WEBB YATES ENGINEERS

Job No. Rev. Sheet No. J1879 Drg. Ref. Made by Date Checked

	AL DATA properties									
	Descript		Unit Wt	K0	Ka	Кp	Kac	Kpc	Kr	Earth
			f1-37 (2.1							pressure coefficients.
1	Made Cre	und	[kN/m³]	0 66	0.10	2 04	1 40	2 96		Calculated
2	Firm Lor	don	17.00	0.63	0.45	2.20	1.35	2.97	0.50	Calculated
	Clay									
3		ff	19.50	0.63	0.44	2.28	1.32	3.02	0.50	Calculated
	London C									
No.	c0	y0	Gradi		E() Gra			ained/	
	[kN/m²]	[]		f c	la 37 / m 2 1	[]-37	of I			
1	0.00	0 00	[KIV / III -	00	15000	[KN)	0.00) Und	rained	
2	0.00	0.00	0	.00	15000.		0.00	Und:	rained	
3	60.00	0.00	0	.00	15000.		0.00	Und:	rained	
	meters us					sure o	coeffic	cients		
No.			Phi Bet tio [º							
1	20 00	Λα	.00 0.0) Rac	00					
2	20.00	0	.00 0.0	0 0.	00					
3	23.00	0	.00 0.0	0 0.	00					
0 cu	Strength F ment and DA1 Combi	case	: t	an Ph			c' .25		Cu	E 1.00
0 cu C7 (2	ment and DA1 Combi 011) : Only th	case nati	: t on rameter	an Ph 1. s in	25 bold h	1. nave h	.25 been a	affec	1.40 ted by	
C7 (2 lote	ment and DA1 Combi 011) : Only th No geom	case nations e par etry	: t on rameter or oth	an Ph 1. s in er fa	25 bold h ctors	1. nave h have	.25 been a	ffec	1.40 ted by	1.00
C7 (2 lote	ment and DA1 Combi 011) : Only th	case nations e par netry	: t on rameter or oth	an Ph 1. s in er fa apply	25 bold h ctors	ave have	. 25 been a been	effectorian	1.40 ted by ged.	1.00
Ocu C7 (2 lote	ment and DA1 Combi 011) : Only th No geom	case nations e par netry	: t on rameter or oth	an Ph 1. s in er fa apply	25 bold h ctors	ave have	been a been	chan chan Ea: pres:	1.40 ted by ged.	1.00 Partial Fact
(2) (ote (bote (ote) (ote)	ment and DA1 Combi 011) : Only th No geom gn Soil pro Unit Wt	case natione par metry operting	es after	an Ph 1. s in er fa apply Kp	25 bold h ctors ing Pa	ave have have	been a been actors	chan chan Ea: pres:	1.40 ted by ged. rth sure cients	1.00 Partial Fact
Ocus C7 (2 lote Designo.	ment and DA1 Combi 011) : Only th No geom gn Soil pro Unit Wt [kN/m³] 16.00 17.00	case nations particle	es after Ka 0.56 1 0.53 1	an Ph 1. s in er fa apply Kp .78 1 .89 1	bold hotors ing Pa Kac H	nave have rrial F	been a been a correction of the correction of th	Ea: pres: calcu	ted by ged. rth sure cients lated lated	1.00 Partial Fact
Ocus C7 (2 lote Designo.	ment and DA1 Combi 011) : Only th No geom gn Soil pro Unit Wt [kN/m³] 16.00	case nations particle	: ton rameter or oth es after Ka 0.56 1 0.53 1 0.51 1	an Ph 1. s in er fa apply Kp .78 1 .89 1	bold hotors ing Pa Kac H	1. nave h have rtial F (pc 67 0. 75 0. 79 0.	been a been a been a been a been actors Kr	Ea: pres: calcu. Calcu.	ted by ged. rth sure cients lated lated	1.00 Partial Fact
Designo.	ment and DA1 Combi 011) : Only th No geom Unit Wt [kN/m³] 16.00 17.00 19.50	case natione parametry Dperti KO 0.66 0.63 0.63	es after Ka 0.56 1 0.53 1 0.51 1 Gradi	an Ph 1. s in er fa apply Kp .78 1 .89 1	25 bold h ctors ring Pa Kac H .50 2.	1. nave h have rtial F Gpc 67 0. 75 0. 79 0. Gra	been a be	Ea: pres: calcu: Calcu:	ced by ged. rth sure cients lated lated	1.00 Partial Fact
Designo.	ment and DA1 Combi O11) : Only th No geom gn Soil pre Unit Wt [kN/m³] 16.00 17.00 19.50	case nations e para etry coperti KO 0.66 0.63 0.63	es after Ka 0.56 1 0.53 1 0.51 1 Gradi	an Ph 1. s in er fa apply Kp .78 1 .89 1 .95 1 ent f c	25 bold h ctors ing Pa Kac H .50 2. .46 2. .43 2.	1. nave h have rtial F (pc	co. 50 (co. 50	Ea: pres: calcu. Calcu. Calcu.	1.40 ced by ged. rth sure cients lated lated lated	1.00 Partial Fact
Designo.	ment and DA1 Combi O11) : Only th No geom gn Soil pre Unit Wt [kN/m³] 16.00 17.00 19.50 c0 [kN/m²]	case nation le para letry coperti KO 0.66 0.63 0.63 vo [m]	: ton rameter or oth ies after Ka 0.56 1 0.53 1 0.51 1 Gradi	an Ph 1. s in er fa apply Kp .78 1 .89 1 .95 1 ent f c	25 bold hottors ring Pa Kac H .50 2. .46 2. .43 2. kN/m²]	nave have rtial F pc 67 0. 75 0. 79 0. Gra (kN)	constant of I	Ea: pres: pres: calcu. Calcu. Calcu. Culturation Undi	rth sure cients lated lated lated rained/	1.00 Partial Fact
