

Fiberglass Composite Materials Specification Redevelopment

FINAL REPORT- SUPPLIMENTARY MATERIALS
APRIL, 2017

Submitted by

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In cooperation with

New Jersey
Department of Transportation
Bureau of Research
And
U.S. Department of Transportation
Federal Highway Administration

Date: July 26, 2016

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**Re: NJDOT Bureau of Research: Fiberglass Composite Materials Specification Redevelopment
Project No. 2014-15-02**

Dear Dr. Bechtel,

We have concluded our study to investigate the feasibility of using different types of composite products that are currently available in the U.S. market for marine structures such as fender and dolphin systems. The following summarizes the conclusions.

Background: The New Jersey Department of Transportation (NJDOT) Bureau of Research wishes to redevelop Section 916 of their Standard Specifications. The current NJDOT specifications for Fiberglass Reinforced Plastic Lumber (FRPL), Fiberglass Reinforced Plastic Piles (FRPP) and Fiberglass-Concrete Composite Pile (FCCP) covered under section 916 are proprietary based. The project objective is to redevelop the specification in a generic format to encourage an economically competitive market.

The NJDOT Bureau of Research selected The College of New Jersey (TCNJ) to redevelop Section 916 of the Standard Specification. Hardesty & Hanover, LLC (H&H) is a subconsultant to TCNJ and H&H's scope of work includes the following subtasks:

- 1) Provide input on the current state of engineering practice on Fiberglass Composite Material and identify areas of proposed change to the current Section 916 of the Standard Specification.
- 2) Identify mechanical properties of Fiberglass Composite Structural Shapes.

Purpose and Scope: The purpose of this memorandum is to document mechanical (structural) properties of Fiberglass Composite Material (FCM) structural shapes that may be critical for civil engineering applications in the NJDOT construction projects. The H&H memorandum dated March 15, 2016 provides our input on the current state of engineering practice on FCM and areas of proposed change to the current section 916 of the Standard Specifications.

Previous NJDOT information suggests that FCM structural shapes are primarily used in marine applications such as fenders and dolphins in the NJDOT bridge projects. Therefore the scope of our study

focused on assessing the suitability of FCM structural shapes that are commercially available in the U.S. market for use in fender and dolphin applications, and to identify essential mechanical properties for marine applications.

FCM Product Types: The FCM structural shapes (Pile and Lumber) are currently fabricated through various methods such as pultrusion, filament winding, and vacuum infusion, although additional new fabrication methods are evolving rapidly. There are several different types of FCM structural shape that are currently available in the U.S. market. The FCM structural shapes that are commercially available in the U.S. market vary significantly in material composition and structural properties depending on the fabrication method and/or the product's material composition. Table 1 provides information on available sources and FCM structural shapes.

Table 1: Composite Product Types

Manufacturer/Distributor	Product Type
Bedford Technology	Solid plastic pile and lumber
Harbor Technology	Hollow FCM pipe pile
Creative Pultrusion	
Pearson Fiberglass Piling	
Lancaster Composite	Hollow FCM pipe pile filled with unreinforced concrete

Additional FCM products are available in the market however those products are not discussed due to the lack of response from the Manufacturer/Distributor during the preparation of this memorandum.

Marine Structures: FCM composite products are extensively used in marine applications such as fender and dolphin systems in NJDOT projects. A typical FCM fender system is composed of plumb FCM piles that are driven into the subsurface materials and are horizontally connected by FCM lumber. An FCM dolphin is composed of a cluster of FCM piles that are driven in clusters into the subsurface, extend above the water, and are connected above the waterline with wire rope. Refer to Figure 1 for details of each.



1(a): Dolphin



1(b): Fender

Figure 1: FCM Marine Applications

Design of Marine Structures: All marine structures protecting bridges against collision are designed in accordance with AASHTO's Vessel Collision Design of Highway Bridges guidelines. The design approach is based on a kinetic energy method, which determines the amount of energy that needs to be absorbed by the marine structure. The marine structure is sized to absorb the impact energy represented by the area below the characteristic load-deflection curve illustrated in Figure 2 while sustaining acceptable deformation.

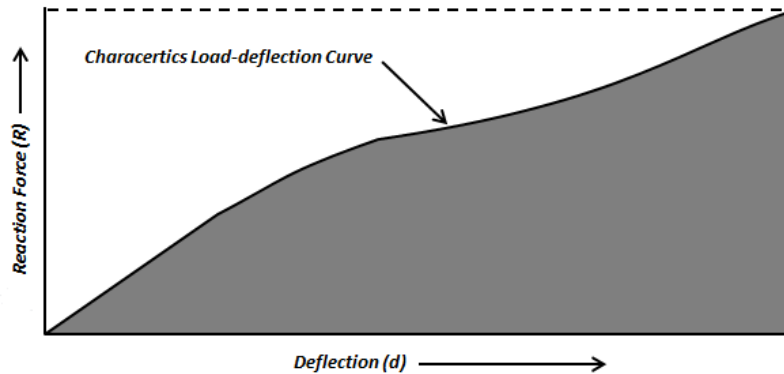


Figure 2: Energy absorption of a marine structure.

Acceptable deformation is the maximum permissible deflection a marine structure can sustain while maintaining minimum clearance distance between the marine structure and the pier to avoid contact during ship impact and/or a deflection marine structure can sustain without experiencing permanent deformation (failure). The estimated marine structure's energy absorption capacity is the area under the load-displacement curve which is simply force times displacement divided by two.

Finite element programs such as LPILE, GROUP and FB-MultiPier that incorporate soil resistance using P-Y curves and pile-to-waler properties can be used to generate a characteristic load-deflection curve. This curve is then used to determine a marine system's potential energy absorption capacity to redirect or possibly bring an errant vessel to rest upon impact. The characteristic load-deflection curve depends on soil resistance, lateral load and structure response. The structure response to a lateral loading is function of soil resistance and structure (pile-to-waler) stiffness. Therefore, this study focused on sensitivity of soil resistance and structure response to the mechanical properties of FCM structure shape types.

Soil Resistance: The soil resistance needed to generate characteristic load-deflection curves is based on P-Y models which are the most widely accepted definition to quantify soil resistance in substructure design. These models have been developed from the results of full scale lateral load tests on conventional piles (steel and concrete). The mobilized soil resistance (P) at any depth is obtained by integrating the stress around the pile cross section as function of deformation Y.

The soil resistance (P) is a function of depth, soil type, soil strength and modulus, pile dimension and deformation, and the soil resistance (P) is independent of pile stiffness. Table 2 summarizes the P-Y

models developed for different soils currently accepted by federal and state design guidelines that are applicable to New Jersey Soils, table below do not present criteria for rock since composite pile socketed into rock is not a preferred option.

Table 2: P-Y applicable to New Jersey Soils

Soil Type	P-Y models*
Soft Clay	Matlock (1970)
Stiff Clay with Free Water	Reese, et al. (1975)
Stiff Clay without Free Water	Welch and Reese (1972), and Reese and Welch (1975)
Sand	Reese, et al. (1974)
* Note that the listed P-Y models are a few selected models out of a large pool that are available for pile's lateral load analyses. The previously mentioned models are well accepted by the professional engineer since their long-term performance is proven.	

Therefore, it can be concluded that soil resistance is independent of a composite pile's unique fabrication method and/or manufacturer's material composition. This conclusion is further supported by FHWA-HRT-04-043: A Laboratory and Field Study of Composite Piles for Bridge Substructures (Pando et al., 2006) where P-Y models criteria listed in Table 2 showed reasonably good agreement with the field measurements.

Structure Response: The characteristic load-deflection curve can be generated using Soil Structure Interaction (SSI) analyses. The structure response is a function of soil resistance, and the soil resistance, in turn is a function of structure response (pile deformation). The structure response also depends on head and toe conditions, and the stiffness (mechanical properties) of structure's element. Therefore, mechanical properties of FCM structural shapes that are a function of fabrication method and/or manufacturer's material composition will influence structure response and/or the characteristics load-deflection curve of a given structure.

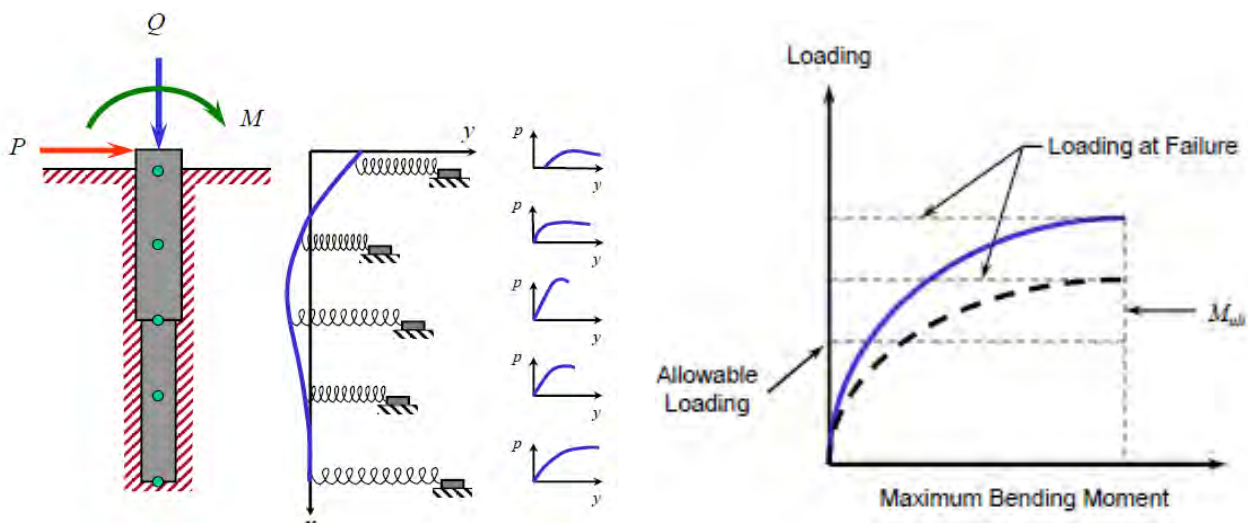


Figure 3: Modeling of Pile under Lateral Load and P-Y Curves (Ref., LPILE Technical Manual)

Hence SSI analyses were conducted by incorporating variations in mechanical properties of FCM structure shape types to determine if the readily available structural shapes meet the requirements for use in marine application and/or yield desirable load-deflection curve characteristics for marine structures. The SSI analyses model the soil around a pile as nonlinear springs representing soil resistance P as a nonlinear function of pile deflection Y (P - Y Criteria). The SSI analyses estimate the structure response the mobilized soil resistance, structure's stiffness and head and toe conditions. Analyses were performed for known soil information, loading and boundary conditions to capture the influence of variation in mechanical properties on characteristics load-deflection curve, refer to Figure 3 for SSI details.

The SSI analyses were performed on readily available FCM structural shapes and product types for both single and cluster cases.

Single Pile Analyses: Single pile analyses using Test runs on an assumed water/soil profile using LPILE software were performed to evaluate the expected behavior of FCM piles and to assess the suitability of commercially available composite product types as viable alternatives to timber piles in marine construction.

A typical marine structure is expected to absorb kinetic energy while sustaining acceptable deformations depending on the project constraints, therefore our test analyses focused on two performance aspects of FCM pile; 1) deformation characteristic, and 2) energy absorption capacity. Figure 4 and Table 3 present the boundary conditions and a summary of the analyses. The analyses considered 16" diameter circular piles because these were available from all the composite manufacturers. The analyses considered pile as an elastic section with defined bending stiffness.

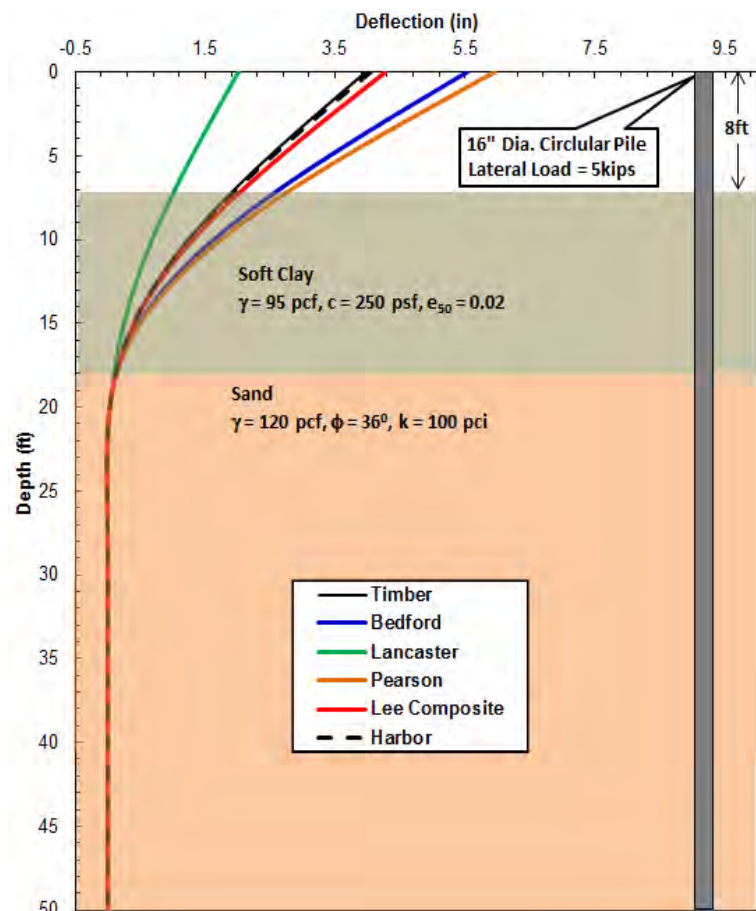


Figure 4: Pile and soil information

Table 3: Summary of Single Pile Analyses

Product	Circular Pile Properties				Deformation Characteristic		Energy Absorption Capacity		
	Dia.	Wall Thickness	Stiffness (EI)	Moment Capacity (kip-ft.)	Lateral Load (lb.) ¹	Deflection (Inch)	Impact Load (lb.) ²	Deflection (Inch)	Kip-ft. ⁴
Timber	16"	N/A	4.82E+09	80	5000	3.96	8000	1.69	0.56
HarborPile		1.125"	4.70E+09	411		4.05	31000	9.96	12.9
SUPERPILE		0.500"	4.38E+09	437		4.27	32000	11.0	14.7
Bedford		N/A	3.18E+09	550		5.53	40000	20.4	34.0
Pearson		0.500"	2.51E+09	404		5.96	30000	14.6	18.3
Lancaster		0.205"	1.98E+09	200		1.76	18000	17.0	12.5 ³

Note: 1) Free Head condition

2) Fixed head condition chosen for energy absorption since marine structure's piles head are connected at the top.

3) Concrete core allowed to crack and pile wall does not buckle at that loading

4) Energy Absorption Capacity of 0.56 kips-ft. = $(0.5 \times 8000 \times 1.69) / (1000 \times 12)$

The results indicate that the energy absorption capacity of each of the composite piles under our assumed conditions exceeded that of timber piles, whereas deformation characteristics indicate composite piles are more flexible compared to timber piles with the exception of the Lancaster pile. A flexible pile is often an attractive option for marine structures since energy-absorption capacity of the system is proportional to the deformation. Therefore it may be concluded that the readily available composite products are suitable alternatives to timber piles.

Pile Group Analyses: Pile group analyses using FB-Multipier (FBMP) software was performed to assess the feasibility of using readily available composite products in marine applications and to identify threshold values of structural/mechanical properties that may be essential.

A composite product can be used in marine structures, provided the structure can absorb impact energy of the errant vessel to redirect or possibly bring errant vessel to rest upon impact while sustaining acceptable deformation. To investigate suitability of using a composite product in a marine application, a fictitious bridge dolphin system that required absorbing kinetic impact energy of 100 kip-ft. while sustaining no more than 9ft of deformation was evaluated. Deformation criteria of 9-ft is a representative "upper bound" criteria allowed by the state agency where contact between the marine structure and the pier during ship impact is not a concern.

The dolphin pile group model was prepared using a trial pile layout and assumed soil information as shown in Figure 4. The model included a pile nonlinear analysis with pinned head condition and the pile properties defined using User Defined Stress Strain Curves) applicable to each composite product type. The Stress Strain Curves is the relationship between the stress and strain that is unique for each composite product type found by recording the amount of deformation (strain) at distinct intervals of tensile or compressive loading (stress). In addition the analyses also considered the self-weight of the piles and a buoyancy factor of zero to ignore P-Delta effects since most of the dolphins will have minimal self-weight. The P-Delta effect is a destabilizing moment equal to the force of gravity multiplied by the

horizontal displacement a structure undergoes when loaded laterally. Refer to Table 4 for a summary of the analyses results.

Table 4: Summary of Pile Group Analyses

I.D	Diameter	Thickness (inch)	Stiffness (EI)	Moment Capacity (kip-ft.)	Target Energy Absorption (Kips-ft.)	Dolphins Options			
						No of Piles	Impact Load (kips)	Deflection (Inch)	Energy Absorption Capacity Kip-ft.
BEDFORD Technology (SEAPILE)									
1	10" dia.	5.0	1.81E+08	48	100	17	35.0	70.9	103
2	13" dia.	6.5	7.88E+08	177		5	28.0	85.1	100
3	16" dia.	8.0	1.29E+09	226		3	27.5	88.5	101
HarborPile™									
4	10" dia.	0.500	6.40E+08	82	100	17	52.0	52.5	114
5	12" dia.	0.625	1.30E+09	144		9	50.0	51.3	107
5	14" dia.	0.625	2.00E+09	189		7	63.0	40.7	107
6	16" dia.	0.875	3.70E+09	327		5	60.0	40.7	102
7	18" dia.	0.625	3.90E+09	303		4	53.0	46.2	102
8	20" dia.	1.000	8.80E+09	593		3	65.0	41.7	113
9	24" dia.	1.500	2.10E+10	1198		2	80.0	33.1	110
10	36" dia.	1.500	6.70E+10	2645		1	79.0	39.4	130
Creative Pultrusions, Inc. (SUPERPILE)									
11	12" dia.	0.375	1.22E+09	167	100	9	60	42.7	107
12	12" dia.	0.500	1.77E+09	289		4	50	61.3	128
13	16" dia.	0.500	4.38E+09	437		3	48	52.4	105
Pearson Pilings									
14	8" dia.	0.117	1.19E+08	32	100	29	38	67.1	106
15	10" dia.	0.250	3.21E+08	78		17	45	70.1	131
16	12" dia.	0.375	9.33E+08	112		13	52	50.5	109
17	12HD" dia.	0.500	1.21E+09	374		3	28	98.9	115
18	14" dia.	0.375	1.53E+09	278		4	35	72.0	105
19	16" dia.	0.500	2.51E+09	404		3	40	67.1	112
Lancaster Composite Pile									
20	8" dia.	0.125	2.07E+08	39	100	25	35	96.8	141
21	10" dia.	0.145	4.76E+08	72		17	40	81.6	136
22	12" dia.	0.175	9.44E+08	122		9	35	79.0	115
23	14" dia.	0.185	1.33E+09	151		5	28	87.2	102
24	16" dia.	0.205	1.98E+09	200		4	31	82.4	106

The results indicate that each of the composite piles considered in this study are viable options for use in fender and dolphin applications. The results indicate that marine structures can be configured in numerous ways to resist the kinetic impact energy of the errant vessel while sustaining deformation with acceptable value. This result can be achieved by use of different types of composite pile from different manufacturers or using a wide range of geometries of a particular composite product.

The results also indicate that SSI relies on the stress strain curves (mechanical properties) of composite product to estimate energy absorption capacity and/or characteristics load-deflection curve of marine structure. Currently however there are no threshold limits on the stress strain curve behavior that a composite product must meet for use in marine construction. The stress strain curve represents the deformation behavior of material when it is subjected to load and this curve reflects the combined effects of several properties such as elastic constants, strength and ductility. Therefore a marine structure can be designed in a similar fashion to a fiber-reinforced plastic composite product (where an engineered product is manufactured to provide required properties) as detailed below:

- 1) Use either a composite element (pile group) that has weaker strain-strain curve characteristics or a composite element that has stronger strain-strain curve characteristics, where strict deformation criteria does not govern while achieving a design energy absorption capacity.
- 2) Use either a composite element (pile group) that has stronger strain-strain curve characteristics or a composite element that has weaker strain-strain curve characteristics, where deformation criteria govern and while achieving design energy absorption capacity.

Table 5: Feasible options to meet (assumed) required design criteria

Required Energy Absorption Capacity	Maximum Permissible Deformation	Product Type	Feasible Options I.D*
Design with deformation criteria			
100 kips-ft.	84	BEDFORD Technology (SEAPILE)	1
		HarborPile™	4 Through 10
		Creative Pultrusions, Inc. (SUPERPILE)	11 through 13
		Pearson Pilings	14 through 16 and 18 through 19
		Lancaster Composite Pile	21 and 24
Design without deformation criteria			
100 kips-ft.	None	BEDFORD Technology (SEAPILE)	1 through 3
		HarborPile™	4 Through 10
		Creative Pultrusions, Inc. (SUPERPILE)	11 through 13
		Pearson Pilings	14 through 19
		Lancaster Composite Pile	20 Through 24

* Listed feasible options are representative of few selected options considered in Table 4. It shall be noted that there are infinite feasible options possible to meet design criteria.

Based on the analyses results, it was concluded that a variety of readily available composite piles may be suitable for the use in the construction of fenders and dolphins depending on specific project deformation and energy absorbing criteria and that pile group configurations can be designed to meet commonly applied project criteria. This conclusion is likely to extend to additional varieties of composite products that are available in the market, but which were not specifically investigated in this study.

Conclusion and Recommendations: The results of our parametric study indicate that all of composite piles considered in this study meet the requirements for use in marine structures and the current performance requirements within specification Section 916.01 - Fiberglass Composite Materials of NJDOT Standard Specifications. The current specification however, currently favors a limited number of manufacturers and does not address the technical reasoning and basis for the specification. Therefore current Specification Section 916 should be revised to encourage participation by a wider variety of composite pile manufacturers that are currently available in the market. This revision is likely to encourage a more competitive bidding environment.

Limitations: This memorandum has been prepared on behalf of and for the exclusive use of the client, The College of New Jersey (TCNJ), for the NJDOT Bureau of Research: Fiberglass Composite Materials Specification Redevelopment (Project No. 2014-15-02). The scope of our services for this project did not include revising or redevelopment of Section 916 of NJDOT standard Specification. Hardesty & Hanover, LLC (H&H) will not be responsible for any claims, damages, or liability associated with redevelopment of section 916 of NJDOT standard Specification.

H&H has attempted to conduct the services reported herein in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in design of marine structures such as fenders and dolphins using composite products. The analyses, conclusions and recommendations contained in this memorandum are based on the LPILE and FB-Multiplier (FBMP) using assumed loadings and water/soil profiles as described. These software products do not specifically consider composite product materials and the assumed water/soil profile may not apply to all project locations, therefore our conclusions and/or recommendations are somewhat interpretive. The recommendations and conclusions contained in this report are professional opinions. No other representation, expressed or implied, and no warranty or guarantee is included or intended in this document.

Sincerely,



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Calculations

Attachment 1 - FRP Product Details

Attachment 2 - Single Pile Analyses (Deformation Characteristics)

Attachment 3 - Single Pile Analyses (Energy Absorption Capacity)

Attachment 4 - Dolphins Analyses (FB-Multiplier)

Attachment 1 - FRP Product Details

HarborPile



Harbor Technologies
A DIVISION OF KENWAY CORPORATION

HarborPile™ Specifications

1. Physical Properties

Composite pilings are cylindrical piles fabricated of glass fibers imbedded in a resin system.

Pilings are supplied as hollow tubes.

The composite pilings shall be constructed using a vacuum assisted resin infusion process to insure proper glass to resin ratio of 65:35.

Pilings are one continuous piece and are not to be spliced.

Standard Piling colors are black, gray and brown. Other colors can be special ordered.

Pilings are to be ordered 6 inches longer than the necessary length to allow for cutting off of the piling end which is potentially damaged during the driving process.

Each piling is to be marked with the appropriate serial number and manufacturers' name. These should be found 2-4 feet from the top of the piling and be clearly visible.

2. Material

Glass Fibers shall consist of multiaxial E-glass reinforcement with a minimum of 50% in the 0° orientation, a minimum of 25% in the 90° orientation and the remainder in the +/- 45° orientation.

3. Driving & Handling

Pilings are to be handled with ropes or slings and must not be dropped, gouged, dragged or treated in any manner which damages the outer surface.

Pilings are to be stored and supported by blocking to keep them level and off the ground.

Pilings shall be stacked with spacers in between layers to allow air flow and access to the pilings.

Pile Cut Off can be done with a circular saw and carbide tipped saw blade.

Pile driving equipment shall be vibratory, air, steam, or diesel powered hammer and be of an approved type. The driving hammer shall have a capacity at least equal to the hammer manufacturer's recommendation for the total weight of pile and character of subsurface material to be encountered.

Provide driving helmet, pile caps, pile driving tips and driving pads as recommended by the pile manufacturer.



4. Performance Characteristics

Pilings meet or exceed these minimum physical properties. These values are ultimate strength; no safety factors have been applied to these numbers.

5. Laminate Properties

Bending Stress	48,821 psi
In Plane Shear Stress	5,959 psi
Modulus of Elasticity	3,600,000 psi
Specific Gravity	1.75
Density	0.066 lb/in ²
Compressive Strength	57,600 psi
Tensile Strength	79,800 psi
Flexural Strength	81,900 psi
Fiber Percent by Volume	50%
Fiber Percent by Weight	65%
Laminate Void Content	2%
Fiberglass to Resin Ratio	65:35



HarborPile™ Properties

Pile	Diameter (in)	Layers	Nominal wall thickness (in)	Weight (lb/ft)	I (in ⁴)	Modulus of elasticity (psi)	Stiffness (lb-in ²)	Max yield stress in bending (ksi)	Ultimate moment capacity (kip-ft)
10-1/4	10	2	1/4	8	91	3.73E+06	3.40E+08	31	44
10-3/8	10	3	3/8	11	132	3.80E+06	5.00E+08	31	64
10-1/2	10	4	1/2	15	169	3.79E+06	6.40E+08	31	82
12-3/8	12	3	3/8	13	232	3.63E+06	8.40E+08	31	92
12-1/2	12	4	1/2	18	299	3.68E+06	1.10E+09	31	119
12-5/8	12	5	5/8	22	362	3.59E+06	1.30E+09	31	144
14-3/8	14	3	3/8	15	373	3.49E+06	1.30E+09	29	120
14-1/2	14	4	1/2	20	484	3.31E+06	1.60E+09	29	155
14-5/8	14	5	5/8	25	589	3.40E+06	2.00E+09	29	189
14-3/4	14	6	3/4	30	687	3.35E+06	2.30E+09	29	221
16-3/8	16	3	3/8	17	562	3.20E+06	1.80E+09	27	153
16-1/2	16	4	1/2	23	732	3.14E+06	2.30E+09	27	199
16-5/8	16	5	5/8	28	894	3.25E+06	2.90E+09	27	243
16-3/4	16	6	3/4	34	1047	3.25E+06	3.40E+09	27	285
16-7/8	16	7	7/8	40	1193	3.10E+06	3.70E+09	27	327
16-1	16	8	1	45	1331	3.00E+06	4.00E+09	27	369
16-1 1/8	16	9	1 1/8	51	1462	3.21E+06	4.70E+09	27	411
18-1/2	18	4	1/2	25	1053	3.04E+06	3.20E+09	27	247
18-5/8	18	5	5/8	31	1289	3.03E+06	3.90E+09	27	303
18-3/4	18	6	3/4	37	1515	3.04E+06	4.60E+09	27	355
18-7/8	18	7	7/8	43	1730	3.06E+06	5.30E+09	27	405
20-1	20	8	1	56	2701	3.26E+06	8.80E+09	26	593
20-1 1/2	20	12	1 1/2	82	3754	3.20E+06	1.20E+10	26	823
24-1	24	8	1	67	4787	3.13E+06	1.50E+10	26	853
24-1 1/2	24	12	1 1/2	98	6739	3.12E+06	2.10E+10	26	1198
36-1	36	8	1	98	16851	2.79E+06	4.70E+10	26	1845
36-1 1/2	36	12	1 1/2	145	24234	2.76E+06	6.70E+10	26	2645

SUPERPILE

MECHANICAL & PHYSICAL PROPERTIES

PIPE PILES

The mechanical and physical data detailed herein is provided for the structural engineer. The mechanical data is published in terms of average and characteristic values. The characteristic values were derived per the requirements as set forth in ASTM D7290 Standard Practice for Evaluating Material Property Characteristic Values for Polymeric Composites for Civil Engineering Structural Applications. The characteristic value is defined as a statistically-based material property representing the 80% lower confidence bound on the 5th-percentile value of a specified population. The characteristic value accounts for statistical uncertainty due to a finite sample size. The characteristic value is the reference strength.

In terms of Load and Resistance Factor Design (LRFD) design, the reference strength shall be adjusted for end use conditions by applying the applicable adjustment factors to establish the nominal resistance strength. The design strength shall include the nominal resistance, adjusted for end-

use conditions, a resistance factor and time effect factor. The reference strength and stiffness shall be multiplied by .85 and .95 respectively to establish the nominal strength and stiffness for installations in sea and fresh water. A time effect factor of 0.4 shall be applied for full design permanent loads that will act during the service life of the structure. Resistant factors shall be established as set forth in the LRFD of Pultruded Fiber Reinforced Polymer (FRP) Structures Pre-Standard. Serviceability shall be checked based on the adjusted average full section modulus of elasticity as established per ASTM D6109.

In terms of Allowable Stress Design (ASD), the pultrusion industry uses a 3.0 safety factor for compression members, 2.5 for flexural members, 3.0 for connections and 3.0 for shear. The characteristic reference strength shall be used for strength and the average E-modulus shall be used for serviceability calculations.

SUPERPILE® Mechanical Properties	Round FRP Pipe Pile TU455 Polyurethane 12"x3/8" Metric (305mm x 9.52mm)		Round FRP Pipe Pile TU450 Polyurethane 12"x1/2" Metric (305mm x 12.7mm)		Round FRP Pipe Pile TU460 Polyurethane 16"x1/2" Metric (406mm x 12.7mm)	
Average Flexural Strength per ASTM D6109 psi (Mpa)	52,000	(359)	69,658	(480)	57,270	(395)
Characteristic Flexural Strength per ASTM D6109 psi (Mpa) ²	*****	*****	56,111	(387)	49,840	(344)
Average Compression Strength per ASTM D6109 psi (Mpa)	52,000	(359)	69,658	(480)	57,270	(395)
Characteristic Compression Strength per ASTM D6109 psi (Mpa) ²	*****	*****	56,111	(387)	49,840	(344)
Average In-Plane Shear Strength psi (Mpa)	15,605	(108)	16,039	(111)	17,170	(118)
Characteristic In-Plane Shear Strength psi (Mpa)	13,212	(91)	13,713	(95)	14,936	(103)
Average Shear Capacity lbs (Kg)	106,894	(48,486)	145,153	(65,840)	208,616	(94,626)
Characteristic Shear Capacity lbs (Kg)	90,502	(41,051)	124,103	(56,292)	181,472	(82,314)
Average Torque Strength lb-ft (kN•m)	103,519	(140)	138,829	(188)	269,987	(366)
Characteristic Torque Strength lb-ft (kN•m)	87,644	(119)	118,696	(161)	234,859	(318)
Average Axial Compression Strength psi (Mpa)	52,000	(359)	69,658	(480)	57,270	(395)
Characteristic Axial Compression Strength psi (Mpa) ²	*****	*****	56,111	(387)	49,840	(344)
Average Axial Compression Capacity (Short Column) lb (kg)	712,400	(323,139)	1,260,810	(571,894)	1,391,661	(631,247)
Characteristic Axial Compression Capacity (Short Column) lb (kg) ²	*****	*****	1,015,609	(460,673)	1,211,112	(549,351)
Average Modulus of Elasticity per ASTM D6109 psi (Gpa)	5.26E+06	(36.3)	5.91E+06	(40.7)	5.99E+06	(41.3)
Bending Stiffness (EI) per ASTM D6109 lbs•in ² (kg•mm ²)	1.22E+09	(3.57E+11)	1.77E+09	(5.17E+11)	4.38E+09	(1.28E+12)
Average Moment Capacity per ASTM D6109 kip-ft (kN•m)	167	(227)	289	(392)	437	(592)

MECHANICAL & PHYSICAL PROPERTIES

PIPE PILES

SUPERPILE® Mechanical Properties	Round FRP Pipe Pile TU455 Polyurethane 12"x3/8" Metric (305mm x 9.52mm)		Round FRP Pipe Pile TU450 Polyurethane 12"x1/2" Metric (305mm x 12.7mm)		Round FRP Pipe Pile TU460 Polyurethane 16"x1/2" Metric (406mm x 1 2.7mm)	
Characteristic Moment Capacity per ASTM D6109 kip-ft (kN•m) ²	*****	*****	233	(316)	380	(515)
Average Energy Absorption kip-in (kN•m)	341	(39)	643	(73)	829	(94)
Characteristic Energy Absorption kip-in (kN•m) ²	*****	*****	405	(46)	603	(68)
Average Pin Bearing Strength Crosswise psi (Mpa)	19,823	(137)	21,676	(149)	23,666	(163)
Characteristic Pin Bearing Strength Crosswise psi (Mpa)	12,447	(86)	12,546	(87)	20,771	(143)
Average Pin Bearing Strength Lengthwise psi (Mpa)	30,793	(212)	30,149	(208)	27,788	(192)
Characteristic Pin Bearing Strength Lengthwise psi (Mpa)	18,053	(125)	25,132	(173)	19,217	(133)
Average Pile Crush Strength lb (kg) (based on a 9" wide load path) ¹	10,600	(4,808)	17,970	(8,151)	16,600	(7,530)
Characteristic Pile Crush Strength lb (kg) (based on a 9" wide load path) ¹	8,060	(3,656)	13,782	(6,251)	11,667	(5,292)
Average Crush Strength, with FRP Insert, lb (kg) (based on a 9" wide load path) ^{1,2}	*****	*****	73,780	(33,466)	44,213	(20,055)
Characteristic Crush Strength, with FRP Insert, lb (kg) (based on a 9" wide load path) ^{1,2}	*****	*****	51,370	(23,301)	*****	*****
Average Washer Pull Through Strength lb (kg) using a 6"x1/2" square/radius washer	26,084	(11,832)	30,686	(13,919)	27,582	(12,511)
Characteristic Washer Pull Through Strength lb (kg) using a 6"x1/2" square/radius washer	22,107	(10,028)	26,815	(12,163)	25,103	(11,387)
Average Washer Pull Through Strength lb (kg) using a 6"x3/8" square/radius washer	18,893	(8,570)	25,205	(11,433)	18,878	(8,563)
Characteristic Washer Pull Through Strength lb (kg) using a 6"x3/8" square/radius washer	13,977	(6,340)	22,420	(10,170)	13,521	(6,133)
Allowable torque permitted on a bolted connection with a 6" radius washer lb-ft (N•m)	50	(68)	50	(68)	50	(68)
SUPERPILE® Physical Properties	Round FRP Pipe Pile TU455 Polyurethane 12"x3/8" Metric (305mm x 9.52mm)		Round FRP Pipe Pile TU450 Polyurethane 12"x1/2" Metric (305mm x 12.7mm)		Round FRP Pipe Pile TU460 Polyurethane 16"x1/2" Metric (406mm x 12.7mm)	
Diameter in (cm)	12	(30.48)	12	(30.48)	16	(40.64)
Wall thickness in (mm)	0.375	(9.5)	0.5	(12.7)	0.5	(12.7)
Moment of Inertia in ⁴ (cm ⁴)	232	(9,657)	299	(12,445)	732	(30,468)
Section Modulus in ³ (cm ³)	38.6	(633)	49.8	(816)	91.5	(1,499)
Radius of Gyration in (mm)	4.11	(104)	4.07	(103)	5.48	(139)
Weight lb/ft (Kg/m)	12.6	(18.8)	16.9	(25.1)	22.6	(33.6)
Coefficient of Thermal Expansion (CTE) Lengthwise in/in/°F (mm/mm/°C)	5.00E-06	(9.00E-06)	5.00E-06	(9.00E-06)	5.00E-06	(9.00E-06)
Water Absorption ASTM D570	0.15% (24hrs)	0.15% (24hrs)	0.15% (24hrs)	0.15% (24hrs)	0.15% (24hrs)	0.15% (24hrs)
Fiber Volume Fraction %	≥50%	≥50%	≥50%	≥50%	≥50%	≥50%
Cross Sectional Area in ² (cm ²)	13.7	(88)	18.1	(116.8)	24.3	(156.8)
Surface Area ft ² /ft (m ² /m)	3.14	(0.96)	3.14	(0.96)	4.19	(1.28)

¹The crush strength value is based on full section testing. The strength value was recorded at the first audible sound and change in the load deflection curve. The ultimate capacity is approximately 60% higher and is defined as the highest recorded load documented during the crush strength test.

²Characteristic data is unavailable due to the number of tests required. A minimum of 10 tests are required to generate the ASTM D7290 characteristic values.

MECHANICAL & PHYSICAL PROPERTIES

OCTAGONAL PILES

The mechanical and physical data detailed herein is provided for the structural engineer. The mechanical data is published in terms of average value and either characteristic or 5% Lower Exclusion Limit (LEL) values. The characteristic values were derived per the requirements as set forth in ASTM D7290 Standard Practice for Evaluating Material Property Characteristic Values for Polymeric Composites for Civil Engineering Structural Applications. The characteristic value is defined as a statistically-based material property representing the 80% lower confidence bound on the 5th-percentile value of a specified population. In instances where sufficient data was not available to calculate the characteristic value, a 5% LEL was calculated. The 5% LEL, like the characteristic value, is the 5th-percentile value, however it is somewhat less conservative in that it does not account for the 80% lower confidence bound. The values are listed to account for statistical uncertainty due to a finite sample size. These statistically reduced values should be used as the reference strength.

In terms of Load and Resistance Factor Design (LRFD) design, the reference strength shall be

adjusted for end use conditions by applying the applicable adjustment factors to establish the nominal resistance strength. The design strength shall include the nominal resistance, adjusted for end-use conditions, a resistance factor and time effect factor. The reference strength and stiffness shall be multiplied by .85 and .95 respectively to establish the nominal strength and stiffness for installations in sea and fresh water. A time effect factor of 0.4 shall be applied for full design permanent loads that will act during the service life of the structure. Resistant factors shall be established as set forth in the LRFD of Pultruded Fiber Reinforced Polymer (FRP) Structures Pre-Standard. Serviceability shall be checked based on the adjusted average full section modulus of elasticity as established per ASTM D1036.

In terms of Allowable Stress Design (ASD), the pultrusion industry uses a 3.0 safety factor for compression members, 2.5 for flexural members, 3.0 for connections, and 3.0 for shear. The reference strength shall be used for strength and the average modulus shall be used for serviceability calculations.

Octagonal Pile Mechanical Properties	Octagonal Pile 8"x.25" Series II CP076 (203mm x 6.35mm)		Octagonal Pile 10"x.25" Series II CP074 (254mm x 6.35mm)		Octagonal Pile 10"x.275" Series III CP210 (254mm x 6.98mm)	
Average Flexural Strength per ASTM D1036 psi (Mpa)	49,173	(339)	43,832	(302)	43,893	(303)
5% LEL Flexural Strength per ASTM D1036 psi (Mpa) ¹	46,999	(324)	41,374	(285)	42,076	(290)
Average Compression Strength per ASTM D1036 psi (Mpa)	49,173	(339)	43,832	(302)	43,893	(303)
5% LEL Compression Strength per ASTM D1036 psi (Mpa) ¹	46,999	(324)	41,374	(285)	42,076	(290)
Average In-Plane Shear Strength psi (Mpa)	12,554	(87)	12,706	(88)	12,866	(89)
Characteristic In-Plane Shear Strength psi (Mpa)	10,940	(75)	10,101	(70)	11,616	(80)
Average Shear Capacity lbs (Kg)	48,458	(21,980)	68,359	(31,007)	86,649	(39,304)
Characteristic Shear Capacity lbs (Kg)	42,230	(19,155)	54,344	(24,650)	78,237	(35,488)
Average Torque Strength lb-ft (kN•m)	24,675	(33)	41,166	(56)	45,621	(62)
Characteristic Torque Strength lb-ft (kN•m)	21,504	(29)	32,726	(44)	41,191	(56)
Average Axial Compression Strength psi (Mpa)	49,173	(339)	43,832	(302)	43,893	(303)
5% LEL Axial Compression Strength psi (Mpa) ¹	46,999	(324)	41,374	(285)	42,076	(290)
Average Axial Compression Capacity (Short Column) lb (kg)	379,617	(172,191)	471,634	(213,930)	591,245	(268,184)
5% LEL Axial Compression Capacity (Short Column) lb (kg) ¹	362,832	(164,578)	445,184	(201,932)	566,764	(257,080)
Average Modulus of Elasticity per ASTM D1036 psi (Gpa)	4.30E+06	(29.6)	4.00E+06	(27.6)	3.70E+06	(25.5)
Bending Stiffness (EI) per ASTM 1036 lbs•in ² (kg•mm ²)	2.62E+08	(7.67E+10)	5.58E+08	(1.63E+11)	6.35E+08	(1.86E+11)
Average Moment Capacity per ASTM D1036 kip-ft (kN•m)	62	(85)	100	(136)	123	(167)
5% LEL Moment Capacity per ASTM D1036 kip-ft (kN•m) ¹	60	(81)	94	(128)	118	(160)
Average Pin Bearing Strength Crosswise psi (Mpa)	15,357	(106)	11,562	(80)	11,280	(78)
Characteristic Pin Bearing Strength Crosswise psi (Mpa)	8,131	(56)	5,839	(40)	5,453	(38)

Bedford

SEAPILE® PERFORMANCE DATA



WWW.BEDFORDTECH.COM

SeaPile Section	Diameter		Rebar Qty	Rebar Size		Yield Strength*		Modulus of Elasticity*		Nominal Stiffness*		Weight	
	Inch	mm		Inch	mm	lb/in ²	MPa	lb/in ²	MPa	lb-in ²	kN-m ²	lb/ft	kg/m
10 SP 6F08	10	254	6	1	25	4830	33.3	302000	2083	1.48E+08	426	28-35	42-52
10 SP 8F08	10	254	8	1	25	5910	40.8	369000	2545	1.81E+08	520	29-36	43-54
13 SP 8F08	13	330	8	1	25	5170	35.7	345000	2379	4.84E+08	1388	43-50	64-74
13 SP 8F10	13	330	8	1.25	32	8180	56.4	481000	3317	6.74E+08	1936	44-52	66-77
13 SP 8F11	13	330	8	1.375	35	9830	67.8	562000	3876	7.88E+08	2262	45-53	67-79
13 SP 12F08	13	330	12	1	25	5740	39.6	377000	2600	5.29E+08	1517	44-52	66-77
13 SP 12F10	13	330	12	1.25	32	10110	69.7	613000	4228	8.59E+08	2467	46-54	69-80
13 SP 12F11	13	330	12	1.375	35	11380	78.5	759000	5234	1.06E+09	3055	47-55	70-82
13 SP 12F12	13	330	12	1.5	38	12840	88.6	885000	6103	1.24E+09	3562	49-57	73-85
13 SP 12F13	13	330	12	1.625	41	14960	103.2	1023000	7055	1.43E+09	4117	51-59	76-88
16 SP 16F08	16	406	16	1	25	6750	46.6	394000	2717	1.27E+09	3638	71-79	106-118
16 SP 16F10	16	406	16	1.25	32	9860	68.0	548000	3779	1.76E+09	5061	74-82	110-122
16 SP 16F11	16	406	16	1.375	35	11330	78.1	687000	4738	2.21E+09	6344	76-83	113-124
16 SP 16F12	16	406	16	1.5	38	12750	87.9	830000	5724	2.67E+09	7665	77-85	115-127
16 SP 16F13	16	406	16	1.625	41	14550	100.3	898000	6193	2.89E+09	8293	78-86	116-128
16 SP 16F14	16	406	16	1.75	44	16430	113.3	988000	6814	3.18E+09	9124	80-89	119-132

*Typical Performance +/- 10%

Pearson

Engineering Data - Pearson Fiberglass Pilings

Materials Properties	Piling Diameter					
	8"	10"	12"	12" HD	14"	16"
Reinforcement (grams/square meter)	2269	6072	7997	7997	8329	10084
A quasi-isotropic three dimensional proprietary fabric utilizing e-glass grade filaments Exceptional damage tolerance with no crack propagation						
Outer Layer (area sq ft / lineal ft)	2.09	2.62	3.10	3.10	3.67	4.19
Coating system is a dual component, 100% reactive, toughened acrylic, paint system. The acrylic technology provides for excellent color stability and fade resistance in high UV environments.						
Resin Matrix						
An epoxy / vinylester, with high elongation, low styrene monomer, excellent hydrolytic stability and high heat deflection temperature, will not leach, inert, high chemical resistance, insoluble in any common hydrocarbons, mild acidic or alkaline solutions						
Mechanical Properties *Minimum Values*	Piling Diameter					
	8"	10"	12"	12" HD	14"	16"
Axial Tensile Strength - psi	50,122	50,490	68,000	68,000	66,890	64,300
Axial Tensile Modulus - (MOE) - psi	4,547,780	3,530,000	4,030,000	4,030,000	4,100,000	3,960,000
Axial Flexural Strength - psi	58,400	79,650	89,400	89,400	91,450	89,600
Axial Compressive Strength - psi	43,320	67,000	76,800	76,800	77,460	74,800
Transverse Tensile Strength - psi	11,733	29,000	27,600	27,600	28,700	28,400
Transverse Tensile Modulus - psi	2,433,870	1,760,000	1,774,000	1,774,000	1,760,000	1,770,000
Interlaminar Shear Strength - psi	13,000	12,000	12,000	12,000	12,000	12,000
Effective Bending Stiffness - psi	1.19E+08	3.21E+08	9.33E+08	1.21E+09	1.53E+09	2.51E+09
Young's Modulus	4,547,780	3,530,000	4,030,000	4,030,000	4,100,000	3,960,000
Poisson's Ratio	0.22	0.25	0.23	0.23	0.24	0.24
Allowable Bending Moment - kips-ft (FS = 2)	16	39	56	187	139	202
Allowable Axial Load - kips short column			280			
Barcol Hardness	>50	>50	>50	>50	>50	>50
Glass to Resin Ration - by weight	~60:40	~60:40	~60:40	~60:40	~60:40	~60:40
Aprox. Wall Thickness - inches	~.117	~0.250	~0.375	~0.500	~0.375	~0.500
Aprox. Weight - lbs/ft	4	7	10	10	13	20
Thermal Expansion - in/in/°F	<.000014	<.000012	<.000006	<.000006	<.000006	<.000006
Water Absorption - %	<.25	<.25	<.25	<.25	<.25	<.25

Pearson Pilings does have the ability to customize laminates to meet the needs of your project should requirements exceed our standard piling specifications

For more information contact:

Pearson Pilings
177 Riverside Ave.
Somerset, MA 02725
508-675-0594
www.pearsonpilings.com

Lancaster

7.2 PRODUCT DATA — CP40 PLUS

The CP40 PLUS marine piles are available in five standard sizes. The following tables and graphs provide details and mechanical properties of the composite tubes and the standard CP40 PLUS finished product including moment capacity, axial load capacity, flexural stiffness and beam-column interaction curves.

PROPERTIES OF THE STANDARD GFRP TUBES PLUS

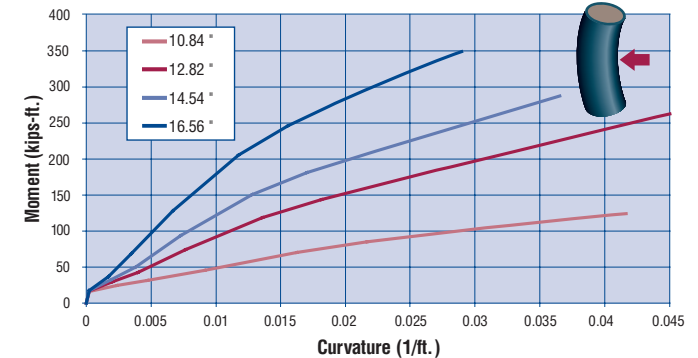
Geometrical and Mechanical Properties of the GFRP Tubes	CP 40 Plus Standard Sizes				
	8 in.	10 in.	12 in.	14 in.	16 in.
Outer diameter, in.	8.83	10.84	12.82	14.54	16.56
Structural wall thickness, in.	0.241	0.192	0.237	0.239	0.252
Thickness of liner at inner surface, in.	0.025	0.025	0.025	0.025	0.025
Young's modulus (Axial tensile), Psi	4.6×10^6	4.6×10^6	4.6×10^6	4.0×10^6	3.7×10^6
Young's modulus (Axial compressive), Psi	4.6×10^6	4.6×10^6	4.6×10^6	4.0×10^6	3.7×10^6
Young's modulus (Hoop tensile), Psi	2.5×10^6	2.8×10^6	2.8×10^6	3.0×10^6	3.5×10^6
Axial tensile strength, Psi	80,000	80,000	80,000	70,000	64,750
Axial compressive strength, Psi	80,000	80,000	80,000	70,000	64,750
Hoop tensile strength, Psi	31,250	35,000	35,000	37,500	43,750
Poisson's ratio (Circ. / Long.)	0.23	0.20	0.20	0.18	0.15

PROPERTIES OF THE STANDARD CP 40 PLUS COMPOSITE PILES

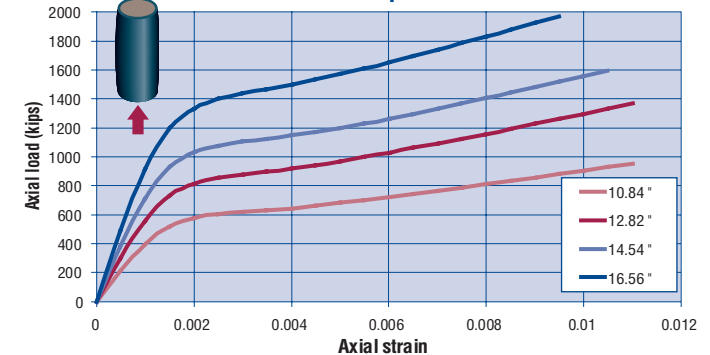
Ultimate Strength of the Composite Piles	CP 40 Plus Standard Sizes				
	8 in.	10 in.	12 in.	14 in.	16 in.
Ultimate moment capacity, ft-kips	120	152	264	310	350
Ultimate axial load capacity as short column, kips	746	952	1366	1595	1969
Flexural stiffness (EI), kips-ft ²	3500	4751	9582	12913	19090

- 1 - The given flexural and axial strengths are allowable ultimate values. The designer should apply the appropriate safety factors.
- 2 - The given axial strengths are based on "short column" behavior and include 15 percent reduction in accordance with ACI 218-02 (10.3.5.1) to account for minimum eccentricities.
- 3 - Moment and flexural testing conducted in accordance with ASTM D 6109 and ASTM D7258.
- 4 - EI values reflect a cracked section.

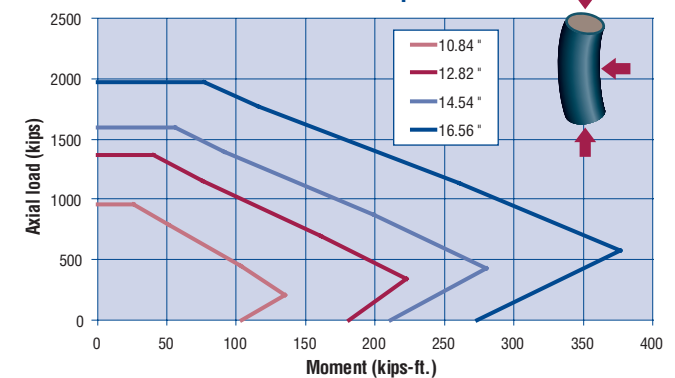
Flexural Behavior of CP 40 Plus Composite Piles



Axial Compression Behavior of CP 40 Plus Composite Piles



Axial Load – Bending Moment Interaction Diagrams of CP 40 Plus Composite Piles



7. PRODUCT DATA

7.1 PRODUCT DATA — CP40

The CP40 marine piles are available in five standard sizes. The following tables and graphs provide mechanical properties of the composite tubes and the standard CP40 finished product including moment capacity, axial load capacity, flexural stiffness and beam-column interaction curves.

PROPERTIES OF THE STANDARD GFRP TUBES

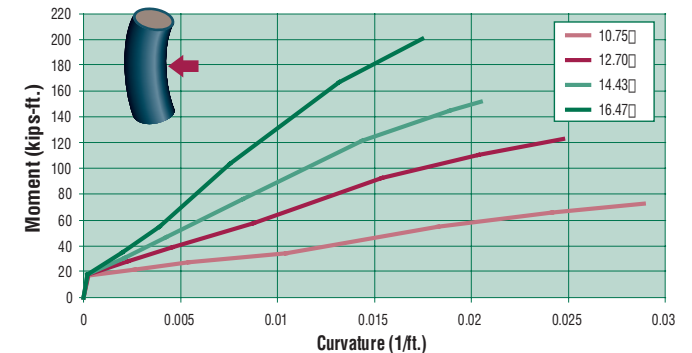
Geometrical and Mechanical Properties of the GFRP Tubes	CP 40 Standard Sizes				
	8 in.	10 in.	12 in.	14 in.	16 in.
Outer diameter, in.	8.60	10.75	12.70	14.43	16.47
Structural wall thickness, in.	0.125	0.145	0.175	0.185	0.205
Thickness of liner at inner surface, in.	0.025	0.025	0.025	0.025	0.025
Young's modulus (Axial tensile), Psi	4.0×10^6	4.0×10^6	4.0×10^6	3.5×10^6	3.1×10^6
Young's modulus (Axial compressive), Psi	4.0×10^6	4.0×10^6	4.0×10^6	3.5×10^6	3.1×10^6
Young's modulus (Hoop tensile), Psi	2.8×10^6	2.8×10^6	2.8×10^6	3.2×10^6	3.4×10^6
Axial tensile strength, Psi	70,000	70,000	70,000	61,000	54,000
Axial compressive strength, Psi	70,000	70,000	70,000	61,000	54,000
Hoop tensile strength, Psi	35,000	35,000	35,000	40,000	42,500
Poisson's ratio (Circ. / Long.)	0.19	0.19	0.19	0.16	0.15

PROPERTIES OF THE STANDARD CP 40 COMPOSITE PILES

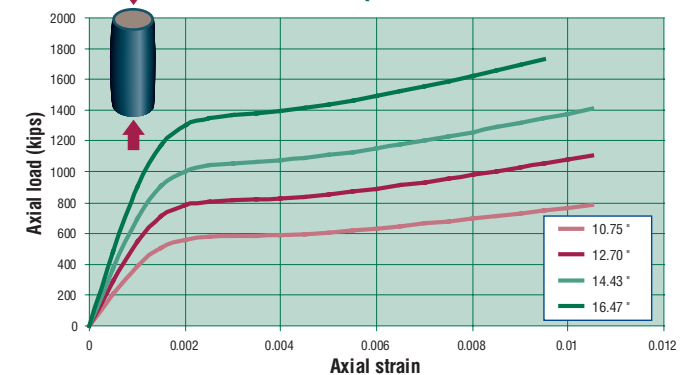
Ultimate Strength of the Composite Piles	CP 40 Standard Sizes				
	8 in.	10 in.	12 in.	14 in.	16 in.
Ultimate moment capacity, ft-kips	39	72	122	151	200
Ultimate axial load capacity as short column, kips	515	790	1115	1406	1727
Flexural stiffness (EI), kips-ft ²	1436	3305	6556	9206	13748

- 1 - The given flexural and axial strengths are allowable ultimate values. The designer should apply the appropriate safety factors.
- 2 - The given axial strengths are based on "short column" behavior and include 15 percent reduction in accordance with ACI 218-02 (10.3.5.1) to account for minimum eccentricities.
- 3 - EI values reflect a cracked section.

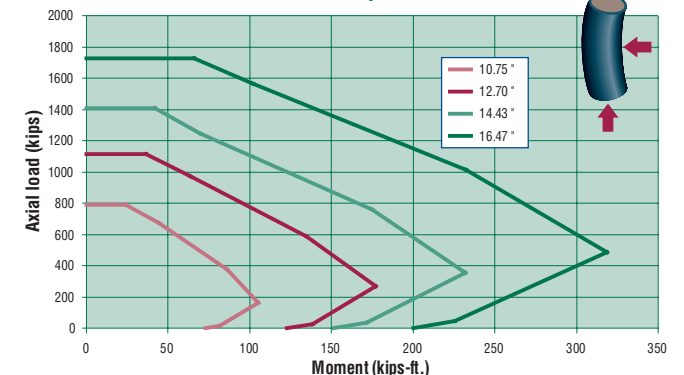
Flexural Behavior of CP 40 Composite Piles



Axial Compression Behavior of CP 40 Composite Piles

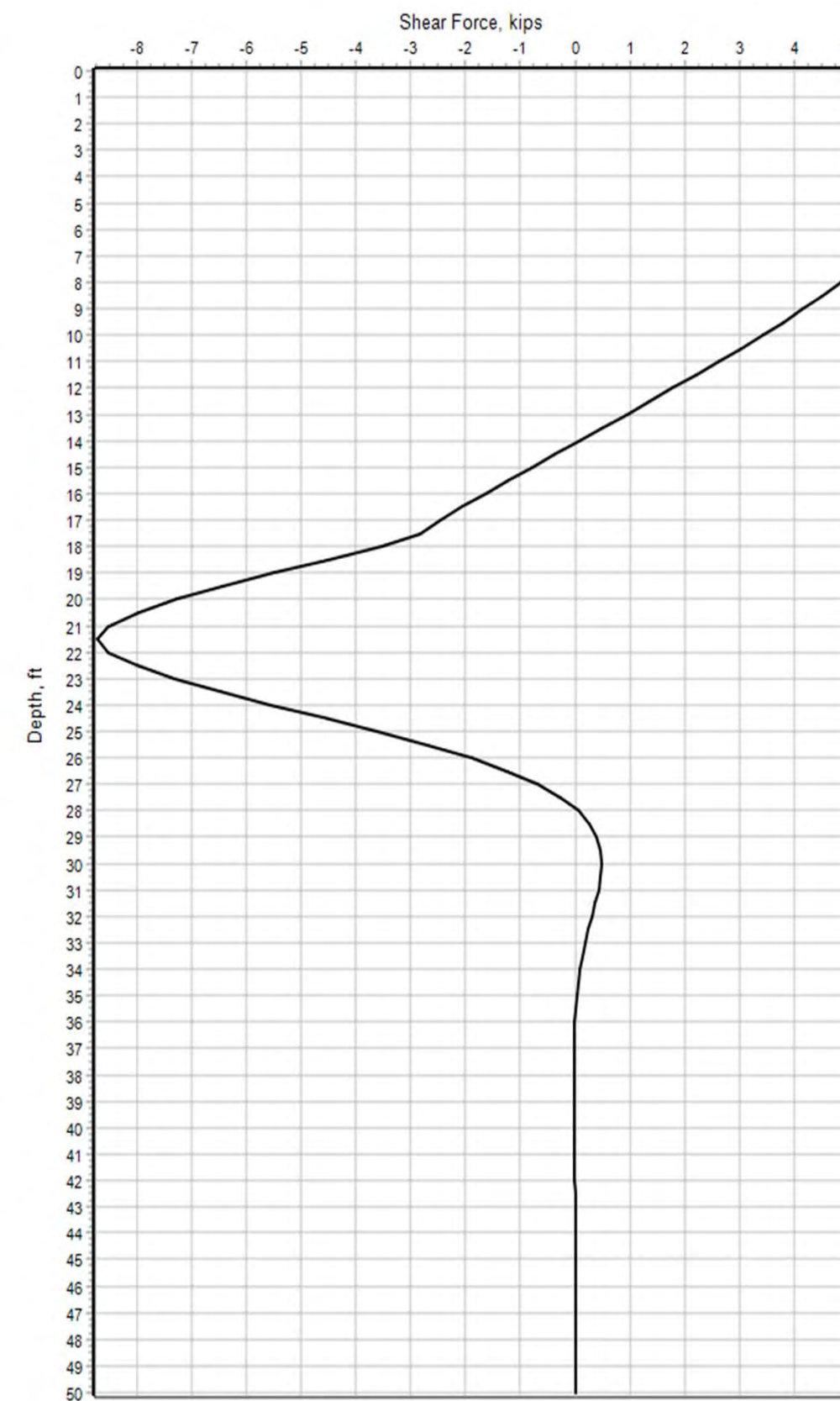
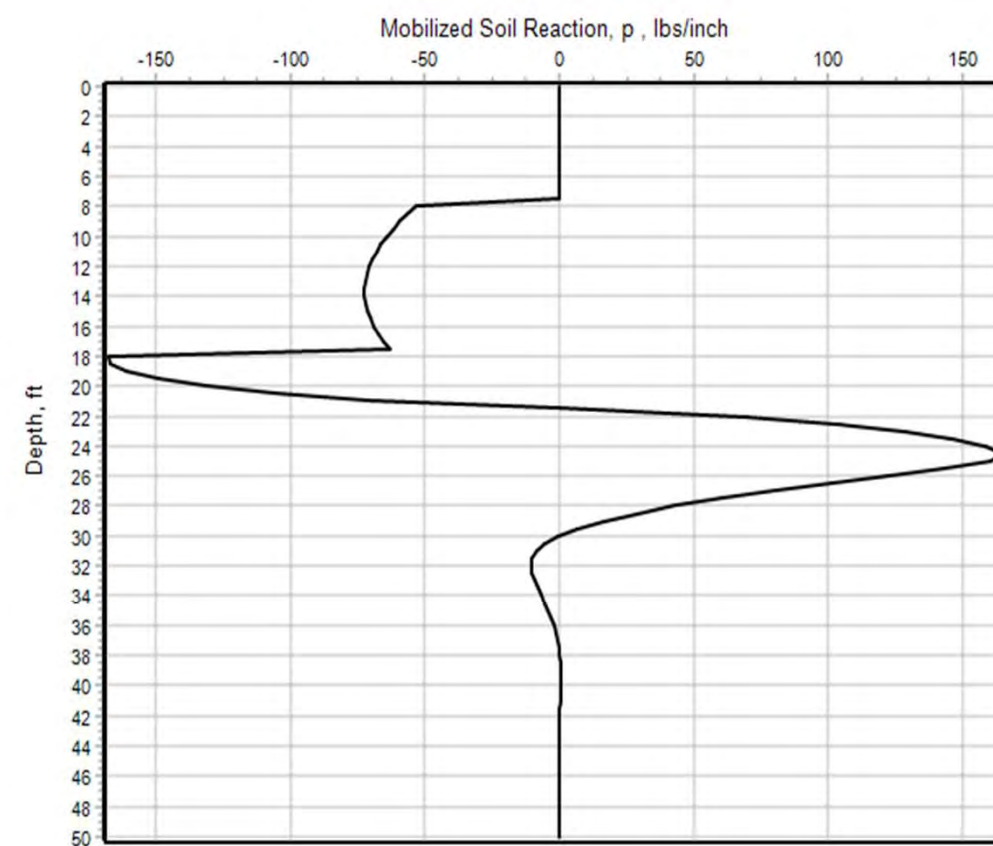
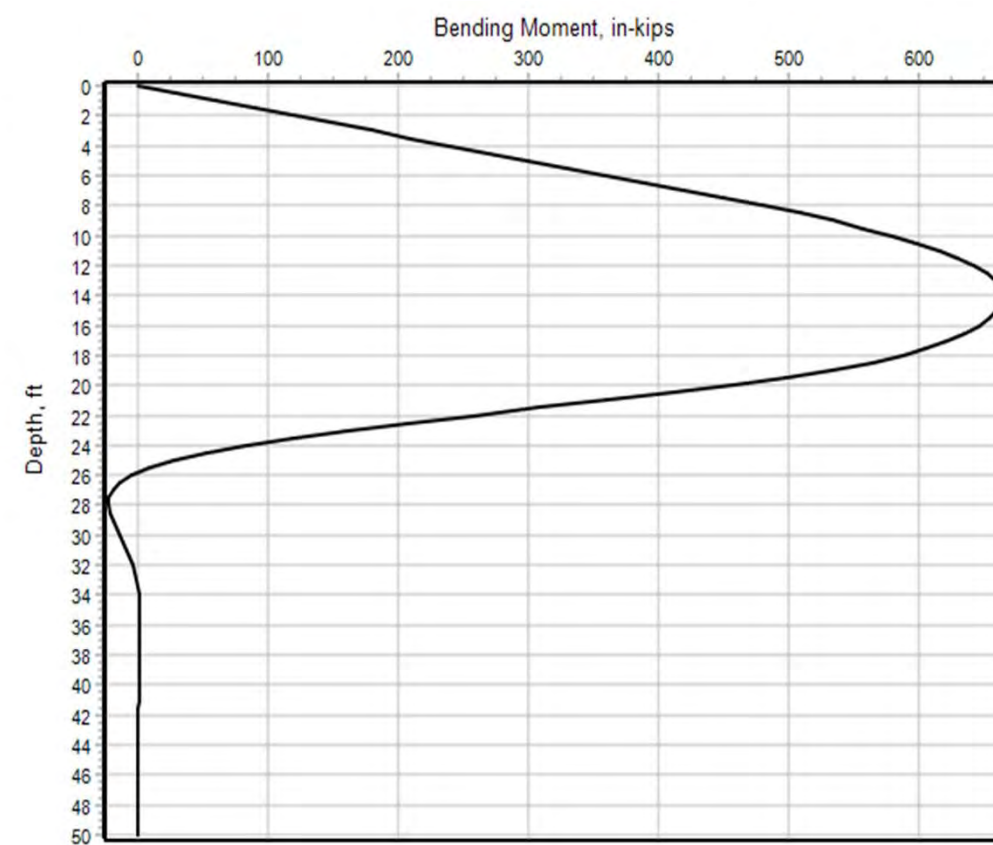
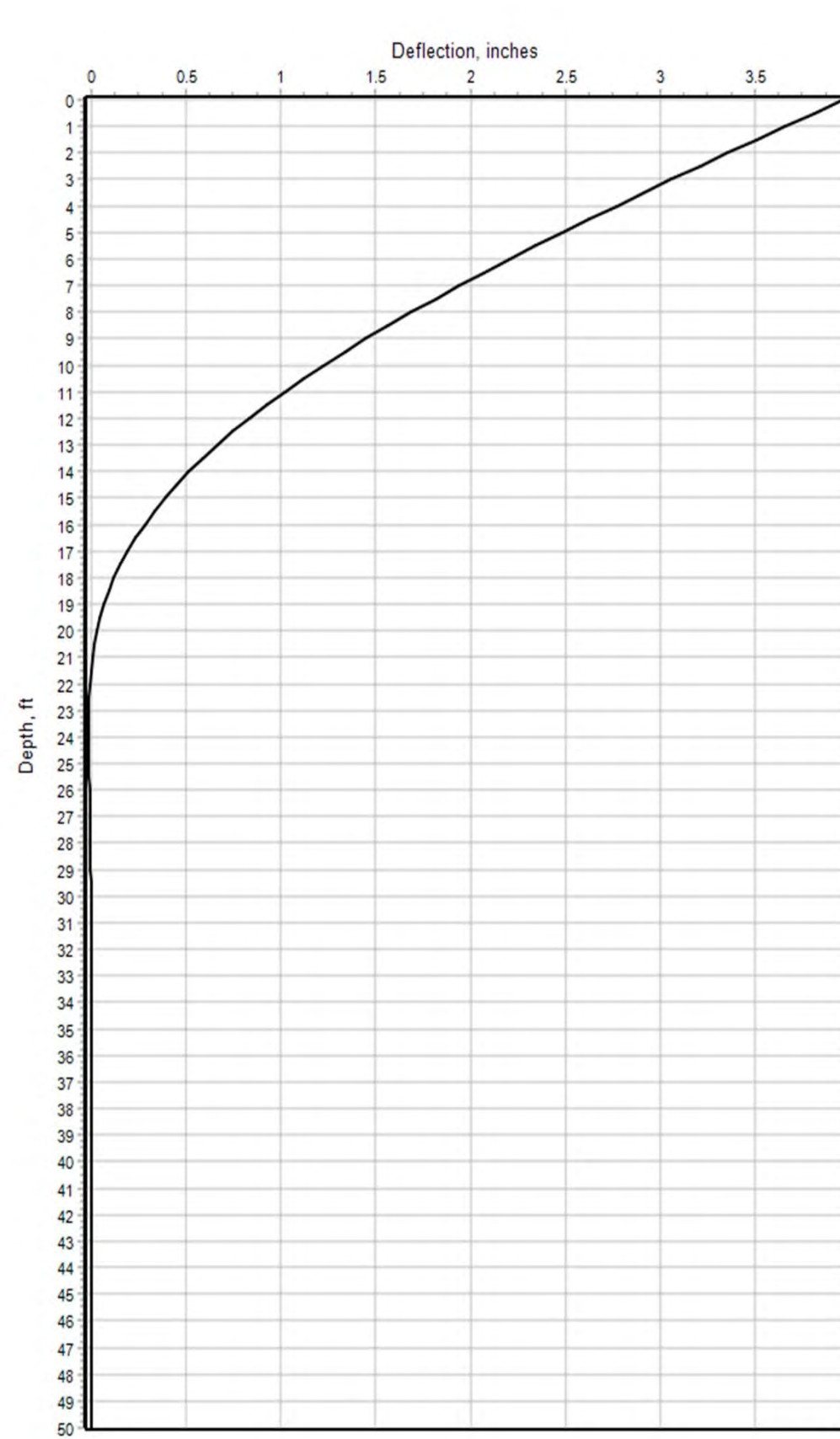


Axial Load – Bending Moment Interaction Diagrams of CP 40 Composite Piles



Attachment 2 - Single Pile Analyses (Deformation Characteristics)

Timber (Deformation)



Timber 16-inch.lp8o

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Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Serial Number of Security Device: 138583645

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Files Used for Analysis

Path to file locations:
\Aravinda\Aravinda_A\Other office Project\FRP\Analyses\LFILE\Deflection\

Name of input data file:
Timber 16-inch.lp8d

Name of output report file:
Timber 16-inch.lp8o

Name of plot output file:
Timber 16-inch.lp8p

Name of runtime message file:
Timber 16-inch.lp8r

Date and Time of Analysis

Date: July 22, 2016 Time: 13:12:49

Problem Title

Fiberglass Composite Materials Specification Redevelopment

Job Number: Project No. 2014-15-02

Timber 16-inch.lp8o

Client: NJDOT

Engineer: Hardesty & Hanover, LLC

Description: Lateral Load Analyses

Program Options and Settings

Computational Options:

- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 100 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 100 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Total number of pile sections	=	1
Total length of pile	=	50.00 ft

Timber 16-inch.lp80

Depth of ground surface below top of pile = 8.00 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	16.00000000
2	50.0000000	16.00000000

Input Structural Properties:

Pile Section No. 1:

Section Type	=	Elastic Pile
Cross-sectional Shape	=	Circular Pile
Section Length	=	50.000000 ft
Top Width	=	16.000000 in
Bottom Width	=	16.000000 in
Top Area	=	201.061930 sq. in
Bottom Area	=	201.061930 sq. in
Moment of Inertia at Top	=	3217. in^4
Moment of Inertia at Bottom	=	3217. in^4
Elastic Modulus	=	1500000. lbs/in^2

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians
Pile Batter Angle	=	0.000 degrees
	=	0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	8.000000 ft
Distance from top of pile to bottom of layer	=	18.000000 ft
Effective unit weight at top of layer	=	32.486400 pcf
Effective unit weight at bottom of layer	=	32.486400 pcf
Undrained cohesion at top of layer	=	249.984000 psf
Undrained cohesion at bottom of layer	=	249.984000 psf
Epsilon-50 at top of layer	=	0.020000
Epsilon-50 at bottom of layer	=	0.020000

Timber 16-inch.lp80

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	18.000000	ft
Distance from top of pile to bottom of layer	=	66.000000	ft
Effective unit weight at top of layer	=	57.024000	pcf
Effective unit weight at bottom of layer	=	57.024000	pcf
Friction angle at top of layer	=	36.000000	deg.
Friction angle at bottom of layer	=	36.000000	deg.
Subgrade k at top of layer	=	100.000000	pci
Subgrade k at bottom of layer	=	100.000000	pci

(Depth of lowest soil layer extends 16.00 ft below pile tip)

Summary of Input Soil Properties

Layer E50 Layer or Num. krm	Soil Type Name kpy (p-y Curve Type) pci	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.
1	Soft	8.0000	32.4864	249.9840	--
0.02000	--				
	Clay	18.0000	32.4864	249.9840	--
0.02000	--				
2	Sand	18.0000	57.0240	--	36.0000
--	100.0000				
--	(Reese, et al.)	66.0000	57.0240	--	36.0000
--	100.0000				

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 5000. lbs	M = 0.0000 in-lbs	0.0000000
No				

V = perpendicular shear force applied to pile head
M = bending moment applied to pile head

Timber 16-inch.lp80

y = lateral deflection relative to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading.

Axial thrust is assumed to be acting axially for all pile batter angles.

 Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Moment-curvature properties were derived from elastic section properties

 Computed Values of Pile Loading and Deflection
 for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 5000.0 lbs
 Applied moment at pile head = 0.0 in-lbs
 Axial thrust load on pile head = 0.0 lbs

Depth Res.	Soil X	Deflect. Spr.	Bending Distrib.	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
feet	Es*h	y	Moment					
lb/inch	lb/inch	inches	in-lbs	lbs	radians	psi*	in-lb^2	
lb/inch	lb/inch	lb/inch	lb/inch					
0.00	0.00	3.9585	1.07E-06	5000.	-0.02525	2.66E-09	4.83E+09	
0.00	0.00	0.00	0.00					
0.5000	0.00	3.8070	30000.	5000.	-0.02523	74.6039	4.83E+09	
0.00	0.00	0.00	0.00					
1.0000	0.00	3.6557	60000.	5000.	-0.02518	149.2078	4.83E+09	
0.00	0.00	0.00	0.00					
1.5000	0.00	3.5049	90000.	5000.	-0.02508	223.8116	4.83E+09	
0.00	0.00	0.00	0.00					
2.0000	0.00	3.3547	120000.	5000.	-0.02495	298.4155	4.83E+09	
0.00	0.00	0.00	0.00					
2.5000	0.00	3.2054	150000.	5000.	-0.02478	373.0194	4.83E+09	
0.00	0.00	0.00	0.00					
3.0000	0.00	3.0573	180000.	5000.	-0.02458	447.6233	4.83E+09	
0.00	0.00	0.00	0.00					
3.5000	0.00	2.9105	210000.	5000.	-0.02434	522.2272	4.83E+09	
0.00	0.00	0.00	0.00					
4.0000	0.00	2.7652	240000.	5000.	-0.02406	596.8310	4.83E+09	
0.00	0.00	0.00	0.00					
4.5000	0.00	2.6218	270000.	5000.	-0.02374	671.4349	4.83E+09	
0.00	0.00	0.00	0.00					

			Timber 16-inch.lp80				
5.0000	2.4804	300000.	5000.	-0.02339	746.0388	4.83E+09	
0.00	0.00	0.00					
5.5000	2.3412	330000.	5000.	-0.02299	820.6427	4.83E+09	
0.00	0.00	0.00					
6.0000	2.2044	360000.	5000.	-0.02257	895.2466	4.83E+09	
0.00	0.00	0.00					
6.5000	2.0704	390000.	5000.	-0.02210	969.8504	4.83E+09	
0.00	0.00	0.00					
7.0000	1.9393	420000.	5000.	-0.02160	1044.	4.83E+09	
0.00	0.00	0.00					
7.5000	1.8112	450000.	5000.	-0.02105	1119.	4.83E+09	
0.00	0.00	0.00					
8.0000	1.6866	480000.	4840.	-0.02048	1194.	4.83E+09	
-53.4239	190.0528	0.00					
8.5000	1.5655	508077.	4510.	-0.01986	1263.	4.83E+09	
-56.4996	216.5378	0.00					
9.0000	1.4483	534119.	4162.	-0.01921	1328.	4.83E+09	
-59.3255	245.7797	0.00					
9.5000	1.3350	558027.	3799.	-0.01853	1388.	4.83E+09	
-61.8954	278.1880	0.00					
10.0000	1.2258	579705.	3421.	-0.01783	1442.	4.83E+09	
-64.2031	314.2484	0.00					
10.5000	1.1210	599073.	3029.	-0.01709	1490.	4.83E+09	
-66.2425	354.5416	0.00					
11.0000	1.0207	616056.	2626.	-0.01634	1532.	4.83E+09	
-68.0072	399.7661	0.00					
11.5000	0.9250	630590.	2214.	-0.01556	1568.	4.83E+09	
-69.4910	450.7684	0.00					
12.0000	0.8339	642623.	1793.	-0.01477	1598.	4.83E+09	
-70.6874	508.5829	0.00					
12.5000	0.7477	652111.	1367.	-0.01397	1622.	4.83E+09	
-71.5899	574.4845	0.00					
13.0000	0.6663	659022.	935.2323	-0.01315	1639.	4.83E+09	
-72.1915	650.0604	0.00					
13.5000	0.5899	663334.	501.2026	-0.01233	1650.	4.83E+09	
-72.4851	737.3072	0.00					
14.0000	0.5184	665036.	66.3580	-0.01150	1654.	4.83E+09	
-72.4631	838.7669	0.00					
14.5000	0.4518	664130.	-367.3836	-0.01068	1652.	4.83E+09	
-72.1174	957.7193	0.00					
15.0000	0.3902	660628.	-798.0533	-0.00985	1643.	4.83E+09	
-71.4391	1098.	0.00					
15.5000	0.3336	654553.	-1224.	-0.00904	1628.	4.83E+09	
-70.4183	1267.	0.00					
16.0000	0.2818	645944.	-1642.	-0.00823	1606.	4.83E+09	
-69.0439	1470.	0.00					
16.5000	0.2348	634849.	-2051.	-0.00743	1579.	4.83E+09	
-67.3031	1720.	0.00					
17.0000	0.1926	621331.	-2449.	-0.00665	1545.	4.83E+09	
-65.1806	2031.	0.00					
17.5000	0.1550	605467.	-2832.	-0.00589	1506.	4.83E+09	
-62.6583	2426.	0.00					
18.0000	0.1219	587347.	-3523.	-0.00515	1461.	4.83E+09	
-167.5767	8247.	0.00					
18.5000	0.09323	563194.	-4526.	-0.00443	1401.	4.83E+09	
-166.9729	10746.	0.00					
19.0000	0.06874	533031.	-5510.	-0.00375	1326.	4.83E+09	
-160.8534	14041.	0.00					
19.5000	0.04822	497076.	-6439.	-0.00311	1236.	4.83E+09	
-148.8484	18520.	0.00					
20.0000	0.03142	455763.	-7277.	-0.00252	1133.	4.83E+09	
-130.5315	24927.	0.00					
20.5000	0.01801	409751.	-7984.	-0.00198	1019.	4.83E+09	

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-105.0970	35004.	0.00				
21.0000	0.00767	359955.	-8510.	-0.00150	895.1356	4.83E+09
-70.1123	54869.	0.00				
21.5000	4.50E-06	307636.	-8720.	-0.00109	765.0272	4.83E+09
-0.05742	76563.	0.00				
22.0000	-0.00536	255314.	-8511.	-7.36E-04	634.9136	4.83E+09
69.7013	77984.	0.00				
22.5000	-0.00883	205501.	-7990.	-4.49E-04	511.0401	4.83E+09
104.0732	70756.	0.00				
23.0000	-0.01075	159436.	-7291.	-2.22E-04	396.4836	4.83E+09
128.8680	71895.	0.00				
23.5000	-0.01149	118009.	-6464.	-5.00E-05	293.4640	4.83E+09
146.7304	76591.	0.00				
24.0000	-0.01135	81865.	-5548.	7.43E-05	203.5804	4.83E+09
158.6492	83837.	0.00				
24.5000	-0.01060	51432.	-4577.	1.57E-04	127.8998	4.83E+09
165.2033	93486.	0.00				
25.0000	-0.00947	26946.	-3599.	2.06E-04	67.0090	4.83E+09
160.5815	101763.	0.00				
25.5000	-0.00813	8241.	-2689.	2.28E-04	20.4942	4.83E+09
142.8029	105363.	0.00				
26.0000	-0.00673	-5323.	-1894.	2.30E-04	13.2362	4.83E+09
122.3045	108963.	0.00				
26.5000	-0.00538	-14483.	-1224.	2.17E-04	36.0174	4.83E+09
100.8742	112563.	0.00				
27.0000	-0.00413	-20013.	-681.8429	1.96E-04	49.7678	4.83E+09
79.9066	116163.	0.00				
27.5000	-0.00303	-22666.	-260.8642	1.69E-04	56.3646	4.83E+09
60.4196	119763.	0.00				
28.0000	-0.00210	-23143.	49.6613	1.41E-04	57.5524	4.83E+09
43.0888	123363.	0.00				
28.5000	-0.00134	-22070.	263.8100	1.13E-04	54.8827	4.83E+09
28.2941	126963.	0.00				
29.0000	-7.43E-04	-19977.	397.2076	8.66E-05	49.6799	4.83E+09
16.1718	130563.	0.00				
29.5000	-2.98E-04	-17303.	465.7312	6.34E-05	43.0294	4.83E+09
6.6694	134163.	0.00				
30.0000	1.76E-05	-14389.	484.5303	4.37E-05	35.7818	4.83E+09
-0.4030	137763.	0.00				
30.5000	2.26E-04	-11489.	467.3455	2.76E-05	28.5702	4.83E+09
-5.3253	141363.	0.00				
31.0000	3.49E-04	-8781.	426.0890	1.50E-05	21.8354	4.83E+09
-8.4269	144963.	0.00				
31.5000	4.06E-04	-6376.	370.6468	5.58E-06	15.8551	4.83E+09
-10.0539	148563.	0.00				
32.0000	4.16E-04	-4333.	308.8554	-1.08E-06	10.7748	4.83E+09
-10.5433	152163.	0.00				
32.5000	3.93E-04	-2669.	246.6101	-5.43E-06	6.6384	4.83E+09
-10.2052	155763.	0.00				
33.0000	3.51E-04	-1373.	188.0619	-7.95E-06	3.4155	4.83E+09
-9.3109	159363.	0.00				
33.5000	2.98E-04	-412.6983	135.8671	-9.06E-06	1.0263	4.83E+09
-8.0873	162963.	0.00				
34.0000	2.42E-04	256.9327	91.4604	-9.15E-06	0.6389	4.83E+09
-6.7149	166563.	0.00				
34.5000	1.88E-04	684.8269	55.3263	-8.57E-06	1.7030	4.83E+09
-5.3298	170163.	0.00				
35.0000	1.39E-04	920.8481	27.2531	-7.57E-06	2.2900	4.83E+09
-4.0279	173763.	0.00				
35.5000	9.71E-05	1012.	6.5579	-6.37E-06	2.5163	4.83E+09
-2.8705	177363.	0.00				
36.0000	6.27E-05	999.5433	-7.7246	-5.12E-06	2.4857	4.83E+09
-1.8904	180963.	0.00				

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36.5000	3.57E-05	919.1694	-16.6906	-3.92E-06	2.2858	4.83E+09	
-1.0983	184563.	0.00					
37.0000	1.56E-05	799.2567	-21.4522	-2.86E-06	1.9876	4.83E+09	
-0.4889	188163.	0.00					
37.5000	1.44E-06	661.7429	-23.0569	-1.95E-06	1.6456	4.83E+09	
-0.04598	191763.	0.00					
38.0000	-7.78E-06	522.5739	-22.4352	-1.21E-06	1.2995	4.83E+09	
0.2532	195363.	0.00					
38.5000	-1.31E-05	392.5201	-20.3732	-6.42E-07	0.9761	4.83E+09	
0.4342	198963.	0.00					
39.0000	-1.55E-05	278.0959	-17.5028	-2.25E-07	0.6916	4.83E+09	
0.5226	202563.	0.00					
39.5000	-1.58E-05	182.4863	-14.3069	6.12E-08	0.4538	4.83E+09	
0.5427	206163.	0.00					
40.0000	-1.47E-05	106.4132	-11.1323	2.41E-07	0.2646	4.83E+09	
0.5155	209763.	0.00					
40.5000	-1.29E-05	48.8984	-8.2092	3.37E-07	0.1216	4.83E+09	
0.4589	213363.	0.00					
41.0000	-1.07E-05	7.9024	-5.6723	3.73E-07	0.01965	4.83E+09	
0.3868	216963.	0.00					
41.5000	-8.43E-06	-19.1691	-3.5822	3.66E-07	0.04767	4.83E+09	
0.3099	220563.	0.00					
42.0000	-6.31E-06	-35.0836	-1.9454	3.32E-07	0.08725	4.83E+09	
0.2357	224163.	0.00					
42.5000	-4.45E-06	-42.5140	-0.7320	2.84E-07	0.1057	4.83E+09	
0.1688	227763.	0.00					
43.0000	-2.90E-06	-43.8675	0.1102	2.30E-07	0.1091	4.83E+09	
0.1119	231363.	0.00					
43.5000	-1.69E-06	-41.1912	0.6442	1.77E-07	0.1024	4.83E+09	
0.06604	234963.	0.00					
44.0000	-7.77E-07	-36.1377	0.9349	1.29E-07	0.08987	4.83E+09	
0.03089	238563.	0.00					
44.5000	-1.37E-07	-29.9721	1.0442	8.80E-08	0.07453	4.83E+09	
0.00554	242163.	0.00					
45.0000	2.79E-07	-23.6071	1.0265	5.47E-08	0.05871	4.83E+09	
-0.01143	245763.	0.00					
45.5000	5.19E-07	-17.6535	0.9276	2.90E-08	0.04390	4.83E+09	
-0.02157	249363.	0.00					
46.0000	6.27E-07	-12.4763	0.7835	1.03E-08	0.03103	4.83E+09	
-0.02645	252963.	0.00					
46.5000	6.43E-07	-8.2513	0.6218	-2.59E-09	0.02052	4.83E+09	
-0.02748	256563.	0.00					
47.0000	5.96E-07	-5.0153	0.4618	-1.08E-08	0.01247	4.83E+09	
-0.02585	260163.	0.00					
47.5000	5.12E-07	-2.7100	0.3166	-1.56E-08	0.00674	4.83E+09	
-0.02253	263763.	0.00					
48.0000	4.09E-07	-1.2158	0.1944	-1.81E-08	0.00302	4.83E+09	
-0.01820	267363.	0.00					
48.5000	2.96E-07	-0.3770	0.09977	-1.91E-08	9.37E-04	4.83E+09	
-0.01335	270963.	0.00					
49.0000	1.80E-07	-0.01853	0.03507	-1.93E-08	4.61E-05	4.83E+09	
-0.00822	274563.	0.00					
49.5000	6.37E-08	0.04390	0.00154	-1.93E-08	1.09E-04	4.83E+09	
-0.00295	278163.	0.00					
50.0000	-5.19E-08	0.00	0.00	-1.93E-08	0.00	4.83E+09	
0.00244	140881.	0.00					

* The above values of total stress are combined axial and bending stresses.

Output Summary for Load Case No. 1:

Pile-head deflection = 3.95848283 inches
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Timber 16-inch.lp80
 Computed slope at pile head = -0.02525075 radians
 Maximum bending moment = 665036. inch-lbs
 Maximum shear force = -8720. lbs
 Depth of maximum bending moment = 14.00000000 feet below pile head
 Depth of maximum shear force = 21.50000000 feet below pile head
 Number of iterations = 20
 Number of zero deflection points = 5

 Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

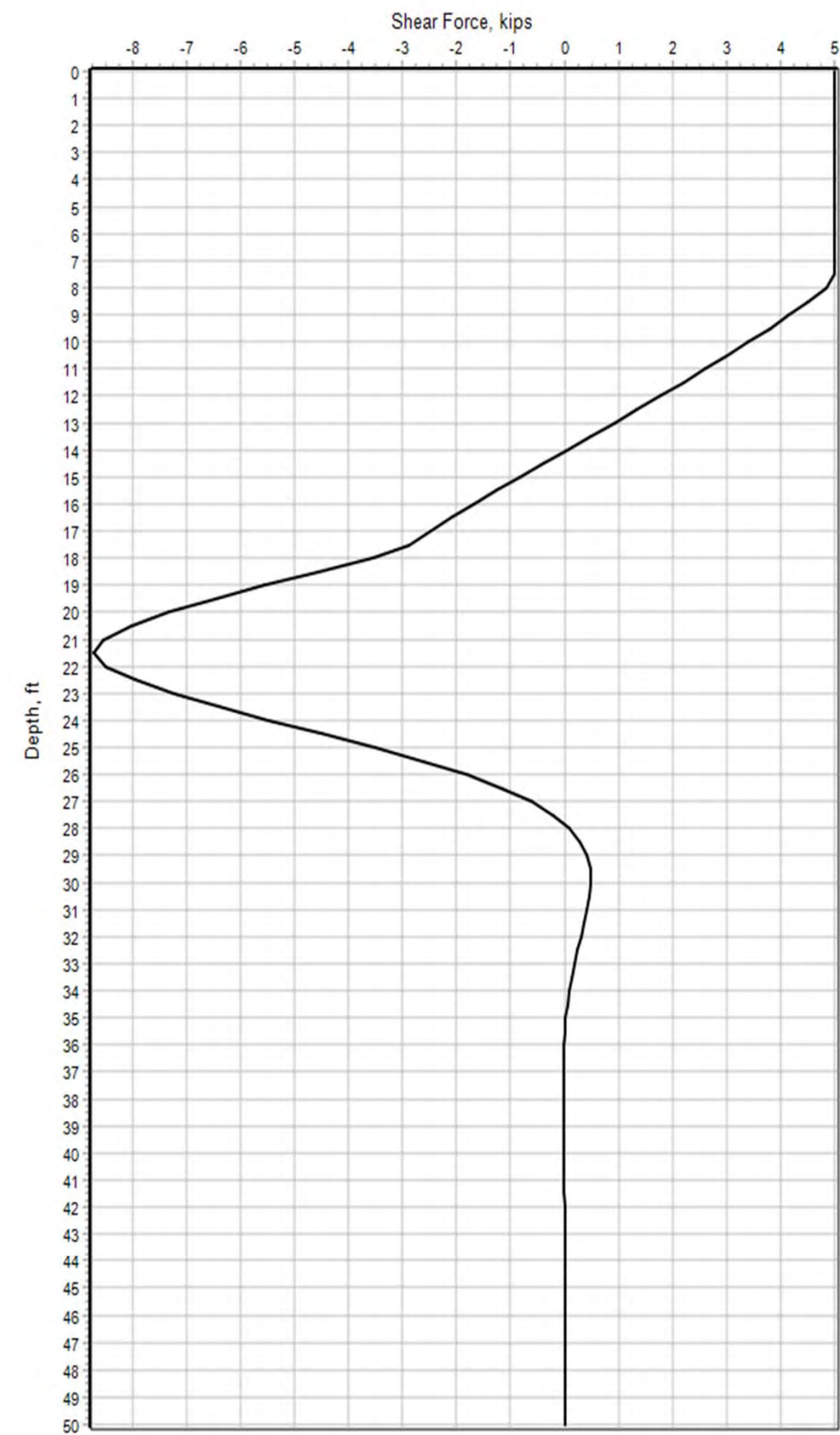
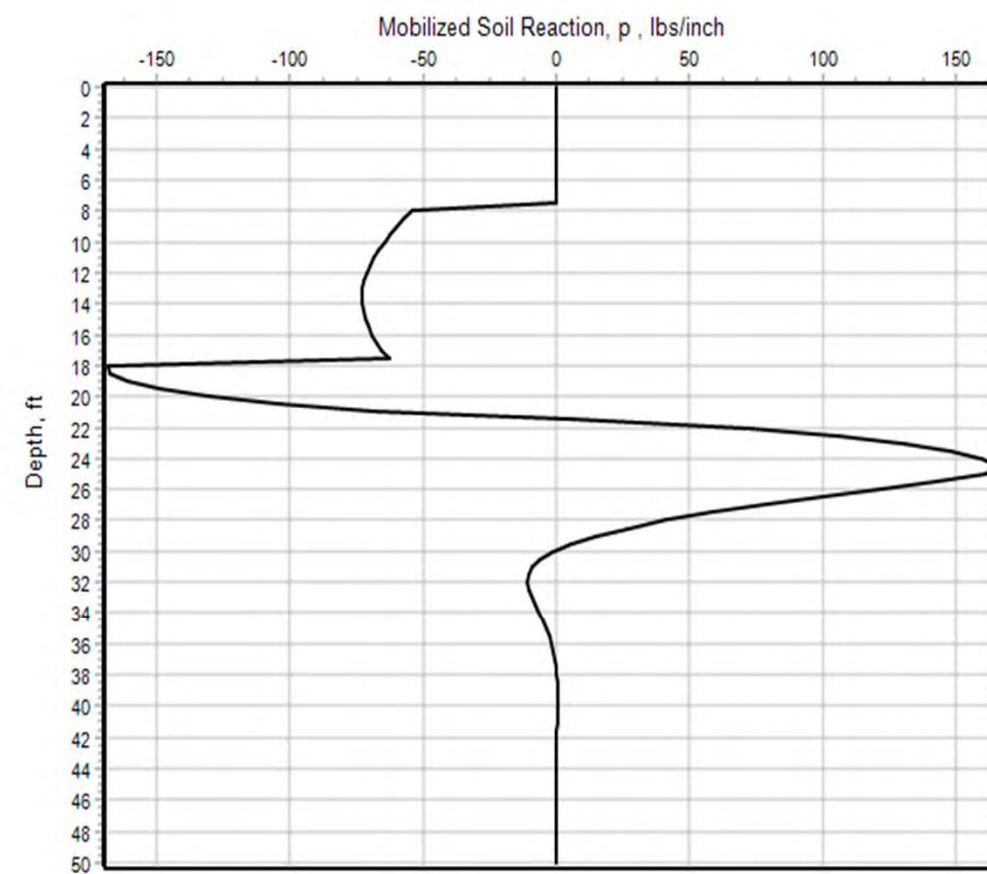
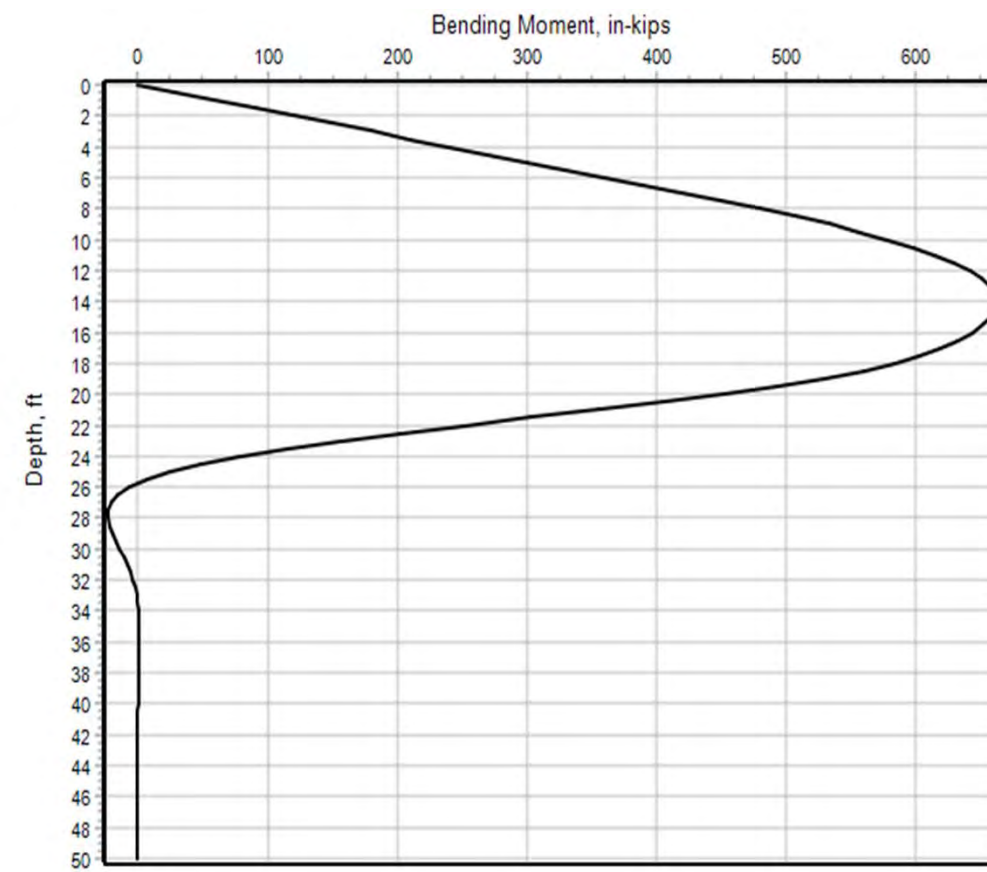
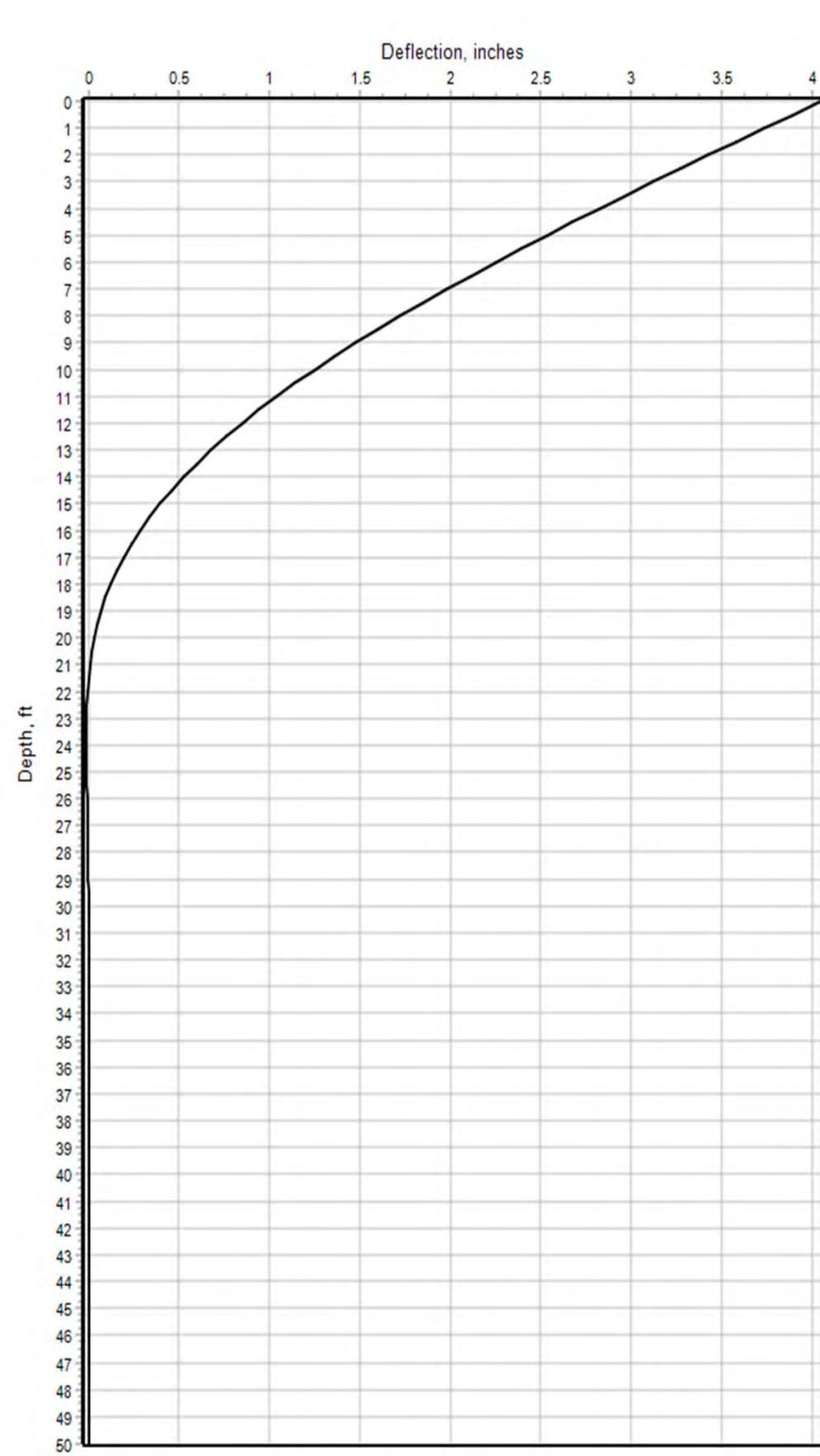
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in lbs
1	V, lb	5000.	M, in-lb	0.00	0.00	3.9585	-0.02525
		-8720.	665036.				

Maximum pile-head deflection = 3.958482831 inches
 Maximum pile-head rotation = -0.025250754 radians

The analysis ended normally.

HarborPile (Deformation)



Harbor 16-inch.lp8o

LPILE for Windows, Version 2015-08.003

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:
\Aravinda\Aravinda_A\Other office Project\FRP\Analyses\LPILE\Deflection\

Name of input data file:
Harbor 16-inch.lp8d

Name of output report file:
Harbor 16-inch.lp8o

Name of plot output file:
Harbor 16-inch.lp8p

Name of runtime message file:
Harbor 16-inch.lp8r

Date and Time of Analysis

Date: July 22, 2016 Time: 13:25:26

Problem Title

Fiberglass Composite Materials Specification Redevelopment

Job Number: Project No. 2014-15-02

Harbor 16-inch.1p8o

Client: NJDOT

Engineer: Hardesty & Hanover, LLC

Description: Lateral Load Analyses

Program Options and Settings

Computational Options:

- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 100 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 100 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Total number of pile sections	=	1
Total length of pile	=	50.00 ft

Harbor 16-inch.1p8o

Depth of ground surface below top of pile = 8.00 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	16.00000000
2	50.0000000	16.00000000

Input Structural Properties:

Pile Section No. 1:

Section Type	= Elastic Pile
Cross-sectional Shape	= Circular Pipe
Section Length	= 50.000000 ft
Top Width	= 16.000000 in
Bottom Width	= 16.000000 in
Wall Thickness at Top	= 1.125000 in
Wall Thickness at Bottom	= 1.125000 in
Top Area	= 52.572590 sq. in
Bottom Area	= 52.572590 sq. in
Moment of Inertia at Top	= 1462. in^4
Moment of Inertia at Bottom	= 1462. in^4
Elastic Modulus	= 3210000. lbs/in^2

Ground Slope and Pile Batter Angles

Ground Slope Angle	= 0.000 degrees
	= 0.000 radians
Pile Batter Angle	= 0.000 degrees
	= 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	= 8.000000 ft
Distance from top of pile to bottom of layer	= 18.000000 ft
Effective unit weight at top of layer	= 32.486400 pcf
Effective unit weight at bottom of layer	= 32.486400 pcf
Undrained cohesion at top of layer	= 249.984000 psf
Undrained cohesion at bottom of layer	= 249.984000 psf
Epsilon-50 at top of layer	= 0.020000

Harbor 16-inch.1p80
Epsilon-50 at bottom of layer = 0.020000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 18.000000 ft
Distance from top of pile to bottom of layer = 66.000000 ft
Effective unit weight at top of layer = 57.024000 pcf
Effective unit weight at bottom of layer = 57.024000 pcf
Friction angle at top of layer = 36.000000 deg.
Friction angle at bottom of layer = 36.000000 deg.
Subgrade k at top of layer = 100.000000 pci
Subgrade k at bottom of layer = 100.000000 pci

(Depth of lowest soil layer extends 16.00 ft below pile tip)

Summary of Input Soil Properties

Layer E50 Layer or Num. krm	Soil Type Name kpy (p-y Curve Type) pci	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.
1	Soft	8.0000	32.4864	249.9840	--
0.02000	--				
	Clay	18.0000	32.4864	249.9840	--
0.02000	--				
2	Sand	18.0000	57.0240	--	36.0000
--	100.0000				
--	(Reese, et al.)	66.0000	57.0240	--	36.0000
--	100.0000				

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No. vs. Pile	Load Top y Type Length	Condition 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 5000. lbs	M = 0.0000 in-lbs	0.0000000
No				

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V = perpendicular shear force applied to pile head

M = bending moment applied to pile head

y = lateral deflection relative to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading.

Axial thrust is assumed to be acting axially for all pile batter angles.

 Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

 Moment-curvature properties were derived from elastic section properties

 Computed Values of Pile Loading and Deflection
 for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 5000.0 lbs
 Applied moment at pile head = 0.0 in-lbs
 Axial thrust load on pile head = 0.0 lbs

Depth Res. Soil X feet lb/inch	Deflect. Spr. y Lat. Load inches lb/inch	Bending Distrib. Moment in-lbs lb/inch	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil p
0.00	4.0469	1.16E-07	5000.	-0.02586	6.34E-10	4.69E+09	
0.00	0.00	0.00					
0.5000	3.8917	30000.	5000.	-0.02584	164.1160	4.69E+09	
0.00	0.00	0.00					
1.0000	3.7368	60000.	5000.	-0.02579	328.2319	4.69E+09	
0.00	0.00	0.00					
1.5000	3.5823	90000.	5000.	-0.02569	492.3479	4.69E+09	
0.00	0.00	0.00					
2.0000	3.4285	120000.	5000.	-0.02556	656.4639	4.69E+09	
0.00	0.00	0.00					
2.5000	3.2756	150000.	5000.	-0.02538	820.5799	4.69E+09	
0.00	0.00	0.00					
3.0000	3.1239	180000.	5000.	-0.02517	984.6958	4.69E+09	
0.00	0.00	0.00					
3.5000	2.9736	210000.	5000.	-0.02492	1149.	4.69E+09	
0.00	0.00	0.00					
4.0000	2.8248	240000.	5000.	-0.02464	1313.	4.69E+09	
0.00	0.00	0.00					

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4.5000	2.6779	270000.	5000.	-0.02431	1477.	4.69E+09	
0.00	0.00	0.00					
5.0000	2.5331	300000.	5000.	-0.02395	1641.	4.69E+09	
0.00	0.00	0.00					
5.5000	2.3906	330000.	5000.	-0.02354	1805.	4.69E+09	
0.00	0.00	0.00					
6.0000	2.2506	360000.	5000.	-0.02310	1969.	4.69E+09	
0.00	0.00	0.00					
6.5000	2.1134	390000.	5000.	-0.02262	2134.	4.69E+09	
0.00	0.00	0.00					
7.0000	1.9791	420000.	5000.	-0.02210	2298.	4.69E+09	
0.00	0.00	0.00					
7.5000	1.8481	450000.	5000.	-0.02155	2462.	4.69E+09	
0.00	0.00	0.00					
8.0000	1.7206	480000.	4839.	-0.02095	2626.	4.69E+09	
-53.7801	187.5439	0.00					
8.5000	1.5967	508064.	4507.	-0.02032	2779.	4.69E+09	
-56.8717	213.7133	0.00					
9.0000	1.4767	534080.	4157.	-0.01966	2922.	4.69E+09	
-59.7111	242.6155	0.00					
9.5000	1.3608	557947.	3791.	-0.01896	3052.	4.69E+09	
-62.2919	274.6575	0.00					
10.0000	1.2492	579572.	3410.	-0.01823	3171.	4.69E+09	
-64.6080	310.3224	0.00					
10.5000	1.1420	598870.	3016.	-0.01748	3276.	4.69E+09	
-66.6529	350.1881	0.00					
11.0000	1.0394	615769.	2611.	-0.01670	3369.	4.69E+09	
-68.4206	394.9500	0.00					
11.5000	0.9416	630205.	2196.	-0.01591	3448.	4.69E+09	
-69.9045	445.4515	0.00					
12.0000	0.8486	642125.	1773.	-0.01509	3513.	4.69E+09	
-71.0981	502.7236	0.00					
12.5000	0.7605	651484.	1344.	-0.01427	3564.	4.69E+09	
-71.9949	568.0381	0.00					
13.0000	0.6774	658252.	910.2332	-0.01343	3601.	4.69E+09	
-72.5879	642.9795	0.00					
13.5000	0.5993	662407.	473.8603	-0.01259	3624.	4.69E+09	
-72.8698	729.5426	0.00					
14.0000	0.5263	663939.	36.7520	-0.01174	3632.	4.69E+09	
-72.8330	830.2695	0.00					
14.5000	0.4585	662848.	-399.1545	-0.01089	3626.	4.69E+09	
-72.4692	948.4432	0.00					
15.0000	0.3957	659149.	-831.8707	-0.01005	3606.	4.69E+09	
-71.7695	1088.	0.00					
15.5000	0.3379	652866.	-1259.	-0.00921	3572.	4.69E+09	
-70.7239	1256.	0.00					
16.0000	0.2852	644037.	-1679.	-0.00838	3523.	4.69E+09	
-69.3210	1458.	0.00					
16.5000	0.2374	632712.	-2090.	-0.00756	3461.	4.69E+09	
-67.5478	1707.	0.00					
17.0000	0.1944	618956.	-2489.	-0.00676	3386.	4.69E+09	
-65.3889	2018.	0.00					
17.5000	0.1562	602845.	-2874.	-0.00598	3298.	4.69E+09	
-62.8256	2413.	0.00					
18.0000	0.1227	584473.	-3567.	-0.00522	3197.	4.69E+09	
-168.1977	8227.	0.00					
18.5000	0.09357	560046.	-4573.	-0.00449	3064.	4.69E+09	
-167.3464	10731.	0.00					
19.0000	0.06877	529594.	-5558.	-0.00379	2897.	4.69E+09	
-160.9045	14038.	0.00					
19.5000	0.04804	493350.	-6486.	-0.00314	2699.	4.69E+09	
-148.4979	18548.	0.00					
20.0000	0.03109	451759.	-7321.	-0.00254	2471.	4.69E+09	

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-129.6858	25032.	0.00				
20.5000	0.01760	405501.	-8021.	-0.00199	2218.	4.69E+09
-103.6104	35327.	0.00				
21.0000	0.00722	355512.	-8534.	-0.00150	1945.	4.69E+09
-67.5955	56178.	0.00				
21.5000	-4.32E-04	303089.	-8721.	-0.00108	1658.	4.69E+09
5.5140	76563.	0.00				
22.0000	-0.00576	250866.	-8486.	-7.28E-04	1372.	4.69E+09
72.7911	75834.	0.00				
22.5000	-0.00916	201262.	-7948.	-4.39E-04	1101.	4.69E+09
106.4740	69723.	0.00				
23.0000	-0.01102	155492.	-7236.	-2.11E-04	850.6240	4.69E+09
130.8092	71206.	0.00				
23.5000	-0.01169	114431.	-6399.	-3.81E-05	625.9977	4.69E+09
148.2400	76087.	0.00				
24.0000	-0.01148	78706.	-5475.	8.53E-05	430.5657	4.69E+09
159.7121	83477.	0.00				
24.5000	-0.01067	48731.	-4498.	1.67E-04	266.5872	4.69E+09
165.7972	93270.	0.00				
25.0000	-0.00948	24725.	-3519.	2.14E-04	135.2607	4.69E+09
160.7532	101763.	0.00				
25.5000	-0.00810	6506.	-2610.	2.34E-04	35.5928	4.69E+09
142.2566	105363.	0.00				
26.0000	-0.00667	-6592.	-1819.	2.34E-04	36.0592	4.69E+09
121.2012	108963.	0.00				
26.5000	-0.00530	-15326.	-1158.	2.20E-04	83.8419	4.69E+09
99.3817	112563.	0.00				
27.0000	-0.00404	-20483.	-624.9128	1.97E-04	112.0525	4.69E+09
78.1860	116163.	0.00				
27.5000	-0.00294	-22825.	-214.5101	1.69E-04	124.8652	4.69E+09
58.6149	119763.	0.00				
28.0000	-0.00201	-23057.	85.2963	1.40E-04	126.1343	4.69E+09
41.3206	123363.	0.00				
28.5000	-0.00126	-21801.	289.2251	1.11E-04	119.2658	4.69E+09
26.6557	126963.	0.00				
29.0000	-6.77E-04	-19586.	413.3793	8.46E-05	107.1477	4.69E+09
14.7290	130563.	0.00				
29.5000	-2.44E-04	-16841.	473.9514	6.13E-05	92.1289	4.69E+09
5.4617	134163.	0.00				
30.0000	5.92E-05	-13899.	486.2583	4.17E-05	76.0345	4.69E+09
-1.3594	137763.	0.00				
30.5000	2.56E-04	-11006.	464.0801	2.58E-05	60.2078	4.69E+09
-6.0333	141363.	0.00				
31.0000	3.69E-04	-8330.	419.2674	1.34E-05	45.5693	4.69E+09
-8.9043	144963.	0.00				
31.5000	4.17E-04	-5975.	361.5693	4.28E-06	32.6844	4.69E+09
-10.3284	148563.	0.00				
32.0000	4.20E-04	-3991.	298.6375	-2.09E-06	21.8336	4.69E+09
-10.6489	152163.	0.00				
32.5000	3.92E-04	-2391.	236.1567	-6.17E-06	13.0800	4.69E+09
-10.1780	155763.	0.00				
33.0000	3.46E-04	-1157.	178.0622	-8.44E-06	6.3308	4.69E+09
-9.1868	159363.	0.00				
33.5000	2.91E-04	-254.2407	126.8045	-9.34E-06	1.3908	4.69E+09
-7.8991	162963.	0.00				
34.0000	2.34E-04	364.4029	83.6337	-9.27E-06	1.9935	4.69E+09
-6.4912	166563.	0.00				
34.5000	1.80E-04	749.3637	48.8777	-8.56E-06	4.0994	4.69E+09
-5.0941	170163.	0.00				
35.0000	1.31E-04	950.9353	22.1998	-7.47E-06	5.2021	4.69E+09
-3.7985	173763.	0.00				
35.5000	9.00E-05	1016.	2.8236	-6.21E-06	5.5568	4.69E+09
-2.6602	177363.	0.00				

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36.0000	5.66E-05	984.8188	-10.2797	-4.93E-06	5.3875	4.69E+09	
-1.7075	180963.	0.00					
36.5000	3.08E-05	892.4046	-18.2437	-3.73E-06	4.8819	4.69E+09	
-0.9471	184563.	0.00					
37.0000	1.18E-05	765.8940	-22.1961	-2.67E-06	4.1898	4.69E+09	
-0.3703	188163.	0.00					
37.5000	-1.30E-06	626.0519	-23.1824	-1.78E-06	3.4248	4.69E+09	
0.04153	191763.	0.00					
38.0000	-9.61E-06	487.7046	-22.1195	-1.07E-06	2.6680	4.69E+09	
0.3128	195363.	0.00					
38.5000	-1.42E-05	360.6173	-19.7713	-5.31E-07	1.9728	4.69E+09	
0.4700	198963.	0.00					
39.0000	-1.60E-05	250.4488	-16.7436	-1.40E-07	1.3701	4.69E+09	
0.5393	202563.	0.00					
39.5000	-1.59E-05	159.6941	-13.4916	1.22E-07	0.8736	4.69E+09	
0.5447	206163.	0.00					
40.0000	-1.45E-05	88.5501	-10.3356	2.81E-07	0.4844	4.69E+09	
0.5073	209763.	0.00					
40.5000	-1.25E-05	35.6672	-7.4818	3.60E-07	0.1951	4.69E+09	
0.4440	213363.	0.00					
41.0000	-1.02E-05	-1.2316	-5.0445	3.82E-07	0.00674	4.69E+09	
0.3684	216963.	0.00					
41.5000	-7.90E-06	-24.8669	-3.0679	3.65E-07	0.1360	4.69E+09	
0.2905	220563.	0.00					
42.0000	-5.80E-06	-38.0458	-1.5459	3.25E-07	0.2081	4.69E+09	
0.2169	224163.	0.00					
42.5000	-4.00E-06	-43.4181	-0.4399	2.73E-07	0.2375	4.69E+09	
0.1518	227763.	0.00					
43.0000	-2.53E-06	-43.3252	0.3078	2.18E-07	0.2370	4.69E+09	
0.09745	231363.	0.00					
43.5000	-1.39E-06	-39.7242	0.7631	1.65E-07	0.2173	4.69E+09	
0.05432	234963.	0.00					
44.0000	-5.52E-07	-34.1676	0.9919	1.17E-07	0.1869	4.69E+09	
0.02195	238563.	0.00					
44.5000	2.12E-08	-27.8209	1.0552	7.78E-08	0.1522	4.69E+09	
-8.57E-04	242163.	0.00					
45.0000	3.81E-07	-21.5051	1.0058	4.62E-08	0.1176	4.69E+09	
-0.01561	245763.	0.00					
45.5000	5.76E-07	-15.7512	0.8872	2.24E-08	0.08617	4.69E+09	
-0.02394	249363.	0.00					
46.0000	6.50E-07	-10.8592	0.7331	5.42E-09	0.05941	4.69E+09	
-0.02741	252963.	0.00					
46.5000	6.41E-07	-6.9539	0.5686	-5.97E-09	0.03804	4.69E+09	
-0.02741	256563.	0.00					
47.0000	5.79E-07	-4.0354	0.4112	-1.30E-08	0.02208	4.69E+09	
-0.02509	260163.	0.00					
47.5000	4.85E-07	-2.0199	0.2719	-1.69E-08	0.01105	4.69E+09	
-0.02133	263763.	0.00					
48.0000	3.76E-07	-0.7722	0.1577	-1.86E-08	0.00422	4.69E+09	
-0.01676	267363.	0.00					
48.5000	2.61E-07	-0.1279	0.07197	-1.92E-08	7.00E-04	4.69E+09	
-0.01180	270963.	0.00					
49.0000	1.46E-07	0.09150	0.01658	-1.92E-08	5.01E-04	4.69E+09	
-0.00666	274563.	0.00					
49.5000	3.04E-08	0.07113	-0.00762	-1.91E-08	3.89E-04	4.69E+09	
-0.00141	278163.	0.00					
50.0000	-8.42E-08	0.00	0.00	-1.91E-08	0.00	4.69E+09	
0.00395	140881.	0.00					

* The above values of total stress are combined axial and bending stresses.

Harbor 16-inch.1p80

Pile-head deflection = 4.04690630 inches
 Computed slope at pile head = -0.02586244 radians
 Maximum bending moment = 663939. inch-lbs
 Maximum shear force = -8721. lbs
 Depth of maximum bending moment = 14.00000000 feet below pile head
 Depth of maximum shear force = 21.50000000 feet below pile head
 Number of iterations = 20
 Number of zero deflection points = 5

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

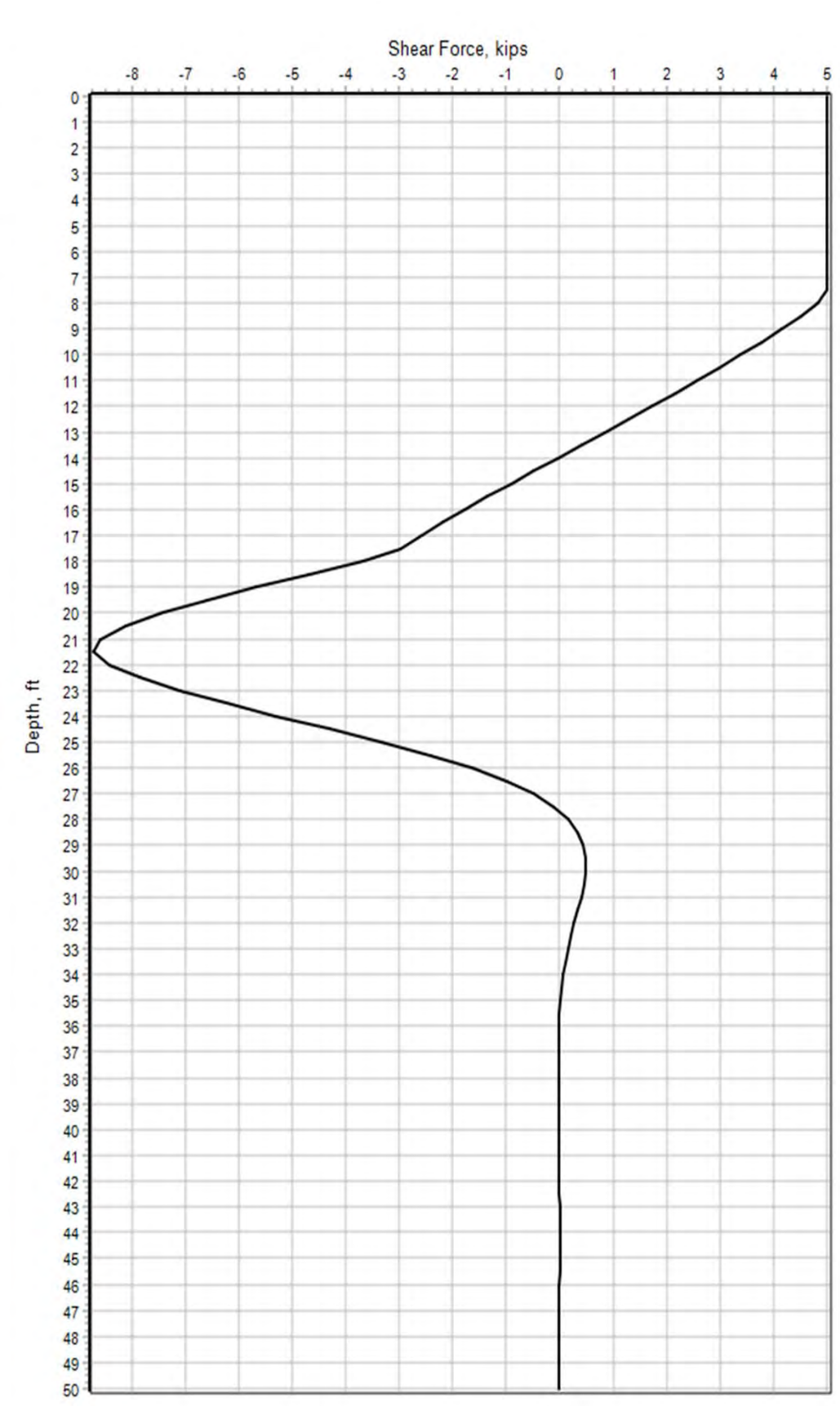
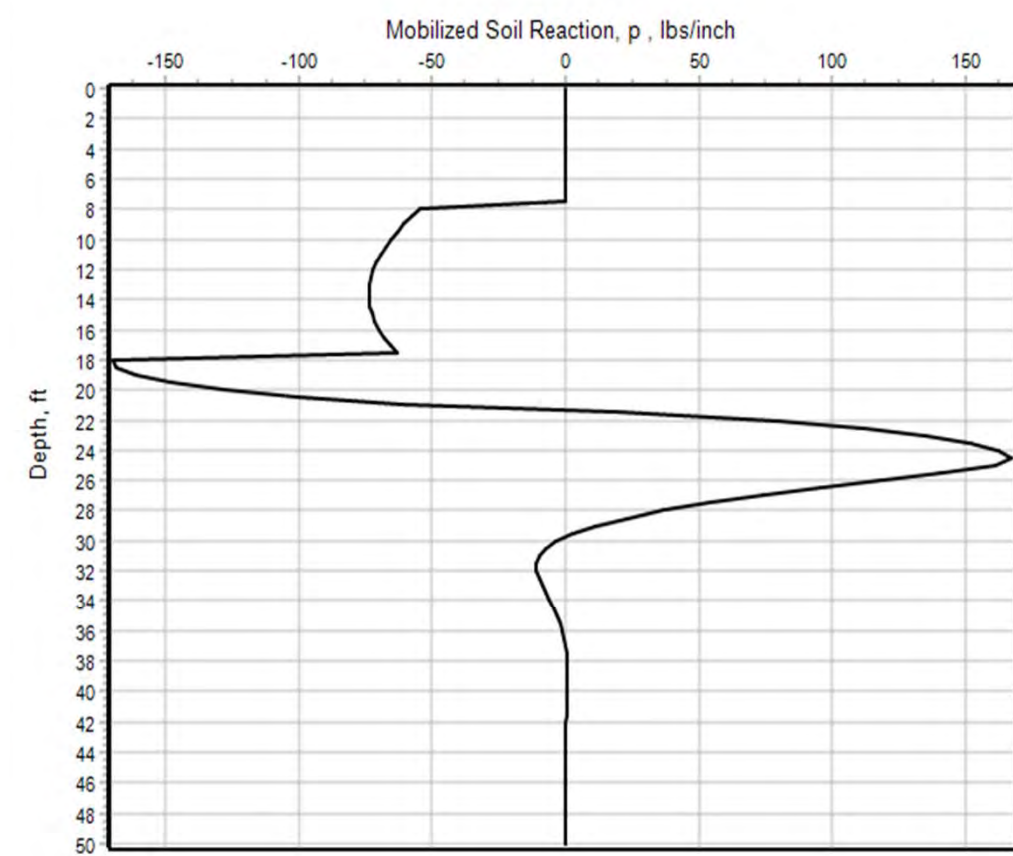
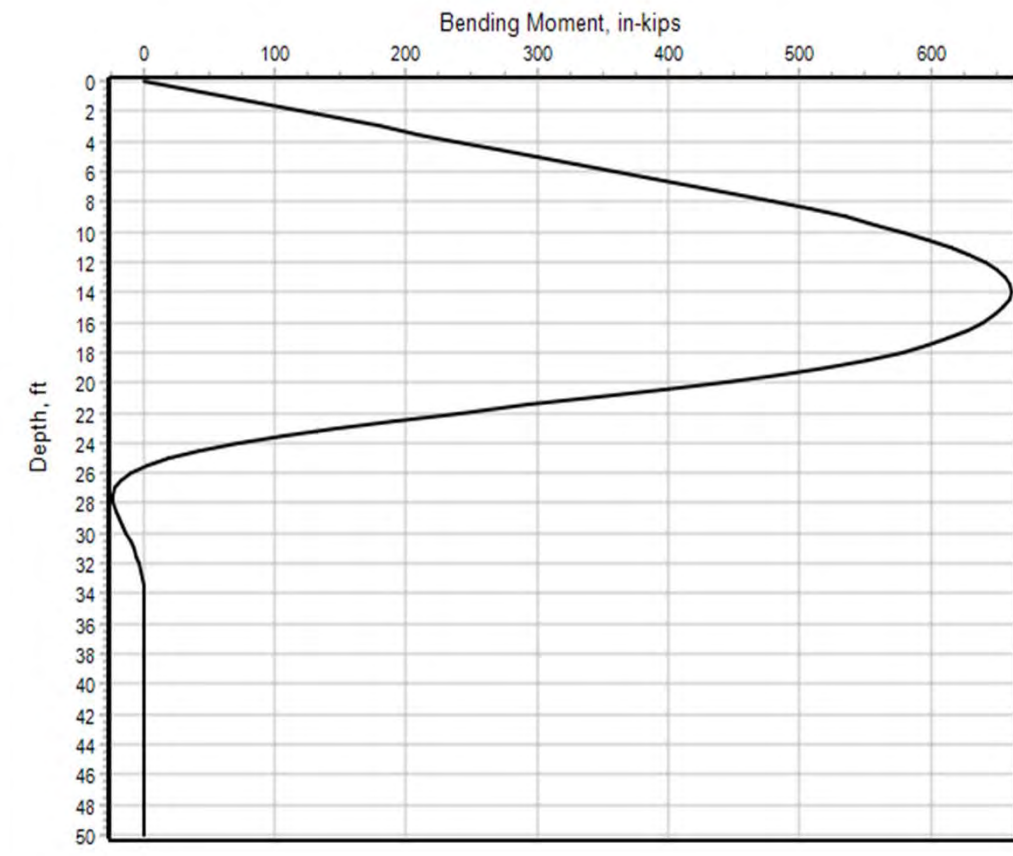
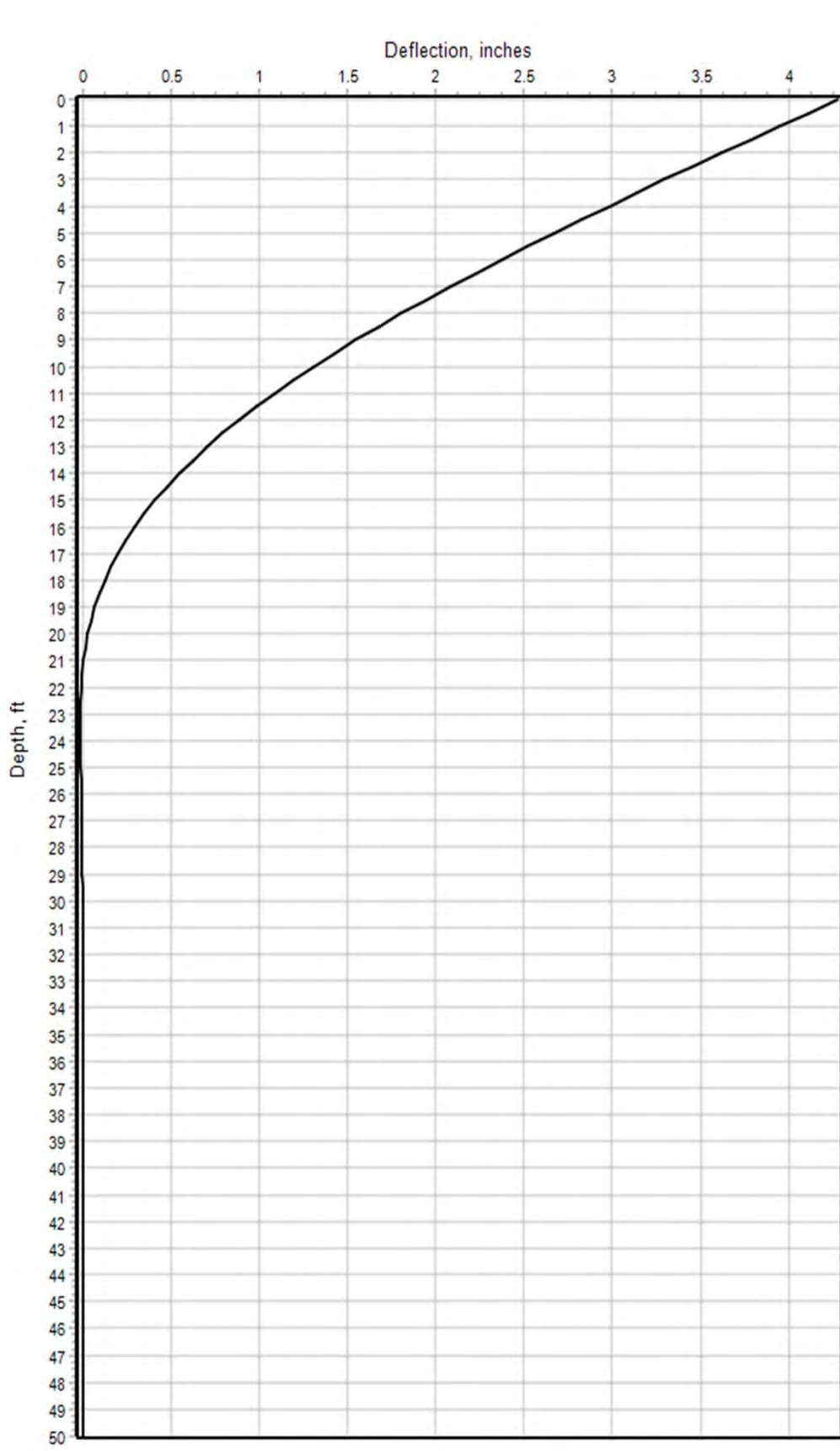
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in lbs
1	V, lb	5000.	M, in-lb	0.00	4.0469	-0.02586	
		-8721.					
		663939.					

Maximum pile-head deflection = 4.046906301 inches
 Maximum pile-head rotation = -0.025862441 radians

The analysis ended normally.

SUPERPILE (Deformation)



Lee Composite 16-inch.lp8o

LPILE for Windows, Version 2015-08.003

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:
\Aravinda\Aravinda_A\Other office Project\FRP\Analyses\LPILE\Deflection\

Name of input data file:
Lee Composite 16-inch.lp8d

Name of output report file:
Lee Composite 16-inch.lp8o

Name of plot output file:
Lee Composite 16-inch.lp8p

Name of runtime message file:
Lee Composite 16-inch.lp8r

Date and Time of Analysis

Date: July 22, 2016 Time: 13:19:54

Problem Title

Fiberglass Composite Materials Specification Redevelopment

Job Number: Project No. 2014-15-02

Lee Composite 16-inch.1p8o

Client: NJDOT

Engineer: Hardesty & Hanover, LLC

Description: Lateral Load Analyses

Program Options and Settings

Computational Options:

- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 100 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 100 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Total number of pile sections	=	1
Total length of pile	=	50.00 ft

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Depth of ground surface below top of pile = 8.00 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	16.00000000
2	50.0000000	16.00000000

Input Structural Properties:

Pile Section No. 1:

Section Type	=	Elastic Pile
Cross-sectional Shape	=	Circular Pipe
Section Length	=	50.000000 ft
Top Width	=	16.000000 in
Bottom Width	=	16.000000 in
Wall Thickness at Top	=	0.500000 in
Wall Thickness at Bottom	=	0.500000 in
Top Area	=	24.347343 sq. in
Bottom Area	=	24.347343 sq. in
Moment of Inertia at Top	=	731.942001 in ⁴
Moment of Inertia at Bottom	=	731.942001 in ⁴
Elastic Modulus	=	5990000. lbs/in ²

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians
Pile Batter Angle	=	0.000 degrees
	=	0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	8.000000 ft
Distance from top of pile to bottom of layer	=	18.000000 ft
Effective unit weight at top of layer	=	32.486400 pcf
Effective unit weight at bottom of layer	=	32.486400 pcf
Undrained cohesion at top of layer	=	249.984000 psf
Undrained cohesion at bottom of layer	=	249.984000 psf
Epsilon-50 at top of layer	=	0.020000

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Epsilon-50 at bottom of layer = 0.020000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 18.000000 ft
Distance from top of pile to bottom of layer = 66.000000 ft
Effective unit weight at top of layer = 57.024000 pcf
Effective unit weight at bottom of layer = 57.024000 pcf
Friction angle at top of layer = 36.000000 deg.
Friction angle at bottom of layer = 36.000000 deg.
Subgrade k at top of layer = 100.000000 pci
Subgrade k at bottom of layer = 100.000000 pci

(Depth of lowest soil layer extends 16.00 ft below pile tip)

Summary of Input Soil Properties

Layer E50 Layer or Num. krm	Soil Type Name kpy (p-y Curve Type) pci	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.
1	Soft	8.0000	32.4864	249.9840	--
0.02000	--				
	Clay	18.0000	32.4864	249.9840	--
0.02000	--				
2	Sand	18.0000	57.0240	--	36.0000
--	100.0000				
--	(Reese, et al.)	66.0000	57.0240	--	36.0000
--	100.0000				

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No. vs. Pile	Load Top y Type Length	Condition 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 5000. lbs	M = 0.0000 in-lbs	0.0000000
No				

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V = perpendicular shear force applied to pile head

M = bending moment applied to pile head

y = lateral deflection relative to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading.

Axial thrust is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Moment-curvature properties were derived from elastic section properties

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 5000.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

Depth Res. Soil X feet lb/inch	Deflect. Spr. y Lat. Load inches lb/inch	Bending Distrib. Moment in-lbs lb/inch	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil p
0.00	4.2745	1.41E-06	5000.	-0.02744	1.54E-08	4.38E+09	
0.00	0.00	0.00					
0.5000	4.1099	30000.	5000.	-0.02742	327.8948	4.38E+09	
0.00	0.00	0.00					
1.0000	3.9455	60000.	5000.	-0.02736	655.7897	4.38E+09	
0.00	0.00	0.00					
1.5000	3.7816	90000.	5000.	-0.02726	983.6845	4.38E+09	
0.00	0.00	0.00					
2.0000	3.6184	120000.	5000.	-0.02711	1312.	4.38E+09	
0.00	0.00	0.00					
2.5000	3.4562	150000.	5000.	-0.02693	1639.	4.38E+09	
0.00	0.00	0.00					
3.0000	3.2952	180000.	5000.	-0.02670	1967.	4.38E+09	
0.00	0.00	0.00					
3.5000	3.1358	210000.	5000.	-0.02644	2295.	4.38E+09	
0.00	0.00	0.00					
4.0000	2.9780	240000.	5000.	-0.02613	2623.	4.38E+09	
0.00	0.00	0.00					

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4.5000	2.8222	270000.	5000.	-0.02578	2951.	4.38E+09
0.00	0.00	0.00				
5.0000	2.6687	300000.	5000.	-0.02539	3279.	4.38E+09
0.00	0.00	0.00				
5.5000	2.5176	330000.	5000.	-0.02496	3607.	4.38E+09
0.00	0.00	0.00				
6.0000	2.3692	360000.	5000.	-0.02449	3935.	4.38E+09
0.00	0.00	0.00				
6.5000	2.2237	390000.	5000.	-0.02397	4263.	4.38E+09
0.00	0.00	0.00				
7.0000	2.0815	420000.	5000.	-0.02342	4591.	4.38E+09
0.00	0.00	0.00				
7.5000	1.9427	450000.	5000.	-0.02282	4918.	4.38E+09
0.00	0.00	0.00				
8.0000	1.8076	480000.	4836.	-0.02219	5246.	4.38E+09
-54.6721	181.4740	0.00				
8.5000	1.6764	508032.	4499.	-0.02151	5553.	4.38E+09
-57.8036	206.8787	0.00				
9.0000	1.5495	533983.	4143.	-0.02080	5836.	4.38E+09
-60.6765	234.9573	0.00				
9.5000	1.4269	557749.	3771.	-0.02005	6096.	4.38E+09
-63.2844	266.1109	0.00				
10.0000	1.3089	579237.	3385.	-0.01927	6331.	4.38E+09
-65.6209	300.8165	0.00				
10.5000	1.1956	598363.	2985.	-0.01847	6540.	4.38E+09
-67.6796	339.6448	0.00				
11.0000	1.0872	615053.	2573.	-0.01764	6722.	4.38E+09
-69.4541	383.2839	0.00				
11.5000	0.9840	629242.	2152.	-0.01679	6878.	4.38E+09
-70.9378	432.5691	0.00				
12.0000	0.8858	640877.	1723.	-0.01592	7005.	4.38E+09
-72.1241	488.5238	0.00				
12.5000	0.7930	649916.	1287.	-0.01503	7103.	4.38E+09
-73.0061	552.4121	0.00				
13.0000	0.7054	656327.	847.7158	-0.01414	7174.	4.38E+09
-73.5768	625.8117	0.00				
13.5000	0.6233	660089.	405.4990	-0.01324	7215.	4.38E+09
-73.8288	710.7133	0.00				
14.0000	0.5466	661193.	-37.2499	-0.01233	7227.	4.38E+09
-73.7542	809.6595	0.00				
14.5000	0.4753	659642.	-478.5459	-0.01143	7210.	4.38E+09
-73.3445	925.9424	0.00				
15.0000	0.4094	655450.	-916.3509	-0.01053	7164.	4.38E+09
-72.5905	1064.	0.00				
15.5000	0.3489	648646.	-1349.	-0.00964	7090.	4.38E+09
-71.4819	1229.	0.00				
16.0000	0.2937	639268.	-1773.	-0.00876	6987.	4.38E+09
-70.0069	1430.	0.00				
16.5000	0.2438	627369.	-2188.	-0.00789	6857.	4.38E+09
-68.1519	1677.	0.00				
17.0000	0.1990	613017.	-2590.	-0.00704	6700.	4.38E+09
-65.9007	1987.	0.00				
17.5000	0.1593	596293.	-2977.	-0.00621	6517.	4.38E+09
-63.2337	2382.	0.00				
18.0000	0.1245	577293.	-3676.	-0.00541	6310.	4.38E+09
-169.6940	8181.	0.00				
18.5000	0.09436	552183.	-4690.	-0.00464	6035.	4.38E+09
-168.2079	10695.	0.00				
19.0000	0.06880	521018.	-5677.	-0.00390	5695.	4.38E+09
-160.9420	14036.	0.00				
19.5000	0.04751	484059.	-6602.	-0.00322	5291.	4.38E+09
-147.5104	18628.	0.00				
20.0000	0.03020	441789.	-7427.	-0.00258	4829.	4.38E+09

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-127.4318	25316.	0.00				
20.5000	0.01652	394933.	-8109.	-0.00201	4317.	4.38E+09
-99.6962	36215.	0.00				
21.0000	0.00608	344487.	-8590.	-0.00150	3765.	4.38E+09
-60.8681	60107.	0.00				
21.5000	-0.00154	291849.	-8714.	-0.00107	3190.	4.38E+09
19.6088	76563.	0.00				
22.0000	-0.00675	239918.	-8415.	-7.05E-04	2622.	4.38E+09
80.1878	71246.	0.00				
22.5000	-0.01000	190873.	-7837.	-4.10E-04	2086.	4.38E+09
112.2843	67375.	0.00				
23.0000	-0.01168	145871.	-7094.	-1.80E-04	1594.	4.38E+09
135.4888	69610.	0.00				
23.5000	-0.01216	105746.	-6232.	-7.86E-06	1156.	4.38E+09
151.8354	74921.	0.00				
24.0000	-0.01177	71088.	-5290.	1.13E-04	776.9760	4.38E+09
162.1799	82656.	0.00				
24.5000	-0.01080	42267.	-4302.	1.91E-04	461.9763	4.38E+09
167.0823	92807.	0.00				
25.0000	-0.00948	19462.	-3318.	2.33E-04	212.7191	4.38E+09
160.8565	101763.	0.00				
25.5000	-0.00801	2448.	-2414.	2.48E-04	26.7548	4.38E+09
140.6004	105363.	0.00				
26.0000	-0.00651	-9505.	-1638.	2.43E-04	103.8870	4.38E+09
118.2061	108963.	0.00				
26.5000	-0.00509	-17202.	-996.4561	2.25E-04	188.0178	4.38E+09
95.4789	112563.	0.00				
27.0000	-0.00381	-21462.	-488.6715	1.98E-04	234.5801	4.38E+09
73.7827	116163.	0.00				
27.5000	-0.00271	-23066.	-105.1134	1.68E-04	252.1109	4.38E+09
54.0701	119763.	0.00				
28.0000	-0.00180	-22724.	167.8837	1.37E-04	248.3666	4.38E+09
36.9290	123363.	0.00				
28.5000	-0.00107	-21052.	346.5934	1.07E-04	230.0917	4.38E+09
22.6409	126963.	0.00				
29.0000	-5.17E-04	-18565.	448.2445	7.95E-05	202.9081	4.38E+09
11.2428	130563.	0.00				
29.5000	-1.16E-04	-15673.	489.7409	5.61E-05	171.3008	4.38E+09
2.5893	134163.	0.00				
30.0000	1.56E-04	-12688.	486.7376	3.67E-05	138.6747	4.38E+09
-3.5904	137763.	0.00				
30.5000	3.24E-04	-9832.	453.0396	2.13E-05	107.4613	4.38E+09
-7.6423	141363.	0.00				
31.0000	4.12E-04	-7251.	400.2772	9.58E-06	79.2550	4.38E+09
-9.9452	144963.	0.00				
31.5000	4.39E-04	-5029.	337.8057	1.18E-06	54.9618	4.38E+09
-10.8786	148563.	0.00				
32.0000	4.26E-04	-3198.	272.7754	-4.45E-06	34.9491	4.38E+09
-10.7982	152163.	0.00				
32.5000	3.86E-04	-1755.	210.3214	-7.84E-06	19.1852	4.38E+09
-10.0198	155763.	0.00				
33.0000	3.32E-04	-673.7315	153.8293	-9.50E-06	7.3638	4.38E+09
-8.8109	159363.	0.00				
33.5000	2.72E-04	90.6489	105.2369	-9.90E-06	0.9908	4.38E+09
-7.3866	162963.	0.00				
34.0000	2.13E-04	589.1119	65.3434	-9.43E-06	6.4389	4.38E+09
-5.9113	166563.	0.00				
34.5000	1.59E-04	874.7698	34.1028	-8.43E-06	9.5611	4.38E+09
-4.5023	170163.	0.00				
35.0000	1.12E-04	998.3458	10.8871	-7.15E-06	10.9117	4.38E+09
-3.2363	173763.	0.00				
35.5000	7.29E-05	1005.	-5.2904	-5.78E-06	10.9890	4.38E+09
-2.1562	177363.	0.00				

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36.0000	4.24E-05	934.8614	-15.5947	-4.45E-06	10.2179	4.38E+09
-1.2786	180963.	0.00				
36.5000	1.95E-05	818.2788	-21.2316	-3.25E-06	8.9436	4.38E+09
-0.6004	184563.	0.00				
37.0000	3.36E-06	680.0825	-23.3491	-2.23E-06	7.4332	4.38E+09
-0.1055	188163.	0.00				
37.5000	-7.21E-06	538.0896	-22.9743	-1.39E-06	5.8812	4.38E+09
0.2304	191763.	0.00				
38.0000	-1.34E-05	404.3903	-20.9781	-7.49E-07	4.4199	4.38E+09
0.4350	195363.	0.00				
38.5000	-1.62E-05	286.3525	-18.0620	-2.76E-07	3.1298	4.38E+09
0.5370	198963.	0.00				
39.0000	-1.67E-05	187.6458	-14.7623	4.82E-08	2.0509	4.38E+09
0.5629	202563.	0.00				
39.5000	-1.56E-05	109.2047	-11.4639	2.51E-07	1.1936	4.38E+09
0.5365	206163.	0.00				
40.0000	-1.37E-05	50.0785	-8.4219	3.60E-07	0.5473	4.38E+09
0.4775	209763.	0.00				
40.5000	-1.13E-05	8.1421	-5.7849	4.00E-07	0.08899	4.38E+09
0.4015	213363.	0.00				
41.0000	-8.86E-06	-19.3404	-3.6197	3.93E-07	0.2114	4.38E+09
0.3202	216963.	0.00				
41.5000	-6.58E-06	-35.2942	-1.9333	3.55E-07	0.3858	4.38E+09
0.2419	220563.	0.00				
42.0000	-4.59E-06	-42.5397	-0.6926	3.02E-07	0.4650	4.38E+09
0.1717	224163.	0.00				
42.5000	-2.96E-06	-43.6057	0.1592	2.43E-07	0.4766	4.38E+09
0.1123	227763.	0.00				
43.0000	-1.68E-06	-40.6293	0.6903	1.85E-07	0.4441	4.38E+09
0.06476	231363.	0.00				
43.5000	-7.35E-07	-35.3216	0.9709	1.33E-07	0.3861	4.38E+09
0.02876	234963.	0.00				
44.0000	-7.97E-08	-28.9784	1.0667	8.93E-08	0.3167	4.38E+09
0.00317	238563.	0.00				
44.5000	3.37E-07	-22.5212	1.0354	5.41E-08	0.2462	4.38E+09
-0.01361	242163.	0.00				
45.0000	5.69E-07	-16.5540	0.9246	2.73E-08	0.1809	4.38E+09
-0.02332	245763.	0.00				
45.5000	6.65E-07	-11.4263	0.7717	8.20E-09	0.1249	4.38E+09
-0.02765	249363.	0.00				
46.0000	6.68E-07	-7.2942	0.6042	-4.61E-09	0.07972	4.38E+09
-0.02815	252963.	0.00				
46.5000	6.10E-07	-4.1754	0.4415	-1.25E-08	0.04564	4.38E+09
-0.02609	256563.	0.00				
47.0000	5.18E-07	-1.9957	0.2959	-1.67E-08	0.02181	4.38E+09
-0.02247	260163.	0.00				
47.5000	4.10E-07	-0.6248	0.1744	-1.85E-08	0.00683	4.38E+09
-0.01802	263763.	0.00				
48.0000	2.96E-07	0.09743	0.08075	-1.88E-08	0.00106	4.38E+09
-0.01321	267363.	0.00				
48.5000	1.84E-07	0.3442	0.01623	-1.85E-08	0.00376	4.38E+09
-0.00830	270963.	0.00				
49.0000	7.40E-08	0.2921	-0.01883	-1.81E-08	0.00319	4.38E+09
-0.00339	274563.	0.00				
49.5000	-3.34E-08	0.1182	-0.02435	-1.78E-08	0.00129	4.38E+09
0.00155	278163.	0.00				
50.0000	-1.40E-07	0.00	0.00	-1.77E-08	0.00	4.38E+09
0.00657	140881.	0.00				

* The above values of total stress are combined axial and bending stresses.

Lee Composite 16-inch.1p8o

Pile-head deflection = 4.27454802 inches
 Computed slope at pile head = -0.02744222 radians
 Maximum bending moment = 661193. inch-lbs
 Maximum shear force = -8714. lbs
 Depth of maximum bending moment = 14.00000000 feet below pile head
 Depth of maximum shear force = 21.50000000 feet below pile head
 Number of iterations = 20
 Number of zero deflection points = 5

 Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

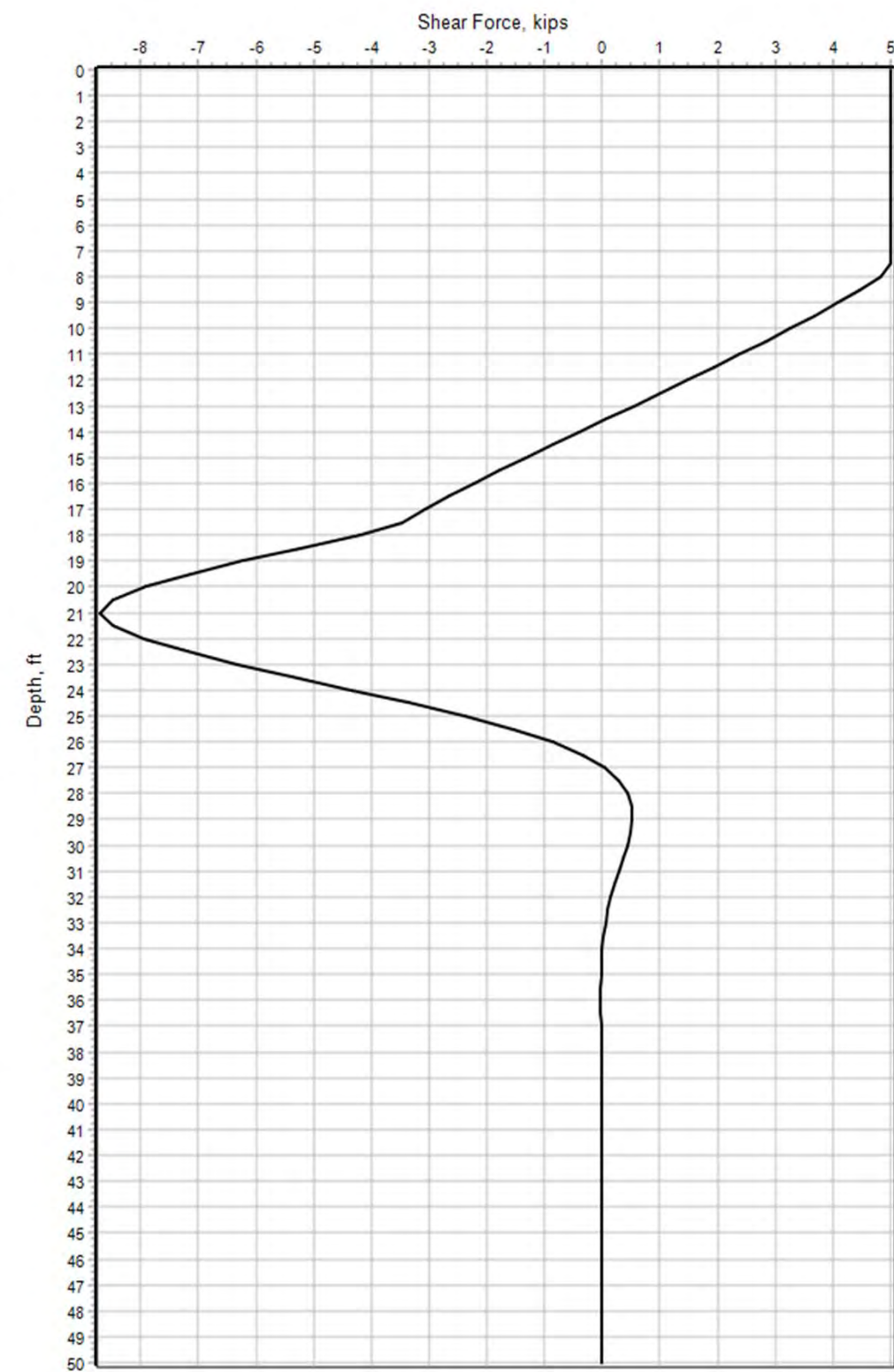
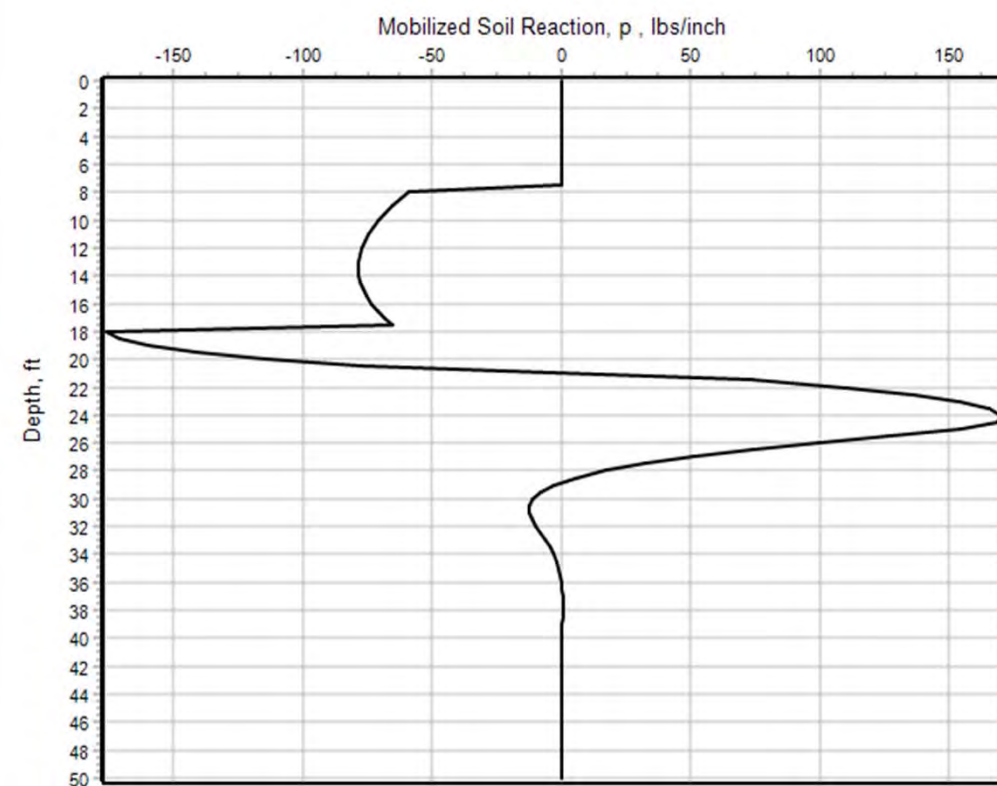
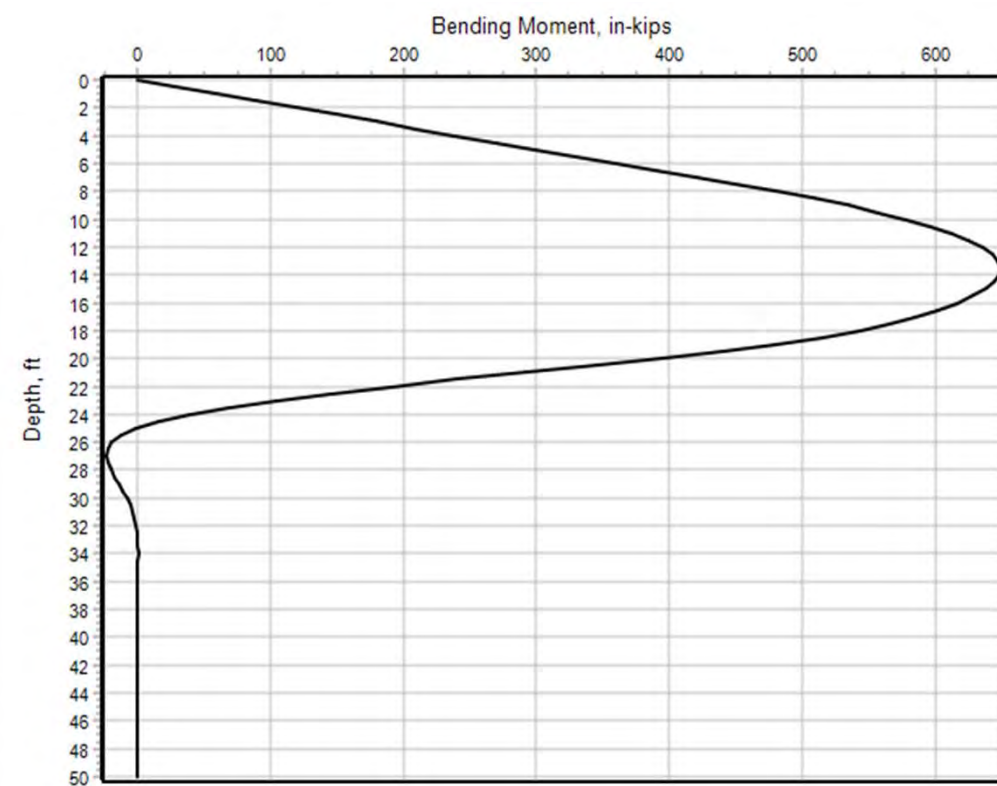
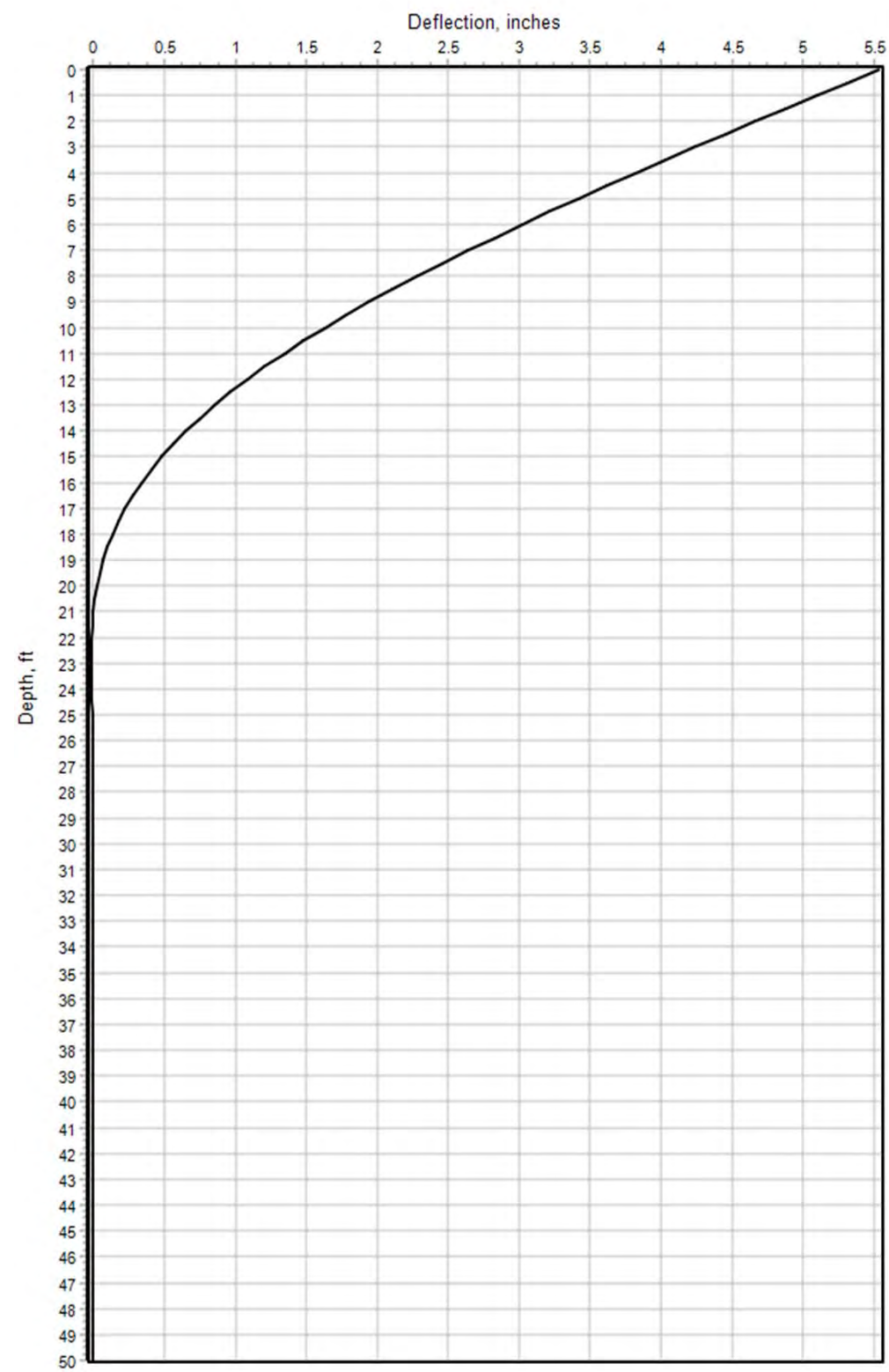
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in lbs
1	V, lb	5000.	M, in-lb	0.00	4.2745	-0.02744	
		-8714.					
		661193.					

Maximum pile-head deflection = 4.274548019 inches
 Maximum pile-head rotation = -0.027442219 radians

The analysis ended normally.

Bedford (Deformation)



SEAPILE BEDFORD 16-inch.lp8o

LPILE for Windows, Version 2015-08.003

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:
\Aravinda\Aravinda_A\Other office Project\FRP\Analyses\LPILE\Deflection\

Name of input data file:
SEAPILE BEDFORD 16-inch.lp8d

Name of output report file:
SEAPILE BEDFORD 16-inch.lp8o

Name of plot output file:
SEAPILE BEDFORD 16-inch.lp8p

Name of runtime message file:
SEAPILE BEDFORD 16-inch.lp8r

Date and Time of Analysis

Date: July 22, 2016 Time: 13:15:34

Problem Title

Fiberglass Composite Materials Specification Redevelopment

Job Number: Project No. 2014-15-02

SEAPILE BEDFORD 16-inch.1p8o

Client: NJDOT

Engineer: Hardesty & Hanover, LLC

Description: Lateral Load Analyses

Program Options and Settings

Computational Options:

- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 100 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 100 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Total number of pile sections	=	1
Total length of pile	=	50.00 ft

SEAPILE BEDFORD 16-inch.lp8o

Depth of ground surface below top of pile = 8.00 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	16.00000000
2	50.0000000	16.00000000

Input Structural Properties:

Pile Section No. 1:

Section Type	=	Elastic Pile
Cross-sectional Shape	=	Circular Pile
Section Length	=	50.000000 ft
Top Width	=	16.000000 in
Bottom Width	=	16.000000 in
Top Area	=	201.061930 sq. in
Bottom Area	=	201.061930 sq. in
Moment of Inertia at Top	=	3217. in^4
Moment of Inertia at Bottom	=	3217. in^4
Elastic Modulus	=	988000. lbs/in^2

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians
Pile Batter Angle	=	0.000 degrees
	=	0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	8.000000 ft
Distance from top of pile to bottom of layer	=	18.000000 ft
Effective unit weight at top of layer	=	32.486400 pcf
Effective unit weight at bottom of layer	=	32.486400 pcf
Undrained cohesion at top of layer	=	249.984000 psf
Undrained cohesion at bottom of layer	=	249.984000 psf
Epsilon-50 at top of layer	=	0.020000
Epsilon-50 at bottom of layer	=	0.020000

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Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	18.000000	ft
Distance from top of pile to bottom of layer	=	66.000000	ft
Effective unit weight at top of layer	=	57.024000	pcf
Effective unit weight at bottom of layer	=	57.024000	pcf
Friction angle at top of layer	=	36.000000	deg.
Friction angle at bottom of layer	=	36.000000	deg.
Subgrade k at top of layer	=	100.000000	pci
Subgrade k at bottom of layer	=	100.000000	pci

(Depth of lowest soil layer extends 16.00 ft below pile tip)

Summary of Input Soil Properties

Layer E50 Layer or Num. krm	Soil Type Name kpy (p-y Curve Type) pci	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.
1	Soft	8.0000	32.4864	249.9840	--
0.02000	--				
	Clay	18.0000	32.4864	249.9840	--
0.02000	--				
2	Sand	18.0000	57.0240	--	36.0000
--	100.0000				
--	(Reese, et al.)	66.0000	57.0240	--	36.0000
--	100.0000				

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 5000. lbs	M = 0.0000 in-lbs	0.0000000
No				

V = perpendicular shear force applied to pile head
M = bending moment applied to pile head

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y = lateral deflection relative to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading.

Axial thrust is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Moment-curvature properties were derived from elastic section properties

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 5000.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

Depth Res. X feet lb/inch	Deflect. Soil Spr. y Es*h lb/inch	Bending Distrib. Load Moment in-lbs lb/inch	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil p
0.00	0.00	0.00	5000.	-0.03629	1.17E-09	3.18E+09	
0.5000	0.00	0.00	5000.	-0.03626	74.6039	3.18E+09	
1.0000	0.00	0.00	5000.	-0.03617	149.2078	3.18E+09	
1.5000	0.00	0.00	5000.	-0.03603	223.8116	3.18E+09	
2.0000	0.00	0.00	5000.	-0.03583	298.4155	3.18E+09	
2.5000	0.00	0.00	5000.	-0.03558	373.0194	3.18E+09	
3.0000	0.00	0.00	5000.	-0.03527	447.6233	3.18E+09	
3.5000	0.00	0.00	5000.	-0.03490	522.2272	3.18E+09	
4.0000	0.00	0.00	5000.	-0.03447	596.8310	3.18E+09	
4.5000	0.00	0.00	5000.	-0.03399	671.4349	3.18E+09	

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5.0000	3.4113	300000.	5000.	-0.03346	746.0388	3.18E+09
0.00	0.00	0.00				
5.5000	3.2122	330000.	5000.	-0.03286	820.6427	3.18E+09
0.00	0.00	0.00				
6.0000	3.0169	360000.	5000.	-0.03221	895.2466	3.18E+09
0.00	0.00	0.00				
6.5000	2.8257	390000.	5000.	-0.03150	969.8504	3.18E+09
0.00	0.00	0.00				
7.0000	2.6389	420000.	5000.	-0.03074	1044.	3.18E+09
0.00	0.00	0.00				
7.5000	2.4569	450000.	5000.	-0.02992	1119.	3.18E+09
0.00	0.00	0.00				
8.0000	2.2799	480000.	4823.	-0.02904	1194.	3.18E+09
-59.0707	155.4536	0.00				
8.5000	2.1084	507873.	4458.	-0.02811	1263.	3.18E+09
-62.3942	177.5564	0.00				
9.0000	1.9427	533501.	4075.	-0.02712	1327.	3.18E+09
-65.4273	202.0741	0.00				
9.5000	1.7830	556773.	3674.	-0.02609	1385.	3.18E+09
-68.1629	229.3813	0.00				
10.0000	1.6296	577591.	3258.	-0.02502	1436.	3.18E+09
-70.5939	259.9262	0.00				
10.5000	1.4827	595867.	2828.	-0.02392	1482.	3.18E+09
-72.7131	294.2484	0.00				
11.0000	1.3426	611526.	2386.	-0.02278	1521.	3.18E+09
-74.5133	333.0023	0.00				
11.5000	1.2094	624503.	1935.	-0.02161	1553.	3.18E+09
-75.9873	376.9884	0.00				
12.0000	1.0833	634744.	1475.	-0.02042	1578.	3.18E+09
-77.1276	427.1941	0.00				
12.5000	0.9643	642208.	1010.	-0.01921	1597.	3.18E+09
-77.9268	484.8494	0.00				
13.0000	0.8527	646867.	541.3662	-0.01800	1609.	3.18E+09
-78.3769	551.5035	0.00				
13.5000	0.7484	648704.	70.8263	-0.01678	1613.	3.18E+09
-78.4697	629.1299	0.00				
14.0000	0.6514	647717.	-399.1724	-0.01555	1611.	3.18E+09
-78.1965	720.2774	0.00				
14.5000	0.5617	643914.	-866.4048	-0.01433	1601.	3.18E+09
-77.5476	828.2866	0.00				
15.0000	0.4794	637320.	-1329.	-0.01312	1585.	3.18E+09
-76.5126	957.6111	0.00				
15.5000	0.4043	627971.	-1783.	-0.01193	1562.	3.18E+09
-75.0794	1114.	0.00				
16.0000	0.3363	615920.	-2228.	-0.01075	1532.	3.18E+09
-73.2343	1307.	0.00				
16.5000	0.2752	601232.	-2661.	-0.00961	1495.	3.18E+09
-70.9607	1547.	0.00				
17.0000	0.2210	583989.	-3078.	-0.00849	1452.	3.18E+09
-68.2385	1853.	0.00				
17.5000	0.1734	564290.	-3478.	-0.00740	1403.	3.18E+09
-65.0419	2251.	0.00				
18.0000	0.1321	542249.	-4201.	-0.00636	1348.	3.18E+09
-175.9813	7991.	0.00				
18.5000	0.09705	513873.	-5243.	-0.00536	1278.	3.18E+09
-171.1073	10578.	0.00				
19.0000	0.06779	479337.	-6234.	-0.00442	1192.	3.18E+09
-159.5039	14117.	0.00				
19.5000	0.04396	439059.	-7135.	-0.00356	1092.	3.18E+09
-140.6973	19204.	0.00				
20.0000	0.02510	393716.	-7899.	-0.00277	979.0913	3.18E+09
-113.8658	27222.	0.00				
20.5000	0.01070	344274.	-8470.	-0.00208	856.1384	3.18E+09

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-76.5495	42940.	0.00				
21.0000	1.94E-04	292076.	-8707.	-0.00147	726.3324	3.18E+09
-2.3652	72963.	0.00				
21.5000	-0.00700	239792.	-8492.	-9.73E-04	596.3146	3.18E+09
73.9324	63380.	0.00				
22.0000	-0.01148	190171.	-7938.	-5.67E-04	472.9156	3.18E+09
110.6983	57874.	0.00				
22.5000	-0.01380	144534.	-7196.	-2.51E-04	359.4269	3.18E+09
136.5793	59382.	0.00				
23.0000	-0.01449	103814.	-6323.	-1.64E-05	258.1653	3.18E+09
154.4544	63972.	0.00				
23.5000	-0.01400	68655.	-5364.	1.46E-04	170.7313	3.18E+09
165.3983	70900.	0.00				
24.0000	-0.01273	39450.	-4357.	2.48E-04	98.1044	3.18E+09
170.0752	80161.	0.00				
24.5000	-0.01102	16368.	-3340.	3.01E-04	40.7035	3.18E+09
169.0886	92095.	0.00				
25.0000	-0.00912	-627.2374	-2369.	3.16E-04	1.5598	3.18E+09
154.6263	101763.	0.00				
25.5000	-0.00722	-12056.	-1524.	3.04E-04	29.9803	3.18E+09
126.8694	105363.	0.00				
26.0000	-0.00547	-18917.	-845.5751	2.75E-04	47.0428	3.18E+09
99.3218	108963.	0.00				
26.5000	-0.00393	-22203.	-326.5481	2.36E-04	55.2135	3.18E+09
73.6872	112563.	0.00				
27.0000	-0.00264	-22836.	47.7283	1.93E-04	56.7875	3.18E+09
51.0717	116163.	0.00				
27.5000	-0.00161	-21630.	297.1564	1.51E-04	53.7893	3.18E+09
32.0710	119763.	0.00				
28.0000	-8.21E-04	-19270.	443.9797	1.13E-04	47.9199	3.18E+09
16.8701	123363.	0.00				
28.5000	-2.53E-04	-16302.	510.6224	7.93E-05	40.5402	3.18E+09
5.3441	126963.	0.00				
29.0000	1.31E-04	-13142.	518.1187	5.15E-05	32.6821	3.18E+09
-2.8454	130563.	0.00				
29.5000	3.65E-04	-10085.	485.0834	2.96E-05	25.0787	3.18E+09
-8.1664	134163.	0.00				
30.0000	4.85E-04	-7321.	427.1461	1.31E-05	18.2065	3.18E+09
-11.1461	137763.	0.00				
30.5000	5.23E-04	-4959.	356.7590	1.54E-06	12.3320	3.18E+09
-12.3163	141363.	0.00				
31.0000	5.04E-04	-3040.	283.2873	-6.01E-06	7.5602	3.18E+09
-12.1743	144963.	0.00				
31.5000	4.51E-04	-1560.	213.2936	-1.04E-05	3.8783	3.18E+09
-11.1570	148563.	0.00				
32.0000	3.80E-04	-480.6233	150.9394	-1.23E-05	1.1952	3.18E+09
-9.6278	152163.	0.00				
32.5000	3.03E-04	251.7135	98.4399	-1.25E-05	0.6260	3.18E+09
-7.8721	155763.	0.00				
33.0000	2.30E-04	700.6556	56.5224	-1.16E-05	1.7424	3.18E+09
-6.1004	159363.	0.00				
33.5000	1.64E-04	929.9825	24.8530	-1.01E-05	2.3127	3.18E+09
-4.4561	162963.	0.00				
34.0000	1.09E-04	998.8912	2.4087	-8.24E-06	2.4840	3.18E+09
-3.0254	166563.	0.00				
34.5000	6.52E-05	958.8868	-12.2157	-6.39E-06	2.3846	3.18E+09
-1.8494	170163.	0.00				
35.0000	3.23E-05	852.3024	-20.5706	-4.68E-06	2.1195	3.18E+09
-0.9355	173763.	0.00				
35.5000	9.05E-06	712.0391	-24.1797	-3.20E-06	1.7707	3.18E+09
-0.2675	177363.	0.00				
36.0000	-6.14E-06	562.1460	-24.4265	-2.00E-06	1.3979	3.18E+09
0.1852	180963.	0.00				

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36.5000	-1.50E-05	418.9206	-22.4900	-1.08E-06	1.0418	3.18E+09	
0.4603	184563.	0.00					
37.0000	-1.90E-05	292.2654	-19.3178	-4.04E-07	0.7268	3.18E+09	
0.5971	188163.	0.00					
37.5000	-1.98E-05	187.1075	-15.6270	4.87E-08	0.4653	3.18E+09	
0.6331	191763.	0.00					
38.0000	-1.85E-05	104.7410	-11.9249	3.24E-07	0.2605	3.18E+09	
0.6010	195363.	0.00					
38.5000	-1.59E-05	44.0092	-8.5383	4.65E-07	0.1094	3.18E+09	
0.5279	198963.	0.00					
39.0000	-1.29E-05	2.2808	-5.6500	5.08E-07	0.00567	3.18E+09	
0.4349	202563.	0.00					
39.5000	-9.82E-06	-23.7911	-3.3331	4.88E-07	0.05916	3.18E+09	
0.3374	206163.	0.00					
40.0000	-7.03E-06	-37.7165	-1.5840	4.30E-07	0.09379	3.18E+09	
0.2456	209763.	0.00					
40.5000	-4.66E-06	-42.7985	-0.3498	3.54E-07	0.1064	3.18E+09	
0.1657	213363.	0.00					
41.0000	-2.78E-06	-41.9140	0.4489	2.74E-07	0.1042	3.18E+09	
0.1005	216963.	0.00					
41.5000	-1.37E-06	-37.4112	0.9019	1.99E-07	0.09303	3.18E+09	
0.05048	220563.	0.00					
42.0000	-3.91E-07	-31.0911	1.0971	1.34E-07	0.07732	3.18E+09	
0.01459	224163.	0.00					
42.5000	2.40E-07	-24.2457	1.1136	8.22E-08	0.06029	3.18E+09	
-0.00910	227763.	0.00					
43.0000	5.96E-07	-17.7279	1.0174	4.26E-08	0.04409	3.18E+09	
-0.02297	231363.	0.00					
43.5000	7.51E-07	-12.0371	0.8603	1.45E-08	0.02993	3.18E+09	
-0.02940	234963.	0.00					
44.0000	7.69E-07	-7.4045	0.6803	-3.87E-09	0.01841	3.18E+09	
-0.03059	238563.	0.00					
44.5000	7.04E-07	-3.8733	0.5033	-1.45E-08	0.00963	3.18E+09	
-0.02842	242163.	0.00					
45.0000	5.95E-07	-1.3653	0.3449	-1.95E-08	0.00340	3.18E+09	
-0.02438	245763.	0.00					
45.5000	4.71E-07	0.2651	0.2130	-2.05E-08	6.59E-04	3.18E+09	
-0.01956	249363.	0.00					
46.0000	3.49E-07	1.1913	0.1102	-1.91E-08	0.00296	3.18E+09	
-0.01472	252963.	0.00					
46.5000	2.41E-07	1.5875	0.03509	-1.65E-08	0.00395	3.18E+09	
-0.01031	256563.	0.00					
47.0000	1.51E-07	1.6124	-0.01551	-1.35E-08	0.00401	3.18E+09	
-0.00655	260163.	0.00					
47.5000	7.94E-08	1.4014	-0.04563	-1.06E-08	0.00349	3.18E+09	
-0.00349	263763.	0.00					
48.0000	2.35E-08	1.0648	-0.05924	-8.31E-09	0.00265	3.18E+09	
-0.00105	267363.	0.00					
48.5000	-2.03E-08	0.6905	-0.05963	-6.65E-09	0.00172	3.18E+09	
9.19E-04	270963.	0.00					
49.0000	-5.64E-08	0.3493	-0.04914	-5.67E-09	8.69E-04	3.18E+09	
0.00258	274563.	0.00					
49.5000	-8.84E-08	0.1009	-0.02910	-5.25E-09	2.51E-04	3.18E+09	
0.00410	278163.	0.00					
50.0000	-1.19E-07	0.00	0.00	-5.15E-09	0.00	3.18E+09	
0.00560	140881.	0.00					

* The above values of total stress are combined axial and bending stresses.

Output Summary for Load Case No. 1:

