DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. 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.

Caltrans Metric

TABLE 1: TABLE OF DIMENSIONS AND PILE LAYOUT

Design H	2400	3000	3600	4200	4800	5500	6100	6700	7300	7900	8500	9100	9800
W	2300	2400	2750	2900	3150	3500	3900	4400	5250	5700	6100	6400	6800
C	1850	2000	2300	2450	2600	2950	3300	3650	4500	4800	5050	5250	5650
B	450	450	450	450	550	550	600	750	750	900	1050	1150	1150
F	750	750	750	750	750	750	900	1000	1000	1150	1200	1200	1300
Stem Thickness @ Top	305	305	305	305	380	380	450	600	600	600	600	685	685
Batter	0	0	0	0	0	0	0	0	100:2	100:2	100:4	100:4	100:4
Tie Down Design Force Force (T) kN/m	0	0	44	44	44	117	117	205	205	308	366	425	498
Tie Down Max Spacing Spacing (S) mm	0	0	7300	7300	7300	6100	6100	3600	3600	2750	2750	2450	2150
M	1350	1500	1850	2000	2150	2500	2800	3200	4050	4350	4550	4800	5200
N	0	0	0	0	75	75	150	300	300	450	600	700	700
Row 1	8000	7000	3950	3050	2400	1850	1500	1200	2300	2000	1700	1500	1200
Row 2	8000	7000	3950	3050	2400	1850	1500	1200	2300	2000	1700	1500	1200
Row 3									2300	2000	1700	1500	1200
Row 4									2300	2000	1700	1500	1200
Configuration	I	I	I	I	I	I	I	I	II	II	II	II	II

TABLE 2: TABLE OF REINFORCING STEEL

Design H	2400	3000	3600	4200	4800	5500	6100	6700	7300	7900	8500	9100	9800
ⓐ Bars			#22@450	#16@150	#29@450	#29@450	#29@300	#29@300	#22@150	#22@150	#32@300	#32@300	#36@300
X			Cont	Cont	Cont	Cont	Cont	Cont	Cont	Cont	Cont	Cont	Cont
Y			1700	1750	2650	2750	2750	2850	3050	3600	4100	4400	4800
ⓑ Bars	#16@225	#19@225	#22@450	#16@150	#29@450	#29@450	#29@300	#29@300	#22@150	#22@150	#32@300	#32@300	#36@300
X	Cont	Cont	Cont	Cont	Cont	Cont	Cont	Cont	3950	4400	4900	5050	5500
Y	Cont	Cont	Cont	Cont	3650	4100	4250	4800	5500	6300	6800	7600	7700
Placement, ◯			Ⓐ	Ⓑ	Ⓐ	Ⓐ	Ⓐ	Ⓐ	Ⓑ	Ⓑ	Ⓑ	Ⓑ	Ⓐ
ⓒ Bars					#25@450	#25@450	#25@300	#25@300	#19@150	#19@150	#29@300	#29@300	#32@300
Placement, ◯					Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ	Ⓒ
ⓓ Bars	#16@450	#16@450	#16@450	#16@450	#16@450	#16@450	#16@450	#16@450	#16@450	#16@450	#16@450	#16@450	#16@450
ⓔ Bars	12#25	12#25	12#25	16#16	16#16	18#16	20#16	22#16	24#16	24#16	26#16	28#16	30#16
ⓕ Bars			#22	#22	#19	#16							
ⓖ Bars					#29@450	#29@450	#29@450	#29@450	#29@150	#22@150	#32@150	#32@150	#36@150
X					1150	1850	1500	1850	1600	1600	2000	2500	2650
ⓗ Bars (Shear ties)									#13@380	#13@380	#13@380	#13@300	#13@300
U									2280	2280	2660	3000	3600

LEGEND FOR BAR PLACEMENT

Ⓐ : Alternate placement of ⓐ Bars and ⓑ Bars are shown in "DETAIL B" on "DETAIL NO. 2" sheet.

Ⓑ : Bundle ⓐ and ⓑ Bars.

Ⓒ : Splice ⓒ Bars to ⓑ Bars.

Cont = Continuous

DESIGN DATA

DESIGN: Load Factor Design (LFD)

CONCRETE: Reinforced Concrete, f'c = 25 MPa
fy = 420 MPa

LOADING CASE:

Level ground with 11.5 KPa live load surcharge and 4875 mm Soundwall

Seismic Load = 0.3 Dead Load
Wind Load = 1435 Pa
Dead Load of Soundwall = 20.5 kN/m

SEISMIC LOAD: SOIL

Kh = 0.3g
Kv = 0.0
Kae : Mononobe-Okabe Method

SOIL: ϕ = 34° γ = 19 kN/m³
Equivalent fluid pressure:
Static = 5.6 kPa/m for determination of toe pressure
Seismic = Coulomb's Theory

LOAD COMBINATIONS:

75% Earth Pressure: (For back row piles)

Loading 1: $\beta D + 0.75 * (1.0E) + 0.75 * (1.0\ P_{av}) + 0.75\ T$

Loading 2: $\beta D + 0.75 * (1.7E) + 0.75 * (1.7\ P_{av}) + 0.75\ T$

100% Earth Pressure: (For front row piles)

Group A1 : $\beta D + 1.7\ E + 1.7\ SC + 0.75\ T$

Group A2 : $\beta D + 1.7\ E + 1.7\ P_{av} + 1.7\ SC + 0.75\ T$

Group B1 : $\beta D + 1.7\ E + 1.3\ W + 0.75\ T$

Group B2 : $\beta D + 1.7\ E + 1.7\ P_{av} + 1.3\ W + 0.75\ T$

Group C :
Stem : $1.0\ D + 1.0\ E + 1.0\ EQD + 1.0\ EQE$
Footing : $D + PYM + P_{av} + V + 1.0\ T$

Where : β = 1.0 or 1.3 whichever controls design
D = Dead Load
E = Lateral Earth Pressure
P_{av} = Vertical Earth Pressure
SC = Live Load Surcharge
W = Wind Load
EQD = Seismic Dead Load
EQE = Seismic Lateral Earth Pressure
PYM = Probable Yield Moment (1.3 x Nominal Yield Moment of Stem)
T = Design Force for Vertical Tiedown
V = Possible Shear at Base of Stem associated with Probable Yield Moment

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

DATE PLOTTED => 16-JAN-2004 TIME PLOTTED => 14:49

STANDARD DRAWING

RELEASE DATE 8/8/03	DESIGN	BY Madon Sah	CHECKED Lisa Tanaka	RELEASED BY
	DETAILS	BY A R Dudsak	CHECKED Overcomer Hor	
FILE NO. xs14-400-1	SUBMITTED	BY Overcomer Hor	DRAWING DATE 2/94	OFFICE CHIEF

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

BRIDGE NO.

KILOMETER POST

RETAINING WALL TYPE 7SWP - DETAIL NO. 1

DS OSD 2147A (METRIC) (REV. X/XX/XX)

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS 0 10 20 30 40 50 60 70 80 90 100

CU
EA

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY) SHEET OF

USERNAME => jsanchez

xs14-400-1.dgn