REVISION 11-09-11
DATE PLOTTED => 07-FEB-2012
TIME PLOTTED => 14:31

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	19	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

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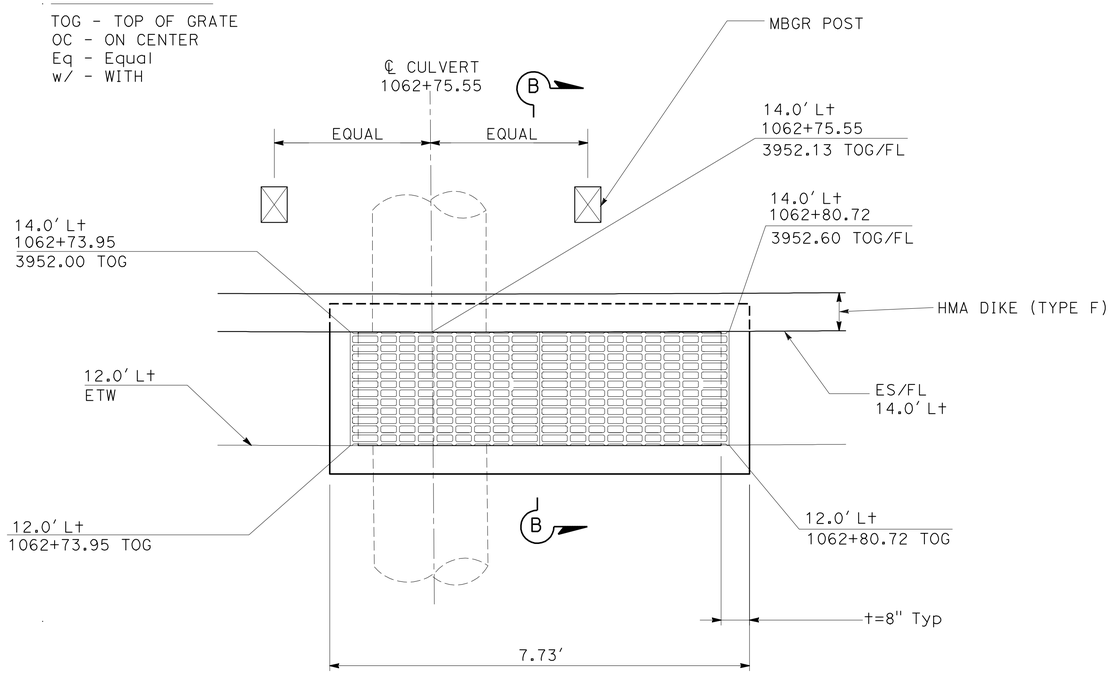
ABREVIATIONS:

TOG - TOP OF GRATE
OC - ON CENTER
Eq - Equal
w/ - WITH



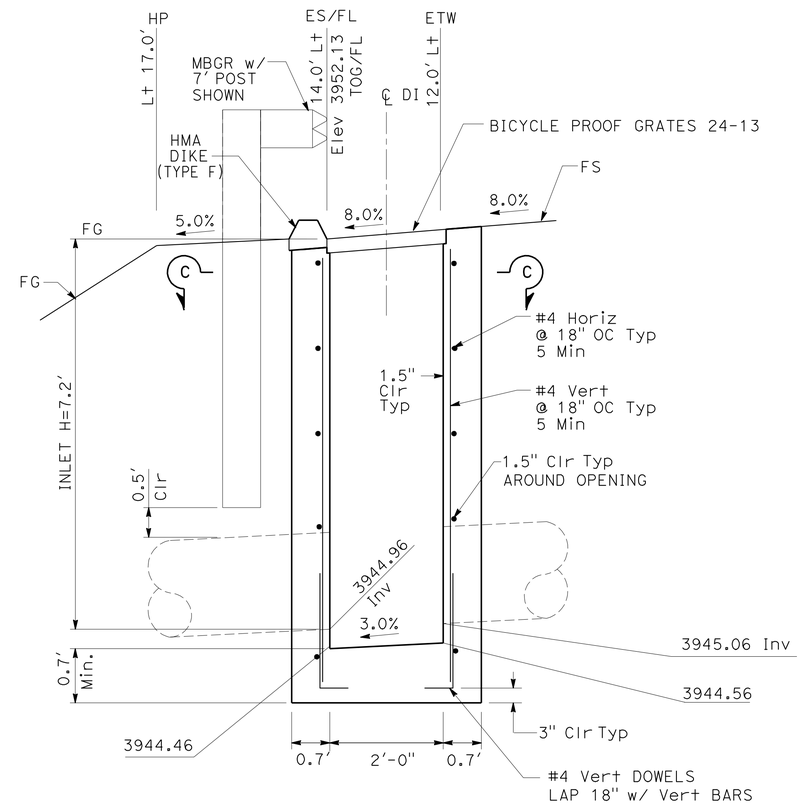
Mod GT3 DI w/ 24-13 BICYLE PROOF GRATES

PLAN VIEW

NOTES:

1. MAKE GRATES FLUSH WITH SHOULDER SLOPE, DO NOT DEPRESS GUTTER.
2. SLOPE UP STATION FLOOR AT 4:1 TOWARDS INVERT.
3. SEE Std PLAN D74A & D77B FOR FRAME & GRATE
4. SEE Std PLAN D74A FOR ADDITIONAL INFO NOT SHOWN.
5. SEE Std PLAN D74C FOR STEP DETAIL.

MODIFIED GT3 DI PLAN

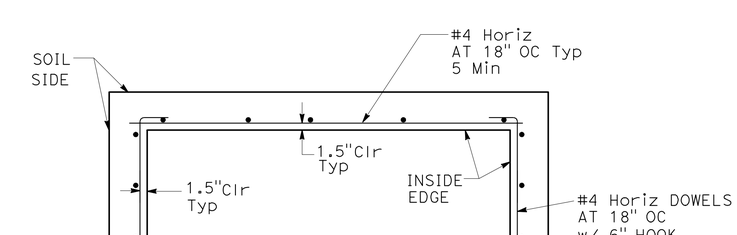


STA 1062+75.55

SEE D-D FOR Reinf AROUND OPENING

B-B

MODIFIED GT3 DI

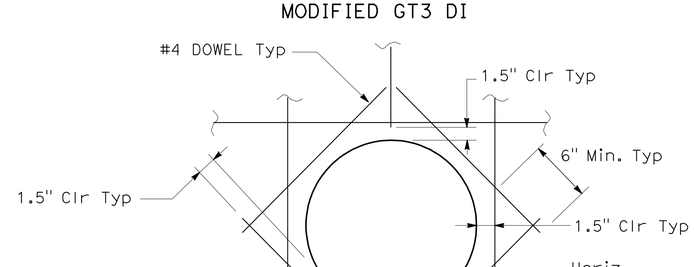


SEE D-D FOR Reinf AROUND OPENING
FRAME & GRATE NOT SHOWN

PLAN VIEW

C-C

MODIFIED GT3 DI CROSS SECTION



D-D

REINFORCEMENT AROUND OPENING

DRAINAGE SYSTEM No 1

DRAINAGE DETAIL

NO SCALE **DD-2**

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CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: BRIAN WESLING
REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 13:55

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	20	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

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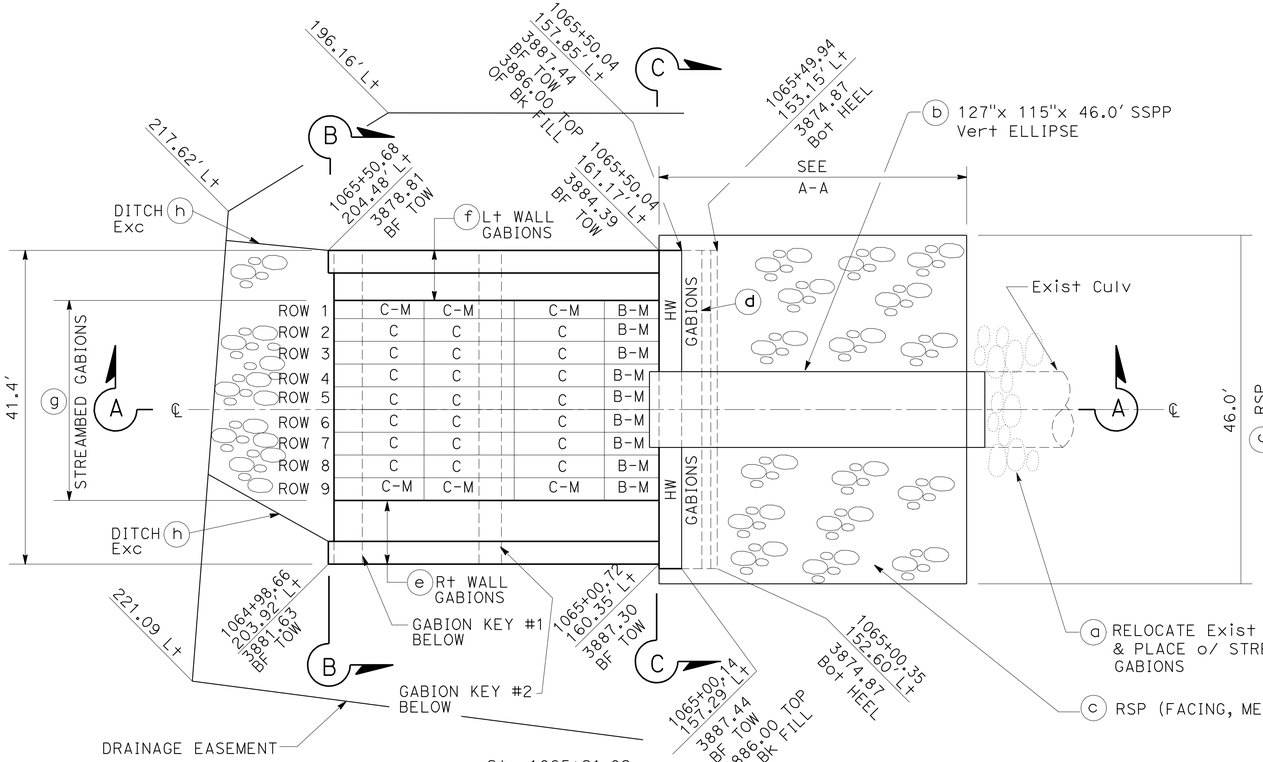
ABBREVIATIONS

BF - BACK FACE
CP - CATCH POINT
Dim - DIMENSION
Eq - EQUAL
EOW - END OF WALL
o/ - OVER
Sched - SCHEDULE
TOW - TOP OF WALL
w/ - WITH

LEGEND:

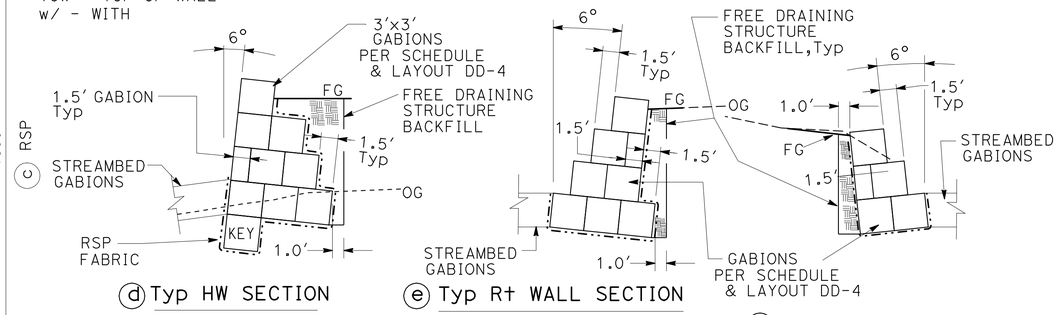
C — GABION SIZE TO USE
Std LETTER CODE
SEE SCHED ON DD-4

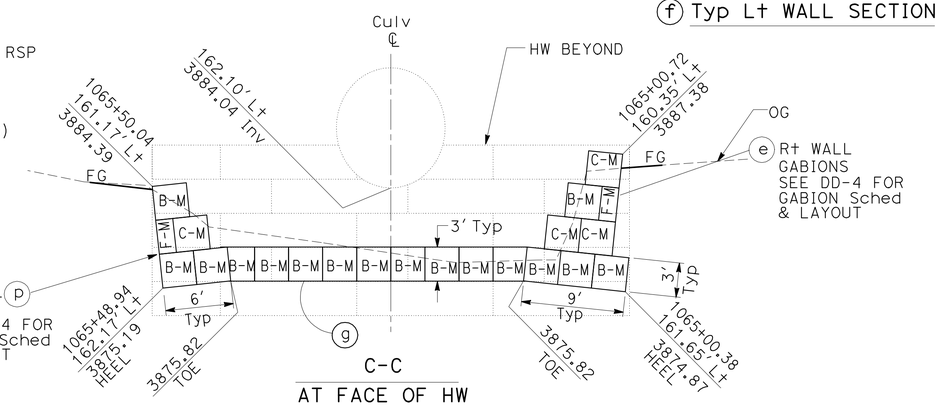
C-M — MODIFY BASKET SIZE INDICATED
Std LETTER CODE SIZE

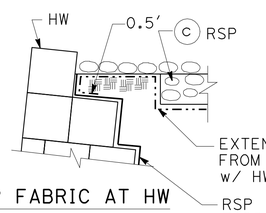


Sta 1065+21.02
OUTLET GABIONS & RSP PLAN

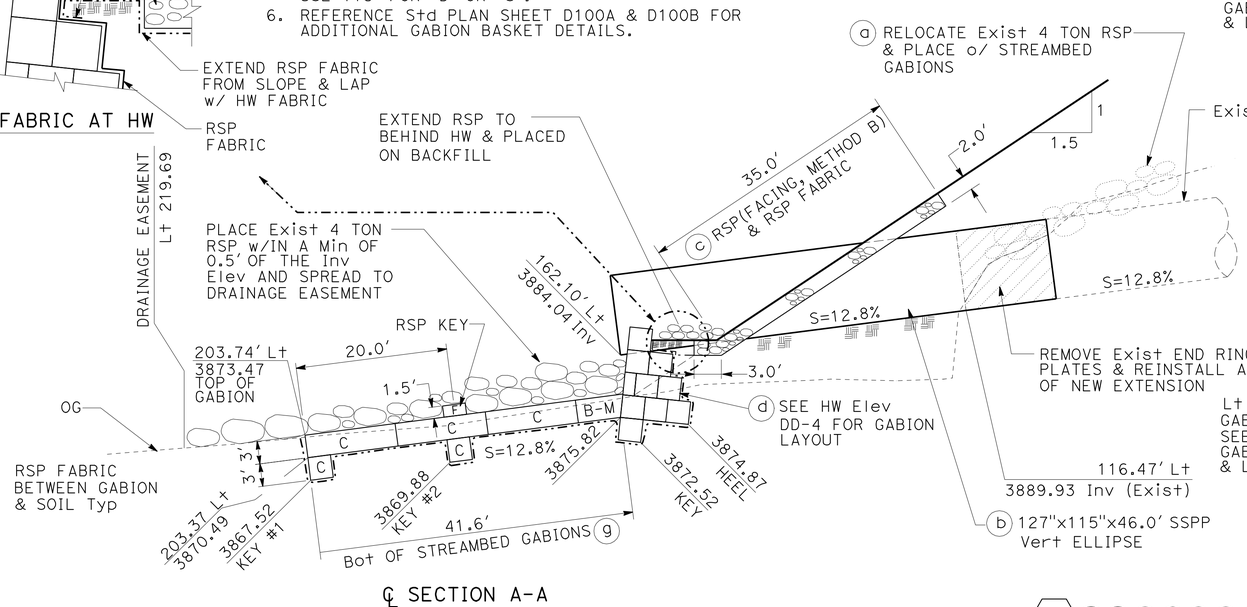
1. RELOCATED RSP PLACED OVER STREAMBED GABIONS NOT SHOWN.
2. SEE WALL Elevs (DD-4) FOR GABION WALL LAYOUT AND SIZES
3. OFFSETS & ELEVATIONS REFERENCE NEW ALIGNMENT.
4. REFERENCE Std PLAN SHEET A62B FOR LIMITS OF PAYMENT FOR EXCAVATION & BACKFILL.
5. REFERENCE Std PLAN SHEET A62F FOR EXCAVATION & BACKFILL FOR METAL CULVERTS. USE 115" FOR "D" OR "S".
6. REFERENCE Std PLAN SHEET D100A & D100B FOR ADDITIONAL GABION BASKET DETAILS.



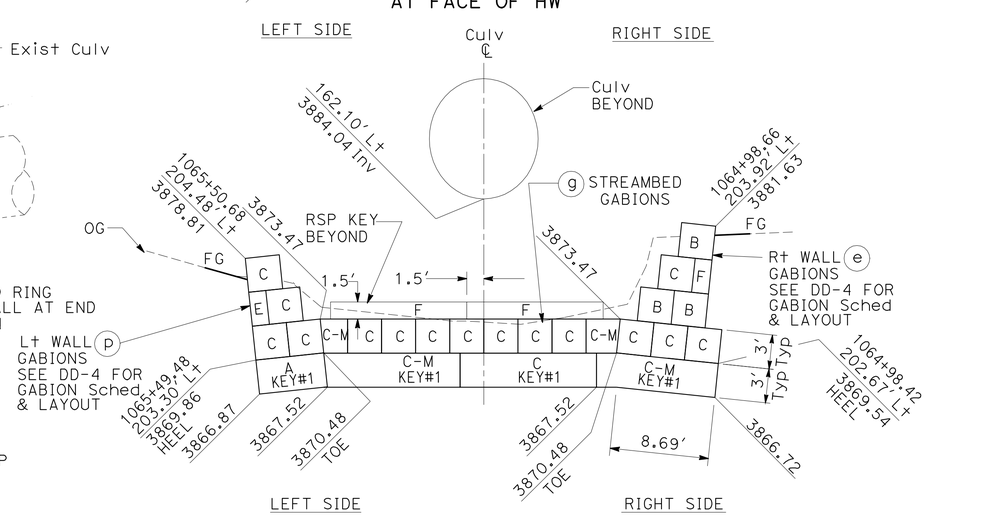




RSP FABRIC AT HW



℄ SECTION A-A



B-B
AT END OF GABIONS

DRAINAGE SYSTEM No. 4 (a)(b)(c)(d)(e)(f)(g)(h)

DRAINAGE DETAIL
NO SCALE **DD-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® **DESIGN**
FUNCTIONAL SUPERVISOR: BRIAN WESLING
CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: BRIAN WESLING
REVISED BY / DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 13:44

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	21	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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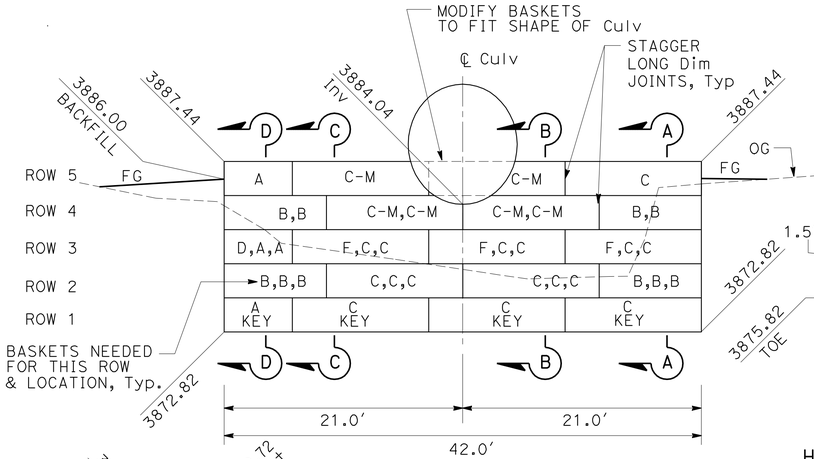
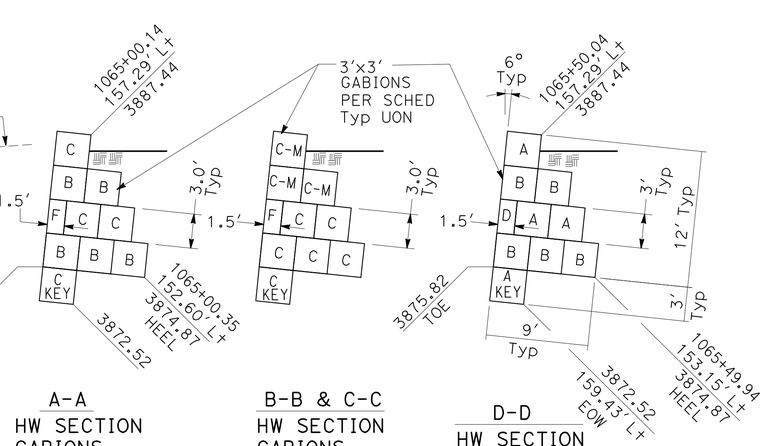


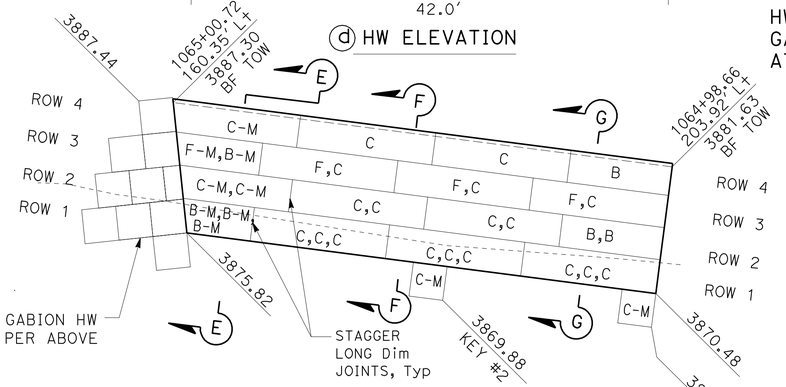
ⓓ HW ELEVATION



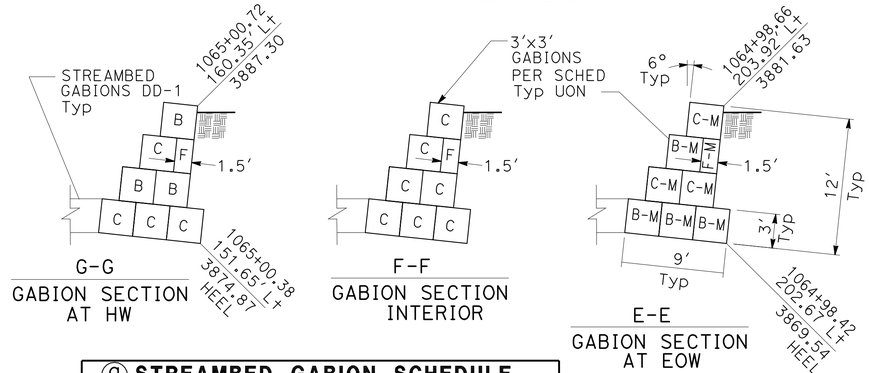
A-A
HW SECTION GABIONS AT RIGHT END

B-B & C-C
HW SECTION GABIONS AT INTERIOR

D-D
HW SECTION GABIONS AT LEFT END



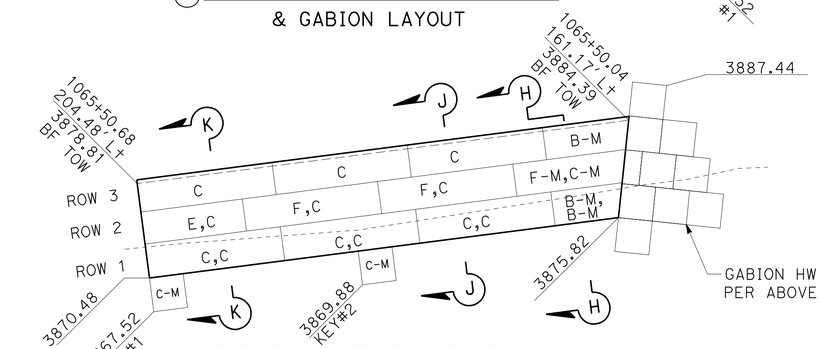
ⓔ RIGHT WALL INSIDE ELEVATION & GABION LAYOUT



