



NOTE: FOR LOAD CONDITION 2 ONLY

LEGEND

RWT - RETAINING WALL TYPE
e.g. SG 1-3-4

MIN. ALLOWABLE BEARING PRESSURE (k.s.f.)

LOADING CONDITION NUMBER

BACKFILL SOIL TYPE

SOLID GRAVITY WALL

H - WALL HEIGHT (Mts.)

RSBP - REQUIRED SOIL BEARING CAPACITY (p.s.f.)

B - TOTAL WALL BASE (Mts.)

K - KEY DIMENSIONS

VC - VOLUME OF CONCRETE (cu. mts. per lineal mt.)

VS - VOLUME OF SHEATHING (cu. mts. per lineal mt.)

VE - VOLUME OF EXCAVATION FOR STRUCTURE (cu. mts. per lineal mt.) (TOTAL WALL BASE X DEPTH OF EXCAVATION)

BACKFILL SOIL TYPE I							BACKFILL SOIL TYPE II							BACKFILL SOIL TYPE III									
RWT	H	RSBP	B	K	VC	VS	VE	RWT	H	RSBP	B	K	VC	VS	VE	RWT	H	RSBP	B	K	VC	VS	VE

LOADING CONDITION NO. 1																											
SG-1-1-1	1.00	1000	0.80		0.43	0.11	0.44	SG-2-1-1	1.00	1000	0.60		0.15	0.45	0.11	0.47	SG-3-1-1	1.00	1000	0.60	0.15	0.45	0.11	0.47			
SG-1-1-1	1.50	1000	0.90		0.87	0.28	0.67	SG-2-1-1	1.50	1000	0.90		0.15	0.89	0.28	0.69	SG-3-1-1	1.50	1000	1.05	0.15	1.05	0.30	0.80			
SG-1-1-2	1.50	2000	0.75	0.15	0.75	0.27	0.58	SG-2-1-2	1.50	2000	0.75		0.15	0.75	0.27	0.58	SG-3-1-2	1.50	2000	0.90	0.15	0.89	0.28	0.69			
SG-1-1-2	2.00	2000	0.90	0.15	1.12	0.42	0.69	SG-2-1-2	2.00	2000	1.05	0.15	1.30	0.44	0.80	SG-3-1-2	2.00	2000	1.20	0.15	1.49	0.45	0.92				
SG-1-1-2	2.50	2000	1.20	0.15	1.79	0.59	0.92	SG-2-1-2	2.50	2000	1.35	0.15	2.01	0.81	1.03	SG-3-1-2	2.50	2000	1.50	0.15	2.23	0.63	1.14				
SG-1-1-2	3.00	2000	1.80		3.10	0.80	1.34	SG-2-1-2	3.00	2000	2.00		3.44	0.83	1.50	SG-3-1-2	3.00	2000	2.30		3.96	0.88	1.72				
SG-1-1-3	3.00	3000	1.50		2.80	0.76	1.14	SG-2-1-3	3.00	3000	1.50	0.15	2.80	0.76	1.14	SG-3-1-3	3.00	3000	1.80	0.15	3.12	0.80	1.37				
SG-1-1-3	3.50	3000	1.65	0.15	3.28	0.92	1.25	SG-2-1-3	3.50	3000	1.80	0.15	3.57	0.94	1.37	SG-3-1-3	3.50	3000	2.00	0.20	3.98	0.96	1.53				
SG-1-1-3	4.00	3000	2.30		5.11	1.14	1.72	SG-2-1-3	4.00	3000	2.45		5.45	1.16	1.83												
SG-1-1-4	4.00	4000	2.00	0.15	4.47	1.10	1.52	SG-2-1-4	4.00	4000	2.15	0.20	4.82	1.12	1.85	SG-3-1-4	4.00	4000	2.30	0.25	5.17	1.14	1.78				
SG-1-1-4	4.50	4000	2.30	0.20	5.73	1.27	1.76	SG-2-1-4	4.50	4000	2.45	0.20	6.10	1.29	1.87												
SG-1-1-4	5.00	4000	2.45	0.20	6.71	1.43	1.87																				