Pile-head deflection = 5.53239891 inches
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SEAPILE BEDFORD 16-inch.lp8o
Computed slope at pile head = -0.03628670 radians
Maximum bending moment = 648704. inch-lbs
Maximum shear force = -8707. lbs
Depth of maximum bending moment = 13.50000000 feet below pile head
Depth of maximum shear force = 21.00000000 feet below pile head
Number of iterations = 21
Number of zero deflection points = 5

```

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

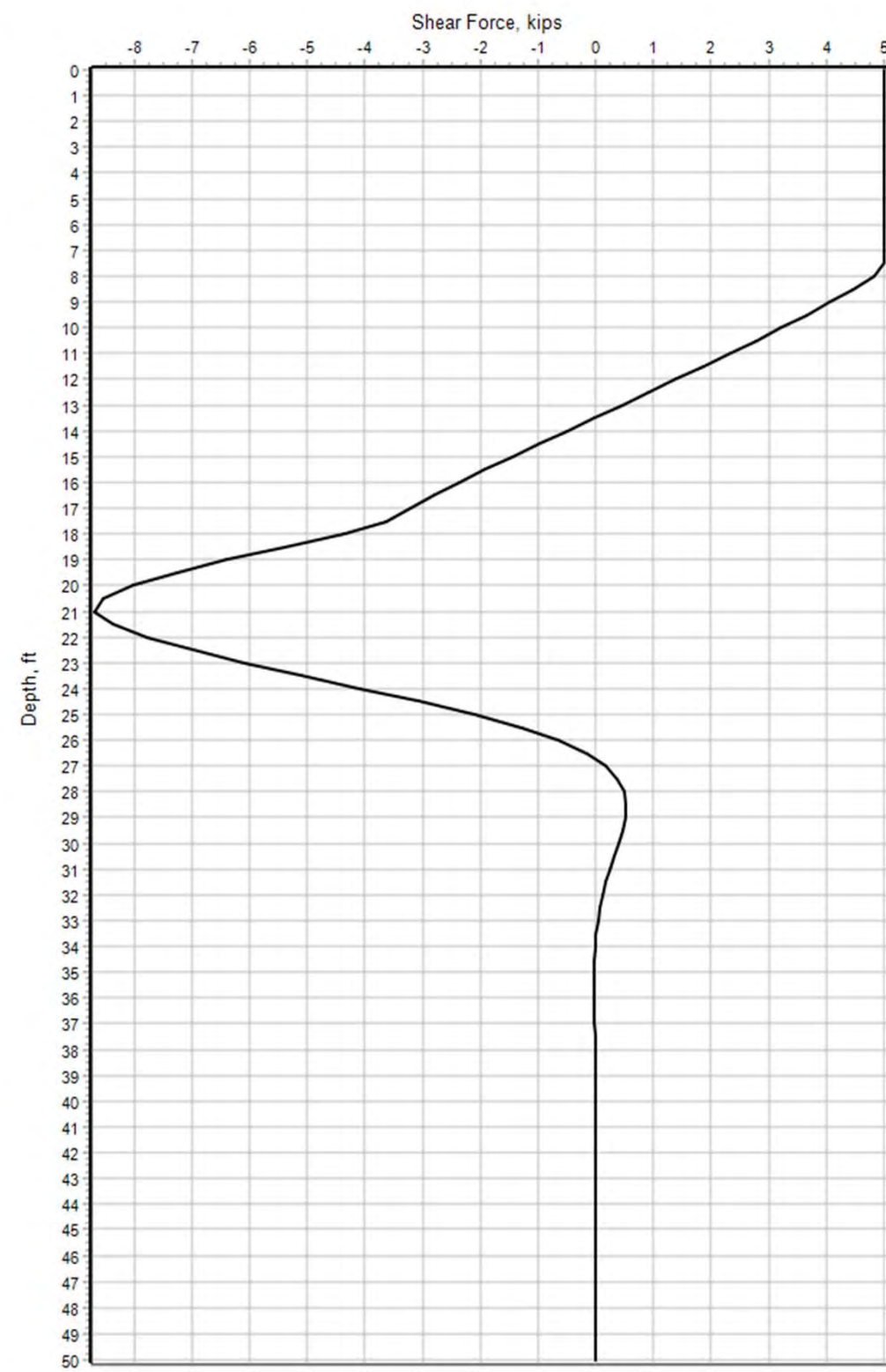
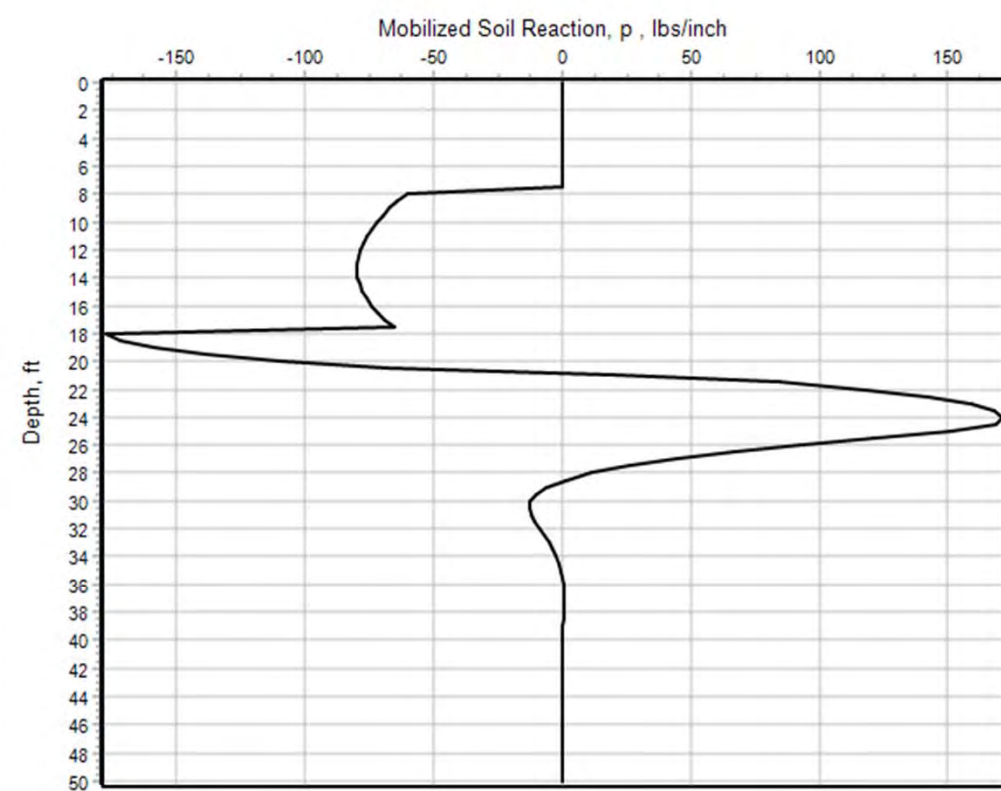
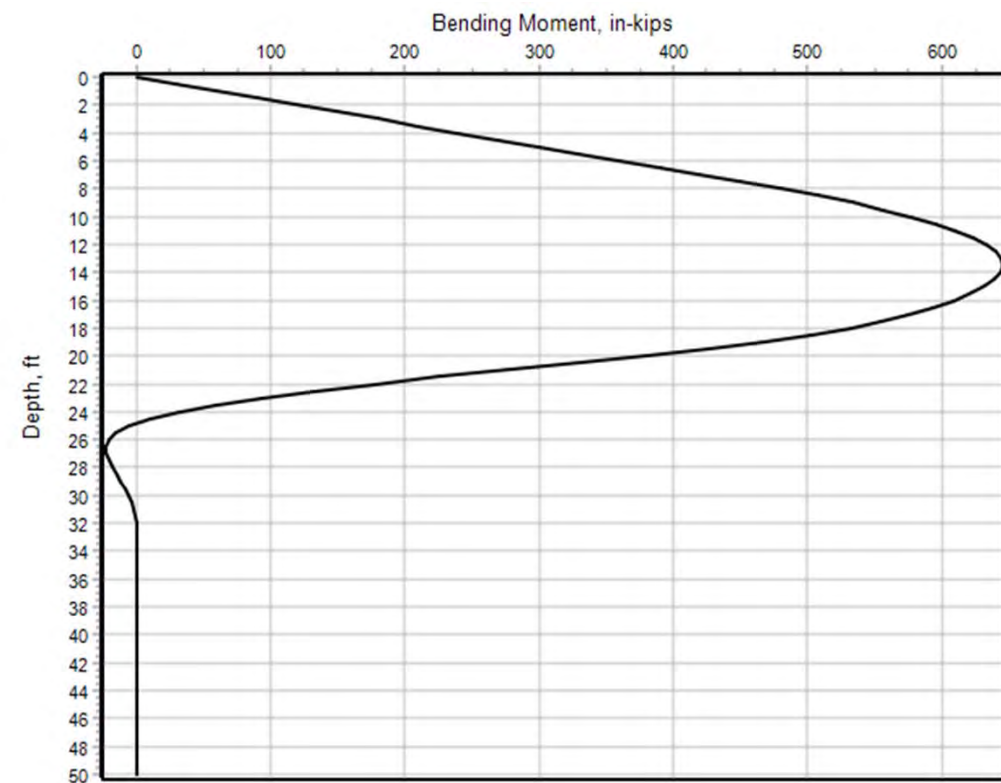
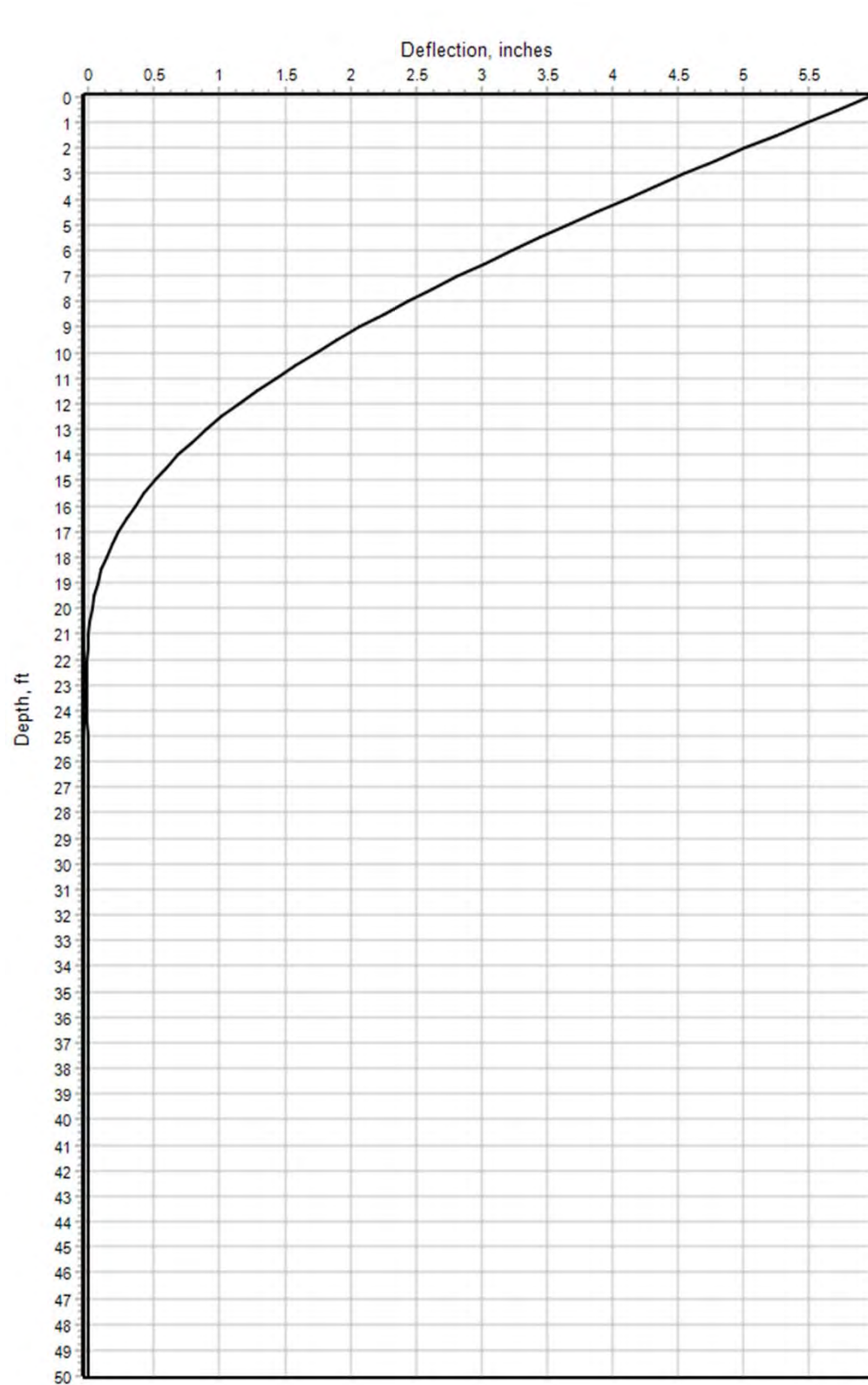
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in lbs
1	V, lb	5000.	M, in-lb	0.00	0.00	5.5324	-0.03629
		-8707.	648704.				

Maximum pile-head deflection = 5.532398909 inches
Maximum pile-head rotation = -0.036286699 radians

The analysis ended normally.

Pearson (Deformation)



Pearson 16-inch.lp8o

LPILE for Windows, Version 2015-08.003

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:
\Aravinda\Aravinda_A\Other office Project\FRP\Analyses\LPILE\Deflection\

Name of input data file:
Pearson 16-inch.lp8d

Name of output report file:
Pearson 16-inch.lp8o

Name of plot output file:
Pearson 16-inch.lp8p

Name of runtime message file:
Pearson 16-inch.lp8r

Date and Time of Analysis

Date: July 22, 2016 Time: 13:16:46

Problem Title

Fiberglass Composite Materials Specification Redevelopment

Job Number: Project No. 2014-15-02

Client: NJDOT

Engineer: Hardesty & Hanover, LLC

Description: Lateral Load Analyses

Program Options and Settings

Computational Options:

- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 100 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 100 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Total number of pile sections	=	1
Total length of pile	=	50.00 ft

Pearson 16-inch.lp80

Depth of ground surface below top of pile = 8.00 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	16.00000000
2	50.0000000	16.00000000

Input Structural Properties:

Pile Section No. 1:

Section Type	=	Elastic Pile
Cross-sectional Shape	=	Circular Pipe
Section Length	=	50.000000 ft
Top Width	=	16.000000 in
Bottom Width	=	16.000000 in
Wall Thickness at Top	=	0.500000 in
Wall Thickness at Bottom	=	0.500000 in
Top Area	=	24.347343 sq. in
Bottom Area	=	24.347343 sq. in
Moment of Inertia at Top	=	731.942001 in ⁴
Moment of Inertia at Bottom	=	731.942001 in ⁴
Elastic Modulus	=	3960000. lbs/in ²

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians
Pile Batter Angle	=	0.000 degrees
	=	0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	8.000000 ft
Distance from top of pile to bottom of layer	=	18.000000 ft
Effective unit weight at top of layer	=	32.486400 pcf
Effective unit weight at bottom of layer	=	32.486400 pcf
Undrained cohesion at top of layer	=	249.984000 psf
Undrained cohesion at bottom of layer	=	249.984000 psf
Epsilon-50 at top of layer	=	0.020000

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Epsilon-50 at bottom of layer = 0.020000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 18.000000 ft
Distance from top of pile to bottom of layer = 66.000000 ft
Effective unit weight at top of layer = 57.024000 pcf
Effective unit weight at bottom of layer = 57.024000 pcf
Friction angle at top of layer = 36.000000 deg.
Friction angle at bottom of layer = 36.000000 deg.
Subgrade k at top of layer = 100.000000 pci
Subgrade k at bottom of layer = 100.000000 pci

(Depth of lowest soil layer extends 16.00 ft below pile tip)

Summary of Input Soil Properties

Layer E50 Layer or Num. krm	Soil Type Name kpy (p-y Curve Type) pci	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.
1	Soft	8.0000	32.4864	249.9840	--
0.02000	--				
	Clay	18.0000	32.4864	249.9840	--
0.02000	--				
2	Sand	18.0000	57.0240	--	36.0000
--	100.0000				
--	(Reese, et al.)	66.0000	57.0240	--	36.0000
--	100.0000				

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No. vs. Pile	Load Top y Type Length	Condition 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 5000. lbs	M = 0.0000 in-lbs	0.0000000
No				

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V = perpendicular shear force applied to pile head

M = bending moment applied to pile head

y = lateral deflection relative to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading.

Axial thrust is assumed to be acting axially for all pile batter angles.

 Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

 Moment-curvature properties were derived from elastic section properties

 Computed Values of Pile Loading and Deflection
 for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 5000.0 lbs
 Applied moment at pile head = 0.0 in-lbs
 Axial thrust load on pile head = 0.0 lbs

Depth Res. Soil X feet lb/inch	Deflect. Spr. y Lat. Load inches lb/inch	Bending Distrib. Moment in-lbs lb/inch	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil p
0.00	5.9570	-6.44E-07	5000.	-0.03931	7.03E-09	2.90E+09	
0.00	0.00	0.00					
0.5000	5.7211	30000.	5000.	-0.03928	327.8948	2.90E+09	
0.00	0.00	0.00					
1.0000	5.4856	60000.	5000.	-0.03919	655.7897	2.90E+09	
0.00	0.00	0.00					
1.5000	5.2508	90000.	5000.	-0.03903	983.6845	2.90E+09	
0.00	0.00	0.00					
2.0000	5.0172	120000.	5000.	-0.03882	1312.	2.90E+09	
0.00	0.00	0.00					
2.5000	4.7850	150000.	5000.	-0.03854	1639.	2.90E+09	
0.00	0.00	0.00					
3.0000	4.5548	180000.	5000.	-0.03819	1967.	2.90E+09	
0.00	0.00	0.00					
3.5000	4.3267	210000.	5000.	-0.03779	2295.	2.90E+09	
0.00	0.00	0.00					
4.0000	4.1013	240000.	5000.	-0.03733	2623.	2.90E+09	
0.00	0.00	0.00					

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4.5000	3.8788	270000.	5000.	-0.03680	2951.	2.90E+09
0.00	0.00	0.00				
5.0000	3.6597	300000.	5000.	-0.03621	3279.	2.90E+09
0.00	0.00	0.00				
5.5000	3.4443	330000.	5000.	-0.03556	3607.	2.90E+09
0.00	0.00	0.00				
6.0000	3.2330	360000.	5000.	-0.03484	3935.	2.90E+09
0.00	0.00	0.00				
6.5000	3.0262	390000.	5000.	-0.03406	4263.	2.90E+09
0.00	0.00	0.00				
7.0000	2.8243	420000.	5000.	-0.03323	4591.	2.90E+09
0.00	0.00	0.00				
7.5000	2.6275	450000.	5000.	-0.03233	4918.	2.90E+09
0.00	0.00	0.00				
8.0000	2.4364	480000.	4819.	-0.03136	5246.	2.90E+09
-60.3918	148.7266	0.00				
8.5000	2.2512	507826.	4446.	-0.03034	5550.	2.90E+09
-63.7714	169.9697	0.00				
9.0000	2.0723	533356.	4054.	-0.02926	5829.	2.90E+09
-66.8509	193.5590	0.00				
9.5000	1.9000	556480.	3645.	-0.02814	6082.	2.90E+09
-69.6229	219.8619	0.00				
10.0000	1.7346	577097.	3220.	-0.02696	6308.	2.90E+09
-72.0800	249.3191	0.00				
10.5000	1.5765	595119.	2781.	-0.02575	6505.	2.90E+09
-74.2147	282.4617	0.00				
11.0000	1.4257	610469.	2330.	-0.02450	6672.	2.90E+09
-76.0198	319.9352	0.00				
11.5000	1.2824	623083.	1870.	-0.02322	6810.	2.90E+09
-77.4876	362.5308	0.00				
12.0000	1.1470	632907.	1402.	-0.02192	6918.	2.90E+09
-78.6108	411.2266	0.00				
12.5000	1.0194	639901.	927.5561	-0.02061	6994.	2.90E+09
-79.3813	467.2441	0.00				
13.0000	0.8997	644038.	450.0384	-0.01928	7039.	2.90E+09
-79.7912	532.1255	0.00				
13.5000	0.7880	645302.	-28.8314	-0.01794	7053.	2.90E+09
-79.8320	607.8417	0.00				
14.0000	0.6844	643692.	-506.8113	-0.01661	7035.	2.90E+09
-79.4946	696.9457	0.00				
14.5000	0.5887	639220.	-981.6025	-0.01528	6987.	2.90E+09
-78.7691	802.7966	0.00				
15.0000	0.5010	631913.	-1451.	-0.01397	6907.	2.90E+09
-77.6446	929.8909	0.00				
15.5000	0.4211	621810.	-1912.	-0.01267	6796.	2.90E+09
-76.1087	1084.	0.00				
16.0000	0.3490	608967.	-2363.	-0.01139	6656.	2.90E+09
-74.1467	1275.	0.00				
16.5000	0.2844	593455.	-2801.	-0.01015	6486.	2.90E+09
-71.7413	1514.	0.00				
17.0000	0.2272	575361.	-3222.	-0.00894	6289.	2.90E+09
-68.8708	1819.	0.00				
17.5000	0.1771	554787.	-3626.	-0.00777	6064.	2.90E+09
-65.5075	2219.	0.00				
18.0000	0.1339	531855.	-4354.	-0.00665	5813.	2.90E+09
-177.4339	7949.	0.00				
18.5000	0.09737	502535.	-5401.	-0.00557	5493.	2.90E+09
-171.4411	10565.	0.00				
19.0000	0.06704	467043.	-6391.	-0.00457	5105.	2.90E+09
-158.4225	14179.	0.00				
19.5000	0.04251	425849.	-7279.	-0.00365	4654.	2.90E+09
-137.8599	19458.	0.00				
20.0000	0.02327	379691.	-8019.	-0.00281	4150.	2.90E+09

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-108.7528	28040.	0.00				
20.5000	0.00875	329618.	-8549.	-0.00208	3603.	2.90E+09
-67.7408	46462.	0.00				
21.0000	-0.00168	277106.	-8691.	-0.00145	3029.	2.90E+09
20.4406	72963.	0.00				
21.5000	-0.00867	225330.	-8377.	-9.31E-04	2463.	2.90E+09
84.1993	58283.	0.00				
22.0000	-0.01286	176586.	-7768.	-5.15E-04	1930.	2.90E+09
118.6105	55355.	0.00				
22.5000	-0.01485	132111.	-6984.	-1.96E-04	1444.	2.90E+09
142.8162	57697.	0.00				
23.0000	-0.01521	92778.	-6078.	3.70E-05	1014.	2.90E+09
159.0745	62768.	0.00				
23.5000	-0.01441	59172.	-5096.	1.94E-04	646.7355	2.90E+09
168.3340	70100.	0.00				
24.0000	-0.01288	31625.	-4077.	2.88E-04	345.6570	2.90E+09
171.2509	79806.	0.00				
24.5000	-0.01095	10244.	-3058.	3.32E-04	111.9612	2.90E+09
168.4646	92315.	0.00				
25.0000	-0.00890	-5073.	-2100.	3.37E-04	55.4481	2.90E+09
150.8868	101763.	0.00				
25.5000	-0.00691	-14958.	-1284.	3.16E-04	163.4875	2.90E+09
121.2805	105363.	0.00				
26.0000	-0.00510	-20477.	-641.8059	2.79E-04	223.8062	2.90E+09
92.6602	108963.	0.00				
26.5000	-0.00355	-22660.	-163.8867	2.35E-04	247.6654	2.90E+09
66.6462	112563.	0.00				
27.0000	-0.00228	-22443.	168.7153	1.88E-04	245.3012	2.90E+09
44.2211	116163.	0.00				
27.5000	-0.00129	-20635.	378.8926	1.44E-04	225.5371	2.90E+09
25.8380	119763.	0.00				
28.0000	-5.61E-04	-17897.	491.0170	1.04E-04	195.6064	2.90E+09
11.5368	123363.	0.00				
28.5000	-5.01E-05	-14743.	528.8046	6.99E-05	161.1363	2.90E+09
1.0591	126963.	0.00				
29.0000	2.78E-04	-11551.	513.8400	4.27E-05	126.2495	2.90E+09
-6.0473	130563.	0.00				
29.5000	4.62E-04	-8577.	464.6801	2.19E-05	93.7421	2.90E+09
-10.3393	134163.	0.00				
30.0000	5.40E-04	-5975.	396.4416	6.81E-06	65.3030	2.90E+09
-12.4068	137763.	0.00				
30.5000	5.44E-04	-3819.	320.7624	-3.33E-06	41.7457	2.90E+09
-12.8196	141363.	0.00				
31.0000	5.00E-04	-2126.	246.0317	-9.48E-06	23.2325	2.90E+09
-12.0907	144963.	0.00				
31.5000	4.30E-04	-867.0451	177.7928	-1.26E-05	9.4767	2.90E+09
-10.6556	148563.	0.00				
32.0000	3.49E-04	7.9102	119.2356	-1.35E-05	0.08646	2.90E+09
-8.8634	152163.	0.00				
32.5000	2.69E-04	563.7820	71.7151	-1.29E-05	6.1620	2.90E+09
-6.9767	155763.	0.00				
33.0000	1.95E-04	868.4911	35.2475	-1.14E-05	9.4925	2.90E+09
-5.1791	159363.	0.00				
33.5000	1.32E-04	986.7515	8.9521	-9.47E-06	10.7850	2.90E+09
-3.5860	162963.	0.00				
34.0000	8.13E-05	975.9158	-8.5786	-7.44E-06	10.6666	2.90E+09
-2.2575	166563.	0.00				
34.5000	4.27E-05	883.8087	-18.9871	-5.52E-06	9.6599	2.90E+09
-1.2120	170163.	0.00				
35.0000	1.51E-05	748.0702	-23.9372	-3.83E-06	8.1763	2.90E+09
-0.4380	173763.	0.00				
35.5000	-3.19E-06	596.5626	-24.9680	-2.44E-06	6.5203	2.90E+09
0.09441	177363.	0.00				

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36.0000	-1.41E-05	448.4537	-23.4088	-1.35E-06	4.9015	2.90E+09	
0.4254	180963.	0.00					
36.5000	-1.94E-05	315.6574	-20.3386	-5.63E-07	3.4501	2.90E+09	
0.5981	184563.	0.00					
37.0000	-2.09E-05	204.3910	-16.5818	-2.49E-08	2.2340	2.90E+09	
0.6542	188163.	0.00					
37.5000	-1.97E-05	116.6763	-12.7263	3.07E-07	1.2753	2.90E+09	
0.6309	191763.	0.00					
38.0000	-1.72E-05	51.6753	-9.1561	4.82E-07	0.5648	2.90E+09	
0.5591	195363.	0.00					
38.5000	-1.40E-05	6.8035	-6.0897	5.42E-07	0.07436	2.90E+09	
0.4630	198963.	0.00					
39.0000	-1.07E-05	-21.4014	-3.6205	5.27E-07	0.2339	2.90E+09	
0.3601	202563.	0.00					
39.5000	-7.64E-06	-36.6427	-1.7530	4.67E-07	0.4005	2.90E+09	
0.2624	206163.	0.00					
40.0000	-5.06E-06	-42.4373	-0.4348	3.85E-07	0.4638	2.90E+09	
0.1770	209763.	0.00					
40.5000	-3.02E-06	-41.8604	0.4178	2.98E-07	0.4575	2.90E+09	
0.1072	213363.	0.00					
41.0000	-1.49E-06	-37.4233	0.9009	2.16E-07	0.4090	2.90E+09	
0.05381	216963.	0.00					
41.5000	-4.25E-07	-31.0492	1.1093	1.45E-07	0.3394	2.90E+09	
0.01564	220563.	0.00					
42.0000	2.51E-07	-24.1121	1.1280	8.79E-08	0.2635	2.90E+09	
-0.00939	224163.	0.00					
42.5000	6.29E-07	-17.5132	1.0282	4.48E-08	0.1914	2.90E+09	
-0.02387	227763.	0.00					
43.0000	7.89E-07	-11.7737	0.8653	1.45E-08	0.1287	2.90E+09	
-0.03042	231363.	0.00					
43.5000	8.02E-07	-7.1291	0.6798	-5.10E-09	0.07792	2.90E+09	
-0.03142	234963.	0.00					
44.0000	7.28E-07	-3.6158	0.4988	-1.62E-08	0.03952	2.90E+09	
-0.02893	238563.	0.00					
44.5000	6.08E-07	-1.1439	0.3384	-2.11E-08	0.01250	2.90E+09	
-0.02453	242163.	0.00					
45.0000	4.74E-07	0.4450	0.2066	-2.19E-08	0.00486	2.90E+09	
-0.01940	245763.	0.00					
45.5000	3.45E-07	1.3353	0.1053	-2.00E-08	0.01459	2.90E+09	
-0.01435	249363.	0.00					
46.0000	2.33E-07	1.7091	0.03277	-1.69E-08	0.01868	2.90E+09	
-0.00984	252963.	0.00					
46.5000	1.43E-07	1.7286	-0.01506	-1.33E-08	0.01889	2.90E+09	
-0.00610	256563.	0.00					
47.0000	7.35E-08	1.5284	-0.04293	-9.95E-09	0.01670	2.90E+09	
-0.00319	260163.	0.00					
47.5000	2.33E-08	1.2134	-0.05557	-7.11E-09	0.01326	2.90E+09	
-0.00103	263763.	0.00					
48.0000	-1.18E-08	0.8615	-0.05706	-4.96E-09	0.00942	2.90E+09	
5.27E-04	267363.	0.00					
48.5000	-3.63E-08	0.5286	-0.05057	-3.53E-09	0.00578	2.90E+09	
0.00164	270963.	0.00					
49.0000	-5.41E-08	0.2547	-0.03823	-2.72E-09	0.00278	2.90E+09	
0.00248	274563.	0.00					
49.5000	-6.88E-08	0.06989	-0.02122	-2.38E-09	7.64E-04	2.90E+09	
0.00319	278163.	0.00					
50.0000	-8.27E-08	0.00	0.00	-2.31E-09	0.00	2.90E+09	
0.00388	140881.	0.00					

* The above values of total stress are combined axial and bending stresses.

Pearson 16-inch.lp80

Pile-head deflection = 5.95696076 inches
 Computed slope at pile head = -0.03931226 radians
 Maximum bending moment = 645302. inch-lbs
 Maximum shear force = -8691. lbs
 Depth of maximum bending moment = 13.50000000 feet below pile head
 Depth of maximum shear force = 21.00000000 feet below pile head
 Number of iterations = 21
 Number of zero deflection points = 5

 Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

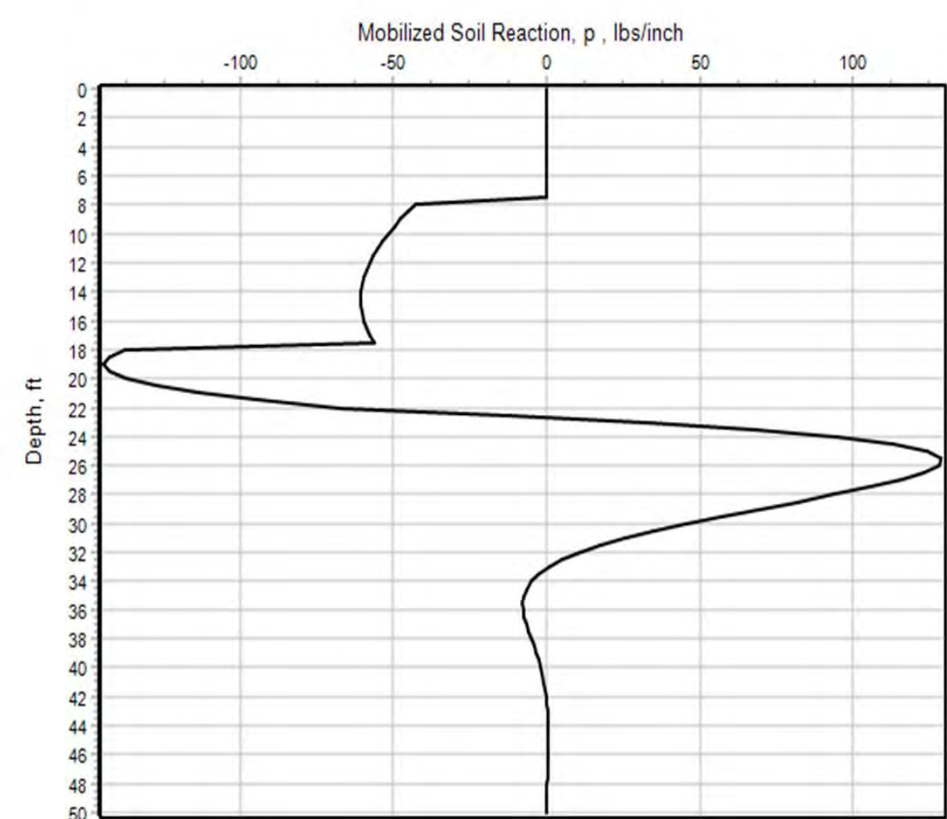
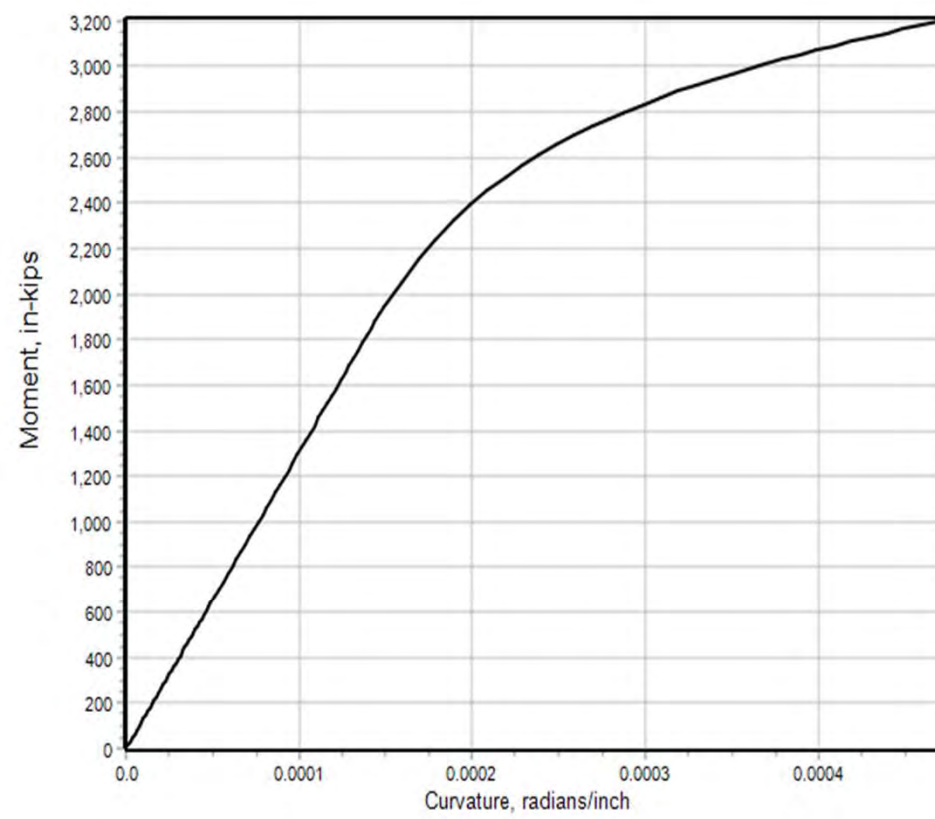
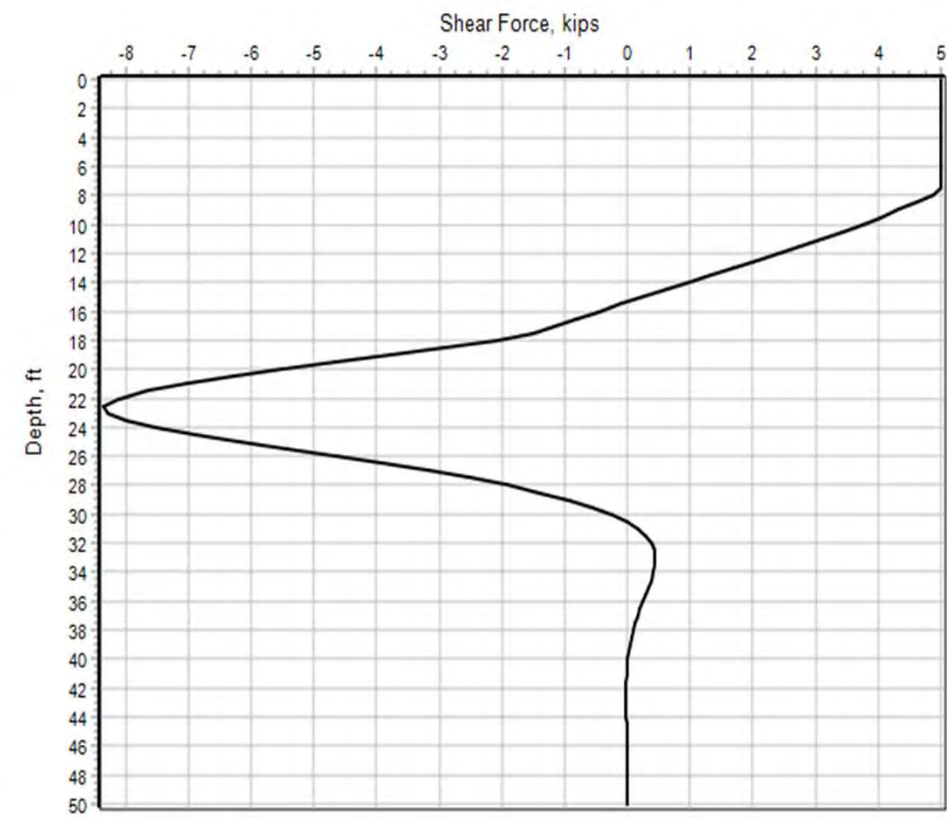
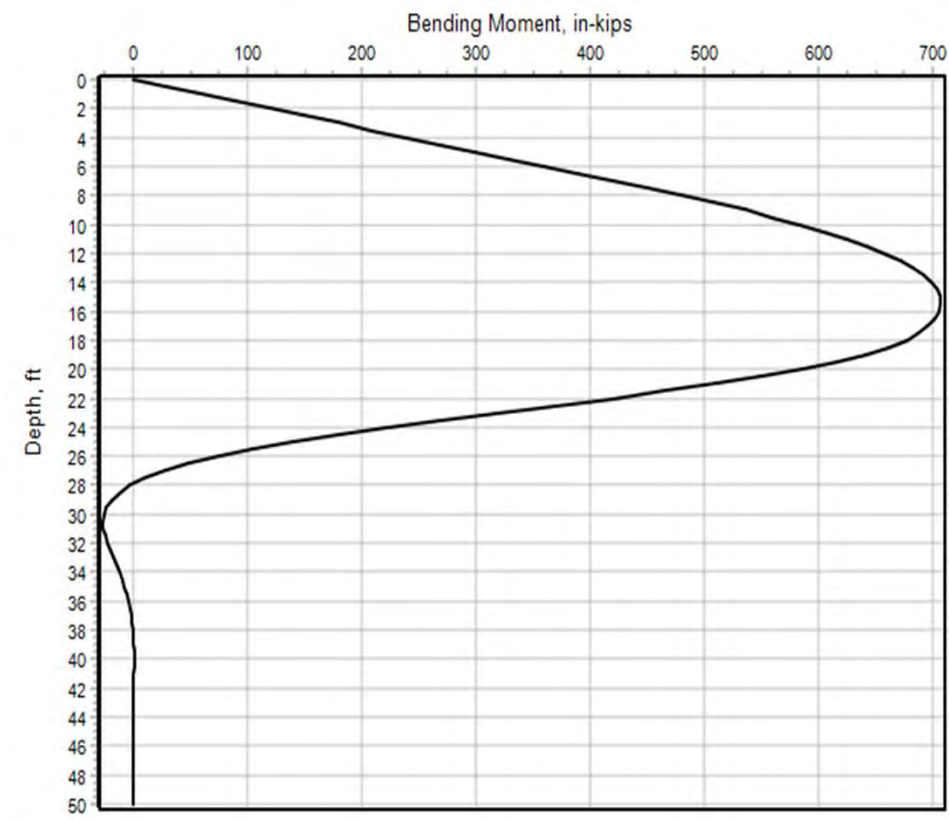
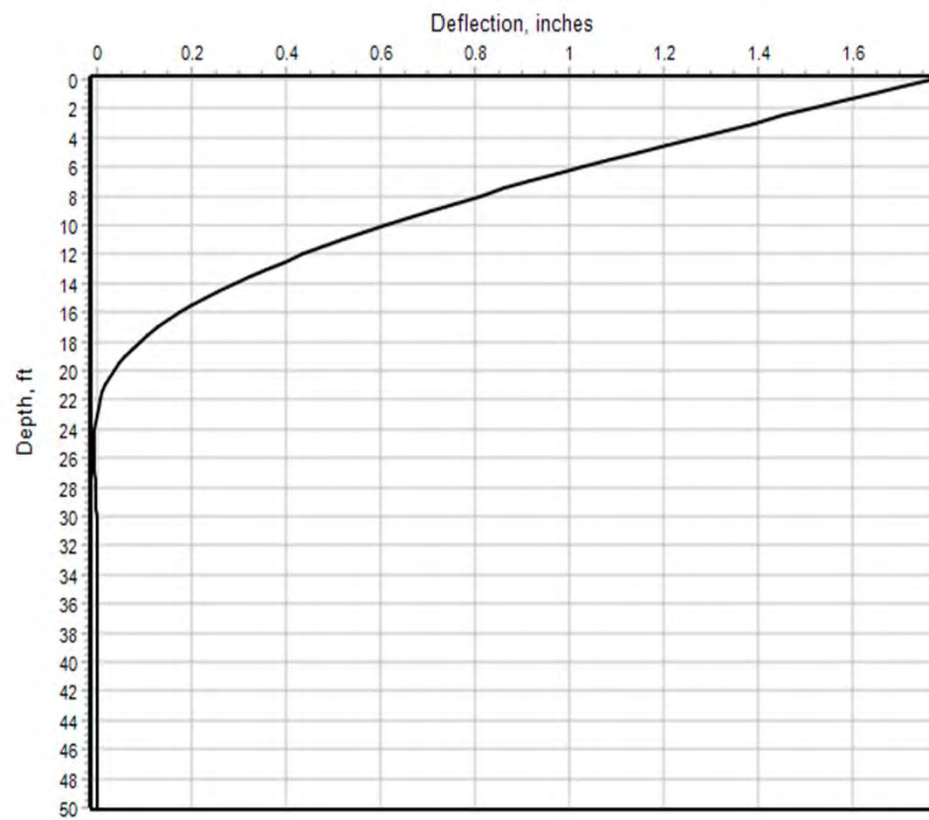
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case	Load 1	Load 2	Axial	Pile-head	Pile-head	Max
Shear	Max	Moment		Deflection	Rotation	in
Case Type	Pile-head	Type	Pile-head	Loading		lbs
Pile No.	in lbs	Load 1	Load 2	lbs	inches	radians
1	V, lb	5000.	M, in-lb	0.00	0.00	5.9570
	-8691.	645302.				-0.03931

Maximum pile-head deflection = 5.956960757 inches
 Maximum pile-head rotation = -0.039312263 radians

The analysis ended normally.

Lancaster (Deformation)



Lancaster 16-inch_A.lp8o

LPILE for Windows, Version 2015-08.003

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:
\Aravinda\Aravinda_A\Other office Project\FRP\Analyses\LPILE\Deflection\

Name of input data file:
Lancaster 16-inch_A.lp8d

Name of output report file:
Lancaster 16-inch_A.lp8o

Name of plot output file:
Lancaster 16-inch_A.lp8p

Name of runtime message file:
Lancaster 16-inch_A.lp8r

Date and Time of Analysis

Date: July 22, 2016 Time: 13:18:51

Problem Title

Fiberglass Composite Materials Specification Redevelopment

Job Number: Project No. 2014-15-02

Lancaster 16-inch_A.lp8o

Client: NJDOT

Engineer: Hardesty & Hanover, LLC

Description: Lateral Load Analyses

Program Options and Settings

Computational Options:

- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 100 |
| - Deflection tolerance for convergence | = | 1.0000E-02 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 100 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Total number of pile sections	=	1
Total length of pile	=	50.00 ft

Lancaster 16-inch_A.lp8o

Depth of ground surface below top of pile = 8.00 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	16.47000000
2	50.0000000	16.47000000

Input Structural Properties:

Pile Section No. 1:

Section Type	= Drilled Shaft w/Casing & Conc-filled Core
Section Length	= 50.000000 ft
Section Diameter	= 16.470000 in
Shear Capacity of Section	= 0.0000 lbs

Ground Slope and Pile Batter Angles

Ground Slope Angle	= 0.000 degrees
	= 0.000 radians
Pile Batter Angle	= 0.000 degrees
	= 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	= 8.000000 ft
Distance from top of pile to bottom of layer	= 18.000000 ft
Effective unit weight at top of layer	= 32.486400 pcf
Effective unit weight at bottom of layer	= 32.486400 pcf
Undrained cohesion at top of layer	= 249.984000 psf
Undrained cohesion at bottom of layer	= 249.984000 psf
Epsilon-50 at top of layer	= 0.020000
Epsilon-50 at bottom of layer	= 0.020000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	= 18.000000 ft
Distance from top of pile to bottom of layer	= 66.000000 ft
Effective unit weight at top of layer	= 57.024000 pcf

Lancaster 16-inch_A.lp8o

Effective unit weight at bottom of layer	=	57.024000 pcf
Friction angle at top of layer	=	36.000000 deg.
Friction angle at bottom of layer	=	36.000000 deg.
Subgrade k at top of layer	=	100.000000 pci
Subgrade k at bottom of layer	=	100.000000 pci

(Depth of lowest soil layer extends 16.00 ft below pile tip)

Summary of Input Soil Properties

Layer E50 Layer or Num. krm	Soil Type Name kpy (p-y Curve Type) pci	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.
1	Soft	8.0000	32.4864	249.9840	--
0.02000	--				
	Clay	18.0000	32.4864	249.9840	--
0.02000	--				
2	Sand	18.0000	57.0240	--	36.0000
--	100.0000				
	(Reese, et al.)	66.0000	57.0240	--	36.0000
--	100.0000				

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition 1	Condition 2	Axial Thrust Force, lbs
vs. Pile Length				
1	1	V = 5000. lbs	M = 0.0000 in-lbs	0.0000000
No				

V = perpendicular shear force applied to pile head
M = bending moment applied to pile head
y = lateral deflection relative to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applied to pile head
Values of top y vs. pile lengths can be computed only for load types with specified shear loading.
Axial thrust is assumed to be acting axially for all pile batter angles.

 Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile) with Casing and Filled Core:

Length of Section	=	50.000000	ft
Outside Diameter of Casing	=	16.470000	in
Casing Wall Thickness	=	0.205000	in
Moment of Inertia of Steel Casing	=	346.453485	in^4
Outside Diameter of Core	=	16.060000	in
Core Wall Thickness	=	8.030000	in
Moment of Inertia of Steel Core	=	3266.	in^4
Yield Stress of Casing	=	54000.	psi
Elastic Modulus of Casing	=	3400000.	psi
Yield Stress of Core	=	4000.	psi
Elastic Modulus of Core	=	3645000.	psi
Number of Reinforcing Bars	=	0	bars
Gross Area of Pile	=	213.047813	sq. in.
Area of Concrete	=	0.0000	sq. in.
Cross-sectional Area of Steel Casing	=	10.475091	sq. in.
Cross-sectional Area of Steel Core	=	202.572722	sq. in.
Area of All Steel (Casing, Core, and Bars)	=	213.047813	sq. in.
Area Ratio of All Steel to Gross Area	=	100.00	percent

Note that the core is assumed to be filled with concrete.

Axial Structural Capacities:

Nom. Axial Structural Capacity = $0.85 F_c A_c + F_y A_s$	=	2192.361	kips
Tensile Load for Cracking of Concrete	=	-88.991	kips
Nominal Axial Tensile Capacity	=	-1375.946	kips

Concrete Properties:

Compressive Strength of Concrete	=	5000.	psi
Modulus of Elasticity of Concrete	=	4030509.	psi
Modulus of Rupture of Concrete	=	-530.330074	psi
Compression Strain at Peak Stress	=	0.002109	
Tensile Strain at Fracture of Concrete	=	-0.0001150	
Maximum Coarse Aggregate Size	=	0.0000	in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 1

Number	Axial Thrust Force kips
-----	-----

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
 Y = stress in reinforcing steel has reached yield stress.
 T = ACI 318 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than 0.003. See ACI 318, Section 10.3.4.
 Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
 Position of neutral axis is measured from edge of compression side of pile.
 Compressive stresses and strains are positive in sign.
 Tensile stresses and strains are negative in sign.

Axial Thrust Force = 0.000 kips

Bending Max Conc Curvature Stress rad/in. ksi	Bending Max Steel Moment Stress in-kip ksi	Bending Run Stiffness Msg kip-in2	Depth to Max Casing N Axis Stress in ksi	Run Msg Max Comp Strain in/in	Max Tens Strain in/in
0.00000125	16.3529277	13082342.	8.2350000	0.00001029	-0.00001029
0.0482058	0.00000	0.0346488	0.0363951		
0.00000250	32.7058554	13082342.	8.2350000	0.00002059	-0.00002059
0.0961781	0.00000	0.0692975	0.0727902		
0.00000375	49.0587830	13082342.	8.2350000	0.00003088	-0.00003088
0.1439168	0.00000	0.1039463	0.1091853		
0.00000500	65.4117107	13082342.	8.2350000	0.00004117	-0.00004118
0.1914221	0.00000	0.1385951	0.1455804		
0.00000625	81.7646384	13082342.	8.2350000	0.00005147	-0.00005147
0.2386939	0.00000	0.1732438	0.1819755		
0.00000750	98.1175661	13082342.	8.2350000	0.00006176	-0.00006176
0.2857321	0.00000	0.2078926	0.2183706		
0.00000875	114.4704938	13082342.	8.2350000	0.00007206	-0.00007206
0.3325369	0.00000	0.2425413	0.2547657		
0.00001000	130.8234214	13082342.	8.2350000	0.00008235	-0.00008235
0.3791081	0.00000	0.2771901	0.2911608		
0.00001125	147.1763491	13082342.	8.2350000	0.00009264	-0.00009264
0.4254458	0.00000	0.3118389	0.3275559		
0.00001250	163.5292768	13082342.	8.2350000	0.0001029	-0.0001029
0.4715500	0.00000	0.3464876	0.3639510		
0.00001375	179.8822045	13082342.	8.2350000	0.0001132	-0.0001132
0.5174208	0.00000	0.3811364	0.4003461		
0.00001500	196.2351322	13082342.	8.2350000	0.0001235	-0.0001235
0.5630580	0.00000	0.4157852	0.4367412 C		
0.00001625	212.5880598	13082342.	8.2350000	0.0001338	-0.0001338
0.6084617	0.00000	0.4504339	0.4731363 C		
0.00001750	228.9409875	13082342.	8.2350000	0.0001441	-0.0001441
0.6536319	0.00000	0.4850827	0.5095314 C		
0.00001875	245.2939152	13082342.	8.2350000	0.0001544	-0.0001544
0.6985686	0.00000	0.5197314	0.5459265 C		
0.00002000	261.6468429	13082342.	8.2350000	0.0001647	-0.0001647
0.7432717	0.00000	0.5543802	0.5823216 C		
0.00002125	277.9997705	13082342.	8.2350000	0.0001750	-0.0001750

Lancaster 16-inch_A.lp8o					
0.7877414	0.00000	0.5890290	0.6187167 C		
0.00002250	294.3526982	13082342.	8.2350000	0.0001853	-0.0001853
0.8319776	0.00000	0.6236777	0.6551118 C		
0.00002375	310.7056259	13082342.	8.2350000	0.0001956	-0.0001956
0.8759803	0.00000	0.6583265	0.6915069 C		
0.00002500	327.0585536	13082342.	8.2350000	0.0002059	-0.0002059
0.9197494	0.00000	0.6929753	0.7279020 C		
0.00002625	343.4114813	13082342.	8.2350000	0.0002162	-0.0002162
0.9632851	0.00000	0.7276240	0.7642971 C		
0.00002750	359.7644089	13082342.	8.2350000	0.0002265	-0.0002265
1.0065872	0.00000	0.7622728	0.8006921 C		
0.00002875	376.1173366	13082342.	8.2350000	0.0002368	-0.0002368
1.0496558	0.00000	0.7969215	0.8370872 C		
0.00003000	392.4702643	13082342.	8.2350000	0.0002470	-0.0002471
1.0924910	0.00000	0.8315703	0.8734823 C		
0.00003125	408.8231920	13082342.	8.2350000	0.0002573	-0.0002573
1.1350926	0.00000	0.8662191	0.9098774 C		
0.00003250	425.1761197	13082342.	8.2350000	0.0002676	-0.0002676
1.1774607	0.00000	0.9008678	0.9462725 C		
0.00003375	441.5290473	13082342.	8.2350000	0.0002779	-0.0002779
1.2195953	0.00000	0.9355166	0.9826676 C		
0.00003500	457.8819750	13082342.	8.2350000	0.0002882	-0.0002882
1.2614964	0.00000	0.9701654	1.0190627 C		
0.00003625	474.2349027	13082342.	8.2350000	0.0002985	-0.0002985
1.3031640	0.00000	1.0048141	1.0554578 C		
0.00003750	490.5878304	13082342.	8.2350000	0.0003088	-0.0003088
1.3445981	0.00000	1.0394629	1.0918529 C		
0.00003875	506.9407581	13082342.	8.2350000	0.0003191	-0.0003191
1.3857987	0.00000	1.0741117	1.1282480 C		
0.00004000	523.2936857	13082342.	8.2350000	0.0003294	-0.0003294
1.4267658	0.00000	1.1087604	1.1646431 C		
0.00004125	539.6466134	13082342.	8.2350000	0.0003397	-0.0003397
1.4674993	0.00000	1.1434092	1.2010382 C		
0.00004250	555.9995411	13082342.	8.2350000	0.0003500	-0.0003500
1.5079994	0.00000	1.1780579	1.2374333 C		
0.00004375	572.3524688	13082342.	8.2350000	0.0003603	-0.0003603
1.5482659	0.00000	1.2127067	1.2738284 C		
0.00004500	588.7053965	13082342.	8.2350000	0.0003706	-0.0003706
1.5882990	0.00000	1.2473555	1.3102235 C		
0.00004625	605.0583241	13082342.	8.2350000	0.0003809	-0.0003809
1.6280985	0.00000	1.2820042	1.3466186 C		
0.00004750	621.4112518	13082342.	8.2350000	0.0003912	-0.0003912
1.6676646	0.00000	1.3166530	1.3830137 C		
0.00004875	637.7641795	13082342.	8.2350000	0.0004015	-0.0004015
1.7069971	0.00000	1.3513018	1.4194088 C		
0.00005125	670.4700349	13082342.	8.2350000	0.0004220	-0.0004220
1.7849616	0.00000	1.4205993	1.4921990 C		
0.00005375	703.1758902	13082342.	8.2350000	0.0004426	-0.0004426
1.8619921	0.00000	1.4898968	1.5649892 C		
0.00005625	735.8817456	13082342.	8.2350000	0.0004632	-0.0004632
1.9380886	0.00000	1.5591943	1.6377794 C		
0.00005875	768.5876009	13082342.	8.2350000	0.0004838	-0.0004838
2.0132511	0.00000	1.6284919	1.7105696 C		
0.00006125	801.2934563	13082342.	8.2350000	0.0005044	-0.0005044
2.0874795	0.00000	1.6977894	1.7833598 C		
0.00006375	833.9993116	13082342.	8.2350000	0.0005250	-0.0005250
2.1607739	0.00000	1.7670869	1.8561500 C		
0.00006625	866.7051670	13082342.	8.2350000	0.0005456	-0.0005456
2.2331343	0.00000	1.8363844	1.9289402 C		
0.00006875	899.4110224	13082342.	8.2350000	0.0005662	-0.0005662
2.3045606	0.00000	1.9056820	2.0017304 C		
0.00007125	932.1168777	13082342.	8.2350000	0.0005867	-0.0005867
2.3750529	0.00000	1.9749795	2.0745206 C		

		Lancaster 16-inch_A.lp8o		
0.00007375	964.8227331	13082342.	8.2350000	0.0006073 -0.0006073
2.4446112	0.00000	2.0442770	2.1473108 C	
0.00007625	997.5285884	13082342.	8.2350000	0.0006279 -0.0006279
2.5132355	0.00000	2.1135745	2.2201010 C	
0.00007875	1030.	13082342.	8.2350000	0.0006485 -0.0006485
2.5809257	0.00000	2.1828721	2.2928912 C	
0.00008125	1063.	13082342.	8.2350000	0.0006691 -0.0006691
2.6476819	0.00000	2.2521696	2.3656813 C	
0.00008375	1096.	13082342.	8.2350000	0.0006897 -0.0006897
2.7135041	0.00000	2.3214671	2.4384715 C	
0.00008625	1128.	13082342.	8.2350000	0.0007103 -0.0007103
2.7783923	0.00000	2.3907646	2.5112617 C	
0.00008875	1161.	13082342.	8.2350000	0.0007309 -0.0007309
2.8423464	0.00000	2.4600622	2.5840519 C	
0.00009125	1194.	13082342.	8.2350000	0.0007514 -0.0007514
2.9053665	0.00000	2.5293597	2.6568421 C	
0.00009375	1226.	13082342.	8.2350000	0.0007720 -0.0007720
2.9674526	0.00000	2.5986572	2.7296323 C	
0.00009625	1259.	13082342.	8.2350000	0.0007926 -0.0007926
3.0286046	0.00000	2.6679547	2.8024225 C	
0.00009875	1292.	13082342.	8.2350000	0.0008132 -0.0008132
3.0888226	0.00000	2.7372523	2.8752127 C	
0.0001013	1325.	13082342.	8.2350000	0.0008338 -0.0008338
3.1481066	0.00000	2.8065498	2.9480029 C	
0.0001038	1357.	13082342.	8.2350000	0.0008544 -0.0008544
3.2064566	0.00000	2.8758473	3.0207931 C	
0.0001063	1390.	13082342.	8.2350000	0.0008750 -0.0008750
3.2638725	0.00000	2.9451448	3.0935833 C	
0.0001088	1423.	13082342.	8.2350000	0.0008956 -0.0008956
3.3203544	0.00000	3.0144424	3.1663735 C	
0.0001113	1455.	13082342.	8.2350000	0.0009161 -0.0009161
3.3759023	0.00000	3.0837399	3.2391637 C	
0.0001138	1488.	13082342.	8.2350000	0.0009367 -0.0009367
3.4305162	0.00000	3.1530374	3.3119539 C	
0.0001163	1521.	13082342.	8.2350000	0.0009573 -0.0009573
3.4841960	0.00000	3.2223350	3.3847441 C	
0.0001188	1554.	13082342.	8.2350000	0.0009779 -0.0009779
3.5369418	0.00000	3.2916325	3.4575343 C	
0.0001213	1586.	13082342.	8.2350000	0.0009985 -0.0009985
3.5887536	0.00000	3.3609300	3.5303245 C	
0.0001238	1619.	13082342.	8.2350000	0.0010191 -0.0010191
3.6396313	0.00000	3.4302275	3.6031147 C	
0.0001263	1652.	13082342.	8.2350000	0.0010397 -0.0010397
3.6895751	0.00000	3.4995251	3.6759049 C	
0.0001288	1684.	13082342.	8.2350000	0.0010603 -0.0010603
3.7385848	0.00000	3.5688226	3.7486951 C	
0.0001313	1717.	13082342.	8.2350000	0.0010808 -0.0010808
3.7866604	0.00000	3.6381201	3.8214853 C	
0.0001338	1750.	13082342.	8.2350000	0.0011014 -0.0011014
3.8338021	0.00000	3.7074176	3.8942754 C	
0.0001363	1782.	13082342.	8.2350000	0.0011220 -0.0011220
3.8800097	0.00000	3.7767152	3.9670656 C	
0.0001388	1815.	13081269.	8.2350000	0.0011426 -0.0011426
3.9252833	0.00000	3.8460127	4.0000000 CY	
0.0001413	1847.	13077535.	8.2350000	0.0011632 -0.0011632
3.9696228	0.00000	3.9153102	4.0000000 CY	
0.0001438	1879.	13070046.	8.2350000	0.0011838 -0.0011838
4.0130284	0.00000	3.9846077	4.0000000 CY	
0.0001463	1910.	13058080.	8.2350000	0.0012044 -0.0012044
4.0554999	0.00000	4.0539053	4.0000000 CY	
0.0001488	1940.	13040480.	8.2350000	0.0012250 -0.0012250
4.0970374	0.00000	4.1232028	4.0000000 CY	
0.0001588	2052.	12928282.	8.2350000	0.0013073 -0.0013073

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4.2538470	0.00000	4.4003929	4.0000000 CY		
0.0001688	2153.	12758078.	8.2350000	0.0013897	-0.0013897
4.3957122	0.00000	4.6775830	4.0000000 CY		
0.0001788	2242.	12542213.	8.2350000	0.0014720	-0.0014720
4.5226330	0.00000	4.9547731	4.0000000 CY		
0.0001888	2321.	12298393.	8.2350000	0.0015544	-0.0015544
4.6346093	0.00000	5.2319632	4.0000000 CY		
0.0001988	2392.	12037523.	8.2350000	0.0016367	-0.0016367
4.7316412	0.00000	5.5091533	4.0000000 CY		
0.0002088	2456.	11764914.	8.2350000	0.0017191	-0.0017191
4.8137287	0.00000	5.7863434	4.0000000 CY		
0.0002188	2514.	11491561.	8.2350000	0.0018014	-0.0018014
4.8808718	0.00000	6.0635335	4.0000000 CY		
0.0002288	2566.	11216622.	8.2350000	0.0018838	-0.0018838
4.9330704	0.00000	6.3407236	4.0000000 CY		
0.0002388	2614.	10946754.	8.2350000	0.0019661	-0.0019661
4.9703246	0.00000	6.6179137	4.0000000 CY		
0.0002488	2657.	10683119.	8.2350000	0.0020485	-0.0020485
4.9926343	0.00000	6.8951038	4.0000000 CY		
0.0002588	2698.	10426674.	8.2350000	0.0021308	-0.0021308
4.9997414	0.00000	7.1722939	4.0000000 CY		
0.0002688	2735.	10178193.	8.2350000	0.0022132	-0.0022132
4.9999537	0.00000	7.4494840	4.0000000 CY		
0.0002788	2770.	9938281.	8.2350000	0.0022955	-0.0022955
4.9995501	0.00000	7.7266741	4.0000000 CY		
0.0002888	2803.	9707396.	8.2350000	0.0023779	-0.0023779
4.9981850	0.00000	8.0038642	4.0000000 CY		
0.0002988	2834.	9485860.	8.2350000	0.0024602	-0.0024602
4.9996462	0.00000	8.2810543	4.0000000 CY		
0.0003088	2863.	9273057.	8.2350000	0.0025426	-0.0025426
4.9993761	0.00000	8.5582444	4.0000000 CY		
0.0003188	2890.	9067586.	8.2350000	0.0026249	-0.0026249
4.9986040	0.00000	8.8354345	4.0000000 CY		
0.0003288	2917.	8871591.	8.2350000	0.0027073	-0.0027073
4.9993346	0.00000	9.1126246	4.0000000 CY		
0.0003388	2942.	8683474.	8.2350000	0.0027896	-0.0027896
4.9996861	0.00000	9.3898148	4.0000000 CY		
0.0003488	2965.	8502455.	8.2350000	0.0028720	-0.0028720
4.9998275	0.00000	9.6670049	4.0000000 CY		
0.0003588	2988.	8330034.	8.2350000	0.0029543	-0.0029543
4.9998550	0.00000	9.9441950	4.0000000 CY		
0.0003688	3010.	8163107.	8.2350000	0.0030367	-0.0030367
4.9997914	0.00000	10.2213851	4.0000000 CY		
0.0003788	3032.	8004377.	8.2350000	0.0031190	-0.0031190
4.9995864	0.00000	10.4985752	4.0000000 CY		
0.0003888	3052.	7850733.	8.2350000	0.0032014	-0.0032014
4.9991165	0.00000	10.7757653	4.0000000 CY		
0.0003988	3072.	7704049.	8.2350000	0.0032837	-0.0032837
4.9981850	0.00000	11.0529554	4.0000000 CY		
0.0004088	3091.	7562925.	8.2350000	0.0033661	-0.0033661
4.9965220	0.00000	11.3301455	4.0000000 CY		
0.0004188	3110.	7426920.	8.2350000	0.0034484	-0.0034484
4.9999674	0.00000	11.6073356	4.0000000 CY		
0.0004288	3129.	7297259.	8.2350000	0.0035308	-0.0035308
4.9992535	0.00000	11.8845257	4.0000000 CY		
0.0004388	3146.	7171097.	8.2350000	0.0036131	-0.0036131
4.9972516	0.00000	12.1617158	4.0000000 CY		
0.0004488	3164.	7050261.	8.2350000	0.0036955	-0.0036955
4.9999929	0.00000	12.4389059	4.0000000 CY		
0.0004588	3181.	6934692.	8.2350000	0.0037778	-0.0037778
4.9989111	0.00000	12.7160960	4.0000000 CY		
0.0004688	3198.	6821987.	8.2350000	0.0038602	-0.0038602
4.9955334	0.00000	12.9932861	4.0000000 CY		

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Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	0.000	3000.466	0.00300000

Note that the values of moment capacity in the table above are not factored by a strength reduction factor (phi-factor).

In ACI 318, the value of the strength reduction factor depends on whether the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to ACI 318, Section 9.3.2.2 or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding bending stiffnesses computed for common resistance factor values used for reinforced concrete sections.

Axial Load No.	Resist. Factor for Moment	Nominal Moment Cap in-kips	Ult. (Fac) Ax. Thrust kips	Ult. (Fac) Moment Cap in-kips	Bend. Stiff. at Ult Mom kip-in^2
1	0.65	3000.	0.0000	1950.	13029985.
1	0.70	3000.	0.0000	2100.	12847105.
1	0.75	3000.	0.0000	2250.	12516330.

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Moment (Loading Type 1)

Shear force at pile head = 5000.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = 0.0 lbs

Depth Res.	Soil X Es*h feet lb/inch	Deflect. Spr. y Lat. Load inches lb/inch	Bending Distrib. Moment in-lbs lb/inch	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil p
0.00	0.00	1.7690	7.26E-07	5000.	-0.01058	0.00	1.31E+10	
0.5000	0.00	1.7055	30000.	5000.	-0.01057	0.00	1.31E+10	

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0.00	0.00	0.00					
1.0000	1.6421	60000.	5000.	-0.01055	0.00	1.31E+10	
0.00	0.00	0.00					
1.5000	1.5789	90000.	5000.	-0.01052	0.00	1.31E+10	
0.00	0.00	0.00					
2.0000	1.5159	120000.	5000.	-0.01047	0.00	1.31E+10	
0.00	0.00	0.00					
2.5000	1.4533	150000.	5000.	-0.01041	0.00	1.31E+10	
0.00	0.00	0.00					
3.0000	1.3910	180000.	5000.	-0.01033	0.00	1.31E+10	
0.00	0.00	0.00					
3.5000	1.3293	210000.	5000.	-0.01024	0.00	1.31E+10	
0.00	0.00	0.00					
4.0000	1.2681	240000.	5000.	-0.01014	0.00	1.31E+10	
0.00	0.00	0.00					
4.5000	1.2076	270000.	5000.	-0.01002	0.00	1.31E+10	
0.00	0.00	0.00					
5.0000	1.1478	300000.	5000.	-0.00989	0.00	1.31E+10	
0.00	0.00	0.00					
5.5000	1.0889	330000.	5000.	-0.00975	0.00	1.31E+10	
0.00	0.00	0.00					
6.0000	1.0309	360000.	5000.	-0.00959	0.00	1.31E+10	
0.00	0.00	0.00					
6.5000	0.9738	390000.	5000.	-0.00942	0.00	1.31E+10	
0.00	0.00	0.00					
7.0000	0.9179	420000.	5000.	-0.00923	0.00	1.31E+10	
0.00	0.00	0.00					
7.5000	0.8631	450000.	5000.	-0.00903	0.00	1.31E+10	
0.00	0.00	0.00					
8.0000	0.8095	480000.	4871.	-0.00882	0.00	1.31E+10	
-42.8364	317.5017	0.00					
8.5000	0.7573	508458.	4607.	-0.00859	0.00	1.31E+10	
-45.3511	359.3339	0.00					
9.0000	0.7064	535283.	4328.	-0.00835	0.00	1.31E+10	
-47.6915	405.0787	0.00					
9.5000	0.6570	560391.	4035.	-0.00810	0.00	1.31E+10	
-49.8532	455.2624	0.00					
10.0000	0.6092	583705.	3730.	-0.00784	0.00	1.31E+10	
-51.8320	510.5007	0.00					
10.5000	0.5630	605153.	3414.	-0.00757	0.00	1.31E+10	
-53.6237	571.5172	0.00					
11.0000	0.5184	624670.	3087.	-0.00728	0.00	1.31E+10	
-55.2238	639.1678	0.00					
11.5000	0.4756	642199.	2752.	-0.00699	0.00	1.31E+10	
-56.6280	714.4704	0.00					
12.0000	0.4345	657690.	2408.	-0.00670	0.00	1.31E+10	
-57.8318	798.6445	0.00					
12.5000	0.3952	671098.	2058.	-0.00639	0.00	1.31E+10	
-58.8306	893.1610	0.00					
13.0000	0.3578	682389.	1703.	-0.00608	0.00	1.31E+10	
-59.6195	999.8081	0.00					
13.5000	0.3222	691534.	1343.	-0.00577	0.00	1.31E+10	
-60.1938	1121.	0.00					
14.0000	0.2886	698511.	981.2640	-0.00545	0.00	1.31E+10	
-60.5481	1259.	0.00					
14.5000	0.2569	703309.	617.5890	-0.00513	0.00	1.31E+10	
-60.6770	1417.	0.00					
15.0000	0.2271	705922.	253.8341	-0.00480	0.00	1.31E+10	
-60.5747	1600.	0.00					
15.5000	0.1993	706355.	-108.5946	-0.00448	0.00	1.31E+10	
-60.2349	1814.	0.00					
16.0000	0.1734	704619.	-468.2518	-0.00415	0.00	1.31E+10	
-59.6508	2064.	0.00					

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16.5000	0.1494	700736.	-823.6494	-0.00383	0.00	1.31E+10
-58.8150	2362.	0.00				
17.0000	0.1274	694735.	-1173.	-0.00351	0.00	1.31E+10
-57.7192	2719.	0.00				
17.5000	0.1073	686657.	-1515.	-0.00320	0.00	1.31E+10
-56.3540	3152.	0.00				
18.0000	0.08903	676550.	-2098.	-0.00288	0.00	1.31E+10
-137.7142	9281.	0.00				
18.5000	0.07267	661485.	-2939.	-0.00258	0.00	1.31E+10
-142.8059	11791.	0.00				
19.0000	0.05812	641279.	-3802.	-0.00228	0.00	1.31E+10
-144.6163	14929.	0.00				
19.5000	0.04534	615867.	-4664.	-0.00199	0.00	1.31E+10
-142.8367	18902.	0.00				
20.0000	0.03425	585312.	-5504.	-0.00171	0.00	1.31E+10
-137.1955	24032.	0.00				
20.5000	0.02478	549819.	-6298.	-0.00145	0.00	1.31E+10
-127.4241	30857.	0.00				
21.0000	0.01681	509739.	-7020.	-0.00121	0.00	1.31E+10
-113.1800	40388.	0.00				
21.5000	0.01025	465584.	-7641.	-9.87E-04	0.00	1.31E+10
-93.8493	54915.	0.00				
22.0000	0.00498	418050.	-8122.	-7.84E-04	0.00	1.31E+10
-66.4865	80185.	0.00				
22.5000	8.46E-04	368123.	-8357.	-6.04E-04	0.00	1.31E+10
-11.8200	83785.	0.00				
23.0000	-0.00227	317770.	-8293.	-4.46E-04	0.00	1.31E+10
33.0473	87385.	0.00				
23.5000	-0.00451	268607.	-7989.	-3.12E-04	0.00	1.31E+10
68.3931	90985.	0.00				
24.0000	-0.00601	221906.	-7499.	-1.99E-04	0.00	1.31E+10
94.7763	94585.	0.00				
24.5000	-0.00690	178618.	-6876.	-1.08E-04	0.00	1.31E+10
112.9691	98185.	0.00				
25.0000	-0.00730	139396.	-6165.	-3.47E-05	0.00	1.31E+10
123.8934	101785.	0.00				
25.5000	-0.00732	104634.	-5408.	2.13E-05	0.00	1.31E+10
128.5600	105385.	0.00				
26.0000	-0.00705	74500.	-4638.	6.24E-05	0.00	1.31E+10
128.0160	108985.	0.00				
26.5000	-0.00657	48975.	-3884.	9.07E-05	0.00	1.31E+10
123.2991	112585.	0.00				
27.0000	-0.00596	27889.	-3168.	1.08E-04	0.00	1.31E+10
115.4005	116185.	0.00				
27.5000	-0.00527	10957.	-2506.	1.17E-04	0.00	1.31E+10
105.2359	119785.	0.00				
28.0000	-0.00455	-2186.	-1910.	1.19E-04	0.00	1.31E+10
93.6254	123385.	0.00				
28.5000	-0.00384	-11959.	-1385.	1.16E-04	0.00	1.31E+10
81.2801	126985.	0.00				
29.0000	-0.00316	-18806.	-934.7402	1.09E-04	0.00	1.31E+10
68.7962	130585.	0.00				
29.5000	-0.00253	-23176.	-558.3891	9.93E-05	0.00	1.31E+10
56.6542	134185.	0.00				
30.0000	-0.00197	-25507.	-252.7559	8.81E-05	0.00	1.31E+10
45.2235	137785.	0.00				
30.5000	-0.00148	-26209.	-12.7751	7.63E-05	0.00	1.31E+10
34.7701	141385.	0.00				
31.0000	-0.00105	-25660.	167.9357	6.44E-05	0.00	1.31E+10
25.4668	144985.	0.00				
31.5000	-7.03E-04	-24194.	296.5550	5.30E-05	0.00	1.31E+10
17.4063	148585.	0.00				
32.0000	-4.18E-04	-22101.	380.6131	4.23E-05	0.00	1.31E+10

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10.6131	152185.	0.00					
32.5000	-1.95E-04	-19626.	427.6255	3.28E-05	0.00	1.31E+10	
5.0577	155785.	0.00					
33.0000	-2.52E-05	-16970.	444.8043	2.44E-05	0.00	1.31E+10	
0.6686	159385.	0.00					
33.5000	9.78E-05	-14289.	438.8434	1.72E-05	0.00	1.31E+10	
-2.6556	162985.	0.00					
34.0000	1.81E-04	-11704.	415.7700	1.13E-05	0.00	1.31E+10	
-5.0356	166585.	0.00					
34.5000	2.33E-04	-9300.	380.8561	6.43E-06	0.00	1.31E+10	
-6.6024	170185.	0.00					
35.0000	2.59E-04	-7133.	338.5798	2.67E-06	0.00	1.31E+10	
-7.4897	173785.	0.00					
35.5000	2.65E-04	-5237.	292.6277	-1.70E-07	0.00	1.31E+10	
-7.8277	177385.	0.00					
36.0000	2.57E-04	-3622.	245.9296	-2.20E-06	0.00	1.31E+10	
-7.7384	180985.	0.00					
36.5000	2.38E-04	-2285.	200.7167	-3.56E-06	0.00	1.31E+10	
-7.3326	184585.	0.00					
37.0000	2.14E-04	-1213.	158.5956	-4.36E-06	0.00	1.31E+10	
-6.7077	188185.	0.00					
37.5000	1.86E-04	-382.3314	120.6320	-4.72E-06	0.00	1.31E+10	
-5.9468	191785.	0.00					
38.0000	1.57E-04	234.4180	87.4369	-4.76E-06	0.00	1.31E+10	
-5.1182	195385.	0.00					
38.5000	1.29E-04	666.9116	59.2532	-4.55E-06	0.00	1.31E+10	
-4.2764	198985.	0.00					
39.0000	1.03E-04	945.4559	36.0362	-4.18E-06	0.00	1.31E+10	
-3.4626	202585.	0.00					
39.5000	7.88E-05	1099.	17.5285	-3.71E-06	0.00	1.31E+10	
-2.7066	206185.	0.00					
40.0000	5.80E-05	1156.	3.3253	-3.20E-06	0.00	1.31E+10	
-2.0278	209785.	0.00					
40.5000	4.04E-05	1139.	-7.0697	-2.67E-06	0.00	1.31E+10	
-1.4372	213385.	0.00					
41.0000	2.60E-05	1071.	-14.1980	-2.16E-06	0.00	1.31E+10	
-0.9389	216985.	0.00					
41.5000	1.45E-05	968.8744	-18.6092	-1.69E-06	0.00	1.31E+10	
-0.5316	220585.	0.00					
42.0000	5.62E-06	847.6510	-20.8340	-1.28E-06	0.00	1.31E+10	
-0.2100	224185.	0.00					
42.5000	-8.83E-07	718.8660	-21.3636	-9.19E-07	0.00	1.31E+10	
0.03351	227785.	0.00					
43.0000	-5.41E-06	591.2874	-20.6373	-6.19E-07	0.00	1.31E+10	
0.2086	231385.	0.00					
43.5000	-8.31E-06	471.2181	-19.0354	-3.75E-07	0.00	1.31E+10	
0.3254	234985.	0.00					
44.0000	-9.91E-06	362.8623	-16.8771	-1.84E-07	0.00	1.31E+10	
0.3941	238585.	0.00					
44.5000	-1.05E-05	268.6932	-14.4217	-3.90E-08	0.00	1.31E+10	
0.4244	242185.	0.00					
45.0000	-1.04E-05	189.8024	-11.8730	6.61E-08	0.00	1.31E+10	
0.4252	245785.	0.00					
45.5000	-9.72E-06	126.2170	-9.3855	1.39E-07	0.00	1.31E+10	
0.4040	249385.	0.00					
46.0000	-8.72E-06	77.1769	-7.0709	1.85E-07	0.00	1.31E+10	
0.3675	252985.	0.00					
46.5000	-7.50E-06	41.3663	-5.0065	2.12E-07	0.00	1.31E+10	
0.3206	256585.	0.00					
47.0000	-6.17E-06	17.0990	-3.2423	2.26E-07	0.00	1.31E+10	
0.2674	260185.	0.00					
47.5000	-4.79E-06	2.4585	-1.8085	2.30E-07	0.00	1.31E+10	
0.2105	263785.	0.00					

```

                                Lancaster 16-inch_A.lp8o
48.0000  -3.40E-06  -4.6035  -0.7220  2.30E-07  0.00  1.31E+10
0.1517  267385.  0.00
48.5000  -2.03E-06  -6.2060  0.00803  2.27E-07  0.00  1.31E+10
0.09171  270985.  0.00
49.0000  -6.75E-07  -4.5072  0.3758  2.25E-07  0.00  1.31E+10
0.03089  274585.  0.00
49.5000  6.68E-07  -1.6961  0.3756  2.23E-07  0.00  1.31E+10
-0.03097  278185.  0.00
50.0000  2.01E-06  0.00  0.00  2.23E-07  0.00  1.31E+10
-0.09423  140892.  0.00

```

* This analysis computed pile response using nonlinear moment-curvature relationships. Values of total stress due to combined axial and bending stresses are computed only for elastic sections only and do not equal the actual stresses in concrete and steel. Stresses in concrete and steel may be interpolated from the output for nonlinear bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```

Pile-head deflection          = 1.76899653 inches
Computed slope at pile head  = -0.01057948 radians
Maximum bending moment        = 706355. inch-lbs
Maximum shear force           = -8357. lbs
Depth of maximum bending moment = 15.50000000 feet below pile head
Depth of maximum shear force  = 22.50000000 feet below pile head
Number of iterations          = 10
Number of zero deflection points = 4

```

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

```

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

```

Load Case No.	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in lbs
1	V, lb	5000.	M, in-lb	0.00	0.00	1.7690	-0.01058
		-8357.	706355.				

```

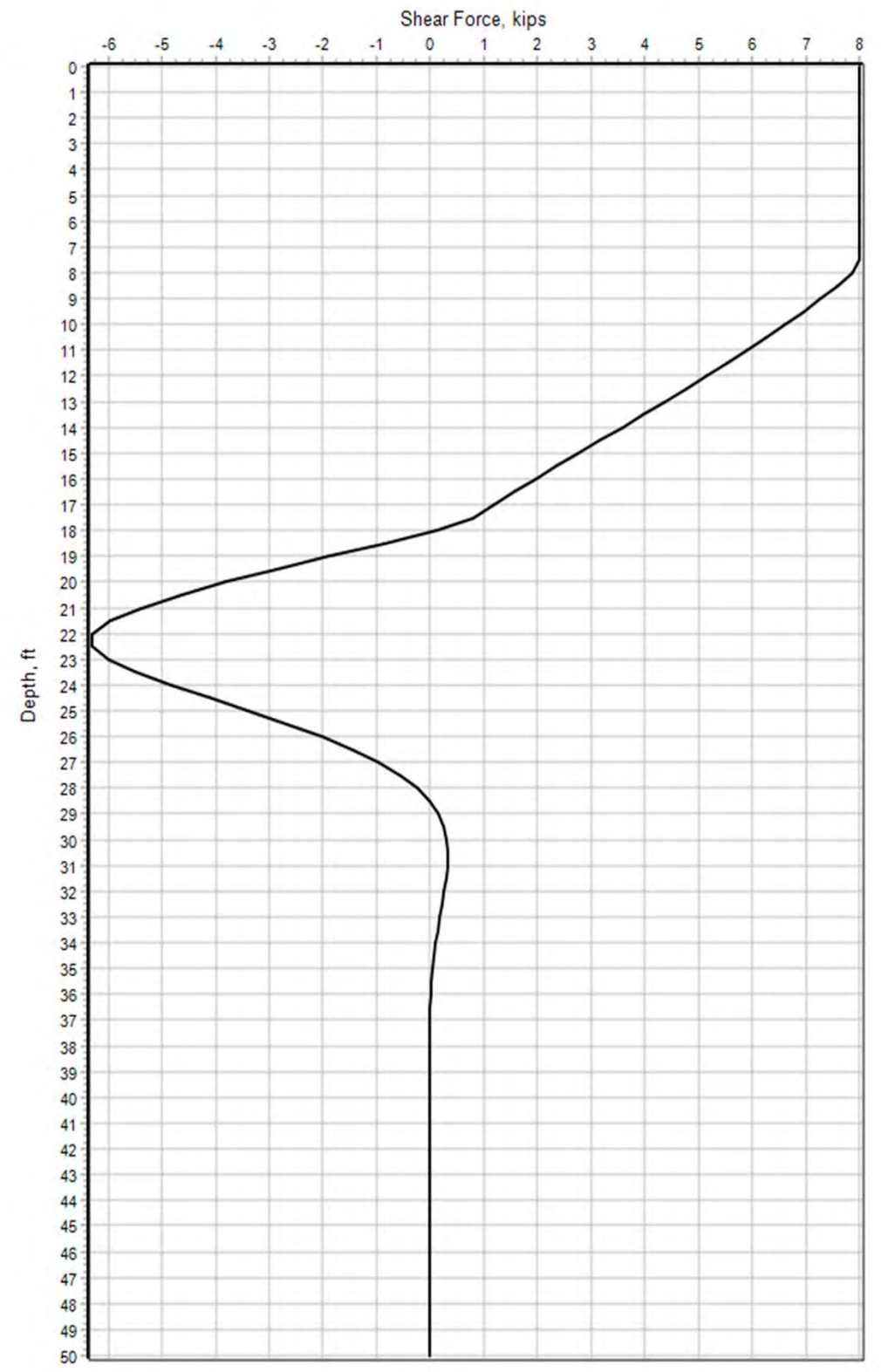
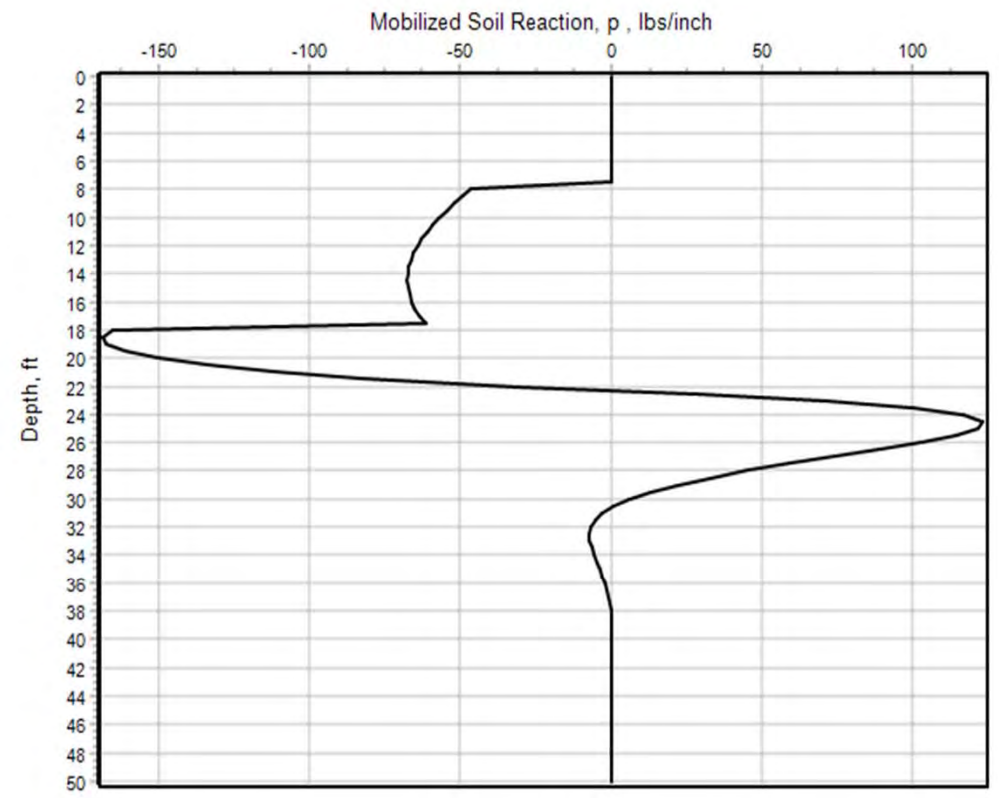
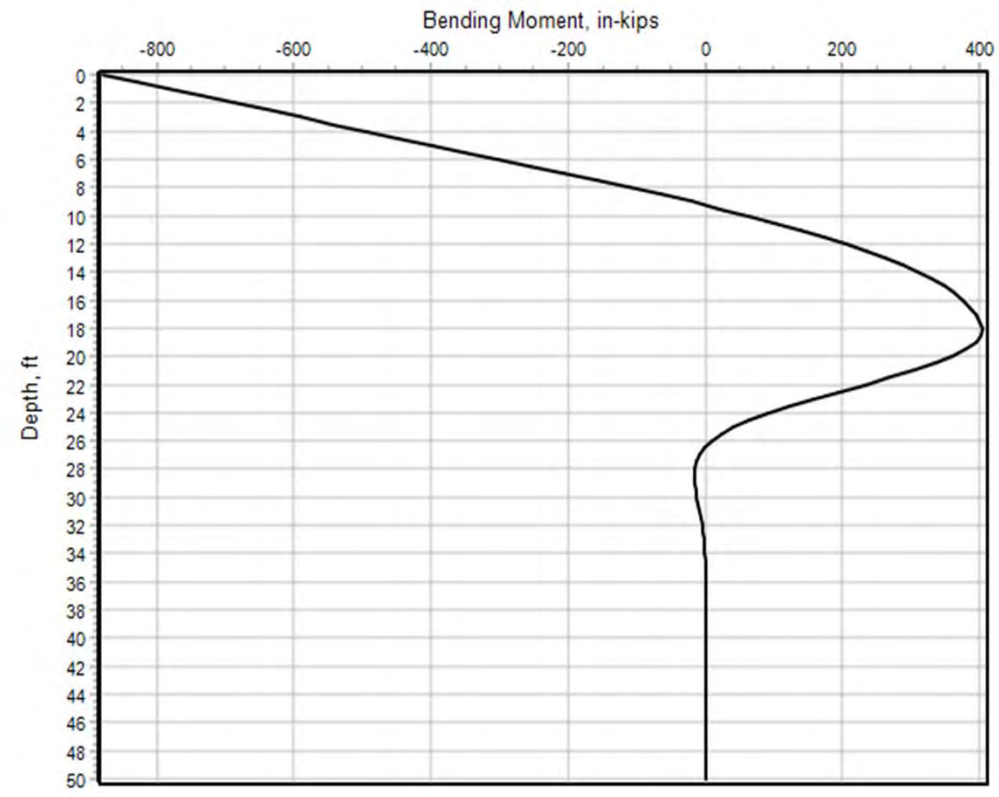
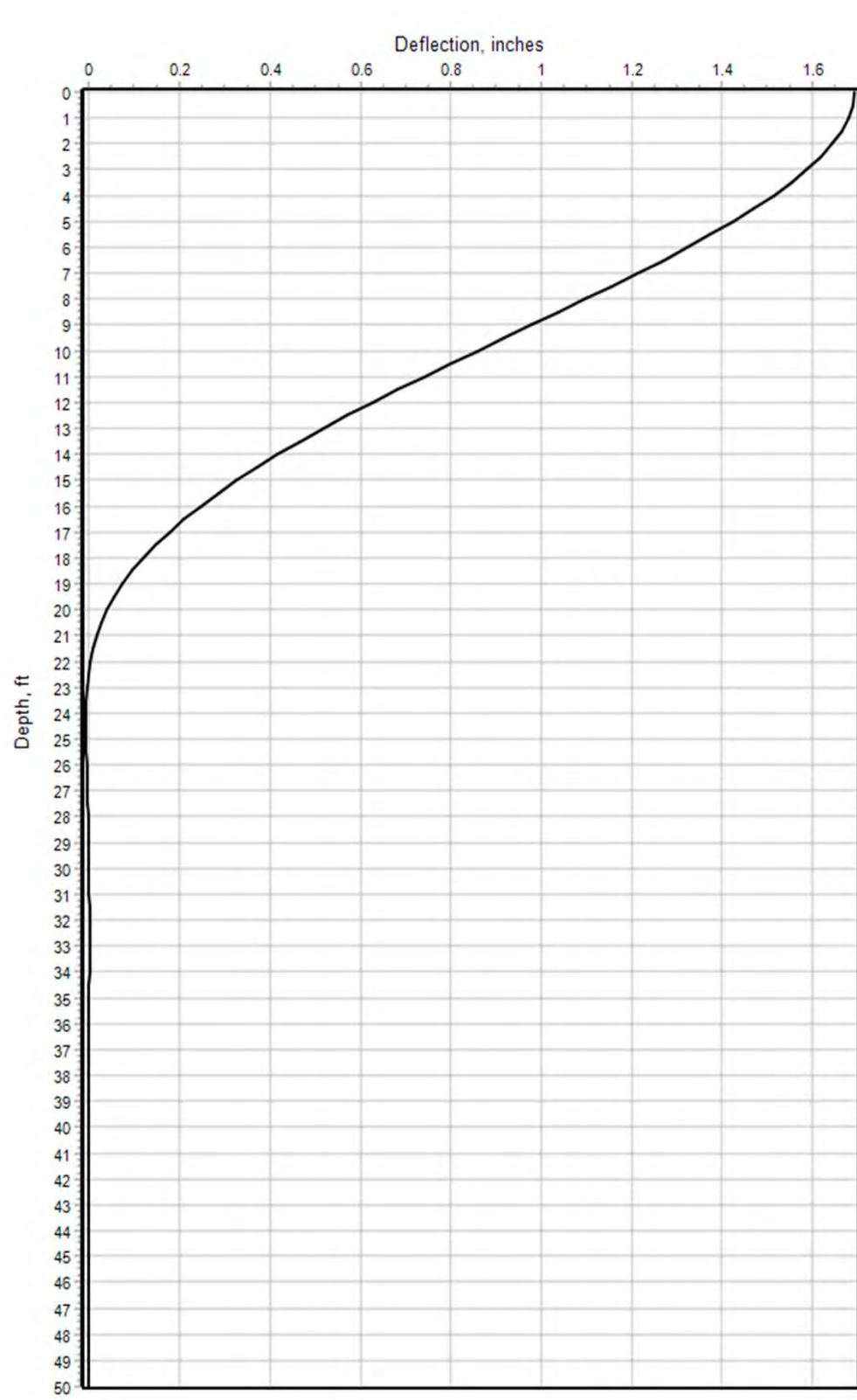
Maximum pile-head deflection = 1.768996535 inches
Maximum pile-head rotation   = -0.010579485 radians

```

The analysis ended normally.

Attachment 3 - Single Pile Analyses (Energy Absorption Capacity)

Timber (Energy)



Timber 16-inch.lp8o

LPILE for Windows, Version 2015-08.003

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:
\Aravinda\Aravinda_A\Other office Project\FRP\Analyses\LPILE\Energy\

Name of input data file:
Timber 16-inch.lp8d

Name of output report file:
Timber 16-inch.lp8o

Name of plot output file:
Timber 16-inch.lp8p

Name of runtime message file:
Timber 16-inch.lp8r

Date and Time of Analysis

Date: July 22, 2016 Time: 14:16:24

Problem Title

Fiberglass Composite Materials Specification Redevelopment

Job Number: Project No. 2014-15-02

Timber 16-inch.lp8o

Client: NJDOT

Engineer: Hardesty & Hanover, LLC

Description: Lateral Load Analyses

Program Options and Settings

Computational Options:

- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 100 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 100 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Total number of pile sections	=	1
Total length of pile	=	50.00 ft

Timber 16-inch.lp80

Depth of ground surface below top of pile = 8.00 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	16.00000000
2	50.0000000	16.00000000

Input Structural Properties:

Pile Section No. 1:

Section Type	=	Elastic Pile
Cross-sectional Shape	=	Circular Pile
Section Length	=	50.000000 ft
Top Width	=	16.000000 in
Bottom Width	=	16.000000 in
Top Area	=	201.061930 sq. in
Bottom Area	=	201.061930 sq. in
Moment of Inertia at Top	=	3217. in^4
Moment of Inertia at Bottom	=	3217. in^4
Elastic Modulus	=	1500000. lbs/in^2

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians
Pile Batter Angle	=	0.000 degrees
	=	0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	8.000000 ft
Distance from top of pile to bottom of layer	=	18.000000 ft
Effective unit weight at top of layer	=	32.486400 pcf
Effective unit weight at bottom of layer	=	32.486400 pcf
Undrained cohesion at top of layer	=	249.984000 psf
Undrained cohesion at bottom of layer	=	249.984000 psf
Epsilon-50 at top of layer	=	0.020000
Epsilon-50 at bottom of layer	=	0.020000

Timber 16-inch.lp80

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	18.000000	ft
Distance from top of pile to bottom of layer	=	66.000000	ft
Effective unit weight at top of layer	=	57.024000	pcf
Effective unit weight at bottom of layer	=	57.024000	pcf
Friction angle at top of layer	=	36.000000	deg.
Friction angle at bottom of layer	=	36.000000	deg.
Subgrade k at top of layer	=	100.000000	pci
Subgrade k at bottom of layer	=	100.000000	pci

(Depth of lowest soil layer extends 16.00 ft below pile tip)

Summary of Input Soil Properties

Layer E50 Layer or Num. krm	Soil Type Name kpy (p-y Curve Type) pci	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.
1	Soft	8.0000	32.4864	249.9840	--
0.02000	--				
	Clay	18.0000	32.4864	249.9840	--
0.02000	--				
2	Sand	18.0000	57.0240	--	36.0000
--	100.0000				
	(Reese, et al.)	66.0000	57.0240	--	36.0000
--	100.0000				

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition 1	Condition 2	Axial Thrust Force, lbs
1	2	V = 8000. lbs	S = 0.0000 in/in	0.0000000
No				

V = perpendicular shear force applied to pile head
M = bending moment applied to pile head

Timber 16-inch.lp80

y = lateral deflection relative to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading.

Axial thrust is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Moment-curvature properties were derived from elastic section properties

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Pile-head Rotation (Loading Type 2)

Shear force at pile head = 8000.0 lbs
Rotation of pile head = 0.000E+00 radians
Axial load at pile head = 0.0 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth Res. X feet lb/inch	Soil Spr. y inches lb/inch	Distrib. Lat. Load in-lbs lb/inch	Bending Moment in-lbs lb/inch	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil p
0.00	1.6928	-878842.	8000.	0.00	2186.	4.83E+09		
0.00	0.00	0.00	8000.	-0.00106	2066.	4.83E+09		
0.5000	1.6895	-830842.	8000.	-0.00207	1947.	4.83E+09		
0.00	0.00	0.00	8000.	-0.00301	1827.	4.83E+09		
1.0000	1.6800	-782842.	8000.	-0.00389	1708.	4.83E+09		
0.00	0.00	0.00	8000.	-0.00472	1589.	4.83E+09		
1.5000	1.6647	-734842.	8000.	-0.00548	1469.	4.83E+09		
0.00	0.00	0.00	8000.	-0.00619	1350.	4.83E+09		
2.0000	1.6439	-686842.	8000.	-0.00683	1231.	4.83E+09		
0.00	0.00	0.00	8000.					
2.5000	1.6180	-638842.	8000.					
0.00	0.00	0.00	8000.					
3.0000	1.5873	-590842.	8000.					
0.00	0.00	0.00	8000.					
3.5000	1.5522	-542842.	8000.					
0.00	0.00	0.00	8000.					
4.0000	1.5131	-494842.	8000.					
0.00	0.00	0.00						

			Timber 16-inch.lp8o				
4.5000	1.4702	-446842.	8000.	-0.00742	1111.	4.83E+09	
0.00	0.00	0.00					
5.0000	1.4240	-398842.	8000.	-0.00794	991.8385	4.83E+09	
0.00	0.00	0.00					
5.5000	1.3749	-350842.	8000.	-0.00841	872.4723	4.83E+09	
0.00	0.00	0.00					
6.0000	1.3231	-302842.	8000.	-0.00882	753.1061	4.83E+09	
0.00	0.00	0.00					
6.5000	1.2691	-254842.	8000.	-0.00916	633.7399	4.83E+09	
0.00	0.00	0.00					
7.0000	1.2132	-206842.	8000.	-0.00945	514.3737	4.83E+09	
0.00	0.00	0.00					
7.5000	1.1557	-158842.	8000.	-0.00968	395.0075	4.83E+09	
0.00	0.00	0.00					
8.0000	1.0971	-110842.	7861.	-0.00984	275.6413	4.83E+09	
-46.2888	253.1604	0.00					
8.5000	1.0376	-64508.	7574.	-0.00995	160.4190	4.83E+09	
-49.2605	284.8578	0.00					
9.0000	0.9776	-19948.	7271.	-0.01001	49.6069	4.83E+09	
-52.0415	319.3973	0.00					
9.5000	0.9175	22739.	6951.	-0.01000	56.5463	4.83E+09	
-54.6225	357.2014	0.00					
10.0000	0.8576	63459.	6616.	-0.00995	157.8095	4.83E+09	
-56.9947	398.7657	0.00					
10.5000	0.7981	102127.	6267.	-0.00985	253.9702	4.83E+09	
-59.1492	444.6759	0.00					
11.0000	0.7394	138667.	5907.	-0.00970	344.8355	4.83E+09	
-61.0774	495.6287	0.00					
11.5000	0.6817	173007.	5535.	-0.00950	430.2330	4.83E+09	
-62.7706	552.4592	0.00					
12.0000	0.6253	205088.	5154.	-0.00927	510.0109	4.83E+09	
-64.2201	616.1771	0.00					
12.5000	0.5705	234856.	4765.	-0.00900	584.0396	4.83E+09	
-65.4174	688.0127	0.00					
13.0000	0.5174	262270.	4370.	-0.00869	652.2118	4.83E+09	
-66.3537	769.4796	0.00					
13.5000	0.4662	287295.	3970.	-0.00835	714.4437	4.83E+09	
-67.0201	862.4578	0.00					
14.0000	0.4173	309907.	3566.	-0.00797	770.6756	4.83E+09	
-67.4074	969.3081	0.00					
14.5000	0.3706	330093.	3162.	-0.00758	820.8729	4.83E+09	
-67.5063	1093.	0.00					
15.0000	0.3263	347848.	2757.	-0.00715	865.0267	4.83E+09	
-67.3068	1237.	0.00					
15.5000	0.2847	363180.	2355.	-0.00671	903.1549	4.83E+09	
-66.7986	1408.	0.00					
16.0000	0.2458	376108.	1957.	-0.00625	935.3030	4.83E+09	
-65.9707	1610.	0.00					
16.5000	0.2097	386660.	1564.	-0.00578	961.5451	4.83E+09	
-64.8111	1855.	0.00					
17.0000	0.1764	394880.	1180.	-0.00529	981.9850	4.83E+09	
-63.3074	2153.	0.00					
17.5000	0.1462	400820.	805.7127	-0.00480	996.7573	4.83E+09	
-61.4459	2522.	0.00					
18.0000	0.1189	404548.	126.3152	-0.00430	1006.	4.83E+09	
-165.0200	8329.	0.00					
18.5000	0.09460	402336.	-874.1341	-0.00380	1001.	4.83E+09	
-168.4631	10685.	0.00					
19.0000	0.07333	394059.	-1881.	-0.00330	979.9432	4.83E+09	
-167.3000	13690.	0.00					
19.5000	0.05499	379759.	-2867.	-0.00282	944.3822	4.83E+09	
-161.2233	17590.	0.00					
20.0000	0.03949	359655.	-3801.	-0.00236	894.3877	4.83E+09	

Timber 16-inch.lp80

-150.0049	22790.	0.00				
20.5000	0.02668	334150.	-4651.	-0.00193	830.9640	4.83E+09
-133.4300	30011.	0.00				
21.0000	0.01635	303843.	-5385.	-0.00153	755.5951	4.83E+09
-111.1217	40773.	0.00				
21.5000	0.00829	269535.	-5964.	-0.00118	670.2781	4.83E+09
-81.9785	59298.	0.00				
22.0000	0.00225	232276.	-6300.	-8.63E-04	577.6220	4.83E+09
-30.0416	80163.	0.00				
22.5000	-0.00206	193935.	-6304.	-5.98E-04	482.2763	4.83E+09
28.8277	83763.	0.00				
23.0000	-0.00493	156632.	-6002.	-3.80E-04	389.5115	4.83E+09
71.8066	87363.	0.00				
23.5000	-0.00663	121914.	-5485.	-2.07E-04	303.1752	4.83E+09
100.5101	90963.	0.00				
24.0000	-0.00742	90814.	-4833.	-7.50E-05	225.8370	4.83E+09
116.9167	94563.	0.00				
24.5000	-0.00753	63924.	-4112.	2.12E-05	158.9657	4.83E+09
123.1854	98163.	0.00				
25.0000	-0.00716	41468.	-3378.	8.67E-05	103.1225	4.83E+09
121.4989	101763.	0.00				
25.5000	-0.00649	23386.	-2672.	1.27E-04	58.1565	4.83E+09
113.9409	105363.	0.00				
26.0000	-0.00564	9406.	-2023.	1.47E-04	23.3910	4.83E+09
102.4042	108963.	0.00				
26.5000	-0.00472	-887.4122	-1450.	1.53E-04	2.2068	4.83E+09
88.5315	112563.	0.00				
27.0000	-0.00381	-7994.	-963.3421	1.47E-04	19.8789	4.83E+09
73.6832	116163.	0.00				
27.5000	-0.00295	-12448.	-565.5042	1.35E-04	30.9544	4.83E+09
58.9294	119763.	0.00				
28.0000	-0.00219	-14780.	-253.5337	1.18E-04	36.7544	4.83E+09
45.0607	123363.	0.00				
28.5000	-0.00154	-15490.	-20.5144	9.88E-05	38.5203	4.83E+09
32.6124	126963.	0.00				
29.0000	-0.00101	-15026.	143.0174	7.98E-05	37.3666	4.83E+09
21.8982	130563.	0.00				
29.5000	-5.84E-04	-13774.	247.8585	6.19E-05	34.2524	4.83E+09
13.0488	134163.	0.00				
30.0000	-2.64E-04	-12052.	305.1591	4.58E-05	29.9701	4.83E+09
6.0514	137763.	0.00				
30.5000	-3.35E-05	-10112.	325.6783	3.21E-05	25.1460	4.83E+09
0.7883	141363.	0.00				
31.0000	1.21E-04	-8144.	319.2587	2.07E-05	20.2513	4.83E+09
-2.9282	144963.	0.00				
31.5000	2.15E-04	-6281.	294.4957	1.17E-05	15.6188	4.83E+09
-5.3261	148563.	0.00				
32.0000	2.62E-04	-4610.	258.5723	4.98E-06	11.4631	4.83E+09
-6.6484	152163.	0.00				
32.5000	2.75E-04	-3178.	217.2244	1.34E-07	7.9026	4.83E+09
-7.1343	155763.	0.00				
33.0000	2.64E-04	-2003.	174.8042	-3.09E-06	4.9808	4.83E+09
-7.0058	159363.	0.00				
33.5000	2.38E-04	-1080.	134.4126	-5.00E-06	2.6862	4.83E+09
-6.4581	162963.	0.00				
34.0000	2.04E-04	-389.9512	98.0717	-5.92E-06	0.9697	4.83E+09
-5.6556	166563.	0.00				
34.5000	1.67E-04	96.6790	66.9161	-6.10E-06	0.2404	4.83E+09
-4.7296	170163.	0.00				
35.0000	1.31E-04	413.0422	41.3864	-5.78E-06	1.0272	4.83E+09
-3.7803	173763.	0.00				
35.5000	9.74E-05	593.3159	21.4101	-5.16E-06	1.4755	4.83E+09
-2.8785	177363.	0.00				

			Timber 16-inch.lp80				
36.0000	6.86E-05	669.9639	6.5633	-4.37E-06	1.6661	4.83E+09	
-2.0704	180963.	0.00					
36.5000	4.49E-05	672.0761	-3.7929	-3.54E-06	1.6713	4.83E+09	
-1.3817	184563.	0.00					
37.0000	2.62E-05	624.4488	-10.4028	-2.73E-06	1.5529	4.83E+09	
-0.8216	188163.	0.00					
37.5000	1.21E-05	547.2426	-14.0318	-2.00E-06	1.3609	4.83E+09	
-0.3880	191763.	0.00					
38.0000	2.17E-06	456.0669	-15.4075	-1.38E-06	1.1341	4.83E+09	
-0.07052	195363.	0.00					
38.5000	-4.41E-06	362.3526	-15.1806	-8.70E-07	0.9011	4.83E+09	
0.1462	198963.	0.00					
39.0000	-8.28E-06	273.8999	-13.9038	-4.75E-07	0.6811	4.83E+09	
0.2794	202563.	0.00					
39.5000	-1.01E-05	195.5073	-12.0239	-1.83E-07	0.4862	4.83E+09	
0.3472	206163.	0.00					
40.0000	-1.05E-05	129.6131	-9.8841	1.93E-08	0.3223	4.83E+09	
0.3661	209763.	0.00					
40.5000	-9.87E-06	76.8985	-7.7325	1.48E-07	0.1912	4.83E+09	
0.3511	213363.	0.00					
41.0000	-4.70E-06	36.8230	-5.7354	2.18E-07	0.09157	4.83E+09	
0.3146	216963.	0.00					
41.5000	-7.25E-06	8.0732	-3.9918	2.46E-07	0.02008	4.83E+09	
0.2666	220563.	0.00					
42.0000	-5.75E-06	-11.0784	-2.5480	2.44E-07	0.02755	4.83E+09	
0.2146	224163.	0.00					
42.5000	-4.32E-06	-22.5029	-1.4121	2.24E-07	0.05596	4.83E+09	
0.1640	227763.	0.00					
43.0000	-3.06E-06	-28.0236	-0.5658	1.92E-07	0.06969	4.83E+09	
0.1181	231363.	0.00					
43.5000	-2.02E-06	-29.2922	0.02529	1.56E-07	0.07284	4.83E+09	
0.07891	234963.	0.00					
44.0000	-1.19E-06	-27.7200	0.4034	1.21E-07	0.06893	4.83E+09	
0.04714	238563.	0.00					
44.5000	-5.63E-07	-24.4510	0.6130	8.86E-08	0.06080	4.83E+09	
0.02271	242163.	0.00					
45.0000	-1.23E-07	-20.3642	0.6962	6.07E-08	0.05064	4.83E+09	
0.00502	245763.	0.00					
45.5000	1.66E-07	-16.0969	0.6906	3.81E-08	0.04003	4.83E+09	
-0.00689	249363.	0.00					
46.0000	3.34E-07	-12.0776	0.6276	2.05E-08	0.03003	4.83E+09	
-0.01409	252963.	0.00					
46.5000	4.12E-07	-8.5656	0.5324	7.70E-09	0.02130	4.83E+09	
-0.01763	256563.	0.00					
47.0000	4.27E-07	-5.6882	0.4241	-1.16E-09	0.01415	4.83E+09	
-0.01850	260163.	0.00					
47.5000	3.98E-07	-3.4768	0.3160	-6.86E-09	0.00865	4.83E+09	
-0.01752	263763.	0.00					
48.0000	3.44E-07	-1.8959	0.2174	-1.02E-08	0.00471	4.83E+09	
-0.01534	267363.	0.00					
48.5000	2.76E-07	-0.8675	0.1340	-1.19E-08	0.00216	4.83E+09	
-0.01247	270963.	0.00					
49.0000	2.01E-07	-0.2879	0.06895	-1.26E-08	7.16E-04	4.83E+09	
-0.00922	274563.	0.00					
49.5000	1.25E-07	-0.04003	0.02399	-1.28E-08	9.95E-05	4.83E+09	
-0.00577	278163.	0.00					
50.0000	4.74E-08	0.00	0.00	-1.29E-08	0.00	4.83E+09	
-0.00222	140881.	0.00					

* The above values of total stress are combined axial and bending stresses.

Timber 16-inch.lp80

Pile-head deflection = 1.69278728 inches
 Computed slope at pile head = 0.000000 radians
 Maximum bending moment = -878842. inch-lbs
 Maximum shear force = 8000. lbs
 Depth of maximum bending moment = 0.000000 feet below pile head
 Depth of maximum shear force = 0.50000000 feet below pile head
 Number of iterations = 18
 Number of zero deflection points = 5

 Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

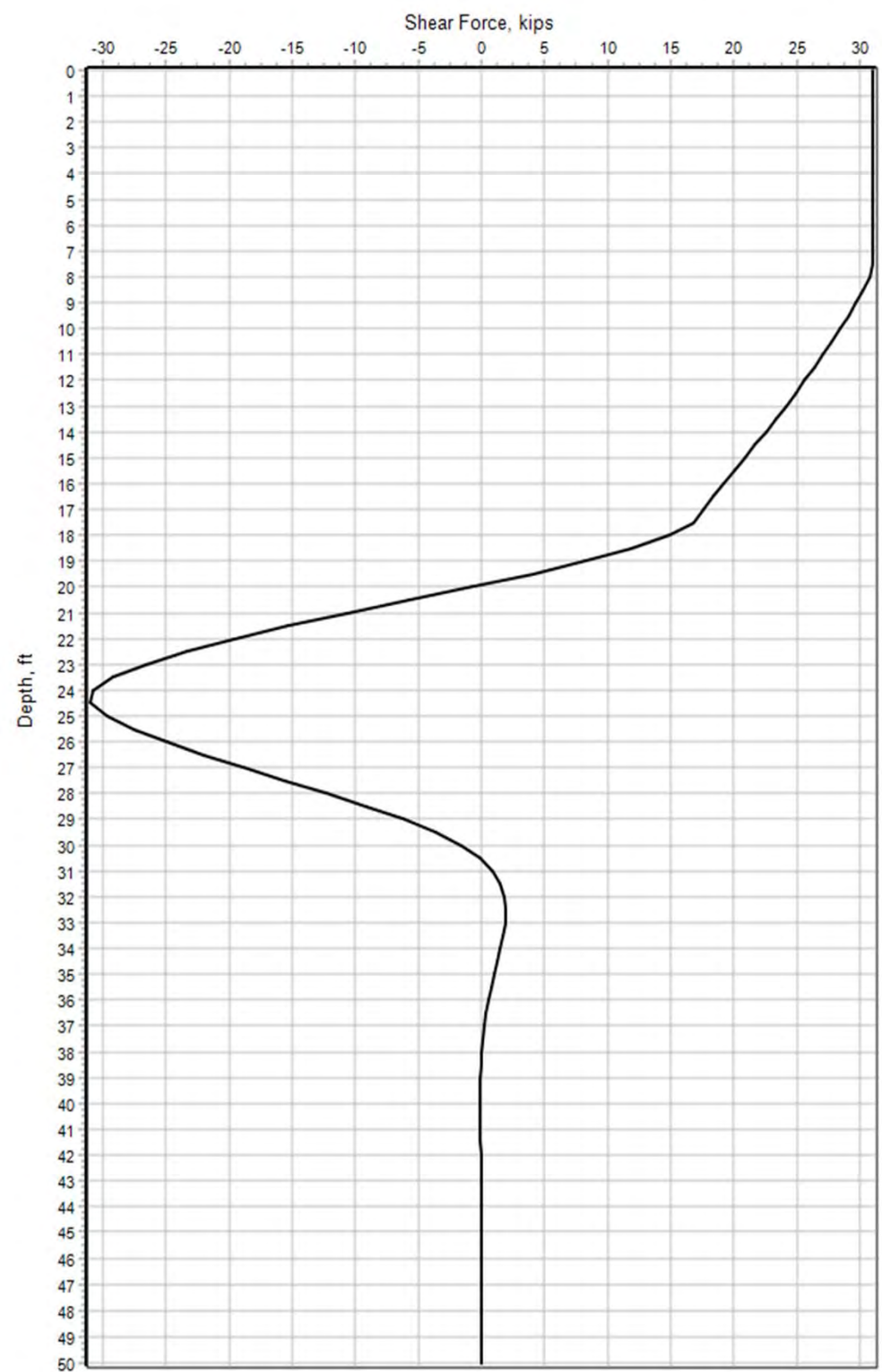
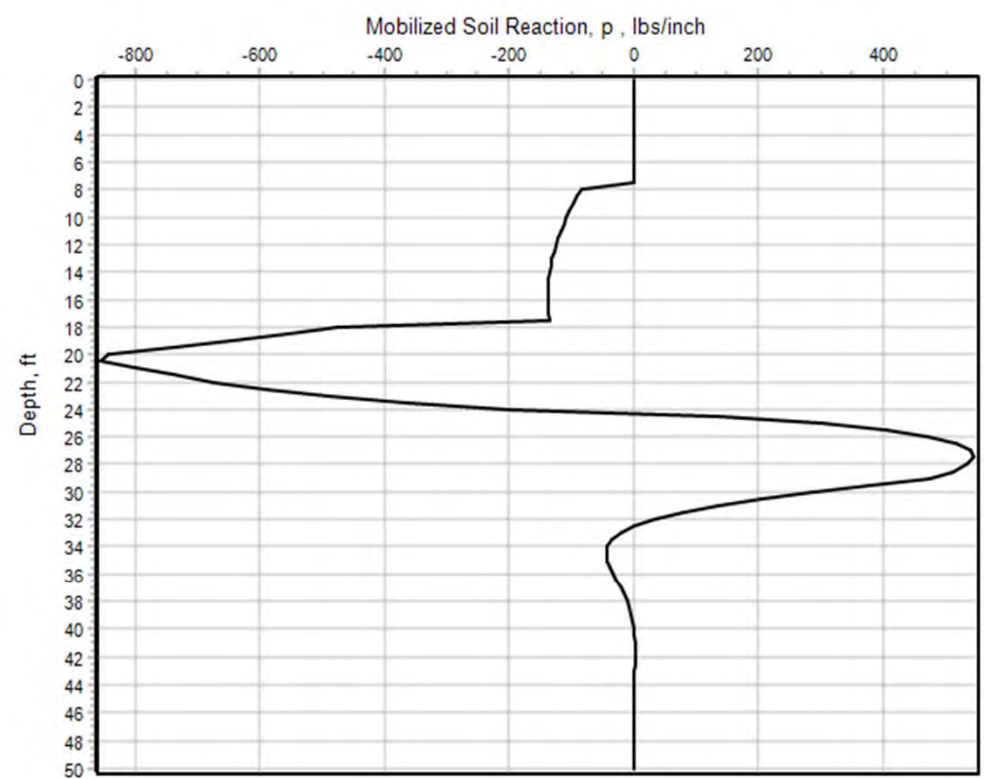
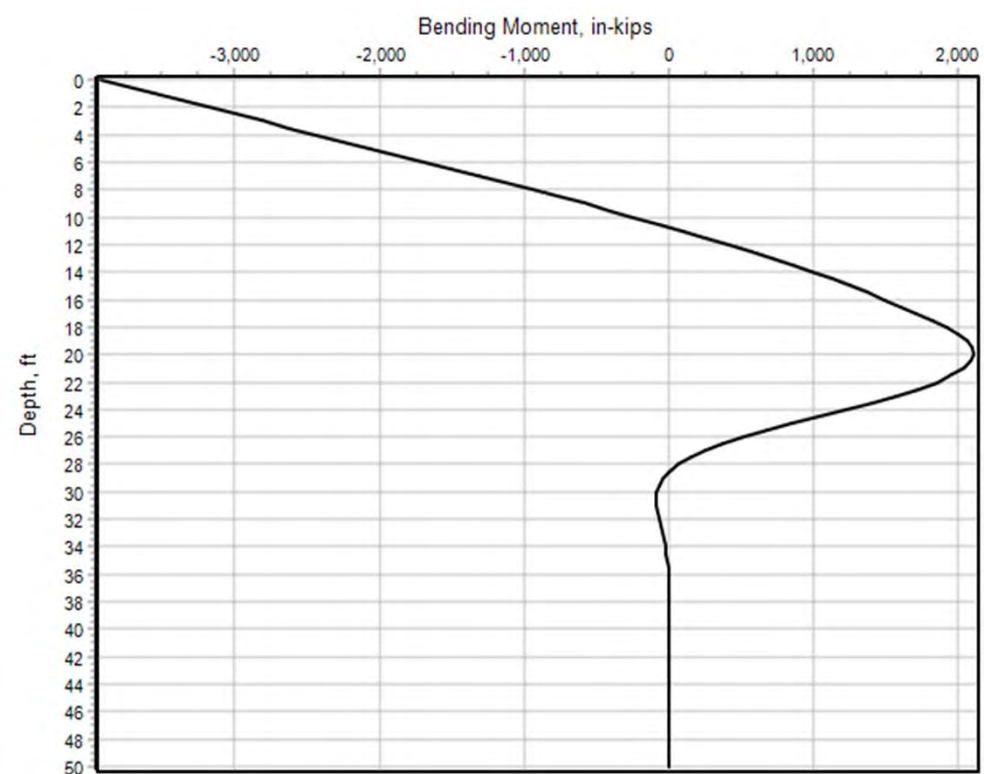
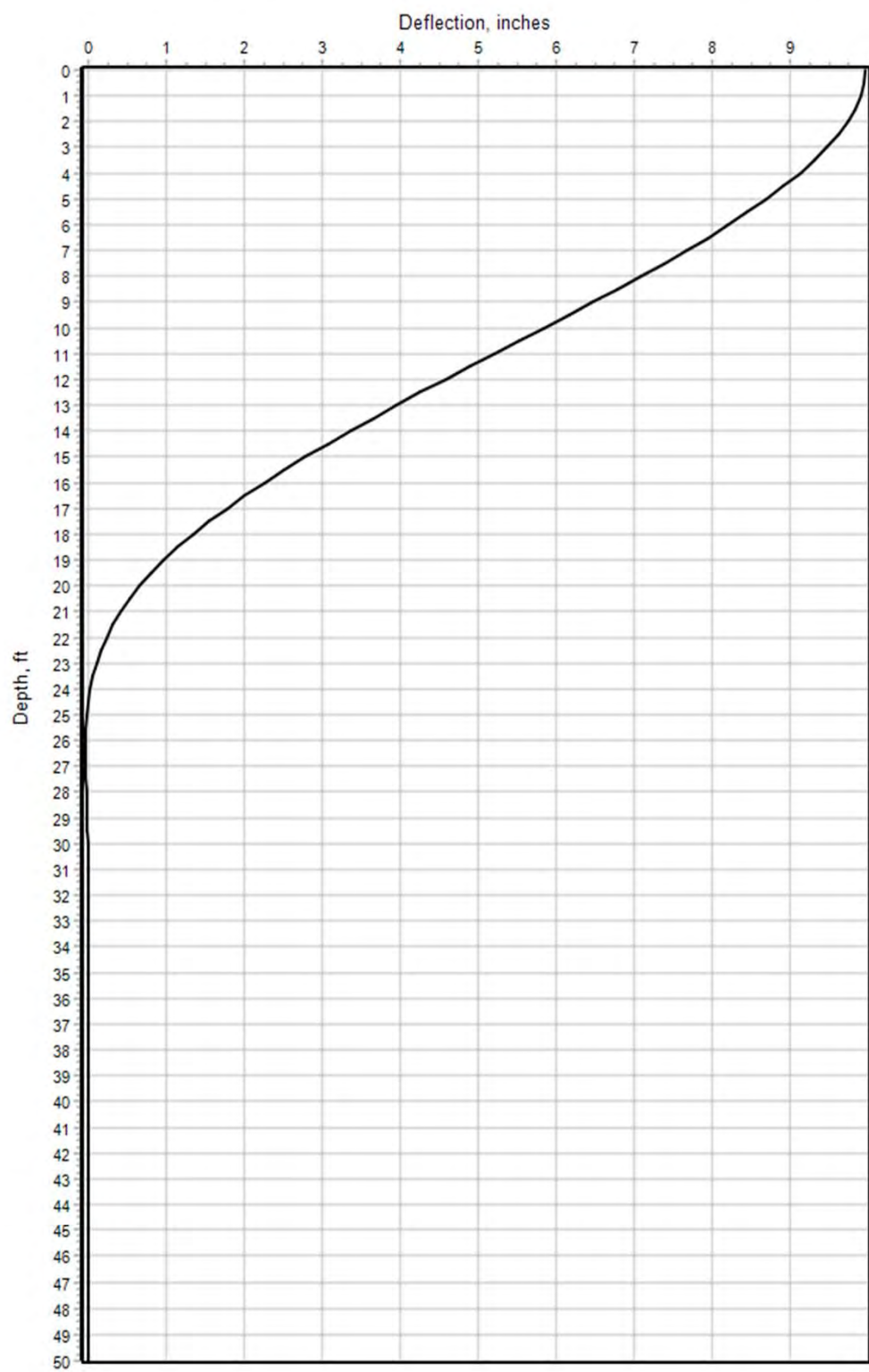
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in lbs
1	V, lb	8000.	S, rad	0.00	0.00	1.6928	0.00
		-878842.					

Maximum pile-head deflection = 1.692787284 inches
 Maximum pile-head rotation = 0.0000000 radians

The analysis ended normally.

HarborPile (Energy)



Harbor 16-inch.lp8o

LPILE for Windows, Version 2015-08.003

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:
\Aravinda\Aravinda_A\Other office Project\FRP\Analyses\LPILE\Energy\

Name of input data file:
Harbor 16-inch.lp8d

Name of output report file:
Harbor 16-inch.lp8o

Name of plot output file:
Harbor 16-inch.lp8p

Name of runtime message file:
Harbor 16-inch.lp8r

Date and Time of Analysis

Date: July 22, 2016 Time: 14:24:10

Problem Title

Fiberglass Composite Materials Specification Redevelopment

Job Number: Project No. 2014-15-02

Harbor 16-inch.1p8o

Client: NJDOT

Engineer: Hardesty & Hanover, LLC

Description: Lateral Load Analyses

Program Options and Settings

Computational Options:

- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 100 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 100 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Total number of pile sections	=	1
Total length of pile	=	50.00 ft

Harbor 16-inch.1p8o

Depth of ground surface below top of pile = 8.00 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	16.00000000
2	50.0000000	16.00000000

Input Structural Properties:

Pile Section No. 1:

Section Type	=	Elastic Pile
Cross-sectional Shape	=	Circular Pipe
Section Length	=	50.000000 ft
Top Width	=	16.000000 in
Bottom Width	=	16.000000 in
Wall Thickness at Top	=	1.125000 in
Wall Thickness at Bottom	=	1.125000 in
Top Area	=	52.572590 sq. in
Bottom Area	=	52.572590 sq. in
Moment of Inertia at Top	=	1462. in^4
Moment of Inertia at Bottom	=	1462. in^4
Elastic Modulus	=	3210000. lbs/in^2

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians
Pile Batter Angle	=	0.000 degrees
	=	0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	8.000000 ft
Distance from top of pile to bottom of layer	=	18.000000 ft
Effective unit weight at top of layer	=	32.486400 pcf
Effective unit weight at bottom of layer	=	32.486400 pcf
Undrained cohesion at top of layer	=	249.984000 psf
Undrained cohesion at bottom of layer	=	249.984000 psf
Epsilon-50 at top of layer	=	0.020000

Harbor 16-inch.1p80
Epsilon-50 at bottom of layer = 0.020000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 18.000000 ft
Distance from top of pile to bottom of layer = 66.000000 ft
Effective unit weight at top of layer = 57.024000 pcf
Effective unit weight at bottom of layer = 57.024000 pcf
Friction angle at top of layer = 36.000000 deg.
Friction angle at bottom of layer = 36.000000 deg.
Subgrade k at top of layer = 100.000000 pci
Subgrade k at bottom of layer = 100.000000 pci

(Depth of lowest soil layer extends 16.00 ft below pile tip)

Summary of Input Soil Properties

Layer E50 Layer or Num. krm	Soil Type Name (p-y Curve Type) kpy pci	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.
1	Soft	8.0000	32.4864	249.9840	--
0.02000	--				
	Clay	18.0000	32.4864	249.9840	--
0.02000	--				
2	Sand	18.0000	57.0240	--	36.0000
--	100.0000				
--	(Reese, et al.)	66.0000	57.0240	--	36.0000
--	100.0000				

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No. vs. Pile	Load Top y Type Length	Condition 1	Condition 2	Axial Thrust Force, lbs
1	2	V = 31000. lbs	S = 0.0000 in/in	0.0000000
No				

Harbor 16-inch.1p80

V = perpendicular shear force applied to pile head

M = bending moment applied to pile head

y = lateral deflection relative to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading.

Axial thrust is assumed to be acting axially for all pile batter angles.

 Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

 Moment-curvature properties were derived from elastic section properties

 Computed Values of Pile Loading and Deflection
 for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Pile-head Rotation (Loading Type 2)

Shear force at pile head = 31000.0 lbs
 Rotation of pile head = 0.000E+00 radians
 Axial load at pile head = 0.0 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth Res.	Soil X	Deflect. Spr.	Bending Distrib.	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
	Es*h	y	Moment					
feet	inches	Lat. Load	in-lbs	lbs	radians	psi*	in-lb^2	
lb/inch	lb/inch	lb/inch	lb/inch					
0.00	0.00	9.9600	-3923715.	31000.	0.00	21465.	4.69E+09	
0.00	0.00	0.00	0.00					
0.5000	0.00	9.9450	-3737715.	31000.	-0.00490	20447.	4.69E+09	
0.00	0.00	0.00	0.00					
1.0000	0.00	9.9013	-3551715.	31000.	-0.00955	19430.	4.69E+09	
0.00	0.00	0.00	0.00					
1.5000	0.00	9.8303	-3365715.	31000.	-0.01398	18412.	4.69E+09	
0.00	0.00	0.00	0.00					
2.0000	0.00	9.7336	-3179715.	31000.	-0.01816	17395.	4.69E+09	
0.00	0.00	0.00	0.00					
2.5000	0.00	9.6124	-2993715.	31000.	-0.02210	16377.	4.69E+09	
0.00	0.00	0.00	0.00					
3.0000	0.00	9.4683	-2807715.	31000.	-0.02581	15360.	4.69E+09	
0.00	0.00	0.00	0.00					
3.5000	0.00	9.3027	-2621715.	31000.	-0.02928	14342.	4.69E+09	
0.00	0.00	0.00	0.00					

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4.0000	9.1169	-2435715.	31000.	-0.03251	13325.	4.69E+09
0.00	0.00	0.00				
4.5000	8.9125	-2249715.	31000.	-0.03551	12307.	4.69E+09
0.00	0.00	0.00				
5.0000	8.6909	-2063715.	31000.	-0.03826	11290.	4.69E+09
0.00	0.00	0.00				
5.5000	8.4534	-1877715.	31000.	-0.04078	10272.	4.69E+09
0.00	0.00	0.00				
6.0000	8.2015	-1691715.	31000.	-0.04306	9255.	4.69E+09
0.00	0.00	0.00				
6.5000	7.9366	-1505715.	31000.	-0.04511	8237.	4.69E+09
0.00	0.00	0.00				
7.0000	7.6602	-1319715.	31000.	-0.04691	7220.	4.69E+09
0.00	0.00	0.00				
7.5000	7.3736	-1133715.	31000.	-0.04848	6202.	4.69E+09
0.00	0.00	0.00				
8.0000	7.0784	-947715.	30750.	-0.04981	5185.	4.69E+09
-83.3281	70.6332	0.00				
8.5000	6.7759	-764714.	30229.	-0.05091	4183.	4.69E+09
-90.3409	79.9964	0.00				
9.0000	6.4675	-584967.	29666.	-0.05177	3200.	4.69E+09
-97.3537	90.3165	0.00				
9.5000	6.1546	-408723.	29065.	-0.05240	2236.	4.69E+09
-103.0154	100.4269	0.00				
10.0000	5.8387	-236189.	28432.	-0.05282	1292.	4.69E+09
-108.0228	111.0078	0.00				
10.5000	5.5209	-67543.	27770.	-0.05301	369.4955	4.69E+09
-112.7020	122.4831	0.00				
11.0000	5.2025	97046.	27080.	-0.05299	530.8914	4.69E+09
-117.0378	134.9778	0.00				
11.5000	4.8850	257421.	26366.	-0.05276	1408.	4.69E+09
-121.0151	148.6380	0.00				
12.0000	4.5694	413439.	25629.	-0.05234	2262.	4.69E+09
-124.6186	163.6360	0.00				
12.5000	4.2569	564972.	24872.	-0.05171	3091.	4.69E+09
-127.8326	180.1758	0.00				
13.0000	3.9488	711902.	24096.	-0.05089	3894.	4.69E+09
-130.6413	198.5011	0.00				
13.5000	3.6462	854130.	23305.	-0.04989	4673.	4.69E+09
-133.0284	218.9050	0.00				
14.0000	3.3501	991568.	22501.	-0.04871	5424.	4.69E+09
-134.9772	241.7425	0.00				
14.5000	3.0616	1124147.	21687.	-0.04736	6150.	4.69E+09
-136.4706	267.4475	0.00				
15.0000	2.7818	1251813.	20865.	-0.04584	6848.	4.69E+09
-137.4910	296.5552	0.00				
15.5000	2.5115	1374530.	20039.	-0.04417	7519.	4.69E+09
-138.0201	329.7315	0.00				
16.0000	2.2518	1492277.	19211.	-0.04233	8164.	4.69E+09
-138.0390	367.8134	0.00				
16.5000	2.0035	1605056.	18384.	-0.04035	8781.	4.69E+09
-137.5287	411.8648	0.00				
17.0000	1.7675	1712883.	17562.	-0.03823	9370.	4.69E+09
-136.4693	463.2530	0.00				
17.5000	1.5447	1815797.	16748.	-0.03598	9933.	4.69E+09
-134.8413	523.7563	0.00				
18.0000	1.3358	1913858.	14919.	-0.03359	10470.	4.69E+09
-474.6626	2132.	0.00				
18.5000	1.1416	1994830.	11825.	-0.03110	10913.	4.69E+09
-556.7573	2926.	0.00				
19.0000	0.9626	2055759.	8218.	-0.02851	11246.	4.69E+09
-645.5338	4024.	0.00				
19.5000	0.7995	2093449.	4059.	-0.02586	11452.	4.69E+09

Harbor 16-inch.lp8o

-741.0052	5561.	0.00				
20.0000	0.6524	2104462.	-693.9426	-0.02317	11513.	4.69E+09
-843.1823	7755.	0.00				
20.5000	0.5214	2085121.	-5789.	-0.02050	11407.	4.69E+09
-855.1178	9840.	0.00				
21.0000	0.4064	2034996.	-10754.	-0.01786	11133.	4.69E+09
-799.9245	11810.	0.00				
21.5000	0.3070	1956074.	-15369.	-0.01531	10701.	4.69E+09
-738.3878	14429.	0.00				
22.0000	0.2227	1850569.	-19599.	-0.01288	10124.	4.69E+09
-671.6586	18099.	0.00				
22.5000	0.1525	1720885.	-23379.	-0.01060	9414.	4.69E+09
-588.4851	23156.	0.00				
23.0000	0.09550	1570016.	-26603.	-0.00849	8589.	4.69E+09
-486.1514	30544.	0.00				
23.5000	0.05055	1401645.	-29145.	-0.00659	7668.	4.69E+09
-361.0979	42857.	0.00				
24.0000	0.01636	1220274.	-30823.	-0.00492	6676.	4.69E+09
-198.0981	72655.	0.00				
24.5000	-0.00848	1031772.	-31001.	-0.00348	5644.	4.69E+09
138.6823	98163.	0.00				
25.0000	-0.02540	848262.	-29673.	-0.00228	4640.	4.69E+09
304.0620	71825.	0.00				
25.5000	-0.03582	675699.	-27548.	-0.00130	3696.	4.69E+09
404.2908	67724.	0.00				
26.0000	-0.04105	517690.	-24917.	-5.42E-04	2832.	4.69E+09
472.6095	69071.	0.00				
26.5000	-0.04232	376695.	-21949.	2.97E-05	2061.	4.69E+09
516.6437	73248.	0.00				
27.0000	-0.04070	254300.	-18779.	4.33E-04	1391.	4.69E+09
540.1300	79631.	0.00				
27.5000	-0.03712	151349.	-15522.	6.92E-04	827.9574	4.69E+09
545.6278	88183.	0.00				
28.0000	-0.03239	68040.	-12279.	8.32E-04	372.2159	4.69E+09
535.3434	99166.	0.00				
28.5000	-0.02714	4004.	-9138.	8.78E-04	21.9045	4.69E+09
511.4289	113085.	0.00				
29.0000	-0.02185	-41621.	-6178.	8.54E-04	227.6866	4.69E+09
475.4433	130563.	0.00				
29.5000	-0.01688	-70129.	-3619.	7.83E-04	383.6442	4.69E+09
377.4870	134163.	0.00				
30.0000	-0.01245	-85048.	-1629.	6.84E-04	465.2599	4.69E+09
285.9188	137763.	0.00				
30.5000	-0.00868	-89674.	-157.8035	5.72E-04	490.5669	4.69E+09
204.4025	141363.	0.00				
31.0000	-0.00559	-86942.	860.3111	4.59E-04	475.6191	4.69E+09
134.9691	144963.	0.00				
31.5000	-0.00316	-79351.	1500.	3.53E-04	434.0906	4.69E+09
78.3377	148563.	0.00				
32.0000	-0.00135	-68939.	1838.	2.58E-04	377.1343	4.69E+09
34.2321	152163.	0.00				
32.5000	-6.45E-05	-57295.	1946.	1.78E-04	313.4364	4.69E+09
1.6748	155763.	0.00				
33.0000	7.81E-04	-45591.	1888.	1.12E-04	249.4087	4.69E+09
-20.7543	159363.	0.00				
33.5000	0.00128	-34634.	1722.	6.06E-05	189.4683	4.69E+09
-34.7022	162963.	0.00				
34.0000	0.00151	-24927.	1492.	2.25E-05	136.3621	4.69E+09
-41.8721	166563.	0.00				
34.5000	0.00155	-16726.	1235.	-4.11E-06	91.5022	4.69E+09
-43.8975	170163.	0.00				
35.0000	0.00146	-10106.	976.5633	-2.13E-05	55.2874	4.69E+09
-42.2553	173763.	0.00				

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35.5000	0.00129	-5008.	735.1508	-3.09E-05	27.3943	4.69E+09	
-38.2155	177363.	0.00					
36.0000	0.00109	-1285.	522.0504	-3.49E-05	7.0274	4.69E+09	
-32.8180	180963.	0.00					
36.5000	8.74E-04	1257.	342.9813	-3.50E-05	6.8764	4.69E+09	
-26.8717	184563.	0.00					
37.0000	6.69E-04	2831.	199.4550	-3.23E-05	15.4881	4.69E+09	
-20.9704	188163.	0.00					
37.5000	4.86E-04	3650.	89.9926	-2.82E-05	19.9699	4.69E+09	
-15.5171	191763.	0.00					
38.0000	3.30E-04	3911.	11.1747	-2.34E-05	21.3958	4.69E+09	
-10.7555	195363.	0.00					
38.5000	2.05E-04	3785.	-41.4989	-1.84E-05	20.7035	4.69E+09	
-6.8024	198963.	0.00					
39.0000	1.09E-04	3413.	-72.9424	-1.38E-05	18.6715	4.69E+09	
-3.6788	202563.	0.00					
39.5000	3.90E-05	2909.	-87.9965	-9.81E-06	15.9151	4.69E+09	
-1.3392	206163.	0.00					
40.0000	-8.70E-06	2357.	-91.1013	-6.44E-06	12.8949	4.69E+09	
0.3043	209763.	0.00					
40.5000	-3.83E-05	1816.	-86.1016	-3.77E-06	9.9346	4.69E+09	
1.3623	213363.	0.00					
41.0000	-5.40E-05	1324.	-76.1585	-1.77E-06	7.2426	4.69E+09	
1.9521	216963.	0.00					
41.5000	-5.95E-05	902.1233	-63.7394	-3.44E-07	4.9351	4.69E+09	
2.1876	220563.	0.00					
42.0000	-3.81E-05	559.0628	-50.6633	5.90E-07	3.0584	4.69E+09	
2.1712	224163.	0.00					
42.5000	-5.24E-05	294.1638	-38.1789	1.14E-06	1.6092	4.69E+09	
1.9903	227763.	0.00					
43.0000	-4.45E-05	100.9163	-27.0609	1.39E-06	0.5521	4.69E+09	
1.7157	231363.	0.00					
43.5000	-3.58E-05	-30.5669	-17.7103	1.43E-06	0.1672	4.69E+09	
1.4012	234963.	0.00					
44.0000	-2.73E-05	-111.6069	-10.2499	1.34E-06	0.6105	4.69E+09	
1.0856	238563.	0.00					
44.5000	-1.97E-05	-153.5657	-4.6101	1.17E-06	0.8401	4.69E+09	
0.7944	242163.	0.00					
45.0000	-1.32E-05	-166.9277	-0.6004	9.67E-07	0.9132	4.69E+09	
0.5422	245763.	0.00					
45.5000	-8.07E-06	-160.7702	2.0328	7.58E-07	0.8795	4.69E+09	
0.3355	249363.	0.00					
46.0000	-4.14E-06	-142.5335	3.5634	5.64E-07	0.7797	4.69E+09	
0.1746	252963.	0.00					
46.5000	-1.30E-06	-118.0096	4.2547	3.98E-07	0.6456	4.69E+09	
0.05578	256563.	0.00					
47.0000	6.28E-07	-91.4776	4.3402	2.64E-07	0.5004	4.69E+09	
-0.02725	260163.	0.00					
47.5000	1.86E-06	-65.9266	4.0132	1.63E-07	0.3607	4.69E+09	
-0.08176	263763.	0.00					
48.0000	2.59E-06	-43.3190	3.4223	9.33E-08	0.2370	4.69E+09	
-0.1152	267363.	0.00					
48.5000	2.98E-06	-24.8591	2.6730	4.97E-08	0.1360	4.69E+09	
-0.1345	270963.	0.00					
49.0000	3.18E-06	-11.2427	1.8325	2.66E-08	0.06150	4.69E+09	
-0.1456	274563.	0.00					
49.5000	3.30E-06	-2.8685	0.9369	1.76E-08	0.01569	4.69E+09	
-0.1529	278163.	0.00					
50.0000	3.39E-06	0.00	0.00	1.58E-08	0.00	4.69E+09	
-0.1594	140881.	0.00					

* The above values of total stress are combined axial and bending stresses.