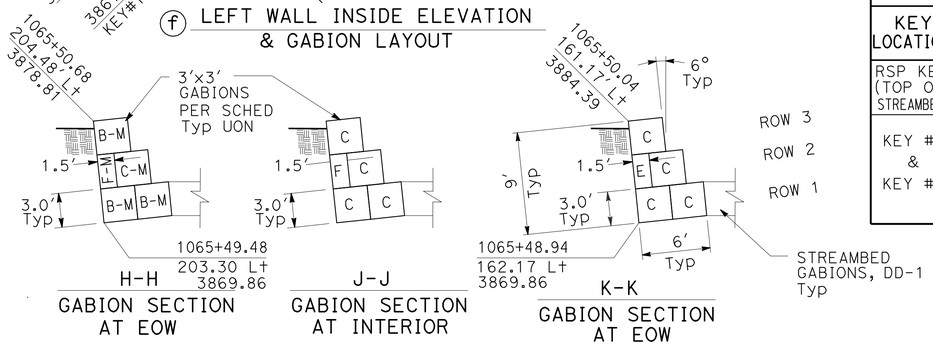
G-G
GABION SECTION AT HW

F-F
GABION SECTION INTERIOR

E-E
GABION SECTION AT EOW



ⓕ LEFT WALL INSIDE ELEVATION & GABION LAYOUT



H-H
GABION SECTION AT EOW

J-J
GABION SECTION AT INTERIOR

K-K
GABION SECTION AT EOW

ⓓ HW GABION SCHEDULE

ROW	LETTER CODE	UNMODIFIED BASKET SIZE (LxWxH)	QUANTITY OF BASKETS (EA)	UNIT VOLUME (CY)	TOTAL VOLUME (CY)	COMMENTS
1	A	6′x3′x3′	1	2.0	2.0	KEY
	C	12′x3′x3′	3	4.0	12.0	KEY
2	B	9′x3′x3′	6	3.0	18.0	
	C	12′x3′x3′	6	4.0	24.0	
3	A	6′x3′x3′	2	2.0	4.0	
	C	12′x3′x3′	6	4.0	24.0	
	D	6′x3′x1.5′	1	1.0	1.0	
	F	12′x3′x1.5′	3	2.0	6.0	
4	B	9′x3′x3′	4	3.0	12.0	
	C-M	12′x3′x3′	4	3.9	15.4	Mod LENGTH AT Culv
5	A	6′x3′x3′	1	2.0	2.0	
	C	12′x3′x3′	1	4.0	4.0	
	C-M	12′x3′x3′	1	3.7	3.7	Mod LENGTH AT Culv
	C-M	12′x3′x3′	1	1.7	1.7	Mod LENGTH AT Culv
			TOTAL Vol=		130	

ⓖ STREAMBED GABION SCHEDULE

ROW	LETTER CODE	UNMODIFIED BASKET SIZE (LxWxH)	QUANTITY OF BASKETS (EA)	UNIT VOLUME (CY)	TOTAL VOLUME (CY)	COMMENTS
1	B-M	9′x3′x3′	1	2.5	2.5	
	C-M	12′x3′x3′	3	3.0	9.0	
2-8	B-M	9′x3′x3′	7	2.0	14.0	
	C	12′x3′x3′	21	4.0	84.0	
9	B-M	9′x3′x3′	1	2.5	2.5	
	C-M	12′x3′x3′	3	3.8	11.4	
			TOTAL Vol=		124.0[1]	

KEY GABION SCHEDULE (BELOW STREAMBED GABIONS)

KEY LOCATION	LETTER CODE	UNMODIFIED BASKET SIZE (LxWxH)	QUANTITY OF BASKETS (EA)	UNIT VOLUME (CY)	TOTAL VOLUME (CY)	COMMENTS
RSP KEY (TOP OF STREAMBED)	F	12′x3′x1.5′	2	2.0	4.0	
KEY #1 & KEY #2	A	6′x3′x3′	2	2.0	4.0	
	C	12′x3′x3′	2	4.0	8.0	
	C-M	12′x3′x3′	2	3.5	7.0	AT Rt WALL
	C-M	12′x3′x3′	2	3.9	7.8	
			TOTAL Vol=		31.0	

DRAINAGE SYSTEM No 4 ⓓ ⓔ ⓕ ⓖ

ⓕ Lt WALL GABION SCHEDULE

ROW	LETTER CODE	UNMODIFIED BASKET SIZE (LxWxH)	QUANTITY OF BASKETS (EA)	UNIT VOLUME (CY)	TOTAL VOLUME (CY)	COMMENTS
1	B-M	9′x3′x3′	2	2.0	4.0	
	C	12′x3′x3′	6	4.0	24.0	
2	C	12′x3′x3′	3	4.0	12.0	
	E	9′x3′x1.5′	1	1.5	1.5	
	F	12′x3′x1.5′	2	2.0	4.0	
	C-M	12′x3′x3′	1	3.1	3.1	
	F-M	12′x3′x1.5′	1	1.5	1.5	
3	B-M	9′x3′x3′	1	2.3	2.3	
	C	12′x3′x3′	3	4.0	12.0	
			TOTAL Vol=		64.5[1]	

1. THIS Vol DOESN'T INCLUDE KEYS. SEE KEY GABION SCHEDULE.

ⓔ Rt WALL GABION SCHEDULE

ROW	LETTER CODE	UNMODIFIED BASKET SIZE (LxWxH)	QUANTITY OF BASKETS (EA)	UNIT VOLUME (CY)	TOTAL VOLUME (CY)	COMMENTS
1	B-M	9′x3′x3′	3	2.0	6.0	
	C	12′x3′x3′	9	4.0	36.0	
2	B	9′x3′x3′	2	3.0	6.0	
	C	12′x3′x3′	4	4.0	16.0	
	C-M	12′x3′x3′	2	3.1	6.2	
3	C	12′x3′x3′	3	4.0	12.0	
	B-M	9′x3′x3′	1	2.3	2.3	
	F	12′x3′x1.5′	3	2.0	6.0	
	F-M	12′x3′x1.5′	1	1.1	1.1	
4	B	9′x3′x3′	1	3.0	3.0	
	C	12′x3′x3′	2	4.0	8.0	
	C-M	12′x3′x3′	1	3.5	3.5	
			TOTAL Vol=		106[1]	

1. THIS Vol DOESN'T INCLUDE KEYS. SEE KEY GABION SCHEDULE.

DRAINAGE DETAIL DD-4

NO SCALE

REVISED BY | DATE REVISED
CORY FREEMAN | BRIAN WESLING
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR | BRIAN WESLING

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

LAST REVISION 11-09-11 | DATE PLOTTED => 28-DEC-2011 | TIME PLOTTED => 13:45

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	22	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

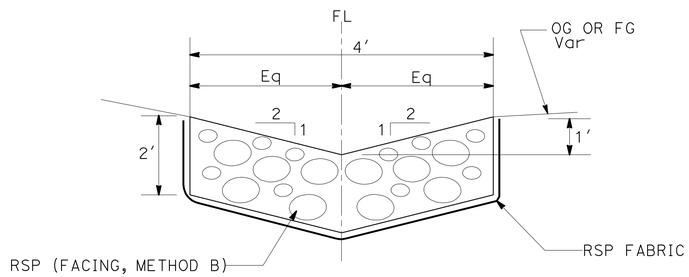
12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

ABREVIATIONS:

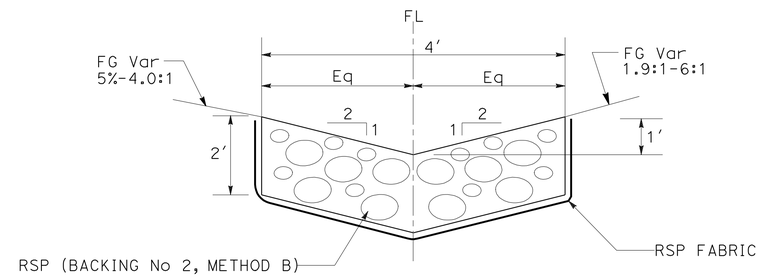
TOG - TOP OF GRATE
OC - ON CENTER
Eq - Equal
w/ - WITH



STA 1065+50 to STA 1067+77.67

RSP

4 (i)



STA 1066+64.6 to STA 1077+15

RSP

4 (j)

DRAINAGE SYSTEM No. 4

DRAINAGE DETAIL
NO SCALE **DD-5**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING
CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: BRIAN WESLING
REVISED BY
DATE REVISED

LAST REVISION 11-09-11 | DATE PLOTTED => 07-FEB-2012 | TIME PLOTTED => 14:41

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	23	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

LEGEND AND ABBREVIATIONS:

w/ - WITH

(N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.

NOTES:

1. DRAINAGE SYSTEM No. 1 SHALL UTILIZE POSITIVE WATER TIGHT JOINTS.
2. ALL OTHER DRAINAGE SYSTEMS SHALL UTILIZE STANDARD JOINTS.
3. DOWN DRAINS SHALL UTILIZE DOWN DRAIN JOINTS.

DRAINAGE QUANTITIES

DRAINAGE SYSTEM No.	DRAINAGE UNIT	ABANDON CULVERT (EA)	REMOVE DOWNDRAIN (EA)	REMOVE FES (EA)	18" CSP (.109" THICK) (LF)	24" CSP (.109" THICK) (LF)	127"x115", 3GA SSPP 6"x2" CORRUGATION (LF)	18" CSP DD (.109" THICK) (LF)	18" ELBOW (N) (.109" THICK) (EA)	18" SLIP JOINT (.109" THICK) (EA)	CABLE ANCHOR (N) ASSEMBLY (EA)	18" ANCHOR ASSEMBLY (EA)	SAND BACKFILL (CY)	DITCH EXCAVATION (CY)	Misc IRON AND STEEL (LB)	MINOR CONCRETE (MINOR STRUCTURE) (CY)	24-13 (N) BICYCLE PROOF GRATE (EA)	24" STEEL FES (EA)	18" STEEL FES (EA)	RELOCATE RSP (N) (CY)	ROCK SLOPE PROTECTION (METHOD B) FABRIC (SQYD)	FACING (CY)	BACKING No. 2 (CY)	GABION (CY)	HEIGHT OF INLET "H" (N) (FT)	DESCRIPTION	STATION	DRAINAGE PROFILE SHEET No.	DRAINAGE SYSTEM No.	DRAINAGE UNIT
1	a					66.0																				24" CSP w/ POSITIVE WATER TIGHT JOINTS	1062+75.55	DP-1	1	a
	b				14.0																					18" CSP w/ POSITIVE WATER TIGHT JOINTS,STAINED				b
	c														540	4.30	2								7.2	MOD GT3 DI W/ 2 24-13 GRATES				c
	d																				43	31				RSP STAINED				d
	e																	1								24" FES				e
	f																				90		19			RSP STAINED				f
	g																		1							18" FES STAINED				g
	h							91.0																		18" CSP DD w/ CABLE ANCHORAGE SYSTEM, STAINED				h
	i																				219		60			RSP AT FL, STAINED				i
	j																									NOT USED				j
	k								1																	18" ELBOW 24.1° STAINED				k
	l								1																	18" ELBOW 19.5° STAINED				l
	m											10														18" ANCHOR ASSEMBLY STAINED				m
	n									1																18" SLIP JOINT, STAINED				n
	o							2.0																		18" CSP DD, STAINED				o
	p										2															CABLE ANCHOR SYSTEM STAINED				p
2	a	1											19													ABANDON EXIST 24"x 164' CMP	1062+85.48		2	a
	b			1																						REMOVE Exist 24" FES				b
																										RSP STAINED				
3	a		1																							REMOVE 8"x96' DOWN DRAIN	1062+92.1		3	a
4	a																			280						RELOCATE RSP	1065+21.02	DP-2	4	a
	b						46																			127" x 115" SSPP VERTICAL ELLIPSE, STAINED				b
	c																				302	150				RSP STAINED				c
	d																							130		HEADWALL GABIONS STAINED				d
	e																							106		RIGHT GABION WALL STAINED				e
	f																							65		LEFT GABION WALL STAINED				f
	g																							155		STREAMBED & KEY GABIONS (NOT STAINED)				g
	h													20												DITCH EXCAVATION				h
	i																				323	164				RSP AT TOE OF NEW EMBANKMENT, STAINED				i
	j																						316			RSP AT FL, STAINED				j
5	a			1														1								24" FES		DP-3	5	a
6	a			1														1								24" FES		DP-3	6	a
TOTALS		1	1	3	14	66	46	93		1		10	19	20	540	4.30		3	1		977	345	395	456		SHEET TOTALS				

DRAINAGE QUANTITIES DQ-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING
CALCULATED-DESIGNED BY: YVONNE FROILAND
CHECKED BY: CORY FREEMAN
REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 13:45

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	24	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

PORTABLE CHANGEABLE MESSAGE SIGNS

STAGE 2 AND 3 ON UNPAVED ROAD
NO PILOT CONTROL

(1) 25 MPH ZONE	(2) FOR EAST BOUND TRAFFIC 1.5 MILES AHEAD (2) FOR WEST BOUND TRAFFIC 2 MILES AHEAD

PORTABLE CHANGEABLE MESSAGE SIGNS

REVERSING TRAFFIC MESSAGE

(1) PREPARE TO STOP	(2) FOR EAST BOUND TRAFFIC 1.5 MILES AHEAD (2) FOR WEST BOUND TRAFFIC 2 MILES AHEAD

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

TYPE	No. OF SIGNS
(A) W20-1	2
(B) G20-2	2
(C) C40(CA)	2

(A) ✳ PORTABLE FLASHING BEACON

ROAD WORK AHEAD — W20-1, 48" X 48", ON 4" X 6" POST, WITH FLASHING BEACON

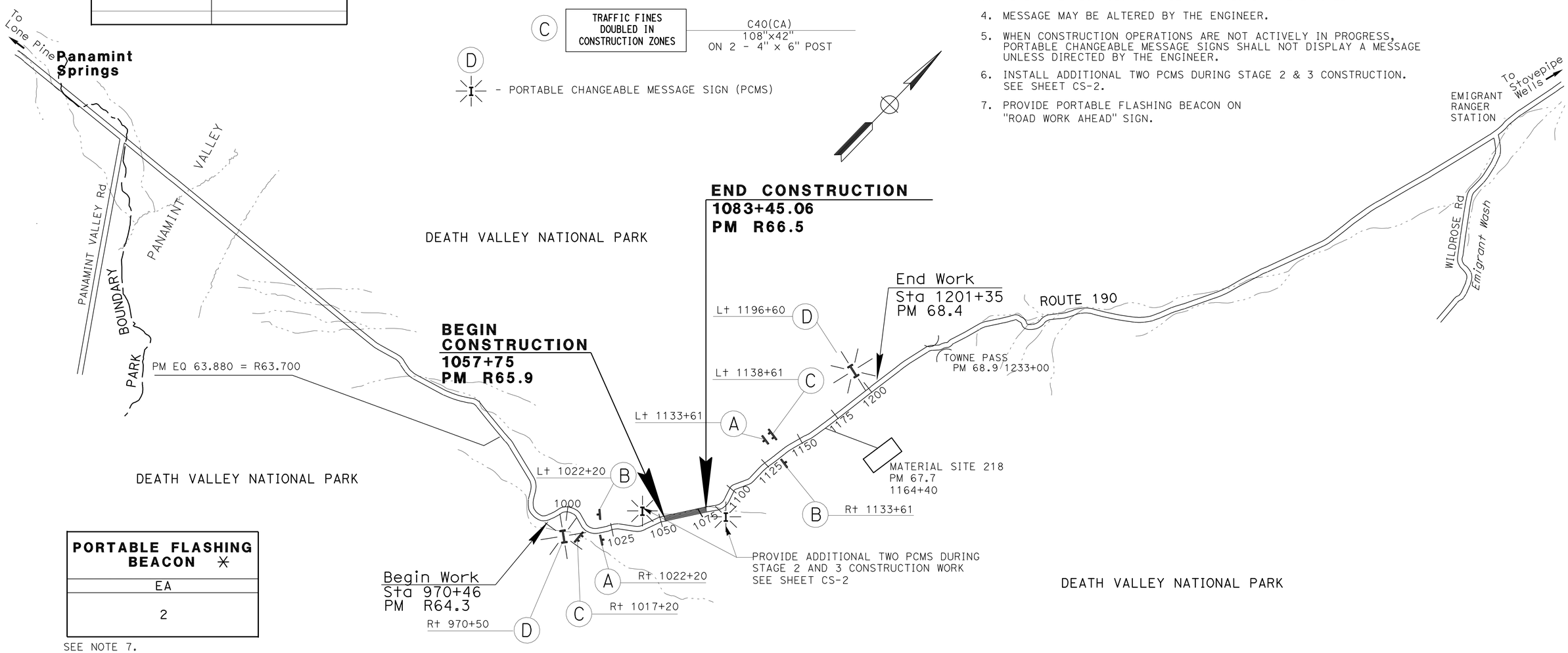
(B) END ROAD WORK — G20-2, 36" X 18", ON 4" X 4" POSTS

(C) TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES — C40(CA), 108"x42", ON 2 - 4" x 6" POST

(D) I - PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

NOTES:

1. EXACT LOCATION AND POSITION OF CONSTRUCTION AREA SIGNS TO BE DETERMINED BY THE ENGINEER.
2. PORTABLE CHANGEABLE MESSAGE SIGN LOCATIONS TO BE CONFIRMED BY THE ENGINEER BEFORE THE ACTUAL CLOSURE.
3. ALTERNATE MESSAGES MUST BE APPROVED BY THE ENGINEER.
4. MESSAGE MAY BE ALTERED BY THE ENGINEER.
5. WHEN CONSTRUCTION OPERATIONS ARE NOT ACTIVELY IN PROGRESS, PORTABLE CHANGEABLE MESSAGE SIGNS SHALL NOT DISPLAY A MESSAGE UNLESS DIRECTED BY THE ENGINEER.
6. INSTALL ADDITIONAL TWO PCMS DURING STAGE 2 & 3 CONSTRUCTION. SEE SHEET CS-2.
7. PROVIDE PORTABLE FLASHING BEACON ON "ROAD WORK AHEAD" SIGN.



PORTABLE FLASHING BEACON ✳

EA
2

SEE NOTE 7.

PORTABLE CHANGEABLE MESSAGE SIGNS

No. OF SIGNS
4

SEE NOTE 6.

THIS PLAN IS ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY

CONSTRUCTION AREA SIGNS

NO SCALE

CS-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
DESIGN
FUNCTIONAL SUPERVISOR: BRIAN WESLING
CALCULATED-DESIGNED BY: BRIAN WESLING
CHECKED BY: CORY FREEMAN
REVISED BY
DATE REVISED

LAST REVISION 11-09-11 | DATE PLOTTED => 15-FEB-2012 | TIME PLOTTED => 09:16

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	25	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTE:
1. EXACT LOCATION AND POSITION OF CONSTRUCTION AREA SIGNS TO BE DETERMINED BY THE ENGINEER
COLOR OF SIGN SHALL BE THE COLOR SHOWN ON THIS SHEET.

PORTABLE CHANGEABLE MESSAGE SIGNS

STAGE 2 & 3 MESSAGING DURING TRAFFIC DIVERTED TO Temp ROAD

(1) PAVEMENT ENDS	(2) 25 MPH

(A) SPEED LIMIT 45 — R2-1 (BLACK & WHITE) 36" X 48" ON 4" X 6" POST

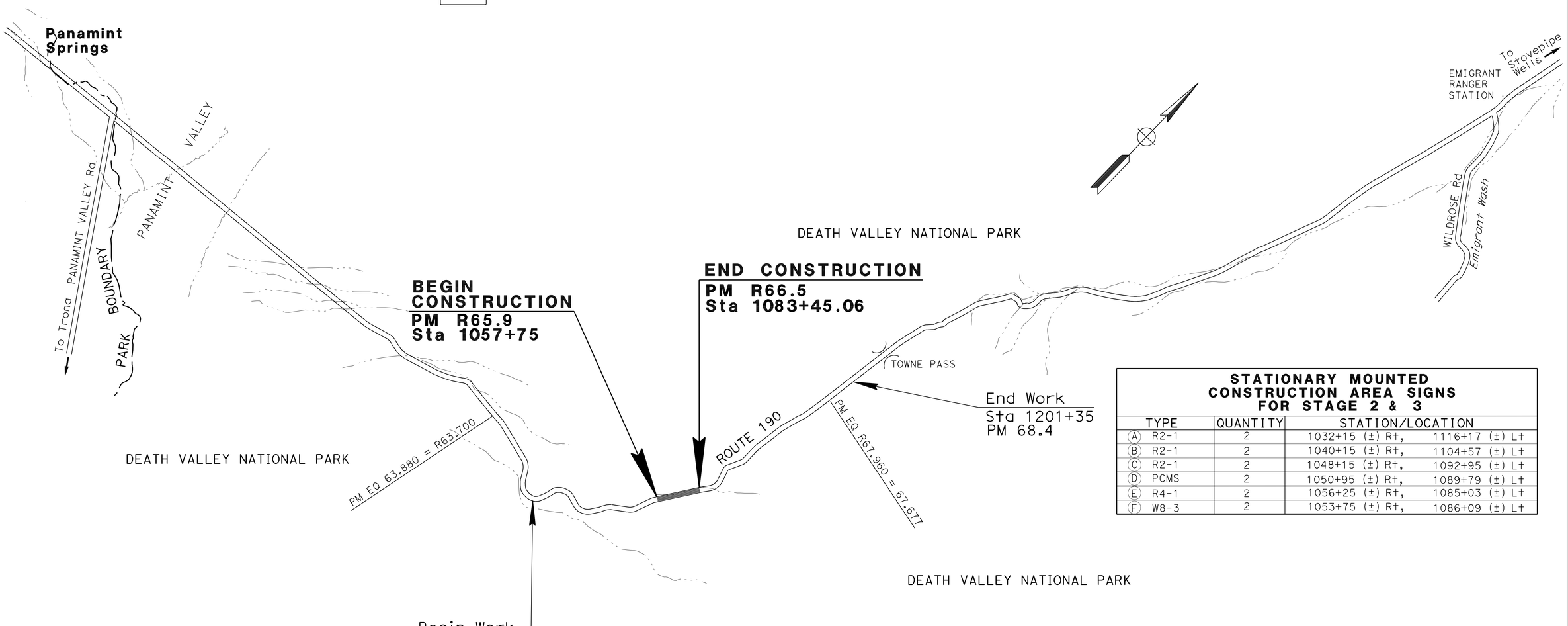
(B) SPEED LIMIT 35 — R2-1 (BLACK & WHITE) 36" X 48" ON 4" X 6" POST

(C) SPEED LIMIT 25 — R2-1 (BLACK & WHITE) 36" X 48" ON 4" X 6" POST

(D) - PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

(E) DO NOT PASS — R4-1 (BLACK & WHITE) 24" X 30" ON 4" X 4" POST

(F) PAVEMENT ENDS — W8-3 (ORANGE) 36" X 36" ON 4" X 6" POST



STATIONARY MOUNTED CONSTRUCTION AREA SIGNS FOR STAGE 2 & 3

TYPE	QUANTITY	STATION/LOCATION	
(A) R2-1	2	1032+15 (±) Rt,	1116+17 (±) Lt
(B) R2-1	2	1040+15 (±) Rt,	1104+57 (±) Lt
(C) R2-1	2	1048+15 (±) Rt,	1092+95 (±) Lt
(D) PCMS	2	1050+95 (±) Rt,	1089+79 (±) Lt
(E) R4-1	2	1056+25 (±) Rt,	1085+03 (±) Lt
(F) W8-3	2	1053+75 (±) Rt,	1086+09 (±) Lt

THIS PLAN IS ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY

NO SCALE

CONSTRUCTION AREA SIGNS
NO SCALE

CS-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING
CALCULATED-DESIGNED BY: ENRICO DE JESUS
CHECKED BY: CORY FREEMAN
REVISED BY / DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 07-FEB-2012
TIME PLOTTED => 14:56

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	26	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

LEGEND:

- STAGE 1 - CONSTRUCT TO FG
- STAGE 1 - CONSTRUCT TO SUBGRADE
- STAGE 1 - TEMPORARY GRADING
- DIRECTION OF TRAFFIC
- TEMPORARY RAILING(TYPE K) & OR RELOCATED Exist Conc BARRIER (TYPE K)
- TYPE III BARRICADE
- DRAINAGE SYSTEM NUMBER
- DRAINAGE UNIT NUMBER
- (X) SIGN NUMBER

NOTE:

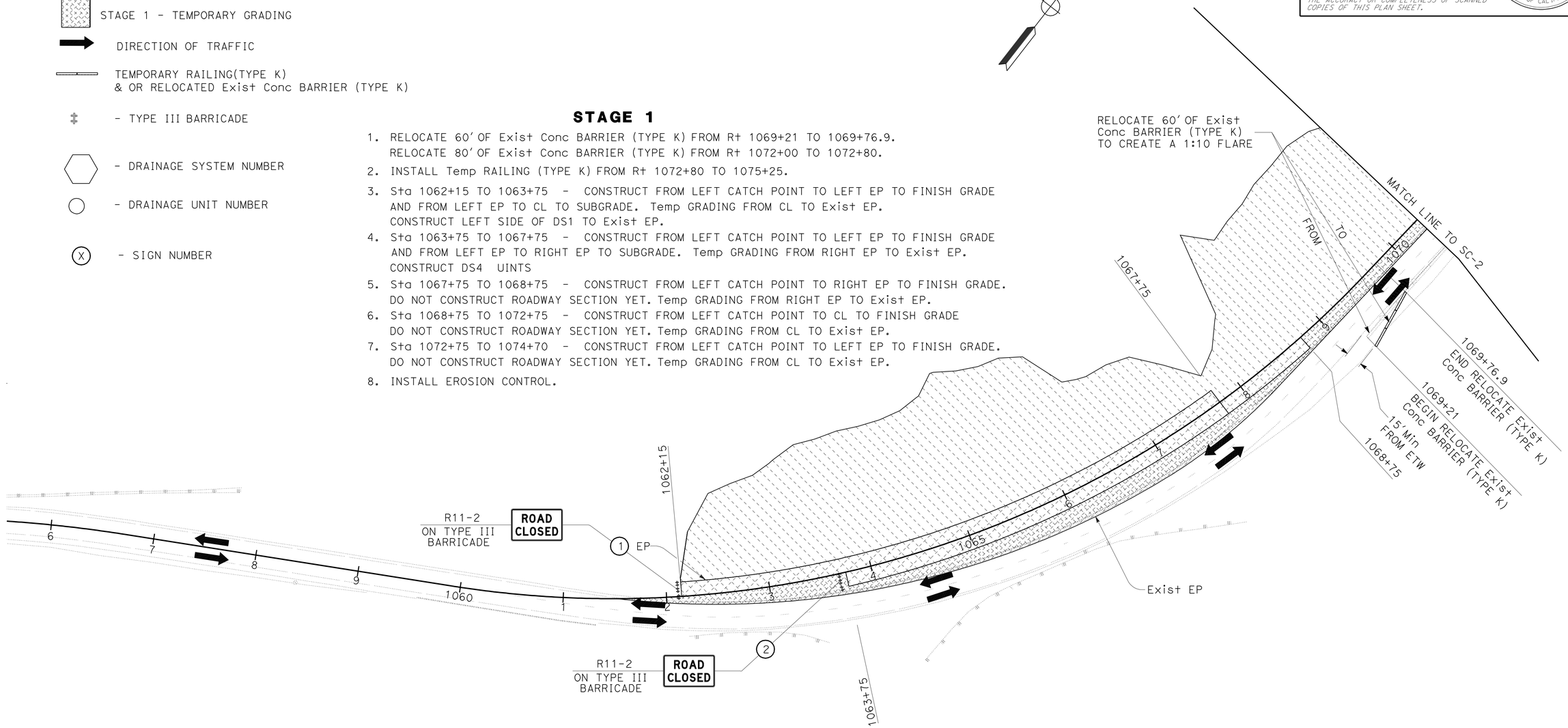
1. SEE SHEET CS-1 FOR CONSTRUCTION AREA SIGNS.