LOADING CONDITION NO. 2																											
SG-1-2-1	1.00	1000	1.05	0.15	0.78	0.18	0.80	SG-2-2-1	1.00	1000	1.05	0.15	0.78	0.18	0.80												
SG-1-2-1	1.50	1000	1.50	0.15	1.48	0.38	1.14									SG-3-2-2	1.50	2000	1.50	0.15	1.48	0.38	1.14				
SG-1-2-2	1.50	2000	1.20	0.15	1.19	0.32	0.92	SG-2-2-2	1.50	2000	1.35	0.15	1.33	0.35	1.03	SG-3-2-2	1.50	2000	1.50	0.15	1.48	0.38	1.14				
SG-1-2-2	2.00	2000	1.50	0.15	1.85	0.49	1.14	SG-2-2-2	2.00	2000	1.50	0.15	1.85	0.49	1.14	SG-3-2-2	2.00	2000	1.80	0.15	2.22	0.55	1.37				
SG-1-2-2	2.50	2000	1.80	0.15	2.67	0.67	1.37	SG-2-2-2	2.50	2000	2.00	0.15	2.97	0.70	1.52	SG-3-2-2	2.50	2000	2.15	0.20	3.21	0.73	1.65				
SG-1-2-3	2.50	3000	1.65	0.15	2.45	0.65	1.25	SG-2-2-3	2.50	3000	1.80	0.15	2.67	0.67	1.37	SG-3-2-3	2.50	3000	2.00	0.20	2.98	0.70	1.53				
SG-1-2-3	3.00	3000	2.00	0.15	3.47	0.83	1.52	SG-2-2-3	3.00	3000	2.15	0.15	3.73	0.85	1.63	SG-3-2-3	3.00	3000	2.30	0.25	4.02	0.88	1.78				
SG-1-2-3	3.50	3000	2.15	0.15	4.26	0.98	1.69	SG-2-2-3	3.50	3000	2.30	0.20	4.58	1.00	1.76												
SG-1-2-4	4.00	4000	2.45	0.20	5.49	1.16	1.87																				

LOADING CONDITION NO. 3																											
SG-1-3-1	1.00	1000	0.60	0.15	0.45	0.11	0.47	SG-2-3-1	1.00	1000	0.80	0.15	0.45	0.11	0.47	SG-3-3-1	1.00	1000	0.75	0.15	0.58	0.12	0.58				
SG-1-3-1	1.50	1000	1.05	0.15	1.04	0.30	0.80	SG-2-3-1	1.50	1000	1.20	0.15	1.19	0.32	0.92	SG-3-3-1	1.50	1000	1.50	0.15	1.48	0.38	1.14				
SG-1-3-2	1.50	2000	0.75	0.15	0.75	0.27	0.58	SG-2-3-2	1.50	2000	0.90	0.15	0.89	0.28	0.69	SG-3-3-2	1.50	2000	1.35	0.15	1.33	0.35	1.03				
SG-1-3-2	2.00	2000	1.05	0.15	1.30	0.44	0.80	SG-2-3-2	2.00	2000	1.20	0.15	1.49	0.45	0.92	SG-3-3-2	2.00	2000	1.80	0.15	2.22	0.55	1.37				
SG-1-3-2	2.50	2000	1.65	0.15	2.45	0.65	1.25	SG-2-3-2	2.50	2000	1.80	0.15	2.67	0.67	1.37	SG-3-3-2	2.50	2000	2.30	0.20	3.43	0.76	1.76				
SG-1-3-3	2.50	3000	1.20	0.15	1.79	0.59	0.92	SG-2-3-3	2.50	3000	1.50	0.15	2.23	0.63	1.14												
SG-1-3-3	3.00	3000	1.52	0.15	2.64	0.77	1.16	SG-2-3-3	3.00	3000	1.80	0.20	3.14	0.80	1.38												
SG-1-3-3	3.50	3000	2.30	0.20	4.58	1.00	1.76																				
SG-1-3-4	3.50	4000	1.80	0.20	3.59	0.94	1.38	SG-2-3-4	3.50	4000	2.15	0.20	4.28	0.98	1.65												
SG-1-3-4	4.00	4000	2.30	0.20	5.15	1.14	1.76	SG-2-3-4	4.00	4000	2.45	0.25	5.51	1.16	1.89												
SG-1-3-5	4.00	5000	2.15	0.20	4.82	1.12	1.65																				
SG-1-3-5	4.50	5000	2.45	0.25	6.12	1.29	1.89																				