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Output Summary for Load Case No. 1:

Pile-head deflection = 9.96003362 inches
 Computed slope at pile head = 0.000000 radians
 Maximum bending moment = -3923715. inch-lbs
 Maximum shear force = -31001. lbs
 Depth of maximum bending moment = 0.000000 feet below pile head
 Depth of maximum shear force = 24.50000000 feet below pile head
 Number of iterations = 22
 Number of zero deflection points = 4

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

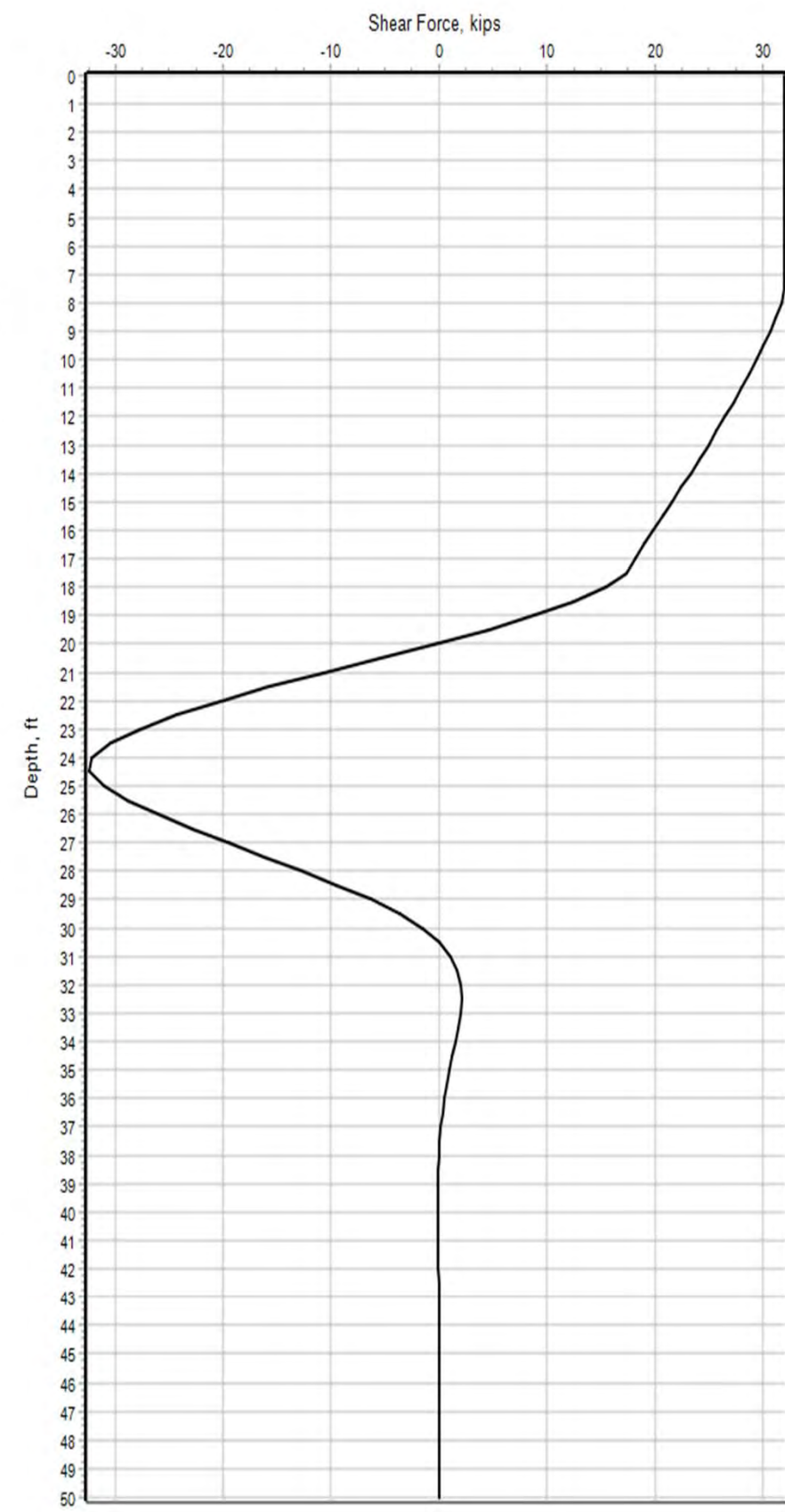
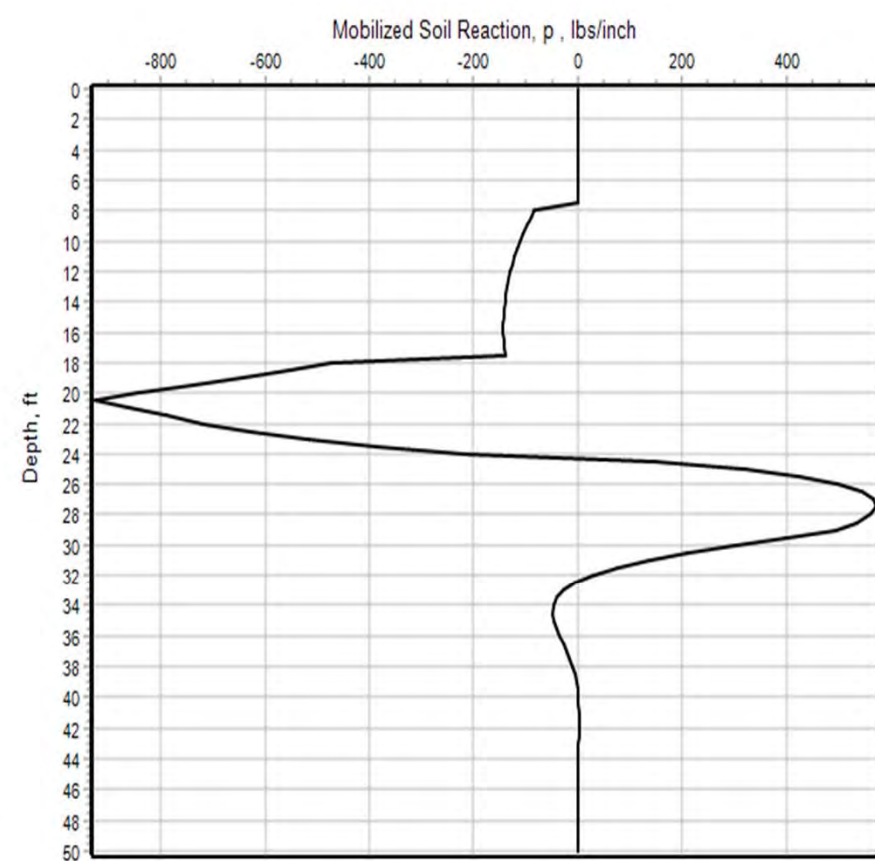
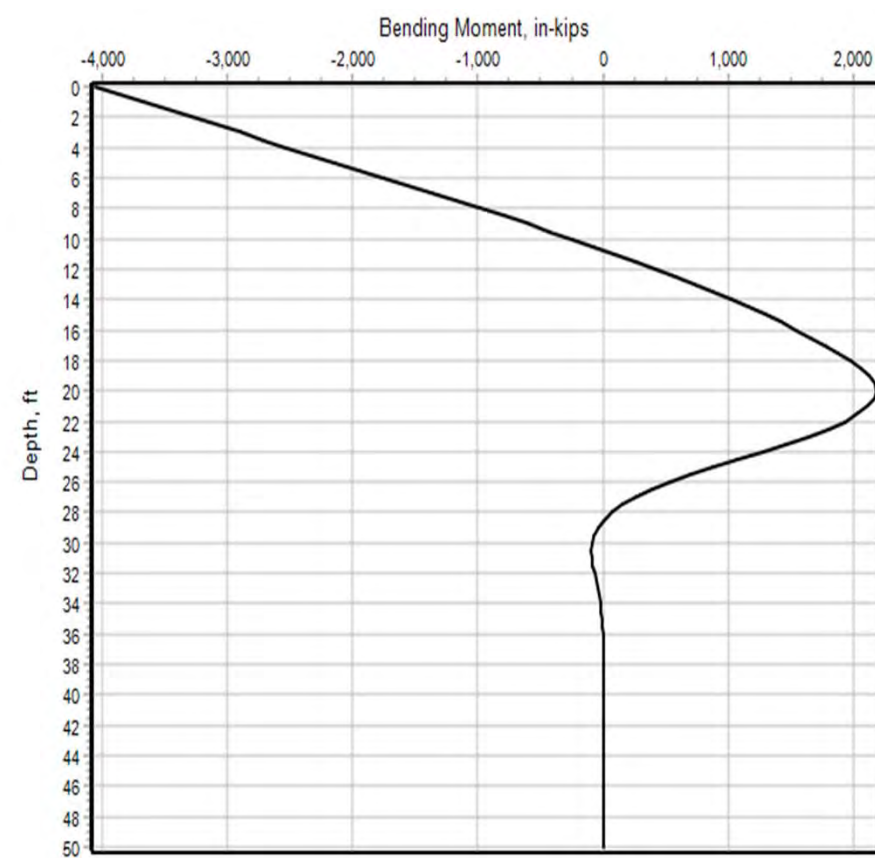
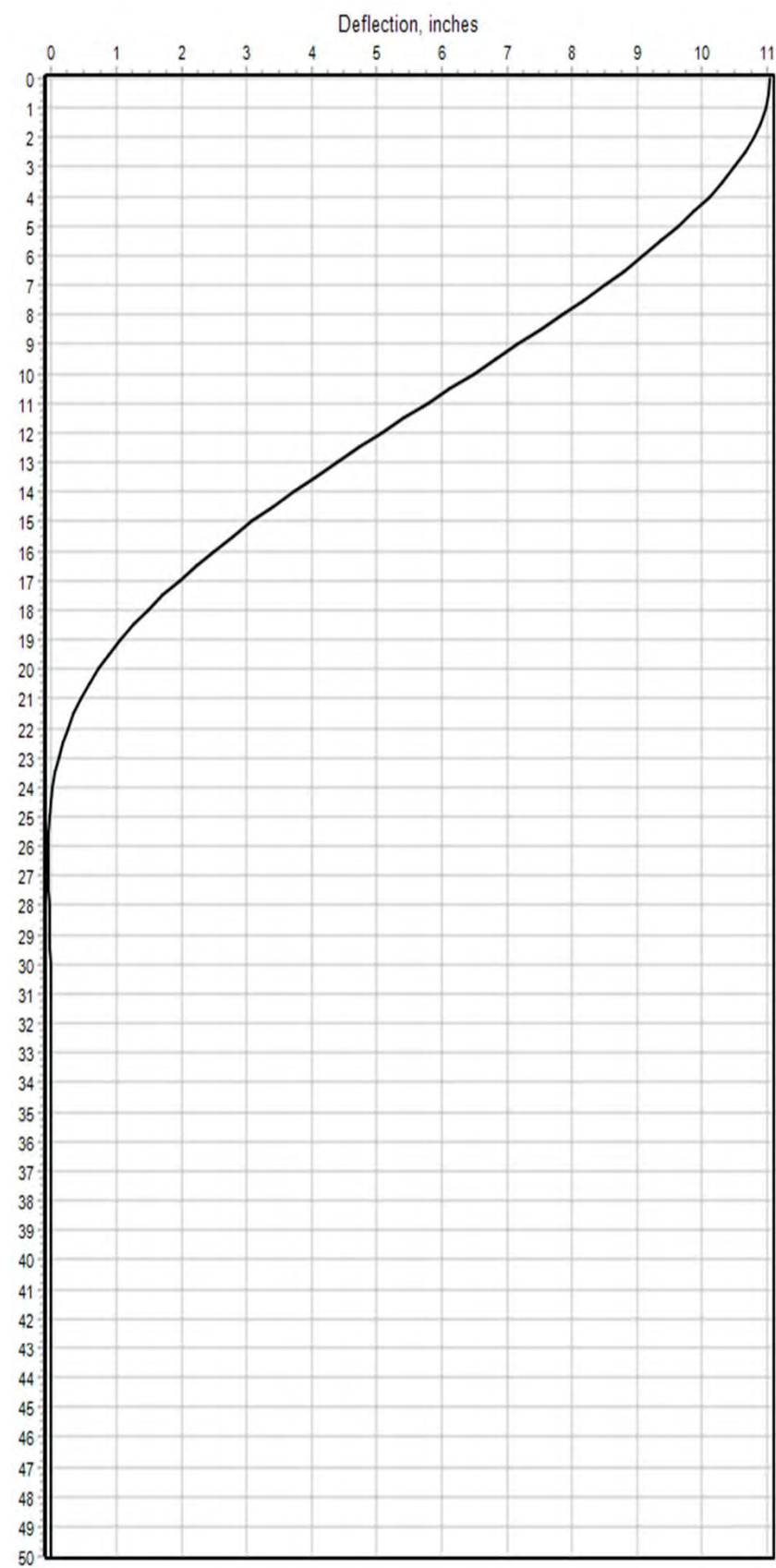
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case No.	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in lbs
1	V, lb	31000.	S, rad	0.00	0.00	9.9600	0.00
		-31001.					

Maximum pile-head deflection = 9.960033622 inches
 Maximum pile-head rotation = 0.0000000 radians

The analysis ended normally.

SUPERPILE (Energy)



Lee Composite 16-inch.lp8o

LPILE for Windows, Version 2015-08.003

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:
\Aravinda\Aravinda_A\Other office Project\FRP\Analyses\LPILE\Energy\

Name of input data file:
Lee Composite 16-inch.lp8d

Name of output report file:
Lee Composite 16-inch.lp8o

Name of plot output file:
Lee Composite 16-inch.lp8p

Name of runtime message file:
Lee Composite 16-inch.lp8r

Date and Time of Analysis

Date: July 22, 2016 Time: 14:20:46

Problem Title

Fiberglass Composite Materials Specification Redevelopment

Job Number: Project No. 2014-15-02

Lee Composite 16-inch.1p8o

Client: NJDOT

Engineer: Hardesty & Hanover, LLC

Description: Lateral Load Analyses

Program Options and Settings

Computational Options:

- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 100 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 100 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Total number of pile sections	=	1
Total length of pile	=	50.00 ft

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Depth of ground surface below top of pile = 8.00 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	16.00000000
2	50.0000000	16.00000000

Input Structural Properties:

Pile Section No. 1:

Section Type	=	Elastic Pile
Cross-sectional Shape	=	Circular Pipe
Section Length	=	50.000000 ft
Top Width	=	16.000000 in
Bottom Width	=	16.000000 in
Wall Thickness at Top	=	0.500000 in
Wall Thickness at Bottom	=	0.500000 in
Top Area	=	24.347343 sq. in
Bottom Area	=	24.347343 sq. in
Moment of Inertia at Top	=	731.942001 in^4
Moment of Inertia at Bottom	=	731.942001 in^4
Elastic Modulus	=	5990000. lbs/in^2

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians
Pile Batter Angle	=	0.000 degrees
	=	0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	8.000000 ft
Distance from top of pile to bottom of layer	=	18.000000 ft
Effective unit weight at top of layer	=	32.486400 pcf
Effective unit weight at bottom of layer	=	32.486400 pcf
Undrained cohesion at top of layer	=	249.984000 psf
Undrained cohesion at bottom of layer	=	249.984000 psf
Epsilon-50 at top of layer	=	0.020000

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 Epsilon-50 at bottom of layer = 0.020000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 18.000000 ft
 Distance from top of pile to bottom of layer = 66.000000 ft
 Effective unit weight at top of layer = 57.024000 pcf
 Effective unit weight at bottom of layer = 57.024000 pcf
 Friction angle at top of layer = 36.000000 deg.
 Friction angle at bottom of layer = 36.000000 deg.
 Subgrade k at top of layer = 100.000000 pci
 Subgrade k at bottom of layer = 100.000000 pci

(Depth of lowest soil layer extends 16.00 ft below pile tip)

Summary of Input Soil Properties

Layer E50 Layer or Num. krm	Soil Type Name kpy (p-y Curve Type) pci	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.
1	Soft	8.0000	32.4864	249.9840	--
0.02000	--				
	Clay	18.0000	32.4864	249.9840	--
0.02000	--				
2	Sand	18.0000	57.0240	--	36.0000
--	100.0000				
--	(Reese, et al.)	66.0000	57.0240	--	36.0000
--	100.0000				

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No. vs. Pile	Load Top y Type Length	Condition 1	Condition 2	Axial Thrust Force, lbs
1	2	V = 32000. lbs	S = 0.0000 in/in	0.0000000
No				

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V = perpendicular shear force applied to pile head

M = bending moment applied to pile head

y = lateral deflection relative to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading.

Axial thrust is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Moment-curvature properties were derived from elastic section properties

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Pile-head Rotation (Loading Type 2)

Shear force at pile head = 32000.0 lbs
Rotation of pile head = 0.000E+00 radians
Axial load at pile head = 0.0 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth Res.	Soil X	Deflect. Spr.	Bending Distrib.	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
	Es*h	y	Moment					
feet	inches	Lat. Load	in-lbs	lbs	radians	psi*	in-lb^2	
lb/inch	lb/inch	lb/inch	lb/inch					
0.00	0.00	11.0386	-4055224.	32000.	0.00	44323.	4.38E+09	
0.00	0.00	0.00	0.00					
0.5000	0.00	11.0219	-3863224.	32000.	-0.00542	42224.	4.38E+09	
0.00	0.00	0.00	0.00					
1.0000	0.00	10.9736	-3671224.	32000.	-0.01057	40126.	4.38E+09	
0.00	0.00	0.00	0.00					
1.5000	0.00	10.8950	-3479224.	32000.	-0.01547	38027.	4.38E+09	
0.00	0.00	0.00	0.00					
2.0000	0.00	10.7880	-3287224.	32000.	-0.02010	35929.	4.38E+09	
0.00	0.00	0.00	0.00					
2.5000	0.00	10.6539	-3095224.	32000.	-0.02446	33830.	4.38E+09	
0.00	0.00	0.00	0.00					
3.0000	0.00	10.4944	-2903224.	32000.	-0.02857	31732.	4.38E+09	
0.00	0.00	0.00	0.00					
3.5000	0.00	10.3111	-2711224.	32000.	-0.03241	29633.	4.38E+09	
0.00	0.00	0.00	0.00					

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4.0000	10.1055	-2519224.	32000.	-0.03599	27535.	4.38E+09
0.00	0.00	0.00				
4.5000	9.8792	-2327224.	32000.	-0.03930	25436.	4.38E+09
0.00	0.00	0.00				
5.0000	9.6338	-2135224.	32000.	-0.04236	23338.	4.38E+09
0.00	0.00	0.00				
5.5000	9.3709	-1943224.	32000.	-0.04515	21239.	4.38E+09
0.00	0.00	0.00				
6.0000	9.0920	-1751224.	32000.	-0.04768	19141.	4.38E+09
0.00	0.00	0.00				
6.5000	8.7988	-1559224.	32000.	-0.04994	17042.	4.38E+09
0.00	0.00	0.00				
7.0000	8.4927	-1367224.	32000.	-0.05194	14944.	4.38E+09
0.00	0.00	0.00				
7.5000	8.1754	-1175224.	32000.	-0.05368	12845.	4.38E+09
0.00	0.00	0.00				
8.0000	7.8485	-983224.	31750.	-0.05516	10746.	4.38E+09
-83.3281	63.7023	0.00				
8.5000	7.5135	-794224.	31229.	-0.05638	8681.	4.38E+09
-90.3409	72.1427	0.00				
9.0000	7.1720	-608476.	30666.	-0.05734	6651.	4.38E+09
-97.3537	81.4450	0.00				
9.5000	6.8255	-426233.	30061.	-0.05805	4659.	4.38E+09
-104.3665	91.7445	0.00				
10.0000	6.4754	-247747.	29414.	-0.05851	2708.	4.38E+09
-111.3793	103.2016	0.00				
10.5000	6.1234	-73271.	28729.	-0.05873	800.8348	4.38E+09
-116.6612	114.3105	0.00				
11.0000	5.7707	97006.	28016.	-0.05871	1060.	4.38E+09
-121.1522	125.9656	0.00				
11.5000	5.4189	262921.	27277.	-0.05846	2874.	4.38E+09
-125.2724	138.7070	0.00				
12.0000	5.0692	424326.	26514.	-0.05799	4638.	4.38E+09
-129.0060	152.6950	0.00				
12.5000	4.7229	581087.	25730.	-0.05731	6351.	4.38E+09
-132.3367	168.1198	0.00				
13.0000	4.3815	733084.	24927.	-0.05641	8012.	4.38E+09
-135.2483	185.2083	0.00				
13.5000	4.0461	880212.	24108.	-0.05530	9621.	4.38E+09
-137.7237	204.2333	0.00				
14.0000	3.7179	1022382.	23276.	-0.05400	11174.	4.38E+09
-139.7458	225.5257	0.00				
14.5000	3.3981	1159521.	22433.	-0.05251	12673.	4.38E+09
-141.2968	249.4894	0.00				
15.0000	3.0878	1291574.	21582.	-0.05083	14117.	4.38E+09
-142.3584	276.6228	0.00				
15.5000	2.7881	1418501.	20726.	-0.04898	15504.	4.38E+09
-142.9115	307.5461	0.00				
16.0000	2.5001	1540284.	19868.	-0.04695	16835.	4.38E+09
-142.9368	343.0389	0.00				
16.5000	2.2247	1656921.	19012.	-0.04476	18110.	4.38E+09
-142.4140	384.0923	0.00				
17.0000	1.9629	1768431.	18161.	-0.04242	19329.	4.38E+09
-141.3227	431.9804	0.00				
17.5000	1.7156	1874853.	17318.	-0.03993	20492.	4.38E+09
-139.6423	488.3607	0.00				
18.0000	1.4838	1976248.	15475.	-0.03729	21600.	4.38E+09
-474.6625	1919.	0.00				
18.5000	1.2681	2060556.	12381.	-0.03453	22522.	4.38E+09
-556.7572	2634.	0.00				
19.0000	1.0694	2124820.	8774.	-0.03167	23224.	4.38E+09
-645.5337	3622.	0.00				
19.5000	0.8882	2165845.	4614.	-0.02873	23672.	4.38E+09

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-741.0050	5006.	0.00				
20.0000	0.7247	2180194.	-138.0798	-0.02576	23829.	4.38E+09
-843.1821	6981.	0.00				
20.5000	0.5791	2164188.	-5446.	-0.02278	23654.	4.38E+09
-926.2750	9597.	0.00				
21.0000	0.4513	2114836.	-10811.	-0.01986	23115.	4.38E+09
-861.9711	11461.	0.00				
21.5000	0.3408	2034454.	-15769.	-0.01702	22236.	4.38E+09
-790.4698	13916.	0.00				
22.0000	0.2471	1925614.	-20286.	-0.01431	21047.	4.38E+09
-715.5149	17376.	0.00				
22.5000	0.1691	1791016.	-24313.	-0.01176	19575.	4.38E+09
-626.7804	22234.	0.00				
23.0000	0.1059	1633854.	-27747.	-0.00942	17858.	4.38E+09
-517.7352	29330.	0.00				
23.5000	0.05610	1458053.	-30454.	-0.00730	15936.	4.38E+09
-384.6987	41143.	0.00				
24.0000	0.01826	1268404.	-32244.	-0.00544	13863.	4.38E+09
-211.8036	69588.	0.00				
24.5000	-0.00916	1071129.	-32429.	-0.00384	11707.	4.38E+09
149.9024	98163.	0.00				
25.0000	-0.02779	879251.	-31016.	-0.00250	9610.	4.38E+09
321.1634	69336.	0.00				
25.5000	-0.03920	698934.	-28771.	-0.00142	7639.	4.38E+09
427.1007	65369.	0.00				
26.0000	-0.04487	533994.	-25994.	-5.80E-04	5836.	4.38E+09
498.8691	66704.	0.00				
26.5000	-0.04616	387012.	-22863.	5.04E-05	4230.	4.38E+09
544.6510	70796.	0.00				
27.0000	-0.04427	259638.	-19524.	4.93E-04	2838.	4.38E+09
568.4628	77049.	0.00				
27.5000	-0.04024	152729.	-16099.	7.75E-04	1669.	4.38E+09
573.0648	85438.	0.00				
28.0000	-0.03497	66450.	-12697.	9.25E-04	726.2866	4.38E+09
560.8418	96235.	0.00				
28.5000	-0.02914	361.2722	-9412.	9.71E-04	3.9486	4.38E+09
534.1238	109963.	0.00				
29.0000	-0.02332	-46499.	-6324.	9.39E-04	508.2256	4.38E+09
495.2791	127442.	0.00				
29.5000	-0.01787	-75529.	-3639.	8.56E-04	825.5206	4.38E+09
399.6622	134163.	0.00				
30.0000	-0.01305	-90171.	-1542.	7.42E-04	985.5589	4.38E+09
299.6239	137763.	0.00				
30.5000	-0.00897	-94027.	-8.9245	6.16E-04	1028.	4.38E+09
211.2411	141363.	0.00				
31.0000	-0.00565	-90279.	1035.	4.90E-04	986.7294	4.38E+09
136.6113	144963.	0.00				
31.5000	-0.00308	-81612.	1674.	3.73E-04	892.0028	4.38E+09
76.3620	148563.	0.00				
32.0000	-0.00118	-70196.	1993.	2.69E-04	767.2298	4.38E+09
30.0229	152163.	0.00				
32.5000	1.40E-04	-57699.	2072.	1.81E-04	630.6435	4.38E+09
-3.6332	155763.	0.00				
33.0000	9.90E-04	-45333.	1982.	1.11E-04	495.4868	4.38E+09
-26.2943	159363.	0.00				
33.5000	0.00147	-33914.	1784.	5.64E-05	370.6762	4.38E+09
-39.8654	162963.	0.00				
34.0000	0.00167	-23930.	1525.	1.68E-05	261.5516	4.38E+09
-46.2793	166563.	0.00				
34.5000	0.00167	-15612.	1244.	-1.02E-05	170.6367	4.38E+09
-47.3598	170163.	0.00				
35.0000	0.00154	-8999.	967.9894	-2.71E-05	98.3566	4.38E+09
-44.7313	173763.	0.00				

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35.5000	0.00135	-3996.	714.4913	-3.59E-05	43.6772	4.38E+09
-39.7681	177363.	0.00				
36.0000	0.00111	-425.0246	494.4586	-3.90E-05	4.6454	4.38E+09
-33.5761	180963.	0.00				
36.5000	8.78E-04	1937.	312.7352	-3.79E-05	21.1750	4.38E+09
-26.9983	184563.	0.00				
37.0000	6.58E-04	3328.	169.8299	-3.43E-05	36.3723	4.38E+09
-20.6368	188163.	0.00				
37.5000	4.66E-04	3975.	63.2649	-2.93E-05	43.4495	4.38E+09
-14.8849	191763.	0.00				
38.0000	3.06E-04	4087.	-11.2852	-2.38E-05	44.6700	4.38E+09
-9.9651	195363.	0.00				
38.5000	1.80E-04	3840.	-59.0801	-1.84E-05	41.9694	4.38E+09
-5.9665	198963.	0.00				
39.0000	8.53E-05	3378.	-85.6226	-1.35E-05	36.9211	4.38E+09
-2.8810	202563.	0.00				
39.5000	1.85E-05	2812.	-96.1708	-9.22E-06	30.7393	4.38E+09
-0.6351	206163.	0.00				
40.0000	-2.53E-05	2224.	-95.4246	-5.77E-06	24.3076	4.38E+09
0.8838	209763.	0.00				
40.5000	-5.08E-05	1667.	-87.3559	-3.11E-06	18.2236	4.38E+09
1.8058	213363.	0.00				
41.0000	-6.26E-05	1176.	-75.1487	-1.16E-06	12.8501	4.38E+09
2.2633	216963.	0.00				
41.5000	-6.47E-05	765.5425	-61.2185	1.64E-07	8.3672	4.38E+09
2.3801	220563.	0.00				
42.0000	-6.06E-05	441.0737	-47.2841	9.90E-07	4.8209	4.38E+09
2.2647	224163.	0.00				
42.5000	-5.29E-05	198.1335	-34.4696	1.43E-06	2.1656	4.38E+09
2.0068	227763.	0.00				
43.0000	-4.35E-05	27.4385	-23.4184	1.58E-06	0.2999	4.38E+09
1.6769	231363.	0.00				
43.5000	-3.39E-05	-82.8879	-14.4069	1.54E-06	0.9060	4.38E+09
1.3269	234963.	0.00				
44.0000	-2.50E-05	-145.4448	-7.4487	1.39E-06	1.5897	4.38E+09
0.9925	238563.	0.00				
44.5000	-1.72E-05	-172.2725	-2.3847	1.17E-06	1.8829	4.38E+09
0.6955	242163.	0.00				
45.0000	-1.09E-05	-174.0610	1.0436	9.33E-07	1.9025	4.38E+09
0.4472	245763.	0.00				
45.5000	-6.03E-06	-159.7488	3.1377	7.05E-07	1.7460	4.38E+09
0.2508	249363.	0.00				
46.0000	-2.46E-06	-136.4083	4.2013	5.02E-07	1.4909	4.38E+09
0.1038	252963.	0.00				
46.5000	-8.02E-09	-109.3326	4.5137	3.34E-07	1.1950	4.38E+09
3.43E-04	256563.	0.00				
47.0000	1.55E-06	-82.2445	4.3134	2.03E-07	0.8989	4.38E+09
-0.06709	260163.	0.00				
47.5000	2.43E-06	-57.5717	3.7920	1.07E-07	0.6292	4.38E+09
-0.1067	263763.	0.00				
48.0000	2.83E-06	-36.7402	3.0930	4.27E-08	0.4016	4.38E+09
-0.1263	267363.	0.00				
48.5000	2.94E-06	-20.4558	2.3157	3.60E-09	0.2236	4.38E+09
-0.1328	270963.	0.00				
49.0000	2.88E-06	-8.9513	1.5223	-1.65E-08	0.09784	4.38E+09
-0.1317	274563.	0.00				
49.5000	2.74E-06	-2.1876	0.7459	-2.41E-08	0.02391	4.38E+09
-0.1271	278163.	0.00				
50.0000	2.59E-06	0.00	0.00	-2.56E-08	0.00	4.38E+09
-0.1215	140881.	0.00				

* The above values of total stress are combined axial and bending stresses.

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Output Summary for Load Case No. 1:

Pile-head deflection = 11.03858114 inches
 Computed slope at pile head = 0.000000 radians
 Maximum bending moment = -4055224. inch-lbs
 Maximum shear force = -32429. lbs
 Depth of maximum bending moment = 0.000000 feet below pile head
 Depth of maximum shear force = 24.50000000 feet below pile head
 Number of iterations = 22
 Number of zero deflection points = 4

 Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

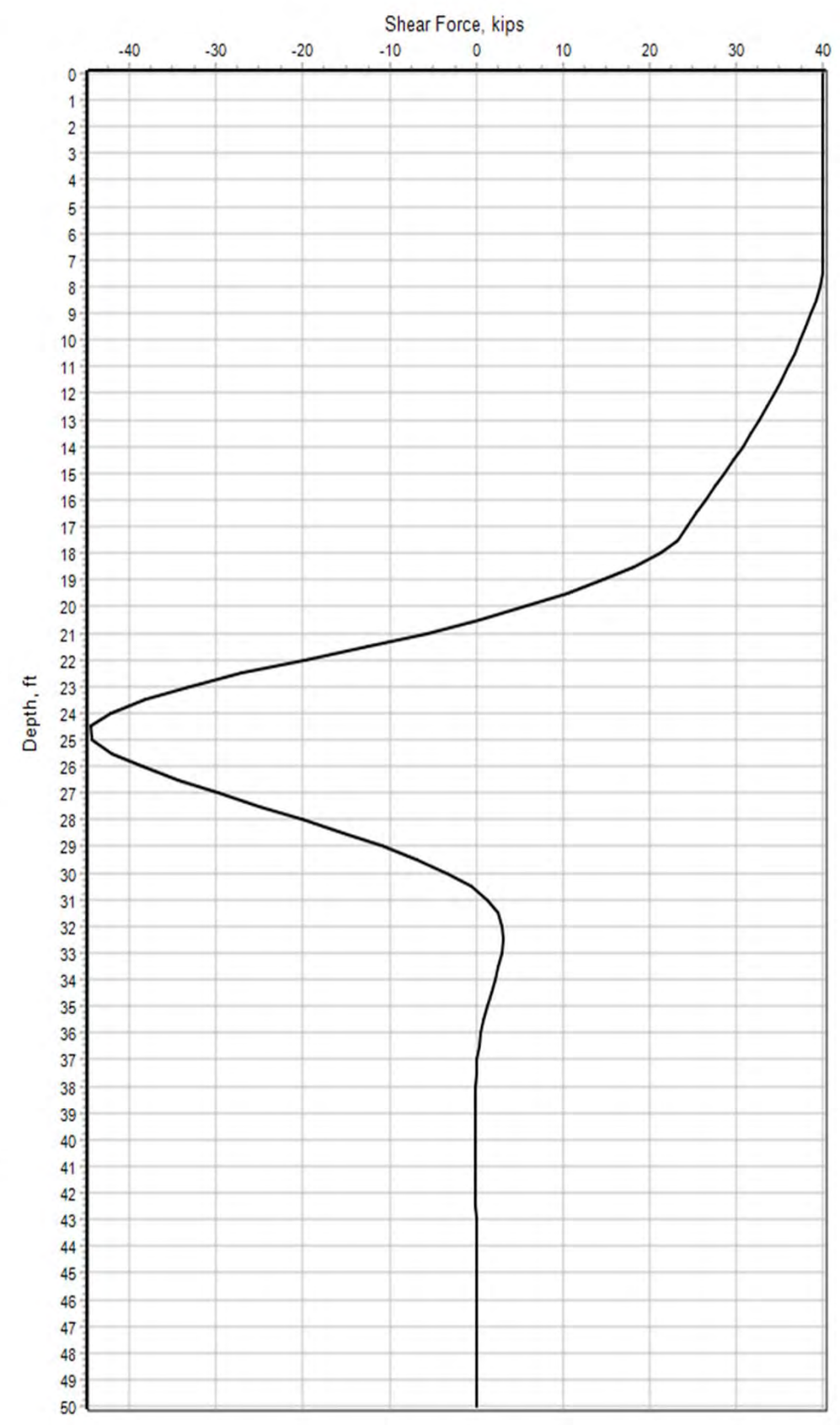
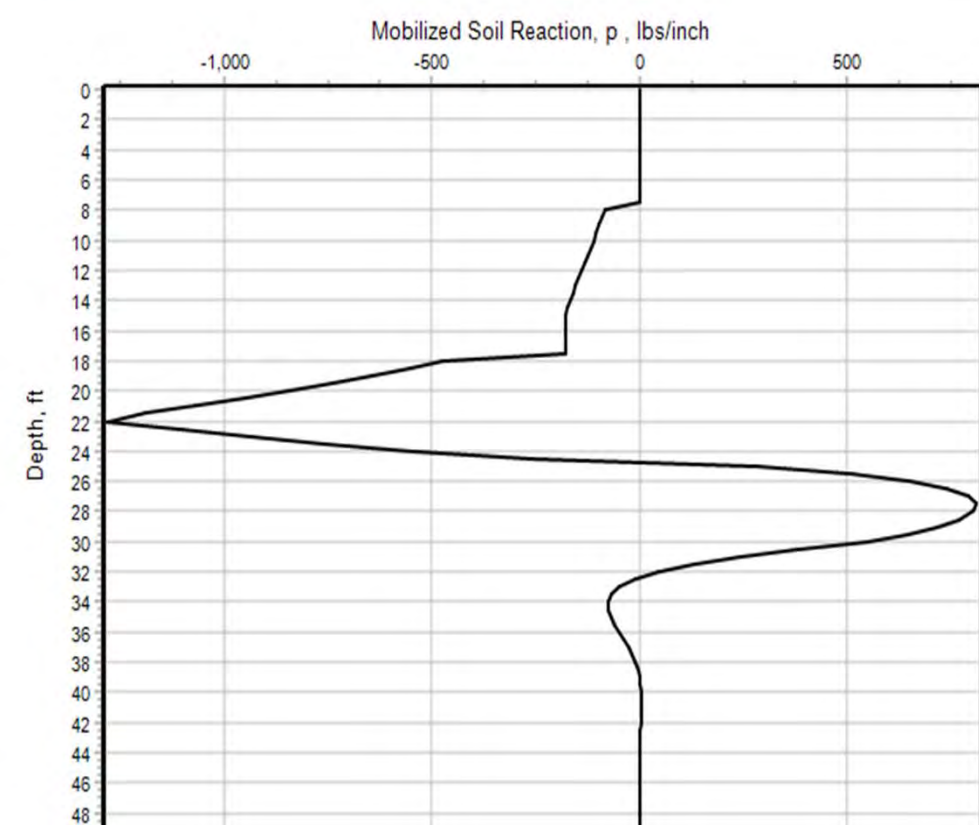
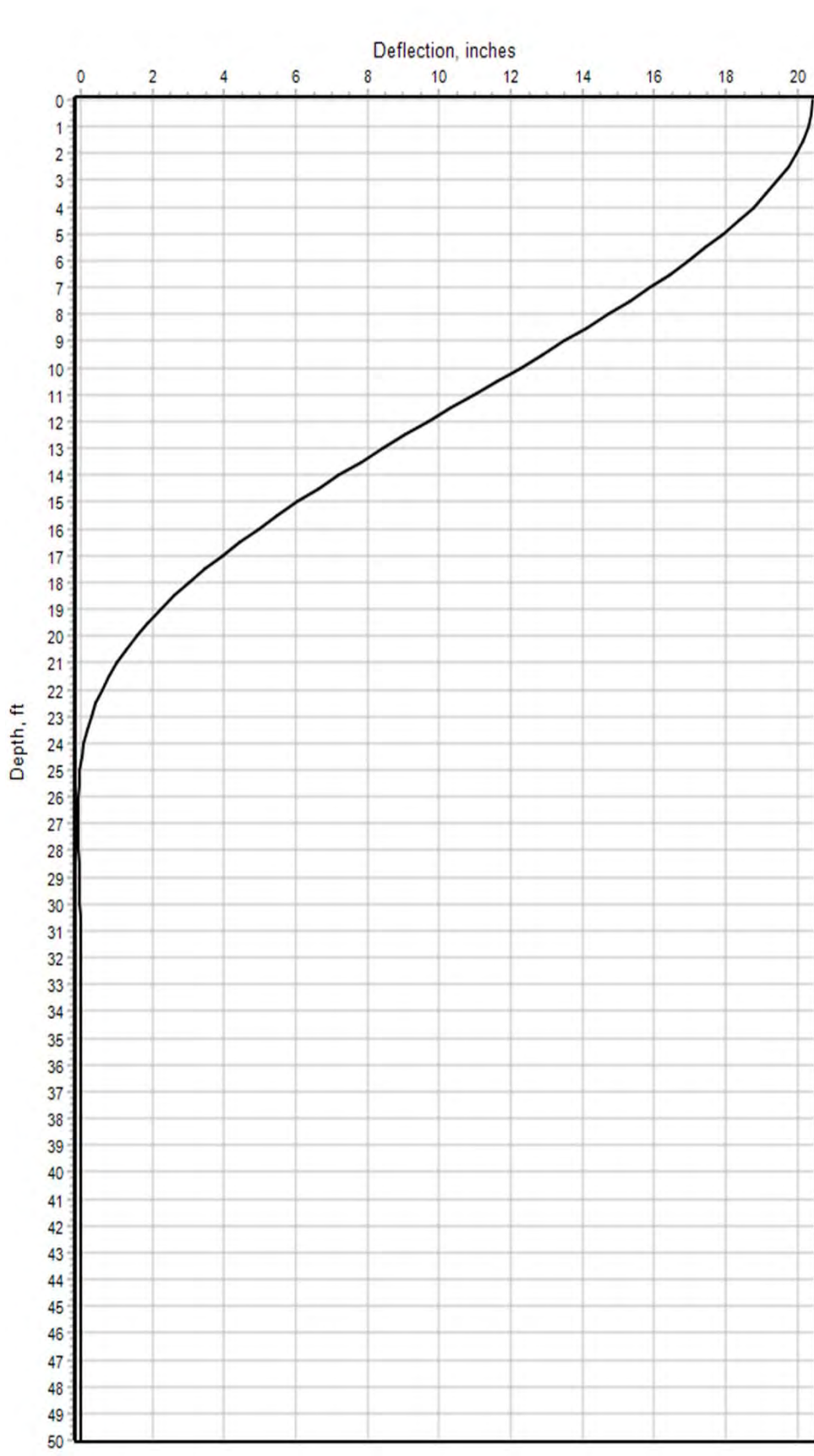
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case No.	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in lbs
1	V, lb	32000.	S, rad	0.00	0.00	11.0386	0.00
		-32429.					

Maximum pile-head deflection = 11.038581140 inches
 Maximum pile-head rotation = 0.0000000 radians

The analysis ended normally.

Bedford (Energy)



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LPILE for Windows, Version 2015-08.003

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:
\Aravinda\Aravinda_A\Other office Project\FRP\Analyses\LPILE\Energy\

Name of input data file:
SEAPILE BEDFORD 16-inch.lp8d

Name of output report file:
SEAPILE BEDFORD 16-inch.lp8o

Name of plot output file:
SEAPILE BEDFORD 16-inch.lp8p

Name of runtime message file:
SEAPILE BEDFORD 16-inch.lp8r

Date and Time of Analysis

Date: July 22, 2016 Time: 14:18:01

Problem Title

Fiberglass Composite Materials Specification Redevelopment

Job Number: Project No. 2014-15-02

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Client: NJDOT

Engineer: Hardesty & Hanover, LLC

Description: Lateral Load Analyses

Program Options and Settings

Computational Options:

- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 100 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 100 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Total number of pile sections	=	1
Total length of pile	=	50.00 ft

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Depth of ground surface below top of pile = 8.00 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	16.00000000
2	50.0000000	16.00000000

Input Structural Properties:

Pile Section No. 1:

Section Type	=	Elastic Pile
Cross-sectional Shape	=	Circular Pile
Section Length	=	50.000000 ft
Top Width	=	16.000000 in
Bottom Width	=	16.000000 in
Top Area	=	201.061930 sq. in
Bottom Area	=	201.061930 sq. in
Moment of Inertia at Top	=	3217. in^4
Moment of Inertia at Bottom	=	3217. in^4
Elastic Modulus	=	988000. lbs/in^2

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians
Pile Batter Angle	=	0.000 degrees
	=	0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	8.000000 ft
Distance from top of pile to bottom of layer	=	18.000000 ft
Effective unit weight at top of layer	=	32.486400 pcf
Effective unit weight at bottom of layer	=	32.486400 pcf
Undrained cohesion at top of layer	=	249.984000 psf
Undrained cohesion at bottom of layer	=	249.984000 psf
Epsilon-50 at top of layer	=	0.020000
Epsilon-50 at bottom of layer	=	0.020000

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Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	18.000000	ft
Distance from top of pile to bottom of layer	=	66.000000	ft
Effective unit weight at top of layer	=	57.024000	pcf
Effective unit weight at bottom of layer	=	57.024000	pcf
Friction angle at top of layer	=	36.000000	deg.
Friction angle at bottom of layer	=	36.000000	deg.
Subgrade k at top of layer	=	100.000000	pci
Subgrade k at bottom of layer	=	100.000000	pci

(Depth of lowest soil layer extends 16.00 ft below pile tip)

Summary of Input Soil Properties

Layer E50 Layer or Num. krm	Soil Type Name kpy (p-y Curve Type) pci	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.
1	Soft	8.0000	32.4864	249.9840	--
0.02000	--				
	Clay	18.0000	32.4864	249.9840	--
0.02000	--				
2	Sand	18.0000	57.0240	--	36.0000
--	100.0000				
	(Reese, et al.)	66.0000	57.0240	--	36.0000
--	100.0000				

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No.	Load Top y Type	Condition 1	Condition 2	Axial Thrust Force, lbs
1	2	V = 40000. lbs	S = 0.0000 in/in	0.0000000
No				

V = perpendicular shear force applied to pile head
M = bending moment applied to pile head

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y = lateral deflection relative to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading.

Axial thrust is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Moment-curvature properties were derived from elastic section properties

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Pile-head Rotation (Loading Type 2)

Shear force at pile head = 40000.0 lbs
Rotation of pile head = 0.000E+00 radians
Axial load at pile head = 0.0 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth Res. X feet lb/inch	Soil Es*h lb/inch	Deflect. Spr. y inches lb/inch	Bending Distrib. Lat. Load in-lbs lb/inch	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil p
0.00	0.00	20.4185	-5203850.	40000.	0.00	12941.	3.18E+09	
0.00	0.00	0.00	0.00	40000.	-0.00960	12344.	3.18E+09	
0.00	0.5000	20.3890	-4963850.	40000.	-0.01874	11747.	3.18E+09	
0.00	0.00	0.00	0.00	40000.	-0.02743	11150.	3.18E+09	
0.00	1.0000	20.3033	-4723850.	40000.	-0.03567	10554.	3.18E+09	
0.00	0.00	0.00	0.00	40000.	-0.04345	9957.	3.18E+09	
0.00	1.5000	20.1641	-4483850.	40000.	-0.05079	9360.	3.18E+09	
0.00	0.00	0.00	0.00	40000.	-0.05767	8763.	3.18E+09	
0.00	2.0000	19.9741	-4243850.	40000.	-0.06409	8166.	3.18E+09	
0.00	0.00	0.00	0.00	40000.				
0.00	2.5000	19.7361	-4003850.	40000.				
0.00	0.00	0.00	0.00	40000.				
0.00	3.0000	19.4527	-3763850.	40000.				
0.00	0.00	0.00	0.00	40000.				
0.00	3.5000	19.1266	-3523850.	40000.				
0.00	0.00	0.00	0.00	40000.				
0.00	4.0000	18.7607	-3283850.	40000.				
0.00	0.00	0.00	0.00					

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4.5000	18.3575	-3043850.	40000.	-0.07006	7569.	3.18E+09
0.00	0.00	0.00				
5.0000	17.9199	-2803850.	40000.	-0.07558	6973.	3.18E+09
0.00	0.00	0.00				
5.5000	17.4505	-2563850.	40000.	-0.08065	6376.	3.18E+09
0.00	0.00	0.00				
6.0000	16.9521	-2323850.	40000.	-0.08526	5779.	3.18E+09
0.00	0.00	0.00				
6.5000	16.4274	-2083850.	40000.	-0.08942	5182.	3.18E+09
0.00	0.00	0.00				
7.0000	15.8791	-1843850.	40000.	-0.09313	4585.	3.18E+09
0.00	0.00	0.00				
7.5000	15.3098	-1603850.	40000.	-0.09638	3988.	3.18E+09
0.00	0.00	0.00				
8.0000	14.7224	-1363850.	39750.	-0.09919	3392.	3.18E+09
-83.3280	33.9596	0.00				
8.5000	14.1196	-1126850.	39229.	-0.1015	2802.	3.18E+09
-90.3408	38.3895	0.00				
9.0000	13.5040	-893102.	38666.	-0.1034	2221.	3.18E+09
-97.3536	43.2555	0.00				
9.5000	12.8783	-662859.	38061.	-0.1049	1648.	3.18E+09
-104.3665	48.6244	0.00				
10.0000	12.2451	-436373.	37414.	-0.1059	1085.	3.18E+09
-111.3793	54.5751	0.00				
10.5000	11.6069	-213896.	36724.	-0.1066	531.9165	3.18E+09
-118.3921	61.2009	0.00				
11.0000	10.9663	4318.	35993.	-0.1068	10.7378	3.18E+09
-125.4049	68.6128	0.00				
11.5000	10.3258	218018.	35219.	-0.1066	542.1652	3.18E+09
-132.4177	76.9440	0.00				
12.0000	9.6877	426950.	34404.	-0.1059	1062.	3.18E+09
-139.4305	86.3551	0.00				
12.5000	9.0545	630863.	33546.	-0.1049	1569.	3.18E+09
-146.4433	97.0415	0.00				
13.0000	8.4284	829504.	32646.	-0.1036	2063.	3.18E+09
-153.4561	109.2424	0.00				
13.5000	7.8117	1022621.	31705.	-0.1018	2543.	3.18E+09
-160.4689	123.2529	0.00				
14.0000	7.2066	1209961.	30721.	-0.09971	3009.	3.18E+09
-167.4817	139.4407	0.00				
14.5000	6.6152	1391272.	29695.	-0.09725	3460.	3.18E+09
-174.4945	158.2676	0.00				
15.0000	6.0395	1566300.	28637.	-0.09446	3895.	3.18E+09
-178.0335	176.8684	0.00				
15.5000	5.4816	1734920.	27566.	-0.09135	4314.	3.18E+09
-179.0333	195.9641	0.00				
16.0000	4.9434	1897094.	26491.	-0.08792	4718.	3.18E+09
-179.4047	217.7524	0.00				
16.5000	4.4266	2052810.	25415.	-0.08419	5105.	3.18E+09
-179.1236	242.7922	0.00				
17.0000	3.9331	2202077.	24343.	-0.08017	5476.	3.18E+09
-178.1651	271.7953	0.00				
17.5000	3.4645	2344931.	23279.	-0.07588	5831.	3.18E+09
-176.5039	305.6790	0.00				
18.0000	3.0225	2481430.	21326.	-0.07133	6171.	3.18E+09
-474.6622	942.2637	0.00				
18.5000	2.6086	2600841.	18232.	-0.06653	6468.	3.18E+09
-556.7568	1281.	0.00				
19.0000	2.2241	2700209.	14625.	-0.06153	6715.	3.18E+09
-645.5331	1741.	0.00				
19.5000	1.8702	2776338.	10465.	-0.05636	6904.	3.18E+09
-741.0043	2377.	0.00				
20.0000	1.5478	2825791.	5713.	-0.05107	7027.	3.18E+09

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-843.1812	3269.	0.00				
20.5000	1.2574	2844889.	326.8229	-0.04572	7075.	3.18E+09
-952.0731	4543.	0.00				
21.0000	0.9992	2829713.	-5732.	-0.04036	7037.	3.18E+09
-1068.	6411.	0.00				
21.5000	0.7731	2776100.	-12506.	-0.03507	6904.	3.18E+09
-1190.	9236.	0.00				
22.0000	0.5784	2679645.	-19922.	-0.02992	6664.	3.18E+09
-1282.	13301.	0.00				
22.5000	0.4140	2537033.	-27082.	-0.02500	6309.	3.18E+09
-1104.	16005.	0.00				
23.0000	0.2784	2354662.	-33191.	-0.02038	5856.	3.18E+09
-931.9874	20085.	0.00				
23.5000	0.1695	2138740.	-38247.	-0.01614	5319.	3.18E+09
-753.4291	26674.	0.00				
24.0000	0.08476	1895694.	-42123.	-0.01233	4714.	3.18E+09
-538.5762	38125.	0.00				
24.5000	0.02151	1633259.	-44501.	-0.00900	4062.	3.18E+09
-254.0169	70841.	0.00				
25.0000	-0.02323	1361679.	-44399.	-0.00617	3386.	3.18E+09
288.0095	74381.	0.00				
25.5000	-0.05256	1100468.	-42004.	-0.00385	2737.	3.18E+09
510.4318	58273.	0.00				
26.0000	-0.06942	857633.	-38521.	-0.00200	2133.	3.18E+09
650.4062	56219.	0.00				
26.5000	-0.07656	638212.	-34348.	-5.88E-04	1587.	3.18E+09
740.8390	58059.	0.00				
27.0000	-0.07648	445461.	-29747.	4.34E-04	1108.	3.18E+09
792.6244	62185.	0.00				
27.5000	-0.07135	281245.	-24934.	0.00112	699.3989	3.18E+09
811.7061	68260.	0.00				
28.0000	-0.06303	146250.	-20092.	0.00152	363.6944	3.18E+09
802.4824	76386.	0.00				
28.5000	-0.05306	40145.	-15378.	0.00170	99.8319	3.18E+09
768.8955	86942.	0.00				
29.0000	-0.04264	-38280.	-10926.	0.00170	95.1956	3.18E+09
714.8309	100594.	0.00				
29.5000	-0.03264	-90972.	-6849.	0.00158	226.2280	3.18E+09
644.2194	118406.	0.00				
30.0000	-0.02368	-120471.	-3285.	0.00138	299.5870	3.18E+09
543.7659	137763.	0.00				
30.5000	-0.01609	-130395.	-517.0244	0.00114	324.2655	3.18E+09
378.9810	141363.	0.00				
31.0000	-0.00997	-126675.	1342.	9.00E-04	315.0158	3.18E+09
240.7623	144963.	0.00				
31.5000	-0.00528	-114288.	2457.	6.73E-04	284.2120	3.18E+09
130.7253	148563.	0.00				
32.0000	-0.00189	-97195.	2993.	4.73E-04	241.7050	3.18E+09
47.8944	152163.	0.00				
32.5000	4.02E-04	-78378.	3105.	3.08E-04	194.9103	3.18E+09
-10.4264	155763.	0.00				
33.0000	0.00180	-59936.	2930.	1.77E-04	149.0490	3.18E+09
-47.9163	159363.	0.00				
33.5000	0.00253	-43219.	2580.	7.98E-05	107.4774	3.18E+09
-68.6509	162963.	0.00				
34.0000	0.00276	-28974.	2144.	1.17E-05	72.0518	3.18E+09
-76.6643	166563.	0.00				
34.5000	0.00267	-17488.	1687.	-3.22E-05	43.4895	3.18E+09
-75.6515	170163.	0.00				
35.0000	0.00238	-8726.	1254.	-5.69E-05	21.6999	3.18E+09
-68.7893	173763.	0.00				
35.5000	0.00198	-2440.	871.6548	-6.75E-05	6.0686	3.18E+09
-58.6547	177363.	0.00				

SEAPILE BEDFORD 16-inch.lp80							
36.0000	0.00157	1734.	554.0387	-6.81E-05	4.3117	3.18E+09	
-47.2173	180963.	0.00					
36.5000	0.00117	4208.	304.7423	-6.25E-05	10.4648	3.18E+09	
-35.8815	184563.	0.00					
37.0000	8.15E-04	5391.	120.4130	-5.35E-05	13.4057	3.18E+09	
-25.5616	188163.	0.00					
37.5000	5.25E-04	5653.	-6.5862	-4.31E-05	14.0581	3.18E+09	
-16.7715	191763.	0.00					
38.0000	2.98E-04	5312.	-86.0541	-3.27E-05	13.2091	3.18E+09	
-9.7178	195363.	0.00					
38.5000	1.32E-04	4620.	-128.3702	-2.33E-05	11.4901	3.18E+09	
-4.3876	198963.	0.00					
39.0000	1.85E-05	3771.	-143.4073	-1.54E-05	9.3783	3.18E+09	
-0.6248	202563.	0.00					
39.5000	-5.26E-05	2900.	-139.8611	-9.11E-06	7.2106	3.18E+09	
1.8069	206163.	0.00					
40.0000	-9.08E-05	2093.	-124.9136	-4.40E-06	5.2047	3.18E+09	
3.1756	209763.	0.00					
40.5000	-1.05E-04	1401.	-104.1447	-1.10E-06	3.4830	3.18E+09	
3.7473	213363.	0.00					
41.0000	-1.04E-04	843.1863	-81.6141	1.02E-06	2.0968	3.18E+09	
3.7629	216963.	0.00					
41.5000	-9.32E-05	421.2333	-60.0484	2.21E-06	1.0475	3.18E+09	
3.4257	220563.	0.00					
42.0000	-7.75E-05	122.6059	-41.0794	2.72E-06	0.3049	3.18E+09	
2.8973	224163.	0.00					
42.5000	-6.05E-05	-71.7197	-25.4956	2.77E-06	0.1784	3.18E+09	
2.2973	227763.	0.00					
43.0000	-4.43E-05	-183.3409	-13.4786	2.53E-06	0.4559	3.18E+09	
1.7083	231363.	0.00					
43.5000	-3.02E-05	-233.4629	-4.8103	2.14E-06	0.5806	3.18E+09	
1.1811	234963.	0.00					
44.0000	-1.87E-05	-241.0641	0.9595	1.69E-06	0.5995	3.18E+09	
0.7421	238563.	0.00					
44.5000	-9.90E-06	-221.9486	4.3845	1.25E-06	0.5519	3.18E+09	
0.3995	242163.	0.00					
45.0000	-3.65E-06	-188.4500	6.0312	8.64E-07	0.4686	3.18E+09	
0.1494	245763.	0.00					
45.5000	4.71E-07	-149.5739	6.4207	5.45E-07	0.3720	3.18E+09	
-0.01956	249363.	0.00					
46.0000	2.89E-06	-111.4019	5.9959	2.99E-07	0.2770	3.18E+09	
-0.1220	252963.	0.00					
46.5000	4.06E-06	-77.6227	5.1096	1.20E-07	0.1930	3.18E+09	
-0.1734	256563.	0.00					
47.0000	4.34E-06	-50.0869	4.0250	-1.96E-10	0.1246	3.18E+09	
-0.1881	260163.	0.00					
47.5000	4.05E-06	-29.3231	2.9261	-7.51E-08	0.07292	3.18E+09	
-0.1782	263763.	0.00					
48.0000	3.44E-06	-14.9743	1.9321	-1.17E-07	0.03724	3.18E+09	
-0.1531	267363.	0.00					
48.5000	2.65E-06	-6.1382	1.1137	-1.37E-07	0.01526	3.18E+09	
-0.1197	270963.	0.00					
49.0000	1.79E-06	-1.6104	0.5084	-1.44E-07	0.00400	3.18E+09	
-0.08209	274563.	0.00					
49.5000	9.20E-07	-0.03787	0.1342	-1.46E-07	9.42E-05	3.18E+09	
-0.04263	278163.	0.00					
50.0000	4.48E-08	0.00	0.00	-1.46E-07	0.00	3.18E+09	
-0.00210	140881.	0.00					

* The above values of total stress are combined axial and bending stresses.

SEAPILE BEDFORD 16-inch.1p8o

Pile-head deflection = 20.41845644 inches
 Computed slope at pile head = 0.000000 radians
 Maximum bending moment = -5203850. inch-lbs
 Maximum shear force = -44501. lbs
 Depth of maximum bending moment = 0.000000 feet below pile head
 Depth of maximum shear force = 24.50000000 feet below pile head
 Number of iterations = 28
 Number of zero deflection points = 5

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

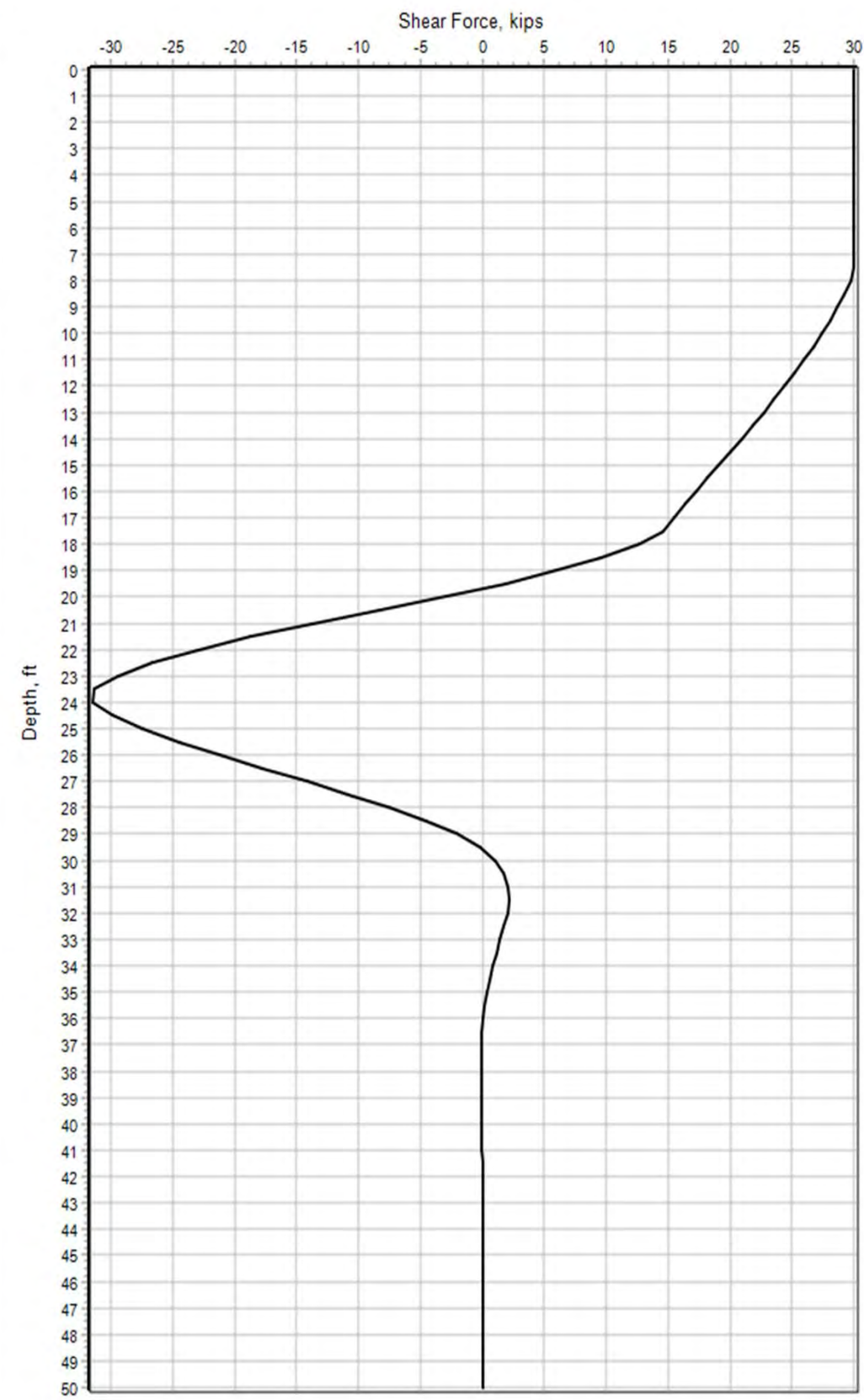
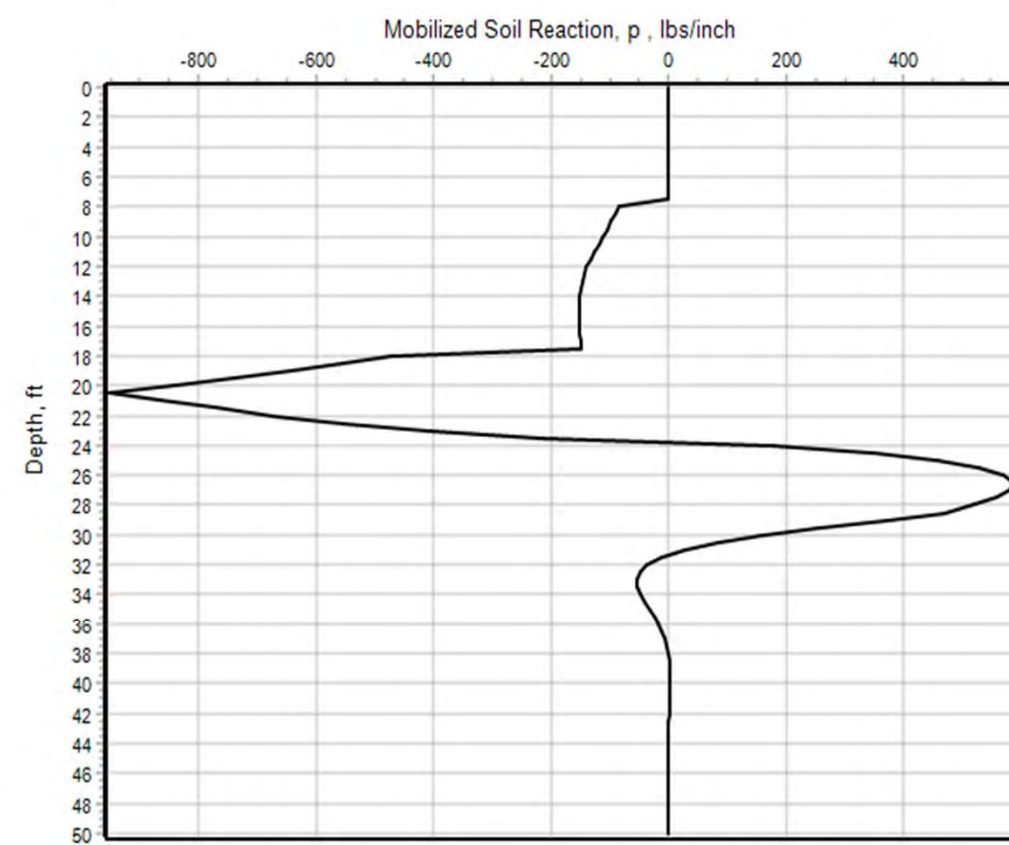
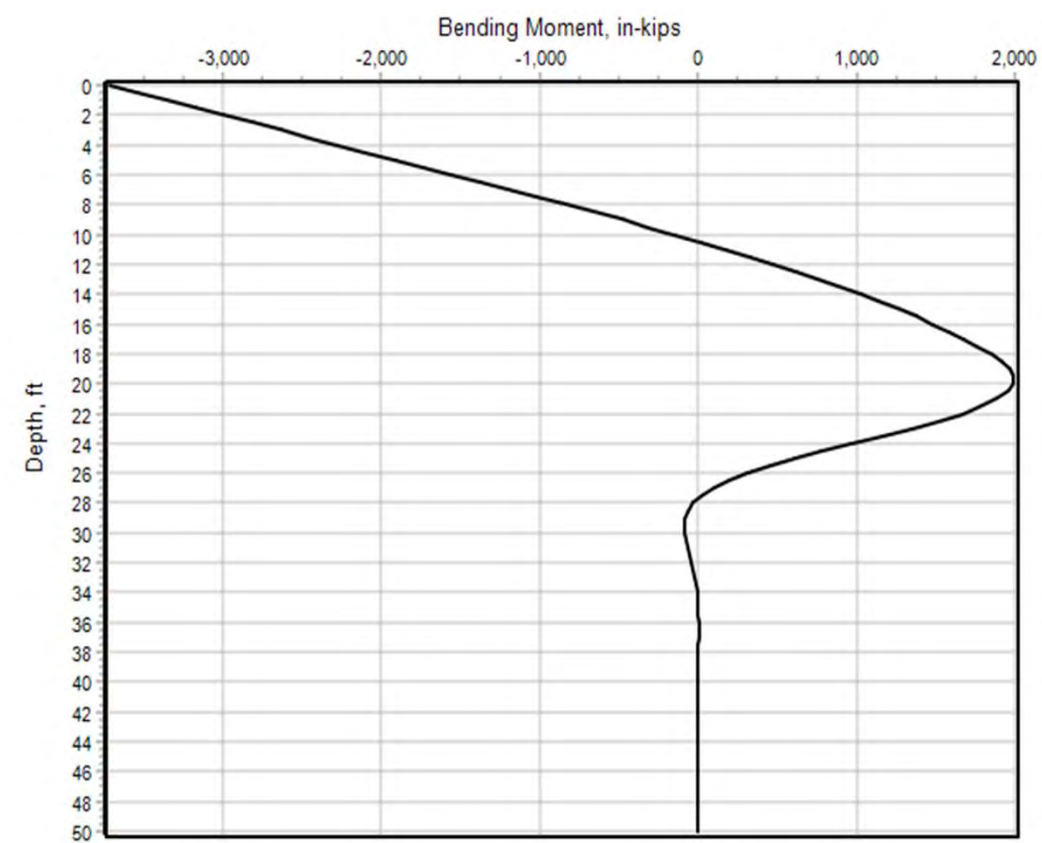
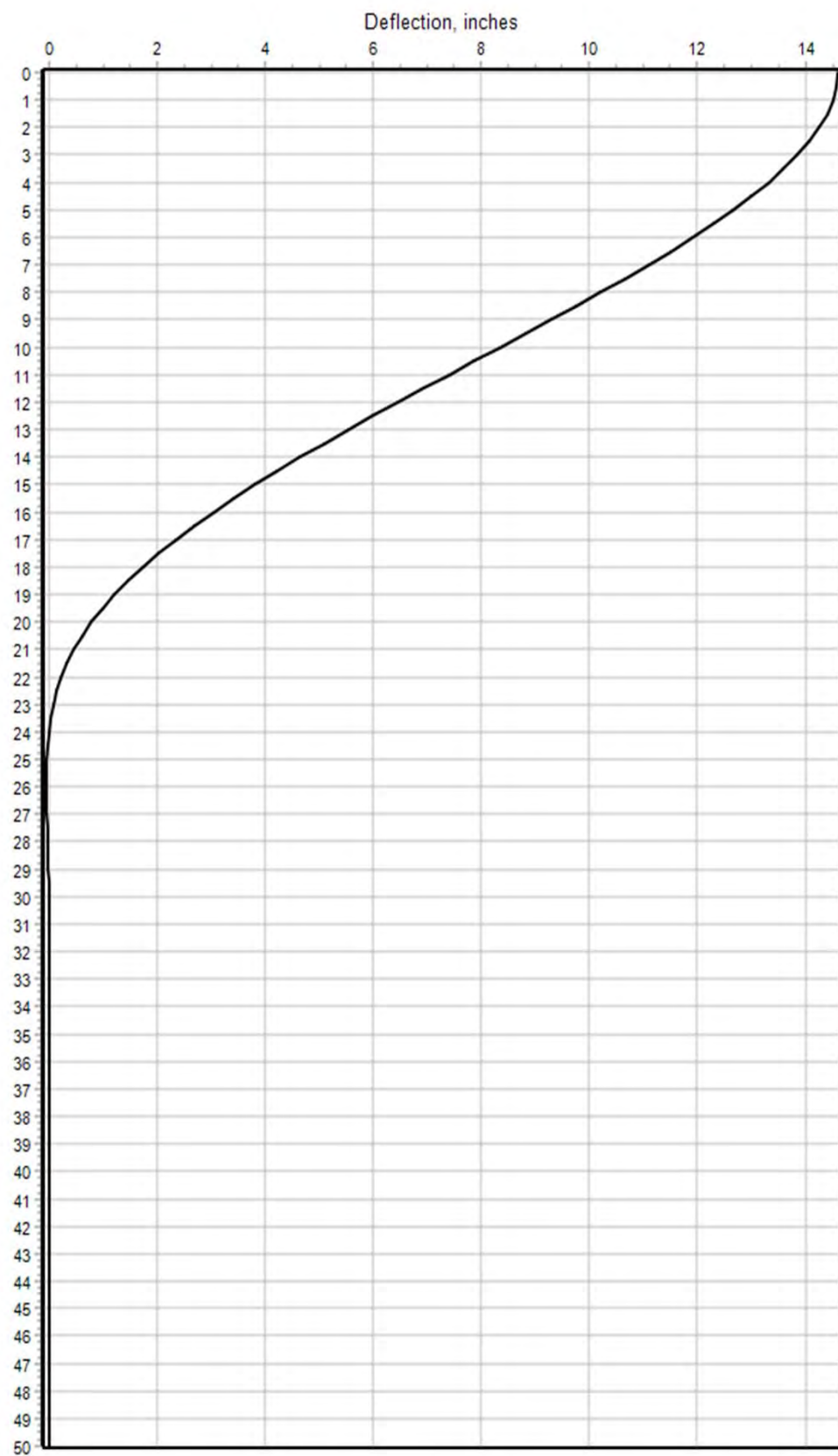
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load	Load		Load		Axial	Pile-head	Pile-head	Max
Shear	Max	Moment						
Case	Type	Pile-head	Type	Pile-head	Loading	Deflection	Rotation	in
Pile	in	Pile						
No.	1	Load 1	2	Load 2	lbs	inches	radians	lbs
	in-lbs							
1	V, lb	40000.	S, rad	0.00	0.00	20.4185	0.00	
	-44501.	-5203850.						

Maximum pile-head deflection = 20.41845644 inches
 Maximum pile-head rotation = 0.0000000 radians

The analysis ended normally.

Pearson (Energy)



Pearson 16-inch.lp8o

LPILE for Windows, Version 2015-08.003

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:
\Aravinda\Aravinda_A\Other office Project\FRP\Analyses\LPILE\Energy\

Name of input data file:
Pearson 16-inch.lp8d

Name of output report file:
Pearson 16-inch.lp8o

Name of plot output file:
Pearson 16-inch.lp8p

Name of runtime message file:
Pearson 16-inch.lp8r

Date and Time of Analysis

Date: July 22, 2016 Time: 14:19:29

Problem Title

Fiberglass Composite Materials Specification Redevelopment

Job Number: Project No. 2014-15-02

Client: NJDOT

Engineer: Hardesty & Hanover, LLC

Description: Lateral Load Analyses

Program Options and Settings

Computational Options:

- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 100 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 100 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Total number of pile sections	=	1
Total length of pile	=	50.00 ft

Pearson 16-inch.lp80

Depth of ground surface below top of pile = 8.00 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	16.00000000
2	50.0000000	16.00000000

Input Structural Properties:

Pile Section No. 1:

Section Type	=	Elastic Pile
Cross-sectional Shape	=	Circular Pipe
Section Length	=	50.000000 ft
Top Width	=	16.000000 in
Bottom Width	=	16.000000 in
Wall Thickness at Top	=	0.500000 in
Wall Thickness at Bottom	=	0.500000 in
Top Area	=	24.347343 sq. in
Bottom Area	=	24.347343 sq. in
Moment of Inertia at Top	=	731.942001 in ⁴
Moment of Inertia at Bottom	=	731.942001 in ⁴
Elastic Modulus	=	3960000. lbs/in ²

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians
Pile Batter Angle	=	0.000 degrees
	=	0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	8.000000 ft
Distance from top of pile to bottom of layer	=	18.000000 ft
Effective unit weight at top of layer	=	32.486400 pcf
Effective unit weight at bottom of layer	=	32.486400 pcf
Undrained cohesion at top of layer	=	249.984000 psf
Undrained cohesion at bottom of layer	=	249.984000 psf
Epsilon-50 at top of layer	=	0.020000

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Epsilon-50 at bottom of layer = 0.020000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 18.000000 ft
Distance from top of pile to bottom of layer = 66.000000 ft
Effective unit weight at top of layer = 57.024000 pcf
Effective unit weight at bottom of layer = 57.024000 pcf
Friction angle at top of layer = 36.000000 deg.
Friction angle at bottom of layer = 36.000000 deg.
Subgrade k at top of layer = 100.000000 pci
Subgrade k at bottom of layer = 100.000000 pci

(Depth of lowest soil layer extends 16.00 ft below pile tip)

Summary of Input Soil Properties

Layer E50 Layer or Num. krm	Soil Type Name (p-y Curve Type) kpy pci	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.
1	Soft	8.0000	32.4864	249.9840	--
0.02000	--				
	Clay	18.0000	32.4864	249.9840	--
0.02000	--				
2	Sand	18.0000	57.0240	--	36.0000
--	100.0000				
--	(Reese, et al.)	66.0000	57.0240	--	36.0000
--	100.0000				

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No. vs. Pile	Load Top y Type Length	Condition 1	Condition 2	Axial Thrust Force, lbs
1	2	V = 30000. lbs	S = 0.0000 in/in	0.0000000
No				

Pearson 16-inch.1p80

V = perpendicular shear force applied to pile head

M = bending moment applied to pile head

y = lateral deflection relative to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading.

Axial thrust is assumed to be acting axially for all pile batter angles.

 Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

 Moment-curvature properties were derived from elastic section properties

 Computed Values of Pile Loading and Deflection
 for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Pile-head Rotation (Loading Type 2)

Shear force at pile head = 30000.0 lbs
 Rotation of pile head = 0.000E+00 radians
 Axial load at pile head = 0.0 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth Res.	Soil X	Deflect. Spr.	Bending Distrib.	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
	Es*h	y	Moment					
feet		Lat. Load	in-lbs	lbs	radians	psi*	in-lb^2	
lb/inch	lb/inch	lb/inch	lb/inch					
0.00	0.00	14.5992	-3713884.	30000.	0.00	40592.	2.90E+09	
0.00	0.00	0.00	0.00					
0.5000	0.00	14.5761	-3533884.	30000.	-0.00750	38625.	2.90E+09	
0.00	0.00	0.00	0.00					
1.0000	0.00	14.5092	-3353884.	30000.	-0.01463	36657.	2.90E+09	
0.00	0.00	0.00	0.00					
1.5000	0.00	14.4006	-3173884.	30000.	-0.02139	34690.	2.90E+09	
0.00	0.00	0.00	0.00					
2.0000	0.00	14.2525	-2993884.	30000.	-0.02777	32723.	2.90E+09	
0.00	0.00	0.00	0.00					
2.5000	0.00	14.0673	-2813884.	30000.	-0.03378	30755.	2.90E+09	
0.00	0.00	0.00	0.00					
3.0000	0.00	13.8472	-2633884.	30000.	-0.03942	28788.	2.90E+09	
0.00	0.00	0.00	0.00					
3.5000	0.00	13.5943	-2453884.	30000.	-0.04469	26821.	2.90E+09	
0.00	0.00	0.00	0.00					

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4.0000	13.3109	-2273884.	30000.	-0.04958	24853.	2.90E+09
0.00	0.00	0.00				
4.5000	12.9993	-2093884.	30000.	-0.05410	22886.	2.90E+09
0.00	0.00	0.00				
5.0000	12.6617	-1913884.	30000.	-0.05825	20918.	2.90E+09
0.00	0.00	0.00				
5.5000	12.3003	-1733884.	30000.	-0.06202	18951.	2.90E+09
0.00	0.00	0.00				
6.0000	11.9174	-1553884.	30000.	-0.06543	16984.	2.90E+09
0.00	0.00	0.00				
6.5000	11.5152	-1373884.	30000.	-0.06846	15016.	2.90E+09
0.00	0.00	0.00				
7.0000	11.0959	-1193884.	30000.	-0.07112	13049.	2.90E+09
0.00	0.00	0.00				
7.5000	10.6618	-1013884.	30000.	-0.07340	11082.	2.90E+09
0.00	0.00	0.00				
8.0000	10.2151	-833884.	29750.	-0.07531	9114.	2.90E+09
-83.3280	48.9439	0.00				
8.5000	9.7581	-656884.	29229.	-0.07686	7180.	2.90E+09
-90.3408	55.5483	0.00				
9.0000	9.2929	-483136.	28666.	-0.07804	5281.	2.90E+09
-97.3537	62.8570	0.00				
9.5000	8.8217	-312893.	28061.	-0.07886	3420.	2.90E+09
-104.3665	70.9843	0.00				
10.0000	8.3466	-146407.	27414.	-0.07933	1600.	2.90E+09
-111.3793	80.0661	0.00				
10.5000	7.8696	16070.	26724.	-0.07947	175.6375	2.90E+09
-118.3921	90.2650	0.00				
11.0000	7.3929	174284.	25993.	-0.07927	1905.	2.90E+09
-125.4049	101.7771	0.00				
11.5000	6.9184	327983.	25219.	-0.07875	3585.	2.90E+09
-132.4177	114.8402	0.00				
12.0000	6.4479	476916.	24404.	-0.07792	5213.	2.90E+09
-139.4305	129.7454	0.00				
12.5000	5.9833	620829.	23556.	-0.07678	6786.	2.90E+09
-143.1936	143.5927	0.00				
13.0000	5.5265	759587.	22688.	-0.07535	8302.	2.90E+09
-146.1303	158.6511	0.00				
13.5000	5.0791	893085.	21804.	-0.07364	9761.	2.90E+09
-148.5681	175.5063	0.00				
14.0000	4.6427	1021234.	20907.	-0.07166	11162.	2.90E+09
-150.4870	194.4801	0.00				
14.5000	4.2191	1143965.	20000.	-0.06942	12503.	2.90E+09
-151.8665	215.9694	0.00				
15.0000	3.8097	1261230.	19086.	-0.06693	13785.	2.90E+09
-152.6853	240.4691	0.00				
15.5000	3.4159	1372997.	18169.	-0.06421	15007.	2.90E+09
-152.9210	268.6026	0.00				
16.0000	3.0392	1479260.	17253.	-0.06125	16168.	2.90E+09
-152.5505	301.1644	0.00				
16.5000	2.6809	1580030.	16340.	-0.05809	17269.	2.90E+09
-151.5498	339.1796	0.00				
17.0000	2.3422	1675345.	15436.	-0.05472	18311.	2.90E+09
-149.8941	383.9886	0.00				
17.5000	2.0243	1765264.	14544.	-0.05116	19294.	2.90E+09
-147.5582	437.3689	0.00				
18.0000	1.7283	1849870.	12677.	-0.04742	20219.	2.90E+09
-474.6623	1648.	0.00				
18.5000	1.4553	1917389.	9583.	-0.04352	20957.	2.90E+09
-556.7569	2295.	0.00				
19.0000	1.2061	1964864.	5976.	-0.03950	21476.	2.90E+09
-645.5333	3211.	0.00				
19.5000	0.9813	1989101.	1816.	-0.03541	21741.	2.90E+09

Pearson 16-inch.lp80

-741.0045	4531.	0.00				
20.0000	0.7812	1986661.	-2936.	-0.03129	21714.	2.90E+09
-843.1816	6476.	0.00				
20.5000	0.6058	1953866.	-8322.	-0.02721	21355.	2.90E+09
-952.0736	9429.	0.00				
21.0000	0.4547	1886797.	-13778.	-0.02324	20622.	2.90E+09
-866.6973	11437.	0.00				
21.5000	0.3270	1788527.	-18686.	-0.01943	19548.	2.90E+09
-769.1406	14113.	0.00				
22.0000	0.2215	1662568.	-23002.	-0.01586	18172.	2.90E+09
-669.5164	18136.	0.00				
22.5000	0.1367	1512506.	-26662.	-0.01257	16531.	2.90E+09
-550.5588	24173.	0.00				
23.0000	0.07060	1342624.	-29527.	-0.00962	14675.	2.90E+09
-404.5981	34383.	0.00				
23.5000	0.02123	1158177.	-31380.	-0.00703	12659.	2.90E+09
-213.0500	60223.	0.00				
24.0000	-0.01377	966059.	-31484.	-0.00483	10559.	2.90E+09
178.3636	77738.	0.00				
24.5000	-0.03676	780363.	-29894.	-0.00302	8529.	2.90E+09
351.8118	57422.	0.00				
25.0000	-0.05006	607332.	-27461.	-0.00159	6638.	2.90E+09
459.3291	55051.	0.00				
25.5000	-0.05582	450837.	-24494.	-4.93E-04	4928.	2.90E+09
529.4789	56913.	0.00				
26.0000	-0.05598	313403.	-21194.	2.98E-04	3425.	2.90E+09
570.6627	61165.	0.00				
26.5000	-0.05225	196513.	-17720.	8.26E-04	2148.	2.90E+09
587.2480	67441.	0.00				
27.0000	-0.04607	100764.	-14211.	0.00113	1101.	2.90E+09
582.4294	75852.	0.00				
27.5000	-0.03864	25982.	-10786.	0.00126	283.9838	2.90E+09
559.1054	86807.	0.00				
28.0000	-0.03090	-28671.	-7548.	0.00126	313.3733	2.90E+09
520.1838	101020.	0.00				
28.5000	-0.02350	-64599.	-4582.	0.00117	706.0516	2.90E+09
468.6451	119637.	0.00				
29.0000	-0.01691	-83655.	-2072.	0.00101	914.3305	2.90E+09
368.0358	130563.	0.00				
29.5000	-0.01136	-89461.	-205.6217	8.33E-04	977.7969	2.90E+09
254.0546	134163.	0.00				
30.0000	-0.00692	-86122.	1033.	6.51E-04	941.2994	2.90E+09
158.9240	137763.	0.00				
30.5000	-0.00355	-77062.	1761.	4.82E-04	842.2695	2.90E+09
83.6668	141363.	0.00				
31.0000	-0.00114	-64989.	2095.	3.35E-04	710.3189	2.90E+09
27.4896	144963.	0.00				
31.5000	4.68E-04	-51927.	2142.	2.14E-04	567.5519	2.90E+09
-11.5975	148563.	0.00				
32.0000	0.00143	-39282.	1999.	1.20E-04	429.3482	2.90E+09
-36.2559	152163.	0.00				
32.5000	0.00190	-27943.	1742.	5.00E-05	305.4103	2.90E+09
-49.4018	155763.	0.00				
33.0000	0.00203	-18382.	1432.	2.02E-06	200.9106	2.90E+09
-53.8977	159363.	0.00				
33.5000	0.00193	-10761.	1113.	-2.81E-05	117.6183	2.90E+09
-52.3442	162963.	0.00				
34.0000	0.00169	-5025.	815.1675	-4.45E-05	54.9221	2.90E+09
-46.9580	166563.	0.00				
34.5000	0.00139	-979.2139	555.7372	-5.07E-05	10.7026	2.90E+09
-39.5188	170163.	0.00				
35.0000	0.00108	1644.	343.0714	-5.00E-05	17.9672	2.90E+09
-31.3698	173763.	0.00				

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35.5000	7.93E-04	3138.	178.6062	-4.51E-05	34.2939	2.90E+09	
-23.4520	177363.	0.00					
36.0000	5.42E-04	3787.	59.1652	-3.79E-05	41.3928	2.90E+09	
-16.3617	180963.	0.00					
36.5000	3.39E-04	3848.	-21.1717	-3.00E-05	42.0539	2.90E+09	
-10.4173	184563.	0.00					
37.0000	1.83E-04	3533.	-69.6043	-2.24E-05	38.6160	2.90E+09	
-5.7269	188163.	0.00					
37.5000	7.05E-05	3012.	-93.5406	-1.56E-05	32.9247	2.90E+09	
-2.2518	191763.	0.00					
38.0000	-4.29E-06	2411.	-99.8772	-9.96E-06	26.3474	2.90E+09	
0.1396	195363.	0.00					
38.5000	-4.91E-05	1814.	-94.5744	-5.59E-06	19.8250	2.90E+09	
1.6280	198963.	0.00					
39.0000	-7.14E-05	1276.	-82.4620	-2.39E-06	13.9432	2.90E+09	
2.4095	202563.	0.00					
39.5000	-7.78E-05	824.3025	-67.2135	-2.19E-07	9.0095	2.90E+09	
2.6733	206163.	0.00					
40.0000	-7.40E-05	469.1411	-51.4327	1.12E-06	5.1276	2.90E+09	
2.5870	209763.	0.00					
40.5000	-6.44E-05	207.1101	-36.8054	1.82E-06	2.2637	2.90E+09	
2.2888	213363.	0.00					
41.0000	-5.22E-05	27.4761	-24.2808	2.06E-06	0.3003	2.90E+09	
1.8861	216963.	0.00					
41.5000	-3.96E-05	-84.2590	-14.2540	2.00E-06	0.9209	2.90E+09	
1.4562	220563.	0.00					
42.0000	-2.81E-05	-143.5722	-6.7347	1.77E-06	1.5692	2.90E+09	
1.0503	224163.	0.00					
42.5000	-1.84E-05	-165.0750	-1.4889	1.45E-06	1.8042	2.90E+09	
0.6983	227763.	0.00					
43.0000	-1.07E-05	-161.4386	1.8472	1.11E-06	1.7645	2.90E+09	
0.4137	231363.	0.00					
43.5000	-5.07E-06	-142.9082	3.6838	7.96E-07	1.5620	2.90E+09	
0.1985	234963.	0.00					
44.0000	-1.18E-06	-117.2330	4.4201	5.26E-07	1.2813	2.90E+09	
0.04698	238563.	0.00					
44.5000	1.25E-06	-89.8664	4.4099	3.12E-07	0.9822	2.90E+09	
-0.05040	242163.	0.00					
45.0000	2.56E-06	-64.3141	3.9438	1.52E-07	0.7029	2.90E+09	
-0.1050	245763.	0.00					
45.5000	3.08E-06	-42.5407	3.2451	4.19E-08	0.4650	2.90E+09	
-0.1279	249363.	0.00					
46.0000	3.07E-06	-25.3727	2.4737	-2.84E-08	0.2773	2.90E+09	
-0.1292	252963.	0.00					
46.5000	2.74E-06	-12.8567	1.7349	-6.80E-08	0.1405	2.90E+09	
-0.1170	256563.	0.00					
47.0000	2.25E-06	-4.5536	1.0913	-8.60E-08	0.04977	2.90E+09	
-0.09752	260163.	0.00					
47.5000	1.70E-06	0.2389	0.5740	-9.05E-08	0.00261	2.90E+09	
-0.07493	263763.	0.00					
48.0000	1.16E-06	2.3338	0.1937	-8.78E-08	0.02551	2.90E+09	
-0.05183	267363.	0.00					
48.5000	6.51E-07	2.5630	-0.04995	-8.28E-08	0.02801	2.90E+09	
-0.02938	270963.	0.00					
49.0000	1.70E-07	1.7344	-0.1614	-7.83E-08	0.01896	2.90E+09	
-0.00778	274563.	0.00					
49.5000	-2.89E-07	0.6259	-0.1445	-7.59E-08	0.00684	2.90E+09	
0.01341	278163.	0.00					
50.0000	-7.40E-07	0.00	0.00	-7.52E-08	0.00	2.90E+09	
0.03477	140881.	0.00					

* The above values of total stress are combined axial and bending stresses.

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Output Summary for Load Case No. 1:

Pile-head deflection = 14.59920063 inches
 Computed slope at pile head = 0.000000 radians
 Maximum bending moment = -3713884. inch-lbs
 Maximum shear force = -31484. lbs
 Depth of maximum bending moment = 0.000000 feet below pile head
 Depth of maximum shear force = 24.00000000 feet below pile head
 Number of iterations = 26
 Number of zero deflection points = 5

 Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

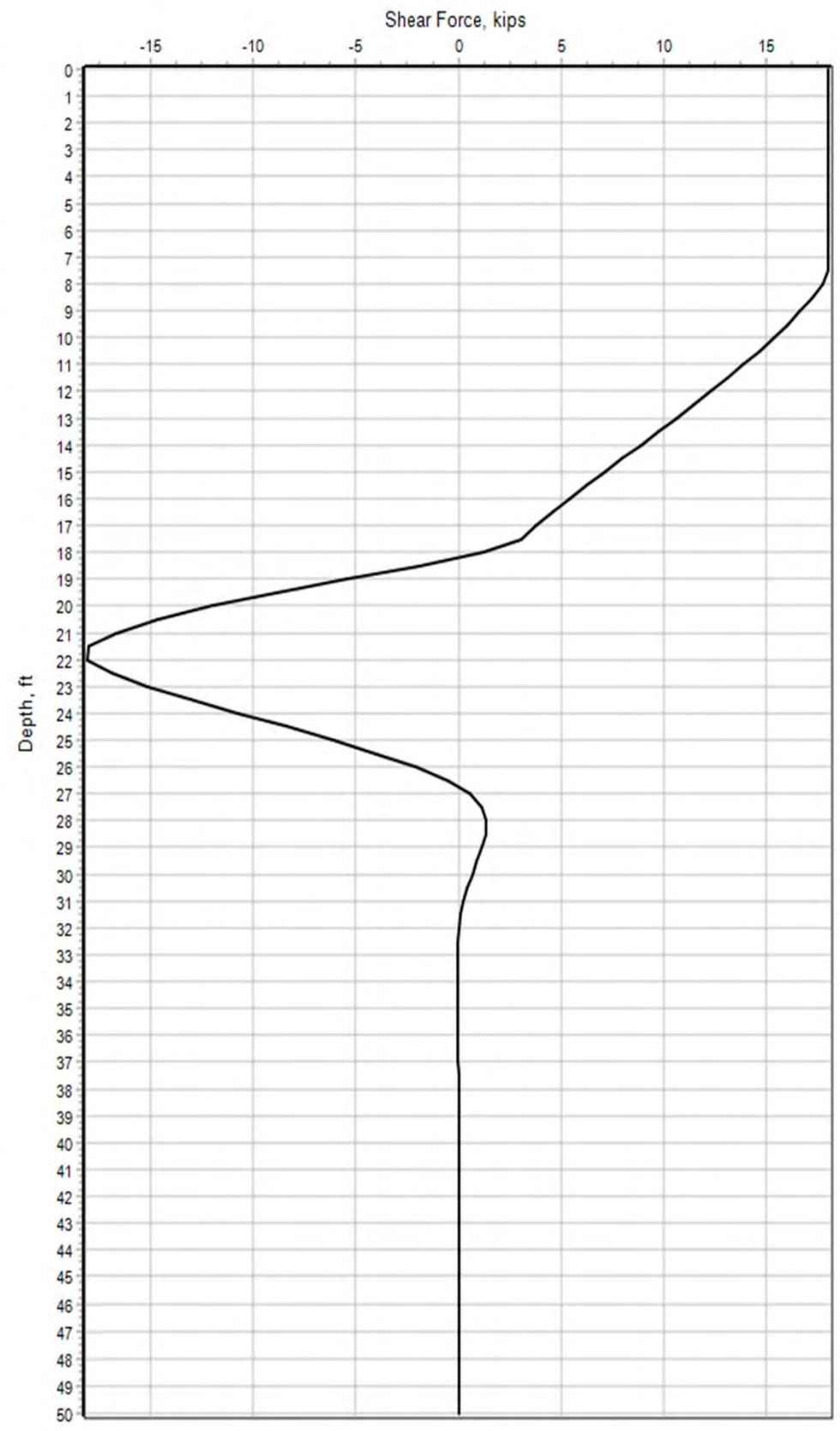
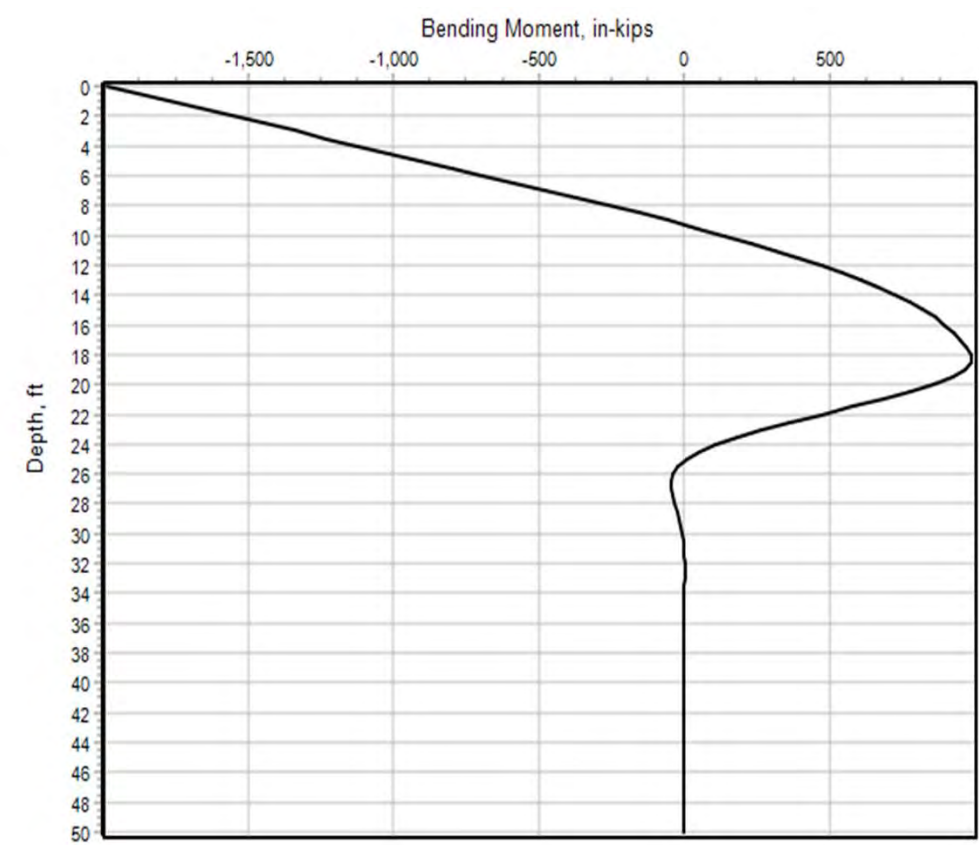
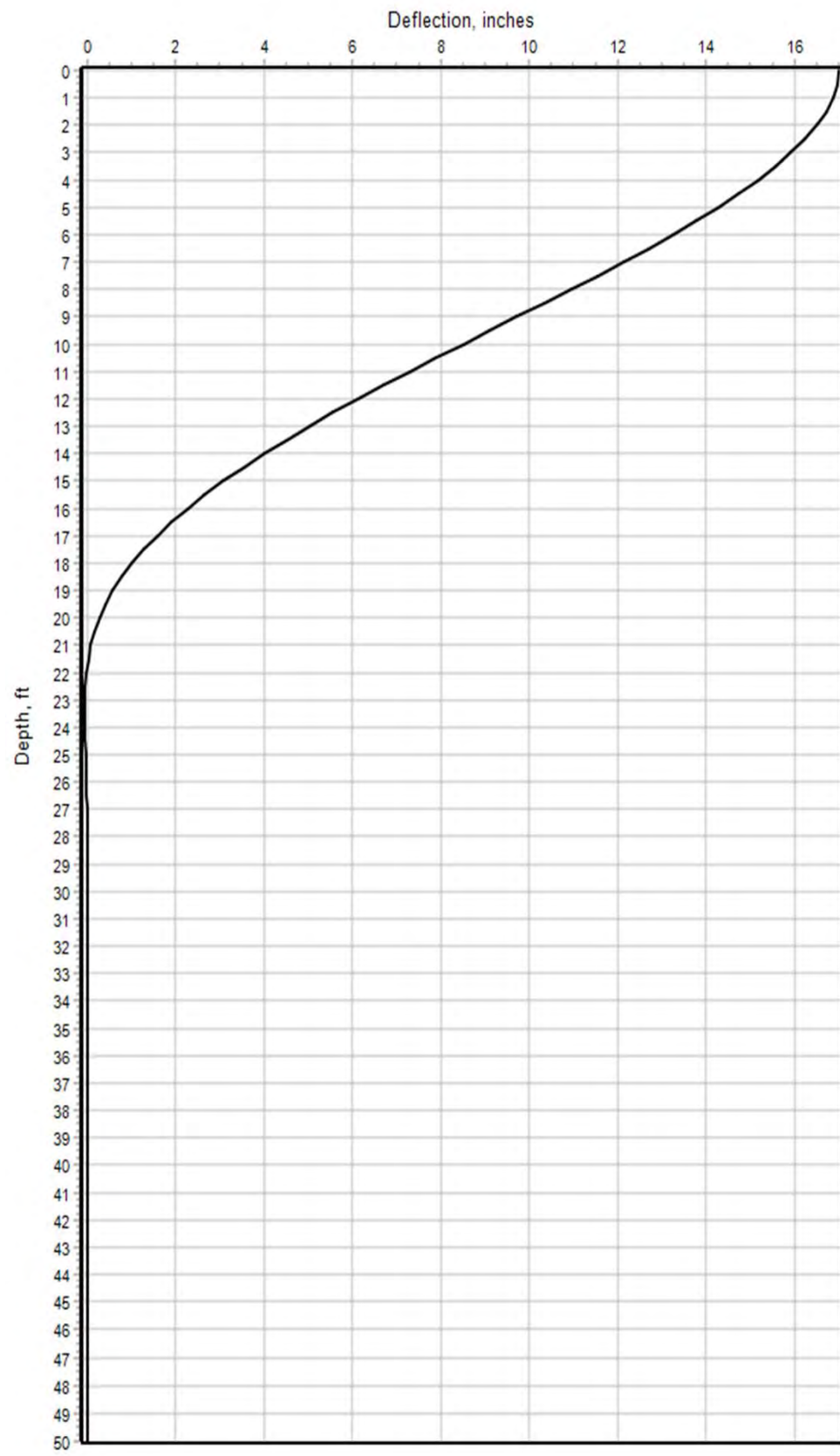
Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case No.	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in lbs
1	V, lb	30000.	S, rad	0.00	0.00	14.5992	0.00
		-31484.					

Maximum pile-head deflection = 14.599200629 inches
 Maximum pile-head rotation = 0.0000000 radians

The analysis ended normally.

Lancaster (Energy)



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LPILE for Windows, Version 2015-08.003

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method
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Files Used for Analysis

Path to file locations:
\Aravinda\Aravinda_A\Other office Project\FRP\Analyses\LPILE\Energy\

Name of input data file:
Lancaster 16-inch.lp8d

Name of output report file:
Lancaster 16-inch.lp8o

Name of plot output file:
Lancaster 16-inch.lp8p

Name of runtime message file:
Lancaster 16-inch.lp8r

Date and Time of Analysis

Date: July 22, 2016 Time: 14:22:14

Problem Title

Fiberglass Composite Materials Specification Redevelopment

Job Number: Project No. 2014-15-02

Lancaster 16-inch.lp8o

Client: NJDOT

Engineer: Hardesty & Hanover, LLC

Description: Lateral Load Analyses

Program Options and Settings

Computational Options:

- Use unfactored loads in computations (conventional analysis)

Engineering Units Used for Data Input and Computations:

- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- | | | |
|--|---|---------------|
| - Maximum number of iterations allowed | = | 100 |
| - Deflection tolerance for convergence | = | 1.0000E-05 in |
| - Maximum allowable deflection | = | 100.0000 in |
| - Number of pile increments | = | 100 |

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Use of p-y modification factors for p-y curves not selected
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Total number of pile sections	=	1
Total length of pile	=	50.00 ft

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Depth of ground surface below top of pile = 8.00 ft

Pile diameters used for p-y curve computations are defined using 2 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	16.47000000
2	50.0000000	16.47000000

Input Structural Properties:

Pile Section No. 1:

Section Type	=	Elastic Pile
Cross-sectional Shape	=	Circular Pipe
Section Length	=	50.000000 ft
Top Width	=	16.470000 in
Bottom Width	=	16.470000 in
Wall Thickness at Top	=	0.205000 in
Wall Thickness at Bottom	=	0.205000 in
Top Area	=	10.475091 sq. in
Bottom Area	=	10.475091 sq. in
Moment of Inertia at Top	=	346.453485 in ⁴
Moment of Inertia at Bottom	=	346.453485 in ⁴
Elastic Modulus	=	3100000. lbs/in ²

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians
Pile Batter Angle	=	0.000 degrees
	=	0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 2 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	8.000000 ft
Distance from top of pile to bottom of layer	=	18.000000 ft
Effective unit weight at top of layer	=	32.486400 pcf
Effective unit weight at bottom of layer	=	32.486400 pcf
Undrained cohesion at top of layer	=	249.984000 psf
Undrained cohesion at bottom of layer	=	249.984000 psf
Epsilon-50 at top of layer	=	0.020000

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 Epsilon-50 at bottom of layer = 0.020000

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 18.000000 ft
 Distance from top of pile to bottom of layer = 66.000000 ft
 Effective unit weight at top of layer = 57.024000 pcf
 Effective unit weight at bottom of layer = 57.024000 pcf
 Friction angle at top of layer = 36.000000 deg.
 Friction angle at bottom of layer = 36.000000 deg.
 Subgrade k at top of layer = 100.000000 pci
 Subgrade k at bottom of layer = 100.000000 pci

(Depth of lowest soil layer extends 16.00 ft below pile tip)

Summary of Input Soil Properties

Layer E50 Layer or Num. krm	Soil Type Name kpy (p-y Curve Type) pci	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.
1	Soft	8.0000	32.4864	249.9840	--
0.02000	--				
	Clay	18.0000	32.4864	249.9840	--
0.02000	--				
2	Sand	18.0000	57.0240	--	36.0000
--	100.0000				
--	(Reese, et al.)	66.0000	57.0240	--	36.0000
--	100.0000				

Static Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Compute No. vs. Pile	Load Top y Type Length	Condition 1	Condition 2	Axial Thrust Force, lbs
1	2	V = 18000. lbs	S = 0.0000 in/in	0.0000000
No				

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V = perpendicular shear force applied to pile head

M = bending moment applied to pile head

y = lateral deflection relative to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading.

Axial thrust is assumed to be acting axially for all pile batter angles.

 Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

 Moment-curvature properties were derived from elastic section properties

 Computed Values of Pile Loading and Deflection
 for Lateral Loading for Load Case Number 1

Pile-head conditions are Shear and Pile-head Rotation (Loading Type 2)

Shear force at pile head = 18000.0 lbs
 Rotation of pile head = 0.000E+00 radians
 Axial load at pile head = 0.0 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth Res.	Soil X	Deflect. Spr.	Bending Distrib.	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
	Es*h	y	Moment					
feet		Lat. Load	in-lbs	lbs	radians	psi*	in-lb^2	
lb/inch		lb/inch	lb/inch					
0.00	0.00	17.0056	-1987089.	18000.	0.00	47232.	1.07E+09	
0.00	0.00	0.00	0.00					
0.5000	0.00	16.9723	-1879089.	18000.	-0.01080	44665.	1.07E+09	
0.00	0.00	0.00	0.00					
1.0000	0.00	16.8760	-1771089.	18000.	-0.02100	42098.	1.07E+09	
0.00	0.00	0.00	0.00					
1.5000	0.00	16.7203	-1663089.	18000.	-0.03059	39531.	1.07E+09	
0.00	0.00	0.00	0.00					
2.0000	0.00	16.5089	-1555089.	18000.	-0.03958	36964.	1.07E+09	
0.00	0.00	0.00	0.00					
2.5000	0.00	16.2454	-1447089.	18000.	-0.04796	34396.	1.07E+09	
0.00	0.00	0.00	0.00					
3.0000	0.00	15.9334	-1339089.	18000.	-0.05575	31829.	1.07E+09	
0.00	0.00	0.00	0.00					
3.5000	0.00	15.5764	-1231089.	18000.	-0.06292	29262.	1.07E+09	
0.00	0.00	0.00	0.00					

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4.0000	15.1783	-1123089.	18000.	-0.06950	26695.	1.07E+09
0.00	0.00	0.00				
4.5000	14.7424	-1015089.	18000.	-0.07547	24128.	1.07E+09
0.00	0.00	0.00				
5.0000	14.2726	-907089.	18000.	-0.08084	21561.	1.07E+09
0.00	0.00	0.00				
5.5000	13.7723	-799089.	18000.	-0.08561	18994.	1.07E+09
0.00	0.00	0.00				
6.0000	13.2453	-691089.	18000.	-0.08977	16427.	1.07E+09
0.00	0.00	0.00				
6.5000	12.6951	-583089.	18000.	-0.09333	13860.	1.07E+09
0.00	0.00	0.00				
7.0000	12.1253	-475089.	18000.	-0.09629	11293.	1.07E+09
0.00	0.00	0.00				
7.5000	11.5396	-367089.	18000.	-0.09864	8725.	1.07E+09
0.00	0.00	0.00				
8.0000	10.9417	-259089.	17743.	-0.1004	6158.	1.07E+09
-85.7758	47.0363	0.00				
8.5000	10.3350	-154177.	17207.	-0.1015	3665.	1.07E+09
-92.8416	53.8994	0.00				
9.0000	9.7232	-52607.	16629.	-0.1021	1250.	1.07E+09
-99.9075	61.6512	0.00				
9.5000	9.1096	45366.	16008.	-0.1021	1078.	1.07E+09
-106.9733	70.4578	0.00				
10.0000	8.4975	139488.	15345.	-0.1016	3316.	1.07E+09
-114.0391	80.5220	0.00				
10.5000	7.8901	229505.	14639.	-0.1006	5455.	1.07E+09
-121.1049	92.0940	0.00				
11.0000	7.2904	315162.	13892.	-0.09907	7491.	1.07E+09
-128.1707	105.4849	0.00				
11.5000	6.7012	396205.	13101.	-0.09708	9418.	1.07E+09
-135.2366	121.0851	0.00				
12.0000	6.1254	472379.	12279.	-0.09466	11228.	1.07E+09
-138.8902	136.0476	0.00				
12.5000	5.5653	543553.	11439.	-0.09182	12920.	1.07E+09
-141.2009	152.2289	0.00				
13.0000	5.0235	609644.	10586.	-0.08860	14491.	1.07E+09
-142.9167	170.6968	0.00				
13.5000	4.5022	670590.	9726.	-0.08502	15940.	1.07E+09
-144.0145	191.9275	0.00				
14.0000	4.0033	726351.	8860.	-0.08112	17265.	1.07E+09
-144.4702	216.5290	0.00				
14.5000	3.5287	776912.	7994.	-0.07692	18467.	1.07E+09
-144.2582	245.2881	0.00				
15.0000	3.0802	822279.	7131.	-0.07245	19545.	1.07E+09
-143.3515	279.2384	0.00				
15.5000	2.6592	862486.	6276.	-0.06775	20501.	1.07E+09
-141.7208	319.7613	0.00				
16.0000	2.2672	897590.	5433.	-0.06283	21335.	1.07E+09
-139.3347	368.7383	0.00				
16.5000	1.9053	927679.	4606.	-0.05773	22050.	1.07E+09
-136.1588	428.7876	0.00				
17.0000	1.5744	952866.	3801.	-0.05248	22649.	1.07E+09
-132.1561	503.6413	0.00				
17.5000	1.2755	973295.	3023.	-0.04710	23135.	1.07E+09
-127.2867	598.7651	0.00				
18.0000	1.0092	989142.	1209.	-0.04162	23511.	1.07E+09
-477.4241	2838.	0.00				
18.5000	0.7761	987801.	-1903.	-0.03610	23479.	1.07E+09
-559.8161	4328.	0.00				
19.0000	0.5760	966308.	-5427.	-0.03064	22969.	1.07E+09
-614.9331	6405.	0.00				
19.5000	0.4084	922676.	-8918.	-0.02536	21931.	1.07E+09

Lancaster 16-inch.lp8o

-548.5958	8060.	0.00				
20.0000	0.2717	859295.	-11998.	-0.02038	20425.	1.07E+09
-478.3415	10563.	0.00				
20.5000	0.1638	778694.	-14624.	-0.01581	18509.	1.07E+09
-396.9740	14542.	0.00				
21.0000	0.08199	683802.	-16692.	-0.01172	16254.	1.07E+09
-292.2302	21386.	0.00				
21.5000	0.02311	578390.	-18021.	-0.00820	13748.	1.07E+09
-150.7823	39153.	0.00				
22.0000	-0.01639	467549.	-18067.	-0.00528	11113.	1.07E+09
135.6098	49647.	0.00				
22.5000	-0.04021	361590.	-16885.	-0.00296	8595.	1.07E+09
258.1029	38511.	0.00				
23.0000	-0.05192	264923.	-15118.	-0.00121	6297.	1.07E+09
330.9630	38250.	0.00				
23.5000	-0.05474	180171.	-13004.	3.27E-05	4283.	1.07E+09
373.6891	40961.	0.00				
24.0000	-0.05152	108872.	-10706.	8.40E-04	2588.	1.07E+09
392.3139	45686.	0.00				
24.5000	-0.04466	51695.	-8358.	0.00129	1229.	1.07E+09
390.3728	52449.	0.00				
25.0000	-0.03606	8573.	-6075.	0.00146	203.7681	1.07E+09
370.8752	61711.	0.00				
25.5000	-0.02717	-21199.	-3951.	0.00142	503.8774	1.07E+09
336.8657	74381.	0.00				
26.0000	-0.01900	-38843.	-2066.	0.00125	923.2672	1.07E+09
291.5406	92072.	0.00				
26.5000	-0.01213	-45991.	-508.8529	0.00102	1093.	1.07E+09
227.5281	112585.	0.00				
27.0000	-0.00679	-44949.	568.4297	7.63E-04	1068.	1.07E+09
131.5661	116185.	0.00				
27.5000	-0.00297	-39170.	1141.	5.28E-04	931.0509	1.07E+09
59.2855	119785.	0.00				
28.0000	-4.58E-04	-31257.	1347.	3.31E-04	742.9623	1.07E+09
9.4149	123385.	0.00				
28.5000	0.00101	-23005.	1311.	1.80E-04	546.8174	1.07E+09
-21.2957	126985.	0.00				
29.0000	0.00170	-15520.	1137.	7.21E-05	368.8953	1.07E+09
-36.9806	130585.	0.00				
29.5000	0.00187	-9366.	900.0834	2.63E-06	222.6174	1.07E+09
-41.8630	134185.	0.00				
30.0000	0.00173	-4719.	655.2641	-3.67E-05	112.1617	1.07E+09
-39.7434	137785.	0.00				
30.5000	0.00143	-1503.	434.8517	-5.41E-05	35.7144	1.07E+09
-33.7274	141385.	0.00				
31.0000	0.00108	499.4823	255.2647	-5.69E-05	11.8724	1.07E+09
-26.1350	144985.	0.00				
31.5000	7.49E-04	1561.	121.2470	-5.11E-05	37.0955	1.07E+09
-18.5376	148585.	0.00				
32.0000	4.68E-04	1954.	30.0321	-4.13E-05	46.4561	1.07E+09
-11.8674	152185.	0.00				
32.5000	2.53E-04	1921.	-25.2540	-3.05E-05	45.6617	1.07E+09
-6.5613	155785.	0.00				
33.0000	1.02E-04	1651.	-53.0607	-2.05E-05	39.2528	1.07E+09
-2.7076	159385.	0.00				
33.5000	6.50E-06	1284.	-61.7129	-1.23E-05	30.5270	1.07E+09
-0.1765	162985.	0.00				
34.0000	-4.59E-05	910.8439	-58.4208	-6.19E-06	21.6502	1.07E+09
1.2739	166585.	0.00				
34.5000	-6.77E-05	583.2488	-48.8359	-2.01E-06	13.8635	1.07E+09
1.9211	170185.	0.00				
35.0000	-7.00E-05	324.8133	-36.9877	5.24E-07	7.7206	1.07E+09
2.0283	173785.	0.00				

Lancaster 16-inch.lp8o							
35.5000	-6.14E-05	139.3966	-25.4536	1.82E-06	3.3134	1.07E+09	
1.8164	177385.	0.00					
36.0000	-4.82E-05	19.3698	-15.6448	2.26E-06	0.4604	1.07E+09	
1.4532	180985.	0.00					
36.5000	-3.43E-05	-48.3413	-8.1227	2.18E-06	1.1490	1.07E+09	
1.0542	184585.	0.00					
37.0000	-2.20E-05	-78.1026	-2.8925	1.83E-06	1.8565	1.07E+09	
0.6892	188185.	0.00					
37.5000	-1.23E-05	-83.0515	0.3549	1.38E-06	1.9741	1.07E+09	
0.3932	191785.	0.00					
38.0000	-5.41E-06	-73.8439	2.0635	9.42E-07	1.7552	1.07E+09	
0.1763	195385.	0.00					
38.5000	-1.00E-06	-58.2900	2.6918	5.73E-07	1.3855	1.07E+09	
0.03316	198985.	0.00					
39.0000	1.46E-06	-41.5425	2.6433	2.94E-07	0.9874	1.07E+09	
-0.04930	202585.	0.00					
39.5000	2.53E-06	-26.5699	2.2349	1.04E-07	0.6316	1.07E+09	
-0.08686	206185.	0.00					
40.0000	2.70E-06	-14.7240	1.6906	-1.17E-08	0.3500	1.07E+09	
-0.09456	209785.	0.00					
40.5000	2.39E-06	-6.2821	1.1522	-7.03E-08	0.1493	1.07E+09	
-0.08491	213385.	0.00					
41.0000	1.86E-06	-0.8971	0.6957	-9.04E-08	0.02132	1.07E+09	
-0.06728	216985.	0.00					
41.5000	1.30E-06	2.0659	0.3501	-8.71E-08	0.04911	1.07E+09	
-0.04790	220585.	0.00					
42.0000	8.15E-07	3.3045	0.1151	-7.21E-08	0.07855	1.07E+09	
-0.03044	224185.	0.00					
42.5000	4.37E-07	3.4471	-0.02606	-5.33E-08	0.08194	1.07E+09	
-0.01661	227785.	0.00					
43.0000	1.76E-07	2.9918	-0.09620	-3.53E-08	0.07111	1.07E+09	
-0.00677	231385.	0.00					
43.5000	1.41E-08	2.2928	-0.1182	-2.05E-08	0.05450	1.07E+09	
-5.52E-04	234985.	0.00					
44.0000	-7.06E-08	1.5738	-0.1114	-9.72E-09	0.03741	1.07E+09	
0.00281	238585.	0.00					
44.5000	-1.03E-07	0.9559	-0.09057	-2.65E-09	0.02272	1.07E+09	
0.00414	242185.	0.00					
45.0000	-1.02E-07	0.4870	-0.06557	1.38E-09	0.01158	1.07E+09	
0.00420	245785.	0.00					
45.5000	-8.60E-08	0.1691	-0.04226	3.21E-09	0.00402	1.07E+09	
0.00357	249385.	0.00					
46.0000	-6.39E-08	-0.02014	-0.02346	3.63E-09	4.79E-04	1.07E+09	
0.00269	252985.	0.00					
46.5000	-4.24E-08	-0.1124	-0.00994	3.26E-09	0.00267	1.07E+09	
0.00181	256585.	0.00					
47.0000	-2.48E-08	-0.1394	-0.00127	2.55E-09	0.00331	1.07E+09	
0.00107	260185.	0.00					
47.5000	-1.18E-08	-0.1277	0.00351	1.81E-09	0.00304	1.07E+09	
5.18E-04	263785.	0.00					
48.0000	-3.08E-09	-0.09735	0.00547	1.18E-09	0.00231	1.07E+09	
1.37E-04	267385.	0.00					
48.5000	2.36E-09	-0.06204	0.00556	7.34E-10	0.00147	1.07E+09	
-1.07E-04	270985.	0.00					
49.0000	5.73E-09	-0.03058	0.00446	4.75E-10	7.27E-04	1.07E+09	
-2.62E-04	274585.	0.00					
49.5000	8.07E-09	-0.00856	0.00255	3.66E-10	2.03E-04	1.07E+09	
-3.74E-04	278185.	0.00					
50.0000	1.01E-08	0.00	0.00	3.42E-10	0.00	1.07E+09	
-4.75E-04	140892.	0.00					

* The above values of total stress are combined axial and bending stresses.