ABBREVIATIONS:

CP - CATCH POINT
DS - DRAINAGE SYSTEM

STAGE 1

1. RELOCATE 60' OF Exist Conc BARRIER (TYPE K) FROM R+ 1069+21 TO 1069+76.9.
   RELOCATE 80' OF Exist Conc BARRIER (TYPE K) FROM R+ 1072+00 TO 1072+80.
2. INSTALL Temp RAILING (TYPE K) FROM R+ 1072+80 TO 1075+25.
3. Sta 1062+15 TO 1063+75 - CONSTRUCT FROM LEFT CATCH POINT TO LEFT EP TO FINISH GRADE AND FROM LEFT EP TO CL TO SUBGRADE. Temp GRADING FROM CL TO Exist EP. CONSTRUCT LEFT SIDE OF DS1 TO Exist EP.
4. Sta 1063+75 TO 1067+75 - CONSTRUCT FROM LEFT CATCH POINT TO LEFT EP TO FINISH GRADE AND FROM LEFT EP TO RIGHT EP TO SUBGRADE. Temp GRADING FROM RIGHT EP TO Exist EP. CONSTRUCT DS4 UINTS
5. Sta 1067+75 TO 1068+75 - CONSTRUCT FROM LEFT CATCH POINT TO RIGHT EP TO FINISH GRADE. DO NOT CONSTRUCT ROADWAY SECTION YET. Temp GRADING FROM RIGHT EP TO Exist EP.
6. Sta 1068+75 TO 1072+75 - CONSTRUCT FROM LEFT CATCH POINT TO CL TO FINISH GRADE DO NOT CONSTRUCT ROADWAY SECTION YET. Temp GRADING FROM CL TO Exist EP.
7. Sta 1072+75 TO 1074+70 - CONSTRUCT FROM LEFT CATCH POINT TO LEFT EP TO FINISH GRADE. DO NOT CONSTRUCT ROADWAY SECTION YET. Temp GRADING FROM CL TO Exist EP.
8. INSTALL EROSION CONTROL.



STAGE 1
STAGE CONSTRUCTION

SCALE: 1" = 50'

SC-1

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION & TRAFFIC HANDLING WORK ONLY.

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LAST REVISION 11-09-11
DATE PLOTTED => 29-DEC-2011
TIME PLOTTED => 11:19

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	27	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
CORY FREEMAN
No. 62107
Exp. 9-30-13
CIVIL
STATE OF CALIFORNIA

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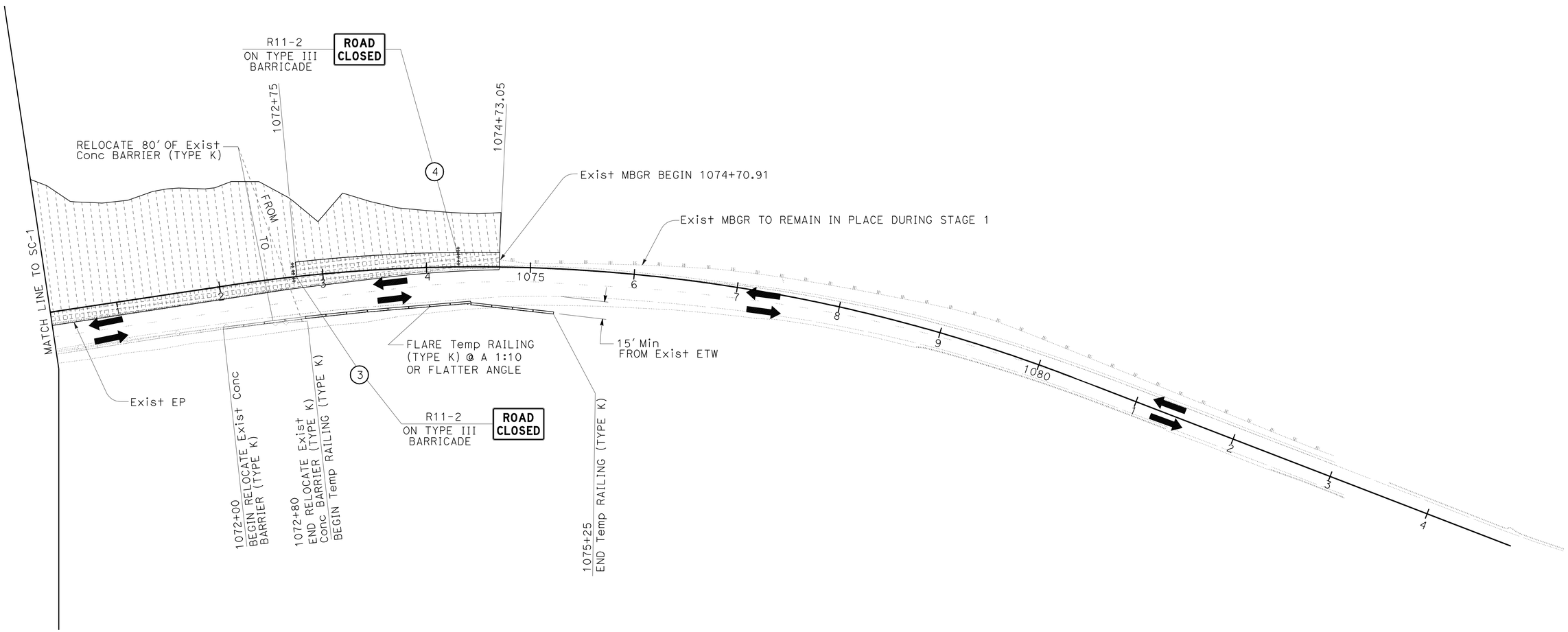

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION & TRAFFIC HANDLING WORK ONLY.

STAGE 1
STAGE CONSTRUCTION

SCALE: 1" = 50'

SC-2

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LAST REVISION 11-09-11
DATE PLOTTED => 29-DEC-2011
TIME PLOTTED => 11:20

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	28	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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NOTE:

1. SEE CS-2 FOR REDUCED SPEED CONSTRUCTION AREA SIGNS FOR STAGE II & III WORK.

LEGEND:

- STAGE 2 - CONSTRUCT TO STAGE 2 FG or FG
- STAGE 2 - CONSTRUCT TO SUBGRADE
- PREVIOUS STAGE CONSTRUCTION

STAGE 2

PHASE 1

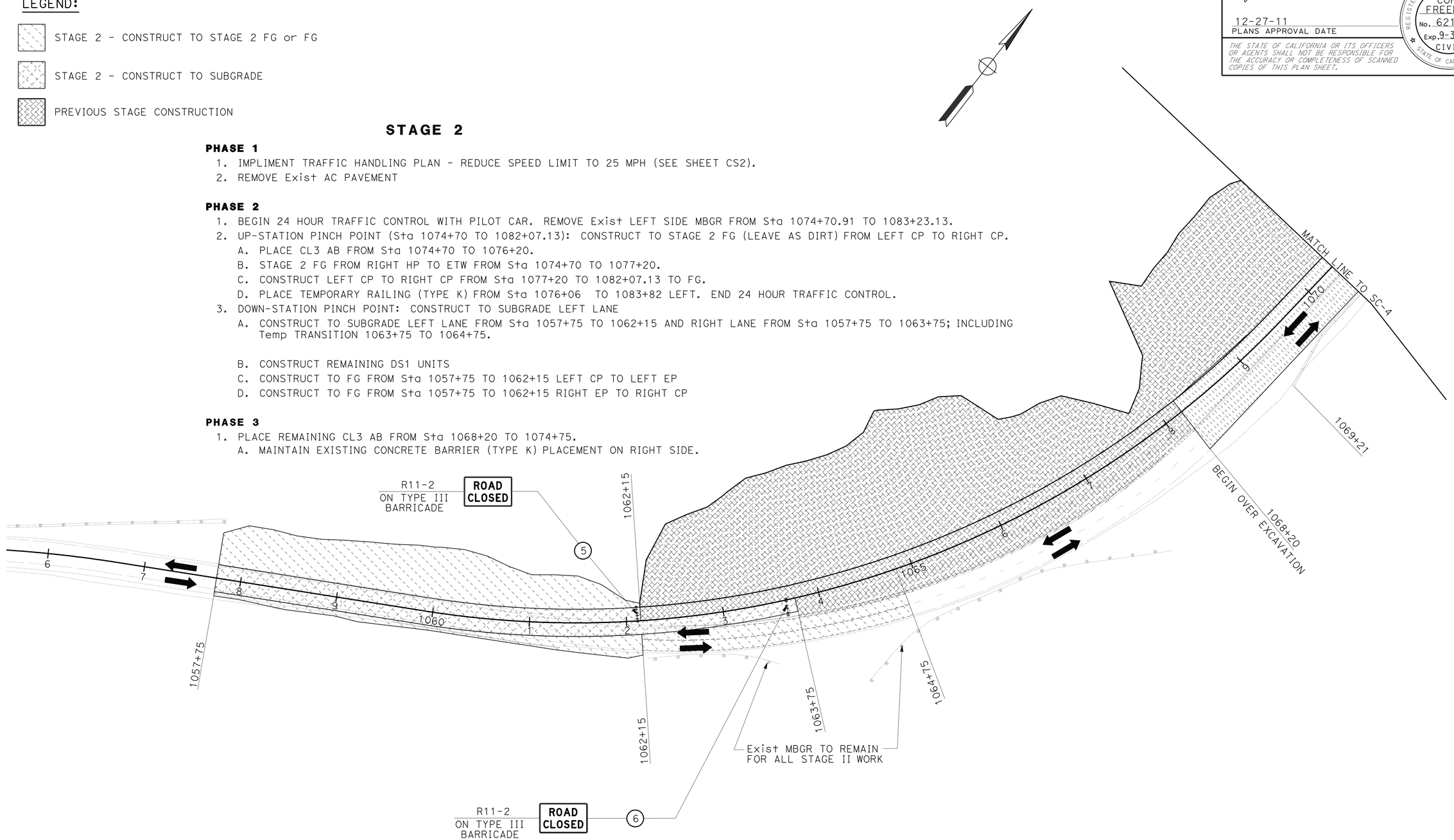
1. IMPLIMENT TRAFFIC HANDLING PLAN - REDUCE SPEED LIMIT TO 25 MPH (SEE SHEET CS2).
2. REMOVE Exist AC PAVEMENT

PHASE 2

1. BEGIN 24 HOUR TRAFFIC CONTROL WITH PILOT CAR. REMOVE Exist LEFT SIDE MBGR FROM Sta 1074+70.91 TO 1083+23.13.
2. UP-STATION PINCH POINT (Sta 1074+70 TO 1082+07.13): CONSTRUCT TO STAGE 2 FG (LEAVE AS DIRT) FROM LEFT CP TO RIGHT CP.
   - A. PLACE CL3 AB FROM Sta 1074+70 TO 1076+20.
   - B. STAGE 2 FG FROM RIGHT HP TO ETW FROM Sta 1074+70 TO 1077+20.
   - C. CONSTRUCT LEFT CP TO RIGHT CP FROM Sta 1077+20 TO 1082+07.13 TO FG.
   - D. PLACE TEMPORARY RAILING (TYPE K) FROM Sta 1076+06 TO 1083+82 LEFT. END 24 HOUR TRAFFIC CONTROL.
3. DOWN-STATION PINCH POINT: CONSTRUCT TO SUBGRADE LEFT LANE
   - A. CONSTRUCT TO SUBGRADE LEFT LANE FROM Sta 1057+75 TO 1062+15 AND RIGHT LANE FROM Sta 1057+75 TO 1063+75; INCLUDING Temp TRANSITION 1063+75 TO 1064+75.
   - B. CONSTRUCT REMAINING DS1 UNITS
   - C. CONSTRUCT TO FG FROM Sta 1057+75 TO 1062+15 LEFT CP TO LEFT EP
   - D. CONSTRUCT TO FG FROM Sta 1057+75 TO 1062+15 RIGHT EP TO RIGHT CP

PHASE 3

1. PLACE REMAINING CL3 AB FROM Sta 1068+20 TO 1074+75.
   - A. MAINTAIN EXISTING CONCRETE BARRIER (TYPE K) PLACEMENT ON RIGHT SIDE.



THIS PLAN ACCURATE FOR STAGE CONSTRUCTION & TRAFFIC HANDLING WORK ONLY.

STAGE 2
STAGE CONSTRUCTION

SCALE: 1" = 50'

SC-3

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REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 29-DEC-2011
TIME PLOTTED => 11:20

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	29	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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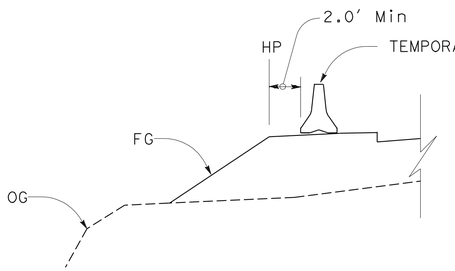
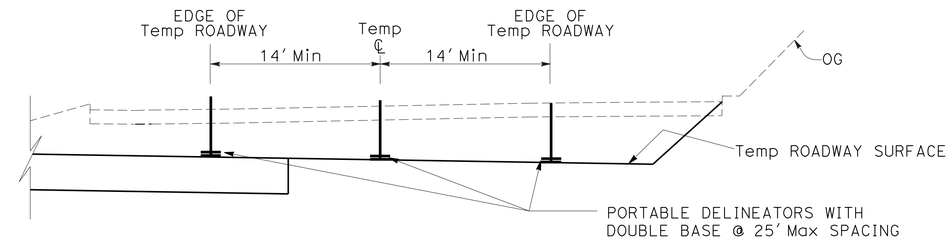
NOTES:

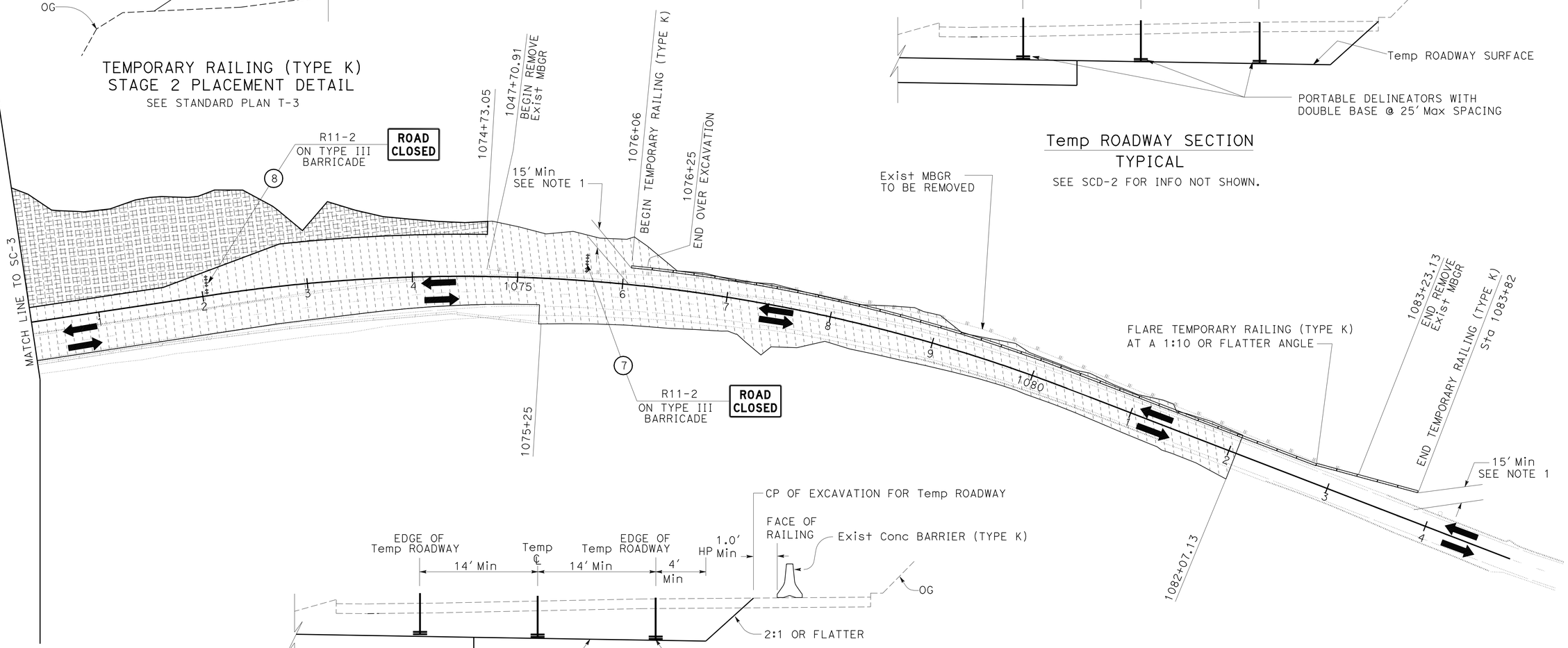
1. THE INSIDE FACE AT THE BLUNT END AT THE TERMINI OF TEMPORARY RAILING (TYPE K) SHALL BE A MINIMUM OF 15′ FROM NEAREST EDGE OF Temp ROADWAY FOR ONCOMING TRAFFIC.
2. OUTER FACE OF TEMPORARY RAILING (TYPE K) SHALL NOT BE LESS THAN 2′ FROM THE HP.



TEMPORARY RAILING (TYPE K)
STAGE 2 PLACEMENT DETAIL
SEE STANDARD PLAN T-3



Temp ROADWAY SECTION
TYPICAL
SEE SCD-2 FOR INFO NOT SHOWN.



Temp ROADWAY DETAIL (STAGE 2 PHASE 3)
Sta 1069+21 TO 1072+80
SEE SCD-2 FOR INFO NOT SHOWN.

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION & TRAFFIC HANDLING WORK ONLY.

STAGE 2
STAGE CONSTRUCTION

SCALE: 1" = 50′

SC-4

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REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 29-DEC-2011
TIME PLOTTED => 11:20

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	30	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:

1. THE INSIDE FACE AT THE BLUNT END AT THE TERMINI OF TEMPORARY RAILING (TYPE K) SHALL BE A MINIMUM OF 15′ FROM NEAREST EDGE OF Temp ROADWAY.ONCOMING TRAFFIC.
2. OUTER FACE OF TEMPORARY RAILING (TYPE K) SHALL NOT BE LESS THAN 2′ FROM THE HP.

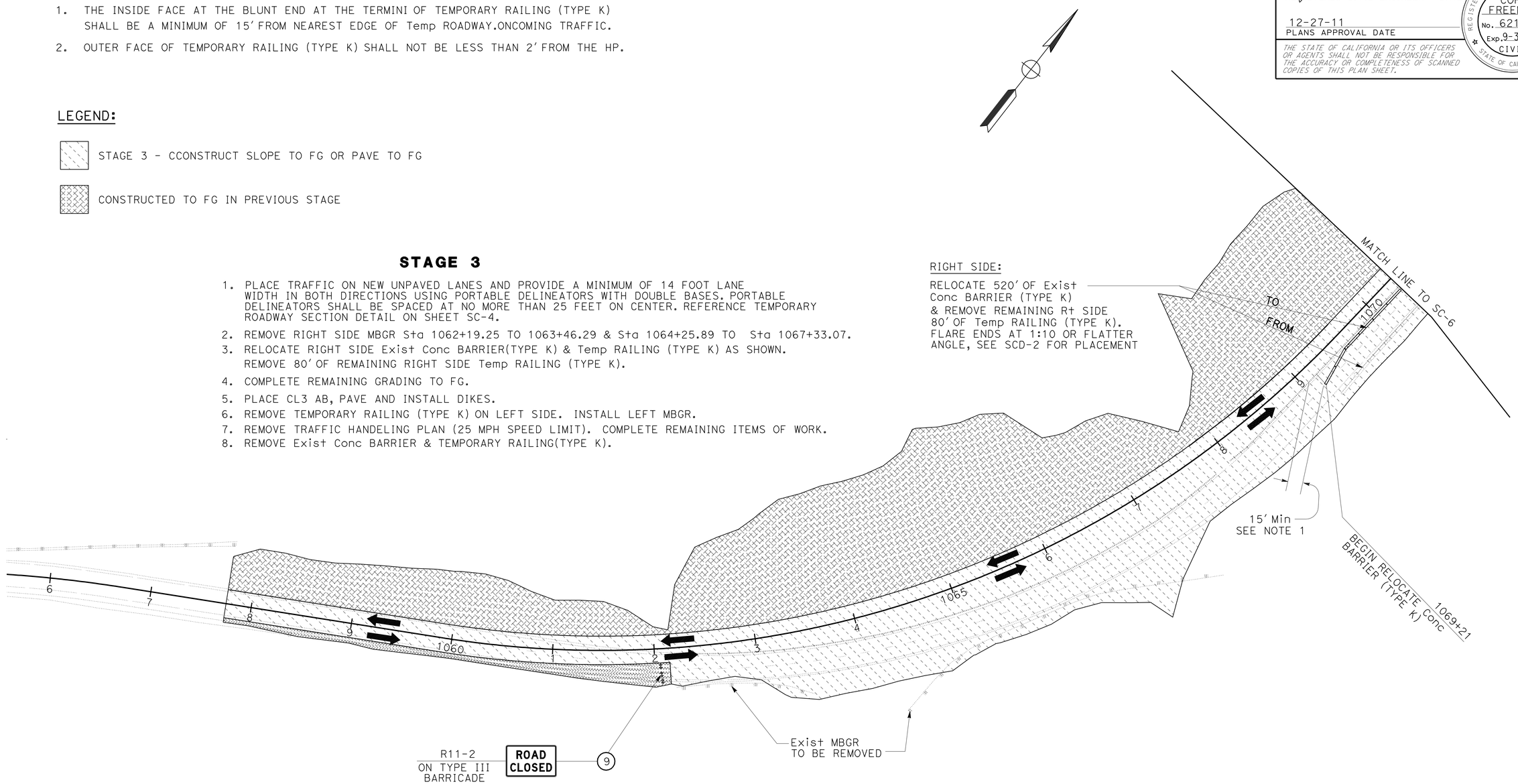
LEGEND:

STAGE 3 - CCONSTRUCT SLOPE TO FG OR PAVE TO FG

CONSTRUCTED TO FG IN PREVIOUS STAGE

STAGE 3

1. PLACE TRAFFIC ON NEW UNPAVED LANES AND PROVIDE A MINIMUM OF 14 FOOT LANE WIDTH IN BOTH DIRECTIONS USING PORTABLE DELINEATORS WITH DOUBLE BASES. PORTABLE DELINEATORS SHALL BE SPACED AT NO MORE THAN 25 FEET ON CENTER. REFERENCE TEMPORARY ROADWAY SECTION DETAIL ON SHEET SC-4.
2. REMOVE RIGHT SIDE MBGR Sta 1062+19.25 TO 1063+46.29 & Sta 1064+25.89 TO Sta 1067+33.07.
3. RELOCATE RIGHT SIDE Exist Conc BARRIER(TYPE K) & Temp RAILING (TYPE K) AS SHOWN. REMOVE 80′ OF REMAINING RIGHT SIDE Temp RAILING (TYPE K).
4. COMPLETE REMAINING GRADING TO FG.
5. PLACE CL3 AB, PAVE AND INSTALL DIKES.
6. REMOVE TEMPORARY RAILING (TYPE K) ON LEFT SIDE. INSTALL LEFT MBGR.
7. REMOVE TRAFFIC HANDELING PLAN (25 MPH SPEED LIMIT). COMPLETE REMAINING ITEMS OF WORK.
8. REMOVE Exist Conc BARRIER & TEMPORARY RAILING(TYPE K).



