

REPORT.TXT

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*           T G P I L E S           *
*
*   PILE GROUP ANALYSIS AND PILE CAP DESIGN *
*
*           version 02.01           *
*           (FEBRUARY)              *
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TGPILES PROGRAM PAGE 1  
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EXAMPLE NUMBER 3 - 16 PILE GROUP W/ MOMENTS - TGPILES MANUAL  
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PILE CONFIGURATION INFORMATION  
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NUMBER OF PILES : 16                      UNIT = INCHES

PILE#	X-COORD.	Y-COORD
*****	*****	*****
1	-54.000	54.000
2	-18.000	54.000
3	18.000	54.000
4	54.000	54.000
5	-54.000	18.000
6	-18.000	18.000
7	18.000	18.000
8	54.000	18.000
9	-54.000	-18.000
10	-18.000	-18.000
11	18.000	-18.000
12	54.000	-18.000
13	-54.000	-54.000
14	-18.000	-54.000
15	18.000	-54.000
16	54.000	-54.000

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LOADING INFORMATION  
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WORKING DEAD LOAD (kips) = 900.00  
WORKING LIVE LOAD (kips) = 740.00  
WORKING WIND LOAD (kips) = 200.00

APPLIED WORKING MOMENT ABOUT X-AXIS (kip-ft.) :  
DEAD LOAD = 20.00  
LIVE LOAD = 15.00  
WIND LOAD = 250.00

APPLIED WORKING MOMENT ABOUT Y-AXIS (kip-ft.) :  
DEAD LOAD = 24.00  
LIVE LOAD = 18.00  
WIND LOAD = 290.00

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PILE LOADS EXCLUDING THE CAP WEIGHT  
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ANALYSIS RESULTS  
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COORDINATES OF CENTER OF GRAVITY DUE TO APPLIED LOADS  
\*\*\*\*\*  
X-COORD. OF C.G. (inches) = 0.00  
Y-COORD. OF C.G. (inches) = 0.00

PILE LOADS DUE TO AXIAL AND BENDING FORCES  
loads on piles are working loads (kips)  
\*\*\*\*\*  
WORKING PILE CAPACITY = 200.00 KIPS

PILE NUMBER *****	MAX. LOAD *****	MIN. LOAD *****	
1	128.325	55.150	O.K.
2	124.192	56.550	O.K.
3	124.892	56.950	O.K.
4	130.425	57.350	O.K.
5	123.575	55.817	O.K.
6	119.442	56.217	O.K.
7	120.142	56.617	O.K.
8	125.675	57.017	O.K.
9	122.992	55.483	O.K.
10	118.858	55.883	O.K.
11	119.558	56.283	O.K.
12	125.092	56.683	O.K.
13	126.575	54.150	O.K.

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14	122.442	55.550	O.K.
15	123.142	55.950	O.K.
16	128.675	55.350	O.K.

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 EXAMPLE NUMBER 3 - 16 PILE GROUP W/ MOMENTS - TGPILES MANUAL  
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PILE LOADS INCLUDING THE CAP WEIGHT  
 \*\*\*\*\*

ANALYSIS RESULTS  
 \*\*\*\*\*

COORDINATES OF CENTER OF GRAVITY DUE TO APPLIED LOADS  
 \*\*\*\*\*  
 X-COORD. OF C.G. (inches) = 0.00  
 Y-COORD. OF C.G. (inches) = 0.00

PILE LOADS DUE TO AXIAL AND BENDING FORCES  
 loads on piles are working loads (kips)  
 \*\*\*\*\*  
 WORKING PILE CAPACITY = 200.00 KIPS

PILE NUMBER	MAX. LOAD	MIN. LOAD	
*****	*****	*****	
1	133.940	60.765	O.K.
2	129.807	62.165	O.K.
3	130.507	62.565	O.K.
4	136.040	62.965	O.K.
5	129.190	61.432	O.K.
6	125.057	61.832	O.K.
7	125.757	62.232	O.K.
8	131.290	62.632	O.K.
9	128.607	61.099	O.K.
10	124.474	61.499	O.K.
11	125.174	61.899	O.K.
12	130.707	62.299	O.K.
13	132.190	59.765	O.K.
14	128.057	61.165	O.K.
15	128.757	61.565	O.K.
16	134.290	60.965	O.K.

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SHEAR FORCES AND RATIOS FOR VARIOUS CONDITIONS  
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\*\*\*\* TWO WAY SHEAR - ACI (CASE 1)- X-DIR.

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Vc = 2323.24 (kips) Vu = 1982.84 (kips) Vu/Vc = 0.853  
 \*\*\*\* ONE WAY SHEAR - TGPILES (CASE 5)- X-DIR.  
 Vc = 832.85 (kips) Vu = 667.37 (kips) Vu/Vc = 0.801  
 \*\*\*\* TWO WAY SHEAR - ACI(CASE 1) - Y-DIR.  
 Vc = 2323.24 (kips) Vu = 1982.84 (kips) Vu/Vc = 0.853  
 \*\*\*\* ONE WAY SHEAR - TGPILES (CASE 6) - Y-DIR.  
 Vc = 832.85 (kips) Vu = 666.30 (kips) Vu/Vc = 0.800  
 \*\*\*\* SINGLE PILE SHEAR CHECK  
 Vc = 1124.22 (kips) Vu = 320.00 (kips) Vu/Vc = 0.285  
 \*\*\*\* CORNER PILE PUNCHING SHEAR CHECK  
 Vc = 1511.70 (kips) Vu = 320.00 (kips) Vu/Vc = 0.212  
 \*\*\*\* CORNER PILE ONE WAY SHEAR CHECK  
 Vc = 323.03 (kips) Vu = 320.00 (kips) Vu/Vc = 0.991

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DESIGN RESULTS  
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CIRCULAR COLUMN = NO  
 COLUMN DIMENSIONS (in.) = 36.00X 36.00  
 CONCRETE STRENGTH (psi) = 4000.00  
 STEEL YIELD STRENGTH (psi) = 60000.00  
 STEEL COVER AT THE BOTTOM (in.) = 10.00  
 EDGE DISTANCE (in.) = 21.00  
 PILE DIAMETER (in.) = 8.00  
 ULTIMATE COL. AXIAL LOAD (kip) = 2518.00

FINAL PILE CAP DIMENSIONS  
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TOTAL LENGTH ALONG X AXIS = 12 ft.- 6 in.  
 TOTAL LENGTH ALONG Y AXIS = 12 ft.- 6 in.  
 TOTAL REQUIRED DEPTH INCLUDING 10.00 INCHES COVER = 48.00 INCHES

FLEXURAL REINFORCING STEEL  
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USE 1 ROW(S) OF 13 # 10 BARS ALONG X AXIS  
steel area req.= 16.35 sq. in., steel ratio =0.0024,Mu= 2002.10 kip-ft.

USE 1 ROW(S) OF 13 # 10 BARS ALONG Y AXIS  
steel area req.= 16.32 sq. in., steel ratio =0.0024,Mu= 1998.89 kip-ft.

QUANTITY TAKE OFF  
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TOTAL CONCRETE VOLUME	(cubic yard)	=	23.17
TOTAL WEIGHT OF THE STEEL	(pounds)	=	1461.48