Designo.	ment and DA1 Combi 011) : Only th No geom gn Soil pre Unit Wt [kN/m³] 16.00 17.00 19.50 c0 [kN/m²] 0.00	0.66 0.63 0.63 0.00	ton rameter or oth les after Ka 0.56 1 0.53 1 0.51 1 Gradi o [kN/m²	an Ph 1. s in er fa apply Kp .78 1 .89 1 .95 1 ent f c /m] [25 bold factors ring Pa Kac I .50 2. .46 2. .43 2. EC kN/m²]	nave have ritial Face.	constant of I	pressolution Calculation Calcu	ted by ged. rth sure cients lated lated lated rained/ rained/	1.00 Partial Fact
Designo.	ment and DA1 Combi DA1 Com	0.66 0.63 0.63 y0 [m] 0.00	: ton rameter or oth les after Ka 0.56 1 0.53 1 0.51 1 Gradi o [kN/m² 0	an Ph 1. s in er fa apply Kp .78 1 .89 1 .95 1 ent f c /m] [.00	25 bold hottors ring Pa Kac H .50 2. .46 2. .43 2. kN/m²]	nave have rtial F cpc 67 0. 75 0. 79 0. Gra	25 been a	pressolution Calculation Calcu	rth sure cients lated lated lated rained/	1.00 Partial Fact
COCUMENT (2 dote)	ment and DA1 Combi DA1 Com	0.66 0.63 0.63 y0 [m] 0.00	: ton rameter or oth les after Ka 0.56 1 0.53 1 0.51 1 Gradi o [kN/m² 0	an Ph 1. s in er fa apply Kp .78 1 .89 1 .95 1 ent f c /m] [.00	25 bold hotors ing Pa Kac I .50 2. .46 2. .43 2. E(kN/m²] 15000.	nave have rtial F cpc 67 0. 75 0. 79 0. Gra	25 been a	pressolution Calculation Calcu	rth sure cients lated lated rained/ rained rained	1.00 Partial Fact
CC7 : (2 dote Designo. 1 2 3	ment and Dall Combit 2011 10 10 11 11 11 11 11	0.66 0.63 0.63 0.00 0.00 0.00	: ton rameter or oth les after Ka 0.56 1 0.53 1 0.51 1 Gradi o [kN/m² 0 0 calculat	an Ph 1. s in er fa apply Kp .78 1 .89 1 .95 1 ent f c /m] [.00 .00 .00	25 bold Potents ing Pa Kac I .50 246 246 243 2. E(kN/m²] 15000. 15000.	1. nave h have rtial Fape 67 0. 75 0. 79 0. Gra	.25 been a been	Ear pressociate under the	1.40 ted by ged. rth sure cients lated lated lated rained rained rained rained	1.00 Partial Fact
CC7 (2 (2 dote CC7) (2 (2 dote CC7) (3 dote CC7) (3 dote CC7) (4 dote CC7) (4 dote CC7) (5 dote CC7) (6 dote	ment and Dal Combit 2011) 1011) 1011y th No geom geom geom geom geom geom geom geo	case nati- ne par netry pperti K0 0.666 0.633 0.633 y0 0.000 0.000 0.000 0.000	: ton rameter or oth les after Ka 0.56 1 0.53 1 0.51 1 Gradii 0 0 (kN/m² 0 0 0 calculat	an Ph 1. s in er fa apply Kp .78 1 .89 1 .95 1 ent f c /m] [.00 .00 .00 e designation	25 bold heters ing Pa Kac 1 .50 246 243 2. E(kN/m²] 15000. 15000. ign Ea	1. nave h have rtial Fape 67 0. 75 0. 79 0. Gra	.25 been a been	Ear pressociate under the	1.40 ted by ged. rth sure cients lated lated lated rained rained rained rained	1.00 Partial Fact
Designo. 1 2 3 No. 1 2 3	ment and DAI Combidition of the combination of the	case nati e pa etry pperti K0 0.66 0.63 0.63 0.00 0.00 0.00 0.00 0.	: ton rameter or oth les after Ka 0.56 1 0.53 1 0.51 1 Gradi 0 0 0 0 Calculat Phi Bet tio [°	an Ph 1. s in er fa apply Kp .78 1 .89 1 .95 1 ent f c /m] [.00 .00 .00 e desi] Rat	25 bold h ctors ring Pa Kac H .50 246 243 2. KN/m²] 15000. 15000. 15000.	1. nave h have rtial Fape 67 0. 75 0. 79 0. Gra	.25 been a been	Ear pressociate under the	1.40 ted by ged. rth sure cients lated lated lated rained rained rained rained	1.00 Partial Fact
Design No.	ment and bal combination of the	case nati- netry pperti K0 0.66 0.63 0.63 y0 [m] 0.000 0.000 0.00 edita/i Rai 0	: ton rameter or oth les after Ka 0.56 1 0.53 1 0.51 1 Gradii 0 [kN/m² 0 0 calculat Phi Bet tio [°	an Ph 1. s in er fa apply Kp .78 1 .89 1 .89 1 .000 .00 .00 e des	25 bold h ctors ing Pa Kac I .50 246 243 2. E0 kN/m²] 15000. 15000. ign Ea /C io	1. nave h have rtial Fape 67 0. 75 0. 79 0. Gra	.25 been a been	Ear pressociate under the	1.40 ted by ged. rth sure cients lated lated lated rained rained rained rained	1.00 Partial Fact
Document (CC7) (CC	ment and DAI Combidition of the combination of the	case nati- le paraletry ppertit K0 0.666 0.633 0.633 y0 0.000 0.000 0.000 ed to 1ta/: Rat 0.000 0.000	: ton rameter or oth les after Ka 0.56 1 0.53 1 0.51 1 Gradi 0 0 0 0 Calculat Phi Bet tio [°	an Ph 1. s in er fa apply Kp .78 1 .89 1 .95 1 ent c .00 .00 .00 .00 .00 .00 .00 .00 .00 .	25 bold h ctors ing Pa Kac I .50 246 243 2. E0 kN/m²] 15000. 15000. ign Ea /C io 00 00	1. nave h have rtial Fape 67 0. 75 0. 79 0. Gra	.25 been a been	Ear pressociate under the	1.40 ted by ged. rth sure cients lated lated lated rained rained rained rained	1.00 Partial Fact