THIS PLAN ACCURATE FOR STAGE CONSTRUCTION & TRAFFIC HANDLING WORK ONLY.

STAGE 3
STAGE CONSTRUCTION
SCALE: 1" = 50′ **SC-5**

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CALCULATED-DESIGNED BY: CORY FREEMAN
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LAST REVISION 11-09-11
DATE PLOTTED => 14-FEB-2012
TIME PLOTTED => 11:24

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	31	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
CORY FREEMAN
No. 62107
Exp. 9-30-13
CIVIL
STATE OF CALIFORNIA

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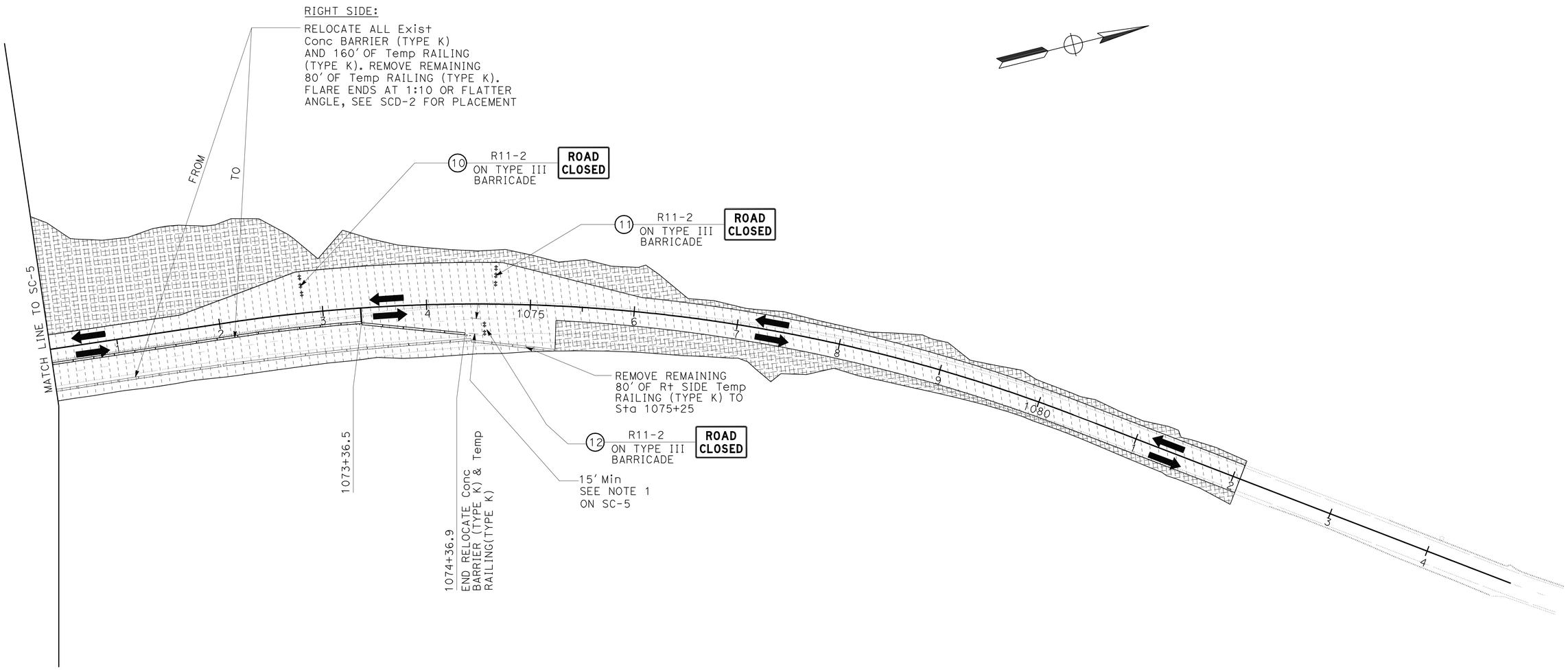

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION & TRAFFIC HANDLING WORK ONLY.

STAGE 3
STAGE CONSTRUCTION

SCALE: 1" = 50′

SC-6

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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CHECKED BY: CORY FREEMAN
REVISED BY
DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 29-DEC-2011
TIME PLOTTED => 11:20

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	32	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp 9-30-13 CIVIL STATE OF CALIFORNIA

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NOTES:

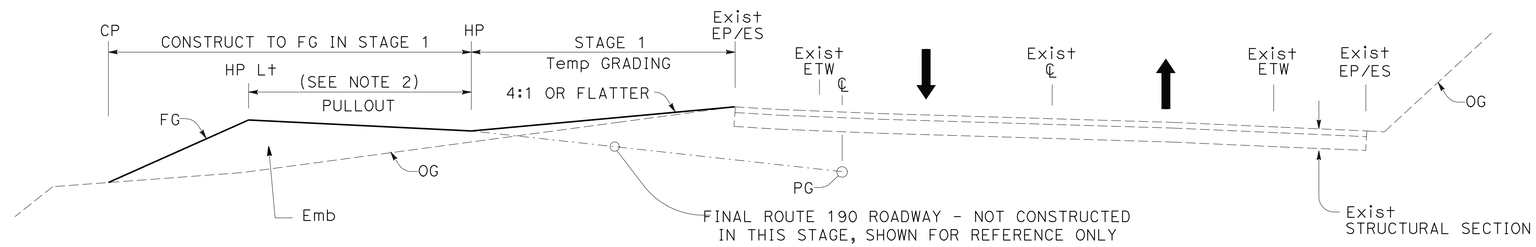
1. Temp GRADING IN STAGE 1 SHALL NOT EXCEED 4:1 SLOPE INCLINATION.
2. GRADE TO FG ELEVATIONS. CL3 AB AND HMA PLACED IN LATER STAGES.
3. LANES OPEN TO PUBLIC TRAFFIC IN STAGE 1 SHALL BE 14' Min WIDTH.

ABBREVIATIONS:

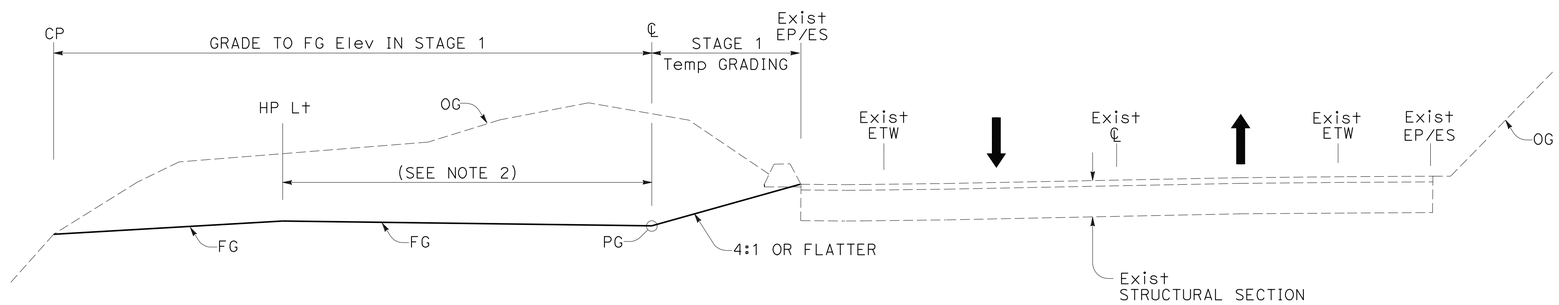
CP - CATCH POINT

LEGEND:

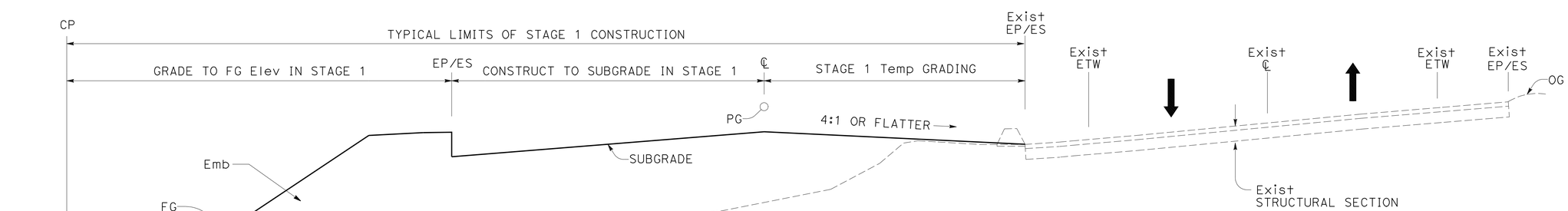
DIRECTION OF TRAFFIC
FOR CURRENT STAGE OF CONSTRUCTION ONLY



ROUTE 190 STAGE 1 SECTION
Sta 1074+50



ROUTE 190 STAGE 1 SECTION
Sta 1071+00



ROUTE 190 STAGE 1 SECTION
Sta 1063+25

STAGE CONSTRUCTION DETAILS

NO SCALE

STAGE 1 SCD-1

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DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 13:13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	33	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp 9-30-13 CIVIL STATE OF CALIFORNIA

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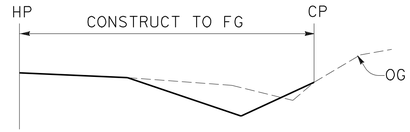
NOTE:

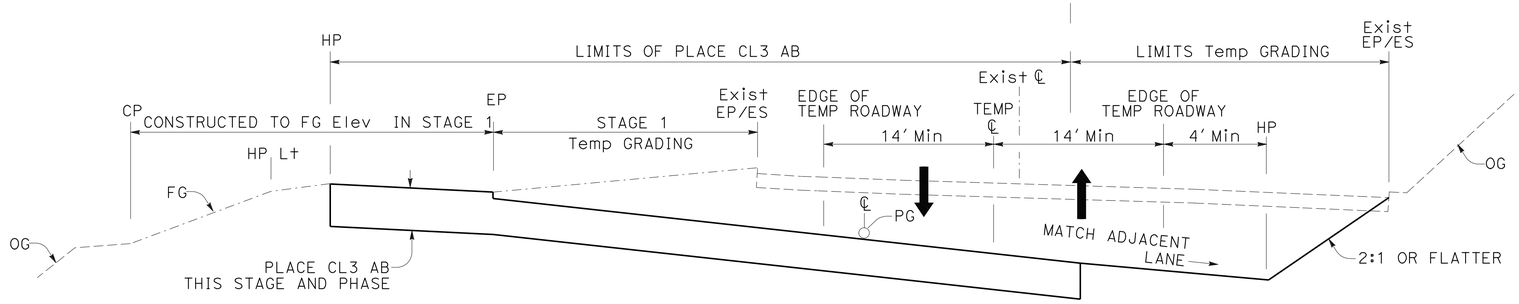
1. LANES OPEN TO PUBLIC TRAFFIC IN STAGE 2 SHALL BE 14' Min WIDTH.

LEGEND:

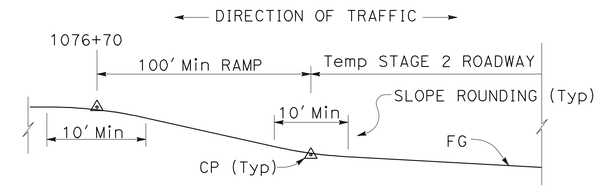
CONSTRUCTED IN STAGE 1



Sta 1075+00 TO 1082+07.17

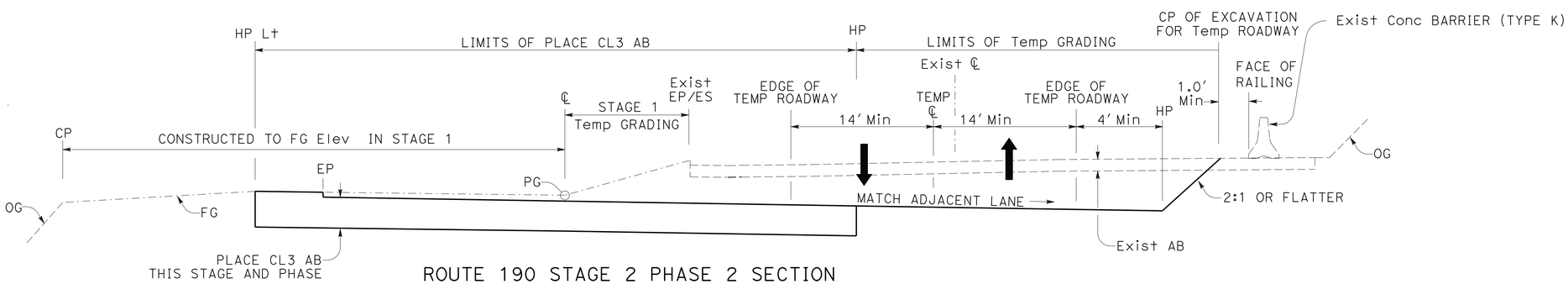


ROUTE 190 STAGE 2 PHASE 2 SECTION
Sta 1074+70

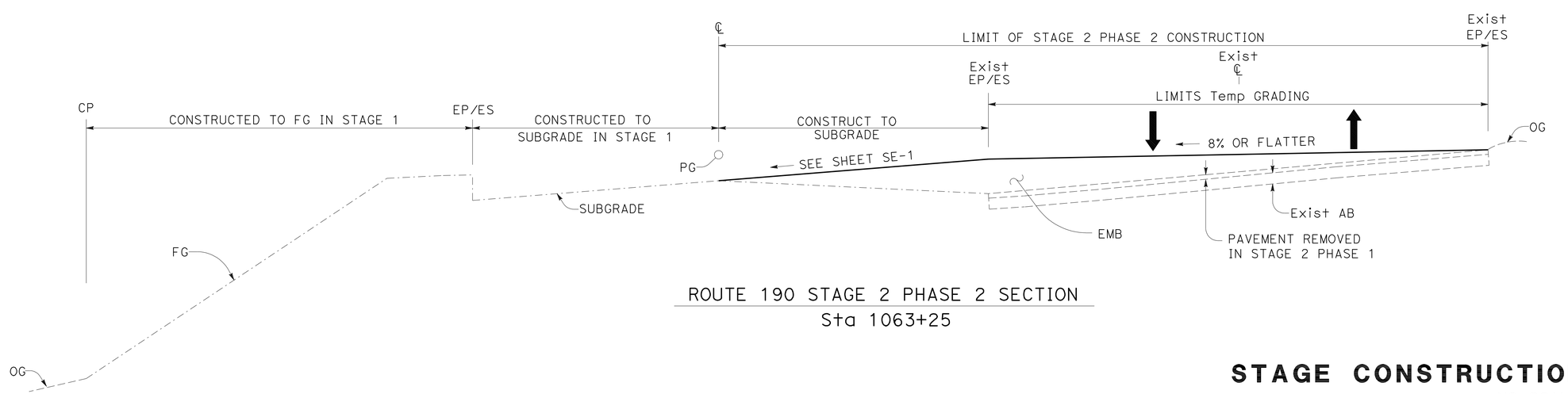


Temp RAMP DOWN DETAIL
STAGE 2 PHASE 2 AT DIGOUTS

NOTE: DETAIL APPLIES WHEN NO TRAFFIC CONTROL IS PRESENT



ROUTE 190 STAGE 2 PHASE 2 SECTION
Sta 1071+00



ROUTE 190 STAGE 2 PHASE 2 SECTION
Sta 1063+25

STAGE 2 STAGE CONSTRUCTION DETAILS SCD-2

NO SCALE

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DATE REVISED

LAST REVISION 11-09-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 13:13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	34	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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(N) NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY

STAGE CONSTRUCTION AREA SIGN SUMMARY

	SIGN NUMBER	STATION	LEFT	RIGHT	SIGN PANEL CODE	SIGN PANEL SIZE (LxD)	SIGN PANEL MESSAGE		NORTHBOUND (FNBT)	SOUTHBOUND (FSBT)	EASTBOUND (FEBT)	WESTBOUND (FWBT)	STATIONARY MOUNTED	PORTABLE MOUNTED	TYPE III BARRICADE EA		REMARKS	
STAGE 1	1	1062+15	X		R11-2	48"x30"	ROAD CLOSED				X				3		LEAVE IN PLACE THROUGH STAGE 2 MOUNT ON TYPE III BARRICADE	STAGE 1
	2	1063+75	X		R11-2	48"x30"	ROAD CLOSED				X				3		LEAVE IN PLACE THROUGH STAGE 2 MOUNT ON TYPE III BARRICADE	
	3	1072+75	X		R11-2	48"x30"	ROAD CLOSED					X			3		LEAVE IN PLACE THROUGH STAGE 2 MOUNT ON TYPE III BARRICADE	
	4	1074+30	X		R11-2	48"x30"	ROAD CLOSED					X			3		RELOCATE in STAGE 2 MOUNT ON TYPE III BARRICADE	
STAGE 2	5	1062+15	X		R11-2	48"x30"	ROAD CLOSED				X				(3)		RELOCATE in STAGE 2 MOUNT ON TYPE III BARRICADE	STAGE 2
	6	1063+75	X		R11-2	48"x30"	ROAD CLOSED				X				(3)		RELOCATE in STAGE 3 MOUNT ON TYPE III BARRICADE	
	7	1075+65	X		R11-2	48"x30"	ROAD CLOSED					X			(3)		MOUNT ON TYPE III BARRICADE	
	8	1072+75	X		R11-2	48"x30"	ROAD CLOSED					X			(3)		MOUNT ON TYPE III BARRICADE	
STAGE 3	9	1062+00		X	R11-2	48"x30"	ROAD CLOSED				X				(3)		MOUNT ON TYPE III BARRICADE	STAGE 3
	10	1072+75	X		R11-2	48"x30"	ROAD CLOSED					X			(3)		MOUNT ON TYPE III BARRICADE	
	11	1074+70	X		R11-2	48"x30"	ROAD CLOSED					X			(3)		MOUNT ON TYPE III BARRICADE	
	12	1074+50		X	R11-2	48"x30"	ROAD CLOSED					X			(3)		MOUNT ON TYPE III BARRICADE	
								TOTAL							12			

1. (RELOCATED FROM PREVIOUS STAGE(S) , NOT A PAY QUANTITY.
2. SEE CS-1 & CS-2 FOR ADDITIONAL CONSTRUCTION AREA SIGNS.

TEMPORARY RAILING (TYPE K)

STATION TO STATION	SIDE	STAGE (S) PHASE (P)	TEMPORARY RAILING (TYPE K)	COMMENTS
			LF	
1072+80 TO 1075+25	R+	S1	240	
1076+06 TO 1083+82	L+	S2, P2	800	
TOTAL			1040	

RELOCATE Conc BARRIER (TYPE K)

STATION TO STATION	SIDE	STAGE (S) PHASE (P)	Exist Conc BARRIER (TYPE K)	COMMENTS
			LF	
1069+21 TO 1069+76.9	R+	S1	60	
1072+00 TO 1072+80	R+	S1	80	
1069+21 TO 1074+36.9	R+	S3	520	(1)
TOTAL			660	

(1) 160' OF THE 520' WAS PLACED IN STAGE 1 AS Temp RAILING (TYPE K).

REMOVE Conc BARRIER (TYPE K)

STATION TO STATION	SIDE	STAGE (S) PHASE (P)	Exist Conc BARRIER (TYPE K)	COMMENTS
			LF	
1069+21 TO 1072+80	R+	S3	360	
TOTAL			360	

STAGE CONSTRUCTION QUANTITIES
SCQ-1

REVISED BY | DATE REVISED
BRIAN WESLING | CORY FREEMAN
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR: BRIAN WESLING
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

LAST REVISION 11-09-11 | DATE PLOTTED => 28-DEC-2011 | TIME PLOTTED => 11:33

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	35	53

11-9-11
REGISTERED CIVIL ENGINEER DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Donna Holland
No. 64205
Exp 6-30-13
CIVIL
STATE OF CALIFORNIA

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PAINT TRAFFIC STRIPE (2-COAT)

STATION TO STATION (LOCATION)			LENGTH (N)	DETAIL No. 21	DETAIL No. 27B
			LF	LF	LF
1056+00	-	1084+00	2800	2800	5600
SUBTOTAL				2800	5600
TOTAL				8400	

DELINEATORS (CLASS 2)

STA	L†	R†	DELINEATOR (CLASS 2) TYPE E EA	REMARKS
1058+00	X		1	
1058+15		X	1	2S
1059+91		X	1	BC
1060+79		X	1	
1061+67		X	1	
1062+55		X	1	
1063+00	X		1	
1063+43		X	1	
1063+74	X		1	6S
1064+31		X	1	
1065+19		X	1	
1066+07		X	1	
1066+74	X		1	3S
1066+96		X	1	
1067+84		X	1	
1068+00	X		1	
1068+72		X	1	
1069+60		X	1	EC
1069+74	X		1	2S
1071+36		X	1	2S
1072+10	X		1	BC
1073+00		X	1	
1073+28	X		1	
1074+00		X	1	3S
1074+46	X		1	
1075+64	X		1	
1076+82	X		1	
1077+00		X	1	6S
1078+00	X	X	2	
1079+18	X		1	
1080+36	X		1	EC
TOTAL			32	

REMOVE / RESET ROADSIDE SIGN

STA	SIDE L†	SIDE R†	CODE	REMOVE ROADSIDE SIGN EA	RESET ROADSIDE SIGN EA
1065+20		X	W50 (CA)	1	
1068+18	X		G17 (CA)		1
1077+40	X		W50 (CA)	1	
TOTAL				2	1

MILEPOST MARKER

STATION	L†	R†	MILEPOST MARKER EA	MESSAGE
1057+75		X	1	190 INY R65.930 Bk
1057+75		X	1	190 INY M65.930 Ahd
1061+45		X	1	190 INY M66.00
1082+07		X	1	190 MNO M66.391 Bk
1082+07		X	1	190 MNO R66.396 Ahd
TOTAL			5	

OBJECT MARKER (TYPE L-1)

STATION	L†	R†	OBJECT MARKER EA
1057+75		X	1
1071+25	X		1
1078+84		X	1
1083+07	X		1
TOTAL			4

REMOVE DELINEATORS

STA TO STA	REMOVE DELINEATORS EA
1057+75 TO 1081+75	32
TOTAL	32

PAVEMENT DELINEATION AND SIGN QUANTITIES

NO SCALE

PDQ-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING
CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: BRIAN WESLING
REVISED BY
DATE REVISED

LAST REVISION 11-09-11 DATE PLOTTED => 28-DEC-2011 TIME PLOTTED => 11:33

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	36	53

REGISTERED CIVIL ENGINEER 11-8-11 DATE

12-27-11
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER CORY FREEMAN No. 62107 Exp. 9-30-13 CIVIL STATE OF CALIFORNIA

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ABREVIATIONS:
DS - DRAINAGE STRUCTURE
(N) - NOT A SEPARATE PAY ITEM

ROADWAY QUANTITIES

	LOCATION STATION TO STATION	ROADWAY EXCAVATION	EMBANKMENT (N)	IMPORTED BORROW	HAUL OFF (N)	HMA (TYPE A)	CLASS 3 AB	TACK COAT
		CY	CY	CY	CY	TON	CY	TON
STAGE 1	1062+15 TO 1074+73.05	27,496	48,802					
	LOCAL TOPSOIL 1062+05 Lt TO 1073+00 Lt	2531						
	TOTAL STAGE 1	30,027	48,802	21,778				
STAGE 2								
	1057+75 TO 1064+75	554	374					
	1062+75 DS1 INLET Emb		1806					
	1068+20 TO 1075+75	6182	103				3048	
	1076+00 TO 1082+07.13	1009	60				204	
	TOTAL STAGE 2	7745	2343		4628		3252	
STAGE 3								
	1057+75 to 1061+75					273	260	
	1061+75 TO 1075+50	5047	205		4337	939	892	
	1075+50 to 1082+07.13					449	426	
	HMA DIKE					0.2		
	TOTAL STAGE 3	5047	205		8965	1661.2	1578	2
	PROJECT TOTALS	42,819	51,350	21,778	8965	1662	4830	2

TEMPORARY DRAINAGE INLET PROTECTION

SIDE Lt/Rt	STATION	QUANTITY
		EA
Lt	1062+75.55	1
	TOTAL	1

TEMPORARY REINFORCED SILT FENCE

SIDE Lt/Rt	BEGIN Sta	END Sta	LENGTH
			LF
Lt	1061+02.3	1067+75	734
Lt	1073+00	1076+50	385
Rt	1077+83.3	1082+07.13	423
TOTAL			1542