Lancaster 16-inch.lp8o

Output Summary for Load Case No. 1:

Pile-head deflection = 17.00555726 inches
 Computed slope at pile head = 0.000000 radians
 Maximum bending moment = -1987089. inch-lbs
 Maximum shear force = -18067. lbs
 Depth of maximum bending moment = 0.000000 feet below pile head
 Depth of maximum shear force = 22.00000000 feet below pile head
 Number of iterations = 24
 Number of zero deflection points = 6

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

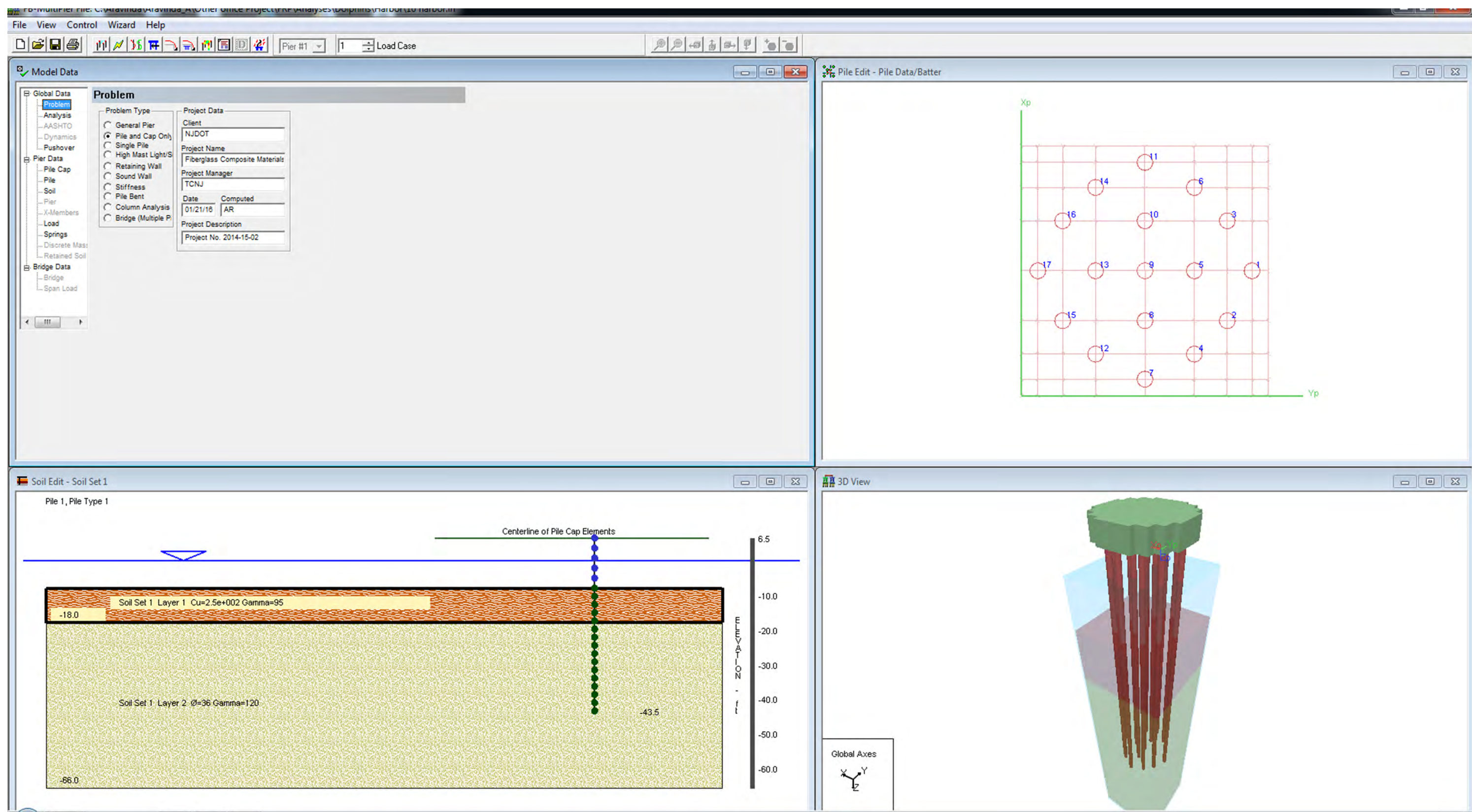
Load Case No.	Load Type	Load 1	Load 2	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in lbs
1	V, lb	18000.	S, rad	0.00	0.00	17.0056	0.00
		-18067.					

Maximum pile-head deflection = 17.005557256 inches
 Maximum pile-head rotation = 0.0000000 radians

The analysis ended normally.

Attachment 4 - Dolphins Analyses (FB-Multiplier)

HarborPile



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 2 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 1,0,0
I= 60 T= 3 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -21 -20.67 0 20.67 21 \
0 0 0 0 0 \
0 0 0 0 0
-0.02 -0.0055 0 0.0055 0.02 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.0055
NL= 0 NG= 0 D= 10 V= 0 S= 80 TH= 0.5 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
9 9 5 5 : NPX, NPY, GSX, GSY
10 15 20 30 30 20 \
15 10
10 15 20 30 30 20 \
15 10
0.3 0.3 0.3 0.3 0.3 0.4 0.8
0.3 0.3 0.3 0.3 0.3 0.4 0.8
:
MISSING
64 : number of missing piles
1 1
2 1
3 1
4 1
5 1
6 1

```

10 harbor.in

7 1
8 1
9 1
1 2
2 2
3 2
4 2
6 2
7 2
8 2
9 2
1 3
2 3
3 3
5 3
7 3
8 3
9 3
1 4
2 4
4 4
6 4
8 4
9 4
1 5
3 5
7 5
9 5
1 6
2 6
4 6
6 6
8 6
9 6
1 7
2 7
3 7
5 7
7 7
8 7
9 7
1 8
2 8
3 8
4 8
6 8
7 8
8 8
9 8
1 9
2 9
3 9
4 9
5 9
6 9
7 9
8 9
9 9
:

SOIL

NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \

X= 0 : Nlayers,kcyc

30 30 95 250 0.02 0 0.6 0.25 175 10 \

10 harbor.in

```
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 5000 U= 0.2 T= 3 S= 0 O= 100
:
REMOVE
1 1
2 1
3 1
6 1
7 1
8 1
1 2
2 2
7 2
8 2
1 3
8 3
1 6
8 6
1 7
2 7
7 7
8 7
1 8
2 8
3 8
6 8
7 8
8 8
:
LOAD
48 L= 1 F= 52 0 0 0 0 0
:
PADBC
:
```

```

!-----!
!       The University of Florida, Florida Department
!       of Transportation, Drs. Marc Hoit, Mike McVay
!       Cliff Hays, Mark Williams, Petros Christou, and
!       Jae H. Chung
!       disclaim any warranty, expressed or implied,
!       including but not limited to, any implied
!       warranty of fitness for a particular purpose
!       or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
!       incurred through the use of FB-MultiPier
!-----!

```

```

!       :::: F B - M U L T I P I E R ::::
!       FB-MultiPier Version 4.17
!-----!

```

```

!       Written by Marc Hoit, Mike McVay, Cliff Hays
!       Mark Williams, Petros Christou, Jae H. Chung.
!
!       Civil & Coastal Engineering, University of Florida
!       Supported by Florida Department of Transportation
!       and the Federal Highway Administration
!
!       The program calculates the Response
!       of the Bridge Pier Pile Soil Structures
!
!       The Analysis includes PreLoad, Static,
!       Transient Dynamic or Push Over
!
!       The Program Handles NonLinear Soil Behavior,
!       Linear Pile Cap and Linear and NonLinear Piles and Piers
!
!       Contact: Bridge Software Institute for Support
!       HTTP://BSI-WEB.CE.UFL.EDU
!-----!

```

```

*****
*                               *
*   ANALYSIS RESULTS           *
*                               *
*****

```

```

*****
*   RESULTS FOR LOAD CASE #      1  *
*****

```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PILE#	X-PYM	Y-PYM
1	0.300E+00	0.100E+01
2	0.300E+00	0.100E+01
3	0.300E+00	0.100E+01
4	0.300E+00	0.100E+01
5	0.300E+00	0.100E+01
6	0.400E+00	0.100E+01
7	0.300E+00	0.100E+01
8	0.300E+00	0.100E+01
9	0.300E+00	0.100E+01
10	0.300E+00	0.100E+01
11	0.800E+00	0.100E+01
12	0.300E+00	0.100E+01
13	0.300E+00	0.100E+01
14	0.400E+00	0.100E+01
15	0.300E+00	0.100E+01
16	0.300E+00	0.100E+01
17	0.300E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 6 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.000	Kips
FXX =	1.983	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYX =	0.000	Kip-in
MZZ =	2.150	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	52.4569	0.0000	0.0000
2	52.4569	0.0000	0.0000
3	52.4569	0.0000	0.0000
4	52.4569	0.0001	0.0000
5	52.4569	0.0000	0.0000
6	52.4568	0.0000	0.0000
7	52.4572	0.0000	0.0000
8	52.4569	0.0000	0.0000
9	52.4569	0.0000	0.0000
10	52.4568	0.0000	0.0000
11	52.4568	0.0000	0.0000
12	52.4569	0.0000	0.0000
13	52.4569	0.0000	0.0000
14	52.4568	0.0000	0.0000
15	52.4569	0.0000	0.0000
16	52.4569	0.0000	0.0000
17	52.4569	0.0000	0.0000

Pile Cap Displacements (Excluding Pile Heads)

```
10 harbor.out
```

[illegible]

```
10 harbor.out
```

[illegible]

```
10 harbor.out
```

[illegible]

```
10 harbor.out
```

[illegible]

10 harbor.out

270	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
271	52.4569	0.0000	0.0000	0.0000	0.0000	0.0000
272	52.4569	0.0000	0.0000	0.0000	0.0000	0.0000
273	52.4569	0.0000	0.0000	0.0000	0.0000	0.0000
274	52.4569	0.0000	0.0000	0.0000	0.0000	0.0000
275	52.4569	0.0000	0.0000	0.0000	0.0000	0.0000
276	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
277	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
278	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
279	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
280	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
281	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
282	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
283	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
284	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
285	52.4569	0.0000	0.0000	0.0000	0.0000	0.0000
286	52.4569	0.0000	0.0000	0.0000	0.0000	0.0000
287	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
288	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
289	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1
 Steel type = 4 (For Description see Users Manual)
 Maximum = 0.6349E-02
 Minimum = -0.6349E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)
 X Direction = 5.2038 Kips
 Y Direction = 0.0000 Kips
 Z Direction = 0.0003 Kips
 Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.25675E-11	-0.18893E-11
2	-0.10610E-12	-0.31297E-11
3	-0.98219E-13	-0.35786E-11
4	0.27300E-11	-0.31715E-11
5	-0.10996E-12	-0.36593E-11
6	-0.95959E-13	-0.30829E-11
7	-0.71860E-13	-0.44584E-11
8	-0.70157E-13	-0.31958E-11
9	0.87852E-12	-0.80758E-12

10 harbor.out

10	0.16121E-12	-0.20055E-11
11	-0.57595E-13	-0.21752E-11
12	0.32340E-11	-0.12075E-11
13	-0.61603E-13	-0.35577E-11
14	-0.56299E-13	-0.21897E-11
15	-0.66552E-13	-0.13203E-11
16	-0.59391E-13	-0.35432E-11
17	0.66971E-12	-0.21579E-11

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.29744E+01	-0.10903E+02
2	0.29744E+01	-0.10903E+02
3	0.29744E+01	-0.10903E+02
4	0.29743E+01	-0.10902E+02
5	0.29744E+01	-0.10903E+02
6	0.32089E+01	-0.12548E+02
7	0.29745E+01	-0.10903E+02
8	0.29744E+01	-0.10903E+02
9	0.29743E+01	-0.10902E+02
10	0.29744E+01	-0.10903E+02
11	0.39404E+01	-0.12635E+02
12	0.29744E+01	-0.10903E+02
13	0.29744E+01	-0.10903E+02
14	0.32088E+01	-0.12547E+02
15	0.29744E+01	-0.10903E+02
16	0.29744E+01	-0.10903E+02
17	0.29744E+01	-0.10903E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.10582E-03	-0.35219E-04
2	0.12213E-03	-0.40641E-04
3	0.46757E-04	-0.15569E-04
4	0.14574E-03	-0.48486E-04
5	0.78389E-04	-0.26096E-04
6	0.26815E-06	-0.89301E-07
7	0.12629E-04	-0.42058E-05
8	0.58231E-05	-0.19393E-05
9	0.32489E-08	-0.97557E-08
10	0.19457E-05	-0.58424E-05
11	0.43417E-05	-0.12400E-04
12	0.42043E-04	-0.12634E-03
13	0.26102E-04	-0.78408E-04
14	0.65700E-05	-0.19729E-04
15	0.36775E-04	-0.11049E-03
16	0.19456E-04	-0.58437E-04
17	0.35225E-04	-0.10583E-03

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	295	0.19233E+02	0.6256E-04	0.16867E+02	-0.1879E-03
2	315	0.19233E+02	0.7219E-04	0.16867E+02	-0.2168E-03

10 harbor.out

3	335	0.19233E+02	0.2765E-04	0.16867E+02	-0.8300E-04
4	355	0.19233E+02	0.8613E-04	0.16867E+02	-0.2588E-03
5	375	0.19233E+02	0.4635E-04	0.16867E+02	-0.1392E-03
6	394	0.16867E+02	0.1586E-06	0.16867E+02	-0.4760E-06
7	414	0.16867E+02	0.7470E-05	0.16867E+02	-0.2242E-04
8	435	0.19233E+02	0.3445E-05	0.16867E+02	-0.1034E-04
9	453	0.14500E+02	0.1732E-07	0.16867E+02	-0.5771E-08
10	473	0.14500E+02	0.1037E-04	0.19233E+02	-0.3456E-05
11	494	0.16867E+02	0.2241E-04	0.19233E+02	-0.7700E-05
12	513	0.14500E+02	0.2243E-03	0.19233E+02	-0.7468E-04
13	533	0.14500E+02	0.1392E-03	0.16867E+02	-0.4636E-04
14	553	0.14500E+02	0.3502E-04	0.16867E+02	-0.1167E-04
15	573	0.14500E+02	0.1962E-03	0.16867E+02	-0.6532E-04
16	593	0.14500E+02	0.1037E-03	0.16867E+02	-0.3456E-04
17	613	0.14500E+02	0.1879E-03	0.16867E+02	-0.6257E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	301	0.33433E+02	3.120	0.21600E+02	-56.44
2	322	0.35800E+02	3.120	0.21600E+02	-56.44
3	341	0.33433E+02	3.120	0.21600E+02	-56.44
4	361	0.33433E+02	3.139	0.21600E+02	-56.44
5	382	0.35800E+02	3.120	0.23967E+02	-56.44
6	401	0.33433E+02	2.815	0.21600E+02	-58.84
7	421	0.33433E+02	3.120	0.21600E+02	-56.44
8	442	0.35800E+02	3.120	0.21600E+02	-56.44
9	461	0.33433E+02	3.139	0.23967E+02	-56.44
10	481	0.33433E+02	3.120	0.21600E+02	-56.44
11	500	0.31067E+02	3.226	0.19233E+02	-67.01
12	521	0.33433E+02	3.120	0.21600E+02	-56.44
13	542	0.35800E+02	3.120	0.21600E+02	-56.44
14	561	0.33433E+02	2.834	0.21600E+02	-58.83
15	581	0.33433E+02	3.120	0.23967E+02	-56.44
16	601	0.33433E+02	3.120	0.21600E+02	-56.44
17	622	0.35800E+02	3.120	0.21600E+02	-56.44

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM D/C NO.	PROP NO.	NODE NO.	LOAD CASE	FAX (Kips)	F22 (Kips)	F33 (Kips)	M22 (Kip-ft)	M33 (Kip-ft)	TORQUE
! -> Pile Number 1 !									
1	1	1	1	0.00	2.97	0.00	0.00	0.00	0.00
0.00		0.00							
	1	290	1	0.00	-2.97	0.00	0.00	0.00	-8.63
0.00		0.11							

				10 harbor.out				
2	1	290	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	291	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
3	1	291	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	292	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
4	1	292	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	293	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
5	1	293	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	294	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
6	1	294	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	295	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
7	1	295	1	0.00	1.97	0.00	0.00	49.60
0.00		0.63						
	1	296	1	0.00	-1.97	0.00	0.00	-54.28
0.00		0.69						
8	1	296	1	0.00	0.92	0.00	0.00	54.28
0.00		0.69						
	1	297	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
9	1	297	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	298	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
10	1	298	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	299	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
11	1	299	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	300	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
12	1	300	1	0.00	-9.56	0.00	0.00	26.15
0.00		0.33						
	1	301	1	0.00	9.56	0.00	0.00	-3.51
0.00		0.04						
13	1	301	1	0.00	-2.80	0.00	0.00	3.51
0.00		0.04						
	1	302	1	0.00	2.80	0.00	0.00	3.12
0.00		0.04						
14	1	302	1	0.00	0.72	0.00	0.00	-3.12
0.00		0.04						
	1	303	1	0.00	-0.72	0.00	0.00	1.43
0.00		0.02						
15	1	303	1	0.00	0.59	0.00	0.00	-1.43
0.00		0.02						
	1	304	1	0.00	-0.59	0.00	0.00	0.03
0.00		0.00						
16	1	304	1	0.00	0.07	0.00	0.00	-0.03
0.00		0.00						
	1	305	1	0.00	-0.07	0.00	0.00	-0.15
0.00		0.00						
17	1	305	1	0.00	-0.05	0.00	0.00	0.15
0.00		0.00						
	1	306	1	0.00	0.05	0.00	0.00	-0.03

10 harbor.out

0.00		0.00						
18	1	306	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	307	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
19	1	307	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	308	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
20	1	308	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	309	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 2 !

21	1	2	1	0.00	2.97	0.00	0.00	0.00
0.00		0.00						
	1	310	1	0.00	-2.97	0.00	0.00	-8.63
0.00		0.11						
22	1	310	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	311	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
23	1	311	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	312	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
24	1	312	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	313	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
25	1	313	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	314	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
26	1	314	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	315	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
27	1	315	1	0.00	1.97	0.00	0.00	49.60
0.00		0.63						
	1	316	1	0.00	-1.97	0.00	0.00	-54.28
0.00		0.69						
28	1	316	1	0.00	0.92	0.00	0.00	54.28
0.00		0.69						
	1	317	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
29	1	317	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	318	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
30	1	318	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	319	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
31	1	319	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	320	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
32	1	320	1	0.00	-9.56	0.00	0.00	26.15
0.00		0.33						

				10 harbor.out				
	1	321	1	0.00	9.56	0.00	0.00	-3.51
0.00		0.04						
33	1	321	1	0.00	-2.80	0.00	0.00	3.51
0.00		0.04						
	1	322	1	0.00	2.80	0.00	0.00	3.12
0.00		0.04						
34	1	322	1	0.00	0.72	0.00	0.00	-3.12
0.00		0.04						
	1	323	1	0.00	-0.72	0.00	0.00	1.43
0.00		0.02						
35	1	323	1	0.00	0.59	0.00	0.00	-1.43
0.00		0.02						
	1	324	1	0.00	-0.59	0.00	0.00	0.03
0.00		0.00						
36	1	324	1	0.00	0.07	0.00	0.00	-0.03
0.00		0.00						
	1	325	1	0.00	-0.07	0.00	0.00	-0.15
0.00		0.00						
37	1	325	1	0.00	-0.05	0.00	0.00	0.15
0.00		0.00						
	1	326	1	0.00	0.05	0.00	0.00	-0.03
0.00		0.00						
38	1	326	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	327	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
39	1	327	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	328	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
40	1	328	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	329	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 3 !

41	1	3	1	0.00	2.97	0.00	0.00	0.00
0.00		0.00						
	1	330	1	0.00	-2.97	0.00	0.00	-8.63
0.00		0.11						
42	1	330	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	331	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
43	1	331	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	332	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
44	1	332	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	333	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
45	1	333	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	334	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
46	1	334	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	335	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
47	1	335	1	0.00	1.97	0.00	0.00	49.60

10 harbor.out

0.00		0.63						
	1	336	1	0.00	-1.97	0.00	0.00	-54.28
0.00		0.69						
48	1	336	1	0.00	0.92	0.00	0.00	54.28
0.00		0.69						
	1	337	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
49	1	337	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	338	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
50	1	338	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	339	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
51	1	339	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	340	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
52	1	340	1	0.00	-9.56	0.00	0.00	26.15
0.00		0.33						
	1	341	1	0.00	9.56	0.00	0.00	-3.51
0.00		0.04						
53	1	341	1	0.00	-2.80	0.00	0.00	3.51
0.00		0.04						
	1	342	1	0.00	2.80	0.00	0.00	3.12
0.00		0.04						
54	1	342	1	0.00	0.72	0.00	0.00	-3.12
0.00		0.04						
	1	343	1	0.00	-0.72	0.00	0.00	1.43
0.00		0.02						
55	1	343	1	0.00	0.59	0.00	0.00	-1.43
0.00		0.02						
	1	344	1	0.00	-0.59	0.00	0.00	0.03
0.00		0.00						
56	1	344	1	0.00	0.07	0.00	0.00	-0.03
0.00		0.00						
	1	345	1	0.00	-0.07	0.00	0.00	-0.15
0.00		0.00						
57	1	345	1	0.00	-0.05	0.00	0.00	0.15
0.00		0.00						
	1	346	1	0.00	0.05	0.00	0.00	-0.03
0.00		0.00						
58	1	346	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	347	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
59	1	347	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	348	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
60	1	348	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	349	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 4 !

61	1	4	1	0.00	2.97	0.00	0.00	0.00
0.00		0.00						
	1	350	1	0.00	-2.97	0.00	0.00	-8.63
0.00		0.11						

				10 harbor.out				
62	1	350	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	351	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
63	1	351	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	352	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
64	1	352	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	353	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
65	1	353	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	354	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
66	1	354	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	355	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
67	1	355	1	0.00	1.97	0.00	0.00	49.60
0.00		0.63						
	1	356	1	0.00	-1.97	0.00	0.00	-54.27
0.00		0.69						
68	1	356	1	0.00	0.92	0.00	0.00	54.27
0.00		0.69						
	1	357	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
69	1	357	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	358	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
70	1	358	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	359	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
71	1	359	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	360	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
72	1	360	1	0.00	-9.54	0.00	0.00	26.15
0.00		0.33						
	1	361	1	0.00	9.54	0.00	0.00	-3.56
0.00		0.04						
73	1	361	1	0.00	-2.83	0.00	0.00	3.56
0.00		0.04						
	1	362	1	0.00	2.83	0.00	0.00	3.14
0.00		0.04						
74	1	362	1	0.00	0.72	0.00	0.00	-3.14
0.00		0.04						
	1	363	1	0.00	-0.72	0.00	0.00	1.44
0.00		0.02						
75	1	363	1	0.00	0.59	0.00	0.00	-1.44
0.00		0.02						
	1	364	1	0.00	-0.59	0.00	0.00	0.03
0.00		0.00						
76	1	364	1	0.00	0.08	0.00	0.00	-0.03
0.00		0.00						
	1	365	1	0.00	-0.08	0.00	0.00	-0.15
0.00		0.00						
77	1	365	1	0.00	-0.05	0.00	0.00	0.15
0.00		0.00						
	1	366	1	0.00	0.05	0.00	0.00	-0.03

10 harbor.out

0.00		0.00						
78	1	366	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	367	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
79	1	367	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	368	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
80	1	368	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	369	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 5 !

81	1	5	1	0.00	2.97	0.00	0.00	0.00
0.00		0.00						
	1	370	1	0.00	-2.97	0.00	0.00	-8.63
0.00		0.11						
82	1	370	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	371	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
83	1	371	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	372	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
84	1	372	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	373	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
85	1	373	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	374	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
86	1	374	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	375	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
87	1	375	1	0.00	1.97	0.00	0.00	49.60
0.00		0.63						
	1	376	1	0.00	-1.97	0.00	0.00	-54.28
0.00		0.69						
88	1	376	1	0.00	0.92	0.00	0.00	54.28
0.00		0.69						
	1	377	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
89	1	377	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	378	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
90	1	378	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	379	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
91	1	379	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	380	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
92	1	380	1	0.00	-9.56	0.00	0.00	26.15
0.00		0.33						

				10 harbor.out				
	1	381	1	0.00	9.56	0.00	0.00	-3.51
0.00		0.04						
93	1	381	1	0.00	-2.80	0.00	0.00	3.51
0.00		0.04						
	1	382	1	0.00	2.80	0.00	0.00	3.12
0.00		0.04						
94	1	382	1	0.00	0.72	0.00	0.00	-3.12
0.00		0.04						
	1	383	1	0.00	-0.72	0.00	0.00	1.43
0.00		0.02						
95	1	383	1	0.00	0.59	0.00	0.00	-1.43
0.00		0.02						
	1	384	1	0.00	-0.59	0.00	0.00	0.03
0.00		0.00						
96	1	384	1	0.00	0.07	0.00	0.00	-0.03
0.00		0.00						
	1	385	1	0.00	-0.07	0.00	0.00	-0.15
0.00		0.00						
97	1	385	1	0.00	-0.05	0.00	0.00	0.15
0.00		0.00						
	1	386	1	0.00	0.05	0.00	0.00	-0.03
0.00		0.00						
98	1	386	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	387	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
99	1	387	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	388	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
100	1	388	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	389	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 6 !

101	1	6	1	0.00	3.21	0.00	0.00	0.00
0.00		0.00						
	1	390	1	0.00	-3.21	0.00	0.00	-9.31
0.00		0.12						
102	1	390	1	0.00	3.21	0.00	0.00	9.31
0.00		0.12						
	1	391	1	0.00	-3.21	0.00	0.00	-18.61
0.00		0.24						
103	1	391	1	0.00	3.21	0.00	0.00	18.61
0.00		0.24						
	1	392	1	0.00	-3.21	0.00	0.00	-27.92
0.00		0.35						
104	1	392	1	0.00	3.21	0.00	0.00	27.92
0.00		0.35						
	1	393	1	0.00	-3.21	0.00	0.00	-37.22
0.00		0.47						
105	1	393	1	0.00	3.21	0.00	0.00	37.22
0.00		0.47						
	1	394	1	0.00	-3.21	0.00	0.00	-46.53
0.00		0.59						
106	1	394	1	0.00	2.89	0.00	0.00	46.53
0.00		0.59						
	1	395	1	0.00	-2.89	0.00	0.00	-53.37
0.00		0.67						
107	1	395	1	0.00	1.87	0.00	0.00	53.37

10 harbor.out

0.00		0.67						
	1	396	1	0.00	-1.87	0.00	0.00	-57.79
0.00		0.73						
108	1	396	1	0.00	0.44	0.00	0.00	57.79
0.00		0.73						
	1	397	1	0.00	-0.44	0.00	0.00	-58.84
0.00		0.74						
109	1	397	1	0.00	-1.20	0.00	0.00	58.84
0.00		0.74						
	1	398	1	0.00	1.20	0.00	0.00	-55.99
0.00		0.71						
110	1	398	1	0.00	-2.68	0.00	0.00	55.99
0.00		0.71						
	1	399	1	0.00	2.68	0.00	0.00	-49.65
0.00		0.63						
111	1	399	1	0.00	-12.55	0.00	0.00	49.65
0.00		0.63						
	1	400	1	0.00	12.55	0.00	0.00	-19.95
0.00		0.25						
112	1	400	1	0.00	-8.61	0.00	0.00	19.95
0.00		0.25						
	1	401	1	0.00	8.61	0.00	0.00	0.44
0.00		0.01						
113	1	401	1	0.00	-1.01	0.00	0.00	-0.44
0.00		0.01						
	1	402	1	0.00	1.01	0.00	0.00	2.82
0.00		0.04						
114	1	402	1	0.00	0.92	0.00	0.00	-2.82
0.00		0.04						
	1	403	1	0.00	-0.92	0.00	0.00	0.63
0.00		0.01						
115	1	403	1	0.00	0.33	0.00	0.00	-0.63
0.00		0.01						
	1	404	1	0.00	-0.33	0.00	0.00	-0.15
0.00		0.00						
116	1	404	1	0.00	-0.03	0.00	0.00	0.15
0.00		0.00						
	1	405	1	0.00	0.03	0.00	0.00	-0.08
0.00		0.00						
117	1	405	1	0.00	-0.04	0.00	0.00	0.08
0.00		0.00						
	1	406	1	0.00	0.04	0.00	0.00	0.00
0.00		0.00						
118	1	406	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	407	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
119	1	407	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	408	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
120	1	408	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	409	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 7 !

121	1	7	1	0.00	2.97	0.00	0.00	0.00
0.00		0.00						
	1	410	1	0.00	-2.97	0.00	0.00	-8.63
0.00		0.11						

				10 harbor.out				
122	1	410	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	411	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
123	1	411	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	412	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
124	1	412	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	413	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
125	1	413	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	414	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
126	1	414	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	415	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
127	1	415	1	0.00	1.97	0.00	0.00	49.60
0.00		0.63						
	1	416	1	0.00	-1.97	0.00	0.00	-54.28
0.00		0.69						
128	1	416	1	0.00	0.92	0.00	0.00	54.28
0.00		0.69						
	1	417	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
129	1	417	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	418	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
130	1	418	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	419	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
131	1	419	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	420	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
132	1	420	1	0.00	-9.56	0.00	0.00	26.15
0.00		0.33						
	1	421	1	0.00	9.56	0.00	0.00	-3.51
0.00		0.04						
133	1	421	1	0.00	-2.80	0.00	0.00	3.51
0.00		0.04						
	1	422	1	0.00	2.80	0.00	0.00	3.12
0.00		0.04						
134	1	422	1	0.00	0.72	0.00	0.00	-3.12
0.00		0.04						
	1	423	1	0.00	-0.72	0.00	0.00	1.43
0.00		0.02						
135	1	423	1	0.00	0.59	0.00	0.00	-1.43
0.00		0.02						
	1	424	1	0.00	-0.59	0.00	0.00	0.03
0.00		0.00						
136	1	424	1	0.00	0.07	0.00	0.00	-0.03
0.00		0.00						
	1	425	1	0.00	-0.07	0.00	0.00	-0.15
0.00		0.00						
137	1	425	1	0.00	-0.05	0.00	0.00	0.15
0.00		0.00						
	1	426	1	0.00	0.05	0.00	0.00	-0.03

10 harbor.out

0.00		0.00						
138	1	426	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	427	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
139	1	427	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	428	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
140	1	428	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	429	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 8 !

141	1	8	1	0.00	2.97	0.00	0.00	0.00
0.00		0.00						
	1	430	1	0.00	-2.97	0.00	0.00	-8.63
0.00		0.11						
142	1	430	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	431	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
143	1	431	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	432	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
144	1	432	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	433	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
145	1	433	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	434	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
146	1	434	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	435	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
147	1	435	1	0.00	1.97	0.00	0.00	49.60
0.00		0.63						
	1	436	1	0.00	-1.97	0.00	0.00	-54.28
0.00		0.69						
148	1	436	1	0.00	0.92	0.00	0.00	54.28
0.00		0.69						
	1	437	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
149	1	437	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	438	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
150	1	438	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	439	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
151	1	439	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	440	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
152	1	440	1	0.00	-9.56	0.00	0.00	26.15
0.00		0.33						

				10 harbor.out				
	1	441	1	0.00	9.56	0.00	0.00	-3.51
0.00		0.04						
153	1	441	1	0.00	-2.80	0.00	0.00	3.51
0.00		0.04						
	1	442	1	0.00	2.80	0.00	0.00	3.12
0.00		0.04						
154	1	442	1	0.00	0.72	0.00	0.00	-3.12
0.00		0.04						
	1	443	1	0.00	-0.72	0.00	0.00	1.43
0.00		0.02						
155	1	443	1	0.00	0.59	0.00	0.00	-1.43
0.00		0.02						
	1	444	1	0.00	-0.59	0.00	0.00	0.03
0.00		0.00						
156	1	444	1	0.00	0.07	0.00	0.00	-0.03
0.00		0.00						
	1	445	1	0.00	-0.07	0.00	0.00	-0.15
0.00		0.00						
157	1	445	1	0.00	-0.05	0.00	0.00	0.15
0.00		0.00						
	1	446	1	0.00	0.05	0.00	0.00	-0.03
0.00		0.00						
158	1	446	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	447	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
159	1	447	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	448	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
160	1	448	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	449	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 9 !

161	1	9	1	0.00	2.97	0.00	0.00	0.00
0.00		0.00						
	1	450	1	0.00	-2.97	0.00	0.00	-8.63
0.00		0.11						
162	1	450	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	451	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
163	1	451	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	452	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
164	1	452	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	453	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
165	1	453	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	454	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
166	1	454	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	455	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
167	1	455	1	0.00	1.97	0.00	0.00	49.60

10 harbor.out

0.00		0.63						
	1	456	1	0.00	-1.97	0.00	0.00	-54.27
0.00		0.69						
168	1	456	1	0.00	0.92	0.00	0.00	54.27
0.00		0.69						
	1	457	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
169	1	457	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	458	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
170	1	458	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	459	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
171	1	459	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	460	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
172	1	460	1	0.00	-9.54	0.00	0.00	26.15
0.00		0.33						
	1	461	1	0.00	9.54	0.00	0.00	-3.56
0.00		0.04						
173	1	461	1	0.00	-2.83	0.00	0.00	3.56
0.00		0.04						
	1	462	1	0.00	2.83	0.00	0.00	3.14
0.00		0.04						
174	1	462	1	0.00	0.72	0.00	0.00	-3.14
0.00		0.04						
	1	463	1	0.00	-0.72	0.00	0.00	1.44
0.00		0.02						
175	1	463	1	0.00	0.59	0.00	0.00	-1.44
0.00		0.02						
	1	464	1	0.00	-0.59	0.00	0.00	0.03
0.00		0.00						
176	1	464	1	0.00	0.08	0.00	0.00	-0.03
0.00		0.00						
	1	465	1	0.00	-0.08	0.00	0.00	-0.15
0.00		0.00						
177	1	465	1	0.00	-0.05	0.00	0.00	0.15
0.00		0.00						
	1	466	1	0.00	0.05	0.00	0.00	-0.03
0.00		0.00						
178	1	466	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	467	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
179	1	467	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	468	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
180	1	468	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	469	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 10 !

181	1	10	1	0.00	2.97	0.00	0.00	0.00
0.00		0.00						
	1	470	1	0.00	-2.97	0.00	0.00	-8.63
0.00		0.11						

				10 harbor.out				
182	1	470	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	471	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
183	1	471	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	472	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
184	1	472	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	473	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
185	1	473	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	474	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
186	1	474	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	475	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
187	1	475	1	0.00	1.97	0.00	0.00	49.60
0.00		0.63						
	1	476	1	0.00	-1.97	0.00	0.00	-54.28
0.00		0.69						
188	1	476	1	0.00	0.92	0.00	0.00	54.28
0.00		0.69						
	1	477	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
189	1	477	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	478	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
190	1	478	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	479	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
191	1	479	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	480	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
192	1	480	1	0.00	-9.56	0.00	0.00	26.15
0.00		0.33						
	1	481	1	0.00	9.56	0.00	0.00	-3.51
0.00		0.04						
193	1	481	1	0.00	-2.80	0.00	0.00	3.51
0.00		0.04						
	1	482	1	0.00	2.80	0.00	0.00	3.12
0.00		0.04						
194	1	482	1	0.00	0.72	0.00	0.00	-3.12
0.00		0.04						
	1	483	1	0.00	-0.72	0.00	0.00	1.43
0.00		0.02						
195	1	483	1	0.00	0.59	0.00	0.00	-1.43
0.00		0.02						
	1	484	1	0.00	-0.59	0.00	0.00	0.03
0.00		0.00						
196	1	484	1	0.00	0.07	0.00	0.00	-0.03
0.00		0.00						
	1	485	1	0.00	-0.07	0.00	0.00	-0.15
0.00		0.00						
197	1	485	1	0.00	-0.05	0.00	0.00	0.15
0.00		0.00						
	1	486	1	0.00	0.05	0.00	0.00	-0.03

10 harbor.out

0.00		0.00						
198	1	486	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	487	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
199	1	487	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	488	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
200	1	488	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	489	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 11 !

201	1	11	1	0.00	3.94	0.00	0.00	0.00
0.00		0.00						
	1	490	1	0.00	-3.94	0.00	0.00	-11.43
0.00		0.14						
202	1	490	1	0.00	3.94	0.00	0.00	11.43
0.00		0.14						
	1	491	1	0.00	-3.94	0.00	0.00	-22.85
0.00		0.29						
203	1	491	1	0.00	3.94	0.00	0.00	22.85
0.00		0.29						
	1	492	1	0.00	-3.94	0.00	0.00	-34.28
0.00		0.43						
204	1	492	1	0.00	3.94	0.00	0.00	34.28
0.00		0.43						
	1	493	1	0.00	-3.94	0.00	0.00	-45.71
0.00		0.58						
205	1	493	1	0.00	3.94	0.00	0.00	45.71
0.00		0.58						
	1	494	1	0.00	-3.94	0.00	0.00	-57.14
0.00		0.72						
206	1	494	1	0.00	3.56	0.00	0.00	56.97
0.00		0.72						
	1	495	1	0.00	-3.56	0.00	0.00	-65.40
0.00		0.83						
207	1	495	1	0.00	0.75	0.00	0.00	65.24
0.00		0.82						
	1	496	1	0.00	-0.75	0.00	0.00	-67.01
0.00		0.85						
208	1	496	1	0.00	-1.47	0.00	0.00	66.85
0.00		0.84						
	1	497	1	0.00	1.47	0.00	0.00	-63.37
0.00		0.80						
209	1	497	1	0.00	-4.92	0.00	0.00	63.49
0.00		0.80						
	1	498	1	0.00	4.92	0.00	0.00	-51.85
0.00		0.65						
210	1	498	1	0.00	-7.83	0.00	0.00	51.85
0.00		0.65						
	1	499	1	0.00	7.83	0.00	0.00	-33.32
0.00		0.42						
211	1	499	1	0.00	-12.64	0.00	0.00	33.32
0.00		0.42						
	1	500	1	0.00	12.64	0.00	0.00	-3.42
0.00		0.04						
212	1	500	1	0.00	-2.81	0.00	0.00	3.42
0.00		0.04						

				10 harbor.out				
	1	501	1	0.00	2.81	0.00	0.00	3.23
0.00		0.04						
213	1	501	1	0.00	1.09	0.00	0.00	-3.23
0.00		0.04						
	1	502	1	0.00	-1.09	0.00	0.00	0.63
0.00		0.01						
214	1	502	1	0.00	0.35	0.00	0.00	-0.63
0.00		0.01						
	1	503	1	0.00	-0.35	0.00	0.00	-0.18
0.00		0.00						
215	1	503	1	0.00	-0.06	0.00	0.00	0.18
0.00		0.00						
	1	504	1	0.00	0.06	0.00	0.00	-0.05
0.00		0.00						
216	1	504	1	0.00	-0.02	0.00	0.00	0.05
0.00		0.00						
	1	505	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
217	1	505	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	506	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
218	1	506	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	507	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
219	1	507	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	508	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
220	1	508	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	509	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 12 !

221	1	12	1	0.00	2.97	0.00	0.00	0.00
0.00		0.00						
	1	510	1	0.00	-2.97	0.00	0.00	-8.63
0.00		0.11						
222	1	510	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	511	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
223	1	511	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	512	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
224	1	512	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	513	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
225	1	513	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	514	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
226	1	514	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	515	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
227	1	515	1	0.00	1.97	0.00	0.00	49.60

10 harbor.out

0.00		0.63						
	1	516	1	0.00	-1.97	0.00	0.00	-54.28
0.00		0.69						
228	1	516	1	0.00	0.92	0.00	0.00	54.28
0.00		0.69						
	1	517	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
229	1	517	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	518	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
230	1	518	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	519	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
231	1	519	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	520	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
232	1	520	1	0.00	-9.56	0.00	0.00	26.15
0.00		0.33						
	1	521	1	0.00	9.56	0.00	0.00	-3.51
0.00		0.04						
233	1	521	1	0.00	-2.80	0.00	0.00	3.51
0.00		0.04						
	1	522	1	0.00	2.80	0.00	0.00	3.12
0.00		0.04						
234	1	522	1	0.00	0.72	0.00	0.00	-3.12
0.00		0.04						
	1	523	1	0.00	-0.72	0.00	0.00	1.43
0.00		0.02						
235	1	523	1	0.00	0.59	0.00	0.00	-1.43
0.00		0.02						
	1	524	1	0.00	-0.59	0.00	0.00	0.03
0.00		0.00						
236	1	524	1	0.00	0.07	0.00	0.00	-0.03
0.00		0.00						
	1	525	1	0.00	-0.07	0.00	0.00	-0.15
0.00		0.00						
237	1	525	1	0.00	-0.05	0.00	0.00	0.15
0.00		0.00						
	1	526	1	0.00	0.05	0.00	0.00	-0.03
0.00		0.00						
238	1	526	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	527	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
239	1	527	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	528	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
240	1	528	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	529	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 13 !

241	1	13	1	0.00	2.97	0.00	0.00	0.00
0.00		0.00						
	1	530	1	0.00	-2.97	0.00	0.00	-8.63
0.00		0.11						

				10 harbor.out				
242	1	530	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	531	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
243	1	531	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	532	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
244	1	532	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	533	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
245	1	533	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	534	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
246	1	534	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	535	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
247	1	535	1	0.00	1.97	0.00	0.00	49.60
0.00		0.63						
	1	536	1	0.00	-1.97	0.00	0.00	-54.28
0.00		0.69						
248	1	536	1	0.00	0.92	0.00	0.00	54.28
0.00		0.69						
	1	537	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
249	1	537	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	538	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
250	1	538	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	539	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
251	1	539	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	540	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
252	1	540	1	0.00	-9.56	0.00	0.00	26.15
0.00		0.33						
	1	541	1	0.00	9.56	0.00	0.00	-3.51
0.00		0.04						
253	1	541	1	0.00	-2.80	0.00	0.00	3.51
0.00		0.04						
	1	542	1	0.00	2.80	0.00	0.00	3.12
0.00		0.04						
254	1	542	1	0.00	0.72	0.00	0.00	-3.12
0.00		0.04						
	1	543	1	0.00	-0.72	0.00	0.00	1.43
0.00		0.02						
255	1	543	1	0.00	0.59	0.00	0.00	-1.43
0.00		0.02						
	1	544	1	0.00	-0.59	0.00	0.00	0.03
0.00		0.00						
256	1	544	1	0.00	0.07	0.00	0.00	-0.03
0.00		0.00						
	1	545	1	0.00	-0.07	0.00	0.00	-0.15
0.00		0.00						
257	1	545	1	0.00	-0.05	0.00	0.00	0.15
0.00		0.00						
	1	546	1	0.00	0.05	0.00	0.00	-0.03

10 harbor.out

0.00		0.00						
258	1	546	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	547	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
259	1	547	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	548	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
260	1	548	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	549	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 14 !

261	1	14	1	0.00	3.21	0.00	0.00	0.00
0.00		0.00						
	1	550	1	0.00	-3.21	0.00	0.00	-9.31
0.00		0.12						
262	1	550	1	0.00	3.21	0.00	0.00	9.31
0.00		0.12						
	1	551	1	0.00	-3.21	0.00	0.00	-18.61
0.00		0.24						
263	1	551	1	0.00	3.21	0.00	0.00	18.61
0.00		0.24						
	1	552	1	0.00	-3.21	0.00	0.00	-27.92
0.00		0.35						
264	1	552	1	0.00	3.21	0.00	0.00	27.92
0.00		0.35						
	1	553	1	0.00	-3.21	0.00	0.00	-37.22
0.00		0.47						
265	1	553	1	0.00	3.21	0.00	0.00	37.22
0.00		0.47						
	1	554	1	0.00	-3.21	0.00	0.00	-46.53
0.00		0.59						
266	1	554	1	0.00	2.89	0.00	0.00	46.53
0.00		0.59						
	1	555	1	0.00	-2.89	0.00	0.00	-53.37
0.00		0.67						
267	1	555	1	0.00	1.87	0.00	0.00	53.37
0.00		0.67						
	1	556	1	0.00	-1.87	0.00	0.00	-57.79
0.00		0.73						
268	1	556	1	0.00	0.44	0.00	0.00	57.79
0.00		0.73						
	1	557	1	0.00	-0.44	0.00	0.00	-58.83
0.00		0.74						
269	1	557	1	0.00	-1.21	0.00	0.00	58.83
0.00		0.74						
	1	558	1	0.00	1.21	0.00	0.00	-55.98
0.00		0.71						
270	1	558	1	0.00	-2.68	0.00	0.00	55.98
0.00		0.71						
	1	559	1	0.00	2.68	0.00	0.00	-49.64
0.00		0.63						
271	1	559	1	0.00	-12.55	0.00	0.00	49.64
0.00		0.63						
	1	560	1	0.00	12.55	0.00	0.00	-19.95
0.00		0.25						
272	1	560	1	0.00	-8.59	0.00	0.00	19.95
0.00		0.25						

				10 harbor.out				
0.00	1	561	1	0.00	8.59	0.00	0.00	0.39
0.00		0.00						
273	1	561	1	0.00	-1.03	0.00	0.00	-0.39
0.00		0.00						
	1	562	1	0.00	1.03	0.00	0.00	2.83
0.00		0.04						
274	1	562	1	0.00	0.93	0.00	0.00	-2.83
0.00		0.04						
	1	563	1	0.00	-0.93	0.00	0.00	0.64
0.00		0.01						
275	1	563	1	0.00	0.33	0.00	0.00	-0.64
0.00		0.01						
	1	564	1	0.00	-0.33	0.00	0.00	-0.15
0.00		0.00						
276	1	564	1	0.00	-0.03	0.00	0.00	0.15
0.00		0.00						
	1	565	1	0.00	0.03	0.00	0.00	-0.08
0.00		0.00						
277	1	565	1	0.00	-0.04	0.00	0.00	0.08
0.00		0.00						
	1	566	1	0.00	0.04	0.00	0.00	0.00
0.00		0.00						
278	1	566	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	567	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
279	1	567	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	568	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
280	1	568	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	569	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 15 !

281	1	15	1	0.00	2.97	0.00	0.00	0.00
0.00		0.00						
	1	570	1	0.00	-2.97	0.00	0.00	-8.63
0.00		0.11						
282	1	570	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	571	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
283	1	571	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	572	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
284	1	572	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	573	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
285	1	573	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	574	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
286	1	574	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	575	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
287	1	575	1	0.00	1.97	0.00	0.00	49.60

10 harbor.out

0.00		0.63						
	1	576	1	0.00	-1.97	0.00	0.00	-54.28
0.00		0.69						
288	1	576	1	0.00	0.92	0.00	0.00	54.28
0.00		0.69						
	1	577	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
289	1	577	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	578	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
290	1	578	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	579	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
291	1	579	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	580	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
292	1	580	1	0.00	-9.56	0.00	0.00	26.15
0.00		0.33						
	1	581	1	0.00	9.56	0.00	0.00	-3.51
0.00		0.04						
293	1	581	1	0.00	-2.80	0.00	0.00	3.51
0.00		0.04						
	1	582	1	0.00	2.80	0.00	0.00	3.12
0.00		0.04						
294	1	582	1	0.00	0.72	0.00	0.00	-3.12
0.00		0.04						
	1	583	1	0.00	-0.72	0.00	0.00	1.43
0.00		0.02						
295	1	583	1	0.00	0.59	0.00	0.00	-1.43
0.00		0.02						
	1	584	1	0.00	-0.59	0.00	0.00	0.03
0.00		0.00						
296	1	584	1	0.00	0.07	0.00	0.00	-0.03
0.00		0.00						
	1	585	1	0.00	-0.07	0.00	0.00	-0.15
0.00		0.00						
297	1	585	1	0.00	-0.05	0.00	0.00	0.15
0.00		0.00						
	1	586	1	0.00	0.05	0.00	0.00	-0.03
0.00		0.00						
298	1	586	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	587	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
299	1	587	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	588	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
300	1	588	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	589	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 16 !

301	1	16	1	0.00	2.97	0.00	0.00	0.00
0.00		0.00						
	1	590	1	0.00	-2.97	0.00	0.00	-8.63
0.00		0.11						

				10 harbor.out				
302	1	590	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	591	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
303	1	591	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	592	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
304	1	592	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	593	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
305	1	593	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	594	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
306	1	594	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	595	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
307	1	595	1	0.00	1.97	0.00	0.00	49.60
0.00		0.63						
	1	596	1	0.00	-1.97	0.00	0.00	-54.28
0.00		0.69						
308	1	596	1	0.00	0.92	0.00	0.00	54.28
0.00		0.69						
	1	597	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
309	1	597	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	598	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
310	1	598	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	599	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
311	1	599	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	600	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
312	1	600	1	0.00	-9.56	0.00	0.00	26.15
0.00		0.33						
	1	601	1	0.00	9.56	0.00	0.00	-3.51
0.00		0.04						
313	1	601	1	0.00	-2.80	0.00	0.00	3.51
0.00		0.04						
	1	602	1	0.00	2.80	0.00	0.00	3.12
0.00		0.04						
314	1	602	1	0.00	0.72	0.00	0.00	-3.12
0.00		0.04						
	1	603	1	0.00	-0.72	0.00	0.00	1.43
0.00		0.02						
315	1	603	1	0.00	0.59	0.00	0.00	-1.43
0.00		0.02						
	1	604	1	0.00	-0.59	0.00	0.00	0.03
0.00		0.00						
316	1	604	1	0.00	0.07	0.00	0.00	-0.03
0.00		0.00						
	1	605	1	0.00	-0.07	0.00	0.00	-0.15
0.00		0.00						
317	1	605	1	0.00	-0.05	0.00	0.00	0.15
0.00		0.00						
	1	606	1	0.00	0.05	0.00	0.00	-0.03

10 harbor.out

0.00		0.00						
318	1	606	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	607	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
319	1	607	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	608	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
320	1	608	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	609	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 17 !

321	1	17	1	0.00	2.97	0.00	0.00	0.00
0.00		0.00						
	1	610	1	0.00	-2.97	0.00	0.00	-8.63
0.00		0.11						
322	1	610	1	0.00	2.97	0.00	0.00	8.63
0.00		0.11						
	1	611	1	0.00	-2.97	0.00	0.00	-17.25
0.00		0.22						
323	1	611	1	0.00	2.97	0.00	0.00	17.25
0.00		0.22						
	1	612	1	0.00	-2.97	0.00	0.00	-25.88
0.00		0.33						
324	1	612	1	0.00	2.97	0.00	0.00	25.88
0.00		0.33						
	1	613	1	0.00	-2.97	0.00	0.00	-34.50
0.00		0.44						
325	1	613	1	0.00	2.97	0.00	0.00	34.50
0.00		0.44						
	1	614	1	0.00	-2.97	0.00	0.00	-43.13
0.00		0.54						
326	1	614	1	0.00	2.74	0.00	0.00	43.13
0.00		0.54						
	1	615	1	0.00	-2.74	0.00	0.00	-49.60
0.00		0.63						
327	1	615	1	0.00	1.97	0.00	0.00	49.60
0.00		0.63						
	1	616	1	0.00	-1.97	0.00	0.00	-54.28
0.00		0.69						
328	1	616	1	0.00	0.92	0.00	0.00	54.28
0.00		0.69						
	1	617	1	0.00	-0.92	0.00	0.00	-56.44
0.00		0.71						
329	1	617	1	0.00	-0.37	0.00	0.00	56.44
0.00		0.71						
	1	618	1	0.00	0.37	0.00	0.00	-55.57
0.00		0.70						
330	1	618	1	0.00	-1.53	0.00	0.00	55.57
0.00		0.70						
	1	619	1	0.00	1.53	0.00	0.00	-51.95
0.00		0.66						
331	1	619	1	0.00	-10.90	0.00	0.00	51.95
0.00		0.66						
	1	620	1	0.00	10.90	0.00	0.00	-26.15
0.00		0.33						
332	1	620	1	0.00	-9.56	0.00	0.00	26.15
0.00		0.33						

10 harbor.out								
0.00	1	621	1	0.00	9.56	0.00	0.00	-3.51
333	1	621	1	0.00	-2.80	0.00	0.00	3.51
0.00	1	622	1	0.00	2.80	0.00	0.00	3.12
0.00	1	622	1	0.00	0.72	0.00	0.00	-3.12
0.00	1	623	1	0.00	-0.72	0.00	0.00	1.43
334	1	623	1	0.00	0.59	0.00	0.00	-1.43
0.00	1	624	1	0.00	-0.59	0.00	0.00	0.03
0.00	1	624	1	0.00	0.07	0.00	0.00	-0.03
335	1	625	1	0.00	-0.07	0.00	0.00	-0.15
0.00	1	625	1	0.00	-0.05	0.00	0.00	0.15
0.00	1	626	1	0.00	0.05	0.00	0.00	-0.03
336	1	626	1	0.00	-0.02	0.00	0.00	0.03
0.00	1	627	1	0.00	0.02	0.00	0.00	0.01
0.00	1	627	1	0.00	0.00	0.00	0.00	-0.01
337	1	628	1	0.00	0.00	0.00	0.00	0.00
0.00	1	628	1	0.00	0.00	0.00	0.00	0.00
0.00	1	629	1	0.00	0.00	0.00	0.00	0.00

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.3234E-11 Kip	1	0	12
Min Axial Force	-0.4458E-11 Kip	1	0	7
Max Shear in 2 Direction	0.3940E+01 Kip	1	0	11
Min Shear in 2 Direction	-0.1264E+02 Kip	1	0	11
Max Shear in 3 Direction	0.1457E-03 Kip	1	0	4

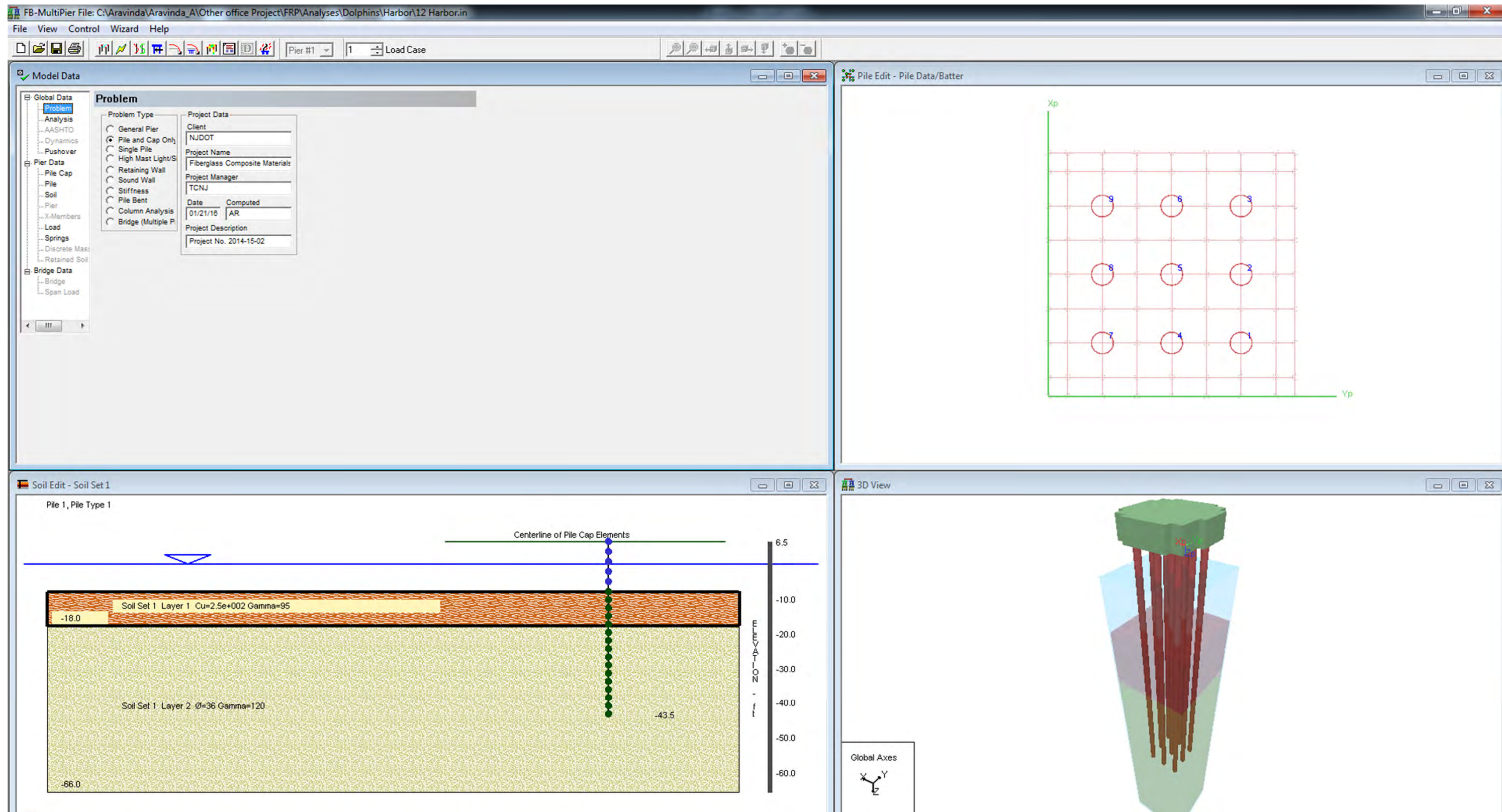
	10 harbor.out			
Min Shear in 3 Direction	-0.1263E-03 Kip	1	0	12
Max Moment about 2 Axis	0.2243E-03 Kip-ft	1	0	12
Min Moment about 2 Axis	-0.2588E-03 Kip-ft	1	0	4
Max Moment About 3 Axis	0.3226E+01 Kip-ft	1	0	11
Min Moment About 3 Axis	-0.6701E+02 Kip-ft	1	0	11
Max Torsional Force	0.4719E-04 Kip-ft	1	0	3
Min Torsional Force	-0.3893E-04 Kip-ft	1	0	16
Max Demand/Capacity Ratio	0.8462E+00	1	0	11

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.1915E-05 Kip	1	0	7
Min Axial Soil Force	0.3917E-07 Kip	1	0	11
Max Lateral Force in X dir	0.7832E+01 Kip	1	0	6
Min Lateral Force in X dir	-0.8744E+01 Kip	1	0	11
Max Lateral Force in Y dir	0.5023E-03 Kip	1	0	12
Min Lateral Force in Y dir	-0.5814E-03 Kip	1	0	4
Max Torsional Soil Force	0.2207E-03 Kip-ft	1	0	16

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.4222E-08 in	1	0	7
Min Axial Displacement	0.3454E-08 in	1	0	11
Max Displacement in X	0.5246E+02 in	1	0	7
Min Displacement in X	0.5246E+02 in	1	0	11
Max Displacement in Y	0.5548E-04 in	1	0	4
Min Displacement in Y	-0.4809E-04 in	1	0	12



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 2 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 1,0,0
I= 60 T= 3 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -21 -20.67 0 20.67 21 \
0 0 0 0 0 \
0 0 0 0 0
-0.02 -0.0058 0 0.0058 0.02 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.0058
NL= 0 NG= 0 D= 12 V= 0 S= 80 TH= 0.625 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
9 9 5 5 : NPX, NPY, GSX, GSY
10 18 18 18 18 18 \
18 10
10 18 18 18 18 18 \
18 10
0.3 0.4 0.8
0.3 0.4 0.8
:
MISSING
72 : number of missing piles
1 1
2 1
3 1
4 1
5 1
6 1

```

12 Harbor.in

7 1
8 1
9 1
1 2
2 2
3 2
4 2
5 2
6 2
7 2
8 2
9 2
1 3
2 3
4 3
6 3
8 3
9 3
1 4
2 4
3 4
4 4
5 4
6 4
7 4
8 4
9 4
1 5
2 5
4 5
6 5
8 5
9 5
1 6
2 6
3 6
4 6
5 6
6 6
7 6
8 6
9 6
1 7
2 7
4 7
6 7
8 7
9 7
1 8
2 8
3 8
4 8
5 8
6 8
7 8
8 8
9 8
1 9
2 9
3 9
4 9
5 9
6 9

```

7 9
8 9
9 9
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8,-18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18,-66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
REMOVE
1 1
2 1
7 1
8 1
1 2
8 2
1 6
1 7
8 7
1 8
2 8
7 8
8 8
:
LOAD
43 L= 1 F= 50 0 0 0 0 0
:
PADBC
:

```

```

!-----!
!       The University of Florida, Florida Department
!       of Transportation, Drs. Marc Hoit, Mike McVay
!       Cliff Hays, Mark Williams, Petros Christou, and
!       Jae H. Chung
!       disclaim any warranty, expressed or implied,
!       including but not limited to, any implied
!       warranty of fitness for a particular purpose
!       or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
!       incurred through the use of FB-MultiPier
!-----!

```

```

!       :::: F B - M U L T I P I E R ::::
!       FB-MultiPier Version 4.17
!-----!

```

```

!       Written by Marc Hoit, Mike McVay, Cliff Hays
!       Mark Williams, Petros Christou, Jae H. Chung.
!
!       Civil & Coastal Engineering, University of Florida
!       Supported by Florida Department of Transportation
!       and the Federal Highway Administration
!
!       The program calculates the Response
!       of the Bridge Pier Pile Soil Structures
!
!       The Analysis includes PreLoad, Static,
!       Transient Dynamic or Push Over
!
!       The Program Handles NonLinear Soil Behavior,
!       Linear Pile Cap and Linear and NonLinear Piles and Piers
!
!       Contact: Bridge Software Institute for Support
!       HTTP://BSI-WEB.CE.UFL.EDU
!-----!

```

```

*****
*                               *
*   ANALYSIS RESULTS           *
*                               *
*****

```

```

*****
*   RESULTS FOR LOAD CASE #      1  *
*****

```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

12 Harbor.out

PILE#	X-PYM	Y-PYM
1	0.300E+00	0.100E+01
2	0.400E+00	0.100E+01
3	0.800E+00	0.100E+01
4	0.300E+00	0.100E+01
5	0.400E+00	0.100E+01
6	0.800E+00	0.100E+01
7	0.300E+00	0.100E+01
8	0.400E+00	0.100E+01
9	0.800E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 7 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	2.137	Kips
FXX =	0.000	Kips
FYY =	0.000	Kips
MXX =	2.871	Kip-in
MYX =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	51.3370	0.0001	0.0000
2	51.3369	0.0001	0.0000
3	51.3368	0.0000	0.0000
4	51.3370	0.0000	0.0000
5	51.3369	0.0000	0.0000
6	51.3368	0.0000	0.0000
7	51.3370	-0.0001	0.0000
8	51.3369	-0.0001	0.0000
9	51.3368	0.0000	0.0000

Pile Cap Displacements (Excluding Pile Heads)

10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	51.3369	0.0001	0.0000	0.0000	0.0000	0.0000
13	51.3369	0.0001	0.0000	0.0000	0.0000	0.0000
14	51.3369	0.0001	0.0000	0.0000	0.0000	0.0000
15	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
16	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	51.3370	0.0001	0.0000	0.0000	0.0000	0.0000
21	51.3370	0.0001	0.0000	0.0000	0.0000	0.0000
22	51.3369	0.0001	0.0000	0.0000	0.0000	0.0000
23	51.3369	0.0001	0.0000	0.0000	0.0000	0.0000
24	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
25	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
26	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000

12 Harbor.out

27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	51.3373	0.0001	0.0000	0.0000	0.0000	0.0000
29	51.3370	0.0001	0.0000	0.0000	0.0000	0.0000
30	51.3369	0.0001	0.0000	0.0000	0.0000	0.0000
31	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
32	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
33	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
34	51.3376	0.0000	0.0000	0.0000	0.0000	0.0000
35	51.3372	0.0001	0.0000	0.0000	0.0000	0.0000
36	51.3370	0.0001	0.0000	0.0000	0.0000	0.0000
37	51.3369	0.0001	0.0000	0.0000	0.0000	0.0000
38	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
39	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
40	51.3368	0.0000	0.0000	0.0000	0.0000	0.0000
41	51.3368	0.0000	0.0000	0.0000	0.0000	0.0000
42	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
43	51.3382	0.0000	0.0000	0.0000	0.0000	0.0000
44	51.3373	0.0000	0.0000	0.0000	0.0000	0.0000
45	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
46	51.3368	0.0000	0.0000	0.0000	0.0000	0.0000
47	51.3368	0.0000	0.0000	0.0000	0.0000	0.0000
48	51.3368	0.0000	0.0000	0.0000	0.0000	0.0000
49	51.3378	-0.0001	0.0000	0.0000	0.0000	0.0000
50	51.3371	-0.0001	0.0000	0.0000	0.0000	0.0000
51	51.3370	-0.0001	0.0000	0.0000	0.0000	0.0000
52	51.3369	-0.0001	0.0000	0.0000	0.0000	0.0000
53	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
54	51.3368	0.0000	0.0000	0.0000	0.0000	0.0000
55	51.3368	0.0000	0.0000	0.0000	0.0000	0.0000
56	51.3368	0.0000	0.0000	0.0000	0.0000	0.0000
57	51.3368	0.0000	0.0000	0.0000	0.0000	0.0000
58	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
59	51.3370	0.0000	0.0000	0.0000	0.0000	0.0000
60	51.3369	-0.0001	0.0000	0.0000	0.0000	0.0000
61	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
62	51.3368	0.0000	0.0000	0.0000	0.0000	0.0000
63	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
65	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
66	51.3369	-0.0001	0.0000	0.0000	0.0000	0.0000
67	51.3369	-0.0001	0.0000	0.0000	0.0000	0.0000
68	51.3369	-0.0001	0.0000	0.0000	0.0000	0.0000
69	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
70	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
71	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
72	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
73	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
74	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
75	51.3369	-0.0001	0.0000	0.0000	0.0000	0.0000
76	51.3369	-0.0001	0.0000	0.0000	0.0000	0.0000
77	51.3369	-0.0001	0.0000	0.0000	0.0000	0.0000
78	51.3369	-0.0001	0.0000	0.0000	0.0000	0.0000
79	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
81	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
82	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
83	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
84	51.3370	0.0001	0.0000	0.0000	0.0000	0.0000
85	51.3370	0.0001	0.0000	0.0000	0.0000	0.0000
86	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
87	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
88	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
89	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

12 Harbor.out

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12 Harbor.out

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279	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
280	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
281	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
282	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
283	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
284	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
285	51.3369	-0.0001	0.0000	0.0000	0.0000	0.0000
286	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
287	51.3369	0.0000	0.0000	0.0000	0.0000	0.0000
288	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
289	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1
 Steel type = 4 (For Description see Users Manual)
 Maximum = 0.6155E-02
 Minimum = -0.6155E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)
 X Direction = 19.7187 Kips
 Y Direction = -0.0001 Kips
 Z Direction = 0.0000 Kips
 Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.20108E-11	-0.13013E-11
2	0.11409E-11	-0.30564E-12
3	0.46245E-11	-0.97033E-13
4	-0.82373E-13	-0.17400E-10
5	-0.59117E-13	-0.16346E-10
6	-0.57616E-13	-0.13046E-10
7	-0.36320E-13	-0.67786E-11
8	-0.28122E-13	-0.51239E-11
9	0.84655E-12	-0.37882E-11

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.49364E+01	-0.18840E+02
2	0.53280E+01	-0.20551E+02
3	0.64021E+01	-0.22978E+02

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4	0.49364E+01	-0.18840E+02
5	0.53281E+01	-0.20555E+02
6	0.64021E+01	-0.22978E+02
7	0.49364E+01	-0.18840E+02
8	0.53281E+01	-0.20555E+02
9	0.64021E+01	-0.22978E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.55434E-03	-0.18389E-03
2	0.32203E-03	-0.10704E-03
3	0.13748E-04	-0.45677E-05
4	0.21934E-04	-0.65893E-04
5	0.76900E-05	-0.23097E-04
6	0.12390E-04	-0.37228E-04
7	0.11877E-03	-0.35752E-03
8	0.10692E-03	-0.32165E-03
9	0.28545E-04	-0.85793E-04

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	294	0.16867E+02	0.3268E-03	0.16867E+02	-0.9852E-03
2	314	0.16867E+02	0.1902E-03	0.14500E+02	-0.5719E-03
3	334	0.16867E+02	0.8127E-05	0.16867E+02	-0.2441E-04
4	353	0.14500E+02	0.1170E-03	0.19233E+02	-0.3897E-04
5	374	0.16867E+02	0.4100E-04	0.19233E+02	-0.1366E-04
6	393	0.14500E+02	0.6609E-04	0.19233E+02	-0.2202E-04
7	413	0.14500E+02	0.6351E-03	0.19233E+02	-0.2110E-03
8	433	0.14500E+02	0.5713E-03	0.19233E+02	-0.1900E-03
9	453	0.14500E+02	0.1523E-03	0.19233E+02	-0.5074E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	302	0.35800E+02	5.692	0.26333E+02	-101.3
2	323	0.38167E+02	5.464	0.26333E+02	-105.3
3	341	0.33433E+02	5.838	0.21600E+02	-115.1
4	363	0.38167E+02	5.692	0.23967E+02	-101.3
5	383	0.38167E+02	5.448	0.23967E+02	-105.3
6	401	0.33433E+02	5.838	0.21600E+02	-115.1
7	423	0.38167E+02	5.692	0.26333E+02	-101.3
8	443	0.38167E+02	5.448	0.23967E+02	-105.3
9	462	0.35800E+02	5.838	0.21600E+02	-115.1

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the

Capacity of the Segment

ELEM	PROP	NODE	LOAD	FAX	F22	F33	M22	M33	TORQUE
D/C	NO.	NO.	NO.	CASE	(Kips)	(Kips)	(Kip-ft)	(Kip-ft)	
(Kip-ft)	(Ratio)								

! ->	Pile	Number	1	!					

1	1	1	1		0.00	4.94	0.00	0.00	0.00
0.00		0.00							
	1	290	1		0.00	-4.94	0.00	0.00	-14.32
0.00		0.10							
2	1	290	1		0.00	4.94	0.00	0.00	14.32
0.00		0.10							
	1	291	1		0.00	-4.94	0.00	0.00	-28.63
0.00		0.20							
3	1	291	1		0.00	4.94	0.00	0.00	28.63
0.00		0.20							
	1	292	1		0.00	-4.94	0.00	0.00	-42.95
0.00		0.30							
4	1	292	1		0.00	4.94	0.00	0.00	42.95
0.00		0.30							
	1	293	1		0.00	-4.94	0.00	0.00	-57.26
0.00		0.40							
5	1	293	1		0.00	4.94	0.00	0.00	57.26
0.00		0.40							
	1	294	1		0.00	-4.94	0.00	0.00	-71.58
0.00		0.50							
6	1	294	1		0.00	4.66	0.00	0.00	71.58
0.00		0.50							
	1	295	1		0.00	-4.66	0.00	0.00	-82.61
0.00		0.58							
7	1	295	1		0.00	3.84	0.00	0.00	82.61
0.00		0.58							
	1	296	1		0.00	-3.84	0.00	0.00	-91.69
0.00		0.65							
8	1	296	1		0.00	2.73	0.00	0.00	91.69
0.00		0.65							
	1	297	1		0.00	-2.73	0.00	0.00	-98.14
0.00		0.69							
9	1	297	1		0.00	1.32	0.00	0.00	98.14
0.00		0.69							
	1	298	1		0.00	-1.32	0.00	0.00	-101.28
0.00		0.71							
10	1	298	1		0.00	-0.06	0.00	0.00	101.28
0.00		0.71							
	1	299	1		0.00	0.06	0.00	0.00	-101.14
0.00		0.71							
11	1	299	1		0.00	-9.35	0.00	0.00	101.14
0.00		0.71							
	1	300	1		0.00	9.35	0.00	0.00	-79.01
0.00		0.56							
12	1	300	1		0.00	-18.84	0.00	0.00	79.01
0.00		0.56							
	1	301	1		0.00	18.84	0.00	0.00	-34.42
0.00		0.24							
13	1	301	1		0.00	-13.08	0.00	0.00	34.42
0.00		0.24							
	1	302	1		0.00	13.08	0.00	0.00	-3.46
0.00		0.02							
14	1	302	1		0.00	-3.87	0.00	0.00	3.46

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0.00		0.02						
	1	303	1	0.00	3.87	0.00	0.00	5.69
0.00		0.04						
15	1	303	1	0.00	1.07	0.00	0.00	-5.69
0.00		0.04						
	1	304	1	0.00	-1.07	0.00	0.00	3.16
0.00		0.02						
16	1	304	1	0.00	1.14	0.00	0.00	-3.16
0.00		0.02						
	1	305	1	0.00	-1.14	0.00	0.00	0.47
0.00		0.00						
17	1	305	1	0.00	0.31	0.00	0.00	-0.47
0.00		0.00						
	1	306	1	0.00	-0.31	0.00	0.00	-0.27
0.00		0.00						
18	1	306	1	0.00	-0.05	0.00	0.00	0.27
0.00		0.00						
	1	307	1	0.00	0.05	0.00	0.00	-0.16
0.00		0.00						
19	1	307	1	0.00	-0.06	0.00	0.00	0.16
0.00		0.00						
	1	308	1	0.00	0.06	0.00	0.00	-0.02
0.00		0.00						
20	1	308	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	309	1	0.00	0.01	0.00	0.00	0.00
0.00		0.00						

! -> File Number 2 !

21	1	2	1	0.00	5.33	0.00	0.00	0.00
0.00		0.00						
	1	310	1	0.00	-5.33	0.00	0.00	-15.45
0.00		0.11						
22	1	310	1	0.00	5.33	0.00	0.00	15.45
0.00		0.11						
	1	311	1	0.00	-5.33	0.00	0.00	-30.90
0.00		0.22						
23	1	311	1	0.00	5.33	0.00	0.00	30.90
0.00		0.22						
	1	312	1	0.00	-5.33	0.00	0.00	-46.35
0.00		0.33						
24	1	312	1	0.00	5.33	0.00	0.00	46.35
0.00		0.33						
	1	313	1	0.00	-5.33	0.00	0.00	-61.80
0.00		0.44						
25	1	313	1	0.00	5.33	0.00	0.00	61.80
0.00		0.44						
	1	314	1	0.00	-5.33	0.00	0.00	-77.26
0.00		0.54						
26	1	314	1	0.00	4.96	0.00	0.00	77.26
0.00		0.54						
	1	315	1	0.00	-4.96	0.00	0.00	-89.00
0.00		0.63						
27	1	315	1	0.00	3.87	0.00	0.00	89.00
0.00		0.63						
	1	316	1	0.00	-3.87	0.00	0.00	-98.15
0.00		0.69						
28	1	316	1	0.00	2.39	0.00	0.00	98.15
0.00		0.69						
	1	317	1	0.00	-2.39	0.00	0.00	-103.82
0.00		0.73						

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29	1	317	1	0.00	0.61	0.00	0.00	103.82
0.00		0.73						
	1	318	1	0.00	-0.61	0.00	0.00	-105.27
0.00		0.74						
30	1	318	1	0.00	-1.10	0.00	0.00	105.27
0.00		0.74						
	1	319	1	0.00	1.10	0.00	0.00	-102.67
0.00		0.72						
31	1	319	1	0.00	-13.09	0.00	0.00	102.67
0.00		0.72						
	1	320	1	0.00	13.09	0.00	0.00	-71.69
0.00		0.51						
32	1	320	1	0.00	-20.55	0.00	0.00	71.69
0.00		0.51						
	1	321	1	0.00	20.55	0.00	0.00	-23.06
0.00		0.16						
33	1	321	1	0.00	-11.13	0.00	0.00	23.06
0.00		0.16						
	1	322	1	0.00	11.13	0.00	0.00	3.28
0.00		0.02						
34	1	322	1	0.00	-0.92	0.00	0.00	-3.28
0.00		0.02						
	1	323	1	0.00	0.92	0.00	0.00	5.46
0.00		0.04						
35	1	323	1	0.00	1.63	0.00	0.00	-5.46
0.00		0.04						
	1	324	1	0.00	-1.63	0.00	0.00	1.61
0.00		0.01						
36	1	324	1	0.00	0.75	0.00	0.00	-1.61
0.00		0.01						
	1	325	1	0.00	-0.75	0.00	0.00	-0.17
0.00		0.00						
37	1	325	1	0.00	0.04	0.00	0.00	0.17
0.00		0.00						
	1	326	1	0.00	-0.04	0.00	0.00	-0.25
0.00		0.00						
38	1	326	1	0.00	-0.08	0.00	0.00	0.25
0.00		0.00						
	1	327	1	0.00	0.08	0.00	0.00	-0.05
0.00		0.00						
39	1	327	1	0.00	-0.03	0.00	0.00	0.05
0.00		0.00						
	1	328	1	0.00	0.03	0.00	0.00	0.01
0.00		0.00						
40	1	328	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	329	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 3 !

41	1	3	1	0.00	6.40	0.00	0.00	0.00
0.00		0.00						
	1	330	1	0.00	-6.40	0.00	0.00	-18.57
0.00		0.13						
42	1	330	1	0.00	6.40	0.00	0.00	18.57
0.00		0.13						
	1	331	1	0.00	-6.40	0.00	0.00	-37.13
0.00		0.26						
43	1	331	1	0.00	6.40	0.00	0.00	37.13
0.00		0.26						
	1	332	1	0.00	-6.40	0.00	0.00	-55.70

12 Harbor.out

0.00		0.39						
44	1	332	1	0.00	6.40	0.00	0.00	55.70
0.00		0.39						
	1	333	1	0.00	-6.40	0.00	0.00	-74.26
0.00		0.52						
45	1	333	1	0.00	6.40	0.00	0.00	74.26
0.00		0.52						
	1	334	1	0.00	-6.40	0.00	0.00	-92.83
0.00		0.65						
46	1	334	1	0.00	5.67	0.00	0.00	92.83
0.00		0.65						
	1	335	1	0.00	-5.67	0.00	0.00	-106.25
0.00		0.75						
47	1	335	1	0.00	3.32	0.00	0.00	106.34
0.00		0.75						
	1	336	1	0.00	-3.32	0.00	0.00	-114.20
0.00		0.80						
48	1	336	1	0.00	0.39	0.00	0.00	114.22
0.00		0.80						
	1	337	1	0.00	-0.39	0.00	0.00	-115.13
0.00		0.81						
49	1	337	1	0.00	-2.35	0.00	0.00	114.89
0.00		0.81						
	1	338	1	0.00	2.35	0.00	0.00	-109.34
0.00		0.77						
50	1	338	1	0.00	-5.63	0.00	0.00	109.32
0.00		0.77						
	1	339	1	0.00	5.63	0.00	0.00	-95.99
0.00		0.68						
51	1	339	1	0.00	-22.98	0.00	0.00	95.99
0.00		0.68						
	1	340	1	0.00	22.98	0.00	0.00	-41.61
0.00		0.29						
52	1	340	1	0.00	-16.88	0.00	0.00	41.61
0.00		0.29						
	1	341	1	0.00	16.88	0.00	0.00	-1.66
0.00		0.01						
53	1	341	1	0.00	-3.17	0.00	0.00	1.66
0.00		0.01						
	1	342	1	0.00	3.17	0.00	0.00	5.84
0.00		0.04						
54	1	342	1	0.00	1.81	0.00	0.00	-5.84
0.00		0.04						
	1	343	1	0.00	-1.81	0.00	0.00	1.55
0.00		0.01						
55	1	343	1	0.00	0.77	0.00	0.00	-1.55
0.00		0.01						
	1	344	1	0.00	-0.77	0.00	0.00	-0.26
0.00		0.00						
56	1	344	1	0.00	-0.03	0.00	0.00	0.26
0.00		0.00						
	1	345	1	0.00	0.03	0.00	0.00	-0.18
0.00		0.00						
57	1	345	1	0.00	-0.08	0.00	0.00	0.18
0.00		0.00						
	1	346	1	0.00	0.08	0.00	0.00	0.00
0.00		0.00						
58	1	346	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						
	1	347	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
59	1	347	1	0.00	0.01	0.00	0.00	-0.01
0.00		0.00						

				12 Harbor.out				
0.00	1	348	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						
60	1	348	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	349	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 4 !

61	1	4	1	0.00	4.94	0.00	0.00	0.00
0.00		0.00						
	1	350	1	0.00	-4.94	0.00	0.00	-14.32
0.00		0.10						
62	1	350	1	0.00	4.94	0.00	0.00	14.32
0.00		0.10						
	1	351	1	0.00	-4.94	0.00	0.00	-28.63
0.00		0.20						
63	1	351	1	0.00	4.94	0.00	0.00	28.63
0.00		0.20						
	1	352	1	0.00	-4.94	0.00	0.00	-42.95
0.00		0.30						
64	1	352	1	0.00	4.94	0.00	0.00	42.95
0.00		0.30						
	1	353	1	0.00	-4.94	0.00	0.00	-57.26
0.00		0.40						
65	1	353	1	0.00	4.94	0.00	0.00	57.26
0.00		0.40						
	1	354	1	0.00	-4.94	0.00	0.00	-71.58
0.00		0.50						
66	1	354	1	0.00	4.66	0.00	0.00	71.58
0.00		0.50						
	1	355	1	0.00	-4.66	0.00	0.00	-82.61
0.00		0.58						
67	1	355	1	0.00	3.84	0.00	0.00	82.61
0.00		0.58						
	1	356	1	0.00	-3.84	0.00	0.00	-91.69
0.00		0.65						
68	1	356	1	0.00	2.73	0.00	0.00	91.69
0.00		0.65						
	1	357	1	0.00	-2.73	0.00	0.00	-98.14
0.00		0.69						
69	1	357	1	0.00	1.32	0.00	0.00	98.14
0.00		0.69						
	1	358	1	0.00	-1.32	0.00	0.00	-101.28
0.00		0.71						
70	1	358	1	0.00	-0.06	0.00	0.00	101.28
0.00		0.71						
	1	359	1	0.00	0.06	0.00	0.00	-101.14
0.00		0.71						
71	1	359	1	0.00	-9.35	0.00	0.00	101.14
0.00		0.71						
	1	360	1	0.00	9.35	0.00	0.00	-79.01
0.00		0.56						
72	1	360	1	0.00	-18.84	0.00	0.00	79.01
0.00		0.56						
	1	361	1	0.00	18.84	0.00	0.00	-34.42
0.00		0.24						
73	1	361	1	0.00	-13.08	0.00	0.00	34.42
0.00		0.24						
	1	362	1	0.00	13.08	0.00	0.00	-3.46
0.00		0.02						
74	1	362	1	0.00	-3.87	0.00	0.00	3.46

12 Harbor.out

0.00		0.02						
	1	363	1	0.00	3.87	0.00	0.00	5.69
0.00		0.04						
75	1	363	1	0.00	1.07	0.00	0.00	-5.69
0.00		0.04						
	1	364	1	0.00	-1.07	0.00	0.00	3.16
0.00		0.02						
76	1	364	1	0.00	1.14	0.00	0.00	-3.16
0.00		0.02						
	1	365	1	0.00	-1.14	0.00	0.00	0.47
0.00		0.00						
77	1	365	1	0.00	0.31	0.00	0.00	-0.47
0.00		0.00						
	1	366	1	0.00	-0.31	0.00	0.00	-0.27
0.00		0.00						
78	1	366	1	0.00	-0.05	0.00	0.00	0.27
0.00		0.00						
	1	367	1	0.00	0.05	0.00	0.00	-0.16
0.00		0.00						
79	1	367	1	0.00	-0.06	0.00	0.00	0.16
0.00		0.00						
	1	368	1	0.00	0.06	0.00	0.00	-0.02
0.00		0.00						
80	1	368	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	369	1	0.00	0.01	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 5 !

81	1	5	1	0.00	5.33	0.00	0.00	0.00
0.00		0.00						
	1	370	1	0.00	-5.33	0.00	0.00	-15.45
0.00		0.11						
82	1	370	1	0.00	5.33	0.00	0.00	15.45
0.00		0.11						
	1	371	1	0.00	-5.33	0.00	0.00	-30.90
0.00		0.22						
83	1	371	1	0.00	5.33	0.00	0.00	30.90
0.00		0.22						
	1	372	1	0.00	-5.33	0.00	0.00	-46.35
0.00		0.33						
84	1	372	1	0.00	5.33	0.00	0.00	46.35
0.00		0.33						
	1	373	1	0.00	-5.33	0.00	0.00	-61.81
0.00		0.44						
85	1	373	1	0.00	5.33	0.00	0.00	61.81
0.00		0.44						
	1	374	1	0.00	-5.33	0.00	0.00	-77.26
0.00		0.54						
86	1	374	1	0.00	4.96	0.00	0.00	77.26
0.00		0.54						
	1	375	1	0.00	-4.96	0.00	0.00	-89.00
0.00		0.63						
87	1	375	1	0.00	3.87	0.00	0.00	89.00
0.00		0.63						
	1	376	1	0.00	-3.87	0.00	0.00	-98.15
0.00		0.69						
88	1	376	1	0.00	2.39	0.00	0.00	98.15
0.00		0.69						
	1	377	1	0.00	-2.39	0.00	0.00	-103.82
0.00		0.73						

12 Harbor.out

89	1	377	1	0.00	0.61	0.00	0.00	103.82
0.00		0.73						
	1	378	1	0.00	-0.61	0.00	0.00	-105.27
0.00		0.74						
90	1	378	1	0.00	-1.10	0.00	0.00	105.27
0.00		0.74						
	1	379	1	0.00	1.10	0.00	0.00	-102.67
0.00		0.72						
91	1	379	1	0.00	-13.09	0.00	0.00	102.67
0.00		0.72						
	1	380	1	0.00	13.09	0.00	0.00	-71.70
0.00		0.51						
92	1	380	1	0.00	-20.55	0.00	0.00	71.70
0.00		0.51						
	1	381	1	0.00	20.55	0.00	0.00	-23.05
0.00		0.16						
93	1	381	1	0.00	-11.15	0.00	0.00	23.05
0.00		0.16						
	1	382	1	0.00	11.15	0.00	0.00	3.33
0.00		0.02						
94	1	382	1	0.00	-0.90	0.00	0.00	-3.33
0.00		0.02						
	1	383	1	0.00	0.90	0.00	0.00	5.45
0.00		0.04						
95	1	383	1	0.00	1.63	0.00	0.00	-5.45
0.00		0.04						
	1	384	1	0.00	-1.63	0.00	0.00	1.59
0.00		0.01						
96	1	384	1	0.00	0.75	0.00	0.00	-1.59
0.00		0.01						
	1	385	1	0.00	-0.75	0.00	0.00	-0.17
0.00		0.00						
97	1	385	1	0.00	0.03	0.00	0.00	0.17
0.00		0.00						
	1	386	1	0.00	-0.03	0.00	0.00	-0.25
0.00		0.00						
98	1	386	1	0.00	-0.08	0.00	0.00	0.25
0.00		0.00						
	1	387	1	0.00	0.08	0.00	0.00	-0.05
0.00		0.00						
99	1	387	1	0.00	-0.03	0.00	0.00	0.05
0.00		0.00						
	1	388	1	0.00	0.03	0.00	0.00	0.01
0.00		0.00						
100	1	388	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	389	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 6 !

101	1	6	1	0.00	6.40	0.00	0.00	0.00
0.00		0.00						
	1	390	1	0.00	-6.40	0.00	0.00	-18.57
0.00		0.13						
102	1	390	1	0.00	6.40	0.00	0.00	18.57
0.00		0.13						
	1	391	1	0.00	-6.40	0.00	0.00	-37.13
0.00		0.26						
103	1	391	1	0.00	6.40	0.00	0.00	37.13
0.00		0.26						
	1	392	1	0.00	-6.40	0.00	0.00	-55.70

12 Harbor.out

0.00		0.39						
104	1	392	1	0.00	6.40	0.00	0.00	55.70
0.00		0.39						
	1	393	1	0.00	-6.40	0.00	0.00	-74.26
0.00		0.52						
105	1	393	1	0.00	6.40	0.00	0.00	74.26
0.00		0.52						
	1	394	1	0.00	-6.40	0.00	0.00	-92.83
0.00		0.65						
106	1	394	1	0.00	5.67	0.00	0.00	92.83
0.00		0.65						
	1	395	1	0.00	-5.67	0.00	0.00	-106.25
0.00		0.75						
107	1	395	1	0.00	3.32	0.00	0.00	106.34
0.00		0.75						
	1	396	1	0.00	-3.32	0.00	0.00	-114.20
0.00		0.80						
108	1	396	1	0.00	0.39	0.00	0.00	114.22
0.00		0.80						
	1	397	1	0.00	-0.39	0.00	0.00	-115.13
0.00		0.81						
109	1	397	1	0.00	-2.35	0.00	0.00	114.89
0.00		0.81						
	1	398	1	0.00	2.35	0.00	0.00	-109.34
0.00		0.77						
110	1	398	1	0.00	-5.63	0.00	0.00	109.32
0.00		0.77						
	1	399	1	0.00	5.63	0.00	0.00	-95.99
0.00		0.68						
111	1	399	1	0.00	-22.98	0.00	0.00	95.99
0.00		0.68						
	1	400	1	0.00	22.98	0.00	0.00	-41.61
0.00		0.29						
112	1	400	1	0.00	-16.88	0.00	0.00	41.61
0.00		0.29						
	1	401	1	0.00	16.88	0.00	0.00	-1.66
0.00		0.01						
113	1	401	1	0.00	-3.17	0.00	0.00	1.66
0.00		0.01						
	1	402	1	0.00	3.17	0.00	0.00	5.84
0.00		0.04						
114	1	402	1	0.00	1.81	0.00	0.00	-5.84
0.00		0.04						
	1	403	1	0.00	-1.81	0.00	0.00	1.55
0.00		0.01						
115	1	403	1	0.00	0.77	0.00	0.00	-1.55
0.00		0.01						
	1	404	1	0.00	-0.77	0.00	0.00	-0.26
0.00		0.00						
116	1	404	1	0.00	-0.03	0.00	0.00	0.26
0.00		0.00						
	1	405	1	0.00	0.03	0.00	0.00	-0.18
0.00		0.00						
117	1	405	1	0.00	-0.08	0.00	0.00	0.18
0.00		0.00						
	1	406	1	0.00	0.08	0.00	0.00	0.00
0.00		0.00						
118	1	406	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						
	1	407	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
119	1	407	1	0.00	0.01	0.00	0.00	-0.01
0.00		0.00						

				12 Harbor.out				
0.00	1	408	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						
120	1	408	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	409	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 7 !

121	1	7	1	0.00	4.94	0.00	0.00	0.00
0.00		0.00						
0.00	1	410	1	0.00	-4.94	0.00	0.00	-14.32
0.00		0.10						
122	1	410	1	0.00	4.94	0.00	0.00	14.32
0.00		0.10						
0.00	1	411	1	0.00	-4.94	0.00	0.00	-28.63
0.00		0.20						
123	1	411	1	0.00	4.94	0.00	0.00	28.63
0.00		0.20						
0.00	1	412	1	0.00	-4.94	0.00	0.00	-42.95
0.00		0.30						
124	1	412	1	0.00	4.94	0.00	0.00	42.95
0.00		0.30						
0.00	1	413	1	0.00	-4.94	0.00	0.00	-57.26
0.00		0.40						
125	1	413	1	0.00	4.94	0.00	0.00	57.26
0.00		0.40						
0.00	1	414	1	0.00	-4.94	0.00	0.00	-71.58
0.00		0.50						
126	1	414	1	0.00	4.66	0.00	0.00	71.58
0.00		0.50						
0.00	1	415	1	0.00	-4.66	0.00	0.00	-82.61
0.00		0.58						
127	1	415	1	0.00	3.84	0.00	0.00	82.61
0.00		0.58						
0.00	1	416	1	0.00	-3.84	0.00	0.00	-91.69
0.00		0.65						
128	1	416	1	0.00	2.73	0.00	0.00	91.69
0.00		0.65						
0.00	1	417	1	0.00	-2.73	0.00	0.00	-98.14
0.00		0.69						
129	1	417	1	0.00	1.32	0.00	0.00	98.14
0.00		0.69						
0.00	1	418	1	0.00	-1.32	0.00	0.00	-101.28
0.00		0.71						
130	1	418	1	0.00	-0.06	0.00	0.00	101.28
0.00		0.71						
0.00	1	419	1	0.00	0.06	0.00	0.00	-101.14
0.00		0.71						
131	1	419	1	0.00	-9.35	0.00	0.00	101.14
0.00		0.71						
0.00	1	420	1	0.00	9.35	0.00	0.00	-79.01
0.00		0.56						
132	1	420	1	0.00	-18.84	0.00	0.00	79.01
0.00		0.56						
0.00	1	421	1	0.00	18.84	0.00	0.00	-34.42
0.00		0.24						
133	1	421	1	0.00	-13.08	0.00	0.00	34.42
0.00		0.24						
0.00	1	422	1	0.00	13.08	0.00	0.00	-3.46
0.00		0.02						
134	1	422	1	0.00	-3.87	0.00	0.00	3.46

12 Harbor.out

0.00		0.02						
	1	423	1	0.00	3.87	0.00	0.00	5.69
0.00		0.04						
135	1	423	1	0.00	1.07	0.00	0.00	-5.69
0.00		0.04						
	1	424	1	0.00	-1.07	0.00	0.00	3.16
0.00		0.02						
136	1	424	1	0.00	1.14	0.00	0.00	-3.16
0.00		0.02						
	1	425	1	0.00	-1.14	0.00	0.00	0.47
0.00		0.00						
137	1	425	1	0.00	0.31	0.00	0.00	-0.47
0.00		0.00						
	1	426	1	0.00	-0.31	0.00	0.00	-0.27
0.00		0.00						
138	1	426	1	0.00	-0.05	0.00	0.00	0.27
0.00		0.00						
	1	427	1	0.00	0.05	0.00	0.00	-0.16
0.00		0.00						
139	1	427	1	0.00	-0.06	0.00	0.00	0.16
0.00		0.00						
	1	428	1	0.00	0.06	0.00	0.00	-0.02
0.00		0.00						
140	1	428	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	429	1	0.00	0.01	0.00	0.00	0.00
0.00		0.00						

! -> File Number 8 !

141	1	8	1	0.00	5.33	0.00	0.00	0.00
0.00		0.00						
	1	430	1	0.00	-5.33	0.00	0.00	-15.45
0.00		0.11						
142	1	430	1	0.00	5.33	0.00	0.00	15.45
0.00		0.11						
	1	431	1	0.00	-5.33	0.00	0.00	-30.90
0.00		0.22						
143	1	431	1	0.00	5.33	0.00	0.00	30.90
0.00		0.22						
	1	432	1	0.00	-5.33	0.00	0.00	-46.35
0.00		0.33						
144	1	432	1	0.00	5.33	0.00	0.00	46.35
0.00		0.33						
	1	433	1	0.00	-5.33	0.00	0.00	-61.81
0.00		0.44						
145	1	433	1	0.00	5.33	0.00	0.00	61.81
0.00		0.44						
	1	434	1	0.00	-5.33	0.00	0.00	-77.26
0.00		0.54						
146	1	434	1	0.00	4.96	0.00	0.00	77.26
0.00		0.54						
	1	435	1	0.00	-4.96	0.00	0.00	-89.00
0.00		0.63						
147	1	435	1	0.00	3.87	0.00	0.00	89.00
0.00		0.63						
	1	436	1	0.00	-3.87	0.00	0.00	-98.15
0.00		0.69						
148	1	436	1	0.00	2.39	0.00	0.00	98.15
0.00		0.69						
	1	437	1	0.00	-2.39	0.00	0.00	-103.82
0.00		0.73						

12 Harbor.out

149	1	437	1	0.00	0.61	0.00	0.00	103.82
0.00		0.73						
	1	438	1	0.00	-0.61	0.00	0.00	-105.27
0.00		0.74						
150	1	438	1	0.00	-1.10	0.00	0.00	105.27
0.00		0.74						
	1	439	1	0.00	1.10	0.00	0.00	-102.67
0.00		0.72						
151	1	439	1	0.00	-13.09	0.00	0.00	102.67
0.00		0.72						
	1	440	1	0.00	13.09	0.00	0.00	-71.70
0.00		0.51						
152	1	440	1	0.00	-20.55	0.00	0.00	71.70
0.00		0.51						
	1	441	1	0.00	20.55	0.00	0.00	-23.05
0.00		0.16						
153	1	441	1	0.00	-11.15	0.00	0.00	23.05
0.00		0.16						
	1	442	1	0.00	11.15	0.00	0.00	3.33
0.00		0.02						
154	1	442	1	0.00	-0.90	0.00	0.00	-3.33
0.00		0.02						
	1	443	1	0.00	0.90	0.00	0.00	5.45
0.00		0.04						
155	1	443	1	0.00	1.63	0.00	0.00	-5.45
0.00		0.04						
	1	444	1	0.00	-1.63	0.00	0.00	1.59
0.00		0.01						
156	1	444	1	0.00	0.75	0.00	0.00	-1.59
0.00		0.01						
	1	445	1	0.00	-0.75	0.00	0.00	-0.17
0.00		0.00						
157	1	445	1	0.00	0.03	0.00	0.00	0.17
0.00		0.00						
	1	446	1	0.00	-0.03	0.00	0.00	-0.25
0.00		0.00						
158	1	446	1	0.00	-0.08	0.00	0.00	0.25
0.00		0.00						
	1	447	1	0.00	0.08	0.00	0.00	-0.05
0.00		0.00						
159	1	447	1	0.00	-0.03	0.00	0.00	0.05
0.00		0.00						
	1	448	1	0.00	0.03	0.00	0.00	0.01
0.00		0.00						
160	1	448	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	449	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 9 !