LOADING CONDITION NO. 4																											
SG-1-4-1	1.00	1000	0.75	0.15	0.56	0.12	0.58	SG-2-4-1	1.00	1000	1.05	0.15	0.78	0.18	0.80												
SG-1-4-2	1.50	2000	1.50	0.15	1.48	0.38	1.14																				

SOIL TYPE CLASSIFICATION			
BACKFILL SOIL TYPE	REMARKS:	BACKFILL SOIL TYPE	REMARKS:
1.	SHALL CONSIST OF COARSE-GRAINED SOIL WITHOUT ADMIXTURE OF FINE, VERY PERMEABLE SOIL PARTICLES, SUCH AS CLEAN SANDS OR GRAVEL.	3.	SUCH AS GROUP A-1 OF THE A.A.S.H.T.O. MATERIAL SPECIFICATIONS.
2.	SHALL CONSIST OF COARSE-GRAINED SOIL OF LOW PERMEABILITY DUE TO ADMIXTURE OF SILTY SIZE PARTICLES		
			SHALL CONSIST OF RESIDUAL SOIL WITH STONES, FINE, SILTY SAND AND GRANULAR MATERIALS WITH CONSPICUOUS CLAY CONTENT SUCH AS GROUPS A-2-4 AND A-3 OF THE A.A.S.H.T.O. MATERIAL SPECIFICATIONS.

INSTRUCTIONS TO THE USER:

A-FOR USING THIS STANDARD, THE ENGINEER SHALL DETERMINE THE FOLLOWING PARAMETERS:

1-BACKFILL SOIL TYPE. SEE SOIL TYPE CLASSIFICATION ON THIS SHEET.

2-LOAD CONDITION. SEE DIAGRAMS ON THIS SHEET.

3-REQUIRED SOIL BEARING CAPACITY. THE VALUE OF THIS PARAMETER SHALL BE ESTABLISHED FROM A SOIL STUDY. FOR THIS STANDARD, IT MAY VARY, FROM 1000 TO 5000 POUNDS PER SQUARE FOOT.

B-AFTER THE ABOVE DETERMINATION, THE USER MAY GO DIRECTLY TO THE TABLE TO OBTAIN THE REQUIRED DIMENSIONS.

C-CONCRETE SHALL BE "RUBBLE"

D-IF THE ALLOWABLE SOIL BEARING PRESSURE IS LARGER THAN THE LARGEST MAP THAT APPEARS IN THE TABLE, USE THE DIMENSIONS FOR THE LARGEST MAP THAT APPEARS ON THE TABLE, BECAUSE STABILITY IS THE DOMINANT DESIGN CRITERIA.

E-RETAINING WALLS WITH CONDITIONS NOT CONFORMING WITH THE CRITERIA USED IN THIS STANDARD SHALL BE INVESTIGATED AND DESIGNED INDIVIDUALLY.

F-DESIGN HAS BEEN BASED ON PROCEDURES RECOMMENDED ON "SOIL MECHANICS IN ENGINEERING PRACTICE" BY TERZAGHI AND PECK, 2ND. EDITION AND COMPLIES WITH A.A.S.H.T.O. SPECS. 1977 AND INT. 1978 AND 1979.

EFFECTIVE DATE: OCTOBER 1997

COMMONWEALTH OF PUERTO RICO
DEPARTMENT OF TRANSPORTATION
AND PUBLIC WORKS
HIGHWAY AND TRANSPORTATION AUTHORITY

GRAVITY RETAINING WALL DIMENSIONS

RECOMMENDED BY: [Signature]

DESIGN AREA DIRECTOR
DATE: 9-15-97

APPROVED BY: [Signature]

EXECUTIVE DIRECTOR
DATE: 9-18-97

APPROVED BY: [Signature]

DIV. ADM. FHWA-PR DIVISION
DATE: 9-25-97

DATE	REVISION	BY

STD. DWG. 1 OF 1