TEMPORARY CHECK DAM

SIDE/ Lt/Rt	BEGIN STATION	END STATION	LENGTH
			LF
Lt	1057+75	1061+00	70
Rt	1063+20	1064+98	40
Rt	1066+64.6	1077+83.3	230
Lt	1061+50	1067+60	80
Lt	1067+60	1070+00	30
Lt	1067+60	1069+00	20
TOTAL			470

TEMPORARY GRAVEL BAG BERM

SIDE/ DRAINAGE	BEGIN STATION	END STATION	LENGTH	LENGTH AT INLETS	LENGTH AT OUTLETS
			LF	LF	LF
Lt	1061+50	1067+60	611		
Lt	1067+60	1070+00	240		
Lt	1067+60	1069+00	180		
DS1	DRAINAGE			11	11
DS4	DRAINAGE			15	15
DS5	DRAINAGE			11	11
DS6	DRAINAGE			11	11
NET TOTALS			1031	48	48
TOTAL TGBB = 1127					

EROSION CONTROL

Sta to Sta LOCATION	MOVE-IN/ MOVE-OUT	EROSION CONTROL (TACKIFIER)
	EA	ACRE
1062+05 Lt TO 1067+80 Lt	2	2.9
1074+25 Lt TO 1075+50 Lt	-	.1
TOTAL	2	3

TEMPORARY FENCE (TYPE ESA)

STATION TO STATION	Lt	Rt	TEMPORARY FENCE (TYPE ESA)	DESCRIPTION
			LF	
1061+45.28 TO 1066+12.30	X		529	DRAINAGE EASEMENT PERMIT TO ENTER (PTE)
TOTAL			529	

REMOVE AC PAVEMENT (N)

LOCATION	AREA
	SQYD
1057+75 TO 1082+07.13	8920
TOTAL	8920

ROCK STAIN

LOCATION	DRAINAGE UNIT	AREA
		SQFT
DS1	(d) OUTLET RSP	200
	(f) INLET RSP	393
	(i) INLET RSP	1285
	(b)(e)(g)(h)(k)(l)(m)(n)(o)(p)	481
DS4	(c) SLOPE RSP	2006
	(d) GABBION HW	610
	(e) Rt GABBION WALL	743
	(f) Lt GABBION WALL	540
	(i) RSP	1040
	(j) RSP AT FL	2728
	INLET SIDE	363
	(b)	1122
DS5	OUTLET SIDE	32
	TOTAL	11543

MARKERS (CULVERT)

STATION	Lt	Rt	EA
1062+75.55	X	X	2
1065+21.02	X	X	2
1076+89	X		1
1077+44.82		X	1
1079+30.61	X	X	2
TOTAL			8

METAL BEAM GUARD RAILING (WOOD POST)

STATION TO STATION	SIDE	MBGR (WOOD POST)	ALTERNATIVE FLARED TERMINAL SYSTEM
		LF	EA
1061+64.38 TO 1083+07.58	Lt	2137.5	2
TOTAL		2137.5	2

REMOVE ASPHALT CONCRETE DIKE (N)

STATION TO STATION	SIDE	(TYPE A)
		LF
1059+60 TO 1061+35.27	Rt	175.3
1062+87.74 TO 1074+40.61	Lt	1152.9
1078+85.16 TO 1081+35.39	Rt	250.2
TOTAL		1578.4

PLACE HOT MIX ASPHALT DIKE

STATION TO STATION	SIDE	(TYPE F)	(TYPE E)
		LF	LF
1062+05 TO 1070+70	Lt	865	
1057+75 TO 1058+25	Rt		50
1078+84 TO 1081+35	Rt		251
TOTAL		865	301

REMOVE METAL BEAM GUARD RAILING

STATION TO STATION	SIDE	MBGR (WOOD POST)
		LF
1062+19.25 TO 1063+46.29	Rt	144.1
1064+25.89 TO 1067+33.07	Rt	356.7
1074+70.91 TO 1083+23.13	Lt	870.1
TOTAL		1370.9

BINDER (DUST PALLIATIVE)

LOCATION	QUANTITY
	TON
1057+75 To 1083+45.06	25

SUMMARY OF QUANTITIES
Q-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

FUNCTIONAL SUPERVISOR: BRIAN WESLING
CALCULATED-DESIGNED BY: CORY FREEMAN
CHECKED BY: BRIAN WESLING
REVISED BY
DATE REVISED

LAST REVISION 11-10-11
DATE PLOTTED => 28-DEC-2011
TIME PLOTTED => 11:50

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	37	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

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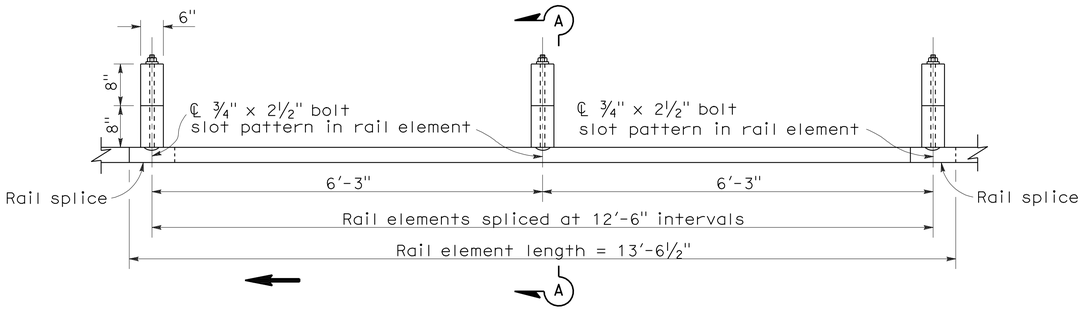
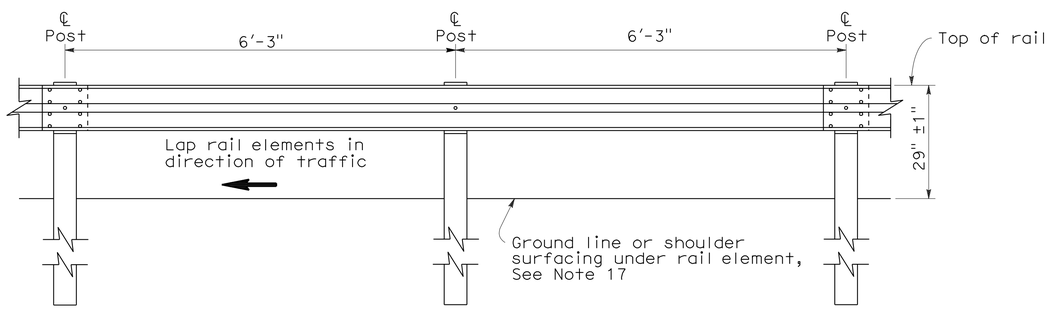
To accompany plans dated 12-27-11

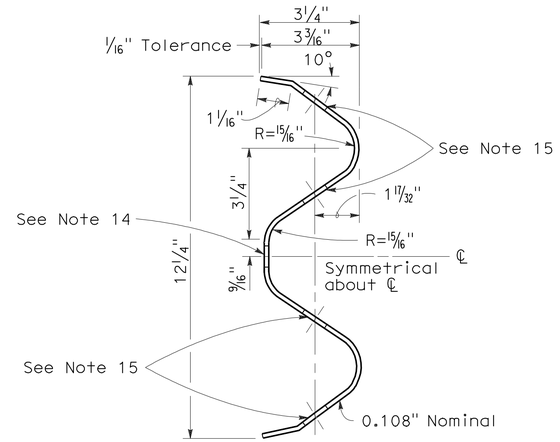


PLAN

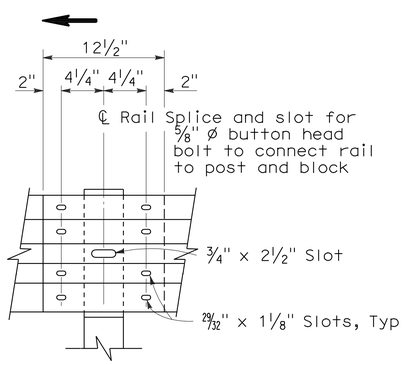


ELEVATION

METAL BEAM GUARD RAILING WITH WOOD POST AND BLOCKS



SECTION THRU RAIL ELEMENT



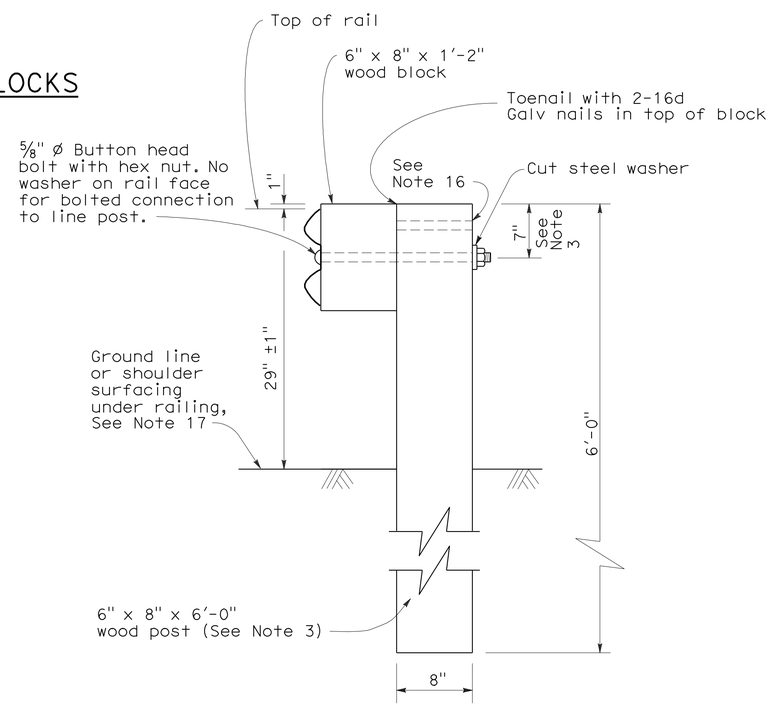
ELEVATION

RAIL ELEMENT SPLICE DETAIL

a) Connect the over lapped end of the rail elements with ⅝" ø x 1⅜" button head oval shoulder splice bolts inserted into the 29⁄32" x 1⅛" slots and bolted together with ⅝" ø recessed hex nuts. Recess of hex nut points toward rail element. A total of 8 bolts and nuts are to be used at each rail splice connection.

b) The ends of the rail elements are to be overlapped in the direction of traffic (see details).

c) Where end cap is to be attached to the end of a rail element, a total of 4 of the above described splice bolts and nuts are to be used.



SECTION A-A

TYPICAL WOOD LINE POST INSTALLATION

See Note 4

NOTES:

1. For details of steel post installations, see Standard Plan A77A2.
2. For details of standard hardware used to construct guard railing, see Standard Plan A77B1.
3. For details of wood posts and wood blocks used to construct guard railing, see Standard Plan A77C1.
4. For additional installation details, see Standard Plan A77C3.
5. Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
6. For guard railing typical layouts, see the A77E, A77F and A77G Series of Standard Plans.
7. For terminal system end treatment details, see the A77L Series of Standard Plans. To connect railing to terminal system end treatment, transition the top of railing height at a ratio of 120:1 to terminal system end treatment height plus one 12'-6" standard railing section at the transitioned height for a horizontal connection to the end treatment.
8. For guard railing end anchor details, see Standard Plans A77H1 and A77I2.
9. For details of guard railing transition to bridge railing, see Standard Plan A77J4.
10. For additional details of guard railing connection to bridge railings, see Standard Plans A77J1, A77J2 and A77K1.
11. For guard railing connection details to abutments and walls, see Standard Plan A77J3.
12. Direction of adjacent traffic indicated by ➡.
13. For typical guard railing delineation and dike positioning details, see Standard Plan A77C4.
14. Slotted hole for bolted connection of rail element to block and post. See "Section Thru Rail Element".
15. Slotted holes for splice bolts to overlap ends of rail element. See "Section Thru Rail Element".
16. Additional hole in uppermost portion of line post is for potential future adjustments of railing height. See Standard Plan A77C1.
17. Install posts in soil.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING STANDARD RAILING SECTION (WOOD POST WITH WOOD BLOCK)

NO SCALE

RSP A77A1 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77A1 DATED MAY 1, 2006 - PAGE 41 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77A1

2006 REVISED STANDARD PLAN RSP A77A1

3-10-11

To accompany plans dated 12-27-11

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	38	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

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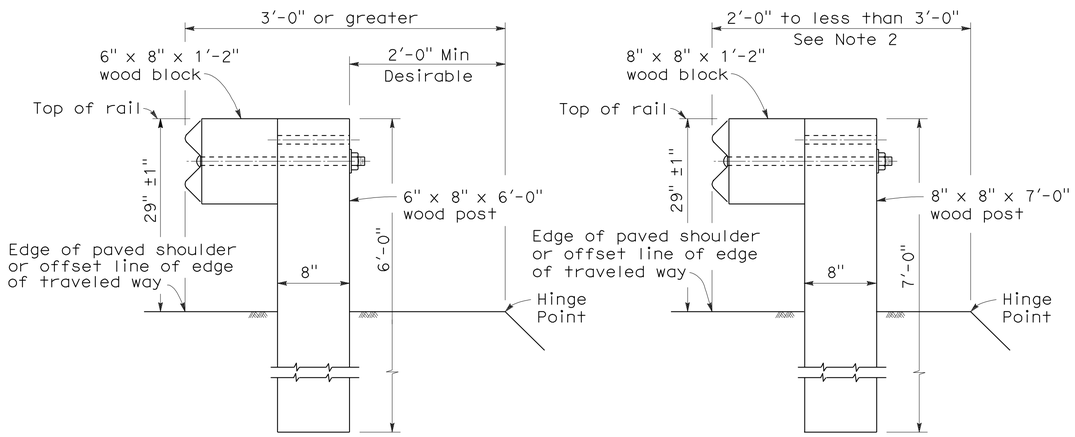
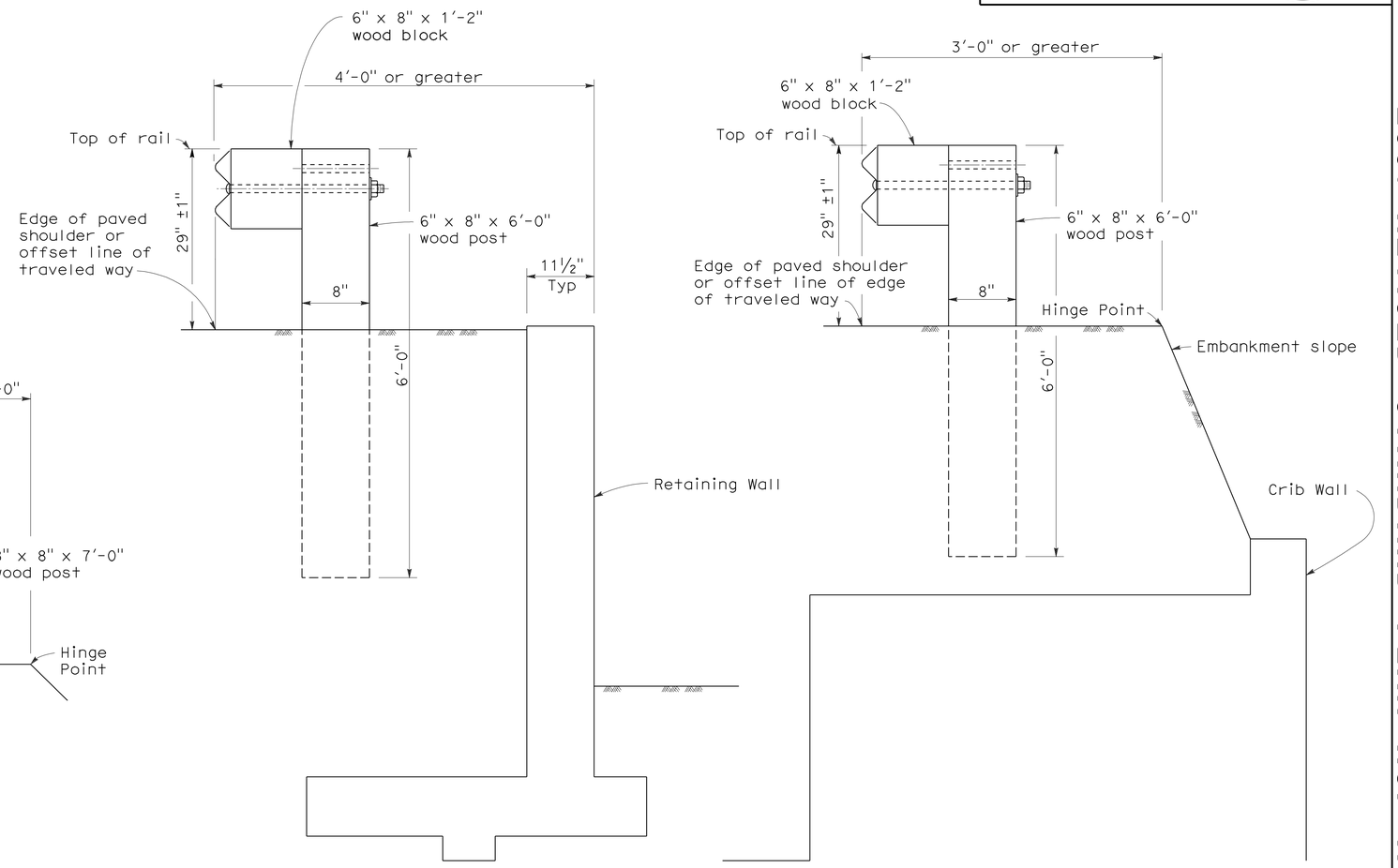


DETAIL A
TYPICAL ROADWAY INSTALLATION
See Note 1

DETAIL B
NARROW ROADWAY INSTALLATION
See Note 1

POST EMBEDMENT



DETAIL C

DETAIL D

INSTALLATION AT EARTH RETAINING WALLS

NOTES:

1. These installation details also applicable to steel line post installations. For Detail A, C, and D, where steel line post installations are constructed, W6 x 9 steel post, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For Detail B, where steel line post installations are constructed, W6 x 9 steel post, 7'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For additional installation details, see Standard Plans A77A1 and A77A2.
2. Where the distance between the face of the rail and the hinge point is less than 2'-0", see the Project Plans for special details.
3. For dike positioning with guard railing installations, see Standard Plan A77C4.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LINE POST EMBEDMENT AND HINGE POINT OFFSET DETAILS

NO SCALE

RSP A77C3 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77C3
DATED MAY 1, 2006 - PAGE 46 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77C3

2006 REVISED STANDARD PLAN RSP A77C3

3-10-11

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	39	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

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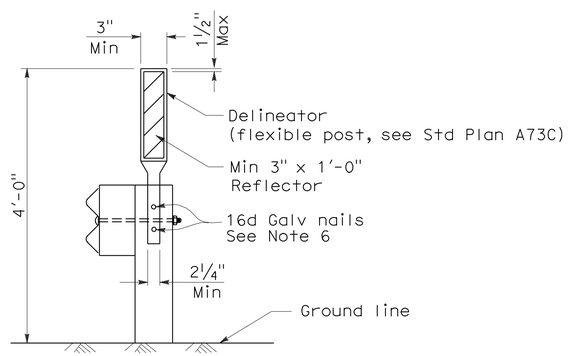
To accompany plans dated 12-27-11

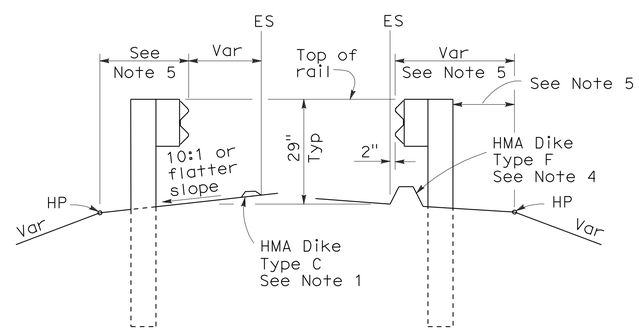
NOTES:

1. When necessary to place dike in front of face of guard railing, only Type C dike may be used. For dike details, see Standard Plan A87B.
2. For standard railing post embedment, see Standard Plans A77C3.
3. Guard railing delineation to be used where shown on the Project Plans.
4. When dike or curb is placed under guard railing, the maximum height of the dike or curb shall be 4". Mountable dike should not be used. For dike and curb details, see Standard Plans A87A and A87B.
5. For details of typical distance between the face of rail and hinge point, see Standard Plan A77C3.
6. For steel line posts, use 1/4 - 20 self-tapping screws in 0.22" diameter holes or 1/4" bolts in 9/32" diameter holes.



GUARD RAILING DELINEATION

See Note 3



DIKE POSITIONING

See Note 1

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL RAILING DELINEATION AND DIKE POSITIONING DETAILS

NO SCALE

RSP A77C4 DATED MAY 20, 2011 SUPERSEDES RSP A77C4 DATED JUNE 6, 2008 AND STANDARD PLAN A77C4 DATED MAY 1, 2006 - PAGE 47 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77C4

2006 REVISED STANDARD PLAN RSP A77C4

3-10-11

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	40	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Randell D. Hiatt No. C50200 Exp. 6-30-09 CIVIL STATE OF CALIFORNIA

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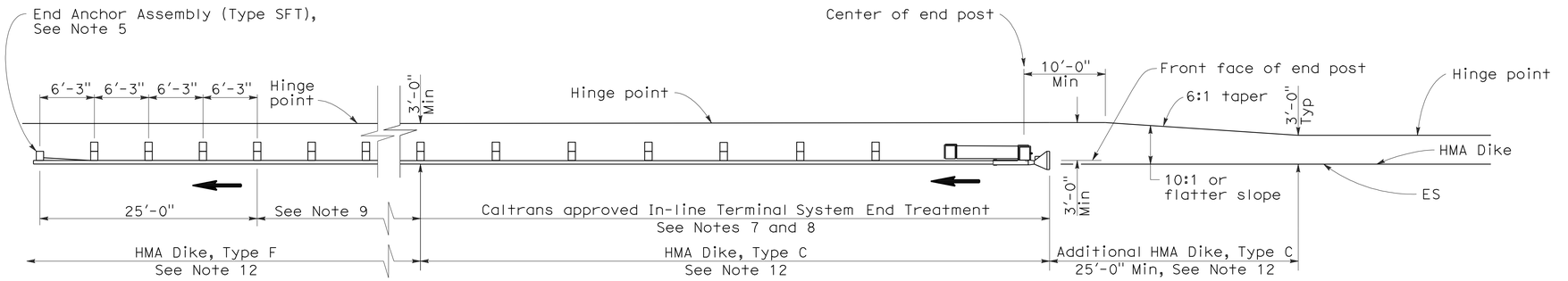
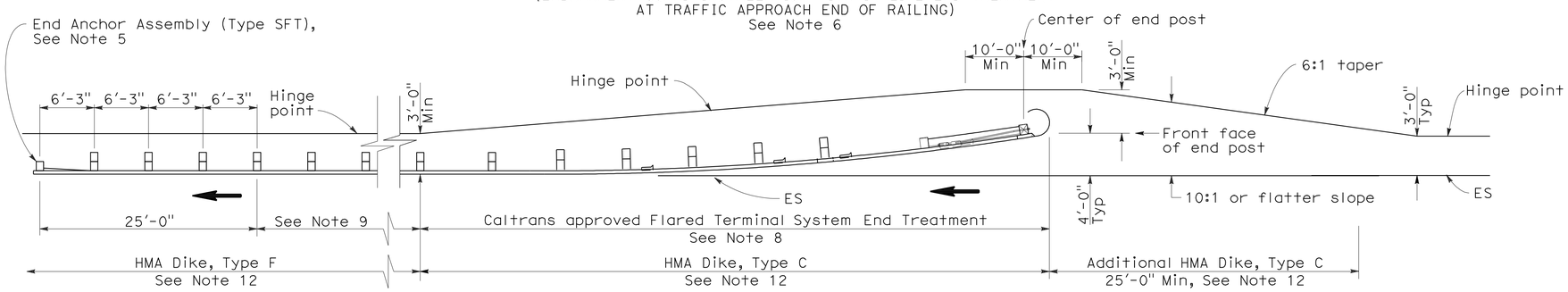
To accompany plans dated 12-27-11