161	1	9	1	0.00	6.40	0.00	0.00	0.00
0.00		0.00						
	1	450	1	0.00	-6.40	0.00	0.00	-18.57
0.00		0.13						
162	1	450	1	0.00	6.40	0.00	0.00	18.57
0.00		0.13						
	1	451	1	0.00	-6.40	0.00	0.00	-37.13
0.00		0.26						
163	1	451	1	0.00	6.40	0.00	0.00	37.13
0.00		0.26						
	1	452	1	0.00	-6.40	0.00	0.00	-55.70

12 Harbor.out

0.00		0.39						
164	1	452	1	0.00	6.40	0.00	0.00	55.70
0.00		0.39						
	1	453	1	0.00	-6.40	0.00	0.00	-74.26
0.00		0.52						
165	1	453	1	0.00	6.40	0.00	0.00	74.26
0.00		0.52						
	1	454	1	0.00	-6.40	0.00	0.00	-92.83
0.00		0.65						
166	1	454	1	0.00	5.67	0.00	0.00	92.83
0.00		0.65						
	1	455	1	0.00	-5.67	0.00	0.00	-106.25
0.00		0.75						
167	1	455	1	0.00	3.32	0.00	0.00	106.34
0.00		0.75						
	1	456	1	0.00	-3.32	0.00	0.00	-114.20
0.00		0.80						
168	1	456	1	0.00	0.39	0.00	0.00	114.22
0.00		0.80						
	1	457	1	0.00	-0.39	0.00	0.00	-115.13
0.00		0.81						
169	1	457	1	0.00	-2.35	0.00	0.00	114.89
0.00		0.81						
	1	458	1	0.00	2.35	0.00	0.00	-109.34
0.00		0.77						
170	1	458	1	0.00	-5.63	0.00	0.00	109.32
0.00		0.77						
	1	459	1	0.00	5.63	0.00	0.00	-95.99
0.00		0.68						
171	1	459	1	0.00	-22.98	0.00	0.00	95.99
0.00		0.68						
	1	460	1	0.00	22.98	0.00	0.00	-41.61
0.00		0.29						
172	1	460	1	0.00	-16.88	0.00	0.00	41.61
0.00		0.29						
	1	461	1	0.00	16.88	0.00	0.00	-1.66
0.00		0.01						
173	1	461	1	0.00	-3.17	0.00	0.00	1.66
0.00		0.01						
	1	462	1	0.00	3.17	0.00	0.00	5.84
0.00		0.04						
174	1	462	1	0.00	1.81	0.00	0.00	-5.84
0.00		0.04						
	1	463	1	0.00	-1.81	0.00	0.00	1.55
0.00		0.01						
175	1	463	1	0.00	0.77	0.00	0.00	-1.55
0.00		0.01						
	1	464	1	0.00	-0.77	0.00	0.00	-0.26
0.00		0.00						
176	1	464	1	0.00	-0.03	0.00	0.00	0.26
0.00		0.00						
	1	465	1	0.00	0.03	0.00	0.00	-0.18
0.00		0.00						
177	1	465	1	0.00	-0.08	0.00	0.00	0.18
0.00		0.00						
	1	466	1	0.00	0.08	0.00	0.00	0.00
0.00		0.00						
178	1	466	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						
	1	467	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
179	1	467	1	0.00	0.01	0.00	0.00	-0.01
0.00		0.00						

12 Harbor.out

0.00	1	468	1	0.00	-0.01	0.00	0.00	0.00
180	1	468	1	0.00	0.00	0.00	0.00	0.00
0.00	1	469	1	0.00	0.00	0.00	0.00	0.00

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXF (Kip)	FYY (Kip)	FZZ (Kip)	MXF (Kip)	MYF (Kip)	MZF (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.4625E-11 Kip	1	0	3
Min Axial Force	-0.1740E-10 Kip	1	0	4
Max Shear in 2 Direction	0.6402E+01 Kip	1	0	3
Min Shear in 2 Direction	-0.2298E+02 Kip	1	0	3
Max Shear in 3 Direction	0.5543E-03 Kip	1	0	1
Min Shear in 3 Direction	-0.3575E-03 Kip	1	0	7
Max Moment about 2 Axis	0.6351E-03 Kip-ft	1	0	7
Min Moment about 2 Axis	-0.9852E-03 Kip-ft	1	0	1
Max Moment About 3 Axis	0.5838E+01 Kip-ft	1	0	3
Min Moment About 3 Axis	-0.1151E+03 Kip-ft	1	0	3
Max Torsional Force	0.2525E-03 Kip-ft	1	0	7
Min Torsional Force	-0.1303E-03 Kip-ft	1	0	9
Max Demand/Capacity Ratio	0.8112E+00	1	0	3

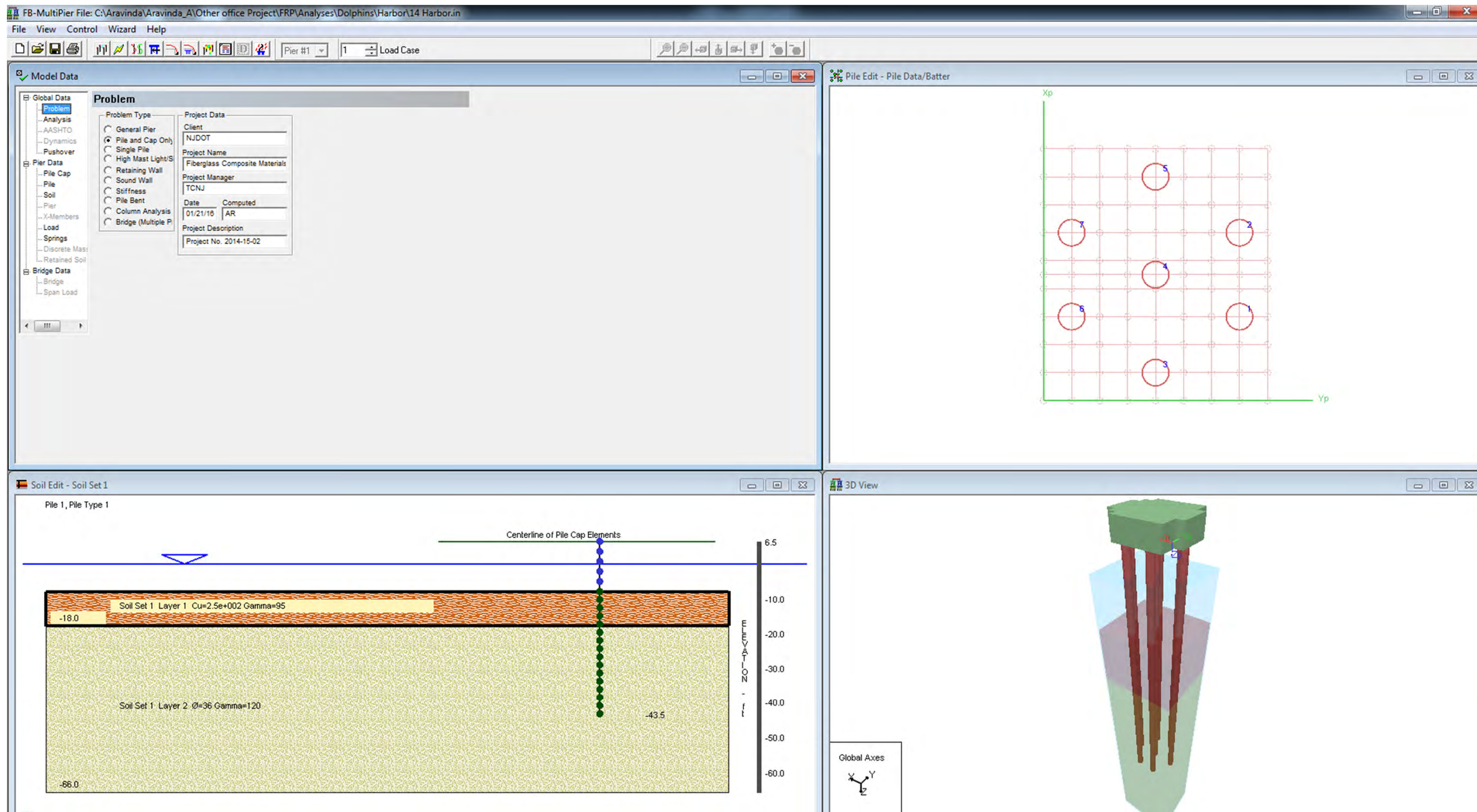
Maximum/Minimum Soil Forces

Max Axial Soil Force	0.0000E+00 Kip	1	0	1
Min Axial Soil Force	0.0000E+00 Kip	1	0	1
Max Lateral Force in X dir	0.1589E+02 Kip	1	0	3
Min Lateral Force in X dir	-0.1333E+02 Kip	1	0	3
Max Lateral Force in Y dir	0.9195E-03 Kip	1	0	1
Min Lateral Force in Y dir	-0.1186E-02 Kip	1	0	1
Max Torsional Soil Force	0.6427E-03 Kip-ft	1	0	9

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.1140E-12 in	1	0	1
Min Axial Displacement	0.6476E-14 in	1	0	9
Max Displacement in X	0.5134E+02 in	1	0	4
Min Displacement in X	0.5134E+02 in	1	0	6
Max Displacement in Y	0.1038E-03 in	1	0	1

Min Displacement in Y	12 Harbor.out -0.6693E-04 in	1	0	7
-----------------------	---------------------------------	---	---	---



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 2 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 P= 2 F= 1,0,0
I= 150 T= 20 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -20 -19.33 0 19.33 20 \
0 0 0 0 0 \
0 0 0 0 0
-0.02 -0.0057 0 0.0057 0.02 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.0057
NL= 0 NG= 0 D= 14 V= 0 S= 80 TH= 0.625 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
11 9 5 5 : NPX, NPY, GSX, GSY
14 14 14 14 7 7 \
14 14 14 14
14 14 14 14 14 14 \
14 14
0.3 0.3 0.3 0.4 0.8
0.3 0.4 0.8
:
MISSING
92 : number of missing piles
1 1
2 1
3 1
4 1
5 1
6 1

```

14 Harbor.in

7 1
8 1
9 1
10 1
11 1
1 2
2 2
3 2
5 2
6 2
7 2
9 2
10 2
11 2
1 3
2 3
3 3
4 3
5 3
6 3
7 3
8 3
9 3
10 3
11 3
1 4
2 4
3 4
4 4
5 4
6 4
7 4
8 4
9 4
10 4
11 4
1 5
3 5
4 5
5 5
7 5
8 5
9 5
11 5
1 6
2 6
3 6
4 6
5 6
6 6
7 6
8 6
9 6
10 6
11 6
1 7
2 7
3 7
4 7
5 7
6 7
7 7
8 7

14 Harbor.in

```

9 7
10 7
11 7
1 8
2 8
3 8
5 8
6 8
7 8
9 8
10 8
11 8
1 9
2 9
3 9
4 9
5 9
6 9
7 9
8 9
9 9
10 9
11 9
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8,-18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.25 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18,-66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.25 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
REMOVE
1 1
9 1
10 1
1 2
10 2
1 7
10 7
1 8
9 8
10 8
:
LOAD
50 L= 1 F= 63 0 0 0 0 0
:
PADBC
:

```

```

!
! The University of Florida, Florida Department
! of Transportation, Drs. Marc Hoit, Mike McVay
! Cliff Hays, Mark Williams, Petros Christou, and
! Jae H. Chung
! disclaim any warranty, expressed or implied,
! including but not limited to, any implied
! warranty of fitness for a particular purpose
! or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
! incurred through the use of FB-MultiPier
!

```

```

!
! :::: F B - M U L T I P I E R ::::
! FB-MultiPier Version 4.17
!

```

```

!
! Written by Marc Hoit, Mike McVay, Cliff Hays
! Mark Williams, Petros Christou, Jae H. Chung.
!

```

```

!
! Civil & Coastal Engineering, University of Florida
! Supported by Florida Department of Transportation
! and the Federal Highway Administration
!

```

```

!
! The program calculates the Response
! of the Bridge Pier Pile Soil Structures
!

```

```

!
! The Analysis includes PreLoad, Static,
! Transient Dynamic or Push Over
!

```

```

!
! The Program Handles NonLinear Soil Behavior,
! Linear Pile Cap and Linear and NonLinear Piles and Piers
!

```

```

!
! Contact: Bridge Software Institute for Support
! HTTP://BSI-WEB.CE.UFL.EDU
!

```

```

*****
*
* ANALYSIS RESULTS
*
*****

```

```

*****
* RESULTS FOR LOAD CASE # 1 *
*****

```

NOTE : PY Multipliers are applied Lead to Trail row based on the actual displacement. If there is no displacement in a Lateral direction they are defaulted to 1.0. This can happen in Axial Load and one direction lateral load cases

14 Harbor.out

PY Multipliers are Applied to A Pile Group

PILE#	X-PYM	Y-PYM
1	0.300E+00	0.100E+01
2	0.400E+00	0.100E+01
3	0.300E+00	0.100E+01
4	0.300E+00	0.100E+01
5	0.800E+00	0.100E+01
6	0.300E+00	0.100E+01
7	0.400E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 2 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.000	Kips
FXX =	9.311	Kips
FYY =	0.027	Kips
MXX =	0.000	Kip-in
MYY =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	40.6966	0.0001	0.0000
2	40.6965	0.0000	0.0000
3	40.6970	0.0000	0.0000
4	40.6965	0.0000	0.0000
5	40.6964	0.0000	0.0000
6	40.6966	-0.0001	0.0000
7	40.6965	0.0000	0.0000

Pile Cap Displacements (Excluding Pile Heads)

8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	40.6966	0.0000	0.0000	0.0000	0.0000	0.0000
10	40.6966	0.0001	0.0000	0.0000	0.0000	0.0000
11	40.6966	0.0001	0.0000	0.0000	0.0000	0.0000
12	40.6966	0.0001	0.0000	0.0000	0.0000	0.0000
13	40.6966	0.0001	0.0000	0.0000	0.0000	0.0000
14	40.6966	0.0001	0.0000	0.0000	0.0000	0.0000
15	40.6965	0.0001	0.0000	0.0000	0.0000	0.0000
16	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	40.6967	0.0000	0.0000	0.0000	0.0000	0.0000
21	40.6967	0.0001	0.0000	0.0000	0.0000	0.0000
22	40.6966	0.0001	0.0000	0.0000	0.0000	0.0000
23	40.6966	0.0001	0.0000	0.0000	0.0000	0.0000
24	40.6965	0.0001	0.0000	0.0000	0.0000	0.0000
25	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
26	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000

14 Harbor.out

27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	40.6970	-0.0001	0.0000	0.0000	0.0000	0.0000
29	40.6968	0.0001	0.0000	0.0000	0.0000	0.0000
30	40.6967	0.0001	0.0000	0.0000	0.0000	0.0000
31	40.6966	0.0001	0.0000	0.0000	0.0000	0.0000
32	40.6966	0.0001	0.0000	0.0000	0.0000	0.0000
33	40.6966	0.0001	0.0000	0.0000	0.0000	0.0000
34	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
35	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
36	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
37	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
38	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
39	40.6972	-0.0001	0.0000	0.0000	0.0000	0.0000
40	40.6969	0.0001	0.0000	0.0000	0.0000	0.0000
41	40.6968	0.0001	0.0000	0.0000	0.0000	0.0000
42	40.6966	0.0001	0.0000	0.0000	0.0000	0.0000
43	40.6966	0.0000	0.0000	0.0000	0.0000	0.0000
44	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
45	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
46	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
47	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
48	40.6964	0.0000	0.0000	0.0000	0.0000	0.0000
49	40.6964	0.0000	0.0000	0.0000	0.0000	0.0000
50	40.6976	0.0000	0.0000	0.0000	0.0000	0.0000
51	40.6968	0.0000	0.0000	0.0000	0.0000	0.0000
52	40.6967	0.0000	0.0000	0.0000	0.0000	0.0000
53	40.6966	0.0000	0.0000	0.0000	0.0000	0.0000
54	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
55	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
56	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
57	40.6964	0.0000	0.0000	0.0000	0.0000	0.0000
58	40.6972	0.0001	0.0000	0.0000	0.0000	0.0000
59	40.6969	-0.0001	0.0000	0.0000	0.0000	0.0000
60	40.6968	-0.0001	0.0000	0.0000	0.0000	0.0000
61	40.6966	-0.0001	0.0000	0.0000	0.0000	0.0000
62	40.6966	0.0000	0.0000	0.0000	0.0000	0.0000
63	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
64	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
65	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
66	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
67	40.6964	0.0000	0.0000	0.0000	0.0000	0.0000
68	40.6964	0.0000	0.0000	0.0000	0.0000	0.0000
69	40.6970	0.0001	0.0000	0.0000	0.0000	0.0000
70	40.6968	-0.0001	0.0000	0.0000	0.0000	0.0000
71	40.6967	-0.0001	0.0000	0.0000	0.0000	0.0000
72	40.6966	-0.0001	0.0000	0.0000	0.0000	0.0000
73	40.6966	-0.0001	0.0000	0.0000	0.0000	0.0000
74	40.6966	-0.0001	0.0000	0.0000	0.0000	0.0000
75	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
76	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
77	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
78	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
79	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
81	40.6967	0.0000	0.0000	0.0000	0.0000	0.0000
82	40.6967	-0.0001	0.0000	0.0000	0.0000	0.0000
83	40.6966	-0.0001	0.0000	0.0000	0.0000	0.0000
84	40.6966	-0.0001	0.0000	0.0000	0.0000	0.0000
85	40.6965	-0.0001	0.0000	0.0000	0.0000	0.0000
86	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
87	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
88	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
89	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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[illegible]

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[illegible]

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[illegible]

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[illegible]

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342	40.6965	0.0000	0.0000	0.0000	0.0000	0.0000
343	40.6966	0.0000	0.0000	0.0000	0.0000	0.0000
344	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
345	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
346	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
347	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
349	40.6966	0.0000	0.0000	0.0000	0.0000	0.0000
350	40.6966	0.0000	0.0000	0.0000	0.0000	0.0000
351	40.6966	-0.0001	0.0000	0.0000	0.0000	0.0000
352	40.6966	-0.0001	0.0000	0.0000	0.0000	0.0000
353	40.6966	-0.0001	0.0000	0.0000	0.0000	0.0000
354	40.6966	0.0000	0.0000	0.0000	0.0000	0.0000
355	40.6966	0.0000	0.0000	0.0000	0.0000	0.0000
356	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
357	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1

Maximum = 0.0000E+00

Minimum = 0.0000E+00

Steel Strains for Section # 1

Steel type = 4 (For Description see Users Manual)

Maximum = 0.6806E-02

Minimum = -0.6806E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)

X Direction = -19.8579 Kips

Y Direction = -0.0006 Kips

Z Direction = 0.0000 Kips

Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.60183E-11	-0.36985E-11
2	0.10569E-10	-0.58261E-11
3	0.15637E-10	-0.38324E-11
4	0.20781E-10	0.18493E-12
5	0.97814E-11	0.15255E-12
6	0.12960E-10	0.48212E-12
7	0.11992E-10	0.15582E-12

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
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1	0.85965E+01	-0.25006E+02
2	0.90875E+01	-0.25461E+02
3	0.85966E+01	-0.25007E+02
4	0.85965E+01	-0.25006E+02
5	0.10439E+02	-0.23960E+02
6	0.85965E+01	-0.25006E+02
7	0.90875E+01	-0.25461E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.70401E-04	-0.40396E-04
2	0.44512E-04	-0.22429E-04
3	0.72435E-08	-0.12594E-07
4	0.28189E-08	-0.48872E-08
5	0.30355E-08	-0.16053E-08
6	0.40406E-04	-0.70417E-04
7	0.22431E-04	-0.44515E-04

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	366	0.26333E+02	0.5906E-04	0.14500E+02	-0.5857E-03
2	386	0.26333E+02	0.3281E-04	0.16867E+02	-0.3261E-03
3	401	0.14500E+02	0.1050E-06	0.28700E+02	-0.1061E-07
4	422	0.16867E+02	0.4087E-07	0.26333E+02	-0.4127E-08
5	446	0.26333E+02	0.2351E-08	0.14500E+02	-0.2302E-07
6	462	0.16867E+02	0.5859E-03	0.28700E+02	-0.5907E-04
7	482	0.16867E+02	0.3261E-03	0.26333E+02	-0.3281E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	370	0.35800E+02	6.093	0.19233E+02	-148.4
2	390	0.35800E+02	5.864	0.19233E+02	-151.5
3	410	0.35800E+02	6.093	0.21600E+02	-148.4
4	430	0.35800E+02	6.093	0.21600E+02	-148.4
5	449	0.33433E+02	5.309	0.19233E+02	-156.7
6	470	0.35800E+02	6.093	0.19233E+02	-148.4
7	490	0.35800E+02	5.864	0.19233E+02	-151.5

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM D/C NO.	PROP NO.	NODE NO.	LOAD CASE	FAX (Kips)	F22 (Kips)	F33 (Kips)	M22 (Kip-ft)	M33 (Kip-ft)	TORQUE
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14 Harbor.out

(Kip-ft) (Ratio)

! -> Pile Number 1 !

1	1	1	1	0.00	8.60	0.00	0.00	0.00
0.00		0.00						
	1	358	1	0.00	-8.60	0.00	0.00	-24.93
0.00		0.13						
2	1	358	1	0.00	8.60	0.00	0.00	24.93
0.00		0.13						
	1	359	1	0.00	-8.60	0.00	0.00	-49.86
0.00		0.27						
3	1	359	1	0.00	8.60	0.00	0.00	49.86
0.00		0.27						
	1	360	1	0.00	-8.60	0.00	0.00	-74.79
0.00		0.40						
4	1	360	1	0.00	8.60	0.00	0.00	74.79
0.00		0.40						
	1	361	1	0.00	-8.60	0.00	0.00	-99.72
0.00		0.53						
5	1	361	1	0.00	8.60	0.00	0.00	99.72
0.00		0.53						
	1	362	1	0.00	-8.60	0.00	0.00	-124.65
0.00		0.67						
6	1	362	1	0.00	7.36	0.00	0.00	124.65
0.00		0.67						
	1	363	1	0.00	-7.36	0.00	0.00	-142.07
0.00		0.76						
7	1	363	1	0.00	2.58	0.00	0.00	142.27
0.00		0.76						
	1	364	1	0.00	-2.58	0.00	0.00	-148.38
0.00		0.79						
8	1	364	1	0.00	-0.57	0.00	0.00	148.38
0.00		0.79						
	1	365	1	0.00	0.57	0.00	0.00	-147.04
0.00		0.79						
9	1	365	1	0.00	-5.98	0.00	0.00	147.90
0.00		0.79						
	1	366	1	0.00	5.98	0.00	0.00	-133.76
0.00		0.72						
10	1	366	1	0.00	-14.82	0.00	0.00	133.35
0.00		0.71						
	1	367	1	0.00	14.82	0.00	0.00	-98.28
0.00		0.53						
11	1	367	1	0.00	-25.01	0.00	0.00	98.28
0.00		0.53						
	1	368	1	0.00	25.01	0.00	0.00	-39.10
0.00		0.21						
12	1	368	1	0.00	-15.32	0.00	0.00	39.10
0.00		0.21						
	1	369	1	0.00	15.32	0.00	0.00	-2.84
0.00		0.02						
13	1	369	1	0.00	-3.77	0.00	0.00	2.84
0.00		0.02						
	1	370	1	0.00	3.77	0.00	0.00	6.09
0.00		0.03						
14	1	370	1	0.00	1.03	0.00	0.00	-6.09
0.00		0.03						
	1	371	1	0.00	-1.03	0.00	0.00	3.65
0.00		0.02						
15	1	371	1	0.00	1.24	0.00	0.00	-3.65
0.00		0.02						

				14 Harbor.out				
	1	372	1	0.00	-1.24	0.00	0.00	0.71
0.00		0.00						
16	1	372	1	0.00	0.41	0.00	0.00	-0.71
0.00		0.00						
	1	373	1	0.00	-0.41	0.00	0.00	-0.26
0.00		0.00						
17	1	373	1	0.00	-0.02	0.00	0.00	0.26
0.00		0.00						
	1	374	1	0.00	0.02	0.00	0.00	-0.21
0.00		0.00						
18	1	374	1	0.00	-0.07	0.00	0.00	0.21
0.00		0.00						
	1	375	1	0.00	0.07	0.00	0.00	-0.05
0.00		0.00						
19	1	375	1	0.00	-0.02	0.00	0.00	0.05
0.00		0.00						
	1	376	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
20	1	376	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	377	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 2 !

21	1	2	1	0.00	9.09	0.00	0.00	0.00
0.00		0.00						
	1	378	1	0.00	-9.09	0.00	0.00	-26.35
0.00		0.14						
22	1	378	1	0.00	9.09	0.00	0.00	26.35
0.00		0.14						
	1	379	1	0.00	-9.09	0.00	0.00	-52.71
0.00		0.28						
23	1	379	1	0.00	9.09	0.00	0.00	52.71
0.00		0.28						
	1	380	1	0.00	-9.09	0.00	0.00	-79.06
0.00		0.42						
24	1	380	1	0.00	9.09	0.00	0.00	79.06
0.00		0.42						
	1	381	1	0.00	-9.09	0.00	0.00	-105.42
0.00		0.56						
25	1	381	1	0.00	9.09	0.00	0.00	105.42
0.00		0.56						
	1	382	1	0.00	-9.09	0.00	0.00	-131.77
0.00		0.71						
26	1	382	1	0.00	6.85	0.00	0.00	132.16
0.00		0.71						
	1	383	1	0.00	-6.85	0.00	0.00	-148.37
0.00		0.79						
27	1	383	1	0.00	1.64	0.00	0.00	147.60
0.00		0.79						
	1	384	1	0.00	-1.64	0.00	0.00	-151.47
0.00		0.81						
28	1	384	1	0.00	-1.13	0.00	0.00	151.32
0.00		0.81						
	1	385	1	0.00	1.13	0.00	0.00	-148.63
0.00		0.80						
29	1	385	1	0.00	-8.14	0.00	0.00	149.54
0.00		0.80						
	1	386	1	0.00	8.14	0.00	0.00	-130.26
0.00		0.70						
30	1	386	1	0.00	-16.23	0.00	0.00	129.77

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0.00		0.69						
	1	387	1	0.00	16.23	0.00	0.00	-91.37
0.00		0.49						
31	1	387	1	0.00	-25.46	0.00	0.00	91.37
0.00		0.49						
	1	388	1	0.00	25.46	0.00	0.00	-31.11
0.00		0.17						
32	1	388	1	0.00	-13.46	0.00	0.00	31.11
0.00		0.17						
	1	389	1	0.00	13.46	0.00	0.00	0.75
0.00		0.00						
33	1	389	1	0.00	-2.16	0.00	0.00	-0.75
0.00		0.00						
	1	390	1	0.00	2.16	0.00	0.00	5.86
0.00		0.03						
34	1	390	1	0.00	1.41	0.00	0.00	-5.86
0.00		0.03						
	1	391	1	0.00	-1.41	0.00	0.00	2.52
0.00		0.01						
35	1	391	1	0.00	1.00	0.00	0.00	-2.52
0.00		0.01						
	1	392	1	0.00	-1.00	0.00	0.00	0.15
0.00		0.00						
36	1	392	1	0.00	0.19	0.00	0.00	-0.15
0.00		0.00						
	1	393	1	0.00	-0.19	0.00	0.00	-0.30
0.00		0.00						
37	1	393	1	0.00	-0.07	0.00	0.00	0.30
0.00		0.00						
	1	394	1	0.00	0.07	0.00	0.00	-0.12
0.00		0.00						
38	1	394	1	0.00	-0.05	0.00	0.00	0.12
0.00		0.00						
	1	395	1	0.00	0.05	0.00	0.00	0.00
0.00		0.00						
39	1	395	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						
	1	396	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
40	1	396	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	397	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 3 !

41	1	3	1	0.00	8.60	0.00	0.00	0.00
0.00		0.00						
	1	398	1	0.00	-8.60	0.00	0.00	-24.93
0.00		0.13						
42	1	398	1	0.00	8.60	0.00	0.00	24.93
0.00		0.13						
	1	399	1	0.00	-8.60	0.00	0.00	-49.86
0.00		0.27						
43	1	399	1	0.00	8.60	0.00	0.00	49.86
0.00		0.27						
	1	400	1	0.00	-8.60	0.00	0.00	-74.79
0.00		0.40						
44	1	400	1	0.00	8.60	0.00	0.00	74.79
0.00		0.40						
	1	401	1	0.00	-8.60	0.00	0.00	-99.72
0.00		0.53						

				14 Harbor.out				
45	1	401	1	0.00	8.60	0.00	0.00	99.72
0.00		0.53						
	1	402	1	0.00	-8.60	0.00	0.00	-124.65
0.00		0.67						
46	1	402	1	0.00	7.36	0.00	0.00	124.65
0.00		0.67						
	1	403	1	0.00	-7.36	0.00	0.00	-142.07
0.00		0.76						
47	1	403	1	0.00	2.58	0.00	0.00	142.27
0.00		0.76						
	1	404	1	0.00	-2.58	0.00	0.00	-148.38
0.00		0.79						
48	1	404	1	0.00	-0.57	0.00	0.00	148.38
0.00		0.79						
	1	405	1	0.00	0.57	0.00	0.00	-147.04
0.00		0.79						
49	1	405	1	0.00	-5.98	0.00	0.00	147.91
0.00		0.79						
	1	406	1	0.00	5.98	0.00	0.00	-133.76
0.00		0.72						
50	1	406	1	0.00	-14.82	0.00	0.00	133.35
0.00		0.71						
	1	407	1	0.00	14.82	0.00	0.00	-98.28
0.00		0.53						
51	1	407	1	0.00	-25.01	0.00	0.00	98.28
0.00		0.53						
	1	408	1	0.00	25.01	0.00	0.00	-39.10
0.00		0.21						
52	1	408	1	0.00	-15.32	0.00	0.00	39.10
0.00		0.21						
	1	409	1	0.00	15.32	0.00	0.00	-2.84
0.00		0.02						
53	1	409	1	0.00	-3.77	0.00	0.00	2.84
0.00		0.02						
	1	410	1	0.00	3.77	0.00	0.00	6.09
0.00		0.03						
54	1	410	1	0.00	1.03	0.00	0.00	-6.09
0.00		0.03						
	1	411	1	0.00	-1.03	0.00	0.00	3.65
0.00		0.02						
55	1	411	1	0.00	1.24	0.00	0.00	-3.65
0.00		0.02						
	1	412	1	0.00	-1.24	0.00	0.00	0.71
0.00		0.00						
56	1	412	1	0.00	0.41	0.00	0.00	-0.71
0.00		0.00						
	1	413	1	0.00	-0.41	0.00	0.00	-0.26
0.00		0.00						
57	1	413	1	0.00	-0.02	0.00	0.00	0.26
0.00		0.00						
	1	414	1	0.00	0.02	0.00	0.00	-0.21
0.00		0.00						
58	1	414	1	0.00	-0.07	0.00	0.00	0.21
0.00		0.00						
	1	415	1	0.00	0.07	0.00	0.00	-0.05
0.00		0.00						
59	1	415	1	0.00	-0.02	0.00	0.00	0.05
0.00		0.00						
	1	416	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
60	1	416	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	417	1	0.00	0.00	0.00	0.00	0.00

14 Harbor.out

0.00

0.00

! -> Pile Number 4 !

61	1	4	1	0.00	8.60	0.00	0.00	0.00
0.00		0.00						
	1	418	1	0.00	-8.60	0.00	0.00	-24.93
0.00		0.13						
62	1	418	1	0.00	8.60	0.00	0.00	24.93
0.00		0.13						
	1	419	1	0.00	-8.60	0.00	0.00	-49.86
0.00		0.27						
63	1	419	1	0.00	8.60	0.00	0.00	49.86
0.00		0.27						
	1	420	1	0.00	-8.60	0.00	0.00	-74.79
0.00		0.40						
64	1	420	1	0.00	8.60	0.00	0.00	74.79
0.00		0.40						
	1	421	1	0.00	-8.60	0.00	0.00	-99.72
0.00		0.53						
65	1	421	1	0.00	8.60	0.00	0.00	99.72
0.00		0.53						
	1	422	1	0.00	-8.60	0.00	0.00	-124.65
0.00		0.67						
66	1	422	1	0.00	7.36	0.00	0.00	124.65
0.00		0.67						
	1	423	1	0.00	-7.36	0.00	0.00	-142.07
0.00		0.76						
67	1	423	1	0.00	2.58	0.00	0.00	142.27
0.00		0.76						
	1	424	1	0.00	-2.58	0.00	0.00	-148.38
0.00		0.79						
68	1	424	1	0.00	-0.57	0.00	0.00	148.38
0.00		0.79						
	1	425	1	0.00	0.57	0.00	0.00	-147.04
0.00		0.79						
69	1	425	1	0.00	-5.98	0.00	0.00	147.90
0.00		0.79						
	1	426	1	0.00	5.98	0.00	0.00	-133.76
0.00		0.72						
70	1	426	1	0.00	-14.82	0.00	0.00	133.35
0.00		0.71						
	1	427	1	0.00	14.82	0.00	0.00	-98.28
0.00		0.53						
71	1	427	1	0.00	-25.01	0.00	0.00	98.28
0.00		0.53						
	1	428	1	0.00	25.01	0.00	0.00	-39.10
0.00		0.21						
72	1	428	1	0.00	-15.32	0.00	0.00	39.10
0.00		0.21						
	1	429	1	0.00	15.32	0.00	0.00	-2.84
0.00		0.02						
73	1	429	1	0.00	-3.77	0.00	0.00	2.84
0.00		0.02						
	1	430	1	0.00	3.77	0.00	0.00	6.09
0.00		0.03						
74	1	430	1	0.00	1.03	0.00	0.00	-6.09
0.00		0.03						
	1	431	1	0.00	-1.03	0.00	0.00	3.65
0.00		0.02						
75	1	431	1	0.00	1.24	0.00	0.00	-3.65
0.00		0.02						

				14 Harbor.out				
	1	432	1	0.00	-1.24	0.00	0.00	0.71
0.00		0.00						
76	1	432	1	0.00	0.41	0.00	0.00	-0.71
0.00		0.00						
	1	433	1	0.00	-0.41	0.00	0.00	-0.26
0.00		0.00						
77	1	433	1	0.00	-0.02	0.00	0.00	0.26
0.00		0.00						
	1	434	1	0.00	0.02	0.00	0.00	-0.21
0.00		0.00						
78	1	434	1	0.00	-0.07	0.00	0.00	0.21
0.00		0.00						
	1	435	1	0.00	0.07	0.00	0.00	-0.05
0.00		0.00						
79	1	435	1	0.00	-0.02	0.00	0.00	0.05
0.00		0.00						
	1	436	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
80	1	436	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	437	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 5 !

81	1	5	1	0.00	10.44	0.00	0.00	0.00
0.00		0.00						
	1	438	1	0.00	-10.44	0.00	0.00	-30.27
0.00		0.16						
82	1	438	1	0.00	10.44	0.00	0.00	30.27
0.00		0.16						
	1	439	1	0.00	-10.44	0.00	0.00	-60.55
0.00		0.32						
83	1	439	1	0.00	10.44	0.00	0.00	60.55
0.00		0.32						
	1	440	1	0.00	-10.44	0.00	0.00	-90.82
0.00		0.49						
84	1	440	1	0.00	10.44	0.00	0.00	90.82
0.00		0.49						
	1	441	1	0.00	-10.44	0.00	0.00	-121.09
0.00		0.65						
85	1	441	1	0.00	10.19	0.00	0.00	121.27
0.00		0.65						
	1	442	1	0.00	-10.19	0.00	0.00	-150.82
0.00		0.81						
86	1	442	1	0.00	3.04	0.00	0.00	149.04
0.00		0.80						
	1	443	1	0.00	-3.04	0.00	0.00	-156.24
0.00		0.84						
87	1	443	1	0.00	0.19	0.00	0.00	156.24
0.00		0.84						
	1	444	1	0.00	-0.19	0.00	0.00	-156.69
0.00		0.84						
88	1	444	1	0.00	-3.00	0.00	0.00	156.69
0.00		0.84						
	1	445	1	0.00	3.00	0.00	0.00	-149.58
0.00		0.80						
89	1	445	1	0.00	-14.73	0.00	0.00	152.16
0.00		0.81						
	1	446	1	0.00	14.73	0.00	0.00	-117.29
0.00		0.63						
90	1	446	1	0.00	-19.91	0.00	0.00	117.11

14 Harbor.out

0.00		0.63						
	1	447	1	0.00	19.91	0.00	0.00	-69.99
0.00		0.37						
91	1	447	1	0.00	-23.96	0.00	0.00	69.99
0.00		0.37						
	1	448	1	0.00	23.96	0.00	0.00	-13.29
0.00		0.07						
92	1	448	1	0.00	-7.86	0.00	0.00	13.29
0.00		0.07						
	1	449	1	0.00	7.86	0.00	0.00	5.31
0.00		0.03						
93	1	449	1	0.00	0.69	0.00	0.00	-5.31
0.00		0.03						
	1	450	1	0.00	-0.69	0.00	0.00	3.67
0.00		0.02						
94	1	450	1	0.00	1.35	0.00	0.00	-3.67
0.00		0.02						
	1	451	1	0.00	-1.35	0.00	0.00	0.47
0.00		0.00						
95	1	451	1	0.00	0.32	0.00	0.00	-0.47
0.00		0.00						
	1	452	1	0.00	-0.32	0.00	0.00	-0.29
0.00		0.00						
96	1	452	1	0.00	-0.07	0.00	0.00	0.29
0.00		0.00						
	1	453	1	0.00	0.07	0.00	0.00	-0.12
0.00		0.00						
97	1	453	1	0.00	-0.05	0.00	0.00	0.12
0.00		0.00						
	1	454	1	0.00	0.05	0.00	0.00	0.00
0.00		0.00						
98	1	454	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	455	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
99	1	455	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	456	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
100	1	456	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	457	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 6 !

101	1	6	1	0.00	8.60	0.00	0.00	0.00
0.00		0.00						
	1	458	1	0.00	-8.60	0.00	0.00	-24.93
0.00		0.13						
102	1	458	1	0.00	8.60	0.00	0.00	24.93
0.00		0.13						
	1	459	1	0.00	-8.60	0.00	0.00	-49.86
0.00		0.27						
103	1	459	1	0.00	8.60	0.00	0.00	49.86
0.00		0.27						
	1	460	1	0.00	-8.60	0.00	0.00	-74.79
0.00		0.40						
104	1	460	1	0.00	8.60	0.00	0.00	74.79
0.00		0.40						
	1	461	1	0.00	-8.60	0.00	0.00	-99.72
0.00		0.53						

				14 Harbor.out				
105	1	461	1	0.00	8.60	0.00	0.00	99.72
0.00		0.53						
	1	462	1	0.00	-8.60	0.00	0.00	-124.65
0.00		0.67						
106	1	462	1	0.00	7.36	0.00	0.00	124.65
0.00		0.67						
	1	463	1	0.00	-7.36	0.00	0.00	-142.07
0.00		0.76						
107	1	463	1	0.00	2.58	0.00	0.00	142.27
0.00		0.76						
	1	464	1	0.00	-2.58	0.00	0.00	-148.38
0.00		0.79						
108	1	464	1	0.00	-0.57	0.00	0.00	148.38
0.00		0.79						
	1	465	1	0.00	0.57	0.00	0.00	-147.04
0.00		0.79						
109	1	465	1	0.00	-5.98	0.00	0.00	147.90
0.00		0.79						
	1	466	1	0.00	5.98	0.00	0.00	-133.76
0.00		0.72						
110	1	466	1	0.00	-14.82	0.00	0.00	133.35
0.00		0.71						
	1	467	1	0.00	14.82	0.00	0.00	-98.28
0.00		0.53						
111	1	467	1	0.00	-25.01	0.00	0.00	98.28
0.00		0.53						
	1	468	1	0.00	25.01	0.00	0.00	-39.10
0.00		0.21						
112	1	468	1	0.00	-15.32	0.00	0.00	39.10
0.00		0.21						
	1	469	1	0.00	15.32	0.00	0.00	-2.84
0.00		0.02						
113	1	469	1	0.00	-3.77	0.00	0.00	2.84
0.00		0.02						
	1	470	1	0.00	3.77	0.00	0.00	6.09
0.00		0.03						
114	1	470	1	0.00	1.03	0.00	0.00	-6.09
0.00		0.03						
	1	471	1	0.00	-1.03	0.00	0.00	3.65
0.00		0.02						
115	1	471	1	0.00	1.24	0.00	0.00	-3.65
0.00		0.02						
	1	472	1	0.00	-1.24	0.00	0.00	0.71
0.00		0.00						
116	1	472	1	0.00	0.41	0.00	0.00	-0.71
0.00		0.00						
	1	473	1	0.00	-0.41	0.00	0.00	-0.26
0.00		0.00						
117	1	473	1	0.00	-0.02	0.00	0.00	0.26
0.00		0.00						
	1	474	1	0.00	0.02	0.00	0.00	-0.21
0.00		0.00						
118	1	474	1	0.00	-0.07	0.00	0.00	0.21
0.00		0.00						
	1	475	1	0.00	0.07	0.00	0.00	-0.05
0.00		0.00						
119	1	475	1	0.00	-0.02	0.00	0.00	0.05
0.00		0.00						
	1	476	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
120	1	476	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	477	1	0.00	0.00	0.00	0.00	0.00

14 Harbor.out

0.00

0.00

! -> Pile Number 7 !

121	1	7	1	0.00	9.09	0.00	0.00	0.00
0.00		0.00						
	1	478	1	0.00	-9.09	0.00	0.00	-26.35
0.00		0.14						
122	1	478	1	0.00	9.09	0.00	0.00	26.35
0.00		0.14						
	1	479	1	0.00	-9.09	0.00	0.00	-52.71
0.00		0.28						
123	1	479	1	0.00	9.09	0.00	0.00	52.71
0.00		0.28						
	1	480	1	0.00	-9.09	0.00	0.00	-79.06
0.00		0.42						
124	1	480	1	0.00	9.09	0.00	0.00	79.06
0.00		0.42						
	1	481	1	0.00	-9.09	0.00	0.00	-105.42
0.00		0.56						
125	1	481	1	0.00	9.09	0.00	0.00	105.42
0.00		0.56						
	1	482	1	0.00	-9.09	0.00	0.00	-131.77
0.00		0.71						
126	1	482	1	0.00	6.85	0.00	0.00	132.16
0.00		0.71						
	1	483	1	0.00	-6.85	0.00	0.00	-148.37
0.00		0.79						
127	1	483	1	0.00	1.64	0.00	0.00	147.60
0.00		0.79						
	1	484	1	0.00	-1.64	0.00	0.00	-151.47
0.00		0.81						
128	1	484	1	0.00	-1.13	0.00	0.00	151.32
0.00		0.81						
	1	485	1	0.00	1.13	0.00	0.00	-148.63
0.00		0.80						
129	1	485	1	0.00	-8.14	0.00	0.00	149.54
0.00		0.80						
	1	486	1	0.00	8.14	0.00	0.00	-130.26
0.00		0.70						
130	1	486	1	0.00	-16.23	0.00	0.00	129.77
0.00		0.69						
	1	487	1	0.00	16.23	0.00	0.00	-91.37
0.00		0.49						
131	1	487	1	0.00	-25.46	0.00	0.00	91.37
0.00		0.49						
	1	488	1	0.00	25.46	0.00	0.00	-31.11
0.00		0.17						
132	1	488	1	0.00	-13.46	0.00	0.00	31.11
0.00		0.17						
	1	489	1	0.00	13.46	0.00	0.00	0.75
0.00		0.00						
133	1	489	1	0.00	-2.16	0.00	0.00	-0.75
0.00		0.00						
	1	490	1	0.00	2.16	0.00	0.00	5.86
0.00		0.03						
134	1	490	1	0.00	1.41	0.00	0.00	-5.86
0.00		0.03						
	1	491	1	0.00	-1.41	0.00	0.00	2.52
0.00		0.01						
135	1	491	1	0.00	1.00	0.00	0.00	-2.52
0.00		0.01						

14 Harbor.out

0.00	1	492	1	0.00	-1.00	0.00	0.00	0.15
0.00	136	0.00	1	0.00	0.19	0.00	0.00	-0.15
0.00	1	0.00	1	0.00	-0.19	0.00	0.00	-0.30
0.00	137	0.00	1	0.00	-0.07	0.00	0.00	0.30
0.00	1	0.00	1	0.00	0.07	0.00	0.00	-0.12
0.00	138	0.00	1	0.00	-0.05	0.00	0.00	0.12
0.00	1	0.00	1	0.00	0.05	0.00	0.00	0.00
0.00	139	0.00	1	0.00	-0.01	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.01	0.00	0.00	0.01
0.00	140	0.00	1	0.00	0.00	0.00	0.00	-0.01
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
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 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

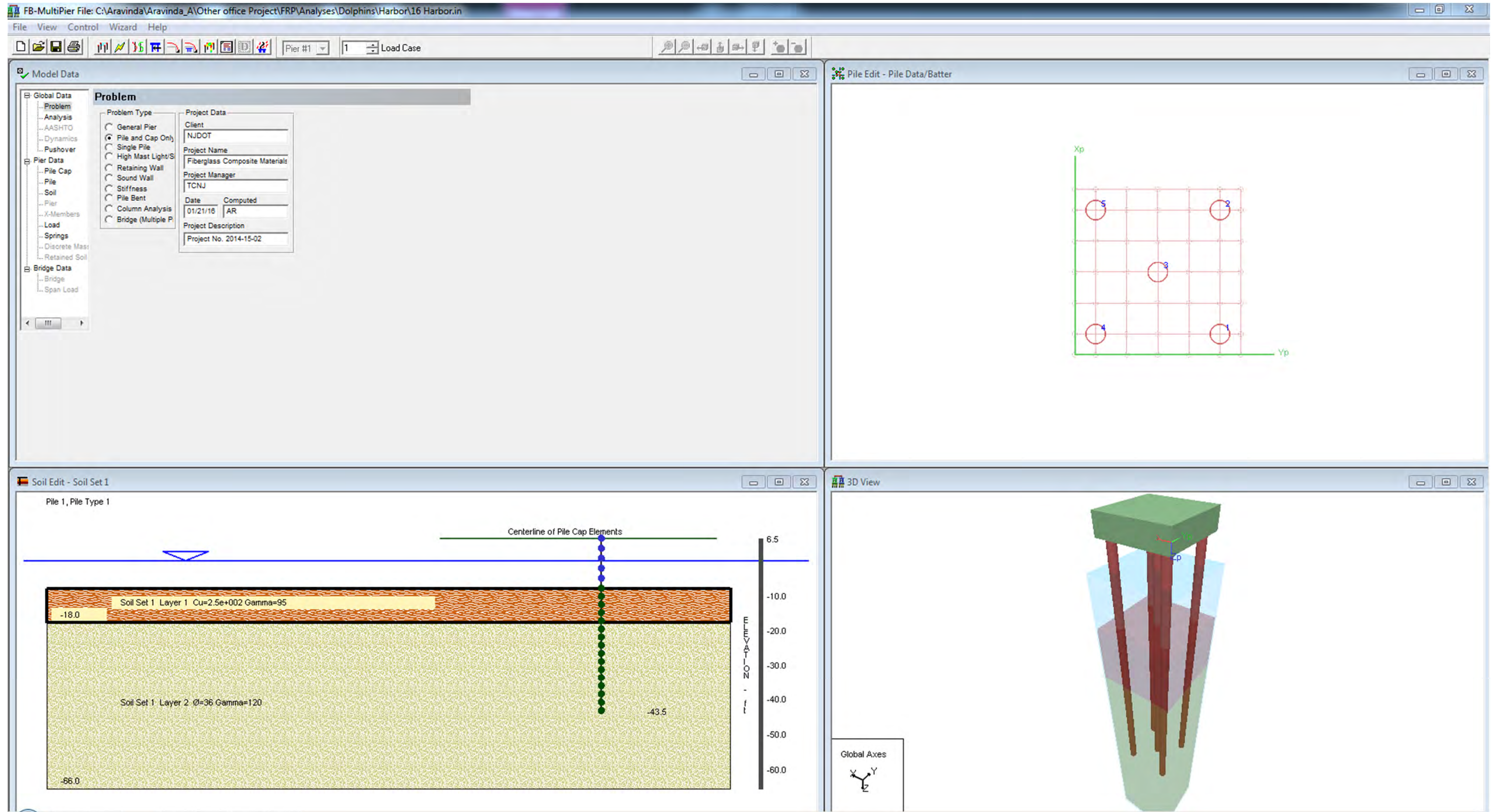
	Value	Load	Comb.	Pile
Max Axial Force	0.2078E-10 Kip	1	0	4
Min Axial Force	-0.5826E-11 Kip	1	0	2
Max Shear in 2 Direction	0.1044E+02 Kip	1	0	5
Min Shear in 2 Direction	-0.2546E+02 Kip	1	0	7
Max Shear in 3 Direction	0.7040E-04 Kip	1	0	1
Min Shear in 3 Direction	-0.7042E-04 Kip	1	0	6
Max Moment about 2 Axis	0.5859E-03 Kip-ft	1	0	6
Min Moment about 2 Axis	-0.5857E-03 Kip-ft	1	0	1
Max Moment About 3 Axis	0.6093E+01 Kip-ft	1	0	3
Min Moment About 3 Axis	-0.1567E+03 Kip-ft	1	0	5
Max Torsional Force	0.2127E-03 Kip-ft	1	0	6
Min Torsional Force	-0.2127E-03 Kip-ft	1	0	1
Max Demand/Capacity Ratio	0.8384E+00	1	0	5

Maximum/Minimum Soil Forces

	14 Harbor.out			
Max Axial Soil Force	0.5960E-06 Kip	1	0	2
Min Axial Soil Force	-0.1681E-05 Kip	1	0	6
Max Lateral Force in X dir	0.3640E+01 Kip	1	0	7
Min Lateral Force in X dir	-0.7668E+01 Kip	1	0	5
Max Lateral Force in Y dir	0.2662E-01 Kip	1	0	6
Min Lateral Force in Y dir	-0.2662E-01 Kip	1	0	1
Max Torsional Soil Force	0.1050E-02 Kip-ft	1	0	1

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.1234E-08 in	1	0	2
Min Axial Displacement	-0.3482E-08 in	1	0	6
Max Displacement in X	0.4070E+02 in	1	0	3
Min Displacement in X	0.4070E+02 in	1	0	5
Max Displacement in Y	0.8787E-04 in	1	0	1
Min Displacement in Y	-0.8789E-04 in	1	0	6



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 1 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 P= 2 F= 1,0,0
I= 150 T= 20 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -19 -18 0 18 19 \
0 0 0 0 0 \
0 0 0 0 0
-0.02 -0.0058 0 0.0058 0.02 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.006
NL= 0 NG= 0 D= 16 V= 0 S= 80 TH= 0.875 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
7 7 5 5 : NPX, NPY, GSX, GSY
16 24 24 24 24 16 \

16 24 24 24 24 16 \

0.3 0.4 0.8
0.3 0.4 0.8
:
MISSING
44 : number of missing piles
1 1
2 1
3 1
4 1
5 1
6 1

```

```

7 1
1 2
3 2
4 2
5 2
7 2
1 3
2 3
3 3
4 3
5 3
6 3
7 3
1 4
2 4
3 4
5 4
6 4
7 4
1 5
2 5
3 5
4 5
5 5
6 5
7 5
1 6
3 6
4 6
5 6
7 6
1 7
2 7
3 7
4 7
5 7
6 7
7 7
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8,-18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18,-66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
LOAD
25 L= 1 F= 60 0 0 0 0 0
:
PADBC

```

16 Harbor.in

:

16 Harbor.out

PILE#	X-PYM	Y-PYM
1	0.300E+00	0.100E+01
2	0.800E+00	0.100E+01
3	0.400E+00	0.100E+01
4	0.300E+00	0.100E+01
5	0.800E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 3 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.000	Kips
FXX =	16.329	Kips
FYY =	0.007	Kips
MXX =	0.000	Kip-in
MYY =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	40.6564	0.0000	0.0000
2	40.6562	0.0001	0.0000
3	40.6563	0.0000	0.0000
4	40.6564	0.0000	0.0000
5	40.6562	-0.0001	0.0000

Pile Cap Displacements (Excluding Pile Heads)

6	40.6564	-0.0001	0.0000	0.0000	0.0000	0.0000
7	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
8	40.6564	0.0001	0.0000	0.0000	0.0000	0.0000
9	40.6564	0.0001	0.0000	0.0000	0.0000	0.0000
10	40.6563	0.0001	0.0000	0.0000	0.0000	0.0000
11	40.6562	0.0001	0.0000	0.0000	0.0000	0.0000
12	40.6562	0.0001	0.0000	0.0000	0.0000	0.0000
13	40.6565	-0.0001	0.0000	0.0000	0.0000	0.0000
14	40.6564	0.0001	0.0000	0.0000	0.0000	0.0000
15	40.6564	0.0001	0.0000	0.0000	0.0000	0.0000
16	40.6563	0.0001	0.0000	0.0000	0.0000	0.0000
17	40.6562	0.0001	0.0000	0.0000	0.0000	0.0000
18	40.6569	-0.0001	0.0000	0.0000	0.0000	0.0000
19	40.6566	0.0000	0.0000	0.0000	0.0000	0.0000
20	40.6565	0.0001	0.0000	0.0000	0.0000	0.0000
21	40.6563	0.0001	0.0000	0.0000	0.0000	0.0000
22	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
23	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
24	40.6563	0.0001	0.0000	0.0000	0.0000	0.0000
25	40.6575	0.0000	0.0000	0.0000	0.0000	0.0000
26	40.6567	0.0000	0.0000	0.0000	0.0000	0.0000
27	40.6565	0.0000	0.0000	0.0000	0.0000	0.0000
28	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
29	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
30	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000

16 Harbor.out

31	40.6569	0.0001	0.0000	0.0000	0.0000	0.0000
32	40.6566	0.0000	0.0000	0.0000	0.0000	0.0000
33	40.6565	-0.0001	0.0000	0.0000	0.0000	0.0000
34	40.6563	-0.0001	0.0000	0.0000	0.0000	0.0000
35	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
36	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
37	40.6563	-0.0001	0.0000	0.0000	0.0000	0.0000
38	40.6565	0.0001	0.0000	0.0000	0.0000	0.0000
39	40.6564	-0.0001	0.0000	0.0000	0.0000	0.0000
40	40.6564	-0.0001	0.0000	0.0000	0.0000	0.0000
41	40.6563	-0.0001	0.0000	0.0000	0.0000	0.0000
42	40.6562	-0.0001	0.0000	0.0000	0.0000	0.0000
43	40.6564	0.0001	0.0000	0.0000	0.0000	0.0000
44	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
45	40.6564	-0.0001	0.0000	0.0000	0.0000	0.0000
46	40.6564	-0.0001	0.0000	0.0000	0.0000	0.0000
47	40.6563	-0.0001	0.0000	0.0000	0.0000	0.0000
48	40.6562	-0.0001	0.0000	0.0000	0.0000	0.0000
49	40.6562	-0.0001	0.0000	0.0000	0.0000	0.0000
50	40.6562	-0.0001	0.0000	0.0000	0.0000	0.0000
51	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
52	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
53	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
54	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
55	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
56	40.6563	-0.0002	0.0000	0.0000	0.0000	0.0000
57	40.6563	-0.0001	0.0000	0.0000	0.0000	0.0000
58	40.6563	-0.0001	0.0000	0.0000	0.0000	0.0000
59	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
60	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
61	40.6564	0.0001	0.0000	0.0000	0.0000	0.0000
62	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
63	40.6563	0.0001	0.0000	0.0000	0.0000	0.0000
64	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
65	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
66	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
67	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
68	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
69	40.6563	-0.0001	0.0000	0.0000	0.0000	0.0000
70	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
71	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
72	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
73	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
74	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
75	40.6564	-0.0002	0.0000	0.0000	0.0000	0.0000
76	40.6565	-0.0001	0.0000	0.0000	0.0000	0.0000
77	40.6564	-0.0001	0.0000	0.0000	0.0000	0.0000
78	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
79	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
80	40.6564	0.0001	0.0000	0.0000	0.0000	0.0000
81	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
82	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
83	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
84	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
85	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
86	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
87	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
88	40.6565	-0.0001	0.0000	0.0000	0.0000	0.0000
89	40.6565	0.0000	0.0000	0.0000	0.0000	0.0000
90	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
91	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
92	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
93	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000

16 Harbor.out

16 Harbor.out

157	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
158	40.6563	-0.0001	0.0000	0.0000	0.0000	0.0000
159	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
160	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
161	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
162	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
163	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
164	40.6562	0.0001	0.0000	0.0000	0.0000	0.0000
165	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
166	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
167	40.6564	0.0000	0.0000	0.0000	0.0000	0.0000
168	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000
169	40.6563	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1

Maximum = 0.0000E+00

Minimum = 0.0000E+00

Steel Strains for Section # 1

Steel type = 4 (For Description see Users Manual)

Maximum = 0.6051E-02

Minimum = -0.6051E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)

X Direction = -26.4815 Kips

Y Direction = 0.0000 Kips

Z Direction = -0.0001 Kips

Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.12823E-10	0.61611E-12
2	0.68103E-11	0.40241E-12
3	0.10439E-10	0.59085E-12
4	0.56896E-11	-0.37081E-11
5	0.11272E-10	0.75611E-12

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.10726E+02	-0.33853E+02
2	0.13541E+02	-0.40504E+02
3	0.11468E+02	-0.36242E+02
4	0.10726E+02	-0.33853E+02
5	0.13541E+02	-0.40504E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.12597E-03	-0.27709E-04
2	0.58339E-03	-0.92830E-04
3	0.31134E-08	-0.93642E-08
4	0.27718E-04	-0.12605E-03
5	0.92824E-04	-0.58336E-03

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	175	0.19233E+02	0.5324E-04	0.16867E+02	-0.2449E-03
2	196	0.21600E+02	0.4148E-04	0.16867E+02	-0.1346E-02
3	214	0.16867E+02	0.1663E-07	0.16867E+02	-0.5534E-08
4	233	0.14500E+02	0.2451E-03	0.16867E+02	-0.5326E-04
5	254	0.16867E+02	0.1346E-02	0.21600E+02	-0.4147E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	183	0.38167E+02	11.50	0.28700E+02	-225.0
2	203	0.38167E+02	11.29	0.21600E+02	-246.0
3	224	0.40533E+02	10.20	0.26333E+02	-230.7
4	244	0.40533E+02	11.50	0.28700E+02	-225.0
5	262	0.35800E+02	11.29	0.23967E+02	-246.0

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM D/C	PROP NO.	NODE NO.	LOAD NO.	FAX CASE (Kips)	F22 (Kips)	F33 (Kips)	M22 (Kip-ft)	M33 (Kip-ft)	TORQUE
! -> Pile Number 1 !									
0.00	1	1	1	0.00	10.73	0.00	0.00	0.00	
0.00	1	170	1	0.00	-10.73	0.00	0.00	-31.10	
0.00	2	170	1	0.00	10.73	0.00	0.00	31.10	
0.00	1	171	1	0.00	-10.73	0.00	0.00	-62.21	
0.00		0.20							

				16 Harbor.out				
3	1	171	1	0.00	10.73	0.00	0.00	62.21
0.00		0.20						
	1	172	1	0.00	-10.73	0.00	0.00	-93.31
0.00		0.29						
4	1	172	1	0.00	10.73	0.00	0.00	93.31
0.00		0.29						
	1	173	1	0.00	-10.73	0.00	0.00	-124.42
0.00		0.39						
5	1	173	1	0.00	10.73	0.00	0.00	124.42
0.00		0.39						
	1	174	1	0.00	-10.73	0.00	0.00	-155.52
0.00		0.49						
6	1	174	1	0.00	10.13	0.00	0.00	155.52
0.00		0.49						
	1	175	1	0.00	-10.13	0.00	0.00	-179.50
0.00		0.56						
7	1	175	1	0.00	8.39	0.00	0.00	179.50
0.00		0.56						
	1	176	1	0.00	-8.39	0.00	0.00	-199.36
0.00		0.63						
8	1	176	1	0.00	6.24	0.00	0.00	199.36
0.00		0.63						
	1	177	1	0.00	-6.24	0.00	0.00	-214.13
0.00		0.67						
9	1	177	1	0.00	3.74	0.00	0.00	214.13
0.00		0.67						
	1	178	1	0.00	-3.74	0.00	0.00	-223.00
0.00		0.70						
10	1	178	1	0.00	0.86	0.00	0.00	223.00
0.00		0.70						
	1	179	1	0.00	-0.86	0.00	0.00	-225.04
0.00		0.71						
11	1	179	1	0.00	-20.24	0.00	0.00	225.04
0.00		0.71						
	1	180	1	0.00	20.24	0.00	0.00	-177.13
0.00		0.56						
12	1	180	1	0.00	-33.85	0.00	0.00	177.13
0.00		0.56						
	1	181	1	0.00	33.85	0.00	0.00	-97.01
0.00		0.31						
13	1	181	1	0.00	-28.56	0.00	0.00	97.01
0.00		0.31						
	1	182	1	0.00	28.56	0.00	0.00	-29.42
0.00		0.09						
14	1	182	1	0.00	-14.73	0.00	0.00	29.42
0.00		0.09						
	1	183	1	0.00	14.73	0.00	0.00	5.44
0.00		0.02						
15	1	183	1	0.00	-2.56	0.00	0.00	-5.44
0.00		0.02						
	1	184	1	0.00	2.56	0.00	0.00	11.50
0.00		0.04						
16	1	184	1	0.00	1.97	0.00	0.00	-11.50
0.00		0.04						
	1	185	1	0.00	-1.97	0.00	0.00	6.83
0.00		0.02						
17	1	185	1	0.00	2.04	0.00	0.00	-6.83
0.00		0.02						
	1	186	1	0.00	-2.04	0.00	0.00	2.01
0.00		0.01						
18	1	186	1	0.00	0.90	0.00	0.00	-2.01
0.00		0.01						
	1	187	1	0.00	-0.90	0.00	0.00	-0.12

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0.00		0.00						
19	1	187	1	0.00	0.09	0.00	0.00	0.12
0.00		0.00						
	1	188	1	0.00	-0.09	0.00	0.00	-0.33
0.00		0.00						
20	1	188	1	0.00	-0.14	0.00	0.00	0.33
0.00		0.00						
	1	189	1	0.00	0.14	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 2 !

21	1	2	1	0.00	13.54	0.00	0.00	0.00
0.00		0.00						
	1	190	1	0.00	-13.54	0.00	0.00	-39.27
0.00		0.12						
22	1	190	1	0.00	13.54	0.00	0.00	39.27
0.00		0.12						
	1	191	1	0.00	-13.54	0.00	0.00	-78.54
0.00		0.25						
23	1	191	1	0.00	13.54	0.00	0.00	78.54
0.00		0.25						
	1	192	1	0.00	-13.54	0.00	0.00	-117.80
0.00		0.37						
24	1	192	1	0.00	13.54	0.00	0.00	117.80
0.00		0.37						
	1	193	1	0.00	-13.54	0.00	0.00	-157.07
0.00		0.49						
25	1	193	1	0.00	13.54	0.00	0.00	157.07
0.00		0.49						
	1	194	1	0.00	-13.54	0.00	0.00	-196.34
0.00		0.62						
26	1	194	1	0.00	12.02	0.00	0.00	196.34
0.00		0.62						
	1	195	1	0.00	-12.02	0.00	0.00	-224.79
0.00		0.71						
27	1	195	1	0.00	7.58	0.00	0.00	224.91
0.00		0.71						
	1	196	1	0.00	-7.58	0.00	0.00	-242.85
0.00		0.76						
28	1	196	1	0.00	1.89	0.00	0.00	241.50
0.00		0.76						
	1	197	1	0.00	-1.89	0.00	0.00	-245.97
0.00		0.77						
29	1	197	1	0.00	-1.87	0.00	0.00	245.97
0.00		0.77						
	1	198	1	0.00	1.87	0.00	0.00	-241.53
0.00		0.76						
30	1	198	1	0.00	-9.18	0.00	0.00	243.26
0.00		0.77						
	1	199	1	0.00	9.18	0.00	0.00	-221.54
0.00		0.70						
31	1	199	1	0.00	-40.50	0.00	0.00	221.54
0.00		0.70						
	1	200	1	0.00	40.50	0.00	0.00	-125.68
0.00		0.40						
32	1	200	1	0.00	-38.63	0.00	0.00	125.68
0.00		0.40						
	1	201	1	0.00	38.63	0.00	0.00	-34.26
0.00		0.11						
33	1	201	1	0.00	-18.48	0.00	0.00	34.26
0.00		0.11						

				16 Harbor.out				
	1	202	1	0.00	18.48	0.00	0.00	9.47
0.00		0.03						
34	1	202	1	0.00	-0.77	0.00	0.00	-9.47
0.00		0.03						
	1	203	1	0.00	0.77	0.00	0.00	11.29
0.00		0.04						
35	1	203	1	0.00	3.15	0.00	0.00	-11.29
0.00		0.04						
	1	204	1	0.00	-3.15	0.00	0.00	3.84
0.00		0.01						
36	1	204	1	0.00	1.66	0.00	0.00	-3.84
0.00		0.01						
	1	205	1	0.00	-1.66	0.00	0.00	-0.09
0.00		0.00						
37	1	205	1	0.00	0.22	0.00	0.00	0.09
0.00		0.00						
	1	206	1	0.00	-0.22	0.00	0.00	-0.61
0.00		0.00						
38	1	206	1	0.00	-0.16	0.00	0.00	0.61
0.00		0.00						
	1	207	1	0.00	0.16	0.00	0.00	-0.23
0.00		0.00						
39	1	207	1	0.00	-0.09	0.00	0.00	0.23
0.00		0.00						
	1	208	1	0.00	0.09	0.00	0.00	-0.01
0.00		0.00						
40	1	208	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
	1	209	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 3 !

41	1	3	1	0.00	11.47	0.00	0.00	0.00
0.00		0.00						
	1	210	1	0.00	-11.47	0.00	0.00	-33.26
0.00		0.10						
42	1	210	1	0.00	11.47	0.00	0.00	33.26
0.00		0.10						
	1	211	1	0.00	-11.47	0.00	0.00	-66.51
0.00		0.21						
43	1	211	1	0.00	11.47	0.00	0.00	66.51
0.00		0.21						
	1	212	1	0.00	-11.47	0.00	0.00	-99.77
0.00		0.31						
44	1	212	1	0.00	11.47	0.00	0.00	99.77
0.00		0.31						
	1	213	1	0.00	-11.47	0.00	0.00	-133.03
0.00		0.42						
45	1	213	1	0.00	11.47	0.00	0.00	133.03
0.00		0.42						
	1	214	1	0.00	-11.47	0.00	0.00	-166.28
0.00		0.52						
46	1	214	1	0.00	10.69	0.00	0.00	166.28
0.00		0.52						
	1	215	1	0.00	-10.69	0.00	0.00	-191.57
0.00		0.60						
47	1	215	1	0.00	8.41	0.00	0.00	191.57
0.00		0.60						
	1	216	1	0.00	-8.41	0.00	0.00	-211.48
0.00		0.67						
48	1	216	1	0.00	5.65	0.00	0.00	211.48

16 Harbor.out

0.00		0.67						
	1	217	1	0.00	-5.65	0.00	0.00	-224.85
0.00		0.71						
49	1	217	1	0.00	2.47	0.00	0.00	224.85
0.00		0.71						
	1	218	1	0.00	-2.47	0.00	0.00	-230.70
0.00		0.73						
50	1	218	1	0.00	-1.51	0.00	0.00	230.70
0.00		0.73						
	1	219	1	0.00	1.51	0.00	0.00	-227.14
0.00		0.71						
51	1	219	1	0.00	-26.10	0.00	0.00	227.14
0.00		0.71						
	1	220	1	0.00	26.10	0.00	0.00	-165.37
0.00		0.52						
52	1	220	1	0.00	-36.24	0.00	0.00	165.37
0.00		0.52						
	1	221	1	0.00	36.24	0.00	0.00	-79.60
0.00		0.25						
53	1	221	1	0.00	-27.25	0.00	0.00	79.60
0.00		0.25						
	1	222	1	0.00	27.25	0.00	0.00	-15.11
0.00		0.05						
54	1	222	1	0.00	-10.65	0.00	0.00	15.11
0.00		0.05						
	1	223	1	0.00	10.65	0.00	0.00	10.11
0.00		0.03						
55	1	223	1	0.00	-0.04	0.00	0.00	-10.11
0.00		0.03						
	1	224	1	0.00	0.04	0.00	0.00	10.20
0.00		0.03						
56	1	224	1	0.00	2.50	0.00	0.00	-10.20
0.00		0.03						
	1	225	1	0.00	-2.50	0.00	0.00	4.28
0.00		0.01						
57	1	225	1	0.00	1.60	0.00	0.00	-4.28
0.00		0.01						
	1	226	1	0.00	-1.60	0.00	0.00	0.49
0.00		0.00						
58	1	226	1	0.00	0.43	0.00	0.00	-0.49
0.00		0.00						
	1	227	1	0.00	-0.43	0.00	0.00	-0.52
0.00		0.00						
59	1	227	1	0.00	-0.10	0.00	0.00	0.52
0.00		0.00						
	1	228	1	0.00	0.10	0.00	0.00	-0.29
0.00		0.00						
60	1	228	1	0.00	-0.12	0.00	0.00	0.29
0.00		0.00						
	1	229	1	0.00	0.12	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 4 !

61	1	4	1	0.00	10.73	0.00	0.00	0.00
0.00		0.00						
	1	230	1	0.00	-10.73	0.00	0.00	-31.10
0.00		0.10						
62	1	230	1	0.00	10.73	0.00	0.00	31.10
0.00		0.10						
	1	231	1	0.00	-10.73	0.00	0.00	-62.21
0.00		0.20						

				16 Harbor.out				
63	1	231	1	0.00	10.73	0.00	0.00	62.21
0.00		0.20						
	1	232	1	0.00	-10.73	0.00	0.00	-93.31
0.00		0.29						
64	1	232	1	0.00	10.73	0.00	0.00	93.31
0.00		0.29						
	1	233	1	0.00	-10.73	0.00	0.00	-124.42
0.00		0.39						
65	1	233	1	0.00	10.73	0.00	0.00	124.42
0.00		0.39						
	1	234	1	0.00	-10.73	0.00	0.00	-155.52
0.00		0.49						
66	1	234	1	0.00	10.13	0.00	0.00	155.52
0.00		0.49						
	1	235	1	0.00	-10.13	0.00	0.00	-179.50
0.00		0.56						
67	1	235	1	0.00	8.39	0.00	0.00	179.50
0.00		0.56						
	1	236	1	0.00	-8.39	0.00	0.00	-199.36
0.00		0.63						
68	1	236	1	0.00	6.24	0.00	0.00	199.36
0.00		0.63						
	1	237	1	0.00	-6.24	0.00	0.00	-214.13
0.00		0.67						
69	1	237	1	0.00	3.74	0.00	0.00	214.13
0.00		0.67						
	1	238	1	0.00	-3.74	0.00	0.00	-223.00
0.00		0.70						
70	1	238	1	0.00	0.86	0.00	0.00	223.00
0.00		0.70						
	1	239	1	0.00	-0.86	0.00	0.00	-225.04
0.00		0.71						
71	1	239	1	0.00	-20.24	0.00	0.00	225.04
0.00		0.71						
	1	240	1	0.00	20.24	0.00	0.00	-177.13
0.00		0.56						
72	1	240	1	0.00	-33.85	0.00	0.00	177.13
0.00		0.56						
	1	241	1	0.00	33.85	0.00	0.00	-97.01
0.00		0.31						
73	1	241	1	0.00	-28.56	0.00	0.00	97.01
0.00		0.31						
	1	242	1	0.00	28.56	0.00	0.00	-29.42
0.00		0.09						
74	1	242	1	0.00	-14.73	0.00	0.00	29.42
0.00		0.09						
	1	243	1	0.00	14.73	0.00	0.00	5.44
0.00		0.02						
75	1	243	1	0.00	-2.56	0.00	0.00	-5.44
0.00		0.02						
	1	244	1	0.00	2.56	0.00	0.00	11.50
0.00		0.04						
76	1	244	1	0.00	1.97	0.00	0.00	-11.50
0.00		0.04						
	1	245	1	0.00	-1.97	0.00	0.00	6.83
0.00		0.02						
77	1	245	1	0.00	2.04	0.00	0.00	-6.83
0.00		0.02						
	1	246	1	0.00	-2.04	0.00	0.00	2.01
0.00		0.01						
78	1	246	1	0.00	0.90	0.00	0.00	-2.01
0.00		0.01						
	1	247	1	0.00	-0.90	0.00	0.00	-0.12

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0.00		0.00						
79	1	247	1	0.00	0.09	0.00	0.00	0.12
0.00		0.00						
	1	248	1	0.00	-0.09	0.00	0.00	-0.33
0.00		0.00						
80	1	248	1	0.00	-0.14	0.00	0.00	0.33
0.00		0.00						
	1	249	1	0.00	0.14	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 5 !

81	1	5	1	0.00	13.54	0.00	0.00	0.00
0.00		0.00						
	1	250	1	0.00	-13.54	0.00	0.00	-39.27
0.00		0.12						
82	1	250	1	0.00	13.54	0.00	0.00	39.27
0.00		0.12						
	1	251	1	0.00	-13.54	0.00	0.00	-78.54
0.00		0.25						
83	1	251	1	0.00	13.54	0.00	0.00	78.54
0.00		0.25						
	1	252	1	0.00	-13.54	0.00	0.00	-117.80
0.00		0.37						
84	1	252	1	0.00	13.54	0.00	0.00	117.80
0.00		0.37						
	1	253	1	0.00	-13.54	0.00	0.00	-157.07
0.00		0.49						
85	1	253	1	0.00	13.54	0.00	0.00	157.07
0.00		0.49						
	1	254	1	0.00	-13.54	0.00	0.00	-196.34
0.00		0.62						
86	1	254	1	0.00	12.02	0.00	0.00	196.34
0.00		0.62						
	1	255	1	0.00	-12.02	0.00	0.00	-224.79
0.00		0.71						
87	1	255	1	0.00	7.58	0.00	0.00	224.91
0.00		0.71						
	1	256	1	0.00	-7.58	0.00	0.00	-242.85
0.00		0.76						
88	1	256	1	0.00	1.89	0.00	0.00	241.50
0.00		0.76						
	1	257	1	0.00	-1.89	0.00	0.00	-245.97
0.00		0.77						
89	1	257	1	0.00	-1.87	0.00	0.00	245.97
0.00		0.77						
	1	258	1	0.00	1.87	0.00	0.00	-241.53
0.00		0.76						
90	1	258	1	0.00	-9.18	0.00	0.00	243.26
0.00		0.77						
	1	259	1	0.00	9.18	0.00	0.00	-221.54
0.00		0.70						
91	1	259	1	0.00	-40.50	0.00	0.00	221.54
0.00		0.70						
	1	260	1	0.00	40.50	0.00	0.00	-125.68
0.00		0.40						
92	1	260	1	0.00	-38.63	0.00	0.00	125.68
0.00		0.40						
	1	261	1	0.00	38.63	0.00	0.00	-34.26
0.00		0.11						
93	1	261	1	0.00	-18.48	0.00	0.00	34.26
0.00		0.11						

16 Harbor.out

0.00	1	262	1	0.00	18.48	0.00	0.00	9.47
94	1	262	1	0.00	-0.77	0.00	0.00	-9.47
0.00	1	263	1	0.00	0.77	0.00	0.00	11.29
0.00	1	263	1	0.00	3.15	0.00	0.00	-11.29
95	1	264	1	0.00	-3.15	0.00	0.00	3.84
0.00	1	264	1	0.00	1.66	0.00	0.00	-3.84
0.00	1	265	1	0.00	-1.66	0.00	0.00	-0.09
97	1	265	1	0.00	0.22	0.00	0.00	0.09
0.00	1	266	1	0.00	-0.22	0.00	0.00	-0.61
0.00	1	266	1	0.00	-0.16	0.00	0.00	0.61
98	1	267	1	0.00	0.16	0.00	0.00	-0.23
0.00	1	267	1	0.00	-0.09	0.00	0.00	0.23
0.00	1	268	1	0.00	0.09	0.00	0.00	-0.01
100	1	268	1	0.00	0.00	0.00	0.00	0.01
0.00	1	269	1	0.00	0.00	0.00	0.00	0.00

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.1282E-10 Kip	1	0	1
Min Axial Force	-0.3708E-11 Kip	1	0	4
Max Shear in 2 Direction	0.1354E+02 Kip	1	0	5
Min Shear in 2 Direction	-0.4050E+02 Kip	1	0	5
Max Shear in 3 Direction	0.5834E-03 Kip	1	0	2
Min Shear in 3 Direction	-0.5834E-03 Kip	1	0	5
Max Moment about 2 Axis	0.1346E-02 Kip-ft	1	0	5
Min Moment about 2 Axis	-0.1346E-02 Kip-ft	1	0	2
Max Moment About 3 Axis	0.1150E+02 Kip-ft	1	0	4

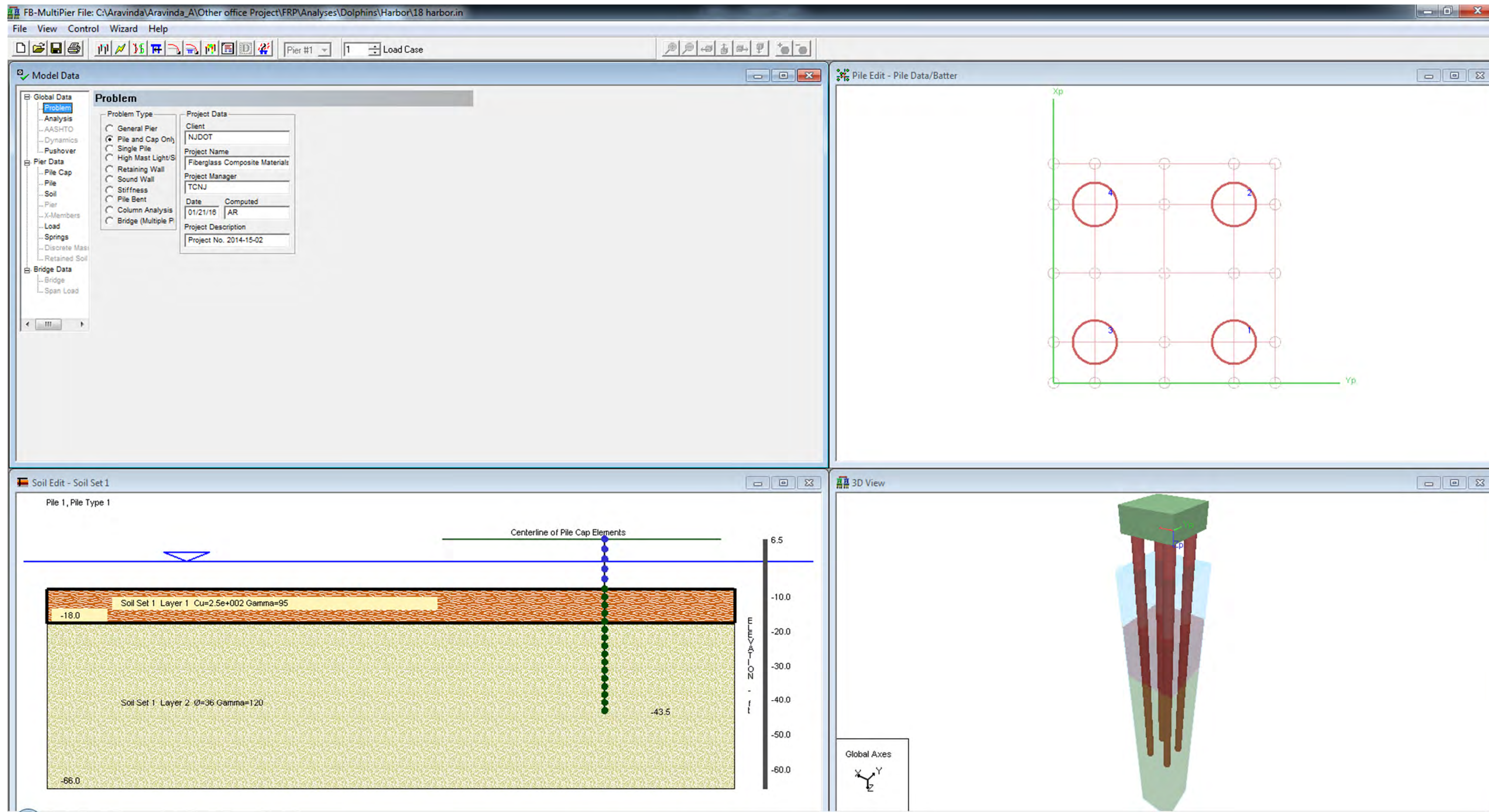
	16 Harbor.out			
Min Moment About 3 Axis	-0.2460E+03 Kip-ft	1	0	5
Max Torsional Force	0.1831E-02 Kip-ft	1	0	4
Min Torsional Force	-0.1831E-02 Kip-ft	1	0	1
Max Demand/Capacity Ratio	0.7739E+00	1	0	5

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.7352E-06 Kip	1	0	4
Min Axial Soil Force	-0.4240E-05 Kip	1	0	2
Max Lateral Force in X dir	0.1500E+02 Kip	1	0	5
Min Lateral Force in X dir	-0.1469E+02 Kip	1	0	5
Max Lateral Force in Y dir	0.7790E-02 Kip	1	0	5
Min Lateral Force in Y dir	-0.7790E-02 Kip	1	0	2
Max Torsional Soil Force	0.7337E-02 Kip-ft	1	0	1

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.1459E-08 in	1	0	4
Min Axial Displacement	-0.8416E-08 in	1	0	2
Max Displacement in X	0.4066E+02 in	1	0	4
Min Displacement in X	0.4066E+02 in	1	0	2
Max Displacement in Y	0.5422E-04 in	1	0	2
Min Displacement in Y	-0.5422E-04 in	1	0	5



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 1 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 1,0,0
I= 150 T= 20 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -19 -18 0 18 19 \
0 0 0 0 0 \
0 0 0 0 0
-0.02 -0.0059 0 0.0059 0.02 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.0059
NL= 0 NG= 0 D= 18 V= 0 S= 80 TH= 0.625 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
5 5 5 5 : NPX, NPY, GSX, GSY
16 27 27 16
16 27 27 16
0.4 0.8
0.4 0.8
:
MISSING
21 : number of missing piles
1 1
2 1
3 1
4 1
5 1
1 2
3 2
5 2

```

18 harbor.in

```
1 3
2 3
3 3
4 3
5 3
1 4
3 4
5 4
1 5
2 5
3 5
4 5
5 5
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
LOAD
13 L= 1 F= 53 0 0 0 0 0
:
PADBC
:
```

```

!-----!
!       The University of Florida, Florida Department
!       of Transportation, Drs. Marc Hoit, Mike McVay
!       Cliff Hays, Mark Williams, Petros Christou, and
!       Jae H. Chung
!       disclaim any warranty, expressed or implied,
!       including but not limited to, any implied
!       warranty of fitness for a particular purpose
!       or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
!       incurred through the use of FB-MultiPier
!-----!

```

```

!       :::: F B - M U L T I P I E R ::::
!       FB-MultiPier Version 4.17
!-----!

```

```

!       Written by Marc Hoit, Mike McVay, Cliff Hays
!       Mark Williams, Petros Christou, Jae H. Chung.
!-----!

```

```

!       Civil & Coastal Engineering, University of Florida
!       Supported by Florida Department of Transportation
!       and the Federal Highway Administration
!-----!

```

```

!       The program calculates the Response
!       of the Bridge Pier Pile Soil Structures
!-----!

```

```

!       The Analysis includes PreLoad, Static,
!       Transient Dynamic or Push Over
!-----!

```

```

!       The Program Handles NonLinear Soil Behavior,
!       Linear Pile Cap and Linear and NonLinear Piles and Piers
!-----!

```

```

!       Contact: Bridge Software Institute for Support
!       HTTP://BSI-WEB.CE.UFL.EDU
!-----!

```

```

*****
*                               *
*   ANALYSIS RESULTS           *
*                               *
*****

```

```

*****
* RESULTS FOR LOAD CASE #      1 *
*****

```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PILE#	X-PYM	Y-PYM
1	0.400E+00	0.100E+01
2	0.800E+00	0.100E+01
3	0.400E+00	0.100E+01
4	0.800E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 4 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.006	Kips
FXX =	0.000	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYY =	0.000	Kip-in
MZZ =	74.969	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	46.1636	0.0001	0.0000
2	46.1634	0.0000	0.0000
3	46.1636	-0.0001	0.0000
4	46.1633	-0.0001	0.0000

Pile Cap Displacements (Excluding Pile Heads)

5	46.1638	0.0001	0.0000	0.0000	0.0000	0.0000
6	46.1636	0.0002	0.0000	0.0000	0.0000	0.0000
7	46.1635	0.0002	0.0000	0.0000	0.0000	0.0000
8	46.1634	0.0001	0.0000	0.0000	0.0000	0.0000
9	46.1634	0.0000	0.0000	0.0000	0.0000	0.0000
10	46.1639	0.0000	0.0000	0.0000	0.0000	0.0000
11	46.1635	0.0001	0.0000	0.0000	0.0000	0.0000
12	46.1634	0.0000	0.0000	0.0000	0.0000	0.0000
13	46.1645	0.0000	0.0000	0.0000	0.0000	0.0000
14	46.1637	0.0000	0.0000	0.0000	0.0000	0.0000
15	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
16	46.1634	0.0000	0.0000	0.0000	0.0000	0.0000
17	46.1634	0.0000	0.0000	0.0000	0.0000	0.0000
18	46.1639	0.0001	0.0000	0.0000	0.0000	0.0000
19	46.1635	-0.0001	0.0000	0.0000	0.0000	0.0000
20	46.1634	-0.0001	0.0000	0.0000	0.0000	0.0000
21	46.1637	0.0000	0.0000	0.0000	0.0000	0.0000
22	46.1635	-0.0001	0.0000	0.0000	0.0000	0.0000
23	46.1635	-0.0002	0.0000	0.0000	0.0000	0.0000
24	46.1634	-0.0001	0.0000	0.0000	0.0000	0.0000
25	46.1634	-0.0001	0.0000	0.0000	0.0000	0.0000
26	46.1635	-0.0001	0.0000	0.0000	0.0000	0.0000
27	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
28	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
29	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
30	46.1635	-0.0001	0.0000	0.0000	0.0000	0.0000

18 harbor.out

31	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
32	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
33	46.1636	0.0001	0.0000	0.0000	0.0000	0.0000
34	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
35	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
36	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
37	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
38	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
39	46.1635	-0.0001	0.0000	0.0000	0.0000	0.0000
40	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
41	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
42	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
43	46.1636	-0.0001	0.0000	0.0000	0.0000	0.0000
44	46.1638	0.0000	0.0000	0.0000	0.0000	0.0000
45	46.1637	0.0000	0.0000	0.0000	0.0000	0.0000
46	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
47	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
48	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
49	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
50	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
51	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
52	46.1638	0.0000	0.0000	0.0000	0.0000	0.0000
53	46.1637	0.0000	0.0000	0.0000	0.0000	0.0000
54	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
55	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
56	46.1635	0.0002	0.0000	0.0000	0.0000	0.0000
57	46.1637	0.0000	0.0000	0.0000	0.0000	0.0000
58	46.1637	0.0000	0.0000	0.0000	0.0000	0.0000
59	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
60	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
61	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
62	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
63	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
64	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
65	46.1635	0.0001	0.0000	0.0000	0.0000	0.0000
66	46.1636	0.0000	0.0000	0.0000	0.0000	0.0000
67	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
68	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
69	46.1634	0.0002	0.0000	0.0000	0.0000	0.0000
70	46.1636	0.0001	0.0000	0.0000	0.0000	0.0000
71	46.1635	0.0001	0.0000	0.0000	0.0000	0.0000
72	46.1635	-0.0001	0.0000	0.0000	0.0000	0.0000
73	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
74	46.1635	-0.0001	0.0000	0.0000	0.0000	0.0000
75	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
76	46.1634	-0.0001	0.0000	0.0000	0.0000	0.0000
77	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
78	46.1634	0.0002	0.0000	0.0000	0.0000	0.0000
79	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
80	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000
81	46.1635	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1
 Steel type = 4 (For Description see Users Manual)
 Page 3

Maximum = 0.7722E-02
 Minimum = -0.7722E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)
 X Direction = 4.6847 Kips
 Y Direction = 0.0000 Kips
 Z Direction = 0.0000 Kips
 Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	-0.42151E-12	-0.82767E-11
2	0.30648E-11	-0.16891E-11
3	0.23340E-11	-0.36761E-11
4	-0.13011E-12	-0.17639E-10

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.12187E+02	-0.35886E+02
2	0.14313E+02	-0.46893E+02
3	0.12188E+02	-0.35887E+02
4	0.14313E+02	-0.46892E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.13125E-02	-0.26435E-03
2	0.58414E-03	-0.11976E-03
3	0.14487E-03	-0.71908E-03
4	0.24198E-03	-0.11846E-02

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	86	0.16867E+02	0.5107E-03	0.16867E+02	-0.2596E-02
2	106	0.16867E+02	0.2388E-03	0.14500E+02	-0.1144E-02
3	125	0.14500E+02	0.1422E-02	0.19233E+02	-0.2798E-03
4	145	0.14500E+02	0.2318E-02	0.16867E+02	-0.4860E-03

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth	Maximum	At Depth	Minimum
			Page 4		

			18 harbor.out		
		Below Cap	Moment	Below Cap	Moment
1	95	0.38167E+02	13.73	0.26333E+02	-245.9
2	114	0.35800E+02	16.22	0.21600E+02	-254.3
3	136	0.40533E+02	13.69	0.26333E+02	-245.9
4	154	0.35800E+02	16.22	0.21600E+02	-254.3

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM	PROP	NODE	LOAD	FAX	F22	F33	M22	M33	TORQUE
D/C									
NO.	NO.	NO.	CASE	(Kips)	(Kips)	(Kips)	(Kip-ft)	(Kip-ft)	
(Kip-ft)		(Ratio)							

! -> Pile Number 1 !

1	1	1	1	0.00	12.19	0.00	0.00	0.00	
0.00		0.00							
	1	82	1	0.00	-12.19	0.00	0.00	-35.34	
0.00		0.12							
2	1	82	1	0.00	12.19	0.00	0.00	35.34	
0.00		0.12							
	1	83	1	0.00	-12.19	0.00	0.00	-70.68	
0.00		0.24							
3	1	83	1	0.00	12.19	0.00	0.00	70.68	
0.00		0.24							
	1	84	1	0.00	-12.19	0.00	0.00	-106.03	
0.00		0.35							
4	1	84	1	0.00	12.19	0.00	0.00	106.03	
0.00		0.35							
	1	85	1	0.00	-12.19	0.00	0.00	-141.37	
0.00		0.47							
5	1	85	1	0.00	12.19	0.00	0.00	141.37	
0.00		0.47							
	1	86	1	0.00	-12.19	0.00	0.00	-176.71	
0.00		0.59							
6	1	86	1	0.00	11.51	0.00	0.00	176.71	
0.00		0.59							
	1	87	1	0.00	-11.51	0.00	0.00	-203.96	
0.00		0.68							
7	1	87	1	0.00	9.63	0.00	0.00	203.96	
0.00		0.68							
	1	88	1	0.00	-9.63	0.00	0.00	-226.75	
0.00		0.76							
8	1	88	1	0.00	5.71	0.00	0.00	226.25	
0.00		0.76							
	1	89	1	0.00	-5.71	0.00	0.00	-239.76	
0.00		0.80							
9	1	89	1	0.00	2.56	0.00	0.00	238.44	
0.00		0.80							
	1	90	1	0.00	-2.56	0.00	0.00	-244.49	
0.00		0.82							
10	1	90	1	0.00	0.58	0.00	0.00	244.54	
0.00		0.82							

				18 harbor.out				
	1	91	1	0.00	-0.58	0.00	0.00	-245.90
0.00		0.82						
11	1	91	1	0.00	-9.57	0.00	0.00	245.17
0.00		0.82						
	1	92	1	0.00	9.57	0.00	0.00	-222.52
0.00		0.74						
12	1	92	1	0.00	-35.89	0.00	0.00	220.13
0.00		0.73						
	1	93	1	0.00	35.89	0.00	0.00	-135.20
0.00		0.45						
13	1	93	1	0.00	-35.04	0.00	0.00	135.20
0.00		0.45						
	1	94	1	0.00	35.04	0.00	0.00	-52.27
0.00		0.17						
14	1	94	1	0.00	-21.88	0.00	0.00	52.27
0.00		0.17						
	1	95	1	0.00	21.88	0.00	0.00	-0.49
0.00		0.00						
15	1	95	1	0.00	-6.01	0.00	0.00	0.49
0.00		0.00						
	1	96	1	0.00	6.01	0.00	0.00	13.73
0.00		0.05						
16	1	96	1	0.00	1.99	0.00	0.00	-13.73
0.00		0.05						
	1	97	1	0.00	-1.99	0.00	0.00	9.02
0.00		0.03						
17	1	97	1	0.00	2.67	0.00	0.00	-9.02
0.00		0.03						
	1	98	1	0.00	-2.67	0.00	0.00	2.71
0.00		0.01						
18	1	98	1	0.00	1.20	0.00	0.00	-2.71
0.00		0.01						
	1	99	1	0.00	-1.20	0.00	0.00	-0.14
0.00		0.00						
19	1	99	1	0.00	0.12	0.00	0.00	0.14
0.00		0.00						
	1	100	1	0.00	-0.12	0.00	0.00	-0.42
0.00		0.00						
20	1	100	1	0.00	-0.18	0.00	0.00	0.42
0.00		0.00						
	1	101	1	0.00	0.18	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 2 !

21	1	2	1	0.00	14.31	0.00	0.00	0.00
0.00		0.00						
	1	102	1	0.00	-14.31	0.00	0.00	-41.51
0.00		0.14						
22	1	102	1	0.00	14.31	0.00	0.00	41.51
0.00		0.14						
	1	103	1	0.00	-14.31	0.00	0.00	-83.01
0.00		0.28						
23	1	103	1	0.00	14.31	0.00	0.00	83.01
0.00		0.28						
	1	104	1	0.00	-14.31	0.00	0.00	-124.52
0.00		0.42						
24	1	104	1	0.00	14.31	0.00	0.00	124.52
0.00		0.42						
	1	105	1	0.00	-14.31	0.00	0.00	-166.03
0.00		0.55						
25	1	105	1	0.00	14.31	0.00	0.00	166.03

18 harbor.out

0.00		0.55						
	1	106	1	0.00	-14.31	0.00	0.00	-207.53
0.00		0.69						
26	1	106	1	0.00	12.45	0.00	0.00	207.84
0.00		0.69						
	1	107	1	0.00	-12.45	0.00	0.00	-237.32
0.00		0.79						
27	1	107	1	0.00	6.26	0.00	0.00	236.43
0.00		0.79						
	1	108	1	0.00	-6.26	0.00	0.00	-251.24
0.00		0.84						
28	1	108	1	0.00	1.28	0.00	0.00	251.28
0.00		0.84						
	1	109	1	0.00	-1.28	0.00	0.00	-254.31
0.00		0.85						
29	1	109	1	0.00	-0.41	0.00	0.00	254.12
0.00		0.85						
	1	110	1	0.00	0.41	0.00	0.00	-253.15
0.00		0.84						
30	1	110	1	0.00	-3.67	0.00	0.00	254.15
0.00		0.85						
	1	111	1	0.00	3.67	0.00	0.00	-245.48
0.00		0.82						
31	1	111	1	0.00	-26.15	0.00	0.00	251.72
0.00		0.84						
	1	112	1	0.00	26.15	0.00	0.00	-189.83
0.00		0.63						
32	1	112	1	0.00	-46.89	0.00	0.00	186.54
0.00		0.62						
	1	113	1	0.00	46.89	0.00	0.00	-75.56
0.00		0.25						
33	1	113	1	0.00	-30.78	0.00	0.00	75.56
0.00		0.25						
	1	114	1	0.00	30.78	0.00	0.00	-2.71
0.00		0.01						
34	1	114	1	0.00	-8.00	0.00	0.00	2.71
0.00		0.01						
	1	115	1	0.00	8.00	0.00	0.00	16.22
0.00		0.05						
35	1	115	1	0.00	3.22	0.00	0.00	-16.22
0.00		0.05						
	1	116	1	0.00	-3.22	0.00	0.00	8.59
0.00		0.03						
36	1	116	1	0.00	3.07	0.00	0.00	-8.59
0.00		0.03						
	1	117	1	0.00	-3.07	0.00	0.00	1.32
0.00		0.00						
37	1	117	1	0.00	0.88	0.00	0.00	-1.32
0.00		0.00						
	1	118	1	0.00	-0.88	0.00	0.00	-0.76
0.00		0.00						
38	1	118	1	0.00	-0.11	0.00	0.00	0.76
0.00		0.00						
	1	119	1	0.00	0.11	0.00	0.00	-0.50
0.00		0.00						
39	1	119	1	0.00	-0.17	0.00	0.00	0.50
0.00		0.00						
	1	120	1	0.00	0.17	0.00	0.00	-0.09
0.00		0.00						
40	1	120	1	0.00	-0.04	0.00	0.00	0.09
0.00		0.00						
	1	121	1	0.00	0.04	0.00	0.00	0.00
0.00		0.00						

18 harbor.out

! -> Pile Number 3 !								
41	1	3	1	0.00	12.19	0.00	0.00	0.00
0.00		0.00						
	1	122	1	0.00	-12.19	0.00	0.00	-35.34
0.00		0.12						
42	1	122	1	0.00	12.19	0.00	0.00	35.34
0.00		0.12						
	1	123	1	0.00	-12.19	0.00	0.00	-70.69
0.00		0.24						
43	1	123	1	0.00	12.19	0.00	0.00	70.69
0.00		0.24						
	1	124	1	0.00	-12.19	0.00	0.00	-106.03
0.00		0.35						
44	1	124	1	0.00	12.19	0.00	0.00	106.03
0.00		0.35						
	1	125	1	0.00	-12.19	0.00	0.00	-141.38
0.00		0.47						
45	1	125	1	0.00	12.19	0.00	0.00	141.38
0.00		0.47						
	1	126	1	0.00	-12.19	0.00	0.00	-176.72
0.00		0.59						
46	1	126	1	0.00	11.51	0.00	0.00	176.72
0.00		0.59						
	1	127	1	0.00	-11.51	0.00	0.00	-203.97
0.00		0.68						
47	1	127	1	0.00	9.63	0.00	0.00	203.97
0.00		0.68						
	1	128	1	0.00	-9.63	0.00	0.00	-226.76
0.00		0.76						
48	1	128	1	0.00	5.71	0.00	0.00	226.26
0.00		0.76						
	1	129	1	0.00	-5.71	0.00	0.00	-239.77
0.00		0.80						
49	1	129	1	0.00	2.56	0.00	0.00	238.44
0.00		0.80						
	1	130	1	0.00	-2.56	0.00	0.00	-244.50
0.00		0.82						
50	1	130	1	0.00	0.58	0.00	0.00	244.55
0.00		0.82						
	1	131	1	0.00	-0.58	0.00	0.00	-245.91
0.00		0.82						
51	1	131	1	0.00	-9.56	0.00	0.00	245.17
0.00		0.82						
	1	132	1	0.00	9.56	0.00	0.00	-222.54
0.00		0.74						
52	1	132	1	0.00	-35.89	0.00	0.00	220.16
0.00		0.73						
	1	133	1	0.00	35.89	0.00	0.00	-135.23
0.00		0.45						
53	1	133	1	0.00	-35.07	0.00	0.00	135.23
0.00		0.45						
	1	134	1	0.00	35.07	0.00	0.00	-52.23
0.00		0.17						
54	1	134	1	0.00	-21.97	0.00	0.00	52.23
0.00		0.17						
	1	135	1	0.00	21.97	0.00	0.00	-0.24
0.00		0.00						
55	1	135	1	0.00	-5.88	0.00	0.00	0.24
0.00		0.00						
	1	136	1	0.00	5.88	0.00	0.00	13.69

18 harbor.out

0.00		0.05						
56	1	136	1	0.00	2.01	0.00	0.00	-13.69
0.00		0.05						
	1	137	1	0.00	-2.01	0.00	0.00	8.94
0.00		0.03						
57	1	137	1	0.00	2.65	0.00	0.00	-8.94
0.00		0.03						
	1	138	1	0.00	-2.65	0.00	0.00	2.66
0.00		0.01						
58	1	138	1	0.00	1.19	0.00	0.00	-2.66
0.00		0.01						
	1	139	1	0.00	-1.19	0.00	0.00	-0.15
0.00		0.00						
59	1	139	1	0.00	0.11	0.00	0.00	0.15
0.00		0.00						
	1	140	1	0.00	-0.11	0.00	0.00	-0.42
0.00		0.00						
60	1	140	1	0.00	-0.18	0.00	0.00	0.42
0.00		0.00						
	1	141	1	0.00	0.18	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 4 !

61	1	4	1	0.00	14.31	0.00	0.00	0.00
0.00		0.00						
	1	142	1	0.00	-14.31	0.00	0.00	-41.51
0.00		0.14						
62	1	142	1	0.00	14.31	0.00	0.00	41.51
0.00		0.14						
	1	143	1	0.00	-14.31	0.00	0.00	-83.01
0.00		0.28						
63	1	143	1	0.00	14.31	0.00	0.00	83.01
0.00		0.28						
	1	144	1	0.00	-14.31	0.00	0.00	-124.52
0.00		0.42						
64	1	144	1	0.00	14.31	0.00	0.00	124.52
0.00		0.42						
	1	145	1	0.00	-14.31	0.00	0.00	-166.03
0.00		0.55						
65	1	145	1	0.00	14.31	0.00	0.00	166.03
0.00		0.55						
	1	146	1	0.00	-14.31	0.00	0.00	-207.53
0.00		0.69						
66	1	146	1	0.00	12.45	0.00	0.00	207.84
0.00		0.69						
	1	147	1	0.00	-12.45	0.00	0.00	-237.31
0.00		0.79						
67	1	147	1	0.00	6.26	0.00	0.00	236.43
0.00		0.79						
	1	148	1	0.00	-6.26	0.00	0.00	-251.24
0.00		0.84						
68	1	148	1	0.00	1.28	0.00	0.00	251.28
0.00		0.84						
	1	149	1	0.00	-1.28	0.00	0.00	-254.31
0.00		0.85						
69	1	149	1	0.00	-0.41	0.00	0.00	254.12
0.00		0.85						
	1	150	1	0.00	0.41	0.00	0.00	-253.15
0.00		0.84						
70	1	150	1	0.00	-3.67	0.00	0.00	254.15
0.00		0.85						

18 harbor.out								
0.00	1	151	1	0.00	3.67	0.00	0.00	-245.48
0.00	71	151	1	0.00	-26.15	0.00	0.00	251.72
0.00	1	152	1	0.00	26.15	0.00	0.00	-189.83
0.00	72	152	1	0.00	-46.89	0.00	0.00	186.54
0.00	1	153	1	0.00	46.89	0.00	0.00	-75.56
0.00	73	153	1	0.00	-30.78	0.00	0.00	75.56
0.00	1	154	1	0.00	30.78	0.00	0.00	-2.71
0.00	74	154	1	0.00	-8.00	0.00	0.00	2.71
0.00	1	155	1	0.00	8.00	0.00	0.00	16.22
0.00	75	155	1	0.00	3.22	0.00	0.00	-16.22
0.00	1	156	1	0.00	-3.22	0.00	0.00	8.59
0.00	76	156	1	0.00	3.07	0.00	0.00	-8.59
0.00	1	157	1	0.00	-3.07	0.00	0.00	1.32
0.00	77	157	1	0.00	0.88	0.00	0.00	-1.32
0.00	1	158	1	0.00	-0.88	0.00	0.00	-0.76
0.00	78	158	1	0.00	-0.11	0.00	0.00	0.76
0.00	1	159	1	0.00	0.11	0.00	0.00	-0.50
0.00	79	159	1	0.00	-0.17	0.00	0.00	0.50
0.00	1	160	1	0.00	0.17	0.00	0.00	-0.09
0.00	80	160	1	0.00	-0.04	0.00	0.00	0.09
0.00	1	161	1	0.00	0.04	0.00	0.00	0.00

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

18 harbor.out

Maximum/Minimum Pile Forces

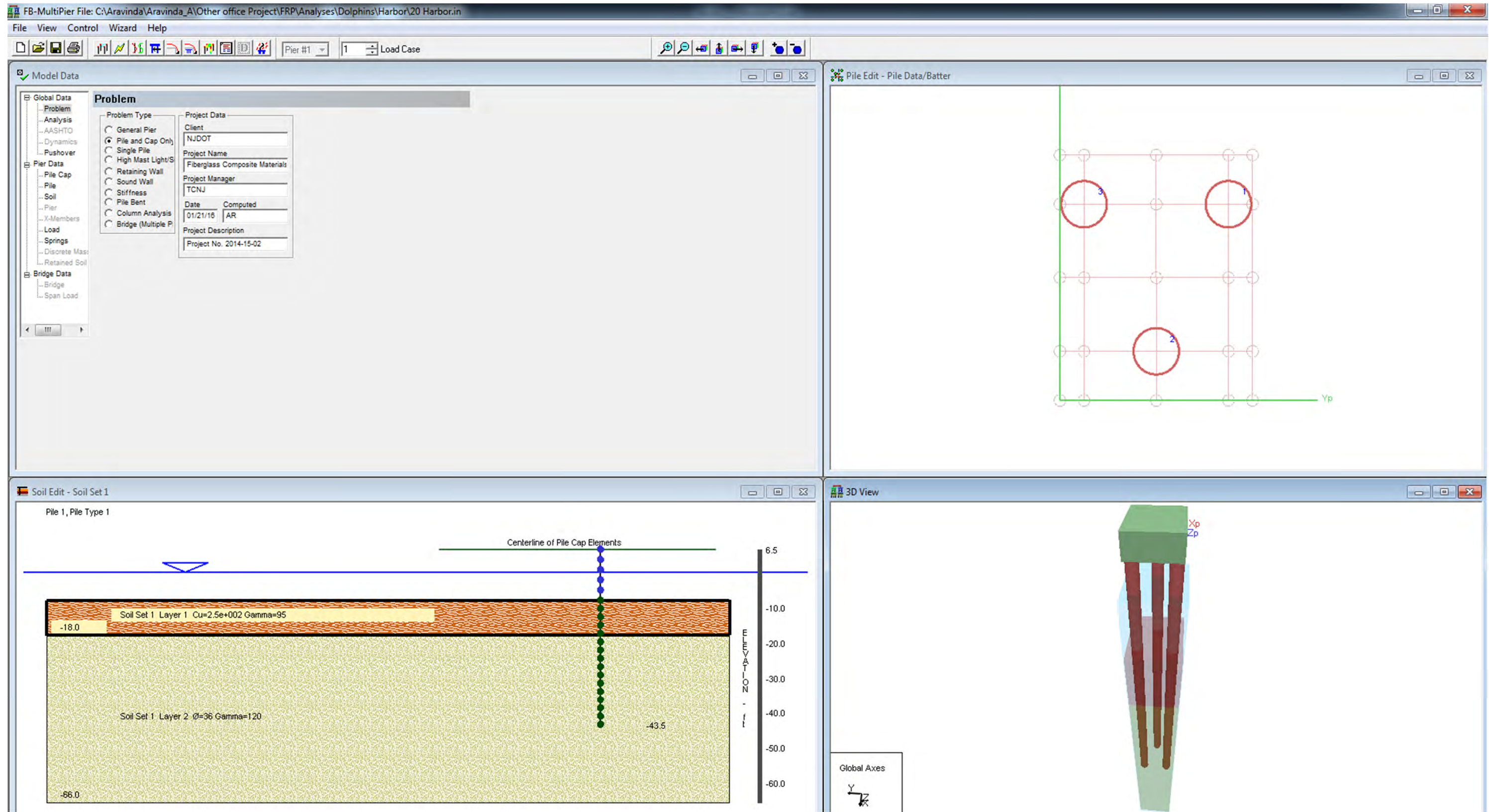
	Value	Load	Comb.	Pile
Max Axial Force	0.3065E-11 Kip	1	0	2
Min Axial Force	-0.1764E-10 Kip	1	0	4
Max Shear in 2 Direction	0.1431E+02 Kip	1	0	2
Min Shear in 2 Direction	-0.4689E+02 Kip	1	0	2
Max Shear in 3 Direction	0.1313E-02 Kip	1	0	1
Min Shear in 3 Direction	-0.1185E-02 Kip	1	0	4
Max Moment about 2 Axis	0.2318E-02 Kip-ft	1	0	4
Min Moment about 2 Axis	-0.2596E-02 Kip-ft	1	0	1
Max Moment About 3 Axis	0.1622E+02 Kip-ft	1	0	2
Min Moment About 3 Axis	-0.2543E+03 Kip-ft	1	0	2
Max Torsional Force	0.1643E-02 Kip-ft	1	0	3
Min Torsional Force	-0.1131E-02 Kip-ft	1	0	1
Max Demand/Capacity Ratio	0.8488E+00	1	0	2

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.1531E-05 Kip	1	0	3
Min Axial Soil Force	0.0000E+00 Kip	1	0	2
Max Lateral Force in X dir	0.2103E+02 Kip	1	0	2
Min Lateral Force in X dir	-0.1817E+02 Kip	1	0	2
Max Lateral Force in Y dir	0.7100E-02 Kip	1	0	4
Min Lateral Force in Y dir	-0.7584E-02 Kip	1	0	1
Max Torsional Soil Force	0.4901E-02 Kip-ft	1	0	1

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.2955E-08 in	1	0	3
Min Axial Displacement	0.5525E-15 in	1	0	2
Max Displacement in X	0.4616E+02 in	1	0	1
Min Displacement in X	0.4616E+02 in	1	0	4
Max Displacement in Y	0.9339E-04 in	1	0	1
Min Displacement in Y	-0.8307E-04 in	1	0	4



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 P= 2 F= 1,0,0
I= 150 T= 20 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0 \
S4= 5 -18 -17.33 0 17.33 18 \
0 0 0 0 0 \
0 0 0 0 0 \
-0.02 -0.0053 0 0.0053 0.02 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.0054
NL= 0 NG= 0 D= 20 V= 0 S= 80 TH= 1 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
5 5 5 5 : NPX, NPY, GSX, GSY
20 30 30 20
10 30 30 10
0.4 0.8
0.3 0.4 0.8
:
MISSING
22 : number of missing piles
1 1
2 1
3 1
4 1
5 1
1 2
2 2
3 2
5 2

```

```

1 3
3 3
4 3
5 3
1 4
2 4
3 4
5 4
1 5
2 5
3 5
4 5
5 5
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
LOAD
13 L= 1 F= 65 0 0 0 0 0
:
PADBC
:

```

```

!-----!
!       The University of Florida, Florida Department
!       of Transportation, Drs. Marc Hoit, Mike McVay
!       Cliff Hays, Mark Williams, Petros Christou, and
!       Jae H. Chung
!       disclaim any warranty, expressed or implied,
!       including but not limited to, any implied
!       warranty of fitness for a particular purpose
!       or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
!       incurred through the use of FB-MultiPier
!-----!

```

```

!       :::: F B - M U L T I P I E R ::::
!       FB-MultiPier Version 4.17
!-----!

```

```

!       Written by Marc Hoit, Mike McVay, Cliff Hays
!       Mark Williams, Petros Christou, Jae H. Chung.
!-----!

```

```

!       Civil & Coastal Engineering, University of Florida
!       Supported by Florida Department of Transportation
!       and the Federal Highway Administration
!-----!

```

```

!       The program calculates the Response
!       of the Bridge Pier Pile Soil Structures
!-----!

```

```

!       The Analysis includes PreLoad, Static,
!       Transient Dynamic or Push Over
!-----!

```

```

!       The Program Handles NonLinear Soil Behavior,
!       Linear Pile Cap and Linear and NonLinear Piles and Piers
!-----!

```

```

!       Contact: Bridge Software Institute for Support
!       HTTP://BSI-WEB.CE.UFL.EDU
!-----!

