

DESIGN:
AASHTO LRFD Bridge Design Specifications, 2017 edition
with California Amendments updated April 2019

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DEAD LOAD:
2" Concrete Surface Texture added to stem (DC)

WIND LOADING:
Wind perpendicular to plane of Sound Wall and Barrier
Exposure Category D (WS)

LIVE LOADING:
Varied surcharge on level ground surface (LS)
54 kip transverse force on sound wall applied
at 6'-0" above finished grade, distributed over
3'-6" and 1:1 distribution down and outward.
Load distribution of 1V:0.6H applied at beginning of
wall, end wall and on either side of expansion joints (CT)

SEISMIC LOADING (EQE):
 $K_h = 0.3$

SOIL PARAMETERS (BACKFILL):
 $\phi = 34^\circ$
 $\gamma = 0.120$ kcf
 $\phi = 32^\circ$ (used for footing friction)

REINFORCED CONCRETE:
 $f_y = 60 \text{ ksi}$
 $f'_c = 3.6 \text{ ksi}$

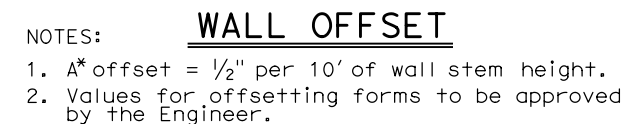
LOAD COMBINATIONS AND LIMIT STATES

Service I	Q = 1.00DC+1.00EV+1.00EH+1.00LS+1.00WS
Strength I	Q = αDC+βEV+ηEH+1.75LS
Strength III	Q = αDC+βEV+1.50EH+1.00WS
Strength V	Q = αDC+βEV+1.50EH+1.35LS+1.00WS
Extreme I	Q = 1.00DC+1.00EV+1.00EH+1.00EQD+1.00EQE
Extreme II	Q = 1.00DC+1.00EV+1.00EH+1.00CT

WHERE:

- Q: Force Effects
- a: 1.25 or 0.90, Whichever Controls Design
- B: 1.35 or 1.00, Whichever Controls Design
- n: 0.9 or 1.5, Whichever Controls Design
- DC: Dead Load of Structure Components
- EV: Vertical Earth Fill Pressure
- EH: Horizontal Earth Fill Pressure
- LS: Live Load Surcharge
- EQE: Seismic Earth Pressure
- EQD: Soil and Structure Components Inertia
(Soil inertia ignored for stem design)
- WS: Wind Load on Sound Wall and Barrier
- CT: Vehicular Collision Force

1. For reinforcement layout details, see "RETAINING WALL (TYPE 1SWBP) DETAILS No. 2" sheet.
2. For Sound Wall and Retaining Wall Concrete Surface Texture, see "ARCHITECTURAL DETAILS" sheet.
3. For Retaining Wall details not shown and drainage notes, see Standard Plan B0-3 and B3-5.
4. Footing cover, 1'-6" minimum.
5. For Sound Wall reinforcement and details, see "SOUND WALL MASONRY BLOCK WITH BARRIER ON RETAINING WALL DETAILS No. 1", "SOUND WALL MASONRY BLOCK WITH BARRIER ON RETAINING WALL DETAILS No. 2" and "SOUND WALL MASONRY BLOCK WITH BARRIER ON RETAINING WALL DETAILS No. 3" sheets.
6. $H = 6'$ and $8'$, extend Ⓢ bars into barrier for stem with haunch.
7. For $H \geq 10'$, extend Ⓢ bars into barrier for stem with haunch.
8. Provide additional #6 x 18'-0" @ 6 bars over a distance of 8'-0" measured from all expansion joints, begin wall and end wall locations. For $H \leq 14'$, hook the additional #6 bars into footing and reduce bar length as needed to maintain minimum clear cover.



NOTE:
For details not shown, see
"WALL STEM WITH HAUNCH".

BRIDGE STANDARD DETAILS		DESIGN	BY X	CHECKED X	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION				DIVISION OF ENGINEERING SERVICES		BRIDGE No.	X RETAINING WALL (TYPE 1SWBP) DETAILS No.1				
xs14-320-1 FILE NO.	August 2026 APPROVAL DATE	DETAILS	BY X	CHECKED X					XX-XXXX							
		QUANTITIES	BY X	CHECKED X					POST MILE X.X							
Refer to: http://www.dot.ca.gov/hq/esc/techpubs/manual/bridgemanuals/bridge-standard-detail-sheets/index.html		DATE PLOTTED => 31-AUG-2026 FILE => xs14-320-1.dgn			TIME PLOTTED => 14:09 USERNAME => s136247		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		0 1 2 3		UNIT: XXXX PROJECT NUMBER & PHASE: XXXXXXXXXX1	COUNTY/ROUTE /ZONE: XXX/XXX/X CONTRACT No.: XX-XXXXX4	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET	OF