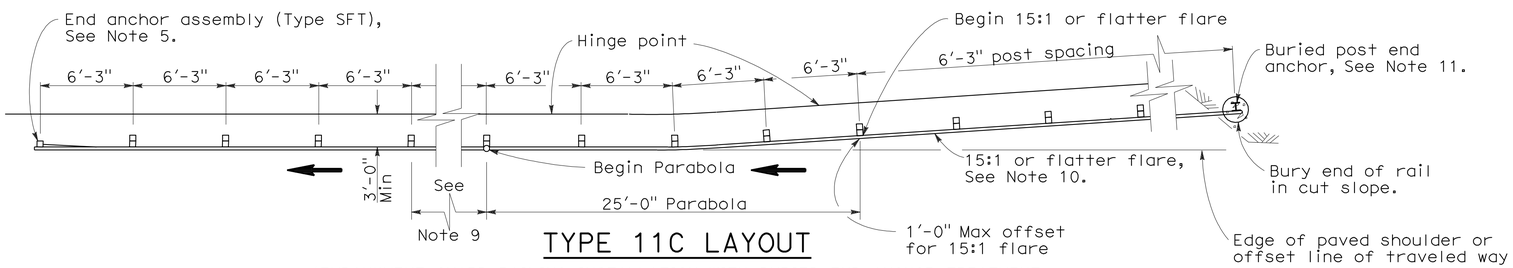
TYPE 11A LAYOUT

(EMBANKMENT GUARD INSTALLATION WITH IN-LINE END TREATMENT AT TRAFFIC APPROACH END OF RAILING)
See Note 6



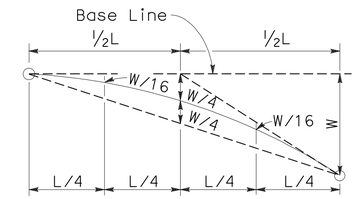
TYPE 11B LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH FLARED END TREATMENT AT TRAFFIC APPROACH END OF RAILING)
See Note 6

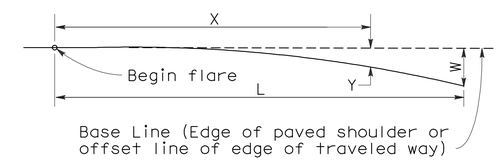


TYPE 11C LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH BURIED END ANCHOR TREATMENT AT TRAFFIC APPROACH END OF RAILING)
See Notes 6 and 12



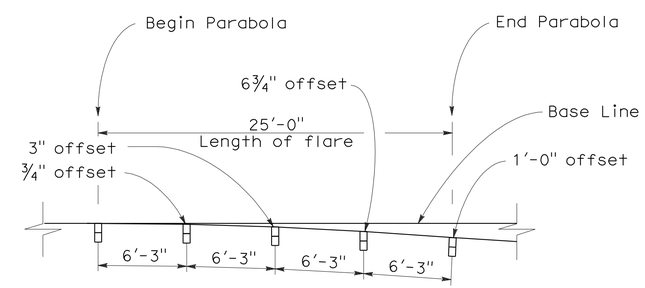
TYPICAL PARABOLIC LAYOUT



$$Y = \frac{WX^2}{L^2}$$

Y = Offset from base line
W = Maximum offset
X = Distance along base line
L = Length of flare

PARABOLIC FLARE OFFSETS



TYPICAL FLARE OFFSETS FOR 1 FOOT MAX END OFFSET

NOTES:

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1, and A77C2.
2. Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or recycled plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
4. Direction of adjacent traffic indicated by ⟶.
5. For End Anchor Assembly (Type SFT) details, see Standard Plan A77H1.
6. Layout Types 11A, 11B or 11C are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for only one direction of traffic.
7. In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
8. The type of terminal system end treatment to be used will be shown on the Project Plans.
9. Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
10. The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
11. For details of the buried post end anchor used with Type 11C Layout, see Standard Plan A77I2.
12. Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR EMBANKMENTS

NO SCALE

RSP A77E1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E1
DATED MAY 1, 2006 - PAGE 48 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77E1

2006 REVISED STANDARD PLAN RSP A77E1

12-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	41	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

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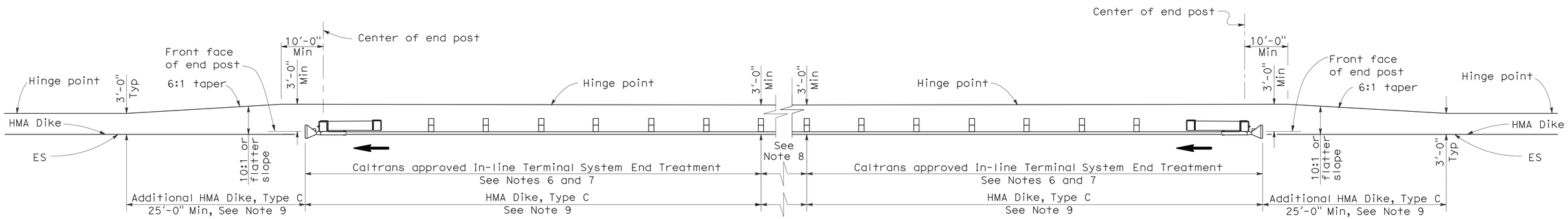
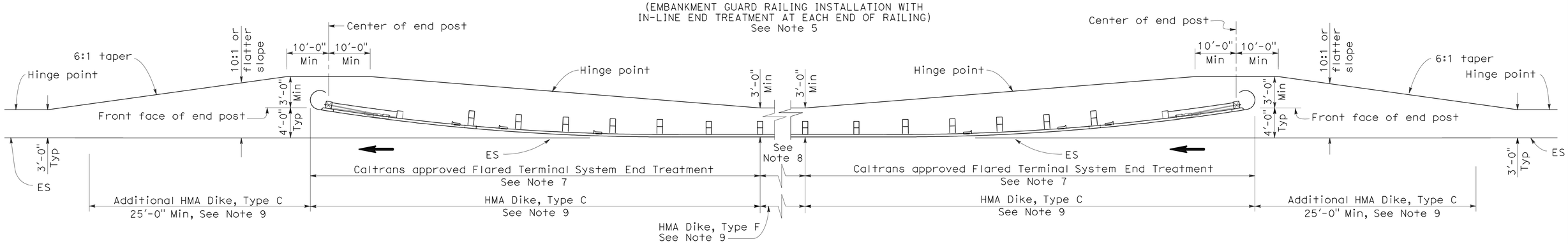
To accompany plans dated 12-27-11



TYPE 11D LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH
IN-LINE END TREATMENT AT EACH END OF RAILING)
See Note 5



TYPE 11E LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH
FLARED END TREATMENT AT EACH END OF RAILING)
See Note 5

NOTES:

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
2. Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks, W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
4. Direction of adjacent traffic indicated by ➡.
5. Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
6. In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
7. The type of terminal system end treatment to be used will be shown on the Project Plans.
8. Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
9. Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR EMBANKMENTS

NO SCALE

RSP A77E2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E2
DATED MAY 1, 2006 - PAGE 49 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77E2

2006 REVISED STANDARD PLAN RSP A77E2

12-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	42	53

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Raymond Don Tsztoo
No. C37332
Exp. 6-30-08
CIVIL
STATE OF CALIFORNIA

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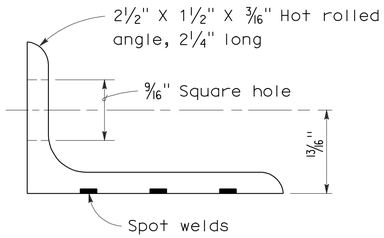
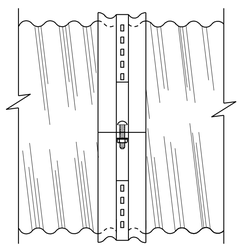
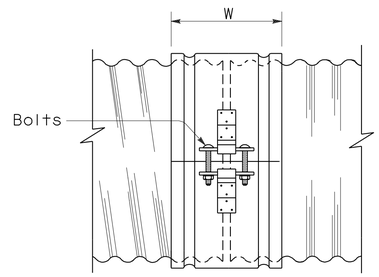
To accompany plans dated 12-27-11



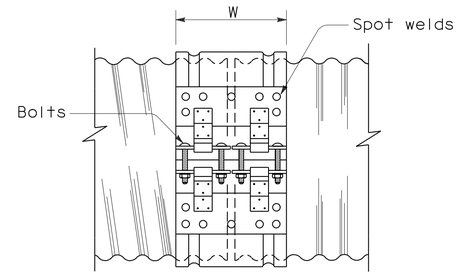
ANGLE



SIDE VIEW
ANGLE



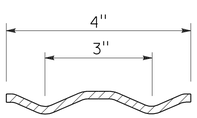
SIDE VIEW
SINGLE BAR AND STRAP



SIDE VIEW
DOUBLE BAR AND STRAP

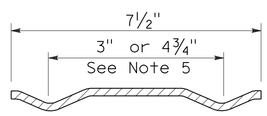
NOTES:

1. All ferrous metal coupling band connection hardware shall be galvanized or electroplated in accordance with the Standard Specifications.
2. Dimensions and thicknesses shown are minimum.
3. Spot welds shall develop minimum required strength of strap.
4. Fillet welds of equivalent strength may be substituted for spot welds or rivets.
5. Dimension depends upon whether end condition is lips up or lips down.



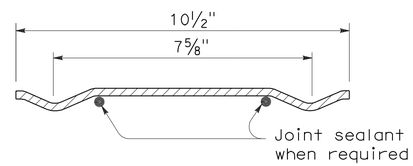
SECTION

H-4 HUGGER BAND



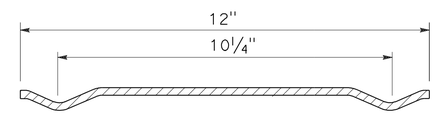
SECTION

H-7 HUGGER BAND



SECTION

H-10 HUGGER BAND



SECTION

H-12 HUGGER BAND

HUGGER COUPLING BANDS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 4 HUGGER COUPLING BANDS

NO SCALE

RSP D97D DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97D
DATED MAY 1, 2006 - PAGE 186 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97D

2006 REVISED STANDARD PLAN RSP D97D

3-24-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	43	53

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Raymond Don Tsztoo No. C37332 Exp. 6-30-08 CIVIL STATE OF CALIFORNIA

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ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS CSP	PIPE WALL THICKNESS CAP	BAND THICKNESS CSP	BAND THICKNESS CAP	BAR AND STRAP (CSP ONLY) STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	ANGLE DIMENSIONS CSP	ANGLE DIMENSIONS CAP	BOLTS (No.- Dia) CSP	BOLTS (No.- Dia) CAP	RIVETS ANGLE TO BAND CSP	RIVETS ANGLE TO BAND CAP	SPOT WELDS ANGLE TO BAND CSP
TWO PIECE INTEGRAL FLANGE	1½′ × ¼"	6"-10"	7"	0.052"-0.079"	0.048"-0.060"	0.052"	0.060"							2-⅜"	2-⅜"			
		12"-18"	7"	0.052"-0.079"		0.064"								2-½"				
	2⅔" × ½"	12"-24"	7"	0.052"-0.079"	0.060"-0.105"	0.064"	0.060"							2-½"	2-½"			
UNIVERSAL	2⅔" × ½"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"					2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	3-½"
		42"-60"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"					2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		THROUGH 72"	12"	0.052"-0.168"	0.164"	0.052"	0.105"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		78"-84"	16¼"	0.168"		0.079"		DOUBLE 0.079"	½"	⅞"	32 ksi							
ANNULAR	2⅔" × ½"	THROUGH 36"	7"	0.064"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	2-½"	2-½"	3-⅜"	3-⅜"	3-½"
		42"-72"	12"	0.064"-0.168"	0.075"-0.164"	0.052"	0.105"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		78"-84"	12"	0.168"		0.079"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
	3" × 1"	48"-90"	14"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		96"-120"	14"	0.079"-0.109"		0.052"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"		3-½"		4-⅜"		
		42"-108"	14"		0.060"-0.135"		0.060"						2" × 2" × 3/16"		3-½"		3-⅜"	
HELICAL	2⅔" × ½"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	3-½"
		42"-72"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		78"-84"	12"	0.168"		0.079"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
	3" × 1"	48"-90"	14"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		96"-120"	14"	0.079"-0.109"		0.052"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"		3-½"		4-⅜"		
		42"-108"	14"		0.060"-0.135"		0.060"						2" × 2" × 3/16"		3-½"		3-⅜"	
HUGGER	2⅔" × ½" REROLLED END	12"-54"	4"	0.052"-0.109"		0.052"						2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		60"-66"	4"	0.109"		0.064"						2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		36"-48"	4"	0.138"		0.064"						2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		THROUGH 72"	10½"	0.052"-0.168"		0.052"		0.079"	½"	⅞"	32 ksi							
		78"-84"	10½"	0.168"		0.079"		0.109"	½"	⅞"	45 ksi							
	3" × 1" REROLLED END	48"-90"	10½"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi							
		96"-120"	10½"	0.079"-0.109"		0.052"		0.109"	½"	⅞"	45 ksi							
	5" × 1" REROLLED END	48"-66"	7½"	0.064"-0.109"		0.064"		0.079"	½"	⅞"	32 ksi	2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		72"-90"	7½"	0.064"-0.079"		0.064"		0.079"	½"	⅞"	32 ksi	2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		48"-90"	7½"	0.064"-0.138"		0.064"		0.079"	½"	⅞"	32 ksi							
		48"-120"	12" SEE	0.064"-0.109"		0.064"		0.079"	½"	⅞"	32 ksi							
		48"-84"	12" NOTE	0.138"		0.064"		0.079"	½"	⅞"	32 ksi							
		90"-120"	12" 11	0.138"		0.064"		DOUBLE 0.079"	½"	⅞"	32 ksi							

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS SSRP	PIPE WALL THICKNESS ASRP	BAND THICKNESS SSRP	BAND THICKNESS ASRP	BAR AND STRAP (SSRP ONLY) STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	ANGLE DIMENSIONS SSRP	ANGLE DIMENSIONS ASRP	BOLTS (No.- Dia) SSRP	BOLTS (No.- Dia) ASRP	RIVETS ANGLE TO BAND SSRP	RIVETS ANGLE TO BAND ASRP	SPOT WELDS ANGLE TO BAND SSRP
ANNULAR	2⅔" × ½" * REROLLED END	24"-36"	12"	0.064"-0.109"	0.060"-0.105"	0.052"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		42"-60"	12"	0.064"-0.109"	0.075"-0.105"	0.052"	0.105"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		66"-72"	12"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		78"-114"	12"	0.079"-0.109"		0.079"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
HUGGER	2⅔" × ½" * REROLLED END	24"-72"	10½"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi							
		78"-84"	10½"	0.109"		0.079"		0.109"	½"	⅞"	45 ksi							

* See Note 14.

14. All profiles of Spiral Rib Pipe (¾" × ¾" ribs at 7½" pitch and ¾" × 1" ribs at 11½" pitch in both steel and aluminum and ¾" × 1" ribs at 8½" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2⅔" × ½" annual corrugations with a minimum of two full corrugations at each end.

NOTES:

To accompany plans dated 12-27-11

1. All ferrous metal coupling band connection hardware shall be galvanized or electro-plated in accordance with the Standard Specifications.
2. For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
3. Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
4. Use 1¼" gage line dimension on attached angle leg for rivets and spot welds.
5. Band thickness shall not be less than:
   a. 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
   b. 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
6. Dimensions, thicknesses and strengths shown are minimum.
7. For pipe arches use same width band as for round pipe of equal periphery.
8. Fillet welds of equivalent strenght may be substituted for spot welds or rivets.
9. Spot welds shall develop minimum required strength of strap.
10. Pipe with rerolled ends having at least two 2⅔" × ½" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2⅔" × ½" corrugations.
11. In the case of H-12 huggerbands, two piece bands are required for diameters through 96" and three piece bands are required for diameters 102" through 120".
12. Two piece bands are required for pipes greater than 42" diameter.
13. The 2¼" × 2" × 0.109" thick galvanized die-formed angle connector may be used in lieu of the 2" × 2" × 3/16" angle connector for standard joints only on pipes through 72" diameter.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 5 STANDARD JOINT

NO SCALE

RSP D97E DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97E
DATED MAY 1, 2006 - PAGE 187 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97E

2006 REVISED STANDARD PLAN RSP D97E

4-2-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	44	53

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Raymond Don Tsztoo No. C37332 Exp. 6-30-08 CIVIL STATE OF CALIFORNIA

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

To accompany plans dated 12-27-11

ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS CSP	PIPE WALL THICKNESS CAP	BAND THICKNESS CSP	BAND THICKNESS CAP	BAR AND STRAP (CSP ONLY) STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	ANGLE DIMENSIONS CSP	ANGLE DIMENSIONS CAP	BOLTS (No. - Dia) CSP	BOLTS (No. - Dia) CAP	RIVETS ANGLE TO BAND CSP	RIVETS ANGLE TO BAND CAP	SPOT WELDS ANGLE TO BAND CSP
TWO PIECE INTEGRAL FLANGE	1½" × ¼"	6"-10"	7"	0.064"-0.079"	0.060"	0.064"	0.060"							2-⅜"	2-⅜"			
	2⅔" × ½"	12"-24"	12"		0.060"-0.105"		0.060"								3-½"			
UNIVERSAL	2⅔" × ½"	THROUGH 36"	12"	0.064"-0.138"	0.060"-0.135"	0.064"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		42"-60"	16¼"	0.064"-0.168"	0.060"-0.164"	0.064"	0.060"	DOUBLE 0.079"	½"	⅞"	32 ksi	2" × 2" × ¼"	2" × 2" × ¼"	4-½"	4-½"	5-⅜"	5-⅜"	
ANNULAR	2⅔" × ½"	THROUGH 36"	12"	0.064"-0.138"	0.060"-0.135"	0.064"	0.060"					2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		42"-60"	12"	0.064"-0.079"		0.064"						2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		42"-60"	12"	0.109"-0.168"	0.135"-0.164"	0.064"	0.075"					2" × 2" × ¼"	2" × 2" × ¼"	3-½"	3-½"	5-⅜"	5-⅜"	
		66"-72"	24"		0.164"		0.105"						2" × 2" × ¼"		5-½"		5-½"	
		66"-84"	24"	0.109"-0.168"		0.064"						2" × 2" × ¼"		5-½"		7-⅜"		
		42"-54"	12"		0.060"-0.105"		0.060"						2" × 2" × 3/16"		3-½"		3-⅜"	
	3" × 1"	48"-60"	14"	0.064"-0.079"		0.064"						2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		48"-60"	14"	0.109"		0.064"						2" × 2" × 3/16"		3-½"		5-⅜"		
		66"-120"	25"	0.064"-0.109"		0.064"						2" × 2" × 3/16"		5-½"		9-⅜"		
		42"-60"	14"		0.060"-0.105"		0.060"						2" × 2" × 3/16"		3-½"		5-⅜"	
		42"-60"	14"		0.135"		0.075"						2" × 2" × ¼"		3-½"		5-⅜"	
		66"-96"	25"		0.060"-0.135"		0.060"						2" × 2" × ¼"		5-½"		7-⅜"	
		96"-108"	25"		0.135"		0.075"						2" × 2" × ¼"		5-½"		7-⅜"	
HELICAL	2⅔" × ½"	THROUGH 36"	12"	0.064"-0.138"	0.060"-0.135"	0.064"	0.060"					2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		42"-54"	12"		0.060"-0.105"		0.060"						2" × 2" × 3/16"		3-½"		3-⅜"	
		42"-60"	12"	0.064"-0.079"		0.064"						2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		42"-60"	12"	0.109"-0.168"	0.135"-0.164"	0.064"	0.075"					2" × 2" × ¼"	2" × 2" × ¼"	3-½"	3-½"	5-⅜"	5-⅜"	
		66'-84"	24"	0.109"-0.168"		0.064"						2" × 2" × ¼"		5-½"		7-⅜"		
		66"-72"	24"		0.164"		0.105"						2" × 2" × ¼"		5-½"		5-⅜"	
	3" × 1"	48"-60"	14"	0.064"-0.079"		0.064"						2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		48"-60"	14"	0.109"		0.064"						2" × 2" × 3/16"		3-½"		5-⅜"		
		66"-120"	25"	0.064"-0.109"		0.064"						2" × 2" × 3/16"		5-½"		9-⅜"		
		42"-60"	14"		0.060"-0.105"		0.060"						2" × 2" × 3/16"		3-½"		5-⅜"	
		42"-60"	14"		0.135"		0.075"						2" × 2" × ¼"		3-½"		5-⅜"	
		66"-96"	25"		0.060"-0.135"		0.060"						2" × 2" × ¼"		5-½"		7-⅜"	
		96"-108"	25"		0.135"		0.075"						2" × 2" × ¼"		5-½"		7-⅜"	
HUGGER	2⅔" × ½" REROLLED END	THROUGH 48"	10½"	0.109"		0.064"		0.079"	½"	⅞"	32 ksi							
		54"- 66"	10½"	0.109"		0.064"		DOUBLE 0.079"	½"	⅞"	32 ksi							
		THROUGH 54"	10½"	0.064"-0.079"		0.064"		0.079"	½"	⅞"	32 ksi							
		THROUGH 60"	10½"	0.138"		0.079"		DOUBLE 0.079"	½"	⅞"	32 ksi							
		66"-72"	10½"	0.138"		0.109"		DOUBLE 0.079"	½"	⅞"	32 ksi							
		THROUGH 72"	10½"	0.168"		0.109"		DOUBLE 0.109"	½"	⅞"	45 ksi							
	3" × 1" REROLLED END	48"-84"	10½"	0.109"		0.079"		DOUBLE 0.079"	½"	⅞"	32 ksi							
		48"-90"	10½"	0.064"-0.079"		0.064"		DOUBLE 0.079"	½"	⅞"	32 ksi							
		96"-102"	10½"	0.079"		0.079"		DOUBLE 0.079"	½"	⅞"	32 ksi							
		90"-120"	10½"	0.109"		0.109"		DOUBLE 0.109"	½"	⅞"	45 ksi							

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS SSRP	PIPE WALL THICKNESS ASRP	BAND THICKNESS SSRP	BAND THICKNESS ASRP	BAR AND STRAP (SSRP ONLY) STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	ANGLE DIMENSIONS SSRP	ANGLE DIMENSIONS ASRP	BOLTS (No.- Dia) SSRP	BOLTS (No.- Dia) ASRP	RIVETS ANGLE TO BAND SSRP	RIVETS ANGLE TO BAND ASRP	SPOT WELDS ANGLE TO BAND SSRP
ANNULAR	2⅔" × ½" * REROLLED END	24"-36"	12"	0.064"-0.109"	0.060"-0.105"	0.064"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		42"-60"	12"	0.064"-0.079"	0.075"-0.105"	0.064"	0.075"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		42"-60"	12"	0.109"		0.064"		0.079"	½"	⅞"	32 ksi	2" × 2" × ¼"		3-½"		5-⅜"		
		66"-84"	24"	0.109"		0.064"		0.079"	½"	⅞"	32 ksi	2" × 2" × ¼"		5-½"		7-⅜"		
HUGGER	2⅔" × ½" * REROLLED END	24"-54"	10½"	0.064"-0.079"		0.064"		0.079"	½"	⅞"	32 ksi							
		24"-48"	10½"	0.109"		0.064"		0.079"	½"	⅞"	32 ksi							
		54"-66"	10½"	0.109"		0.064"		Double 0.079"	½"	⅞"	32 ksi							

* See Note 13.

NOTES:

1. All ferrous metal coupling band connection hardware shall be galvanized or electro-plated in accordance with the Standard Specifications.
2. For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
3. Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
4. Use 1¼" gage line dimension on attached angle leg for rivets and spot welds.
5. Band thickness shall not be less than:
   a. 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
   b. 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
6. Dimensions, thicknesses and strengths shown are minimum.
7. For pipe arches use same width band as for round pipe of equal periphery.
8. Fillet welds of equivalent strength may be substituted for spot welds or rivets.
9. Spot welds shall develop minimum required strength of strap.
10. Pipe with rerolled ends having at least two 2⅔" × ½" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2⅔" × ½" corrugations.
11. In the case of H-12 huggerbands, two piece bands are required for diameters through 96" and three piece bands are required for diameters 102" through 120".
12. Two piece bands are required for pipes greater than 42" diameter.
13. All profiles of Spiral Rib Pipe (¾" × ¾" ribs at 7½" pitch and ¾" × 1" ribs at 11½" pitch in both steel and aluminum and ¾" × 1" ribs at 8½" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2⅔" × ½" annual corrugations with a minimum of two full corrugations at each end.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 6 POSITIVE JOINT

NO SCALE

RSP D97F DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97F
DATED MAY 1, 2006 - PAGE 188 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97F

2006 REVISED STANDARD PLAN RSP D97F

4-2-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	45	53

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Raymond Don Tsztoo
No. C37332
Exp. 6-30-08
CIVIL
STATE OF CALIFORNIA

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To accompany plans dated 12-27-11

ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS		BAND THICKNESS		BAR AND STRAP (CSP ONLY)			ANGLE						
											DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				CSP	CAP	CSP	CAP	STRAP THICKNESS	BOLTS Dia	BAR Dia	CSP	CAP	CSP	CAP	CSP	CAP	CSP
TWO PIECE INTEGRAL FLANGE	1½′ × ¼"	6"	7"	0.064"-0.168"		0.052"							3-⅜"				
	1½′ × ¼"	8"-10"	7"	0.064"-0.168"	0.060"-0.164"	0.064"	0.060"						3-⅜"	3-⅜"			
ANNULAR	2⅔" × ½"	THROUGH 24"	12"	0.064"-0.168"	0.060"-0.164"	0.064"	0.060"				2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	3-½"
HUGGER	2⅔" × ½" REROLLED END	THROUGH 24"	10½"	0.064"-0.168"		0.064"		0.079"	½"	⅞"							

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS		BAND THICKNESS		BAR AND STRAP (SSRP ONLY)			ANGLE						
											DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				SSRP	ASRP	SSRP	ASRP	STRAP THICKNESS	BOLTS Dia	BAR Dia	SSRP	ASRP	SSRP	ASRP	SSRP	ASRP	SSRP
ANNULAR	2⅔" × ½" * REROLLED END	24"	12"	0.064"-0.168"	0.060"-0.164"	0.064"	0.060"				2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	3-½"
HUGGER	2⅔" × ½" * REROLLED END	24"	10½"	0.064"-0.168"		0.064"		0.079"	½"	⅞"							

* See Note 12.