```

```

*****
*                               *
*   ANALYSIS RESULTS           *
*                               *
*****

```

```

*****
*   RESULTS FOR LOAD CASE #      1  *
*****

```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

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PILE#	X-PYM	Y-PYM
1	0.800E+00	0.100E+01
2	0.400E+00	0.100E+01
3	0.800E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 5 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.003	Kips
FXX =	0.000	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYX =	0.000	Kip-in
MZZ =	103.973	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	41.6937	0.0000	0.0000
2	41.6942	0.0000	0.0000
3	41.6937	-0.0001	0.0000

Pile Cap Displacements (Excluding Pile Heads)

4	41.6943	0.0001	0.0000	0.0000	0.0000	0.0000
5	41.6942	0.0002	0.0000	0.0000	0.0000	0.0000
6	41.6940	0.0002	0.0000	0.0000	0.0000	0.0000
7	41.6937	0.0001	0.0000	0.0000	0.0000	0.0000
8	41.6937	0.0001	0.0000	0.0000	0.0000	0.0000
9	41.6945	0.0000	0.0000	0.0000	0.0000	0.0000
10	41.6942	0.0001	0.0000	0.0000	0.0000	0.0000
11	41.6940	0.0001	0.0000	0.0000	0.0000	0.0000
12	41.6937	0.0000	0.0000	0.0000	0.0000	0.0000
13	41.6950	0.0000	0.0000	0.0000	0.0000	0.0000
14	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
15	41.6938	0.0000	0.0000	0.0000	0.0000	0.0000
16	41.6938	0.0000	0.0000	0.0000	0.0000	0.0000
17	41.6944	0.0000	0.0000	0.0000	0.0000	0.0000
18	41.6941	-0.0001	0.0000	0.0000	0.0000	0.0000
19	41.6939	-0.0001	0.0000	0.0000	0.0000	0.0000
20	41.6937	-0.0001	0.0000	0.0000	0.0000	0.0000
21	41.6943	0.0000	0.0000	0.0000	0.0000	0.0000
22	41.6941	-0.0002	0.0000	0.0000	0.0000	0.0000
23	41.6939	-0.0002	0.0000	0.0000	0.0000	0.0000
24	41.6937	-0.0001	0.0000	0.0000	0.0000	0.0000
25	41.6937	-0.0002	0.0000	0.0000	0.0000	0.0000
26	41.6941	-0.0001	0.0000	0.0000	0.0000	0.0000
27	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
28	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
29	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
30	41.6941	-0.0001	0.0000	0.0000	0.0000	0.0000
31	41.6942	0.0000	0.0000	0.0000	0.0000	0.0000
32	41.6941	0.0000	0.0000	0.0000	0.0000	0.0000

20 Harbor.out

33	41.6941	0.0001	0.0000	0.0000	0.0000	0.0000
34	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
35	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
36	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
37	41.6938	0.0000	0.0000	0.0000	0.0000	0.0000
38	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
39	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
40	41.6941	0.0000	0.0000	0.0000	0.0000	0.0000
41	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
42	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
43	41.6940	-0.0001	0.0000	0.0000	0.0000	0.0000
44	41.6943	0.0001	0.0000	0.0000	0.0000	0.0000
45	41.6942	0.0000	0.0000	0.0000	0.0000	0.0000
46	41.6941	0.0000	0.0000	0.0000	0.0000	0.0000
47	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
48	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
49	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
50	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
51	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
52	41.6943	0.0000	0.0000	0.0000	0.0000	0.0000
53	41.6941	0.0000	0.0000	0.0000	0.0000	0.0000
54	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
55	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
56	41.6940	0.0002	0.0000	0.0000	0.0000	0.0000
57	41.6942	0.0000	0.0000	0.0000	0.0000	0.0000
58	41.6941	0.0000	0.0000	0.0000	0.0000	0.0000
59	41.6941	0.0000	0.0000	0.0000	0.0000	0.0000
60	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
61	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
62	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
63	41.6938	0.0000	0.0000	0.0000	0.0000	0.0000
64	41.6939	-0.0001	0.0000	0.0000	0.0000	0.0000
65	41.6940	0.0001	0.0000	0.0000	0.0000	0.0000
66	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
67	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
68	41.6939	-0.0001	0.0000	0.0000	0.0000	0.0000
69	41.6941	0.0001	0.0000	0.0000	0.0000	0.0000
70	41.6941	0.0000	0.0000	0.0000	0.0000	0.0000
71	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
72	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
73	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
74	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
75	41.6938	0.0000	0.0000	0.0000	0.0000	0.0000
76	41.6938	-0.0001	0.0000	0.0000	0.0000	0.0000
77	41.6939	-0.0001	0.0000	0.0000	0.0000	0.0000
78	41.6940	0.0001	0.0000	0.0000	0.0000	0.0000
79	41.6940	0.0000	0.0000	0.0000	0.0000	0.0000
80	41.6939	0.0000	0.0000	0.0000	0.0000	0.0000
81	41.6938	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1
 Steel type = 4 (For Description see Users Manual)
 Maximum = 0.6894E-02
 Minimum = -0.6894E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)

X Direction	=	29.6238	Kips
Y Direction	=	0.0002	Kips
Z Direction	=	0.0002	Kips
Sum of Tip Forces	=	0.0000	Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	-0.12365E-11	-0.18837E-10
2	-0.63117E-12	-0.17380E-10
3	-0.73806E-12	-0.21140E-10

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.22875E+02	-0.69797E+02
2	0.19250E+02	-0.53694E+02
3	0.22876E+02	-0.69858E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.12991E-02	-0.37266E-03
2	0.80710E-03	-0.26757E-03
3	0.46391E-03	-0.19833E-02

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	86	0.16867E+02	0.6731E-03	0.16867E+02	-0.2401E-02
2	107	0.19233E+02	0.4758E-03	0.16867E+02	-0.1434E-02
3	125	0.14500E+02	0.3836E-02	0.16867E+02	-0.8580E-03

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	95	0.38167E+02	24.74	0.28700E+02	-469.5
2	118	0.45267E+02	21.65	0.26333E+02	-441.3
3	135	0.38167E+02	24.68	0.28700E+02	-469.5

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM	PROP	NODE	LOAD	FAX	F22	F33	M22	M33	TORQUE
D/C									
NO.	NO.	NO.	CASE	(Kips)	(Kips)	(Kips)	(Kip-ft)	(Kip-ft)	
(Kip-ft)		(Ratio)							
! -> Pile Number 1 !									
1	1	1	1	0.00	22.87	0.00	0.00	0.00	0.00
0.00		0.00							
	1	82	1	0.00	-22.87	0.00	0.00	0.00	-66.34
0.00		0.12							
2	1	82	1	0.00	22.87	0.00	0.00	0.00	66.34
0.00		0.12							
	1	83	1	0.00	-22.87	0.00	0.00	0.00	-132.67
0.00		0.24							
3	1	83	1	0.00	22.87	0.00	0.00	0.00	132.67
0.00		0.24							
	1	84	1	0.00	-22.87	0.00	0.00	0.00	-199.01
0.00		0.37							
4	1	84	1	0.00	22.87	0.00	0.00	0.00	199.01
0.00		0.37							
	1	85	1	0.00	-22.87	0.00	0.00	0.00	-265.35
0.00		0.49							
5	1	85	1	0.00	22.87	0.00	0.00	0.00	265.35
0.00		0.49							
	1	86	1	0.00	-22.87	0.00	0.00	0.00	-331.69
0.00		0.61							
6	1	86	1	0.00	21.57	0.00	0.00	0.00	331.69
0.00		0.61							
	1	87	1	0.00	-21.57	0.00	0.00	0.00	-382.73
0.00		0.70							
7	1	87	1	0.00	17.76	0.00	0.00	0.00	382.88
0.00		0.71							
	1	88	1	0.00	-17.76	0.00	0.00	0.00	-424.91
0.00		0.78							
8	1	88	1	0.00	9.51	0.00	0.00	0.00	426.54
0.00		0.79							
	1	89	1	0.00	-9.51	0.00	0.00	0.00	-449.06
0.00		0.83							
9	1	89	1	0.00	6.82	0.00	0.00	0.00	449.56
0.00		0.83							
	1	90	1	0.00	-6.82	0.00	0.00	0.00	-465.70
0.00		0.86							
10	1	90	1	0.00	1.32	0.00	0.00	0.00	463.98
0.00		0.85							
	1	91	1	0.00	-1.32	0.00	0.00	0.00	-467.11
0.00		0.86							
11	1	91	1	0.00	-17.09	0.00	0.00	0.00	469.46
0.00		0.86							
	1	92	1	0.00	17.09	0.00	0.00	0.00	-429.01
0.00		0.79							
12	1	92	1	0.00	-54.45	0.00	0.00	0.00	437.67

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0.00		0.81						
	1	93	1	0.00	54.45	0.00	0.00	-308.80
0.00		0.57						
13	1	93	1	0.00	-69.80	0.00	0.00	308.80
0.00		0.57						
	1	94	1	0.00	69.80	0.00	0.00	-143.61
0.00		0.26						
14	1	94	1	0.00	-49.44	0.00	0.00	143.61
0.00		0.26						
	1	95	1	0.00	49.44	0.00	0.00	-26.60
0.00		0.05						
15	1	95	1	0.00	-21.69	0.00	0.00	26.60
0.00		0.05						
	1	96	1	0.00	21.69	0.00	0.00	24.74
0.00		0.05						
16	1	96	1	0.00	0.77	0.00	0.00	-24.74
0.00		0.05						
	1	97	1	0.00	-0.77	0.00	0.00	22.93
0.00		0.04						
17	1	97	1	0.00	5.69	0.00	0.00	-22.93
0.00		0.04						
	1	98	1	0.00	-5.69	0.00	0.00	9.45
0.00		0.02						
18	1	98	1	0.00	3.48	0.00	0.00	-9.45
0.00		0.02						
	1	99	1	0.00	-3.48	0.00	0.00	1.22
0.00		0.00						
19	1	99	1	0.00	0.81	0.00	0.00	-1.22
0.00		0.00						
	1	100	1	0.00	-0.81	0.00	0.00	-0.69
0.00		0.00						
20	1	100	1	0.00	-0.29	0.00	0.00	0.69
0.00		0.00						
	1	101	1	0.00	0.29	0.00	0.00	0.00
0.00		0.00						

! -> File Number 2 !

21	1	2	1	0.00	19.25	0.00	0.00	0.00
0.00		0.00						
	1	102	1	0.00	-19.25	0.00	0.00	-55.82
0.00		0.10						
22	1	102	1	0.00	19.25	0.00	0.00	55.82
0.00		0.10						
	1	103	1	0.00	-19.25	0.00	0.00	-111.65
0.00		0.21						
23	1	103	1	0.00	19.25	0.00	0.00	111.65
0.00		0.21						
	1	104	1	0.00	-19.25	0.00	0.00	-167.47
0.00		0.31						
24	1	104	1	0.00	19.25	0.00	0.00	167.47
0.00		0.31						
	1	105	1	0.00	-19.25	0.00	0.00	-223.29
0.00		0.41						
25	1	105	1	0.00	19.25	0.00	0.00	223.29
0.00		0.41						
	1	106	1	0.00	-19.25	0.00	0.00	-279.12
0.00		0.51						
26	1	106	1	0.00	18.59	0.00	0.00	279.12
0.00		0.51						
	1	107	1	0.00	-18.59	0.00	0.00	-323.12
0.00		0.60						

				20 Harbor.out				
27	1	107	1	0.00	16.82	0.00	0.00	323.12
0.00		0.60						
	1	108	1	0.00	-16.82	0.00	0.00	-362.93
0.00		0.67						
28	1	108	1	0.00	14.57	0.00	0.00	362.93
0.00		0.67						
	1	109	1	0.00	-14.57	0.00	0.00	-397.40
0.00		0.73						
29	1	109	1	0.00	10.94	0.00	0.00	398.09
0.00		0.73						
	1	110	1	0.00	-10.94	0.00	0.00	-423.97
0.00		0.78						
30	1	110	1	0.00	6.63	0.00	0.00	425.57
0.00		0.78						
	1	111	1	0.00	-6.63	0.00	0.00	-441.27
0.00		0.81						
31	1	111	1	0.00	-3.07	0.00	0.00	440.13
0.00		0.81						
	1	112	1	0.00	3.07	0.00	0.00	-432.86
0.00		0.80						
32	1	112	1	0.00	-25.74	0.00	0.00	434.37
0.00		0.80						
	1	113	1	0.00	25.74	0.00	0.00	-373.45
0.00		0.69						
33	1	113	1	0.00	-50.66	0.00	0.00	371.98
0.00		0.68						
	1	114	1	0.00	50.66	0.00	0.00	-252.09
0.00		0.46						
34	1	114	1	0.00	-53.69	0.00	0.00	252.09
0.00		0.46						
	1	115	1	0.00	53.69	0.00	0.00	-125.01
0.00		0.23						
35	1	115	1	0.00	-39.56	0.00	0.00	125.01
0.00		0.23						
	1	116	1	0.00	39.56	0.00	0.00	-31.38
0.00		0.06						
36	1	116	1	0.00	-19.96	0.00	0.00	31.38
0.00		0.06						
	1	117	1	0.00	19.96	0.00	0.00	15.85
0.00		0.03						
37	1	117	1	0.00	-2.45	0.00	0.00	-15.85
0.00		0.03						
	1	118	1	0.00	2.45	0.00	0.00	21.65
0.00		0.04						
38	1	118	1	0.00	3.87	0.00	0.00	-21.65
0.00		0.04						
	1	119	1	0.00	-3.87	0.00	0.00	12.48
0.00		0.02						
39	1	119	1	0.00	3.81	0.00	0.00	-12.48
0.00		0.02						
	1	120	1	0.00	-3.81	0.00	0.00	3.46
0.00		0.01						
40	1	120	1	0.00	1.46	0.00	0.00	-3.46
0.00		0.01						
	1	121	1	0.00	-1.46	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 3 !

41	1	3	1	0.00	22.88	0.00	0.00	0.00
0.00		0.00						
	1	122	1	0.00	-22.88	0.00	0.00	-66.34

20 Harbor.out

0.00		0.12						
42	1	122	1	0.00	22.88	0.00	0.00	66.34
0.00		0.12						
	1	123	1	0.00	-22.88	0.00	0.00	-132.68
0.00		0.24						
43	1	123	1	0.00	22.88	0.00	0.00	132.68
0.00		0.24						
	1	124	1	0.00	-22.88	0.00	0.00	-199.02
0.00		0.37						
44	1	124	1	0.00	22.88	0.00	0.00	199.02
0.00		0.37						
	1	125	1	0.00	-22.88	0.00	0.00	-265.36
0.00		0.49						
45	1	125	1	0.00	22.88	0.00	0.00	265.36
0.00		0.49						
	1	126	1	0.00	-22.88	0.00	0.00	-331.70
0.00		0.61						
46	1	126	1	0.00	21.57	0.00	0.00	331.70
0.00		0.61						
	1	127	1	0.00	-21.57	0.00	0.00	-382.74
0.00		0.70						
47	1	127	1	0.00	17.76	0.00	0.00	382.89
0.00		0.71						
	1	128	1	0.00	-17.76	0.00	0.00	-424.92
0.00		0.78						
48	1	128	1	0.00	9.51	0.00	0.00	426.56
0.00		0.79						
	1	129	1	0.00	-9.51	0.00	0.00	-449.07
0.00		0.83						
49	1	129	1	0.00	6.82	0.00	0.00	449.58
0.00		0.83						
	1	130	1	0.00	-6.82	0.00	0.00	-465.72
0.00		0.86						
50	1	130	1	0.00	1.33	0.00	0.00	463.98
0.00		0.85						
	1	131	1	0.00	-1.33	0.00	0.00	-467.12
0.00		0.86						
51	1	131	1	0.00	-17.09	0.00	0.00	469.48
0.00		0.86						
	1	132	1	0.00	17.09	0.00	0.00	-429.03
0.00		0.79						
52	1	132	1	0.00	-54.45	0.00	0.00	437.69
0.00		0.81						
	1	133	1	0.00	54.45	0.00	0.00	-308.83
0.00		0.57						
53	1	133	1	0.00	-69.86	0.00	0.00	308.83
0.00		0.57						
	1	134	1	0.00	69.86	0.00	0.00	-143.49
0.00		0.26						
54	1	134	1	0.00	-49.54	0.00	0.00	143.49
0.00		0.26						
	1	135	1	0.00	49.54	0.00	0.00	-26.25
0.00		0.05						
55	1	135	1	0.00	-21.52	0.00	0.00	26.25
0.00		0.05						
	1	136	1	0.00	21.52	0.00	0.00	24.68
0.00		0.05						
56	1	136	1	0.00	0.79	0.00	0.00	-24.68
0.00		0.05						
	1	137	1	0.00	-0.79	0.00	0.00	22.80
0.00		0.04						
57	1	137	1	0.00	5.67	0.00	0.00	-22.80
0.00		0.04						

20 Harbor.out

0.00	1	138	1	0.00	-5.67	0.00	0.00	9.39
0.00	58	138	1	0.00	3.46	0.00	0.00	-9.39
0.00	1	139	1	0.00	-3.46	0.00	0.00	1.21
0.00	59	139	1	0.00	0.80	0.00	0.00	-1.21
0.00	1	140	1	0.00	-0.80	0.00	0.00	-0.69
0.00	60	140	1	0.00	-0.29	0.00	0.00	0.69
0.00	1	141	1	0.00	0.29	0.00	0.00	0.00

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZY (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

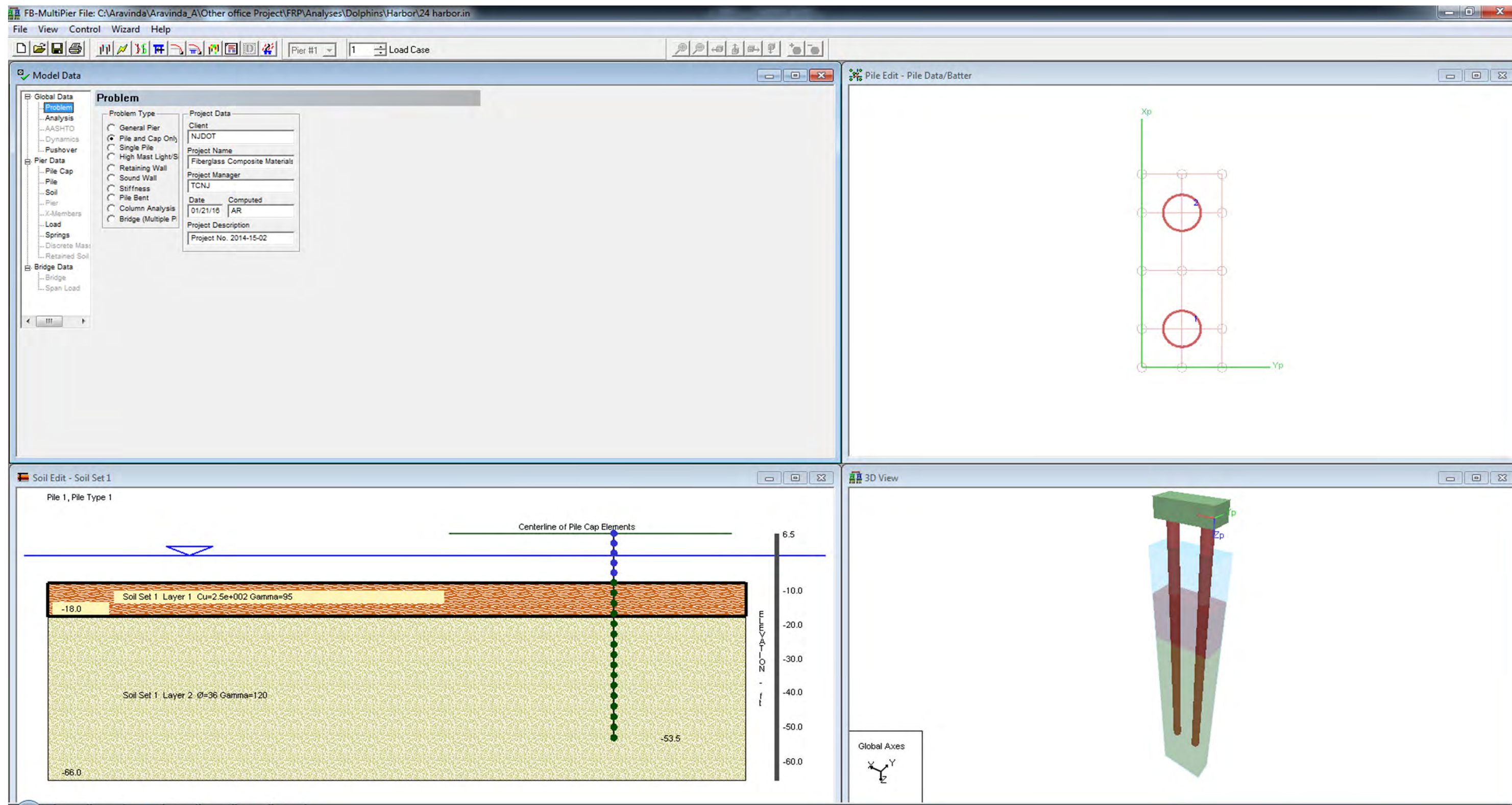
	Value	Load	Comb.	Pile
Max Axial Force	-0.6312E-12 Kip	1	0	2
Min Axial Force	-0.2114E-10 Kip	1	0	3
Max Shear in 2 Direction	0.2288E+02 Kip	1	0	3
Min Shear in 2 Direction	-0.6986E+02 Kip	1	0	3
Max Shear in 3 Direction	0.1299E-02 Kip	1	0	1
Min Shear in 3 Direction	-0.1983E-02 Kip	1	0	3
Max Moment about 2 Axis	0.3836E-02 Kip-ft	1	0	3
Min Moment about 2 Axis	-0.2401E-02 Kip-ft	1	0	1
Max Moment About 3 Axis	0.2474E+02 Kip-ft	1	0	1
Min Moment About 3 Axis	-0.4695E+03 Kip-ft	1	0	3
Max Torsional Force	0.6993E-03 Kip-ft	1	0	3
Min Torsional Force	0.4171E-14 Kip-ft	1	0	1
Max Demand/Capacity Ratio	0.8645E+00	1	0	3

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.9638E-05 Kip	1	0	1
Min Axial Soil Force	0.6948E-07 Kip	1	0	2
Max Lateral Force in X dir	0.2807E+02 Kip	1	0	3
Min Lateral Force in X dir	-0.2587E+02 Kip	1	0	1
Max Lateral Force in Y dir	0.5850E-02 Kip	1	0	3
Min Lateral Force in Y dir	-0.4314E-02 Kip	1	0	3
Max Torsional Soil Force	-0.5005E-13 Kip-ft	1	0	1

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.1813E-07 in	1	0	1
Min Axial Displacement	0.5227E-08 in	1	0	2
Max Displacement in X	0.4169E+02 in	1	0	2
Min Displacement in X	0.4169E+02 in	1	0	3
Max Displacement in Y	0.3761E-04 in	1	0	1
Min Displacement in Y	-0.6117E-04 in	1	0	3



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 P= 2 F= 1,0,0
I= 150 T= 20 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 60 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -18 -17.33 0 17.33 18 \
0 0 0 0 0 \
0 0 0 0 0
-0.02 -0.0056 0 0.0056 0.02 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.0056
NL= 0 NG= 0 D= 24 V= 0 S= 80 TH= 1.5 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
5 3 5 5 : NPX, NPY, GSX, GSY
24 36 36 24
24 24
0.4 0.8
1
:
MISSING
13 : number of missing piles
1 1
2 1
3 1
4 1
5 1
1 2
3 2
5 2
1 3

```

```

2 3
3 3
4 3
5 3
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
LOAD
5 L= 1 F= 0 -80 0 0 0 0
:
PADBC
:

```

```

!-----!
!       The University of Florida, Florida Department
!       of Transportation, Drs. Marc Hoit, Mike McVay
!       Cliff Hays, Mark Williams, Petros Christou, and
!       Jae H. Chung
!       disclaim any warranty, expressed or implied,
!       including but not limited to, any implied
!       warranty of fitness for a particular purpose
!       or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
!       incurred through the use of FB-MultiPier
!-----!

```

```

!       :::: F B - M U L T I P I E R ::::
!       FB-MultiPier Version 4.17
!-----!

```

```

!       Written by Marc Hoit, Mike McVay, Cliff Hays
!       Mark Williams, Petros Christou, Jae H. Chung.
!-----!

```

```

!       Civil & Coastal Engineering, University of Florida
!       Supported by Florida Department of Transportation
!       and the Federal Highway Administration
!-----!

```

```

!       The program calculates the Response
!       of the Bridge Pier Pile Soil Structures
!-----!

```

```

!       The Analysis includes PreLoad, Static,
!       Transient Dynamic or Push Over
!-----!

```

```

!       The Program Handles NonLinear Soil Behavior,
!       Linear Pile Cap and Linear and NonLinear Piles and Piers
!-----!

```

```

!       Contact: Bridge Software Institute for Support
!       HTTP://BSI-WEB.CE.UFL.EDU
!-----!

```

```

*****
*                               *
*   ANALYSIS RESULTS           *
*                               *
*****

```

```

*****
*   RESULTS FOR LOAD CASE #      1  *
*****

```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PILE#	X-PYM	Y-PYM
1	0.100E+01	0.100E+01
2	0.100E+01	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 4 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.000	Kips
FXX =	0.016	Kips
FYY =	14.670	Kips
MXX =	111.134	Kip-in
MYX =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	-0.0002	-33.1123	0.0000
2	0.0002	-33.1123	0.0000

Pile Cap Displacements (Excluding Pile Heads)

3	0.0000	-33.1124	-0.0024	-0.0001	0.0000	0.0000
4	0.0002	-33.1129	-0.0024	-0.0001	0.0000	0.0000
5	0.0000	-33.1140	-0.0024	-0.0001	0.0000	0.0000
6	-0.0002	-33.1129	-0.0024	-0.0001	0.0000	0.0000
7	0.0000	-33.1124	-0.0024	-0.0001	0.0000	0.0000
8	-0.0004	-33.1120	0.0000	-0.0001	0.0000	0.0000
9	0.0000	-33.1129	0.0000	-0.0001	0.0000	0.0000
10	0.0004	-33.1120	0.0000	-0.0001	0.0000	0.0000
11	-0.0007	-33.1119	0.0024	-0.0001	0.0000	0.0000
12	-0.0006	-33.1122	0.0024	-0.0001	0.0000	0.0000
13	0.0000	-33.1126	0.0024	-0.0001	0.0000	0.0000
14	0.0006	-33.1122	0.0024	-0.0001	0.0000	0.0000
15	0.0007	-33.1119	0.0024	-0.0001	0.0000	0.0000
16	0.0005	-33.1121	-0.0024	-0.0001	0.0000	0.0000
17	0.0003	-33.1126	-0.0024	-0.0001	0.0000	0.0000
18	-0.0003	-33.1126	-0.0024	-0.0001	0.0000	0.0000
19	-0.0005	-33.1121	-0.0024	-0.0001	0.0000	0.0000
20	0.0004	-33.1120	-0.0012	-0.0001	0.0000	0.0000
21	0.0001	-33.1123	-0.0012	-0.0001	0.0000	0.0000
22	0.0002	-33.1124	-0.0012	-0.0001	0.0000	0.0000
23	0.0000	-33.1129	-0.0012	-0.0001	0.0000	0.0000
24	0.0000	-33.1131	-0.0012	-0.0001	0.0000	0.0000
25	0.0000	-33.1129	-0.0012	-0.0001	0.0000	0.0000
26	-0.0002	-33.1124	-0.0012	-0.0001	0.0000	0.0000
27	-0.0001	-33.1123	-0.0012	-0.0001	0.0000	0.0000
28	-0.0004	-33.1120	-0.0012	-0.0001	0.0000	0.0000
29	0.0001	-33.1123	0.0000	-0.0001	0.0000	0.0000
30	0.0000	-33.1129	0.0000	-0.0001	0.0000	0.0000
31	0.0000	-33.1129	0.0000	-0.0001	0.0000	0.0000
32	-0.0001	-33.1123	0.0000	-0.0001	0.0000	0.0000

			24 harbor.out			
33	-0.0001	-33.1122	0.0012	-0.0001	0.0000	0.0000
34	-0.0003	-33.1122	0.0012	-0.0001	0.0000	0.0000
35	-0.0001	-33.1125	0.0012	-0.0001	0.0000	0.0000
36	-0.0001	-33.1128	0.0012	-0.0001	0.0000	0.0000
37	0.0000	-33.1130	0.0012	-0.0001	0.0000	0.0000
38	0.0001	-33.1128	0.0012	-0.0001	0.0000	0.0000
39	0.0001	-33.1125	0.0012	-0.0001	0.0000	0.0000
40	0.0003	-33.1122	0.0012	-0.0001	0.0000	0.0000
41	0.0001	-33.1122	0.0012	-0.0001	0.0000	0.0000
42	-0.0003	-33.1124	0.0024	-0.0001	0.0000	0.0000
43	-0.0002	-33.1129	0.0024	-0.0001	0.0000	0.0000
44	0.0002	-33.1129	0.0024	-0.0001	0.0000	0.0000
45	0.0003	-33.1124	0.0024	-0.0001	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1

Maximum = 0.0000E+00

Minimum = 0.0000E+00

Steel Strains for Section # 1

Steel type = 4 (For Description see Users Manual)

Maximum = 0.5739E-02

Minimum = -0.5739E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)

X Direction = 0.0000 Kips

Y Direction = -31.1232 Kips

Z Direction = 0.0000 Kips

Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.33120E-08	-0.34683E-11
2	0.33101E-08	-0.80185E-11

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.70759E-02	-0.17729E-02
2	0.17729E-02	-0.70759E-02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
--------	---------------	---------------

24 harbor.out

1	0.40000E+02	-0.10078E+03
2	0.40000E+02	-0.10078E+03

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	54	0.29667E+02	900.7	0.41800E+02	-46.53
2	74	0.29667E+02	900.7	0.41800E+02	-46.53

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	49	0.14500E+02	0.2571E-01	0.20567E+02	-0.1627E-02
2	72	0.23600E+02	0.1627E-02	0.17533E+02	-0.2571E-01

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM	PROP	NODE	LOAD	FAX	F22	F33	M22	M33	TORQUE
D/C	NO.	NO.	NO.	CASE	(Kips)	(Kips)	(Kips)	(Kip-ft)	(Kip-ft)
(Kip-ft)	(Ratio)								
! -> Pile Number 1 !									
1	1	1	1		0.00	0.00	40.00	0.00	0.00
0.02		0.00							
	1	46	1		0.00	0.00	-40.00	116.00	0.01
0.02		0.10							
2	1	46	1		0.00	0.00	40.00	-116.00	-0.01
0.02		0.10							
	1	47	1		0.00	0.00	-40.00	232.00	0.01
0.02		0.20							
3	1	47	1		0.00	0.00	40.00	-232.00	-0.01
0.02		0.20							
	1	48	1		0.00	0.00	-40.00	348.00	0.02
0.02		0.30							
4	1	48	1		0.00	0.00	40.00	-348.00	-0.02
0.02		0.30							
	1	49	1		0.00	0.00	-40.00	464.00	0.02
0.02		0.41							
5	1	49	1		0.00	0.00	40.00	-464.00	-0.02
0.02		0.41							
	1	50	1		0.00	0.00	-40.00	580.00	0.03
0.02		0.51							
6	1	50	1		0.00	0.01	37.39	-580.00	-0.03
0.02		0.51							
	1	51	1		0.00	-0.01	-37.39	693.41	0.00

24 harbor.out

0.02		0.61						
7	1	51	1	0.00	0.00	30.62	-693.41	0.00
0.01		0.61						
	1	52	1	0.00	0.00	-30.62	786.30	0.00
0.01		0.69						
8	1	52	1	0.00	0.00	22.94	-786.30	0.00
0.01		0.69						
	1	53	1	0.00	0.00	-22.94	855.89	0.00
0.01		0.75						
9	1	53	1	0.00	0.00	10.69	-859.04	0.00
0.00		0.75						
	1	54	1	0.00	0.00	-10.69	891.45	0.00
0.00		0.78						
10	1	54	1	0.00	0.00	-41.79	-900.72	0.00
0.00		0.79						
	1	55	1	0.00	0.00	41.79	773.95	0.00
0.00		0.68						
11	1	55	1	0.00	0.00	-100.08	-773.88	0.00
0.00		0.68						
	1	56	1	0.00	0.00	100.08	470.31	0.00
0.00		0.41						
12	1	56	1	0.00	0.00	-100.78	-470.31	0.00
0.00		0.41						
	1	57	1	0.00	0.00	100.78	164.59	0.00
0.00		0.14						
13	1	57	1	0.00	0.00	-59.34	-164.59	0.00
0.00		0.14						
	1	58	1	0.00	0.00	59.34	-15.40	0.00
0.00		0.01						
14	1	58	1	0.00	0.00	-10.26	15.40	0.00
0.00		0.01						
	1	59	1	0.00	0.00	10.26	-46.53	0.00
0.00		0.04						
15	1	59	1	0.00	0.00	8.02	46.53	0.00
0.00		0.04						
	1	60	1	0.00	0.00	-8.02	-22.20	0.00
0.00		0.02						
16	1	60	1	0.00	0.00	6.32	22.20	0.00
0.00		0.02						
	1	61	1	0.00	0.00	-6.32	-3.04	0.00
0.00		0.00						
17	1	61	1	0.00	0.00	1.74	3.04	0.00
0.00		0.00						
	1	62	1	0.00	0.00	-1.74	2.25	0.00
0.00		0.00						
18	1	62	1	0.00	0.00	-0.25	-2.25	0.00
0.00		0.00						
	1	63	1	0.00	0.00	0.25	1.48	0.00
0.00		0.00						
19	1	63	1	0.00	0.00	-0.39	-1.48	0.00
0.00		0.00						
	1	64	1	0.00	0.00	0.39	0.28	0.00
0.00		0.00						
20	1	64	1	0.00	0.00	-0.09	-0.28	0.00
0.00		0.00						
	1	65	1	0.00	0.00	0.09	0.00	0.00
0.00		0.00						

! -> Pile Number 2 !

21	1	2	1	0.00	0.00	40.00	0.00	0.00
-0.02		0.00						

24 harbor.out

-0.02	1	66	1	0.00	0.00	-40.00	116.00	-0.01
22	1	66	1	0.00	0.00	40.00	-116.00	0.01
-0.02	1	67	1	0.00	0.00	-40.00	232.00	-0.01
-0.02	1	67	1	0.00	0.00	40.00	-232.00	0.01
-0.02	1	68	1	0.00	0.00	-40.00	348.00	-0.02
-0.02	1	68	1	0.00	0.00	40.00	-348.00	0.02
-0.02	1	69	1	0.00	0.00	-40.00	464.00	-0.02
-0.02	1	69	1	0.00	0.00	40.00	-464.00	0.02
-0.02	1	70	1	0.00	0.00	-40.00	580.00	-0.03
-0.02	1	70	1	0.00	-0.01	37.39	-580.00	0.03
-0.02	1	71	1	0.00	0.01	-37.39	693.41	0.00
-0.02	1	71	1	0.00	0.00	30.62	-693.41	0.00
-0.01	1	72	1	0.00	0.00	-30.62	786.30	0.00
-0.01	1	72	1	0.00	0.00	22.94	-786.30	0.00
-0.01	1	73	1	0.00	0.00	-22.94	855.89	0.00
-0.01	1	73	1	0.00	0.00	10.69	-859.04	0.00
0.00	1	74	1	0.00	0.00	-10.69	891.45	0.00
0.00	1	74	1	0.00	0.00	-41.79	-900.72	0.00
0.00	1	75	1	0.00	0.00	41.79	773.95	0.00
0.00	1	75	1	0.00	0.00	-100.08	-773.88	0.00
0.00	1	76	1	0.00	0.00	100.08	470.31	0.00
0.00	1	76	1	0.00	0.00	-100.78	-470.31	0.00
0.00	1	77	1	0.00	0.00	100.78	164.59	0.00
0.00	1	77	1	0.00	0.00	-59.34	-164.59	0.00
0.00	1	78	1	0.00	0.00	59.34	-15.40	0.00
0.00	1	78	1	0.00	0.00	-10.26	15.40	0.00
0.00	1	79	1	0.00	0.00	10.26	-46.53	0.00
0.00	1	79	1	0.00	0.00	8.02	46.53	0.00
0.00	1	80	1	0.00	0.00	-8.02	-22.20	0.00
0.00	1	80	1	0.00	0.00	6.32	22.20	0.00
0.00	1	81	1	0.00	0.00	-6.32	-3.04	0.00
0.00	1	81	1	0.00	0.00	1.74	3.04	0.00

24 harbor.out

0.00		0.00						
	1	82	1	0.00	0.00	-1.74	2.25	0.00
0.00		0.00						
38	1	82	1	0.00	0.00	-0.25	-2.25	0.00
0.00		0.00						
	1	83	1	0.00	0.00	0.25	1.48	0.00
0.00		0.00						
39	1	83	1	0.00	0.00	-0.39	-1.48	0.00
0.00		0.00						
	1	84	1	0.00	0.00	0.39	0.28	0.00
0.00		0.00						
40	1	84	1	0.00	0.00	-0.09	-0.28	0.00
0.00		0.00						
	1	85	1	0.00	0.00	0.09	0.00	0.00
0.00		0.00						

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZY (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

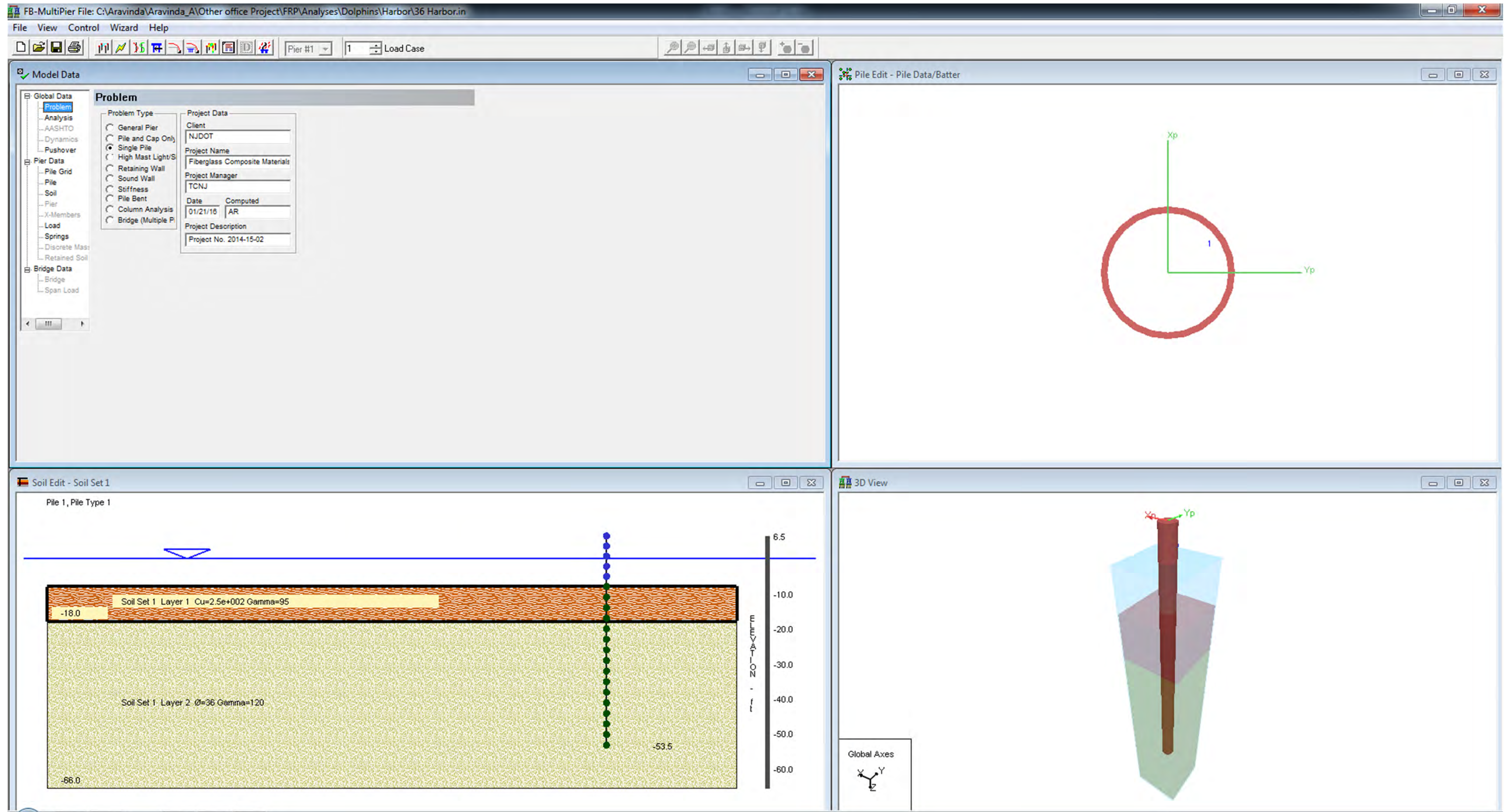
	Value	Load	Comb.	Pile
Max Axial Force	0.3312E-08 Kip	1	0	1
Min Axial Force	-0.8018E-11 Kip	1	0	2
Max Shear in 2 Direction	0.7076E-02 Kip	1	0	1
Min Shear in 2 Direction	-0.7076E-02 Kip	1	0	2
Max Shear in 3 Direction	0.4000E+02 Kip	1	0	1
Min Shear in 3 Direction	-0.1008E+03 Kip	1	0	1
Max Moment about 2 Axis	0.9007E+03 Kip-ft	1	0	1
Min Moment about 2 Axis	-0.4653E+02 Kip-ft	1	0	1
Max Moment About 3 Axis	0.2571E-01 Kip-ft	1	0	1
Min Moment About 3 Axis	-0.2571E-01 Kip-ft	1	0	2
Max Torsional Force	0.2480E-01 Kip-ft	1	0	1
Min Torsional Force	-0.2480E-01 Kip-ft	1	0	2
Max Demand/Capacity Ratio	0.7885E+00	1	0	1

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.0000E+00 Kip	1	0	1
Min Axial Soil Force	0.0000E+00 Kip	1	0	1
Max Lateral Force in X dir	0.2161E-01 Kip	1	0	1
Min Lateral Force in X dir	-0.2161E-01 Kip	1	0	2
Max Lateral Force in Y dir	0.4146E+02 Kip	1	0	1
Min Lateral Force in Y dir	-0.4362E+02 Kip	1	0	1
Max Torsional Soil Force	0.8981E-01 Kip-ft	1	0	2

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.3435E-09 in	1	0	2
Min Axial Displacement	-0.3710E-09 in	1	0	1
Max Displacement in X	0.2116E-03 in	1	0	2
Min Displacement in X	-0.2116E-03 in	1	0	1
Max Displacement in Y	-0.3311E+02 in	1	0	2
Min Displacement in Y	-0.3311E+02 in	1	0	1



```

PROBLEM
Single Pile
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 1 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 P= 2 F= 1,0,0
I= 100 T= 35 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 60 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -18 -17.33 0 17.33 18 \
0 0 0 0 0 \
0 0 0 0 0
-0.02 -0.0063 0 0.0063 0.02 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.0063
NL= 0 NG= 0 D= 36 V= 0 S= 80 TH= 1.5 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 1 A= 1 S= 5 G= 0 C= 0
1 1 5 5 : NPX, NPY, GSX, GSY
0.3
0.3
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8,-18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18,-66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info

```

36 Harbor.in

```
:  
SOILSET  
:  
PILESET  
:  
LOAD  
1 L= 1 F= 79 0 0 0 0 0  
:  
PADBC  
:
```

```

!-----!
!       The University of Florida, Florida Department
!       of Transportation, Drs. Marc Hoit, Mike McVay
!       Cliff Hays, Mark Williams, Petros Christou, and
!       Jae H. Chung
!       disclaim any warranty, expressed or implied,
!       including but not limited to, any implied
!       warranty of fitness for a particular purpose
!       or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
!       incurred through the use of FB-MultiPier
!-----!

```

```

!       :::: F B - M U L T I P I E R ::::
!       FB-MultiPier Version 4.17
!-----!

```

```

!       Written by Marc Hoit, Mike McVay, Cliff Hays
!       Mark Williams, Petros Christou, Jae H. Chung.
!-----!

```

```

!       Civil & Coastal Engineering, University of Florida
!       Supported by Florida Department of Transportation
!       and the Federal Highway Administration
!-----!

```

```

!       The program calculates the Response
!       of the Bridge Pier Pile Soil Structures
!-----!

```

```

!       The Analysis includes PreLoad, Static,
!       Transient Dynamic or Push Over
!-----!

```

```

!       The Program Handles NonLinear Soil Behavior,
!       Linear Pile Cap and Linear and NonLinear Piles and Piers
!-----!

```

```

!       Contact: Bridge Software Institute for Support
!       HTTP://BSI-WEB.CE.UFL.EDU
!-----!

```

```

*****
*                               *
*   ANALYSIS RESULTS           *
*                               *
*****

```

```

*****
*   RESULTS FOR LOAD CASE #      1  *
*****

```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PILE#	X-PYM	Y-PYM
1	0.300E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 4 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.000	Kips
FXX =	32.277	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYY =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	39.3596	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1

Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1

Steel type = 4 (For Description see Users Manual)
 Maximum = 0.6544E-02
 Minimum = -0.6544E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)

X Direction	=	6.1146	Kips
Y Direction	=	0.0000	Kips
Z Direction	=	0.0001	Kips
Sum of Tip Forces	=	0.0000	Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
--------	---------------	---------------

1 0.16084E-10 -0.27698E-10

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.79000E+02	-0.16458E+03

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.26721E-09	-0.16994E-08

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	10	0.29667E+02	0.2309E-08	0.29667E+02	-0.2846E-08

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	18	0.53933E+02	67.87	0.29667E+02	-2101.

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM NO. (Kip-ft)	PROP D/C (Kip-ft)	NODE NO. (Ratio)	LOAD CASE	FAX (Kips)	F22 (Kips)	F33 (Kips)	M22 (Kip-ft)	M33 (Kip-ft)	TORQUE
! -> Pile Number 1 !									
1	1	1	1	0.00	79.00	0.00	0.00	0.00	0.00
0.00		0.00							
	1	2	1	0.00	-79.00	0.00	0.00	0.00	-229.10
0.00		0.09							
2	1	2	1	0.00	79.00	0.00	0.00	0.00	229.10
0.00		0.09							
	1	3	1	0.00	-79.00	0.00	0.00	0.00	-458.20
0.00		0.17							
3	1	3	1	0.00	79.00	0.00	0.00	0.00	458.20
0.00		0.17							
	1	4	1	0.00	-79.00	0.00	0.00	0.00	-687.30
0.00		0.26							

				36 Harbor.out				
4	1	4	1	0.00	79.00	0.00	0.00	687.30
0.00		0.26						
	1	5	1	0.00	-79.00	0.00	0.00	-916.40
0.00		0.34						
5	1	5	1	0.00	79.00	0.00	0.00	916.40
0.00		0.34						
	1	6	1	0.00	-79.00	0.00	0.00	-1145.50
0.00		0.43						
6	1	6	1	0.00	77.65	0.00	0.00	1145.50
0.00		0.43						
	1	7	1	0.00	-77.65	0.00	0.00	-1381.03
0.00		0.51						
7	1	7	1	0.00	74.29	0.00	0.00	1381.03
0.00		0.51						
	1	8	1	0.00	-74.29	0.00	0.00	-1606.37
0.00		0.60						
8	1	8	1	0.00	70.38	0.00	0.00	1606.37
0.00		0.60						
	1	9	1	0.00	-70.38	0.00	0.00	-1819.85
0.00		0.68						
9	1	9	1	0.00	66.01	0.00	0.00	1819.85
0.00		0.68						
	1	10	1	0.00	-66.01	0.00	0.00	-2020.08
0.00		0.75						
10	1	10	1	0.00	24.46	0.00	0.00	2027.26
0.00		0.75						
	1	11	1	0.00	-24.46	0.00	0.00	-2101.46
0.00		0.78						
11	1	11	1	0.00	-6.67	0.00	0.00	2101.32
0.00		0.78						
	1	12	1	0.00	6.67	0.00	0.00	-2081.10
0.00		0.77						
12	1	12	1	0.00	-73.67	0.00	0.00	2098.98
0.00		0.78						
	1	13	1	0.00	73.67	0.00	0.00	-1875.51
0.00		0.70						
13	1	13	1	0.00	-132.77	0.00	0.00	1875.37
0.00		0.70						
	1	14	1	0.00	132.77	0.00	0.00	-1472.65
0.00		0.55						
14	1	14	1	0.00	-164.58	0.00	0.00	1472.65
0.00		0.55						
	1	15	1	0.00	164.58	0.00	0.00	-973.41
0.00		0.36						
15	1	15	1	0.00	-151.11	0.00	0.00	973.41
0.00		0.36						
	1	16	1	0.00	151.11	0.00	0.00	-515.04
0.00		0.19						
16	1	16	1	0.00	-114.03	0.00	0.00	515.04
0.00		0.19						
	1	17	1	0.00	114.03	0.00	0.00	-169.17
0.00		0.06						
17	1	17	1	0.00	-62.99	0.00	0.00	169.17
0.00		0.06						
	1	18	1	0.00	62.99	0.00	0.00	21.92
0.00		0.01						
18	1	18	1	0.00	-15.15	0.00	0.00	-21.92
0.00		0.01						
	1	19	1	0.00	15.15	0.00	0.00	67.87
0.00		0.03						
19	1	19	1	0.00	10.63	0.00	0.00	-67.87
0.00		0.03						
	1	20	1	0.00	-10.63	0.00	0.00	35.62

36 Harbor.out

0.00		0.01						
20	1	20	1	0.00	11.74	0.00	0.00	-35.62
0.00		0.01						
	1	21	1	0.00	-11.74	0.00	0.00	0.00
0.00		0.00						

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.1608E-10 Kip	1	0	1
Min Axial Force	-0.2770E-10 Kip	1	0	1
Max Shear in 2 Direction	0.7900E+02 Kip	1	0	1
Min Shear in 2 Direction	-0.1646E+03 Kip	1	0	1
Max Shear in 3 Direction	0.2672E-09 Kip	1	0	1
Min Shear in 3 Direction	-0.1699E-08 Kip	1	0	1
Max Moment about 2 Axis	0.2309E-08 Kip-ft	1	0	1
Min Moment about 2 Axis	-0.2846E-08 Kip-ft	1	0	1
Max Moment About 3 Axis	0.6787E+02 Kip-ft	1	0	1
Min Moment About 3 Axis	-0.2101E+04 Kip-ft	1	0	1
Max Torsional Force	0.0000E+00 Kip-ft	1	0	1
Min Torsional Force	0.0000E+00 Kip-ft	1	0	1
Max Demand/Capacity Ratio	0.7825E+00	1	0	1

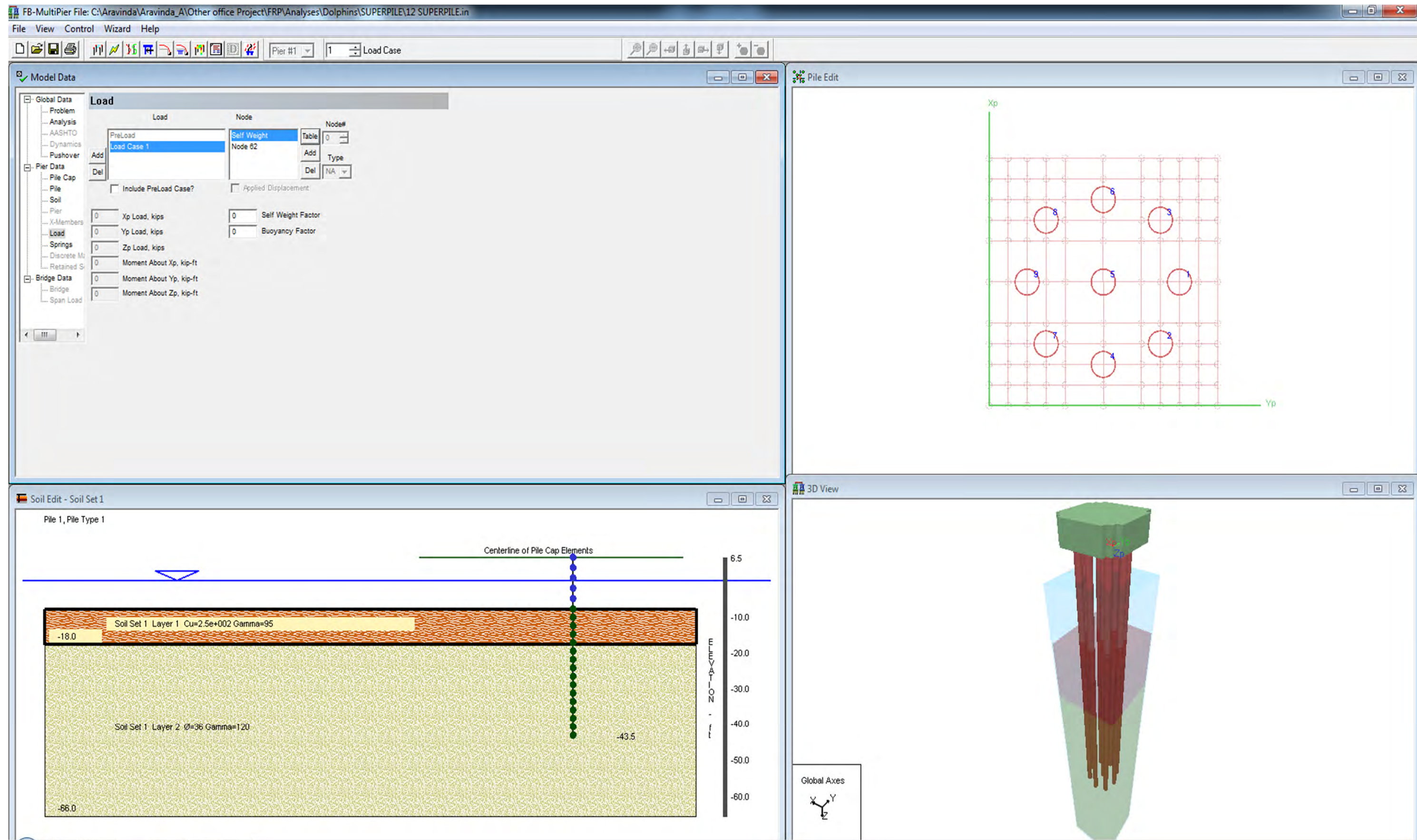
Maximum/Minimum Soil Forces

Max Axial Soil Force	0.5878E-05 Kip	1	0	1
Min Axial Soil Force	0.1470E-06 Kip	1	0	1
Max Lateral Force in X dir	0.3759E+02 Kip	1	0	1
Min Lateral Force in X dir	-0.3899E+02 Kip	1	0	1
Max Lateral Force in Y dir	0.7765E-09 Kip	1	0	1
Min Lateral Force in Y dir	-0.1188E-08 Kip	1	0	1
Max Torsional Soil Force	0.0000E+00 Kip-ft	1	0	1

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.9099E-08 in	1	0	1
Min Axial Displacement	0.9099E-08 in	1	0	1
Max Displacement in X	0.3936E+02 in	1	0	1
Min Displacement in X	0.3936E+02 in	1	0	1
Max Displacement in Y	-0.5482E-12 in	1	0	1
Min Displacement in Y	-0.5482E-12 in	1	0	1

SUPERPILE



12 SUPERPILE.in

```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 1 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 P= 2 F= 1,0,0
I= 150 T= 20 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -53 -52 0 52 53 \
0 0 0 0 0 \
0 0 0 0 0
-0.02 -0.01 0 0.01 0.02 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.01
NL= 0 NG= 0 D= 12 V= 0 S= 80 TH= 0.375 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
11 11 5 5 : NPX, NPY, GSX, GSY
9 9 9 9 18 18 \
9 9 9 9
9 9 9 9 18 18 \
9 9 9 9
0.3 0.3 0.3 0.4 0.8
0.3 0.3 0.3 0.4 0.8
:
MISSING
112 : number of missing piles
1 1
2 1
3 1
4 1
5 1
6 1

```

12 SUPERPILE.in

7 1
8 1
9 1
10 1
11 1
1 2
2 2
3 2
4 2
5 2
6 2
7 2
8 2
9 2
10 2
11 2
1 3
2 3
3 3
4 3
5 3
7 3
8 3
9 3
10 3
11 3
1 4
2 4
3 4
5 4
6 4
7 4
9 4
10 4
11 4
1 5
2 5
3 5
4 5
5 5
6 5
7 5
8 5
9 5
10 5
11 5
1 6
2 6
4 6
5 6
7 6
8 6
10 6
11 6
1 7
2 7
3 7
4 7
5 7
6 7
7 7
8 7
9 7

12 SUPERPILE.in

```

10 7
11 7
1 8
2 8
3 8
5 8
6 8
7 8
9 8
10 8
11 8
1 9
2 9
3 9
4 9
5 9
7 9
8 9
9 9
10 9
11 9
1 10
2 10
3 10
4 10
5 10
6 10
7 10
8 10
9 10
10 10
11 10
1 11
2 11
3 11
4 11
5 11
6 11
7 11
8 11
9 11
10 11
11 11
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8,-18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18,-66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100

```

12 SUPERPILE.in

```
:  
REMOVE  
1 1  
9 1  
10 1  
1 2  
10 2  
1 9  
10 9  
1 10  
2 10  
9 10  
10 10  
:  
LOAD  
62 L= 1 F= 60 0 0 0 0 0  
:  
PADBC  
:
```

```

!
! The University of Florida, Florida Department
! of Transportation, Drs. Marc Hoit, Mike McVay
! Cliff Hays, Mark Williams, Petros Christou, and
! Jae H. Chung
! disclaim any warranty, expressed or implied,
! including but not limited to, any implied
! warranty of fitness for a particular purpose
! or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
! incurred through the use of FB-MultiPier
!

```

```

!
! :::: F B - M U L T I P I E R ::::
! FB-MultiPier Version 4.17
!

```

```

!
! Written by Marc Hoit, Mike McVay, Cliff Hays
! Mark Williams, Petros Christou, Jae H. Chung.
!

```

```

!
! Civil & Coastal Engineering, University of Florida
! Supported by Florida Department of Transportation
! and the Federal Highway Administration
!

```

```

!
! The program calculates the Response
! of the Bridge Pier Pile Soil Structures
!

```

```

!
! The Analysis includes PreLoad, Static,
! Transient Dynamic or Push Over
!

```

```

!
! The Program Handles NonLinear Soil Behavior,
! Linear Pile Cap and Linear and NonLinear Piles and Piers
!

```

```

!
! Contact: Bridge Software Institute for Support
! HTTP://BSI-WEB.CE.UFL.EDU
!

```

```

*****
* ANALYSIS RESULTS *
*****

```

```

*****
* RESULTS FOR LOAD CASE # 1 *
*****

```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PILE#	X-PYM	Y-PYM
1	0.300E+00	0.100E+01
2	0.300E+00	0.100E+01
3	0.400E+00	0.100E+01
4	0.300E+00	0.100E+01
5	0.300E+00	0.100E+01
6	0.800E+00	0.100E+01
7	0.300E+00	0.100E+01
8	0.400E+00	0.100E+01
9	0.300E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 2 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.000	Kips
FXX =	0.000	Kips
FYY =	9.069	Kips
MXX =	0.000	Kip-in
MYY =	0.000	Kip-in
MZZ =	0.024	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	42.6806	0.0001	0.0000
2	42.6807	0.0001	0.0000
3	42.6805	0.0000	0.0000
4	42.6808	0.0000	0.0000
5	42.6806	0.0000	0.0000
6	42.6805	0.0000	0.0000
7	42.6807	-0.0001	0.0000
8	42.6805	0.0000	0.0000
9	42.6806	-0.0001	0.0000

Pile Cap Displacements (Excluding Pile Heads)

10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
12	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
13	42.6806	0.0001	0.0000	0.0000	0.0000	0.0000
14	42.6806	0.0001	0.0000	0.0000	0.0000	0.0000
15	42.6806	0.0001	0.0000	0.0000	0.0000	0.0000
16	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
17	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
18	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	42.6807	0.0000	0.0000	0.0000	0.0000	0.0000
23	42.6807	0.0000	0.0000	0.0000	0.0000	0.0000
24	42.6806	0.0001	0.0000	0.0000	0.0000	0.0000
25	42.6806	0.0001	0.0000	0.0000	0.0000	0.0000

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26	42.6806	0.0001	0.0000	0.0000	0.0000	0.0000
27	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
28	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
29	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
30	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	42.6808	-0.0001	0.0000	0.0000	0.0000	0.0000
33	42.6807	0.0000	0.0000	0.0000	0.0000	0.0000
34	42.6807	0.0001	0.0000	0.0000	0.0000	0.0000
35	42.6807	0.0001	0.0000	0.0000	0.0000	0.0000
36	42.6806	0.0001	0.0000	0.0000	0.0000	0.0000
37	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
38	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
39	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
40	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
41	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
42	42.6809	-0.0001	0.0000	0.0000	0.0000	0.0000
43	42.6808	0.0000	0.0000	0.0000	0.0000	0.0000
44	42.6807	0.0001	0.0000	0.0000	0.0000	0.0000
45	42.6807	0.0001	0.0000	0.0000	0.0000	0.0000
46	42.6806	0.0001	0.0000	0.0000	0.0000	0.0000
47	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
48	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
49	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
50	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
51	42.6811	-0.0001	0.0000	0.0000	0.0000	0.0000
52	42.6809	0.0000	0.0000	0.0000	0.0000	0.0000
53	42.6808	0.0001	0.0000	0.0000	0.0000	0.0000
54	42.6807	0.0001	0.0000	0.0000	0.0000	0.0000
55	42.6807	0.0001	0.0000	0.0000	0.0000	0.0000
56	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
57	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
58	42.6805	0.0000	0.0000	0.0000	0.0000	0.0000
59	42.6805	0.0000	0.0000	0.0000	0.0000	0.0000
60	42.6805	0.0000	0.0000	0.0000	0.0000	0.0000
61	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
62	42.6819	0.0000	0.0000	0.0000	0.0000	0.0000
63	42.6811	0.0000	0.0000	0.0000	0.0000	0.0000
64	42.6808	0.0000	0.0000	0.0000	0.0000	0.0000
65	42.6807	0.0000	0.0000	0.0000	0.0000	0.0000
66	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
67	42.6805	0.0000	0.0000	0.0000	0.0000	0.0000
68	42.6805	0.0000	0.0000	0.0000	0.0000	0.0000
69	42.6805	0.0000	0.0000	0.0000	0.0000	0.0000
70	42.6811	0.0001	0.0000	0.0000	0.0000	0.0000
71	42.6809	0.0000	0.0000	0.0000	0.0000	0.0000
72	42.6808	-0.0001	0.0000	0.0000	0.0000	0.0000
73	42.6807	-0.0001	0.0000	0.0000	0.0000	0.0000
74	42.6807	-0.0001	0.0000	0.0000	0.0000	0.0000
75	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
76	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
77	42.6805	0.0000	0.0000	0.0000	0.0000	0.0000
78	42.6805	0.0000	0.0000	0.0000	0.0000	0.0000
79	42.6805	0.0000	0.0000	0.0000	0.0000	0.0000
80	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
81	42.6809	0.0001	0.0000	0.0000	0.0000	0.0000
82	42.6808	0.0000	0.0000	0.0000	0.0000	0.0000
83	42.6807	-0.0001	0.0000	0.0000	0.0000	0.0000
84	42.6807	-0.0001	0.0000	0.0000	0.0000	0.0000
85	42.6806	-0.0001	0.0000	0.0000	0.0000	0.0000
86	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
87	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
88	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

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404	42.6806	-0.0001	0.0000	0.0000	0.0000	0.0000
405	42.6806	-0.0001	0.0000	0.0000	0.0000	0.0000
406	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
407	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
408	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
409	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
410	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
411	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
412	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
413	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
414	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
415	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
416	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
417	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
418	42.6806	-0.0001	0.0000	0.0000	0.0000	0.0000
419	42.6806	-0.0001	0.0000	0.0000	0.0000	0.0000
420	42.6806	-0.0001	0.0000	0.0000	0.0000	0.0000
421	42.6806	-0.0001	0.0000	0.0000	0.0000	0.0000
422	42.6806	-0.0001	0.0000	0.0000	0.0000	0.0000
423	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
424	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
425	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
426	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
427	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
428	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
429	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
430	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
431	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
432	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
433	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
434	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
435	42.6806	-0.0001	0.0000	0.0000	0.0000	0.0000
436	42.6806	-0.0001	0.0000	0.0000	0.0000	0.0000
437	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
438	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
439	42.6806	0.0000	0.0000	0.0000	0.0000	0.0000
440	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
441	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1
 Steel type = 4 (For Description see Users Manual)
 Maximum = 0.7082E-02
 Minimum = -0.7082E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)
 X Direction = -31.3620 Kips
 Y Direction = 0.0008 Kips
 Z Direction = 0.0000 Kips
 Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.35613E-11	0.18864E-12
2	0.31993E-11	0.20809E-12
3	0.21140E-11	-0.27274E-11
4	0.29627E-11	0.15094E-12
5	0.32468E-11	0.10599E-12
6	0.34653E-11	0.53123E-13
7	0.20743E-11	-0.12596E-11
8	0.13401E-11	-0.18232E-11
9	0.67613E-12	-0.76994E-12

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.64555E+01	-0.14507E+02
2	0.64555E+01	-0.14507E+02
3	0.67899E+01	-0.15536E+02
4	0.64556E+01	-0.14507E+02
5	0.64555E+01	-0.14507E+02
6	0.76870E+01	-0.17470E+02
7	0.64555E+01	-0.14507E+02
8	0.67899E+01	-0.15536E+02
9	0.64555E+01	-0.14507E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.36603E-04	-0.19865E-04
2	0.38319E-04	-0.20797E-04
3	0.12554E-04	-0.68117E-05
4	0.15236E-07	-0.28084E-07
5	0.19017E-07	-0.35055E-07
6	0.15622E-06	-0.84750E-07
7	0.21017E-04	-0.38725E-04
8	0.66863E-05	-0.12323E-04
9	0.19964E-04	-0.36785E-04

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	450	0.26333E+02	0.3900E-04	0.14500E+02	-0.2880E-03
2	470	0.26333E+02	0.4083E-04	0.14500E+02	-0.3016E-03
3	491	0.28700E+02	0.1338E-04	0.14500E+02	-0.9877E-04
4	506	0.16867E+02	0.2209E-06	0.26333E+02	-0.2992E-07
5	526	0.16867E+02	0.2758E-06	0.26333E+02	-0.3735E-07
6	551	0.28700E+02	0.1664E-06	0.14500E+02	-0.1229E-05
7	566	0.16867E+02	0.3047E-03	0.26333E+02	-0.4126E-04
8	586	0.16867E+02	0.9695E-04	0.28700E+02	-0.1313E-04

9 606 0.16867E+02 12 SUPERPILE.out 0.2895E-03 0.28700E+02 -0.3920E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	453	0.33433E+02	3.604	0.19233E+02	-111.2
2	473	0.33433E+02	3.604	0.19233E+02	-111.2
3	492	0.31067E+02	4.023	0.21600E+02	-114.4
4	513	0.33433E+02	3.604	0.21600E+02	-111.2
5	533	0.33433E+02	3.604	0.21600E+02	-111.2
6	553	0.33433E+02	3.181	0.16867E+02	-123.9
7	573	0.33433E+02	3.604	0.21600E+02	-111.2
8	593	0.33433E+02	4.023	0.21600E+02	-114.4
9	613	0.33433E+02	3.604	0.19233E+02	-111.2

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM	PROP	NODE	LOAD	FAX	F22	F33	M22	M33	TORQUE
D/C									
NO.	NO.	NO.	CASE	(Kips)	(Kips)	(Kips)	(Kip-ft)	(Kip-ft)	
(Kip-ft)		(Ratio)							

! -> Pile Number 1 !

1	1	1	1	0.00	6.46	0.00	0.00	0.00	
0.00		0.00							
	1	442	1	0.00	-6.46	0.00	0.00	-18.72	
0.00		0.08							
2	1	442	1	0.00	6.46	0.00	0.00	18.72	
0.00		0.08							
	1	443	1	0.00	-6.46	0.00	0.00	-37.44	
0.00		0.17							
3	1	443	1	0.00	6.46	0.00	0.00	37.44	
0.00		0.17							
	1	444	1	0.00	-6.46	0.00	0.00	-56.16	
0.00		0.25							
4	1	444	1	0.00	6.46	0.00	0.00	56.16	
0.00		0.25							
	1	445	1	0.00	-6.46	0.00	0.00	-74.88	
0.00		0.33							
5	1	445	1	0.00	6.46	0.00	0.00	74.88	
0.00		0.33							
	1	446	1	0.00	-6.46	0.00	0.00	-93.61	
0.00		0.42							
6	1	446	1	0.00	5.36	0.00	0.00	93.61	
0.00		0.42							
	1	447	1	0.00	-5.36	0.00	0.00	-106.30	
0.00		0.47							
7	1	447	1	0.00	2.06	0.00	0.00	106.30	
0.00		0.47							

				12 SUPERPILE.out				
	1	448	1	0.00	-2.06	0.00	0.00	-111.17
0.00		0.50						
8	1	448	1	0.00	-2.66	0.00	0.00	111.17
0.00		0.50						
	1	449	1	0.00	2.66	0.00	0.00	-104.88
0.00		0.47						
9	1	449	1	0.00	-12.60	0.00	0.00	104.88
0.00		0.47						
	1	450	1	0.00	12.60	0.00	0.00	-75.06
0.00		0.33						
10	1	450	1	0.00	-14.51	0.00	0.00	75.06
0.00		0.33						
	1	451	1	0.00	14.51	0.00	0.00	-40.73
0.00		0.18						
11	1	451	1	0.00	-14.12	0.00	0.00	40.73
0.00		0.18						
	1	452	1	0.00	14.12	0.00	0.00	-7.31
0.00		0.03						
12	1	452	1	0.00	-4.61	0.00	0.00	7.31
0.00		0.03						
	1	453	1	0.00	4.61	0.00	0.00	3.60
0.00		0.02						
13	1	453	1	0.00	0.39	0.00	0.00	-3.60
0.00		0.02						
	1	454	1	0.00	-0.39	0.00	0.00	2.67
0.00		0.01						
14	1	454	1	0.00	0.92	0.00	0.00	-2.67
0.00		0.01						
	1	455	1	0.00	-0.92	0.00	0.00	0.50
0.00		0.00						
15	1	455	1	0.00	0.29	0.00	0.00	-0.50
0.00		0.00						
	1	456	1	0.00	-0.29	0.00	0.00	-0.18
0.00		0.00						
16	1	456	1	0.00	-0.03	0.00	0.00	0.18
0.00		0.00						
	1	457	1	0.00	0.03	0.00	0.00	-0.12
0.00		0.00						
17	1	457	1	0.00	-0.04	0.00	0.00	0.12
0.00		0.00						
	1	458	1	0.00	0.04	0.00	0.00	-0.01
0.00		0.00						
18	1	458	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	459	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
19	1	459	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	460	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
20	1	460	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	461	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 2 !

21	1	2	1	0.00	6.46	0.00	0.00	0.00
0.00		0.00						
	1	462	1	0.00	-6.46	0.00	0.00	-18.72
0.00		0.08						
22	1	462	1	0.00	6.46	0.00	0.00	18.72

12 SUPERPILE.out

0.00		0.08						
	1	463	1	0.00	-6.46	0.00	0.00	-37.44
0.00		0.17						
23	1	463	1	0.00	6.46	0.00	0.00	37.44
0.00		0.17						
	1	464	1	0.00	-6.46	0.00	0.00	-56.16
0.00		0.25						
24	1	464	1	0.00	6.46	0.00	0.00	56.16
0.00		0.25						
	1	465	1	0.00	-6.46	0.00	0.00	-74.88
0.00		0.33						
25	1	465	1	0.00	6.46	0.00	0.00	74.88
0.00		0.33						
	1	466	1	0.00	-6.46	0.00	0.00	-93.61
0.00		0.42						
26	1	466	1	0.00	5.36	0.00	0.00	93.61
0.00		0.42						
	1	467	1	0.00	-5.36	0.00	0.00	-106.30
0.00		0.47						
27	1	467	1	0.00	2.06	0.00	0.00	106.30
0.00		0.47						
	1	468	1	0.00	-2.06	0.00	0.00	-111.17
0.00		0.50						
28	1	468	1	0.00	-2.66	0.00	0.00	111.17
0.00		0.50						
	1	469	1	0.00	2.66	0.00	0.00	-104.88
0.00		0.47						
29	1	469	1	0.00	-12.60	0.00	0.00	104.88
0.00		0.47						
	1	470	1	0.00	12.60	0.00	0.00	-75.06
0.00		0.33						
30	1	470	1	0.00	-14.51	0.00	0.00	75.06
0.00		0.33						
	1	471	1	0.00	14.51	0.00	0.00	-40.73
0.00		0.18						
31	1	471	1	0.00	-14.12	0.00	0.00	40.73
0.00		0.18						
	1	472	1	0.00	14.12	0.00	0.00	-7.31
0.00		0.03						
32	1	472	1	0.00	-4.61	0.00	0.00	7.31
0.00		0.03						
	1	473	1	0.00	4.61	0.00	0.00	3.60
0.00		0.02						
33	1	473	1	0.00	0.39	0.00	0.00	-3.60
0.00		0.02						
	1	474	1	0.00	-0.39	0.00	0.00	2.67
0.00		0.01						
34	1	474	1	0.00	0.92	0.00	0.00	-2.67
0.00		0.01						
	1	475	1	0.00	-0.92	0.00	0.00	0.50
0.00		0.00						
35	1	475	1	0.00	0.29	0.00	0.00	-0.50
0.00		0.00						
	1	476	1	0.00	-0.29	0.00	0.00	-0.18
0.00		0.00						
36	1	476	1	0.00	-0.03	0.00	0.00	0.18
0.00		0.00						
	1	477	1	0.00	0.03	0.00	0.00	-0.12
0.00		0.00						
37	1	477	1	0.00	-0.04	0.00	0.00	0.12
0.00		0.00						
	1	478	1	0.00	0.04	0.00	0.00	-0.01
0.00		0.00						

				12 SUPERPILE.out				
38	1	478	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	479	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
39	1	479	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	480	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
40	1	480	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	481	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 3 !

41	1	3	1	0.00	6.79	0.00	0.00	0.00
0.00		0.00						
	1	482	1	0.00	-6.79	0.00	0.00	-19.69
0.00		0.09						
42	1	482	1	0.00	6.79	0.00	0.00	19.69
0.00		0.09						
	1	483	1	0.00	-6.79	0.00	0.00	-39.38
0.00		0.18						
43	1	483	1	0.00	6.79	0.00	0.00	39.38
0.00		0.18						
	1	484	1	0.00	-6.79	0.00	0.00	-59.07
0.00		0.26						
44	1	484	1	0.00	6.79	0.00	0.00	59.07
0.00		0.26						
	1	485	1	0.00	-6.79	0.00	0.00	-78.76
0.00		0.35						
45	1	485	1	0.00	6.79	0.00	0.00	78.76
0.00		0.35						
	1	486	1	0.00	-6.79	0.00	0.00	-98.45
0.00		0.44						
46	1	486	1	0.00	5.40	0.00	0.00	98.45
0.00		0.44						
	1	487	1	0.00	-5.40	0.00	0.00	-111.24
0.00		0.50						
47	1	487	1	0.00	1.32	0.00	0.00	111.24
0.00		0.50						
	1	488	1	0.00	-1.32	0.00	0.00	-114.37
0.00		0.51						
48	1	488	1	0.00	-4.19	0.00	0.00	114.37
0.00		0.51						
	1	489	1	0.00	4.19	0.00	0.00	-104.45
0.00		0.47						
49	1	489	1	0.00	-13.80	0.00	0.00	104.45
0.00		0.47						
	1	490	1	0.00	13.80	0.00	0.00	-71.78
0.00		0.32						
50	1	490	1	0.00	-15.54	0.00	0.00	71.78
0.00		0.32						
	1	491	1	0.00	15.54	0.00	0.00	-35.01
0.00		0.16						
51	1	491	1	0.00	-13.34	0.00	0.00	35.01
0.00		0.16						
	1	492	1	0.00	13.34	0.00	0.00	-3.44
0.00		0.02						
52	1	492	1	0.00	-3.15	0.00	0.00	3.44
0.00		0.02						
	1	493	1	0.00	3.15	0.00	0.00	4.02

12 SUPERPILE.out

0.00		0.02						
53	1	493	1	0.00	0.89	0.00	0.00	-4.02
0.00		0.02						
	1	494	1	0.00	-0.89	0.00	0.00	1.92
0.00		0.01						
54	1	494	1	0.00	0.77	0.00	0.00	-1.92
0.00		0.01						
	1	495	1	0.00	-0.77	0.00	0.00	0.10
0.00		0.00						
55	1	495	1	0.00	0.12	0.00	0.00	-0.10
0.00		0.00						
	1	496	1	0.00	-0.12	0.00	0.00	-0.20
0.00		0.00						
56	1	496	1	0.00	-0.06	0.00	0.00	0.20
0.00		0.00						
	1	497	1	0.00	0.06	0.00	0.00	-0.06
0.00		0.00						
57	1	497	1	0.00	-0.03	0.00	0.00	0.06
0.00		0.00						
	1	498	1	0.00	0.03	0.00	0.00	0.01
0.00		0.00						
58	1	498	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	499	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
59	1	499	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	500	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
60	1	500	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	501	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 4 !

61	1	4	1	0.00	6.46	0.00	0.00	0.00
0.00		0.00						
	1	502	1	0.00	-6.46	0.00	0.00	-18.72
0.00		0.08						
62	1	502	1	0.00	6.46	0.00	0.00	18.72
0.00		0.08						
	1	503	1	0.00	-6.46	0.00	0.00	-37.44
0.00		0.17						
63	1	503	1	0.00	6.46	0.00	0.00	37.44
0.00		0.17						
	1	504	1	0.00	-6.46	0.00	0.00	-56.16
0.00		0.25						
64	1	504	1	0.00	6.46	0.00	0.00	56.16
0.00		0.25						
	1	505	1	0.00	-6.46	0.00	0.00	-74.88
0.00		0.33						
65	1	505	1	0.00	6.46	0.00	0.00	74.88
0.00		0.33						
	1	506	1	0.00	-6.46	0.00	0.00	-93.61
0.00		0.42						
66	1	506	1	0.00	5.36	0.00	0.00	93.61
0.00		0.42						
	1	507	1	0.00	-5.36	0.00	0.00	-106.30
0.00		0.47						
67	1	507	1	0.00	2.06	0.00	0.00	106.30
0.00		0.47						

12 SUPERPILE.out								
0.00	1	508	1	0.00	-2.06	0.00	0.00	-111.17
0.00	68	0.50						
0.00	1	508	1	0.00	-2.66	0.00	0.00	111.17
		0.50						
0.00	1	509	1	0.00	2.66	0.00	0.00	-104.88
0.00		0.47						
0.00	69	509	1	0.00	-12.60	0.00	0.00	104.88
0.00		0.47						
0.00	1	510	1	0.00	12.60	0.00	0.00	-75.06
0.00		0.33						
0.00	70	510	1	0.00	-14.51	0.00	0.00	75.06
0.00		0.33						
0.00	1	511	1	0.00	14.51	0.00	0.00	-40.73
0.00		0.18						
0.00	71	511	1	0.00	-14.12	0.00	0.00	40.73
0.00		0.18						
0.00	1	512	1	0.00	14.12	0.00	0.00	-7.31
0.00		0.03						
0.00	72	512	1	0.00	-4.61	0.00	0.00	7.31
0.00		0.03						
0.00	1	513	1	0.00	4.61	0.00	0.00	3.60
0.00		0.02						
0.00	73	513	1	0.00	0.39	0.00	0.00	-3.60
0.00		0.02						
0.00	1	514	1	0.00	-0.39	0.00	0.00	2.67
0.00		0.01						
0.00	74	514	1	0.00	0.92	0.00	0.00	-2.67
0.00		0.01						
0.00	1	515	1	0.00	-0.92	0.00	0.00	0.50
0.00		0.00						
0.00	75	515	1	0.00	0.29	0.00	0.00	-0.50
0.00		0.00						
0.00	1	516	1	0.00	-0.29	0.00	0.00	-0.18
0.00		0.00						
0.00	76	516	1	0.00	-0.03	0.00	0.00	0.18
0.00		0.00						
0.00	1	517	1	0.00	0.03	0.00	0.00	-0.12
0.00		0.00						
0.00	77	517	1	0.00	-0.04	0.00	0.00	0.12
0.00		0.00						
0.00	1	518	1	0.00	0.04	0.00	0.00	-0.01
0.00		0.00						
0.00	78	518	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
0.00	1	519	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
0.00	79	519	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
0.00	1	520	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	80	520	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	521	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 5 !

81	1	5	1	0.00	6.46	0.00	0.00	0.00
0.00		0.00						
0.00	1	522	1	0.00	-6.46	0.00	0.00	-18.72
		0.08						
82	1	522	1	0.00	6.46	0.00	0.00	18.72

12 SUPERPILE.out

0.00		0.08						
	1	523	1	0.00	-6.46	0.00	0.00	-37.44
0.00		0.17						
83	1	523	1	0.00	6.46	0.00	0.00	37.44
0.00		0.17						
	1	524	1	0.00	-6.46	0.00	0.00	-56.16
0.00		0.25						
84	1	524	1	0.00	6.46	0.00	0.00	56.16
0.00		0.25						
	1	525	1	0.00	-6.46	0.00	0.00	-74.88
0.00		0.33						
85	1	525	1	0.00	6.46	0.00	0.00	74.88
0.00		0.33						
	1	526	1	0.00	-6.46	0.00	0.00	-93.61
0.00		0.42						
86	1	526	1	0.00	5.36	0.00	0.00	93.61
0.00		0.42						
	1	527	1	0.00	-5.36	0.00	0.00	-106.30
0.00		0.47						
87	1	527	1	0.00	2.06	0.00	0.00	106.30
0.00		0.47						
	1	528	1	0.00	-2.06	0.00	0.00	-111.17
0.00		0.50						
88	1	528	1	0.00	-2.66	0.00	0.00	111.17
0.00		0.50						
	1	529	1	0.00	2.66	0.00	0.00	-104.88
0.00		0.47						
89	1	529	1	0.00	-12.60	0.00	0.00	104.88
0.00		0.47						
	1	530	1	0.00	12.60	0.00	0.00	-75.06
0.00		0.33						
90	1	530	1	0.00	-14.51	0.00	0.00	75.06
0.00		0.33						
	1	531	1	0.00	14.51	0.00	0.00	-40.73
0.00		0.18						
91	1	531	1	0.00	-14.12	0.00	0.00	40.73
0.00		0.18						
	1	532	1	0.00	14.12	0.00	0.00	-7.31
0.00		0.03						
92	1	532	1	0.00	-4.61	0.00	0.00	7.31
0.00		0.03						
	1	533	1	0.00	4.61	0.00	0.00	3.60
0.00		0.02						
93	1	533	1	0.00	0.39	0.00	0.00	-3.60
0.00		0.02						
	1	534	1	0.00	-0.39	0.00	0.00	2.67
0.00		0.01						
94	1	534	1	0.00	0.92	0.00	0.00	-2.67
0.00		0.01						
	1	535	1	0.00	-0.92	0.00	0.00	0.50
0.00		0.00						
95	1	535	1	0.00	0.29	0.00	0.00	-0.50
0.00		0.00						
	1	536	1	0.00	-0.29	0.00	0.00	-0.18
0.00		0.00						
96	1	536	1	0.00	-0.03	0.00	0.00	0.18
0.00		0.00						
	1	537	1	0.00	0.03	0.00	0.00	-0.12
0.00		0.00						
97	1	537	1	0.00	-0.04	0.00	0.00	0.12
0.00		0.00						
	1	538	1	0.00	0.04	0.00	0.00	-0.01
0.00		0.00						

				12 SUPERPILE.out				
98	1	538	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	539	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
99	1	539	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	540	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
100	1	540	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	541	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 6 !

101	1	6	1	0.00	7.69	0.00	0.00	0.00
0.00		0.00						
	1	542	1	0.00	-7.69	0.00	0.00	-22.29
0.00		0.10						
102	1	542	1	0.00	7.69	0.00	0.00	22.29
0.00		0.10						
	1	543	1	0.00	-7.69	0.00	0.00	-44.58
0.00		0.20						
103	1	543	1	0.00	7.69	0.00	0.00	44.58
0.00		0.20						
	1	544	1	0.00	-7.69	0.00	0.00	-66.88
0.00		0.30						
104	1	544	1	0.00	7.69	0.00	0.00	66.88
0.00		0.30						
	1	545	1	0.00	-7.69	0.00	0.00	-89.17
0.00		0.40						
105	1	545	1	0.00	7.69	0.00	0.00	89.17
0.00		0.40						
	1	546	1	0.00	-7.69	0.00	0.00	-111.46
0.00		0.50						
106	1	546	1	0.00	5.27	0.00	0.00	111.46
0.00		0.50						
	1	547	1	0.00	-5.27	0.00	0.00	-123.94
0.00		0.55						
107	1	547	1	0.00	-1.25	0.00	0.00	123.94
0.00		0.55						
	1	548	1	0.00	1.25	0.00	0.00	-120.99
0.00		0.54						
108	1	548	1	0.00	-8.67	0.00	0.00	120.99
0.00		0.54						
	1	549	1	0.00	8.67	0.00	0.00	-100.47
0.00		0.45						
109	1	549	1	0.00	-16.44	0.00	0.00	100.47
0.00		0.45						
	1	550	1	0.00	16.44	0.00	0.00	-61.55
0.00		0.27						
110	1	550	1	0.00	-17.47	0.00	0.00	61.55
0.00		0.27						
	1	551	1	0.00	17.47	0.00	0.00	-20.20
0.00		0.09						
111	1	551	1	0.00	-9.83	0.00	0.00	20.20
0.00		0.09						
	1	552	1	0.00	9.83	0.00	0.00	3.07
0.00		0.01						
112	1	552	1	0.00	-0.05	0.00	0.00	-3.07
0.00		0.01						
	1	553	1	0.00	0.05	0.00	0.00	3.18

12 SUPERPILE.out

0.00		0.01						
113	1	553	1	0.00	1.19	0.00	0.00	-3.18
0.00		0.01						
	1	554	1	0.00	-1.19	0.00	0.00	0.37
0.00		0.00						
114	1	554	1	0.00	0.26	0.00	0.00	-0.37
0.00		0.00						
	1	555	1	0.00	-0.26	0.00	0.00	-0.23
0.00		0.00						
115	1	555	1	0.00	-0.07	0.00	0.00	0.23
0.00		0.00						
	1	556	1	0.00	0.07	0.00	0.00	-0.07
0.00		0.00						
116	1	556	1	0.00	-0.03	0.00	0.00	0.07
0.00		0.00						
	1	557	1	0.00	0.03	0.00	0.00	0.01
0.00		0.00						
117	1	557	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	558	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
118	1	558	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	559	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
119	1	559	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	560	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
120	1	560	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	561	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 7 !

121	1	7	1	0.00	6.46	0.00	0.00	0.00
0.00		0.00						
	1	562	1	0.00	-6.46	0.00	0.00	-18.72
0.00		0.08						
122	1	562	1	0.00	6.46	0.00	0.00	18.72
0.00		0.08						
	1	563	1	0.00	-6.46	0.00	0.00	-37.44
0.00		0.17						
123	1	563	1	0.00	6.46	0.00	0.00	37.44
0.00		0.17						
	1	564	1	0.00	-6.46	0.00	0.00	-56.16
0.00		0.25						
124	1	564	1	0.00	6.46	0.00	0.00	56.16
0.00		0.25						
	1	565	1	0.00	-6.46	0.00	0.00	-74.88
0.00		0.33						
125	1	565	1	0.00	6.46	0.00	0.00	74.88
0.00		0.33						
	1	566	1	0.00	-6.46	0.00	0.00	-93.61
0.00		0.42						
126	1	566	1	0.00	5.36	0.00	0.00	93.61
0.00		0.42						
	1	567	1	0.00	-5.36	0.00	0.00	-106.30
0.00		0.47						
127	1	567	1	0.00	2.06	0.00	0.00	106.30
0.00		0.47						

12 SUPERPILE.out								
0.00	1	568	1	0.00	-2.06	0.00	0.00	-111.17
0.00		0.50						
128	1	568	1	0.00	-2.66	0.00	0.00	111.17
0.00		0.50						
0.00	1	569	1	0.00	2.66	0.00	0.00	-104.88
0.00		0.47						
129	1	569	1	0.00	-12.60	0.00	0.00	104.88
0.00		0.47						
0.00	1	570	1	0.00	12.60	0.00	0.00	-75.06
0.00		0.33						
130	1	570	1	0.00	-14.51	0.00	0.00	75.06
0.00		0.33						
0.00	1	571	1	0.00	14.51	0.00	0.00	-40.73
0.00		0.18						
131	1	571	1	0.00	-14.12	0.00	0.00	40.73
0.00		0.18						
0.00	1	572	1	0.00	14.12	0.00	0.00	-7.31
0.00		0.03						
132	1	572	1	0.00	-4.61	0.00	0.00	7.31
0.00		0.03						
0.00	1	573	1	0.00	4.61	0.00	0.00	3.60
0.00		0.02						
133	1	573	1	0.00	0.39	0.00	0.00	-3.60
0.00		0.02						
0.00	1	574	1	0.00	-0.39	0.00	0.00	2.67
0.00		0.01						
134	1	574	1	0.00	0.92	0.00	0.00	-2.67
0.00		0.01						
0.00	1	575	1	0.00	-0.92	0.00	0.00	0.50
0.00		0.00						
135	1	575	1	0.00	0.29	0.00	0.00	-0.50
0.00		0.00						
0.00	1	576	1	0.00	-0.29	0.00	0.00	-0.18
0.00		0.00						
136	1	576	1	0.00	-0.03	0.00	0.00	0.18
0.00		0.00						
0.00	1	577	1	0.00	0.03	0.00	0.00	-0.12
0.00		0.00						
137	1	577	1	0.00	-0.04	0.00	0.00	0.12
0.00		0.00						
0.00	1	578	1	0.00	0.04	0.00	0.00	-0.01
0.00		0.00						
138	1	578	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
0.00	1	579	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
139	1	579	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
0.00	1	580	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
140	1	580	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	581	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 8 !

141	1	8	1	0.00	6.79	0.00	0.00	0.00
0.00		0.00						
0.00	1	582	1	0.00	-6.79	0.00	0.00	-19.69
0.00		0.09						
142	1	582	1	0.00	6.79	0.00	0.00	19.69

12 SUPERPILE.out

0.00		0.09						
	1	583	1	0.00	-6.79	0.00	0.00	-39.38
0.00		0.18						
143	1	583	1	0.00	6.79	0.00	0.00	39.38
0.00		0.18						
	1	584	1	0.00	-6.79	0.00	0.00	-59.07
0.00		0.26						
144	1	584	1	0.00	6.79	0.00	0.00	59.07
0.00		0.26						
	1	585	1	0.00	-6.79	0.00	0.00	-78.76
0.00		0.35						
145	1	585	1	0.00	6.79	0.00	0.00	78.76
0.00		0.35						
	1	586	1	0.00	-6.79	0.00	0.00	-98.45
0.00		0.44						
146	1	586	1	0.00	5.40	0.00	0.00	98.45
0.00		0.44						
	1	587	1	0.00	-5.40	0.00	0.00	-111.24
0.00		0.50						
147	1	587	1	0.00	1.32	0.00	0.00	111.24
0.00		0.50						
	1	588	1	0.00	-1.32	0.00	0.00	-114.37
0.00		0.51						
148	1	588	1	0.00	-4.19	0.00	0.00	114.37
0.00		0.51						
	1	589	1	0.00	4.19	0.00	0.00	-104.45
0.00		0.47						
149	1	589	1	0.00	-13.80	0.00	0.00	104.45
0.00		0.47						
	1	590	1	0.00	13.80	0.00	0.00	-71.78
0.00		0.32						
150	1	590	1	0.00	-15.54	0.00	0.00	71.78
0.00		0.32						
	1	591	1	0.00	15.54	0.00	0.00	-35.01
0.00		0.16						
151	1	591	1	0.00	-13.34	0.00	0.00	35.01
0.00		0.16						
	1	592	1	0.00	13.34	0.00	0.00	-3.44
0.00		0.02						
152	1	592	1	0.00	-3.15	0.00	0.00	3.44
0.00		0.02						
	1	593	1	0.00	3.15	0.00	0.00	4.02
0.00		0.02						
153	1	593	1	0.00	0.89	0.00	0.00	-4.02
0.00		0.02						
	1	594	1	0.00	-0.89	0.00	0.00	1.92
0.00		0.01						
154	1	594	1	0.00	0.77	0.00	0.00	-1.92
0.00		0.01						
	1	595	1	0.00	-0.77	0.00	0.00	0.10
0.00		0.00						
155	1	595	1	0.00	0.12	0.00	0.00	-0.10
0.00		0.00						
	1	596	1	0.00	-0.12	0.00	0.00	-0.20
0.00		0.00						
156	1	596	1	0.00	-0.06	0.00	0.00	0.20
0.00		0.00						
	1	597	1	0.00	0.06	0.00	0.00	-0.06
0.00		0.00						
157	1	597	1	0.00	-0.03	0.00	0.00	0.06
0.00		0.00						
	1	598	1	0.00	0.03	0.00	0.00	0.01
0.00		0.00						

12 SUPERPILE.out

158	1	598	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	599	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
159	1	599	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	600	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
160	1	600	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	601	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 9 !

161	1	9	1	0.00	6.46	0.00	0.00	0.00
0.00		0.00						
	1	602	1	0.00	-6.46	0.00	0.00	-18.72
0.00		0.08						
162	1	602	1	0.00	6.46	0.00	0.00	18.72
0.00		0.08						
	1	603	1	0.00	-6.46	0.00	0.00	-37.44
0.00		0.17						
163	1	603	1	0.00	6.46	0.00	0.00	37.44
0.00		0.17						
	1	604	1	0.00	-6.46	0.00	0.00	-56.16
0.00		0.25						
164	1	604	1	0.00	6.46	0.00	0.00	56.16
0.00		0.25						
	1	605	1	0.00	-6.46	0.00	0.00	-74.88
0.00		0.33						
165	1	605	1	0.00	6.46	0.00	0.00	74.88
0.00		0.33						
	1	606	1	0.00	-6.46	0.00	0.00	-93.61
0.00		0.42						
166	1	606	1	0.00	5.36	0.00	0.00	93.61
0.00		0.42						
	1	607	1	0.00	-5.36	0.00	0.00	-106.30
0.00		0.47						
167	1	607	1	0.00	2.06	0.00	0.00	106.30
0.00		0.47						
	1	608	1	0.00	-2.06	0.00	0.00	-111.17
0.00		0.50						
168	1	608	1	0.00	-2.66	0.00	0.00	111.17
0.00		0.50						
	1	609	1	0.00	2.66	0.00	0.00	-104.88
0.00		0.47						
169	1	609	1	0.00	-12.60	0.00	0.00	104.88
0.00		0.47						
	1	610	1	0.00	12.60	0.00	0.00	-75.06
0.00		0.33						
170	1	610	1	0.00	-14.51	0.00	0.00	75.06
0.00		0.33						
	1	611	1	0.00	14.51	0.00	0.00	-40.73
0.00		0.18						
171	1	611	1	0.00	-14.12	0.00	0.00	40.73
0.00		0.18						
	1	612	1	0.00	14.12	0.00	0.00	-7.31
0.00		0.03						
172	1	612	1	0.00	-4.61	0.00	0.00	7.31
0.00		0.03						
	1	613	1	0.00	4.61	0.00	0.00	3.60

12 SUPERPILE.out

0.00		0.02						
173	1	613	1	0.00	0.39	0.00	0.00	-3.60
0.00		0.02						
	1	614	1	0.00	-0.39	0.00	0.00	2.67
0.00		0.01						
174	1	614	1	0.00	0.92	0.00	0.00	-2.67
0.00		0.01						
	1	615	1	0.00	-0.92	0.00	0.00	0.50
0.00		0.00						
175	1	615	1	0.00	0.29	0.00	0.00	-0.50
0.00		0.00						
	1	616	1	0.00	-0.29	0.00	0.00	-0.18
0.00		0.00						
176	1	616	1	0.00	-0.03	0.00	0.00	0.18
0.00		0.00						
	1	617	1	0.00	0.03	0.00	0.00	-0.12
0.00		0.00						
177	1	617	1	0.00	-0.04	0.00	0.00	0.12
0.00		0.00						
	1	618	1	0.00	0.04	0.00	0.00	-0.01
0.00		0.00						
178	1	618	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	619	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
179	1	619	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	620	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
180	1	620	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	621	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.3561E-11 Kip	1	0	1
Min Axial Force	-0.2727E-11 Kip	1	0	3
Max Shear in 2 Direction	0.7687E+01 Kip	1	0	6
Min Shear in 2 Direction	-0.1747E+02 Kip	1	0	6
Max Shear in 3 Direction	0.3832E-04 Kip	1	0	2
Min Shear in 3 Direction	-0.3872E-04 Kip	1	0	7

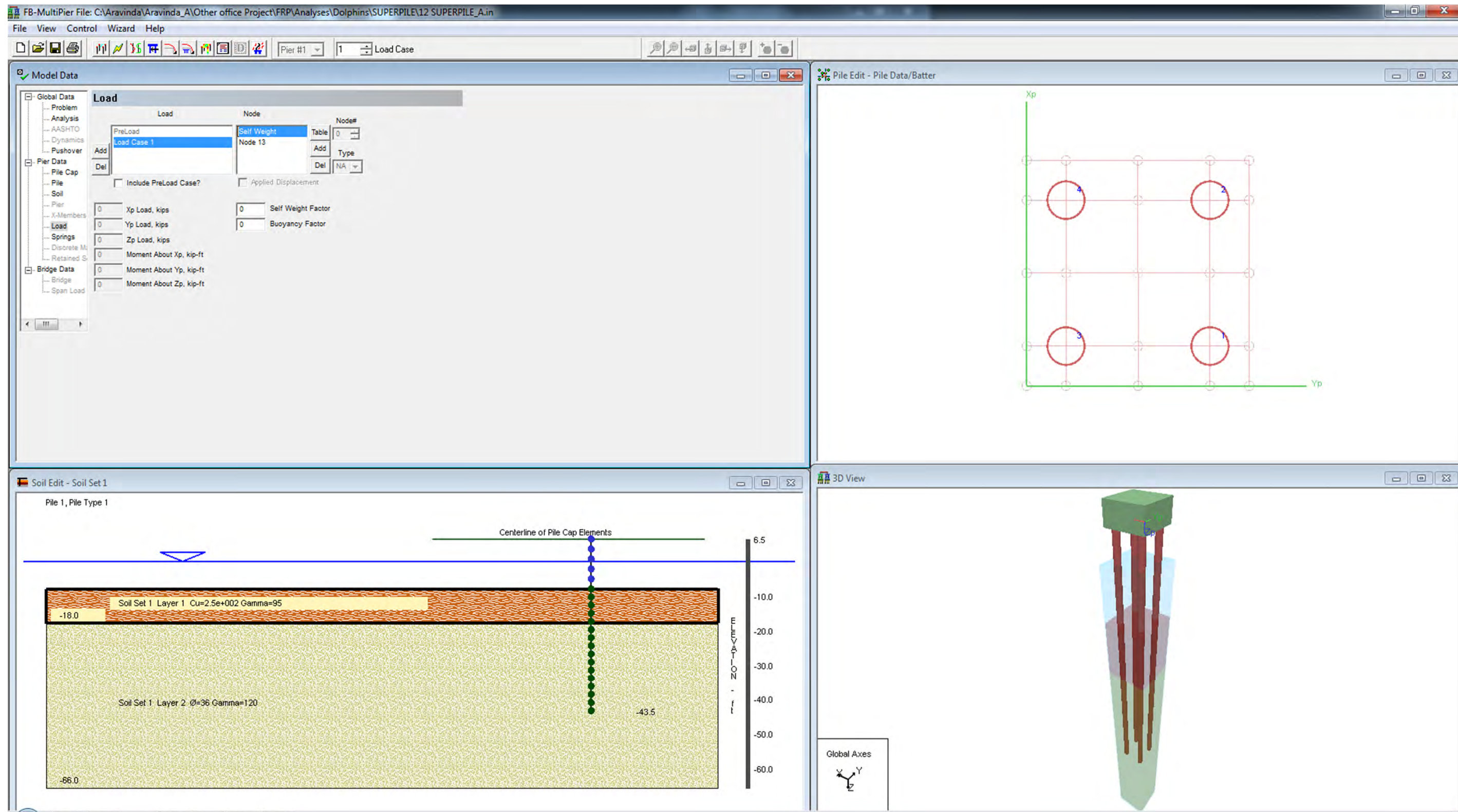
	12 SUPERPILE.out			
Max Moment about 2 Axis	0.3047E-03 Kip-ft	1	0	7
Min Moment about 2 Axis	-0.3016E-03 Kip-ft	1	0	2
Max Moment About 3 Axis	0.4023E+01 Kip-ft	1	0	8
Min Moment About 3 Axis	-0.1239E+03 Kip-ft	1	0	6
Max Torsional Force	0.2124E-03 Kip-ft	1	0	7
Min Torsional Force	-0.2033E-03 Kip-ft	1	0	2
Max Demand/Capacity Ratio	0.5521E+00	1	0	6

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.0000E+00 Kip	1	0	5
Min Axial Soil Force	-0.7956E-06 Kip	1	0	2
Max Lateral Force in X dir	0.2197E+01 Kip	1	0	6
Min Lateral Force in X dir	-0.6121E+01 Kip	1	0	6
Max Lateral Force in Y dir	0.2410E-01 Kip	1	0	7
Min Lateral Force in Y dir	-0.2402E-01 Kip	1	0	2
Max Torsional Soil Force	0.1091E-02 Kip-ft	1	0	2

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.3907E-11 in	1	0	8
Min Axial Displacement	-0.1686E-08 in	1	0	2
Max Displacement in X	0.4268E+02 in	1	0	4
Min Displacement in X	0.4268E+02 in	1	0	6
Max Displacement in Y	0.6778E-04 in	1	0	2
Min Displacement in Y	-0.6850E-04 in	1	0	7



12 SUPERPILE_A.in

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PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 2 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 1,0,0
I= 150 T= 20 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -70 -69.7 0 69.7 70 \
0 0 0 0 0 \
0 0 0 0 0
-0.02 -0.012 0 0.012 0.02 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.012
NL= 0 NG= 0 D= 12 V= 0 S= 80 TH= 0.5 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
5 5 5 5 : NPX, NPY, GSX, GSY
12 22 22 12
12 22 22 12
0.4 0.8
0.4 0.8
:
MISSING
21 : number of missing piles
1 1
2 1
3 1
4 1
5 1
1 2
3 2
5 2

```

12 SUPERPILE_A.in

```

1 3
2 3
3 3
4 3
5 3
1 4
3 4
5 4
1 5
2 5
3 5
4 5
5 5
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.25 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.25 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
LOAD
13 L= 1 F= 50 0 0 0 0 0
:
PADBC
:

```

```

!
! The University of Florida, Florida Department
! of Transportation, Drs. Marc Hoit, Mike McVay
! Cliff Hays, Mark Williams, Petros Christou, and
! Jae H. Chung
! disclaim any warranty, expressed or implied,
! including but not limited to, any implied
! warranty of fitness for a particular purpose
! or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
! incurred through the use of FB-MultiPier
!

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!
! :::: F B - M U L T I P I E R ::::
! FB-MultiPier Version 4.17
!

```

```

!
! Written by Marc Hoit, Mike McVay, Cliff Hays
! Mark Williams, Petros Christou, Jae H. Chung.
!

```

```

!
! Civil & Coastal Engineering, University of Florida
! Supported by Florida Department of Transportation
! and the Federal Highway Administration
!

```

```

!
! The program calculates the Response
! of the Bridge Pier Pile Soil Structures
!

```

```

!
! The Analysis includes PreLoad, Static,
! Transient Dynamic or Push Over
!

```

```

!
! The Program Handles NonLinear Soil Behavior,
! Linear Pile Cap and Linear and NonLinear Piles and Piers
!