Surcharge properties
No. Stage Side Level Pressure Partial Offset Width Ks

Note: Only the parameters in bold have been affected by Partial Factors.

Strut properties
No. Stage Node Level Prestress Stiffness Angle Lever

In Out [m] [kN/m] [kN/m/m] [°] [m] 1 1 - 4 -1.00 0.00 100000.00 0.00 0.30 STAGE 0 : INITIAL CONDITION

Ground level [m] LEFT: 0.00 RIGHT: 0.00 Soil zones changed

Water data on LEFT side No. Level Pressure Unit

m [kN/m²] [kN/m³] 1 0.00 0.00 10.00

 $\begin{array}{c|c} \textbf{Water data on RIGHT side} \\ \textbf{No. Level Pressure} & \textbf{Unit} \\ & \textbf{wt.} \\ & [\textbf{m}] & [k\textbf{N}/\textbf{m}^2] & [k\textbf{M}/\textbf{m}^3] \\ \textbf{1} & \textbf{0.00} & \textbf{0.00} & \textbf{10.00} \\ \end{array}$

Analysis details
SAFE model with redistribution
and without friction at wall/soil interface
and without friction at wall/soil interface
E profile Generated
Boundary distances [m] : 50.00 50.00

Convergence control parameters
Maximum number of iterations: 900
Tolerance for displacement convergence [mm]: 0.01
Tolerance for pressure convergence [kN/m²]: 0.10
Damping coefficient: 1.00
Maximum incremental displacement [m]: 1.00

RESULTS FOR STAGE 0 : Initial condition

Surcharge or strut changes Surcharge no. 1 applied at this stage

Summary Results						
	Node	Level	Displacement [mm]	Moment [kNm/m]	Shear [kN/m]	
		[m]				
Top wall node	1	0.00	0.00	0.00	0.0	

STAGE 1 : PERMANENT CONDITION

Ground level [m] LEFT: 0.00 RIGHT: -2.80 Soil zones changed and wall EI changed

Water data on LEFT side No. Level Pressure Unit

$\begin{array}{c|c} \textbf{Water data on RIGHT side} \\ \textbf{No. Level Pressure} & \textbf{Unit} \\ \hline \textbf{Mo.} & [m] & [kN/m^2] & [kN/m^3] \\ 1 & -2.80 & 0.00 & 10.00 \\ \end{array}$

RESULTS FOR STAGE 1 : Permanent Condition

Surcharge or strut changes Strut no 1 inserted at this stage

Summary nesures	Node	Level	Displacement	Moment	Shear
		[m]	[mm]	[kNm/m]	[kN/m]
Top wall node	1	0.00	-1.64	0.00	0.00
Above strut 1 Below strut 1	4	-1.00	0.80	-6.26 -6.26	21.21 -58.78
Dig level (R)	8	-3.04	5.32	66.56	-9.61
Max BM	9	-3.51	6.10	68.04	2.32
Wall toe	18	-7.50	8.69	0.00	0.00

Strut Forces

idt i orces									
		Strut force		Moment	Max strut				
					force				
				[kNm/m]					
1	4	79.99	79.99	0.00	79.99				