NOTES:

1. All ferrous metal coupling band connection hardware shall be galvanized or electro-plated in accordance with the Standard Specifications.
2. For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
3. Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
4. Use 1¼" gage line dimension on attached angle leg for rivets and spot welds.
5. Band thickness shall not be less than:
   a. 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
   b. 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
6. Dimensions, thicknesses and strengths shown are minimum.
7. For pipe arches use same width band as for round pipe of equal periphery.
8. Fillet welds of equivalent strenght may be substituted for spot welds or rivets.
9. Spot welds shall develop minimum required strength of strap.
10. Pipe with rerolled ends having at least two 2⅔" × ½" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2⅔" × ½" corrugations.
11. For downdrain applications, two piece integral flange couplers shall have factory applied sleeve type rubber gaskets with a minimum length of 7" measured along the length of the pipe.
12. All profiles of Spiral Rib Pipe (¾" × ¾" ribs at 7½" pitch and ¾" × 1" ribs at 11½" pitch in both steel and aluminum and ¾" × 1" ribs at 8½" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2⅔" × ½" annual corrugations with a minimum of two full corrugations at each end.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 7 DOWNDRAIN

NO SCALE

RSP D97G DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97G
DATED MAY 1, 2006 - PAGE 189 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97G

2006 REVISED STANDARD PLAN RSP D97G

4-4-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	46	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

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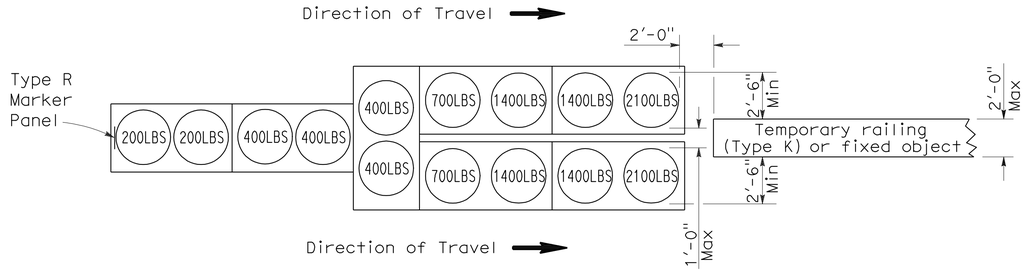
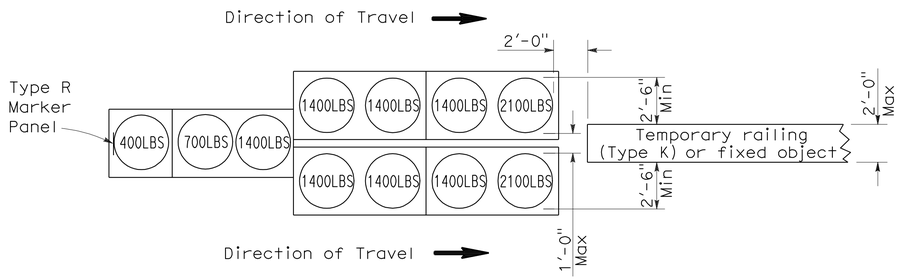
To accompany plans dated 12-27-11



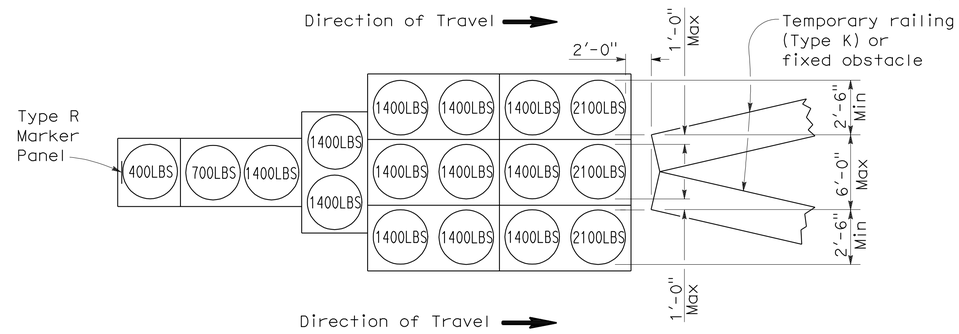
ARRAY 'TU14'

Approach speed 45 mph or more



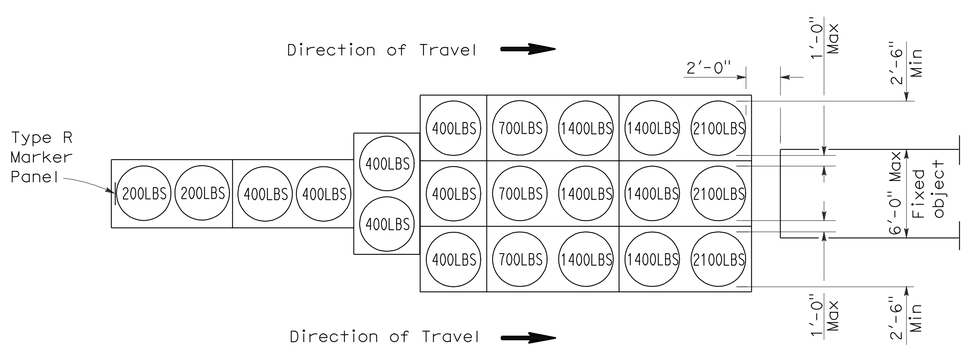
ARRAY 'TU11'

Approach speed less than 45 mph



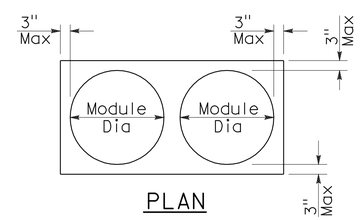
ARRAY 'TU17'

Approach speed less than 45 mph

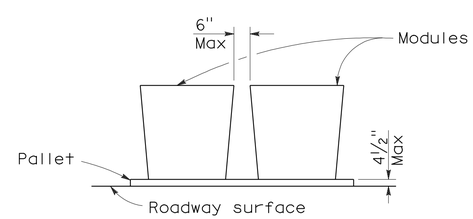


ARRAY 'TU21'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. Temporary crash cushion arrays shall not encroach on the traveled way.
4. Place the top of Type R marker panel 1" below the module lid.
5. Refer to Standard Plan A73B for marker details.
6. Approach speeds indicated conform to NCHRP 350 Report criteria.
7. Use of pallets is optional.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY CRASH CUSHION, SAND FILLED (UNIDIRECTIONAL)

NO SCALE

RSP T1A DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1A
DATED MAY 1, 2006 - PAGE 211 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T1A

2006 REVISED STANDARD PLAN RSP T1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	47	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

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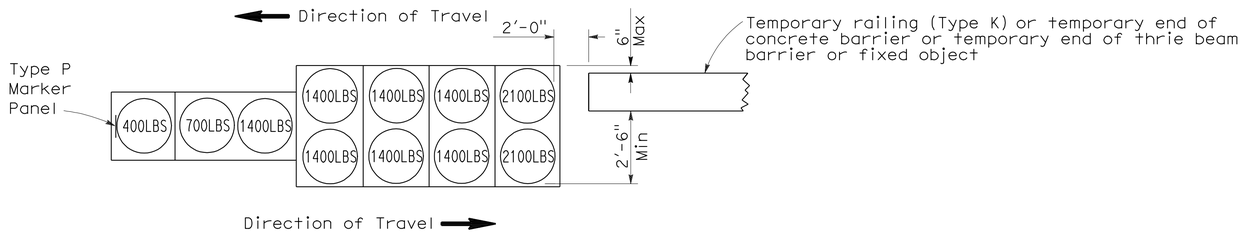
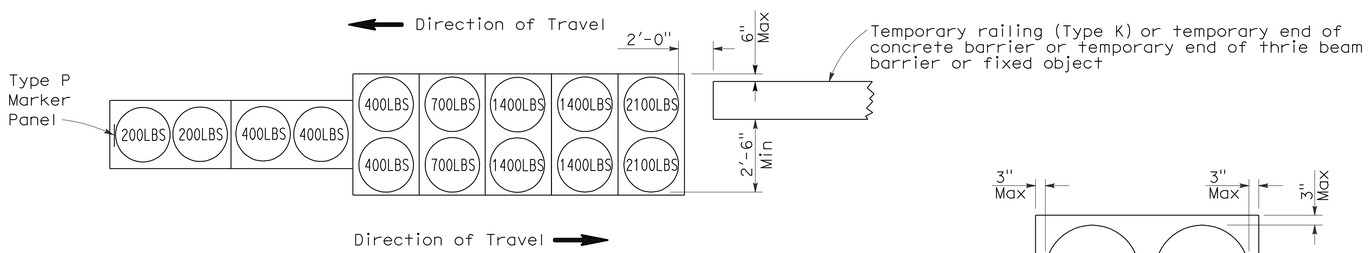
To accompany plans dated 12-27-11



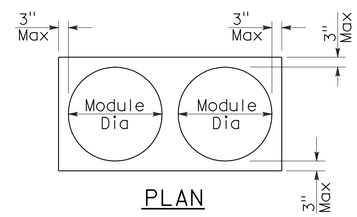
ARRAY 'TB11'

Approach speed less than 45 mph

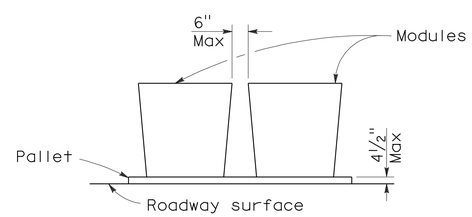


ARRAY 'TB14'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. Temporary crash cushion arrays shall not encroach on the traveled way.
4. Place the Type P marker panel so that the bottom of the panel rests upon the pallet.
5. Refer to Standard Plan A73B for marker details.
6. Approach speeds indicated conform to NCHRP 350 Report criteria.
7. Use of pallets is optional.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY CRASH CUSHION, SAND FILLED (BIDIRECTIONAL)

NO SCALE

RSP T1B DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1B
DATED MAY 1, 2006 - PAGE 212 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T1B

2006 REVISED STANDARD PLAN RSP T1B

5-15-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	48	53

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

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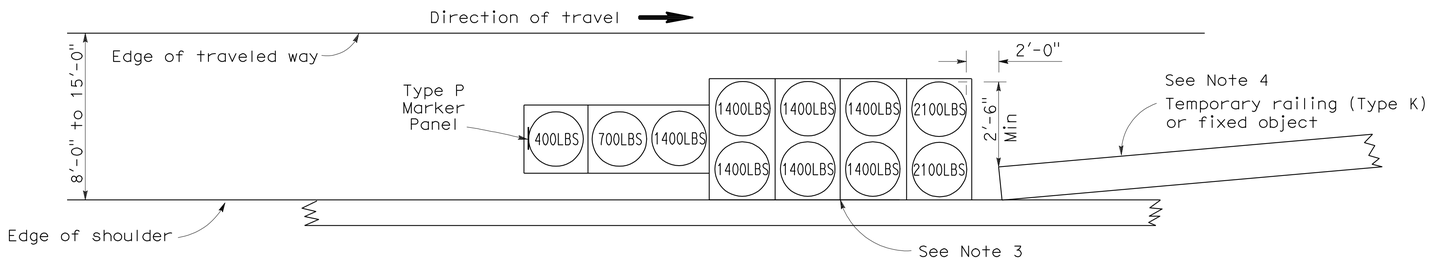
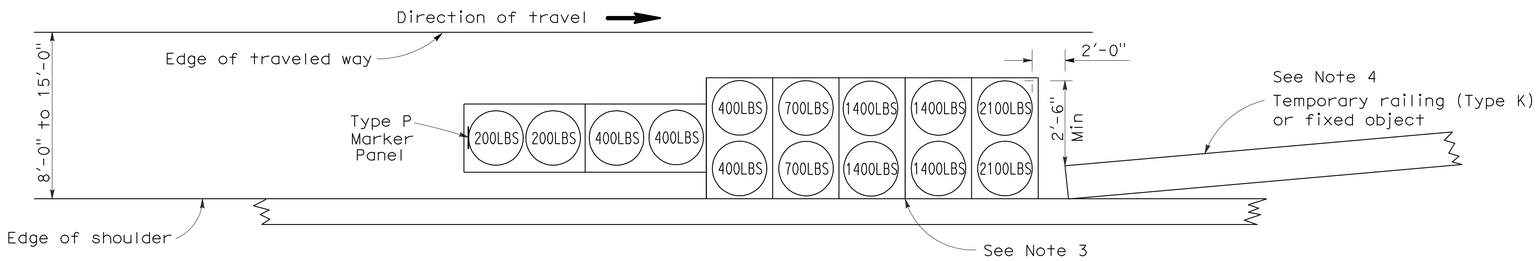
To accompany plans dated 12-27-11



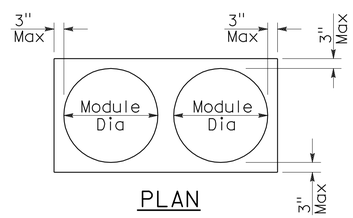
ARRAY 'TS11'

Approach speed less than 45 mph
See Note 9

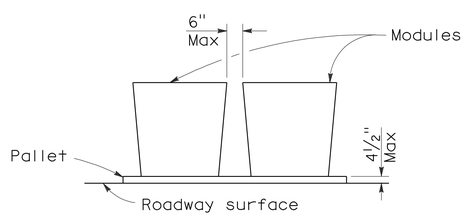


ARRAY 'TS14'

Approach speed 45 mph or more
See Note 9



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 11

NOTES:

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. The temporary crash cushion arrays shown on this plan shall be used only in locations where there will be traffic on one side of the temporary crash cushion array.
4. If the fixed object or approach end of the temporary railing is less than 15'-0" from the edge of traveled way, a temporary crash cushion is required in a construction or work zone.
5. Temporary crash cushion arrays shall not encroach on the traveled way.
6. Arrays for median shoulders shall conform to details shown on this plan for outside shoulders.
7. Place the Type P marker panel so that the bottom of the panel rests upon the pallet and faces traffic.
8. Refer to Standard Plan A73B for marker details.
9. For shoulder widths less than 8'-0", appropriate approved crash cushion protection, other than sand filled modules, shall be provided at fixed objects and at approach ends of temporary railing. The specific type of crash cushion shall be as shown on the project plans or as specified in the Special Provisions, or if not shown on the project plans or specified in the Special Provisions, shall be as approved by the Engineer.
10. Approach speeds indicated conform to NCHRP 350 Report criteria.
11. Use of pallets is optional.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY CRASH CUSHION, SAND FILLED (SHOULDER INSTALLATIONS)

NO SCALE

RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T2

2006 REVISED STANDARD PLAN RSP T2

5-15-08

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	49	53

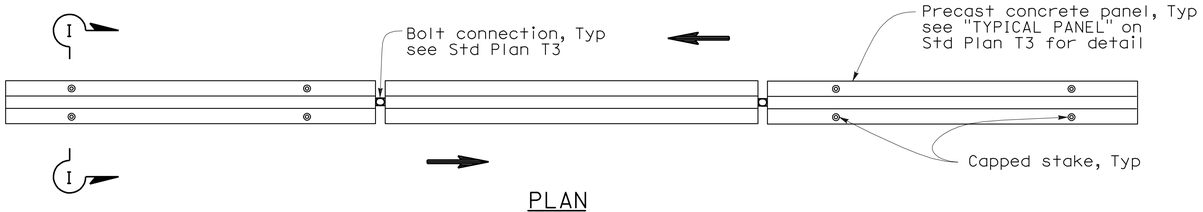
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-11
CIVIL
STATE OF CALIFORNIA

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

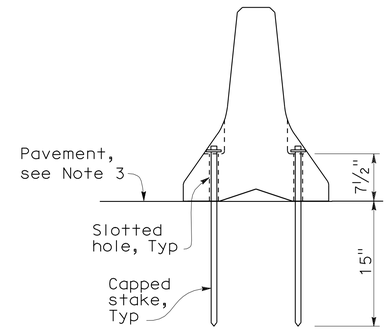
To accompany plans dated 12-27-11



PLAN

RAILING STAKING CONFIGURATION FOR TWO-WAY TRAFFIC

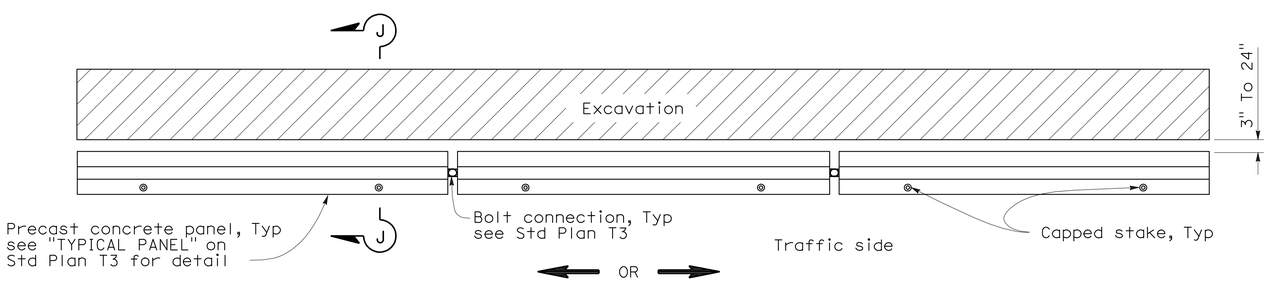
See Note 1



SECTION I-I

NOTES:

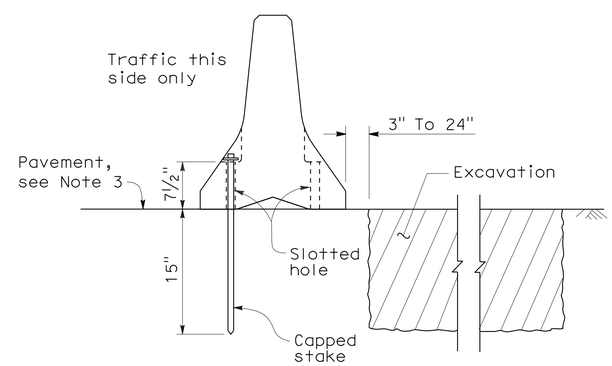
1. Where Type K Temporary Railing is placed as a temporary or long term barrier in two-way traffic on highways with less than 24" from the edge of traveled way, use four capped stakes per every other panel with end panels staked.
2. Where Type K Temporary Railing is placed 3" to 24" from the edge of an excavation on highways, use two capped stakes per panel along the traffic side.
3. Staked Type K Temporary Railing must be supported by at least 4" thick concrete, hot mix asphalt or existing asphalt concrete pavement.
4. The minimum yield strength for the washer must be 60,000 psi.
5. Direction of adjacent traffic indicated by ⟹.



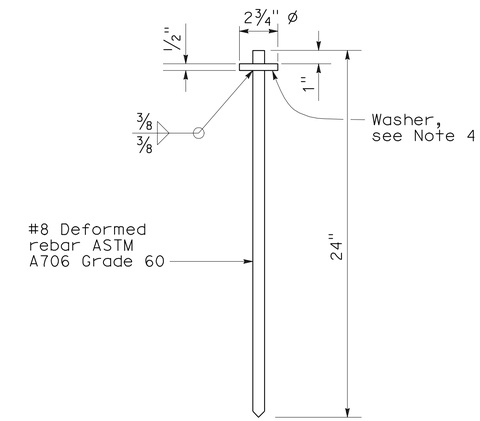
PLAN

RAILING STAKING CONFIGURATION ADJACENT TO AN EXCAVATION

See Note 2



SECTION J-J



CAPPED STAKE DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY RAILING (TYPE K)

NO SCALE

NSP T3A DATED MAY 20, 2011 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP T3A

2006 NEW STANDARD PLAN NSP T3A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	50	53

REGISTERED CIVIL ENGINEER

November 17, 2006
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Greg W. Edwards — No. C36386 — Exp. 6-30-08 — CIVIL — STATE OF CALIFORNIA

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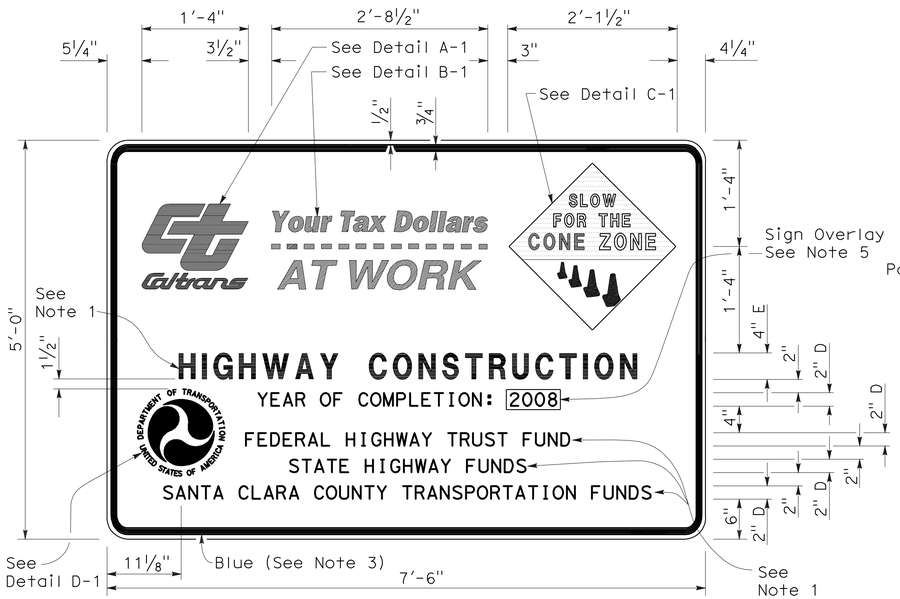
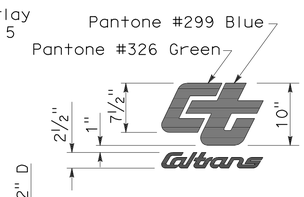
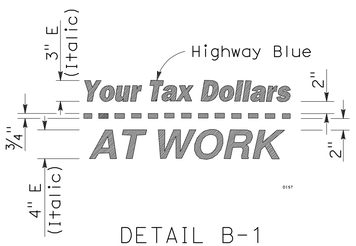
To accompany plans dated 12-27-11



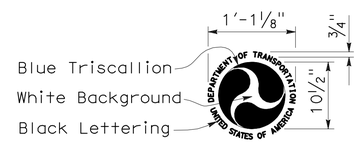
TYPE 1



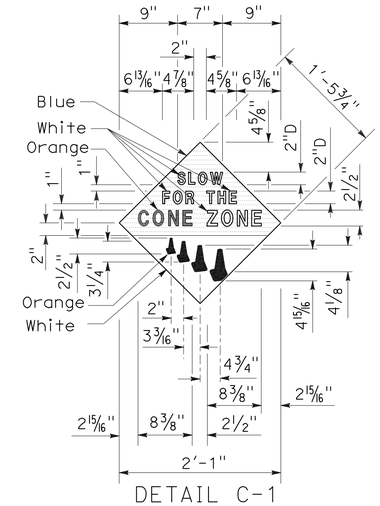
DETAIL A-1



DETAIL B-1
(See Note 3)



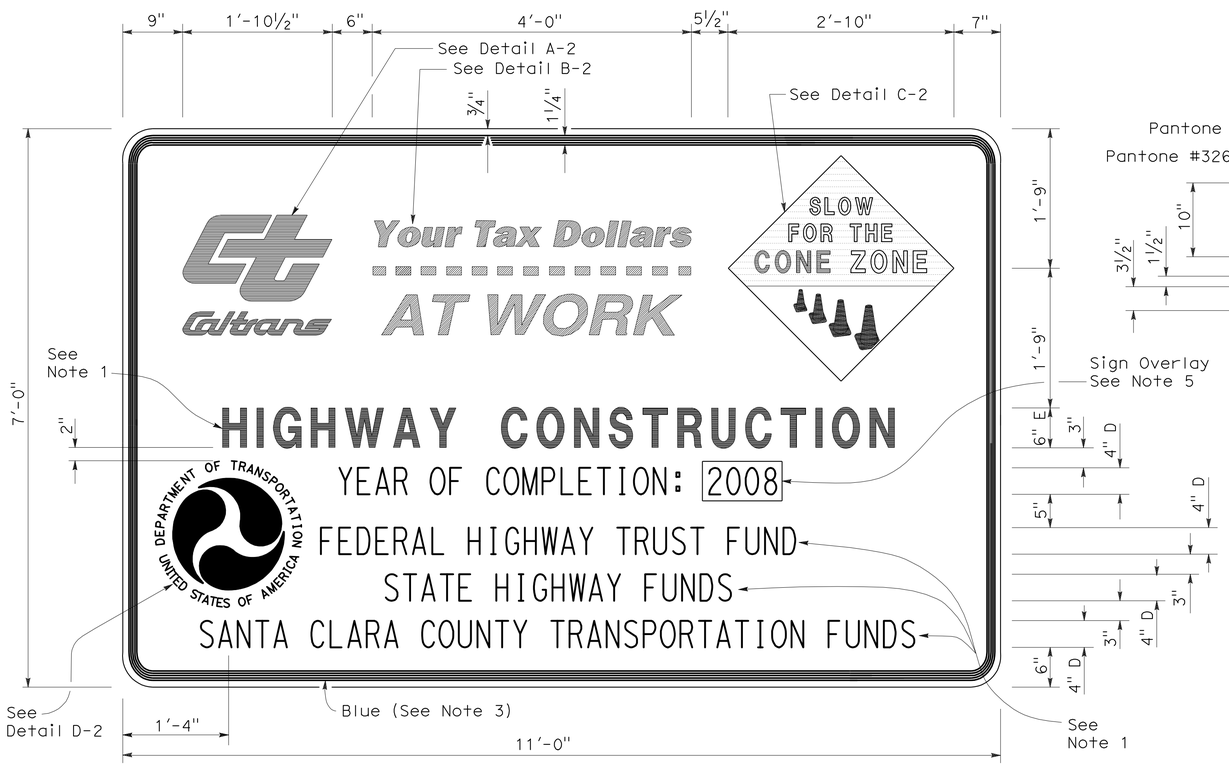
DETAIL D-1
(See Note 6)



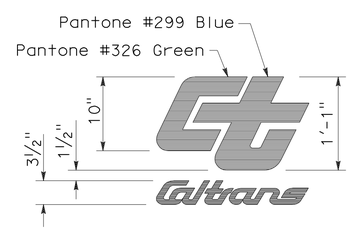
DETAIL C-1
(See Note 4)

NOTES:

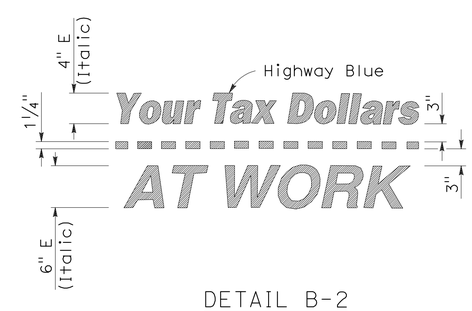
1. The sign messages shown for type of project and fund types are examples only. See the Special Provisions for the applicable type of project and fund type messages to be used.
2. Except as otherwise shown, the legend of sign shall be black on a white background (non-reflective).
3. The border of the signs and details "B-1" and "B-2" shall be blue (non-reflective).
4. The diamond in details "C-1" and "C-2" shall be blue for the background of message, " SLOW FOR THE CONE ZONE", and white background for the orange cones. The color and type of font for the "SLOW FOR THE CONE ZONE" message shall be: "SLOW" white D; "FOR THE" white D; "CONE" orange Arial font; "ZONE" white Arial font.
5. Year of completion of project construction shown on the overlay is an example only. See the Special Provisions.
6. Use when the Project involves Federal Highway Trust Fund.



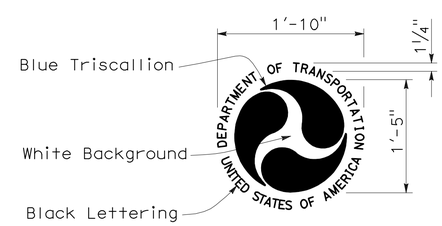
TYPE 2



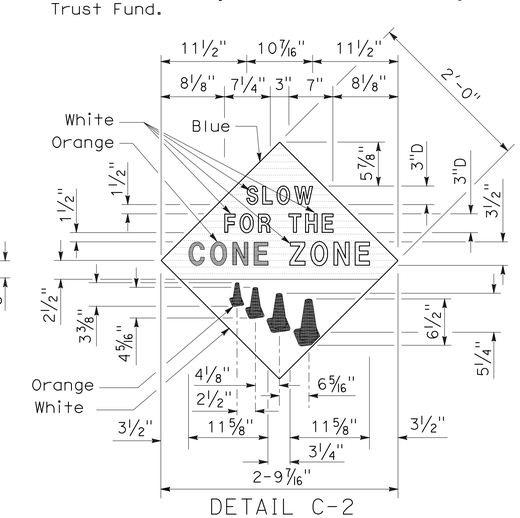
DETAIL A-2



DETAIL B-2
(See Note 3)



DETAIL D-2
(See Note 6)



DETAIL C-2
(See Note 4)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PROJECT FUNDING IDENTIFICATION SIGNS

NO SCALE

RSP T7 DATED NOVEMBER 17, 2006 SUPERSEDES STANDARD PLAN T7
DATED MAY 1, 2006 - PAGE 217 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T7

2006 REVISED STANDARD PLAN RSP T7

9-7-06

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	51	53

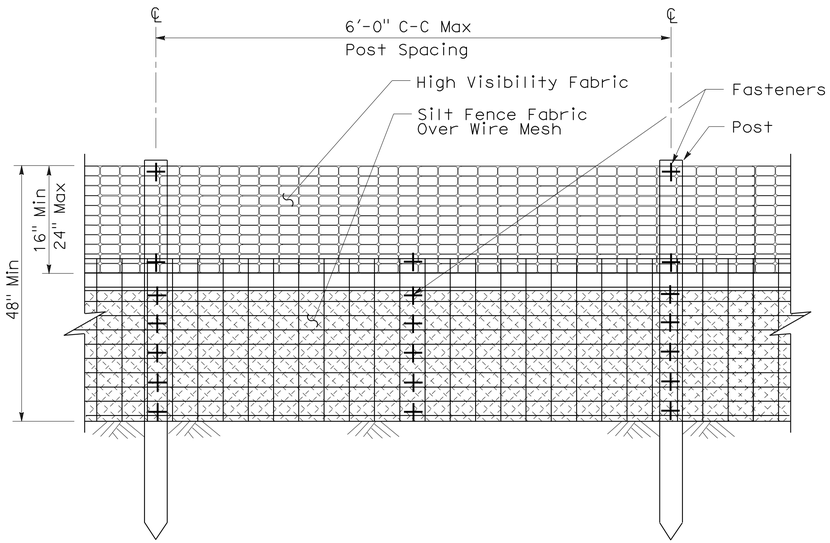
LICENSED LANDSCAPE ARCHITECT

April 3, 2009
PLANS APPROVAL DATE

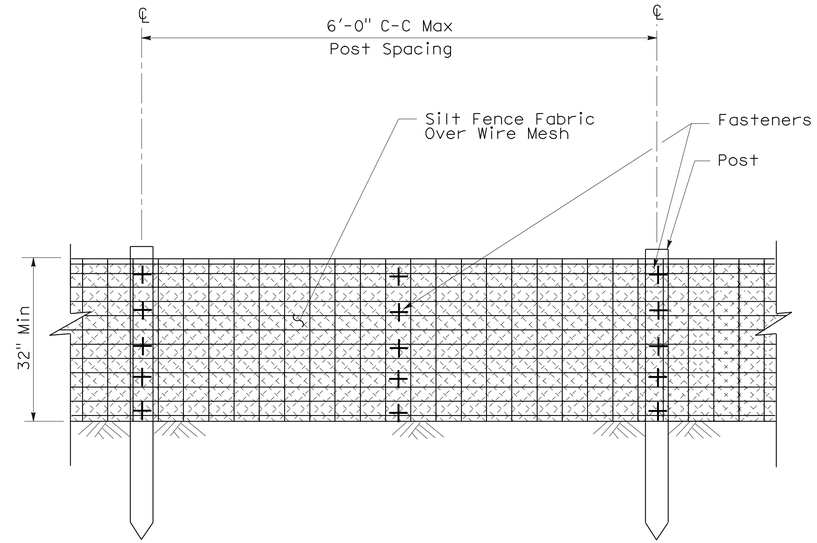
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

LICENSED LANDSCAPE ARCHITECT — Robert B. Schott — Signature 11-30-10 Renewal Date — 2-25-09 Date — STATE OF CALIFORNIA

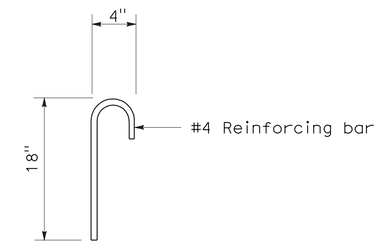
To accompany plans dated 12-27-11



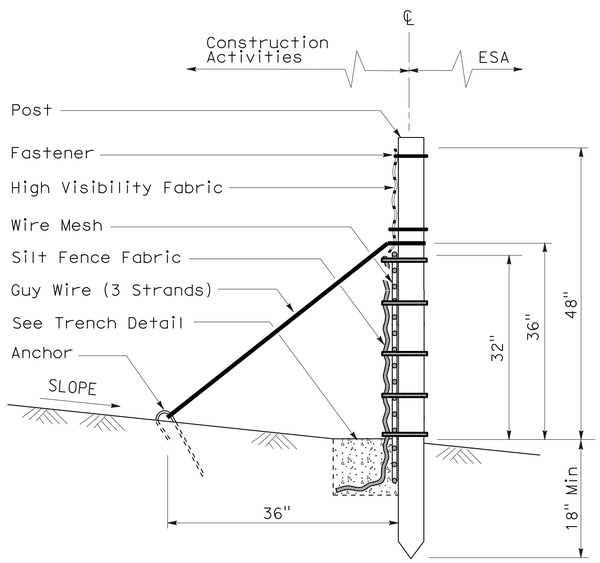
ELEVATION



ELEVATION

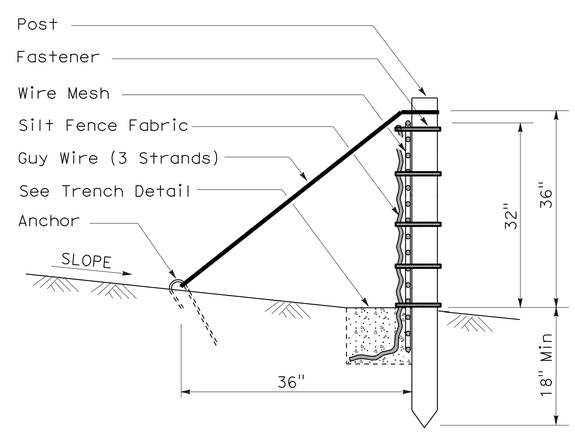


ANCHOR



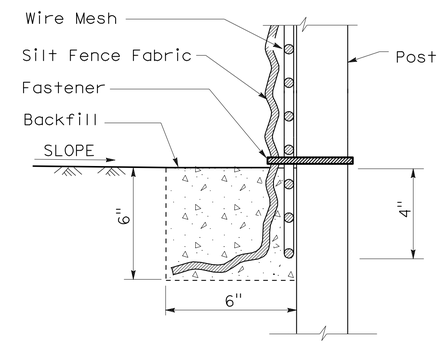
SECTION

TEMPORARY REINFORCED SILT FENCE (TYPE 1)



SECTION

TEMPORARY REINFORCED SILT FENCE (TYPE 2)



SECTION

TRENCH DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY REINFORCED SILT FENCE)

NO SCALE

NSP T60 DATED APRIL 3, 2009 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP T60

2006 NEW STANDARD PLAN NSP T60

1-7-09

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	52	53

LICENSED LANDSCAPE ARCHITECT

August 15, 2008
PLANS APPROVAL DATE

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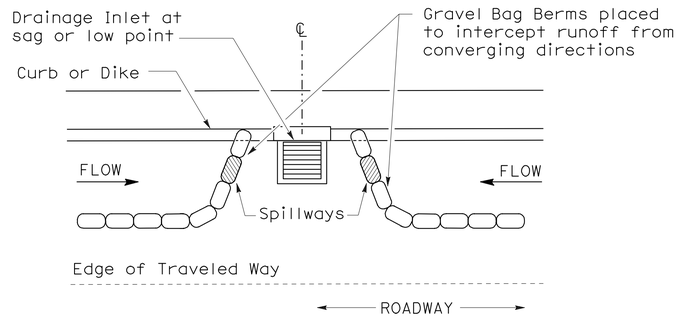
LICENSED LANDSCAPE ARCHITECT — Robert B. Schott — Signature — 11-04-08 Renewal Date — 08-11-08 Date — STATE OF CALIFORNIA

To accompany plans dated 12-27-11



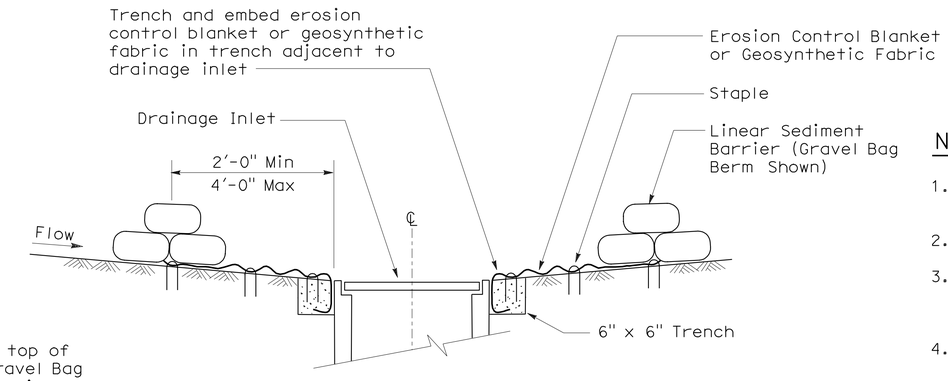
PLAN

CONFIGURATION FOR SAG POINT INLET (GRAVEL BAG BERM)

GRAVEL BAG BERM (TYPE 3A) SPACING TABLE

SLOPE OF ROADWAY (PERCENT)	1 to 3.9	4 to 5.9	6 to 7.9	8 to 10	10+
INTERVAL BETWEEN BERM	100′	75′	50′	25′	12′

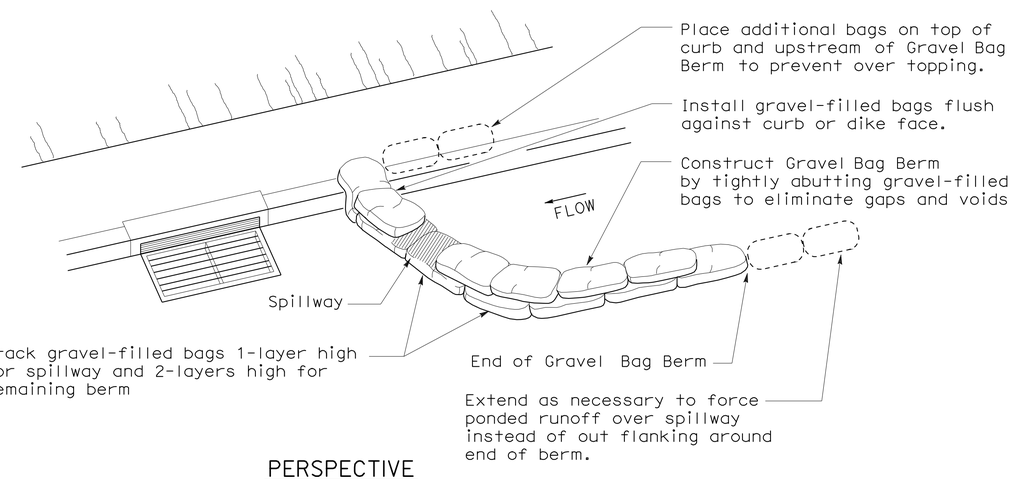
For slope of less than 1%, install barriers only if erosion/sediment is prevalent



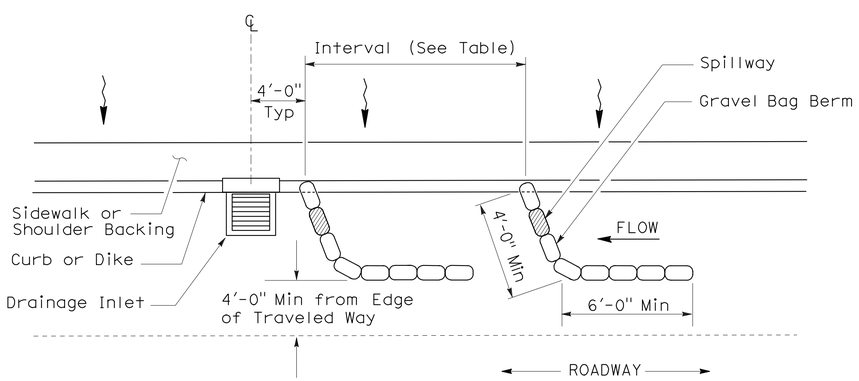
SECTION A-A

NOTES:

1. Place safety cones adjacent to drainage inlet protection.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 gravel bag berms upstream of each drainage inlet to be protected.
4. Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.
5. Erosion control blanket or geosynthetic fabric is not required if the area adjacent to the drainage inlet is vegetated or paved.

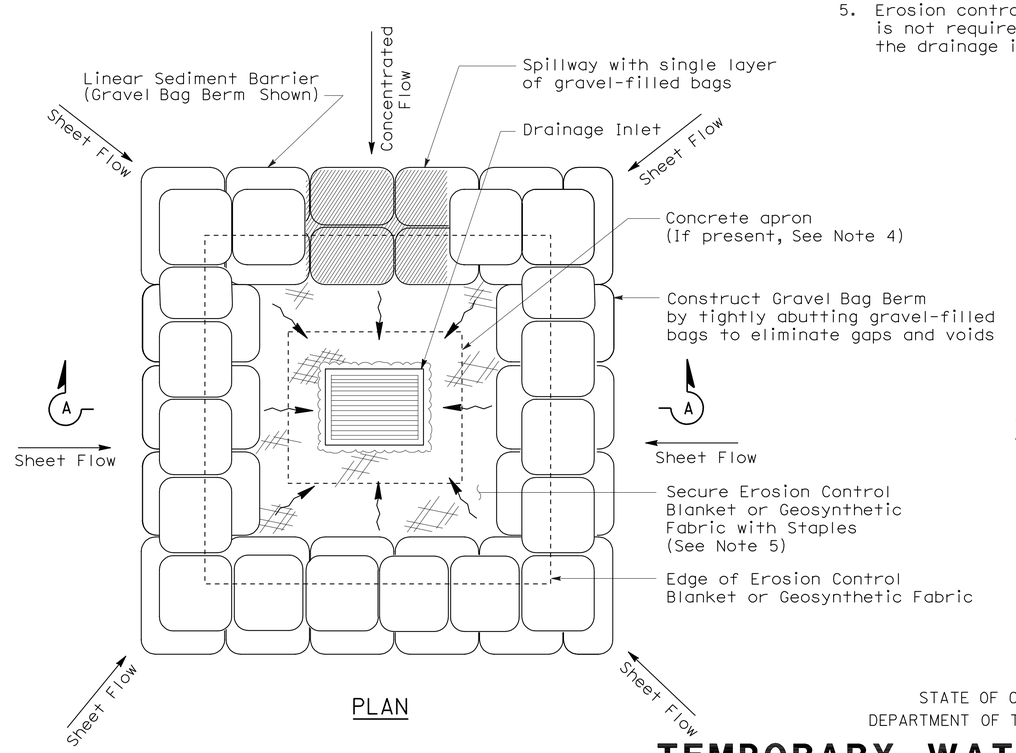


PERSPECTIVE



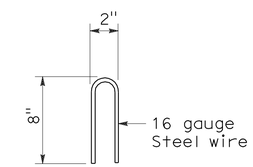
PLAN

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 3A) (GRAVEL BAG BERM)



PLAN

TEMPORARY DRAINAGE INLET PROTECTION (TYPE 3B)



STAPLE DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)

NO SCALE

NSP T62 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP T62

2006 NEW STANDARD PLAN NSP T62

7-11-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
09	Iny	190	R65.9/R66.5	53	53

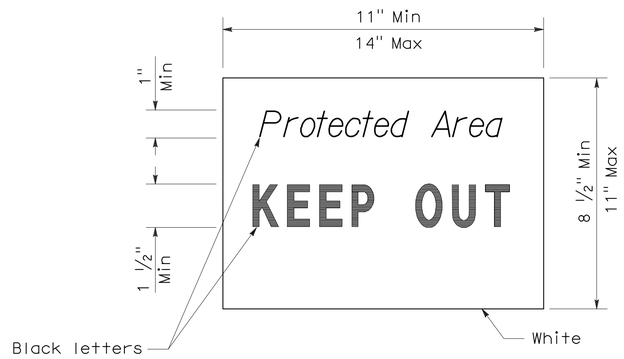
LICENSED LANDSCAPE ARCHITECT

April 3, 2009
PLANS APPROVAL DATE

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

LICENSED LANDSCAPE ARCHITECT — Robert B. Schott 3025 — Signature — 11-30-10 Renewal Date — 2-25-09 Date — STATE OF CALIFORNIA

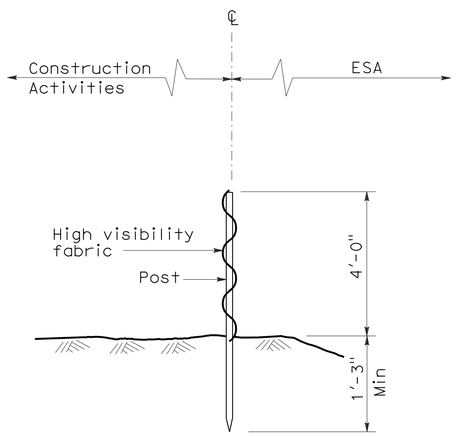
To accompany plans dated 12-27-11



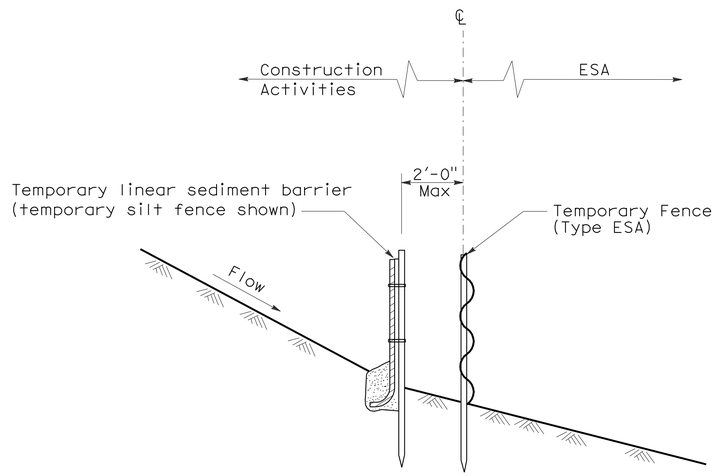
SIGN DETAIL

NOTE:

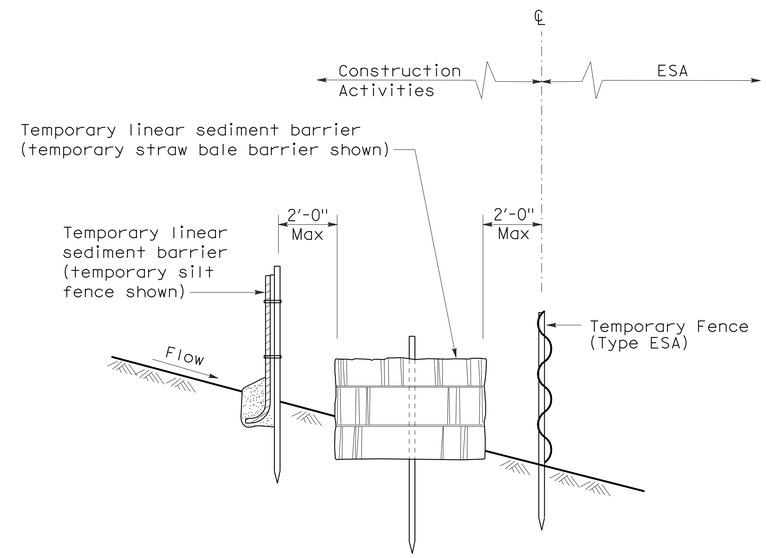
1. Temporary silt fence and temporary straw bale barrier shown for reference purposes only.



SECTION
TEMPORARY FENCE (TYPE ESA)



SECTION
PLACEMENT DETAIL
FOR TEMPORARY LINEAR SEDIMENT BARRIER
USED WITH TEMPORARY
FENCE (TYPE ESA)
(See Note 1)



SECTION
PLACEMENT DETAIL
FOR TEMPORARY SILT FENCE
AND TEMPORARY STRAW BALE BARRIER
USED WITH TEMPORARY FENCE (TYPE ESA)
(See Note 1)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS [TEMPORARY FENCE (TYPE ESA)]

NO SCALE

NSP T65 DATED APRIL 3, 2009 SUPPLEMENTS
THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP T65

2006 NEW STANDARD PLAN NSP T65