```

```

!
! Contact: Bridge Software Institute for Support
! HTTP://BSI-WEB.CE.UFL.EDU
!

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*
* ANALYSIS RESULTS
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* RESULTS FOR LOAD CASE # 1 *
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NOTE : PY Multipliers are applied Lead to Trail row based on the actual displacement. If there is no displacement in a Lateral direction they are defaulted to 1.0. This can happen in Axial Load and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

PILE#	X-PYM	Y-PYM
1	0.400E+00	0.100E+01
2	0.800E+00	0.100E+01
3	0.400E+00	0.100E+01
4	0.800E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 2 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.023	Kips
FXX =	0.000	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYY =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	61.3190	0.0001	0.0000
2	61.3188	0.0001	0.0000
3	61.3190	-0.0001	0.0000
4	61.3188	-0.0001	0.0000

Pile Cap Displacements (Excluding Pile Heads)

5	61.3192	0.0001	0.0000	0.0000	0.0000	0.0000
6	61.3189	0.0001	0.0000	0.0000	0.0000	0.0000
7	61.3189	0.0002	0.0000	0.0000	0.0000	0.0000
8	61.3188	0.0001	0.0000	0.0000	0.0000	0.0000
9	61.3188	0.0001	0.0000	0.0000	0.0000	0.0000
10	61.3193	0.0000	0.0000	0.0000	0.0000	0.0000
11	61.3189	0.0001	0.0000	0.0000	0.0000	0.0000
12	61.3188	0.0001	0.0000	0.0000	0.0000	0.0000
13	61.3199	0.0000	0.0000	0.0000	0.0000	0.0000
14	61.3191	0.0000	0.0000	0.0000	0.0000	0.0000
15	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
16	61.3188	0.0000	0.0000	0.0000	0.0000	0.0000
17	61.3188	0.0000	0.0000	0.0000	0.0000	0.0000
18	61.3193	0.0000	0.0000	0.0000	0.0000	0.0000
19	61.3189	-0.0001	0.0000	0.0000	0.0000	0.0000
20	61.3188	-0.0001	0.0000	0.0000	0.0000	0.0000
21	61.3192	-0.0001	0.0000	0.0000	0.0000	0.0000
22	61.3189	-0.0001	0.0000	0.0000	0.0000	0.0000
23	61.3189	-0.0002	0.0000	0.0000	0.0000	0.0000
24	61.3188	-0.0001	0.0000	0.0000	0.0000	0.0000
25	61.3188	-0.0001	0.0000	0.0000	0.0000	0.0000
26	61.3189	-0.0001	0.0000	0.0000	0.0000	0.0000
27	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
28	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
29	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000

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30	61.3189	-0.0002	0.0000	0.0000	0.0000	0.0000
31	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
32	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
33	61.3190	0.0001	0.0000	0.0000	0.0000	0.0000
34	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
35	61.3189	0.0001	0.0000	0.0000	0.0000	0.0000
36	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
37	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
38	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
39	61.3189	-0.0001	0.0000	0.0000	0.0000	0.0000
40	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
41	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
42	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
43	61.3190	-0.0001	0.0000	0.0000	0.0000	0.0000
44	61.3192	0.0000	0.0000	0.0000	0.0000	0.0000
45	61.3191	0.0000	0.0000	0.0000	0.0000	0.0000
46	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
47	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
48	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
49	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
50	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
51	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
52	61.3192	0.0000	0.0000	0.0000	0.0000	0.0000
53	61.3191	0.0000	0.0000	0.0000	0.0000	0.0000
54	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
55	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
56	61.3190	0.0001	0.0000	0.0000	0.0000	0.0000
57	61.3192	0.0000	0.0000	0.0000	0.0000	0.0000
58	61.3191	0.0000	0.0000	0.0000	0.0000	0.0000
59	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
60	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
61	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
62	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
63	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
64	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
65	61.3189	0.0001	0.0000	0.0000	0.0000	0.0000
66	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
67	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
68	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
69	61.3189	0.0002	0.0000	0.0000	0.0000	0.0000
70	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
71	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
72	61.3190	-0.0001	0.0000	0.0000	0.0000	0.0000
73	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
74	61.3189	-0.0001	0.0000	0.0000	0.0000	0.0000
75	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
76	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
77	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
78	61.3189	0.0001	0.0000	0.0000	0.0000	0.0000
79	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000
80	61.3190	0.0000	0.0000	0.0000	0.0000	0.0000
81	61.3189	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1

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Steel type = 4 (For Description see Users Manual)
 Maximum = 0.8750E-02
 Minimum = -0.8750E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)

X Direction	=	-13.6917	Kips
Y Direction	=	0.0000	Kips
Z Direction	=	0.0000	Kips
Sum of Tip Forces	=	0.0000	Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.14241E-11	-0.44511E-11
2	-0.14841E-12	-0.61372E-11
3	0.29691E-11	-0.33668E-11
4	0.10658E-11	-0.30823E-11

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.11646E+02	-0.34593E+02
2	0.13354E+02	-0.33142E+02
3	0.11646E+02	-0.34593E+02
4	0.13354E+02	-0.33142E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.42864E-04	-0.24188E-04
2	0.42549E-04	-0.24010E-04
3	0.24197E-04	-0.42880E-04
4	0.24016E-04	-0.42559E-04

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	91	0.28700E+02	0.4014E-04	0.16867E+02	-0.3507E-03
2	110	0.26333E+02	0.3984E-04	0.16867E+02	-0.3481E-03
3	125	0.14500E+02	0.3509E-03	0.28700E+02	-0.4015E-04
4	145	0.14500E+02	0.3482E-03	0.28700E+02	-0.3985E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile	Pile	At	At
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#	Node	Depth Below Cap	Maximum Moment	Depth Below Cap	Minimum Moment
1	94	0.35800E+02	7.564	0.21600E+02	-204.1
2	112	0.31067E+02	7.225	0.21600E+02	-223.0
3	133	0.33433E+02	7.564	0.19233E+02	-204.1
4	153	0.33433E+02	7.225	0.19233E+02	-223.0

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM	PROP	NODE	LOAD	FAX	F22	F33	M22	M33	TORQUE
D/C	NO.	NO.	CASE	(Kips)	(Kips)	(Kips)	(Kip-ft)	(Kip-ft)	
(Kip-ft)		(Ratio)							
! -> Pile Number 1 !									
1	1	1	1	0.00	11.65	0.00	0.00	0.00	0.00
0.00		0.00							
	1	82	1	0.00	-11.65	0.00	0.00	0.00	-33.77
0.00		0.09							
2	1	82	1	0.00	11.65	0.00	0.00	0.00	33.77
0.00		0.09							
	1	83	1	0.00	-11.65	0.00	0.00	0.00	-67.55
0.00		0.17							
3	1	83	1	0.00	11.65	0.00	0.00	0.00	67.55
0.00		0.17							
	1	84	1	0.00	-11.65	0.00	0.00	0.00	-101.32
0.00		0.26							
4	1	84	1	0.00	11.65	0.00	0.00	0.00	101.32
0.00		0.26							
	1	85	1	0.00	-11.65	0.00	0.00	0.00	-135.10
0.00		0.35							
5	1	85	1	0.00	11.65	0.00	0.00	0.00	135.10
0.00		0.35							
	1	86	1	0.00	-11.65	0.00	0.00	0.00	-168.87
0.00		0.44							
6	1	86	1	0.00	10.01	0.00	0.00	0.00	168.87
0.00		0.44							
	1	87	1	0.00	-10.01	0.00	0.00	0.00	-192.56
0.00		0.50							
7	1	87	1	0.00	4.89	0.00	0.00	0.00	192.56
0.00		0.50							
	1	88	1	0.00	-4.89	0.00	0.00	0.00	-204.13
0.00		0.53							
8	1	88	1	0.00	-2.10	0.00	0.00	0.00	204.13
0.00		0.53							
	1	89	1	0.00	2.10	0.00	0.00	0.00	-199.15
0.00		0.51							
9	1	89	1	0.00	-11.52	0.00	0.00	0.00	199.15
0.00		0.51							
	1	90	1	0.00	11.52	0.00	0.00	0.00	-171.89
0.00		0.44							
10	1	90	1	0.00	-20.04	0.00	0.00	0.00	171.89

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0.00		0.44						
	1	91	1	0.00	20.04	0.00	0.00	-124.46
0.00		0.32						
11	1	91	1	0.00	-34.59	0.00	0.00	124.46
0.00		0.32						
	1	92	1	0.00	34.59	0.00	0.00	-42.58
0.00		0.11						
12	1	92	1	0.00	-18.46	0.00	0.00	42.58
0.00		0.11						
	1	93	1	0.00	18.46	0.00	0.00	1.10
0.00		0.00						
13	1	93	1	0.00	-2.73	0.00	0.00	-1.10
0.00		0.00						
	1	94	1	0.00	2.73	0.00	0.00	7.56
0.00		0.02						
14	1	94	1	0.00	1.95	0.00	0.00	-7.56
0.00		0.02						
	1	95	1	0.00	-1.95	0.00	0.00	2.95
0.00		0.01						
15	1	95	1	0.00	1.23	0.00	0.00	-2.95
0.00		0.01						
	1	96	1	0.00	-1.23	0.00	0.00	0.04
0.00		0.00						
16	1	96	1	0.00	0.18	0.00	0.00	-0.04
0.00		0.00						
	1	97	1	0.00	-0.18	0.00	0.00	-0.37
0.00		0.00						
17	1	97	1	0.00	-0.11	0.00	0.00	0.37
0.00		0.00						
	1	98	1	0.00	0.11	0.00	0.00	-0.12
0.00		0.00						
18	1	98	1	0.00	-0.06	0.00	0.00	0.12
0.00		0.00						
	1	99	1	0.00	0.06	0.00	0.00	0.01
0.00		0.00						
19	1	99	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	100	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
20	1	100	1	0.00	0.01	0.00	0.00	-0.01
0.00		0.00						
	1	101	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 2 !

21	1	2	1	0.00	13.35	0.00	0.00	0.00
0.00		0.00						
	1	102	1	0.00	-13.35	0.00	0.00	-38.73
0.00		0.10						
22	1	102	1	0.00	13.35	0.00	0.00	38.73
0.00		0.10						
	1	103	1	0.00	-13.35	0.00	0.00	-77.45
0.00		0.20						
23	1	103	1	0.00	13.35	0.00	0.00	77.45
0.00		0.20						
	1	104	1	0.00	-13.35	0.00	0.00	-116.18
0.00		0.30						
24	1	104	1	0.00	13.35	0.00	0.00	116.18
0.00		0.30						
	1	105	1	0.00	-13.35	0.00	0.00	-154.90
0.00		0.40						

				12 SUPERPILE_A.out				
25	1	105	1	0.00	13.35	0.00	0.00	154.90
0.00		0.40						
	1	106	1	0.00	-13.35	0.00	0.00	-193.63
0.00		0.50						
26	1	106	1	0.00	10.45	0.00	0.00	193.63
0.00		0.50						
	1	107	1	0.00	-10.45	0.00	0.00	-218.36
0.00		0.56						
27	1	107	1	0.00	1.97	0.00	0.00	218.36
0.00		0.56						
	1	108	1	0.00	-1.97	0.00	0.00	-223.02
0.00		0.58						
28	1	108	1	0.00	-8.37	0.00	0.00	223.02
0.00		0.58						
	1	109	1	0.00	8.37	0.00	0.00	-203.22
0.00		0.53						
29	1	109	1	0.00	-19.39	0.00	0.00	203.22
0.00		0.53						
	1	110	1	0.00	19.39	0.00	0.00	-157.33
0.00		0.41						
30	1	110	1	0.00	-25.89	0.00	0.00	157.33
0.00		0.41						
	1	111	1	0.00	25.89	0.00	0.00	-96.06
0.00		0.25						
31	1	111	1	0.00	-33.14	0.00	0.00	96.06
0.00		0.25						
	1	112	1	0.00	33.14	0.00	0.00	-17.63
0.00		0.05						
32	1	112	1	0.00	-10.50	0.00	0.00	17.63
0.00		0.05						
	1	113	1	0.00	10.50	0.00	0.00	7.23
0.00		0.02						
33	1	113	1	0.00	1.15	0.00	0.00	-7.23
0.00		0.02						
	1	114	1	0.00	-1.15	0.00	0.00	4.50
0.00		0.01						
34	1	114	1	0.00	1.74	0.00	0.00	-4.50
0.00		0.01						
	1	115	1	0.00	-1.74	0.00	0.00	0.39
0.00		0.00						
35	1	115	1	0.00	0.33	0.00	0.00	-0.39
0.00		0.00						
	1	116	1	0.00	-0.33	0.00	0.00	-0.39
0.00		0.00						
36	1	116	1	0.00	-0.11	0.00	0.00	0.39
0.00		0.00						
	1	117	1	0.00	0.11	0.00	0.00	-0.12
0.00		0.00						
37	1	117	1	0.00	-0.06	0.00	0.00	0.12
0.00		0.00						
	1	118	1	0.00	0.06	0.00	0.00	0.01
0.00		0.00						
38	1	118	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	119	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
39	1	119	1	0.00	0.01	0.00	0.00	-0.01
0.00		0.00						
	1	120	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						
40	1	120	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	121	1	0.00	0.00	0.00	0.00	0.00

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0.00

0.00

! -> Pile Number 3 !

41	1	3	1	0.00	11.65	0.00	0.00	0.00
0.00		0.00						
	1	122	1	0.00	-11.65	0.00	0.00	-33.77
0.00		0.09						
42	1	122	1	0.00	11.65	0.00	0.00	33.77
0.00		0.09						
	1	123	1	0.00	-11.65	0.00	0.00	-67.55
0.00		0.17						
43	1	123	1	0.00	11.65	0.00	0.00	67.55
0.00		0.17						
	1	124	1	0.00	-11.65	0.00	0.00	-101.32
0.00		0.26						
44	1	124	1	0.00	11.65	0.00	0.00	101.32
0.00		0.26						
	1	125	1	0.00	-11.65	0.00	0.00	-135.10
0.00		0.35						
45	1	125	1	0.00	11.65	0.00	0.00	135.10
0.00		0.35						
	1	126	1	0.00	-11.65	0.00	0.00	-168.87
0.00		0.44						
46	1	126	1	0.00	10.01	0.00	0.00	168.87
0.00		0.44						
	1	127	1	0.00	-10.01	0.00	0.00	-192.56
0.00		0.50						
47	1	127	1	0.00	4.89	0.00	0.00	192.56
0.00		0.50						
	1	128	1	0.00	-4.89	0.00	0.00	-204.13
0.00		0.53						
48	1	128	1	0.00	-2.10	0.00	0.00	204.13
0.00		0.53						
	1	129	1	0.00	2.10	0.00	0.00	-199.15
0.00		0.51						
49	1	129	1	0.00	-11.52	0.00	0.00	199.15
0.00		0.51						
	1	130	1	0.00	11.52	0.00	0.00	-171.89
0.00		0.44						
50	1	130	1	0.00	-20.04	0.00	0.00	171.89
0.00		0.44						
	1	131	1	0.00	20.04	0.00	0.00	-124.46
0.00		0.32						
51	1	131	1	0.00	-34.59	0.00	0.00	124.46
0.00		0.32						
	1	132	1	0.00	34.59	0.00	0.00	-42.58
0.00		0.11						
52	1	132	1	0.00	-18.46	0.00	0.00	42.58
0.00		0.11						
	1	133	1	0.00	18.46	0.00	0.00	1.10
0.00		0.00						
53	1	133	1	0.00	-2.73	0.00	0.00	-1.10
0.00		0.00						
	1	134	1	0.00	2.73	0.00	0.00	7.56
0.00		0.02						
54	1	134	1	0.00	1.95	0.00	0.00	-7.56
0.00		0.02						
	1	135	1	0.00	-1.95	0.00	0.00	2.95
0.00		0.01						
55	1	135	1	0.00	1.23	0.00	0.00	-2.95
0.00		0.01						

				12 SUPERPILE_A.out				
	1	136	1	0.00	-1.23	0.00	0.00	0.04
0.00		0.00						
56	1	136	1	0.00	0.18	0.00	0.00	-0.04
0.00		0.00						
	1	137	1	0.00	-0.18	0.00	0.00	-0.37
0.00		0.00						
57	1	137	1	0.00	-0.11	0.00	0.00	0.37
0.00		0.00						
	1	138	1	0.00	0.11	0.00	0.00	-0.12
0.00		0.00						
58	1	138	1	0.00	-0.06	0.00	0.00	0.12
0.00		0.00						
	1	139	1	0.00	0.06	0.00	0.00	0.01
0.00		0.00						
59	1	139	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	140	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
60	1	140	1	0.00	0.01	0.00	0.00	-0.01
0.00		0.00						
	1	141	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 4 !

61	1	4	1	0.00	13.35	0.00	0.00	0.00
0.00		0.00						
	1	142	1	0.00	-13.35	0.00	0.00	-38.73
0.00		0.10						
62	1	142	1	0.00	13.35	0.00	0.00	38.73
0.00		0.10						
	1	143	1	0.00	-13.35	0.00	0.00	-77.45
0.00		0.20						
63	1	143	1	0.00	13.35	0.00	0.00	77.45
0.00		0.20						
	1	144	1	0.00	-13.35	0.00	0.00	-116.18
0.00		0.30						
64	1	144	1	0.00	13.35	0.00	0.00	116.18
0.00		0.30						
	1	145	1	0.00	-13.35	0.00	0.00	-154.90
0.00		0.40						
65	1	145	1	0.00	13.35	0.00	0.00	154.90
0.00		0.40						
	1	146	1	0.00	-13.35	0.00	0.00	-193.63
0.00		0.50						
66	1	146	1	0.00	10.45	0.00	0.00	193.63
0.00		0.50						
	1	147	1	0.00	-10.45	0.00	0.00	-218.36
0.00		0.56						
67	1	147	1	0.00	1.97	0.00	0.00	218.36
0.00		0.56						
	1	148	1	0.00	-1.97	0.00	0.00	-223.02
0.00		0.58						
68	1	148	1	0.00	-8.37	0.00	0.00	223.02
0.00		0.58						
	1	149	1	0.00	8.37	0.00	0.00	-203.22
0.00		0.53						
69	1	149	1	0.00	-19.39	0.00	0.00	203.22
0.00		0.53						
	1	150	1	0.00	19.39	0.00	0.00	-157.33
0.00		0.41						
70	1	150	1	0.00	-25.89	0.00	0.00	157.33

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0.00		0.41						
0.00	1	151	1	0.00	25.89	0.00	0.00	-96.06
0.00		0.25						
71	1	151	1	0.00	-33.14	0.00	0.00	96.06
0.00		0.25						
0.00	1	152	1	0.00	33.14	0.00	0.00	-17.63
0.00		0.05						
72	1	152	1	0.00	-10.50	0.00	0.00	17.63
0.00		0.05						
0.00	1	153	1	0.00	10.50	0.00	0.00	7.23
0.00		0.02						
73	1	153	1	0.00	1.15	0.00	0.00	-7.23
0.00		0.02						
0.00	1	154	1	0.00	-1.15	0.00	0.00	4.50
0.00		0.01						
74	1	154	1	0.00	1.74	0.00	0.00	-4.50
0.00		0.01						
0.00	1	155	1	0.00	-1.74	0.00	0.00	0.39
0.00		0.00						
75	1	155	1	0.00	0.33	0.00	0.00	-0.39
0.00		0.00						
0.00	1	156	1	0.00	-0.33	0.00	0.00	-0.39
0.00		0.00						
76	1	156	1	0.00	-0.11	0.00	0.00	0.39
0.00		0.00						
0.00	1	157	1	0.00	0.11	0.00	0.00	-0.12
0.00		0.00						
77	1	157	1	0.00	-0.06	0.00	0.00	0.12
0.00		0.00						
0.00	1	158	1	0.00	0.06	0.00	0.00	0.01
0.00		0.00						
78	1	158	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
0.00	1	159	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
79	1	159	1	0.00	0.01	0.00	0.00	-0.01
0.00		0.00						
0.00	1	160	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						
80	1	160	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	161	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

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Maximum/Minimum Pile Forces

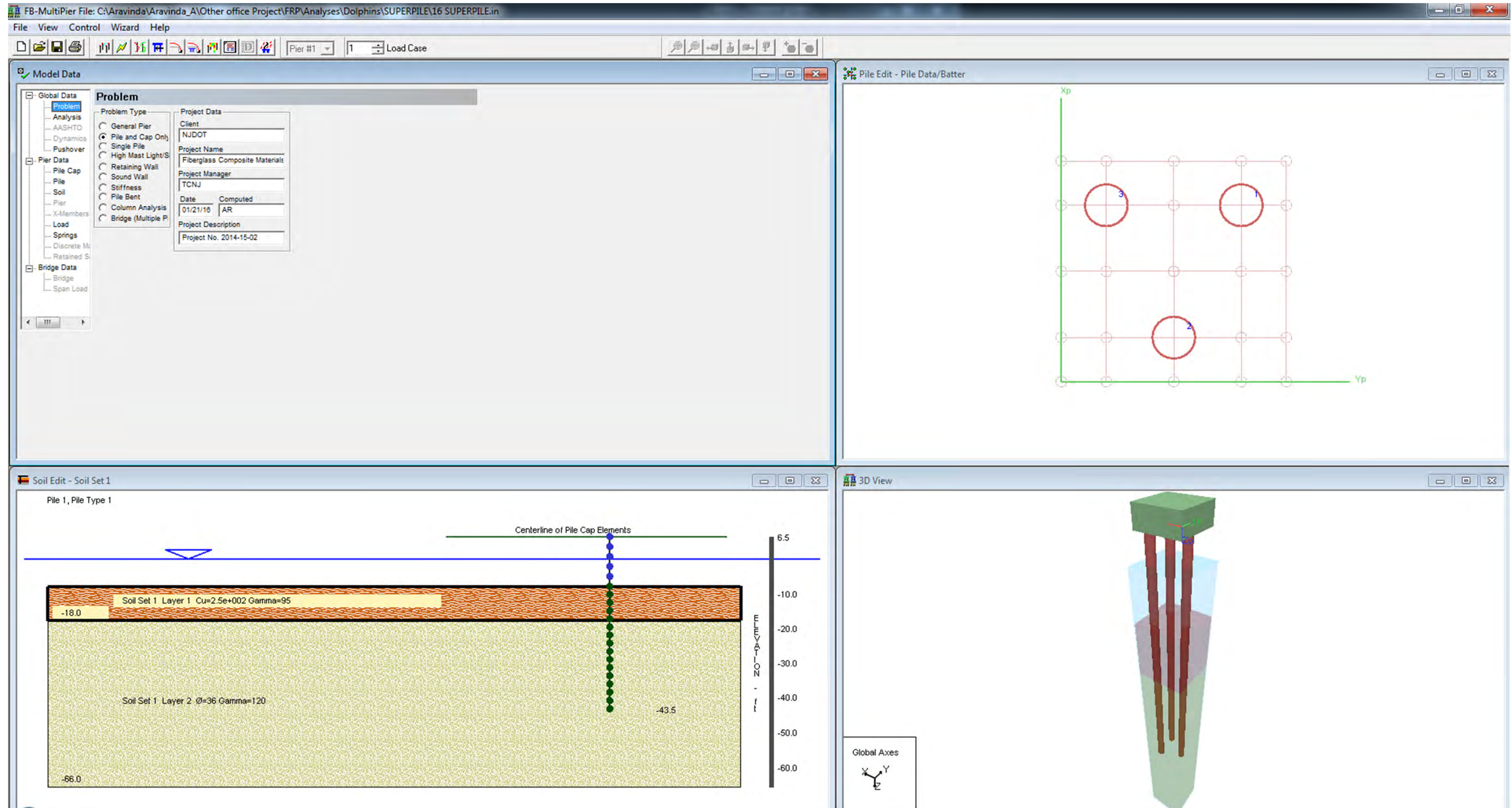
	Value	Load	Comb.	Pile
Max Axial Force	0.2969E-11 Kip	1	0	3
Min Axial Force	-0.6137E-11 Kip	1	0	2
Max Shear in 2 Direction	0.1335E+02 Kip	1	0	4
Min Shear in 2 Direction	-0.3459E+02 Kip	1	0	3
Max Shear in 3 Direction	0.4286E-04 Kip	1	0	1
Min Shear in 3 Direction	-0.4288E-04 Kip	1	0	3
Max Moment about 2 Axis	0.3509E-03 Kip-ft	1	0	3
Min Moment about 2 Axis	-0.3507E-03 Kip-ft	1	0	1
Max Moment About 3 Axis	0.7564E+01 Kip-ft	1	0	3
Min Moment About 3 Axis	-0.2230E+03 Kip-ft	1	0	4
Max Torsional Force	0.7757E-03 Kip-ft	1	0	3
Min Torsional Force	-0.7757E-03 Kip-ft	1	0	1
Max Demand/Capacity Ratio	0.5765E+00	1	0	4

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.1445E-05 Kip	1	0	2
Min Axial Soil Force	0.0000E+00 Kip	1	0	3
Max Lateral Force in X dir	0.5517E+01 Kip	1	0	3
Min Lateral Force in X dir	-0.1019E+02 Kip	1	0	4
Max Lateral Force in Y dir	0.2293E-01 Kip	1	0	3
Min Lateral Force in Y dir	-0.2293E-01 Kip	1	0	1
Max Torsional Soil Force	0.3553E-02 Kip-ft	1	0	1

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.3096E-08 in	1	0	2
Min Axial Displacement	-0.2762E-09 in	1	0	3
Max Displacement in X	0.6132E+02 in	1	0	3
Min Displacement in X	0.6132E+02 in	1	0	2
Max Displacement in Y	0.5872E-04 in	1	0	1
Min Displacement in Y	-0.5875E-04 in	1	0	3



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```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 2 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 1,0,0
I= 150 T= 20 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -58 -57.3 0 57.3 58 \
0 0 0 0 0 \
0 0 0 0 0
-0.02 -0.01 0 0.01 0.02 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.01
NL= 0 NG= 0 D= 16 V= 0 S= 80 TH= 0.5 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
5 5 5 5 : NPX, NPY, GSX, GSY
16 24 24 16
16 24 24 16
0.4 0.8
0.3 0.4 0.8
:
MISSING
22 : number of missing piles
1 1
2 1
3 1
4 1
5 1
1 2
2 2
3 2

```

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```

5 2
1 3
3 3
4 3
5 3
1 4
2 4
3 4
5 4
1 5
2 5
3 5
4 5
5 5
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8,-18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18,-66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
LOAD
13 L= 1 F= 48 0 0 0 0 0
:
PADBC
:

```

```
!-----!  
! The University of Florida, Florida Department !  
! of Transportation, Drs. Marc Hoit, Mike McVay !  
! Cliff Hays, Mark Williams, Petros Christou, and !  
! Jae H. Chung !  
! disclaim any warranty, expressed or implied, !  
! including but not limited to, any implied !  
! warranty of fitness for a particular purpose !  
! or accuracy of the FB-Pier software !  
! The developers shall not be liable for any damages !  
! incurred through the use of FB-MultiPier !  
!-----!
```

```
! : : : : F B - M U L T I P I E R : : : : !  
! FB-MultiPier Version 4.17 !  
!-----!
```

```
! Written by Marc Hoit, Mike McVay, Cliff Hays !  
! Mark Williams, Petros Christou, Jae H. Chung. !  
!-----!
```

```
! Civil & Coastal Engineering, University of Florida !  
! Supported by Florida Department of Transportation !  
! and the Federal Highway Administration !  
!-----!
```

```
! The program calculates the Response !  
! of the Bridge Pier Pile Soil Structures !  
!-----!
```

```
! The Analysis includes PreLoad, Static, !  
! Transient Dynamic or Push Over !  
!-----!
```

```
! The Program Handles NonLinear Soil Behavior, !  
! Linear Pile Cap and Linear and NonLinear Piles and Piers !  
!-----!
```

```
! Contact: Bridge Software Institute for Support !  
! HTTP://BSI-WEB.CE.UFL.EDU !  
!-----!
```

```
Analysis Start : 10:11am  
Analysis End : 10:11am  
Analysis Time : 2 seconds
```

```
Input Data File Name : 16 SUPERPILE.in  
Analysis Date : 7- 6-2016  
License ID Number : 432746937
```

```
*****  
* PROJECT DATA *  
*****
```

```
Project Client : NJDOT  
Project Name : Fiberglass Composite Materials Specification Redevelopment  
Project Manager : TCNJ  
Computed by : AR  
Project Description : Project No. 2014-15-02
```

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```
*****
*   SELECTIVE PRINT OUTPUT CONTROL   *
*****
```

	Print On
Pile Displacements	NO
Pile Element Forces	YES
Missing Pile ID Numbers	NO
Pier Columns and Pier Cap Displacements	YES
Pier Columns and Pier Cap Force Output	YES
Pier Material Properties	NO
Soil Response Forces	NO
Soil Data per Layer	NO
Soil Curve data per Pile Node	NO
Soil Graph per Pile Node	NO
Out of Balance Forces	NO
Bridge Simulation Spring Force Output	NO
Bridge Span Displacements	NO
Bridge Span Element Forces	NO
Bridge Span Properties	NO
Pile Cap Stress	NO
Material Stress Strain Curve Data	NO
Interaction Diagram Data For Pile and Pier	NO
Pile and Pier coordinates	NO
Generate XML file	NO

```
*****
*   UNITS   *
*****
```

Analysis Units Specified are: English Mixed (Kips & Ft some lbs & in)

```
*****
*   CONTROL INFORMATION   *
*****
```

Number of Piers (NUMPIERS) = 1
Maximum Number of Iterations (MAXITN) = 150
Tolerance (TOLER) = 20.000000 Kips

NOTE : The following soil information is not applicable in the coulumn analysis problems

Soil Behavior Option (IFLEX) = 0
IFLEX = 0 -> PY Multipliers are Input
IFLEX = 1 -> PY Multipliers Defaulted to 1.0
IFLEX = 2 -> No SOIL (Must use tip springs)

Soil resistance due to Pile Rotation About 2 and 3 Axis (NSODF) = 4
NSDOF = 4 -> NO Resistance Accounted
NSDOF = 6 -> Resistance Accounted

Linear Pile TIP Spring Option (ITIP) = 0
ITIP = 0 -> NO spring
ITIP = 1 -> Axial only
ITIP = 2 -> All DOF

Linear Pile TIP Spring Stiffness (TSTIF) = 0.00 kips/in

```
*****
*   SOIL BEHAVIOR   *
```

PY Multipliers will be used (IFLEX = 0)

* LOAD FACTORS FOR SELF WEIGHT AND BUOYANCY *

LOAD CASE #	SELF WEIGHT FACTOR	BUOYANCY FACTOR
1	0.00	0.00

* GENERAL INFORMATION *

Static / Cyclic Load (KCYC) = 0
 KCYC = 0 -> Static Load
 KCKC > 0 -> Cyclic Load (# Cycles)

Fixity of Pile Cap (KFIX) = 0
 KFIX = 0 -> Pinned Head
 KFIX = 1 -> Fixed head

Bearing of Cap on Soil = NO

* GRID DATA INFORMATION *

NOTE: X-Grid : Distance between axes along the X-Axis
 Y-Grid : Distance between axes along the Y-Axis

Number of Grid Points in X-Direction (NPX) = 5
 Number of Grid Points in Y-Direction (NPY) = 5

Grid Spacing in the X Direction : (inches)
 16.00 24.00 24.00 16.00

Grid Spacing in the Y Direction : (inches)
 16.00 24.00 24.00 16.00

* ANALYSIS OPTIONS *

Type of Stiffness = Secant Stiffness
 Type of Structure = Full
 Type of Analysis = Static Analysis

* PILE SEGMENT INFORMATION DATA *

NOTE: The Piles Sets consist of Pile Segments based on the User Input. The program groups all segments from all the different Pile Sets and assigns a reference number to each

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The reference number for each segment together with the User Input Pile Set/Segment number is shown below. The Input section properties for each section/segment is also provided below.

The user is advised to double check these numbers

Number of segments found in all Piles (NPSEG) = 1

! -> SECTION DATA FOR SECTION/SEGMENT : 1 !

Input Pile Set Number = 1
Input Pile Set Segment = 1

Section Pile Length (L) = 50.000000 ft

Nonlinear Section/Segment Material Properties

Material Option (MATOPT) = 2
(Please Refer to the Users Guide for Details)

- User Defined Stress Strain Curves

- Tubular Steel Stress Strain Curve
Number of Points Along the Tubular steel Curve = 5

Stress (ksi)	Strain
-0.58000E+02	-0.20000E-01
-0.57300E+02	-0.10000E-01
0.00000E+00	0.00000E+00
0.57300E+02	0.10000E-01
0.58000E+02	0.20000E-01

- Shape of Section : CIRCULAR

- Steel and Confinement Data

Number of Steel Layers = 0
Section/Segment Diameter = 16.0000 in
Tied/Spiral Reinforcement Flag = 1
(NOTE : Spiral = 1, Tied = 2)
Confinement Flag = 0
(NOTE : None = 0, Confined - Spiral Only = 1, Confined - Shell = 2)
Outer Shell Thickness = 0.500 in

- Total Area of Steel Reinforcement = 0.00 in^2

* PILE SET DATA DESCRIPTION *

NOTE : The piles are organized in pile sets. Each pile set is composed of pile segments that are input by the User. A pile set is attached to each pile in order to describe its composition

List of Piles Sets and Piles

File Set	Piles (that are assigned the File Set)
1	1, 2, 3

Total Length for Each File Set

File Set	Length
1	600.00

 * INPUT FOR STRUCTURAL ANALYSIS *

Number of Joints	=	81
Number of Different Element Types	=	3
Number of Load Conditions	=	1

 * GENERAL LOAD DATA *

The table below shows the Applied Loads for every Load Case. The values in the table represent the magnitude of the Loads in the specified units

- Applied Load		X	Y	Z	MXX	MYX	MZZ
NODE	LOAD	(Kips)	(Kips)	(Kips)	(Kip-ft)	(Kip-ft)	(Kip-ft)
13	1	48.00	0.00	0.00	0.00	0.00	0.00

 * ANALYSIS RESULTS *

 * RESULTS FOR LOAD CASE # 1 *

NOTE : PY Multipliers are applied Lead to Trail row based on the actual displacement. If there is no displacement in a Lateral direction they are defaulted to 1.0. This can happen in Axial Load and one direction lateral load cases

PY Multipliers are Applied to A File Group

PILE#	X-PYM	Y-PYM
1	0.800E+00	0.100E+01
2	0.400E+00	0.100E+01
3	0.800E+00	0.100E+01

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 * CONVERGENCE REPORT *

The Solution Converged in 4 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ = 0.005 Kips
 FXX = 0.000 Kips
 FYY = 0.000 Kips
 MXX = 0.000 Kip-in
 MYY = 0.000 Kip-in
 MZZ = 0.000 Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	52.3663	0.0001	0.0000
2	52.3667	0.0000	0.0000
3	52.3663	-0.0001	0.0000

Pile Cap Displacements (Excluding Pile Heads)

4	52.3668	0.0001	0.0000	0.0000	0.0000	0.0000
5	52.3666	0.0002	0.0000	0.0000	0.0000	0.0000
6	52.3665	0.0002	0.0000	0.0000	0.0000	0.0000
7	52.3664	0.0001	0.0000	0.0000	0.0000	0.0000
8	52.3664	0.0001	0.0000	0.0000	0.0000	0.0000
9	52.3669	0.0000	0.0000	0.0000	0.0000	0.0000
10	52.3667	0.0001	0.0000	0.0000	0.0000	0.0000
11	52.3665	0.0001	0.0000	0.0000	0.0000	0.0000
12	52.3663	0.0000	0.0000	0.0000	0.0000	0.0000
13	52.3674	0.0000	0.0000	0.0000	0.0000	0.0000
14	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
15	52.3664	0.0000	0.0000	0.0000	0.0000	0.0000
16	52.3664	0.0000	0.0000	0.0000	0.0000	0.0000
17	52.3669	0.0000	0.0000	0.0000	0.0000	0.0000
18	52.3667	-0.0001	0.0000	0.0000	0.0000	0.0000
19	52.3665	-0.0001	0.0000	0.0000	0.0000	0.0000
20	52.3663	0.0000	0.0000	0.0000	0.0000	0.0000
21	52.3668	-0.0001	0.0000	0.0000	0.0000	0.0000
22	52.3666	-0.0002	0.0000	0.0000	0.0000	0.0000
23	52.3665	-0.0002	0.0000	0.0000	0.0000	0.0000
24	52.3664	-0.0001	0.0000	0.0000	0.0000	0.0000
25	52.3664	-0.0001	0.0000	0.0000	0.0000	0.0000
26	52.3665	-0.0001	0.0000	0.0000	0.0000	0.0000
27	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
28	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
29	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
30	52.3665	-0.0001	0.0000	0.0000	0.0000	0.0000
31	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
32	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
33	52.3666	0.0001	0.0000	0.0000	0.0000	0.0000
34	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
35	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
36	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
37	52.3664	0.0000	0.0000	0.0000	0.0000	0.0000

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38	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
39	52.3665	-0.0001	0.0000	0.0000	0.0000	0.0000
40	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
41	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
42	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
43	52.3665	-0.0001	0.0000	0.0000	0.0000	0.0000
44	52.3667	0.0000	0.0000	0.0000	0.0000	0.0000
45	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
46	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
47	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
48	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
49	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
50	52.3664	0.0000	0.0000	0.0000	0.0000	0.0000
51	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
52	52.3667	0.0000	0.0000	0.0000	0.0000	0.0000
53	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
54	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
55	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
56	52.3665	0.0001	0.0000	0.0000	0.0000	0.0000
57	52.3667	0.0000	0.0000	0.0000	0.0000	0.0000
58	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
59	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
60	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
61	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
62	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
63	52.3664	0.0000	0.0000	0.0000	0.0000	0.0000
64	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
65	52.3665	0.0001	0.0000	0.0000	0.0000	0.0000
66	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
67	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
68	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
69	52.3665	0.0001	0.0000	0.0000	0.0000	0.0000
70	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
71	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
72	52.3666	-0.0001	0.0000	0.0000	0.0000	0.0000
73	52.3666	0.0000	0.0000	0.0000	0.0000	0.0000
74	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
75	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
76	52.3664	0.0000	0.0000	0.0000	0.0000	0.0000
77	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
78	52.3665	0.0001	0.0000	0.0000	0.0000	0.0000
79	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
80	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000
81	52.3665	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1
 Steel type = 4 (For Description see Users Manual)
 Maximum = 0.7442E-02
 Minimum = -0.7442E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)

X Direction	=	-7.0500	Kips
Y Direction	=	0.0000	Kips
Z Direction	=	0.0000	Kips
Sum of Tip Forces	=	0.0000	Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.12383E-10	0.14524E-12
2	-0.11189E-12	-0.15895E-10
3	0.61060E-11	0.11162E-12

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.16944E+02	-0.58803E+02
2	0.14111E+02	-0.43762E+02
3	0.16944E+02	-0.58803E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.81054E-03	-0.16948E-03
2	0.11389E-07	-0.34227E-07
3	0.16947E-03	-0.81055E-03

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	87	0.19233E+02	0.3251E-03	0.14500E+02	-0.1593E-02
2	106	0.16867E+02	0.6077E-07	0.19233E+02	-0.2024E-07
3	125	0.14500E+02	0.1593E-02	0.19233E+02	-0.3251E-03

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	95	0.38167E+02	20.03	0.23967E+02	-339.2
2	115	0.38167E+02	15.94	0.26333E+02	-313.2
3	135	0.38167E+02	20.03	0.23967E+02	-339.2

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are

16 SUPERPILE.out
 shown in the Users Manual. The Demand/Capacity Ratio
 that is Displayed below each Pile Segment refers to
 the Ratio of the Calculated Force Divided by the
 Capacity of the Segment

ELEM	PROP	NODE	LOAD	FAX	F22	F33	M22	M33	TORQUE
D/C	NO.	NO.	NO.	CASE	(Kips)	(Kips)	(Kip-ft)	(Kip-ft)	
(Kip-ft)		(Ratio)							
! -> Pile Number 1 !									
1	1	1	1	0.00	16.94	0.00	0.00	0.00	0.00
0.00		0.00							
	1	82	1	0.00	-16.94	0.00	0.00	-49.14	
0.00		0.08							
2	1	82	1	0.00	16.94	0.00	0.00	49.14	
0.00		0.08							
	1	83	1	0.00	-16.94	0.00	0.00	-98.28	
0.00		0.17							
3	1	83	1	0.00	16.94	0.00	0.00	98.28	
0.00		0.17							
	1	84	1	0.00	-16.94	0.00	0.00	-147.42	
0.00		0.25							
4	1	84	1	0.00	16.94	0.00	0.00	147.42	
0.00		0.25							
	1	85	1	0.00	-16.94	0.00	0.00	-196.55	
0.00		0.34							
5	1	85	1	0.00	16.94	0.00	0.00	196.55	
0.00		0.34							
	1	86	1	0.00	-16.94	0.00	0.00	-245.69	
0.00		0.42							
6	1	86	1	0.00	15.78	0.00	0.00	245.69	
0.00		0.42							
	1	87	1	0.00	-15.78	0.00	0.00	-283.03	
0.00		0.49							
7	1	87	1	0.00	12.42	0.00	0.00	283.03	
0.00		0.49							
	1	88	1	0.00	-12.42	0.00	0.00	-312.43	
0.00		0.54							
8	1	88	1	0.00	8.03	0.00	0.00	312.43	
0.00		0.54							
	1	89	1	0.00	-8.03	0.00	0.00	-331.42	
0.00		0.57							
9	1	89	1	0.00	3.28	0.00	0.00	331.42	
0.00		0.57							
	1	90	1	0.00	-3.28	0.00	0.00	-339.18	
0.00		0.58							
10	1	90	1	0.00	-1.74	0.00	0.00	339.18	
0.00		0.58							
	1	91	1	0.00	1.74	0.00	0.00	-335.08	
0.00		0.58							
11	1	91	1	0.00	-37.07	0.00	0.00	335.08	
0.00		0.58							
	1	92	1	0.00	37.07	0.00	0.00	-247.35	
0.00		0.42							
12	1	92	1	0.00	-58.80	0.00	0.00	247.35	
0.00		0.42							
	1	93	1	0.00	58.80	0.00	0.00	-108.18	
0.00		0.19							
13	1	93	1	0.00	-41.10	0.00	0.00	108.18	
0.00		0.19							

16 SUPERPILE.out								
0.00	1	94	1	0.00	41.10	0.00	0.00	-10.92
0.00	14	0.02	1	0.00	-13.07	0.00	0.00	10.92
0.00	1	94	1	0.00	13.07	0.00	0.00	20.03
0.00	15	0.03	1	0.00	3.25	0.00	0.00	-20.03
0.00	1	95	1	0.00	-3.25	0.00	0.00	12.35
0.00	16	0.02	1	0.00	4.14	0.00	0.00	-12.35
0.00	1	96	1	0.00	-4.14	0.00	0.00	2.56
0.00	17	0.00	1	0.00	1.43	0.00	0.00	-2.56
0.00	1	97	1	0.00	-1.43	0.00	0.00	-0.82
0.00	18	0.00	1	0.00	-0.04	0.00	0.00	0.82
0.00	1	98	1	0.00	0.04	0.00	0.00	-0.73
0.00	19	0.00	1	0.00	-0.24	0.00	0.00	0.73
0.00	1	99	1	0.00	0.24	0.00	0.00	-0.16
0.00	20	0.00	1	0.00	-0.07	0.00	0.00	0.16
0.00	1	100	1	0.00	0.07	0.00	0.00	0.00
0.00	1	101	1	0.00		0.00	0.00	
0.00	1	0.00	1	0.00		0.00	0.00	

! -> Pile Number 2 !								
21	1	2	1	0.00	14.11	0.00	0.00	0.00
0.00	1	0.00	1	0.00	-14.11	0.00	0.00	-40.92
0.00	22	0.07	1	0.00	14.11	0.00	0.00	40.92
0.00	1	102	1	0.00	-14.11	0.00	0.00	-81.85
0.00	23	0.14	1	0.00	14.11	0.00	0.00	81.85
0.00	1	103	1	0.00	-14.11	0.00	0.00	-122.77
0.00	24	0.21	1	0.00	14.11	0.00	0.00	122.77
0.00	1	104	1	0.00	-14.11	0.00	0.00	-163.69
0.00	25	0.28	1	0.00	14.11	0.00	0.00	163.69
0.00	1	105	1	0.00	-14.11	0.00	0.00	-204.62
0.00	26	0.35	1	0.00	13.52	0.00	0.00	204.62
0.00	1	106	1	0.00	-13.52	0.00	0.00	-236.62
0.00	27	0.41	1	0.00	11.82	0.00	0.00	236.62
0.00	1	107	1	0.00	-11.82	0.00	0.00	-264.58
0.00	28	0.45	1	0.00	9.55	0.00	0.00	264.58
0.00	1	108	1	0.00		0.00	0.00	

16 SUPERPILE.out

0.00		0.45						
	1	109	1	0.00	-9.55	0.00	0.00	-287.19
0.00		0.49						
29	1	109	1	0.00	6.90	0.00	0.00	287.19
0.00		0.49						
	1	110	1	0.00	-6.90	0.00	0.00	-303.53
0.00		0.52						
30	1	110	1	0.00	4.08	0.00	0.00	303.53
0.00		0.52						
	1	111	1	0.00	-4.08	0.00	0.00	-313.19
0.00		0.54						
31	1	111	1	0.00	-15.06	0.00	0.00	313.19
0.00		0.54						
	1	112	1	0.00	15.06	0.00	0.00	-277.55
0.00		0.48						
32	1	112	1	0.00	-40.71	0.00	0.00	277.55
0.00		0.48						
	1	113	1	0.00	40.71	0.00	0.00	-181.21
0.00		0.31						
33	1	113	1	0.00	-43.76	0.00	0.00	181.21
0.00		0.31						
	1	114	1	0.00	43.76	0.00	0.00	-77.64
0.00		0.13						
34	1	114	1	0.00	-29.49	0.00	0.00	77.64
0.00		0.13						
	1	115	1	0.00	29.49	0.00	0.00	-7.84
0.00		0.01						
35	1	115	1	0.00	-10.05	0.00	0.00	7.84
0.00		0.01						
	1	116	1	0.00	10.05	0.00	0.00	15.94
0.00		0.03						
36	1	116	1	0.00	1.50	0.00	0.00	-15.94
0.00		0.03						
	1	117	1	0.00	-1.50	0.00	0.00	12.39
0.00		0.02						
37	1	117	1	0.00	3.35	0.00	0.00	-12.39
0.00		0.02						
	1	118	1	0.00	-3.35	0.00	0.00	4.45
0.00		0.01						
38	1	118	1	0.00	1.78	0.00	0.00	-4.45
0.00		0.01						
	1	119	1	0.00	-1.78	0.00	0.00	0.25
0.00		0.00						
39	1	119	1	0.00	0.30	0.00	0.00	-0.25
0.00		0.00						
	1	120	1	0.00	-0.30	0.00	0.00	-0.47
0.00		0.00						
40	1	120	1	0.00	-0.20	0.00	0.00	0.47
0.00		0.00						
	1	121	1	0.00	0.20	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 3 !

41	1	3	1	0.00	16.94	0.00	0.00	0.00
0.00		0.00						
	1	122	1	0.00	-16.94	0.00	0.00	-49.14
0.00		0.08						
42	1	122	1	0.00	16.94	0.00	0.00	49.14
0.00		0.08						
	1	123	1	0.00	-16.94	0.00	0.00	-98.28
0.00		0.17						

16 SUPERPILE.out				
43	1	123	1	0.00 16.94 0.00 0.00 98.28
0.00		0.17		
	1	124	1	0.00 -16.94 0.00 0.00 -147.42
0.00		0.25		
44	1	124	1	0.00 16.94 0.00 0.00 147.42
0.00		0.25		
	1	125	1	0.00 -16.94 0.00 0.00 -196.55
0.00		0.34		
45	1	125	1	0.00 16.94 0.00 0.00 196.55
0.00		0.34		
	1	126	1	0.00 -16.94 0.00 0.00 -245.69
0.00		0.42		
46	1	126	1	0.00 15.78 0.00 0.00 245.69
0.00		0.42		
	1	127	1	0.00 -15.78 0.00 0.00 -283.03
0.00		0.49		
47	1	127	1	0.00 12.42 0.00 0.00 283.03
0.00		0.49		
	1	128	1	0.00 -12.42 0.00 0.00 -312.43
0.00		0.54		
48	1	128	1	0.00 8.03 0.00 0.00 312.43
0.00		0.54		
	1	129	1	0.00 -8.03 0.00 0.00 -331.42
0.00		0.57		
49	1	129	1	0.00 3.28 0.00 0.00 331.42
0.00		0.57		
	1	130	1	0.00 -3.28 0.00 0.00 -339.18
0.00		0.58		
50	1	130	1	0.00 -1.74 0.00 0.00 339.18
0.00		0.58		
	1	131	1	0.00 1.74 0.00 0.00 -335.08
0.00		0.58		
51	1	131	1	0.00 -37.07 0.00 0.00 335.08
0.00		0.58		
	1	132	1	0.00 37.07 0.00 0.00 -247.35
0.00		0.42		
52	1	132	1	0.00 -58.80 0.00 0.00 247.35
0.00		0.42		
	1	133	1	0.00 58.80 0.00 0.00 -108.18
0.00		0.19		
53	1	133	1	0.00 -41.10 0.00 0.00 108.18
0.00		0.19		
	1	134	1	0.00 41.10 0.00 0.00 -10.92
0.00		0.02		
54	1	134	1	0.00 -13.07 0.00 0.00 10.92
0.00		0.02		
	1	135	1	0.00 13.07 0.00 0.00 20.03
0.00		0.03		
55	1	135	1	0.00 3.25 0.00 0.00 -20.03
0.00		0.03		
	1	136	1	0.00 -3.25 0.00 0.00 12.35
0.00		0.02		
56	1	136	1	0.00 4.14 0.00 0.00 -12.35
0.00		0.02		
	1	137	1	0.00 -4.14 0.00 0.00 2.56
0.00		0.00		
57	1	137	1	0.00 1.43 0.00 0.00 -2.56
0.00		0.00		
	1	138	1	0.00 -1.43 0.00 0.00 -0.82
0.00		0.00		
58	1	138	1	0.00 -0.04 0.00 0.00 0.82
0.00		0.00		
	1	139	1	0.00 0.04 0.00 0.00 -0.73

16 SUPERPILE.out

0.00	0.00							
59	1	139	1	0.00	-0.24	0.00	0.00	0.73
0.00		0.00						
	1	140	1	0.00	0.24	0.00	0.00	-0.16
0.00		0.00						
60	1	140	1	0.00	-0.07	0.00	0.00	0.16
0.00		0.00						
	1	141	1	0.00	0.07	0.00	0.00	0.00
0.00		0.00						

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
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 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.1238E-10 Kip	1	0	1
Min Axial Force	-0.1590E-10 Kip	1	0	2
Max Shear in 2 Direction	0.1694E+02 Kip	1	0	3
Min Shear in 2 Direction	-0.5880E+02 Kip	1	0	3
Max Shear in 3 Direction	0.8105E-03 Kip	1	0	1
Min Shear in 3 Direction	-0.8105E-03 Kip	1	0	3
Max Moment about 2 Axis	0.1593E-02 Kip-ft	1	0	3
Min Moment about 2 Axis	-0.1593E-02 Kip-ft	1	0	1
Max Moment About 3 Axis	0.2003E+02 Kip-ft	1	0	3
Min Moment About 3 Axis	-0.3392E+03 Kip-ft	1	0	3
Max Torsional Force	0.2511E-03 Kip-ft	1	0	1
Min Torsional Force	-0.2512E-03 Kip-ft	1	0	3
Max Demand/Capacity Ratio	0.5825E+00	1	0	3

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.0000E+00 Kip	1	0	1
Min Axial Soil Force	0.0000E+00 Kip	1	0	1
Max Lateral Force in X dir	0.2055E+02 Kip	1	0	1
Min Lateral Force in X dir	-0.2250E+02 Kip	1	0	3
Max Lateral Force in Y dir	0.5858E-02 Kip	1	0	3
Min Lateral Force in Y dir	-0.5858E-02 Kip	1	0	1
Max Torsional Soil Force	0.9848E-03 Kip-ft	1	0	3

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.2655E-13 in	1	0	2
Min Axial Displacement	-0.2602E-13 in	1	0	1

	16 SUPERPILE.out			
Max Displacement in X	0.5237E+02 in	1	0	2
Min Displacement in X	0.5237E+02 in	1	0	1
Max Displacement in Y	0.5362E-04 in	1	0	1
Min Displacement in Y	-0.5362E-04 in	1	0	3

Bedford

Model Data

- Global Data
 - Problem
 - Analysis
 - AASHTO
 - Dynamics
 - Pushover
- Pier Data
 - Pile Cap
 - Pile
 - Soil
 - Pier
 - X-Members
 - Load
 - Springs
 - Discrete M
 - Retained S
- Bridge Data
 - Bridge
 - Span Load

Problem

- Problem Type
- ☐ General Pier
 - ☒ Pile and Cap Only
 - ☐ Single Pile
 - ☐ High Mast Light/S
 - ☐ Retaining Wall
 - ☐ Sound Wall
 - ☐ Stiffness
 - ☐ Pile Bent
 - ☐ Column Analysis
 - ☐ Bridge (Multiple P

Project Data

Client
NJDOT

Project Name
Fiberglass Composite Materials

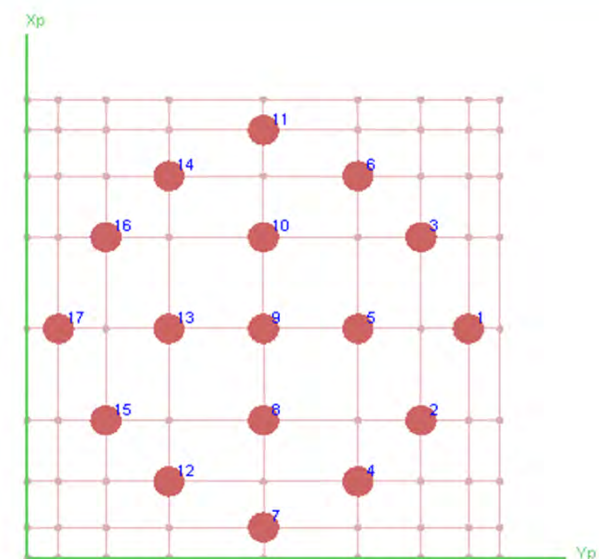
Project Manager
TCNJ

Date
01/21/18

Computed
AR

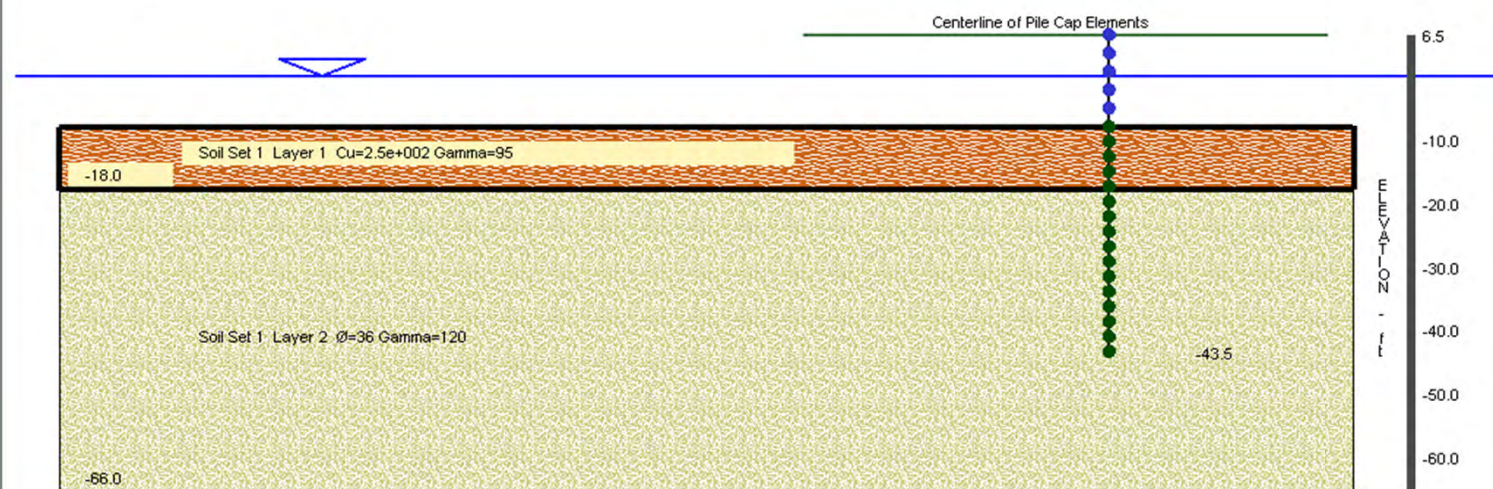
Project Description
Project No. 2014-15-02

Pile Edit - Pile Data/Batter

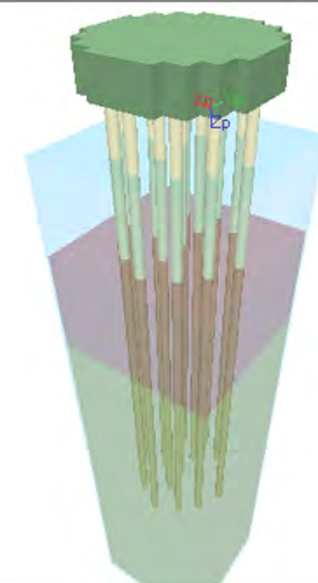


Soil Edit - Soil Set 1

Pile 1, Pile Type 1



3D View



Global Axes



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PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 1 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 1,0,0
I= 60 T= 3 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=2 D=2 U=0 : Drilled Shaft - nonlinear
K= 1 L= 50 M= 2 \
S= 1,0,0,0
NC= 5 -0.1 -5.91 0 5.91 0.1 \
0 0 0 0 0 \
0 0 0 0 0
-0.02 -0.016 0 0.016 0.02 \
0 0 0 0 0 \
0 0 0 0 0
S1= 5 -61 -60 0 60 61 \
0 0 0 0 0 \
0 0 0 0 0
-0.1 -0.002 0 0.002 0.1 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.00206897
NL= 1 NG= 0 D= 10 V= 0 S= 64 TH= 0 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
0 2 D= 5 A= 0.01 : prest, # bars, diam, area
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
9 9 5 5 : NPX, NPY, GSX, GSY
10 15 20 30 30 20 \
15 10
10 15 20 30 30 20 \
15 10
0.3 0.3 0.3 0.3 0.3 0.4 0.8
0.3 0.3 0.3 0.3 0.3 0.4 0.8
:
MISSING
64 : number of missing piles
1 1
2 1
3 1
4 1
5 1

```

6 1
7 1
8 1
9 1
1 2
2 2
3 2
4 2
6 2
7 2
8 2
9 2
1 3
2 3
3 3
5 3
7 3
8 3
9 3
1 4
2 4
4 4
6 4
8 4
9 4
1 5
3 5
7 5
9 5
1 6
2 6
4 6
6 6
8 6
9 6
1 7
2 7
3 7
5 7
7 7
8 7
9 7
1 8
2 8
3 8
4 8
6 8
7 8
8 8
9 8
1 9
2 9
3 9
4 9
5 9
6 9
7 9
8 9
9 9

:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc

```

10 SP 8F08.in
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.25 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.25 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 150 O= 100
:
REMOVE
1 1
2 1
3 1
6 1
7 1
8 1
1 2
2 2
7 2
8 2
1 3
8 3
1 6
8 6
1 7
2 7
7 7
8 7
1 8
2 8
3 8
6 8
7 8
8 8
:
LOAD
48 L= 1 F= 35 0 0 0 0 0
:
PADBC
:

```

The University of Florida, Florida Department
of Transportation, Drs. Marc Hoit, Mike McVay
Cliff Hays, Mark Williams, Petros Christou, and
Jae H. Chung
disclaim any warranty, expressed or implied,
including but not limited to, any implied
warranty of fitness for a particular purpose
or accuracy of the FB-Pier software
The developers shall not be liable for any damages
incurred through the use of FB-MultiPier

:::: F B - M U L T I P I E R ::::
FB-MultiPier Version 4.17

Written by Marc Hoit, Mike McVay, Cliff Hays
Mark Williams, Petros Christou, Jae H. Chung.

Civil & Coastal Engineering, University of Florida
Supported by Florida Department of Transportation
and the Federal Highway Administration

The program calculates the Response
of the Bridge Pier Pile Soil Structures

The Analysis includes PreLoad, Static,
Transient Dynamic or Push Over

The Program Handles NonLinear Soil Behavior,
Linear Pile Cap and Linear and NonLinear Piles and Piers

Contact: Bridge Software Institute for Support
[HTTP://BSI-WEB.CE.UFL.EDU](http://BSI-WEB.CE.UFL.EDU)

* ANALYSIS RESULTS *

* RESULTS FOR LOAD CASE # 1 *

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

PILE#	X-PYM	Y-PYM
1	0.300E+00	0.100E+01
2	0.300E+00	0.100E+01
3	0.300E+00	0.100E+01
4	0.300E+00	0.100E+01
5	0.300E+00	0.100E+01
6	0.400E+00	0.100E+01
7	0.300E+00	0.100E+01
8	0.300E+00	0.100E+01
9	0.300E+00	0.100E+01
10	0.300E+00	0.100E+01
11	0.800E+00	0.100E+01
12	0.300E+00	0.100E+01
13	0.300E+00	0.100E+01
14	0.400E+00	0.100E+01
15	0.300E+00	0.100E+01
16	0.300E+00	0.100E+01
17	0.300E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 3 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.000	Kips
FXX =	0.604	Kips
FYY =	0.000	Kips
MXX =	0.001	Kip-in
MYY =	0.000	Kip-in
MZZ =	2.906	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	70.8696	0.0000	0.0000
2	70.8696	0.0000	0.0000
3	70.8696	0.0000	0.0000
4	70.8697	0.0000	0.0000
5	70.8696	0.0000	0.0000
6	70.8696	0.0000	0.0000
7	70.8699	0.0000	0.0000
8	70.8697	0.0000	0.0000
9	70.8696	0.0000	0.0000
10	70.8696	0.0000	0.0000
11	70.8696	0.0000	0.0000
12	70.8697	0.0000	0.0000
13	70.8696	0.0000	0.0000
14	70.8696	0.0000	0.0000
15	70.8696	0.0000	0.0000
16	70.8696	0.0000	0.0000
17	70.8696	0.0000	0.0000

Pile Cap Displacements (Excluding Pile Heads)

18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
22	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
23	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
30	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
31	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
32	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
33	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
36	70.8697	0.0000	0.0000	0.0000	0.0000	0.0000
37	70.8697	0.0000	0.0000	0.0000	0.0000	0.0000
38	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
39	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
40	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
41	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
42	70.8704	0.0001	0.0000	0.0000	0.0000	0.0000
43	70.8697	0.0001	0.0000	0.0000	0.0000	0.0000
44	70.8697	0.0000	0.0000	0.0000	0.0000	0.0000
45	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
46	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
47	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
48	70.8708	0.0000	0.0000	0.0000	0.0000	0.0000
49	70.8697	0.0000	0.0000	0.0000	0.0000	0.0000
50	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
51	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
52	70.8704	-0.0001	0.0000	0.0000	0.0000	0.0000
53	70.8697	-0.0001	0.0000	0.0000	0.0000	0.0000
54	70.8697	0.0000	0.0000	0.0000	0.0000	0.0000
55	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
56	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
57	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
58	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
59	70.8697	0.0000	0.0000	0.0000	0.0000	0.0000
60	70.8697	0.0000	0.0000	0.0000	0.0000	0.0000
61	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
62	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
63	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
64	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
66	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
67	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
68	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
69	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
70	70.8696	0.0000	0.0000	0.0000		

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[illegible]

[illegible]

[illegible]

10 SP 8F08.out

270	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
271	70.8697	0.0000	0.0000	0.0000	0.0000	0.0000
272	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
273	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
274	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
275	70.8696	0.0000	0.0000	0.0000	0.0000	0.0000
276	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
277	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
278	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
279	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
280	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
281	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
282	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
283	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
284	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
285	70.8697	0.0000	0.0000	0.0000	0.0000	0.0000
286	70.8697	0.0000	0.0000	0.0000	0.0000	0.0000
287	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
288	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
289	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.1161E-01
 Minimum = -0.1161E-01

Steel Strains for Section # 1
 Steel type = 1 (For Description see Users Manual)
 Maximum = 0.4721E-02
 Minimum = -0.4721E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)
 X Direction = -17.8711 Kips
 Y Direction = 0.0000 Kips
 Z Direction = -0.0001 Kips
 Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.20041E-11	0.12085E-12
2	0.18573E-11	-0.21101E-12
3	0.20359E-11	0.10779E-12
4	0.18403E-11	0.89650E-13
5	0.18382E-11	0.91668E-13
6	0.14037E-11	0.82965E-13
7	0.14284E-11	-0.65503E-13
8	0.12924E-11	0.67402E-13
9	0.13475E-11	0.61196E-13

10	0.11608E-11	0.54513E-13
11	0.10663E-11	0.59650E-13
12	0.12602E-11	0.43118E-13
13	0.91269E-12	-0.23098E-12
14	0.62517E-12	-0.97307E-12
15	0.26276E-12	-0.35323E-12
16	0.35855E-12	-0.11489E-11
17	0.57638E-12	-0.23101E-12

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.20072E+01	-0.50321E+01
2	0.20072E+01	-0.50321E+01
3	0.20072E+01	-0.50321E+01
4	0.20072E+01	-0.50321E+01
5	0.20072E+01	-0.50321E+01
6	0.21653E+01	-0.52906E+01
7	0.20072E+01	-0.50321E+01
8	0.20072E+01	-0.50321E+01
9	0.20072E+01	-0.50321E+01
10	0.20072E+01	-0.50320E+01
11	0.25686E+01	-0.68394E+01
12	0.20072E+01	-0.50321E+01
13	0.20072E+01	-0.50321E+01
14	0.21653E+01	-0.52906E+01
15	0.20072E+01	-0.50321E+01
16	0.20072E+01	-0.50321E+01
17	0.20072E+01	-0.50321E+01

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.27550E-04	-0.90236E-05
2	0.30282E-04	-0.99062E-05
3	0.13698E-04	-0.45162E-05
4	0.35422E-04	-0.11563E-04
5	0.20426E-04	-0.67111E-05
6	0.26329E-05	-0.87418E-06
7	0.20920E-07	-0.62792E-07
8	0.12108E-07	-0.36337E-07
9	0.45534E-08	-0.13661E-07
10	0.90172E-08	-0.30030E-08
11	0.35456E-07	-0.11811E-07
12	0.11595E-04	-0.35524E-04
13	0.67199E-05	-0.20453E-04
14	0.85821E-06	-0.25848E-05
15	0.99294E-05	-0.30354E-04
16	0.45103E-05	-0.13680E-04
17	0.90324E-05	-0.27577E-04

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	294	0.16867E+02	0.1605E-04	0.16867E+02	-0.4915E-04
2	314	0.16867E+02	0.1762E-04	0.16867E+02	-0.5404E-04

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3	334	0.16867E+02	0.8028E-05	0.16867E+02	-0.2439E-04
4	354	0.16867E+02	0.2057E-04	0.16867E+02	-0.6326E-04
5	374	0.16867E+02	0.1193E-04	0.16867E+02	-0.3641E-04
6	394	0.16867E+02	0.1553E-05	0.16867E+02	-0.4678E-05
7	414	0.16867E+02	0.1115E-06	0.16867E+02	-0.3713E-07
8	434	0.16867E+02	0.6451E-07	0.16867E+02	-0.2148E-07
9	454	0.16867E+02	0.2426E-07	0.16867E+02	-0.8068E-08
10	474	0.16867E+02	0.5350E-08	0.16867E+02	-0.1599E-07
11	494	0.16867E+02	0.2099E-07	0.16867E+02	-0.6292E-07
12	514	0.16867E+02	0.6344E-04	0.16867E+02	-0.2063E-04
13	534	0.16867E+02	0.3646E-04	0.16867E+02	-0.1195E-04
14	554	0.16867E+02	0.4593E-05	0.16867E+02	-0.1525E-05
15	574	0.16867E+02	0.5417E-04	0.16867E+02	-0.1766E-04
16	594	0.16867E+02	0.2436E-04	0.16867E+02	-0.8018E-05
17	614	0.16867E+02	0.4920E-04	0.16867E+02	-0.1607E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	300	0.31067E+02	1.528	0.19233E+02	-32.69
2	319	0.28700E+02	1.528	0.19233E+02	-32.69
3	339	0.28700E+02	1.528	0.19233E+02	-32.69
4	359	0.28700E+02	1.528	0.19233E+02	-32.69
5	379	0.28700E+02	1.528	0.19233E+02	-32.69
6	400	0.31067E+02	1.404	0.19233E+02	-35.00
7	419	0.28700E+02	1.528	0.19233E+02	-32.69
8	440	0.31067E+02	1.528	0.19233E+02	-32.69
9	459	0.28700E+02	1.528	0.19233E+02	-32.69
10	479	0.28700E+02	1.528	0.19233E+02	-32.69
11	498	0.26333E+02	5.983	0.19233E+02	-40.56
12	519	0.28700E+02	1.528	0.19233E+02	-32.69
13	539	0.28700E+02	1.528	0.19233E+02	-32.69
14	560	0.31067E+02	1.404	0.19233E+02	-35.00
15	579	0.28700E+02	1.528	0.19233E+02	-32.69
16	600	0.31067E+02	1.528	0.19233E+02	-32.69
17	619	0.28700E+02	1.528	0.19233E+02	-32.69

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM D/C NO.	PROP NO.	NODE NO.	LOAD CASE	FAX (Kips)	F22 (Kips)	F33 (Kips)	M22 (Kip-ft)	M33 (Kip-ft)	TORQUE
! -> Pile Number 1 !									
1	1	1	1	0.00	2.01	0.00	0.00	0.00	0.00
0.00	1	290	1	0.00	-2.01	0.00	0.00	0.00	-5.82
0.00		18.61							

				10 SP 8F08.out				
2	1	290	1	0.00	2.01	0.00	0.00	5.82
0.00		18.61						
	1	291	1	0.00	-2.01	0.00	0.00	-11.64
0.00		37.22						
3	1	291	1	0.00	2.01	0.00	0.00	11.64
0.00		37.22						
	1	292	1	0.00	-2.01	0.00	0.00	-17.46
0.00		55.83						
4	1	292	1	0.00	2.01	0.00	0.00	17.46
0.00		55.84						
	1	293	1	0.00	-2.01	0.00	0.00	-23.29
0.00		74.45						
5	1	293	1	0.00	2.01	0.00	0.00	23.29
0.00		74.45						
	1	294	1	0.00	-2.01	0.00	0.00	-29.11
0.00		93.06						
6	1	294	1	0.00	1.51	0.00	0.00	29.11
0.00		93.06						
	1	295	1	0.00	-1.51	0.00	0.00	-32.69
0.00		104.50						
7	1	295	1	0.00	-0.38	0.00	0.00	32.69
0.00		104.51						
	1	296	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
8	1	296	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	297	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
9	1	297	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	298	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
10	1	298	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	299	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
11	1	299	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	300	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
12	1	300	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						
	1	301	1	0.00	-0.53	0.00	0.00	0.26
0.00		0.84						
13	1	301	1	0.00	0.15	0.00	0.00	-0.26
0.00		0.84						
	1	302	1	0.00	-0.15	0.00	0.00	-0.09
0.00		0.29						
14	1	302	1	0.00	-0.03	0.00	0.00	0.09
0.00		0.29						
	1	303	1	0.00	0.03	0.00	0.00	-0.02
0.00		0.00						
15	1	303	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	304	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
16	1	304	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	305	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
17	1	305	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	306	1	0.00	0.00	0.00	0.00	0.00

10 SP 8F08.out

0.00		0.00						
18	1	306	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	307	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
19	1	307	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	308	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
20	1	308	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	309	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 2 !

21	1	2	1	0.00	2.01	0.00	0.00	0.00
0.00		0.00						
	1	310	1	0.00	-2.01	0.00	0.00	-5.82
0.00		18.61						
22	1	310	1	0.00	2.01	0.00	0.00	5.82
0.00		18.61						
	1	311	1	0.00	-2.01	0.00	0.00	-11.64
0.00		37.22						
23	1	311	1	0.00	2.01	0.00	0.00	11.64
0.00		37.22						
	1	312	1	0.00	-2.01	0.00	0.00	-17.46
0.00		55.83						
24	1	312	1	0.00	2.01	0.00	0.00	17.46
0.00		55.84						
	1	313	1	0.00	-2.01	0.00	0.00	-23.29
0.00		74.45						
25	1	313	1	0.00	2.01	0.00	0.00	23.29
0.00		74.45						
	1	314	1	0.00	-2.01	0.00	0.00	-29.11
0.00		93.06						
26	1	314	1	0.00	1.51	0.00	0.00	29.11
0.00		93.06						
	1	315	1	0.00	-1.51	0.00	0.00	-32.69
0.00		104.50						
27	1	315	1	0.00	-0.38	0.00	0.00	32.69
0.00		104.51						
	1	316	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
28	1	316	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	317	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
29	1	317	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	318	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
30	1	318	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	319	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
31	1	319	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	320	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
32	1	320	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						

				10 SP 8F08.out				
	1	321	1	0.00	-0.53	0.00	0.00	0.26
0.00		0.84						
33	1	321	1	0.00	0.15	0.00	0.00	-0.26
0.00		0.84						
	1	322	1	0.00	-0.15	0.00	0.00	-0.09
0.00		0.29						
34	1	322	1	0.00	-0.03	0.00	0.00	0.09
0.00		0.29						
	1	323	1	0.00	0.03	0.00	0.00	-0.02
0.00		0.00						
35	1	323	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	324	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
36	1	324	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	325	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
37	1	325	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	326	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
38	1	326	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	327	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
39	1	327	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	328	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
40	1	328	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	329	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 3 !

41	1	3	1	0.00	2.01	0.00	0.00	0.00
0.00		0.00						
	1	330	1	0.00	-2.01	0.00	0.00	-5.82
0.00		18.61						
42	1	330	1	0.00	2.01	0.00	0.00	5.82
0.00		18.61						
	1	331	1	0.00	-2.01	0.00	0.00	-11.64
0.00		37.22						
43	1	331	1	0.00	2.01	0.00	0.00	11.64
0.00		37.22						
	1	332	1	0.00	-2.01	0.00	0.00	-17.46
0.00		55.83						
44	1	332	1	0.00	2.01	0.00	0.00	17.46
0.00		55.84						
	1	333	1	0.00	-2.01	0.00	0.00	-23.29
0.00		74.45						
45	1	333	1	0.00	2.01	0.00	0.00	23.29
0.00		74.45						
	1	334	1	0.00	-2.01	0.00	0.00	-29.11
0.00		93.06						
46	1	334	1	0.00	1.51	0.00	0.00	29.11
0.00		93.06						
	1	335	1	0.00	-1.51	0.00	0.00	-32.69
0.00		104.50						
47	1	335	1	0.00	-0.38	0.00	0.00	32.69

10 SP 8F08.out

0.00		104.51						
	1	336	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
48	1	336	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	337	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
49	1	337	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	338	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
50	1	338	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	339	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
51	1	339	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	340	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
52	1	340	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						
	1	341	1	0.00	-0.53	0.00	0.00	0.26
0.00		0.84						
53	1	341	1	0.00	0.15	0.00	0.00	-0.26
0.00		0.84						
	1	342	1	0.00	-0.15	0.00	0.00	-0.09
0.00		0.29						
54	1	342	1	0.00	-0.03	0.00	0.00	0.09
0.00		0.29						
	1	343	1	0.00	0.03	0.00	0.00	-0.02
0.00		0.00						
55	1	343	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	344	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
56	1	344	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	345	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
57	1	345	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	346	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
58	1	346	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	347	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
59	1	347	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	348	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
60	1	348	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	349	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 4 !

61	1	4	1	0.00	2.01	0.00	0.00	0.00
0.00		0.00						
	1	350	1	0.00	-2.01	0.00	0.00	-5.82
0.00		18.61						

				10 SP 8F08.out				
62	1	350	1	0.00	2.01	0.00	0.00	5.82
0.00		18.61						
	1	351	1	0.00	-2.01	0.00	0.00	-11.64
0.00		37.22						
63	1	351	1	0.00	2.01	0.00	0.00	11.64
0.00		37.22						
	1	352	1	0.00	-2.01	0.00	0.00	-17.46
0.00		55.83						
64	1	352	1	0.00	2.01	0.00	0.00	17.46
0.00		55.84						
	1	353	1	0.00	-2.01	0.00	0.00	-23.29
0.00		74.45						
65	1	353	1	0.00	2.01	0.00	0.00	23.29
0.00		74.45						
	1	354	1	0.00	-2.01	0.00	0.00	-29.11
0.00		93.06						
66	1	354	1	0.00	1.51	0.00	0.00	29.11
0.00		93.06						
	1	355	1	0.00	-1.51	0.00	0.00	-32.69
0.00		104.50						
67	1	355	1	0.00	-0.38	0.00	0.00	32.69
0.00		104.51						
	1	356	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
68	1	356	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	357	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
69	1	357	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	358	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
70	1	358	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	359	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
71	1	359	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	360	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
72	1	360	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						
	1	361	1	0.00	-0.53	0.00	0.00	0.26
0.00		0.84						
73	1	361	1	0.00	0.15	0.00	0.00	-0.26
0.00		0.84						
	1	362	1	0.00	-0.15	0.00	0.00	-0.09
0.00		0.29						
74	1	362	1	0.00	-0.03	0.00	0.00	0.09
0.00		0.29						
	1	363	1	0.00	0.03	0.00	0.00	-0.02
0.00		0.00						
75	1	363	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	364	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
76	1	364	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	365	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
77	1	365	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	366	1	0.00	0.00	0.00	0.00	0.00

10 SP 8F08.out

0.00		0.00						
78	1	366	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	367	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
79	1	367	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	368	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
80	1	368	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	369	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 5 !

81	1	5	1	0.00	2.01	0.00	0.00	0.00
0.00		0.00						
	1	370	1	0.00	-2.01	0.00	0.00	-5.82
0.00		18.61						
82	1	370	1	0.00	2.01	0.00	0.00	5.82
0.00		18.61						
	1	371	1	0.00	-2.01	0.00	0.00	-11.64
0.00		37.22						
83	1	371	1	0.00	2.01	0.00	0.00	11.64
0.00		37.22						
	1	372	1	0.00	-2.01	0.00	0.00	-17.46
0.00		55.83						
84	1	372	1	0.00	2.01	0.00	0.00	17.46
0.00		55.84						
	1	373	1	0.00	-2.01	0.00	0.00	-23.29
0.00		74.45						
85	1	373	1	0.00	2.01	0.00	0.00	23.29
0.00		74.45						
	1	374	1	0.00	-2.01	0.00	0.00	-29.11
0.00		93.06						
86	1	374	1	0.00	1.51	0.00	0.00	29.11
0.00		93.06						
	1	375	1	0.00	-1.51	0.00	0.00	-32.69
0.00		104.50						
87	1	375	1	0.00	-0.38	0.00	0.00	32.69
0.00		104.51						
	1	376	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
88	1	376	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	377	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
89	1	377	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	378	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
90	1	378	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	379	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
91	1	379	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	380	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
92	1	380	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						

				10 SP 8F08.out				
	1	381	1	0.00	-0.53	0.00	0.00	0.26
0.00		0.84						
93	1	381	1	0.00	0.15	0.00	0.00	-0.26
0.00		0.84						
	1	382	1	0.00	-0.15	0.00	0.00	-0.09
0.00		0.29						
94	1	382	1	0.00	-0.03	0.00	0.00	0.09
0.00		0.29						
	1	383	1	0.00	0.03	0.00	0.00	-0.02
0.00		0.00						
95	1	383	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	384	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
96	1	384	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	385	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
97	1	385	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	386	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
98	1	386	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	387	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
99	1	387	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	388	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
100	1	388	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	389	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 6 !

101	1	6	1	0.00	2.17	0.00	0.00	0.00
0.00		0.00						
	1	390	1	0.00	-2.17	0.00	0.00	-6.28
0.00		20.08						
102	1	390	1	0.00	2.17	0.00	0.00	6.28
0.00		20.08						
	1	391	1	0.00	-2.17	0.00	0.00	-12.56
0.00		40.15						
103	1	391	1	0.00	2.16	0.00	0.00	12.56
0.00		40.16						
	1	392	1	0.00	-2.16	0.00	0.00	-18.83
0.00		60.21						
104	1	392	1	0.00	2.17	0.00	0.00	18.83
0.00		60.22						
	1	393	1	0.00	-2.17	0.00	0.00	-25.11
0.00		80.29						
105	1	393	1	0.00	2.17	0.00	0.00	25.11
0.00		80.29						
	1	394	1	0.00	-2.17	0.00	0.00	-31.39
0.00		100.37						
106	1	394	1	0.00	1.52	0.00	0.00	31.39
0.00		100.37						
	1	395	1	0.00	-1.52	0.00	0.00	-34.99
0.00		111.88						
107	1	395	1	0.00	-0.87	0.00	0.00	35.00

10 SP 8F08.out

0.00	111.89							
	1	396	1	0.00	0.87	0.00	0.00	-32.95
0.00	105.34							
108	1	396	1	0.00	-4.00	0.00	0.00	32.94
0.00	105.33							
	1	397	1	0.00	4.00	0.00	0.00	-23.47
0.00	75.04							
109	1	397	1	0.00	-5.29	0.00	0.00	23.52
0.00	75.20							
	1	398	1	0.00	5.29	0.00	0.00	-11.00
0.00	35.17							
110	1	398	1	0.00	-5.07	0.00	0.00	10.98
0.00	35.11							
	1	399	1	0.00	5.07	0.00	0.00	1.01
0.00	3.22							
111	1	399	1	0.00	-0.17	0.00	0.00	-1.01
0.00	3.22							
	1	400	1	0.00	0.17	0.00	0.00	1.40
0.00	4.49							
112	1	400	1	0.00	0.60	0.00	0.00	-1.40
0.00	4.49							
	1	401	1	0.00	-0.60	0.00	0.00	-0.02
0.00	0.08							
113	1	401	1	0.00	0.02	0.00	0.00	0.02
0.00	0.08							
	1	402	1	0.00	-0.02	0.00	0.00	-0.08
0.00	0.25							
114	1	402	1	0.00	-0.03	0.00	0.00	0.08
0.00	0.25							
	1	403	1	0.00	0.03	0.00	0.00	0.00
0.00	0.00							
115	1	403	1	0.00	0.00	0.00	0.00	0.00
0.00	0.00							
	1	404	1	0.00	0.00	0.00	0.00	0.00
0.00	0.00							
116	1	404	1	0.00	0.00	0.00	0.00	0.00
0.00	0.00							
	1	405	1	0.00	0.00	0.00	0.00	0.00
0.00	0.00							
117	1	405	1	0.00	0.00	0.00	0.00	0.00
0.00	0.00							
	1	406	1	0.00	0.00	0.00	0.00	0.00
0.00	0.00							
118	1	406	1	0.00	0.00	0.00	0.00	0.00
0.00	0.00							
	1	407	1	0.00	0.00	0.00	0.00	0.00
0.00	0.00							
119	1	407	1	0.00	0.00	0.00	0.00	0.00
0.00	0.00							
	1	408	1	0.00	0.00	0.00	0.00	0.00
0.00	0.00							
120	1	408	1	0.00	0.00	0.00	0.00	0.00
0.00	0.00							
	1	409	1	0.00	0.00	0.00	0.00	0.00
0.00	0.00							

! -> Pile Number 7 !

121	1	7	1	0.00	2.01	0.00	0.00	0.00
0.00		0.00						
	1	410	1	0.00	-2.01	0.00	0.00	-5.82
0.00		18.61						

				10 SP 8F08.out				
122	1	410	1	0.00	2.01	0.00	0.00	5.82
0.00		18.61						
	1	411	1	0.00	-2.01	0.00	0.00	-11.64
0.00		37.22						
123	1	411	1	0.00	2.01	0.00	0.00	11.64
0.00		37.22						
	1	412	1	0.00	-2.01	0.00	0.00	-17.46
0.00		55.83						
124	1	412	1	0.00	2.01	0.00	0.00	17.46
0.00		55.84						
	1	413	1	0.00	-2.01	0.00	0.00	-23.29
0.00		74.45						
125	1	413	1	0.00	2.01	0.00	0.00	23.29
0.00		74.45						
	1	414	1	0.00	-2.01	0.00	0.00	-29.11
0.00		93.06						
126	1	414	1	0.00	1.51	0.00	0.00	29.11
0.00		93.06						
	1	415	1	0.00	-1.51	0.00	0.00	-32.69
0.00		104.50						
127	1	415	1	0.00	-0.38	0.00	0.00	32.69
0.00		104.51						
	1	416	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
128	1	416	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	417	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
129	1	417	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	418	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
130	1	418	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	419	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
131	1	419	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	420	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
132	1	420	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						
	1	421	1	0.00	-0.53	0.00	0.00	0.26
0.00		0.84						
133	1	421	1	0.00	0.15	0.00	0.00	-0.26
0.00		0.84						
	1	422	1	0.00	-0.15	0.00	0.00	-0.09
0.00		0.29						
134	1	422	1	0.00	-0.03	0.00	0.00	0.09
0.00		0.29						
	1	423	1	0.00	0.03	0.00	0.00	-0.02
0.00		0.00						
135	1	423	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	424	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
136	1	424	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	425	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
137	1	425	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	426	1	0.00	0.00	0.00	0.00	0.00

10 SP 8F08.out

0.00		0.00						
138	1	426	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	427	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
139	1	427	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	428	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
140	1	428	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	429	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 8 !

141	1	8	1	0.00	2.01	0.00	0.00	0.00
0.00		0.00						
	1	430	1	0.00	-2.01	0.00	0.00	-5.82
0.00		18.61						
142	1	430	1	0.00	2.01	0.00	0.00	5.82
0.00		18.61						
	1	431	1	0.00	-2.01	0.00	0.00	-11.64
0.00		37.22						
143	1	431	1	0.00	2.01	0.00	0.00	11.64
0.00		37.22						
	1	432	1	0.00	-2.01	0.00	0.00	-17.46
0.00		55.83						
144	1	432	1	0.00	2.01	0.00	0.00	17.46
0.00		55.84						
	1	433	1	0.00	-2.01	0.00	0.00	-23.29
0.00		74.45						
145	1	433	1	0.00	2.01	0.00	0.00	23.29
0.00		74.45						
	1	434	1	0.00	-2.01	0.00	0.00	-29.11
0.00		93.06						
146	1	434	1	0.00	1.51	0.00	0.00	29.11
0.00		93.06						
	1	435	1	0.00	-1.51	0.00	0.00	-32.69
0.00		104.50						
147	1	435	1	0.00	-0.38	0.00	0.00	32.69
0.00		104.51						
	1	436	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
148	1	436	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	437	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
149	1	437	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	438	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
150	1	438	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	439	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
151	1	439	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	440	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
152	1	440	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						

				10 SP 8F08.out				
0.00	1	441	1	0.00	-0.53	0.00	0.00	0.26
153	1	0.84						
0.00		441	1	0.00	0.15	0.00	0.00	-0.26
		0.84						
0.00	1	442	1	0.00	-0.15	0.00	0.00	-0.09
		0.29						
154	1	442	1	0.00	-0.03	0.00	0.00	0.09
0.00		0.29						
0.00	1	443	1	0.00	0.03	0.00	0.00	-0.02
		0.00						
155	1	443	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
0.00	1	444	1	0.00	0.01	0.00	0.00	0.01
		0.00						
156	1	444	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
0.00	1	445	1	0.00	0.00	0.00	0.00	0.00
		0.00						
157	1	445	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	446	1	0.00	0.00	0.00	0.00	0.00
		0.00						
158	1	446	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	447	1	0.00	0.00	0.00	0.00	0.00
		0.00						
159	1	447	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	448	1	0.00	0.00	0.00	0.00	0.00
		0.00						
160	1	448	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	449	1	0.00	0.00	0.00	0.00	0.00
		0.00						

! -> Pile Number 9 !

161	1	9	1	0.00	2.01	0.00	0.00	0.00
0.00		0.00						
	1	450	1	0.00	-2.01	0.00	0.00	-5.82
0.00		18.61						
162	1	450	1	0.00	2.01	0.00	0.00	5.82
0.00		18.61						
	1	451	1	0.00	-2.01	0.00	0.00	-11.64
0.00		37.22						
163	1	451	1	0.00	2.01	0.00	0.00	11.64
0.00		37.22						
	1	452	1	0.00	-2.01	0.00	0.00	-17.46
0.00		55.83						
164	1	452	1	0.00	2.01	0.00	0.00	17.46
0.00		55.84						
	1	453	1	0.00	-2.01	0.00	0.00	-23.29
0.00		74.45						
165	1	453	1	0.00	2.01	0.00	0.00	23.29
0.00		74.45						
	1	454	1	0.00	-2.01	0.00	0.00	-29.11
0.00		93.06						
166	1	454	1	0.00	1.51	0.00	0.00	29.11
0.00		93.06						
	1	455	1	0.00	-1.51	0.00	0.00	-32.69
0.00		104.50						
167	1	455	1	0.00	-0.38	0.00	0.00	32.69

10 SP 8F08.out

0.00		104.51						
	1	456	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
168	1	456	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	457	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
169	1	457	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	458	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
170	1	458	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	459	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
171	1	459	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	460	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
172	1	460	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						
	1	461	1	0.00	-0.53	0.00	0.00	0.26
0.00		0.84						
173	1	461	1	0.00	0.15	0.00	0.00	-0.26
0.00		0.84						
	1	462	1	0.00	-0.15	0.00	0.00	-0.09
0.00		0.29						
174	1	462	1	0.00	-0.03	0.00	0.00	0.09
0.00		0.29						
	1	463	1	0.00	0.03	0.00	0.00	-0.02
0.00		0.00						
175	1	463	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	464	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
176	1	464	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	465	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
177	1	465	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	466	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
178	1	466	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	467	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
179	1	467	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	468	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
180	1	468	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	469	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 10 !

181	1	10	1	0.00	2.01	0.00	0.00	0.00
0.00		0.00						
	1	470	1	0.00	-2.01	0.00	0.00	-5.82
0.00		18.61						

				10 SP 8F08.out				
182	1	470	1	0.00	2.01	0.00	0.00	5.82
0.00		18.61						
	1	471	1	0.00	-2.01	0.00	0.00	-11.64
0.00		37.22						
183	1	471	1	0.00	2.01	0.00	0.00	11.64
0.00		37.22						
	1	472	1	0.00	-2.01	0.00	0.00	-17.46
0.00		55.83						
184	1	472	1	0.00	2.01	0.00	0.00	17.46
0.00		55.84						
	1	473	1	0.00	-2.01	0.00	0.00	-23.29
0.00		74.45						
185	1	473	1	0.00	2.01	0.00	0.00	23.29
0.00		74.45						
	1	474	1	0.00	-2.01	0.00	0.00	-29.11
0.00		93.06						
186	1	474	1	0.00	1.51	0.00	0.00	29.11
0.00		93.06						
	1	475	1	0.00	-1.51	0.00	0.00	-32.69
0.00		104.50						
187	1	475	1	0.00	-0.38	0.00	0.00	32.69
0.00		104.51						
	1	476	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
188	1	476	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	477	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
189	1	477	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	478	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
190	1	478	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	479	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
191	1	479	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	480	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
192	1	480	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						
	1	481	1	0.00	-0.53	0.00	0.00	0.26
0.00		0.84						
193	1	481	1	0.00	0.15	0.00	0.00	-0.26
0.00		0.84						
	1	482	1	0.00	-0.15	0.00	0.00	-0.09
0.00		0.29						
194	1	482	1	0.00	-0.03	0.00	0.00	0.09
0.00		0.29						
	1	483	1	0.00	0.03	0.00	0.00	-0.02
0.00		0.00						
195	1	483	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	484	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
196	1	484	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	485	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
197	1	485	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	486	1	0.00	0.00	0.00	0.00	0.00

10 SP 8F08.out

0.00		0.00						
198	1	486	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	487	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
199	1	487	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	488	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
200	1	488	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	489	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 11 !

201	1	11	1	0.00	2.57	0.00	0.00	0.00
0.00		0.00						
	1	490	1	0.00	-2.57	0.00	0.00	-7.45
0.00		23.82						
202	1	490	1	0.00	2.57	0.00	0.00	7.45
0.00		23.82						
	1	491	1	0.00	-2.57	0.00	0.00	-14.90
0.00		47.63						
203	1	491	1	0.00	2.56	0.00	0.00	14.91
0.00		47.66						
	1	492	1	0.00	-2.56	0.00	0.00	-22.32
0.00		71.37						
204	1	492	1	0.00	2.57	0.00	0.00	22.33
0.00		71.39						
	1	493	1	0.00	-2.57	0.00	0.00	-29.78
0.00		95.21						
205	1	493	1	0.00	2.57	0.00	0.00	29.78
0.00		95.21						
	1	494	1	0.00	-2.57	0.00	0.00	-37.23
0.00		119.03						
206	1	494	1	0.00	1.40	0.00	0.00	37.23
0.00		119.03						
	1	495	1	0.00	-1.40	0.00	0.00	-40.55
0.00		129.65						
207	1	495	1	0.00	-2.38	0.00	0.00	40.56
0.00		129.67						
	1	496	1	0.00	2.38	0.00	0.00	-34.92
0.00		111.66						
208	1	496	1	0.00	-6.84	0.00	0.00	34.89
0.00		111.56						
	1	497	1	0.00	6.84	0.00	0.00	-18.71
0.00		59.81						
209	1	497	1	0.00	-6.09	0.00	0.00	18.75
0.00		59.95						
	1	498	1	0.00	6.09	0.00	0.00	-4.34
0.00		13.88						
210	1	498	1	0.00	-4.36	0.00	0.00	4.34
0.00		13.88						
	1	499	1	0.00	4.36	0.00	0.00	5.98
0.00		19.13						
211	1	499	1	0.00	2.51	0.00	0.00	-5.98
0.00		19.13						
	1	500	1	0.00	-2.51	0.00	0.00	0.05
0.00		0.15						
212	1	500	1	0.00	0.12	0.00	0.00	-0.05
0.00		0.15						

				10 SP 8F08.out				
0.00	1	501	1	0.00	-0.12	0.00	0.00	-0.24
213	1	501	1	0.00	-0.11	0.00	0.00	0.24
0.00		0.76						
0.00	1	502	1	0.00	0.11	0.00	0.00	0.03
0.00		0.10						
214	1	502	1	0.00	0.01	0.00	0.00	-0.03
0.00		0.10						
0.00	1	503	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						
215	1	503	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	504	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
216	1	504	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	505	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
217	1	505	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	506	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
218	1	506	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	507	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
219	1	507	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	508	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
220	1	508	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	509	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 12 !

221	1	12	1	0.00	2.01	0.00	0.00	0.00
0.00		0.00						
0.00	1	510	1	0.00	-2.01	0.00	0.00	-5.82
0.00		18.61						
222	1	510	1	0.00	2.01	0.00	0.00	5.82
0.00		18.61						
0.00	1	511	1	0.00	-2.01	0.00	0.00	-11.64
0.00		37.22						
223	1	511	1	0.00	2.01	0.00	0.00	11.64
0.00		37.22						
0.00	1	512	1	0.00	-2.01	0.00	0.00	-17.46
0.00		55.83						
224	1	512	1	0.00	2.01	0.00	0.00	17.46
0.00		55.84						
0.00	1	513	1	0.00	-2.01	0.00	0.00	-23.29
0.00		74.45						
225	1	513	1	0.00	2.01	0.00	0.00	23.29
0.00		74.45						
0.00	1	514	1	0.00	-2.01	0.00	0.00	-29.11
0.00		93.06						
226	1	514	1	0.00	1.51	0.00	0.00	29.11
0.00		93.06						
0.00	1	515	1	0.00	-1.51	0.00	0.00	-32.69
0.00		104.50						
227	1	515	1	0.00	-0.38	0.00	0.00	32.69

10 SP 8F08.out

0.00		104.51						
	1	516	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
228	1	516	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	517	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
229	1	517	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	518	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
230	1	518	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	519	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
231	1	519	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	520	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
232	1	520	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						
	1	521	1	0.00	-0.53	0.00	0.00	0.26
0.00		0.84						
233	1	521	1	0.00	0.15	0.00	0.00	-0.26
0.00		0.84						
	1	522	1	0.00	-0.15	0.00	0.00	-0.09
0.00		0.29						
234	1	522	1	0.00	-0.03	0.00	0.00	0.09
0.00		0.29						
	1	523	1	0.00	0.03	0.00	0.00	-0.02
0.00		0.00						
235	1	523	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	524	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
236	1	524	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	525	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
237	1	525	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	526	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
238	1	526	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	527	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
239	1	527	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	528	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
240	1	528	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	529	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 13 !

241	1	13	1	0.00	2.01	0.00	0.00	0.00
0.00		0.00						
	1	530	1	0.00	-2.01	0.00	0.00	-5.82
0.00		18.61						

				10 SP 8F08.out				
242	1	530	1	0.00	2.01	0.00	0.00	5.82
0.00		18.61						
	1	531	1	0.00	-2.01	0.00	0.00	-11.64
0.00		37.22						
243	1	531	1	0.00	2.01	0.00	0.00	11.64
0.00		37.22						
	1	532	1	0.00	-2.01	0.00	0.00	-17.46
0.00		55.83						
244	1	532	1	0.00	2.01	0.00	0.00	17.46
0.00		55.84						
	1	533	1	0.00	-2.01	0.00	0.00	-23.29
0.00		74.45						
245	1	533	1	0.00	2.01	0.00	0.00	23.29
0.00		74.45						
	1	534	1	0.00	-2.01	0.00	0.00	-29.11
0.00		93.06						
246	1	534	1	0.00	1.51	0.00	0.00	29.11
0.00		93.06						
	1	535	1	0.00	-1.51	0.00	0.00	-32.69
0.00		104.50						
247	1	535	1	0.00	-0.38	0.00	0.00	32.69
0.00		104.51						
	1	536	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
248	1	536	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	537	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
249	1	537	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	538	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
250	1	538	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	539	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
251	1	539	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	540	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
252	1	540	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						
	1	541	1	0.00	-0.53	0.00	0.00	0.26
0.00		0.84						
253	1	541	1	0.00	0.15	0.00	0.00	-0.26
0.00		0.84						
	1	542	1	0.00	-0.15	0.00	0.00	-0.09
0.00		0.29						
254	1	542	1	0.00	-0.03	0.00	0.00	0.09
0.00		0.29						
	1	543	1	0.00	0.03	0.00	0.00	-0.02
0.00		0.00						
255	1	543	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	544	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
256	1	544	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	545	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
257	1	545	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	546	1	0.00	0.00	0.00	0.00	0.00

10 SP 8F08.out

0.00		0.00						
258	1	546	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	547	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
259	1	547	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	548	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
260	1	548	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	549	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 14 !

261	1	14	1	0.00	2.17	0.00	0.00	0.00
0.00		0.00						
	1	550	1	0.00	-2.17	0.00	0.00	-6.28
0.00		20.08						
262	1	550	1	0.00	2.17	0.00	0.00	6.28
0.00		20.08						
	1	551	1	0.00	-2.17	0.00	0.00	-12.56
0.00		40.15						
263	1	551	1	0.00	2.16	0.00	0.00	12.56
0.00		40.16						
	1	552	1	0.00	-2.16	0.00	0.00	-18.83
0.00		60.21						
264	1	552	1	0.00	2.17	0.00	0.00	18.83
0.00		60.22						
	1	553	1	0.00	-2.17	0.00	0.00	-25.11
0.00		80.29						
265	1	553	1	0.00	2.17	0.00	0.00	25.11
0.00		80.29						
	1	554	1	0.00	-2.17	0.00	0.00	-31.39
0.00		100.37						
266	1	554	1	0.00	1.52	0.00	0.00	31.39
0.00		100.37						
	1	555	1	0.00	-1.52	0.00	0.00	-34.99
0.00		111.88						
267	1	555	1	0.00	-0.87	0.00	0.00	35.00
0.00		111.89						
	1	556	1	0.00	0.87	0.00	0.00	-32.95
0.00		105.34						
268	1	556	1	0.00	-4.00	0.00	0.00	32.94
0.00		105.33						
	1	557	1	0.00	4.00	0.00	0.00	-23.47
0.00		75.04						
269	1	557	1	0.00	-5.29	0.00	0.00	23.52
0.00		75.20						
	1	558	1	0.00	5.29	0.00	0.00	-11.00
0.00		35.17						
270	1	558	1	0.00	-5.07	0.00	0.00	10.98
0.00		35.11						
	1	559	1	0.00	5.07	0.00	0.00	1.01
0.00		3.22						
271	1	559	1	0.00	-0.17	0.00	0.00	-1.01
0.00		3.22						
	1	560	1	0.00	0.17	0.00	0.00	1.40
0.00		4.49						
272	1	560	1	0.00	0.60	0.00	0.00	-1.40
0.00		4.49						

				10 SP 8F08.out				
0.00	1	561	1	0.00	-0.60	0.00	0.00	-0.02
273	1	561	1	0.00	0.02	0.00	0.00	0.02
0.00	1	562	1	0.00	-0.02	0.00	0.00	-0.08
0.00	1	562	1	0.00	-0.03	0.00	0.00	0.08
274	1	563	1	0.00	0.03	0.00	0.00	0.00
0.00	1	563	1	0.00	0.00	0.00	0.00	0.00
275	1	564	1	0.00	0.00	0.00	0.00	0.00
0.00	1	564	1	0.00	0.00	0.00	0.00	0.00
276	1	565	1	0.00	0.00	0.00	0.00	0.00
0.00	1	565	1	0.00	0.00	0.00	0.00	0.00
277	1	566	1	0.00	0.00	0.00	0.00	0.00
0.00	1	566	1	0.00	0.00	0.00	0.00	0.00
278	1	567	1	0.00	0.00	0.00	0.00	0.00
0.00	1	567	1	0.00	0.00	0.00	0.00	0.00
279	1	568	1	0.00	0.00	0.00	0.00	0.00
0.00	1	568	1	0.00	0.00	0.00	0.00	0.00
280	1	569	1	0.00	0.00	0.00	0.00	0.00
0.00	1	569	1	0.00	0.00	0.00	0.00	0.00

! -> Pile Number 15 !

281	1	15	1	0.00	2.01	0.00	0.00	0.00
0.00	1	570	1	0.00	-2.01	0.00	0.00	-5.82
0.00	1	570	1	0.00	2.01	0.00	0.00	5.82
282	1	571	1	0.00	-2.01	0.00	0.00	-11.64
0.00	1	571	1	0.00	2.01	0.00	0.00	11.64
283	1	572	1	0.00	-2.01	0.00	0.00	-17.46
0.00	1	572	1	0.00	2.01	0.00	0.00	17.46
284	1	573	1	0.00	-2.01	0.00	0.00	-23.29
0.00	1	573	1	0.00	2.01	0.00	0.00	23.29
285	1	574	1	0.00	-2.01	0.00	0.00	-29.11
0.00	1	574	1	0.00	1.51	0.00	0.00	29.11
286	1	575	1	0.00	-1.51	0.00	0.00	-32.69
0.00	1	575	1	0.00	-0.38	0.00	0.00	32.69

10 SP 8F08.out

0.00		104.51						
	1	576	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
288	1	576	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	577	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
289	1	577	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	578	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
290	1	578	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	579	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
291	1	579	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	580	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
292	1	580	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						
	1	581	1	0.00	-0.53	0.00	0.00	0.26
0.00		0.84						
293	1	581	1	0.00	0.15	0.00	0.00	-0.26
0.00		0.84						
	1	582	1	0.00	-0.15	0.00	0.00	-0.09
0.00		0.29						
294	1	582	1	0.00	-0.03	0.00	0.00	0.09
0.00		0.29						
	1	583	1	0.00	0.03	0.00	0.00	-0.02
0.00		0.00						
295	1	583	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	584	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
296	1	584	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	585	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
297	1	585	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	586	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
298	1	586	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	587	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
299	1	587	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	588	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
300	1	588	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	589	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 16 !

301	1	16	1	0.00	2.01	0.00	0.00	0.00
0.00		0.00						
	1	590	1	0.00	-2.01	0.00	0.00	-5.82
0.00		18.61						

				10 SP 8F08.out				
302	1	590	1	0.00	2.01	0.00	0.00	5.82
0.00		18.61						
	1	591	1	0.00	-2.01	0.00	0.00	-11.64
0.00		37.22						
303	1	591	1	0.00	2.01	0.00	0.00	11.64
0.00		37.22						
	1	592	1	0.00	-2.01	0.00	0.00	-17.46
0.00		55.83						
304	1	592	1	0.00	2.01	0.00	0.00	17.46
0.00		55.84						
	1	593	1	0.00	-2.01	0.00	0.00	-23.29
0.00		74.45						
305	1	593	1	0.00	2.01	0.00	0.00	23.29
0.00		74.45						
	1	594	1	0.00	-2.01	0.00	0.00	-29.11
0.00		93.06						
306	1	594	1	0.00	1.51	0.00	0.00	29.11
0.00		93.06						
	1	595	1	0.00	-1.51	0.00	0.00	-32.69
0.00		104.50						
307	1	595	1	0.00	-0.38	0.00	0.00	32.69
0.00		104.51						
	1	596	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
308	1	596	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	597	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
309	1	597	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	598	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
310	1	598	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	599	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
311	1	599	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	600	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
312	1	600	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						
	1	601	1	0.00	-0.53	0.00	0.00	0.26
0.00		0.84						
313	1	601	1	0.00	0.15	0.00	0.00	-0.26
0.00		0.84						
	1	602	1	0.00	-0.15	0.00	0.00	-0.09
0.00		0.29						
314	1	602	1	0.00	-0.03	0.00	0.00	0.09
0.00		0.29						
	1	603	1	0.00	0.03	0.00	0.00	-0.02
0.00		0.00						
315	1	603	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	604	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
316	1	604	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	605	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
317	1	605	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	606	1	0.00	0.00	0.00	0.00	0.00

10 SP 8F08.out

0.00		0.00						
318	1	606	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	607	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
319	1	607	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	608	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
320	1	608	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	609	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 17 !

321	1	17	1	0.00	2.01	0.00	0.00	0.00
0.00		0.00						
	1	610	1	0.00	-2.01	0.00	0.00	-5.82
0.00		18.61						
322	1	610	1	0.00	2.01	0.00	0.00	5.82
0.00		18.61						
	1	611	1	0.00	-2.01	0.00	0.00	-11.64
0.00		37.22						
323	1	611	1	0.00	2.01	0.00	0.00	11.64
0.00		37.22						
	1	612	1	0.00	-2.01	0.00	0.00	-17.46
0.00		55.83						
324	1	612	1	0.00	2.01	0.00	0.00	17.46
0.00		55.84						
	1	613	1	0.00	-2.01	0.00	0.00	-23.29
0.00		74.45						
325	1	613	1	0.00	2.01	0.00	0.00	23.29
0.00		74.45						
	1	614	1	0.00	-2.01	0.00	0.00	-29.11
0.00		93.06						
326	1	614	1	0.00	1.51	0.00	0.00	29.11
0.00		93.06						
	1	615	1	0.00	-1.51	0.00	0.00	-32.69
0.00		104.50						
327	1	615	1	0.00	-0.38	0.00	0.00	32.69
0.00		104.51						
	1	616	1	0.00	0.38	0.00	0.00	-31.78
0.00		101.61						
328	1	616	1	0.00	-2.86	0.00	0.00	31.78
0.00		101.62						
	1	617	1	0.00	2.86	0.00	0.00	-25.02
0.00		79.99						
329	1	617	1	0.00	-4.90	0.00	0.00	25.06
0.00		80.11						
	1	618	1	0.00	4.90	0.00	0.00	-13.46
0.00		43.05						
330	1	618	1	0.00	-5.03	0.00	0.00	13.44
0.00		42.96						
	1	619	1	0.00	5.03	0.00	0.00	-1.53
0.00		4.88						
331	1	619	1	0.00	-1.29	0.00	0.00	1.53
0.00		4.88						
	1	620	1	0.00	1.29	0.00	0.00	1.53
0.00		4.89						
332	1	620	1	0.00	0.53	0.00	0.00	-1.53
0.00		4.89						

10 SP 8F08.out

0.00	1	621	1	0.00	-0.53	0.00	0.00	0.26
333	1	621	1	0.00	0.15	0.00	0.00	-0.26
0.00	1	622	1	0.00	-0.15	0.00	0.00	-0.09
0.00	1	622	1	0.00	-0.03	0.00	0.00	0.09
334	1	623	1	0.00	0.03	0.00	0.00	-0.02
0.00	1	623	1	0.00	-0.01	0.00	0.00	0.02
0.00	1	624	1	0.00	0.01	0.00	0.00	0.01
335	1	624	1	0.00	0.00	0.00	0.00	-0.01
0.00	1	625	1	0.00	0.00	0.00	0.00	0.00
0.00	1	625	1	0.00	0.00	0.00	0.00	0.00
336	1	626	1	0.00	0.00	0.00	0.00	0.00
0.00	1	626	1	0.00	0.00	0.00	0.00	0.00
0.00	1	627	1	0.00	0.00	0.00	0.00	0.00
337	1	627	1	0.00	0.00	0.00	0.00	0.00
0.00	1	628	1	0.00	0.00	0.00	0.00	0.00
0.00	1	628	1	0.00	0.00	0.00	0.00	0.00
338	1	629	1	0.00	0.00	0.00	0.00	0.00
0.00	1	629	1	0.00	0.00	0.00	0.00	0.00

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.2036E-11 Kip	1	0	3
Min Axial Force	-0.1149E-11 Kip	1	0	16
Max Shear in 2 Direction	0.2569E+01 Kip	1	0	11
Min Shear in 2 Direction	-0.6839E+01 Kip	1	0	11
Max Shear in 3 Direction	0.3542E-04 Kip	1	0	4

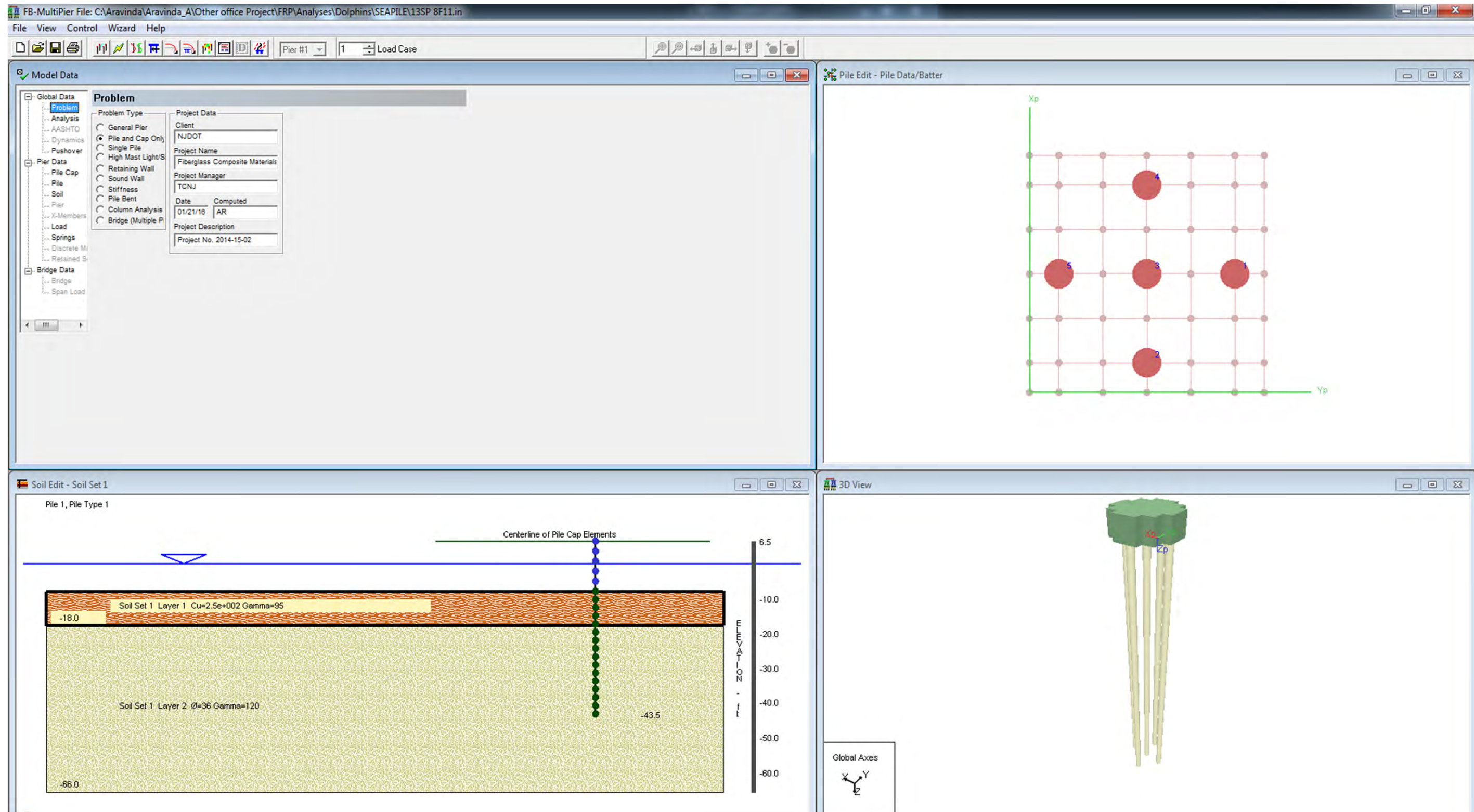
	10 SP 8F08.out			
Min Shear in 3 Direction	-0.3552E-04 Kip	1	0	12
Max Moment about 2 Axis	0.6344E-04 Kip-ft	1	0	12
Min Moment about 2 Axis	-0.6326E-04 Kip-ft	1	0	4
Max Moment About 3 Axis	0.5983E+01 Kip-ft	1	0	11
Min Moment About 3 Axis	-0.4056E+02 Kip-ft	1	0	11
Max Torsional Force	0.4535E-04 Kip-ft	1	0	3
Min Torsional Force	-0.4548E-04 Kip-ft	1	0	16
Max Demand/Capacity Ratio	0.1297E+03	1	0	11

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.0000E+00 Kip	1	0	12
Min Axial Soil Force	-0.1165E-05 Kip	1	0	1
Max Lateral Force in X dir	0.2388E+01 Kip	1	0	11
Min Lateral Force in X dir	-0.4753E+01 Kip	1	0	11
Max Lateral Force in Y dir	0.1473E-02 Kip	1	0	4
Min Lateral Force in Y dir	-0.1475E-02 Kip	1	0	12
Max Torsional Soil Force	0.2447E-03 Kip-ft	1	0	16

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.1586E-09 in	1	0	17
Min Axial Displacement	-0.2597E-08 in	1	0	1
Max Displacement in X	0.7087E+02 in	1	0	7
Min Displacement in X	0.7087E+02 in	1	0	11
Max Displacement in Y	0.4832E-04 in	1	0	4
Min Displacement in Y	-0.4846E-04 in	1	0	12



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 2 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 1,0,0
I= 60 T= 3 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=2 D=2 U=0 : Drilled Shaft - nonlinear
K= 1 L= 50 M= 2 \
S= 1,0,0,0
NC= 5 -0.1 -9.83 0 9.83 0.1 \
0 0 0 0 0 \
0 0 0 0 0
-0.02 -0.0175 0 0.0175 0.02 \
0 0 0 0 0 \
0 0 0 0 0
S1= 5 -61 -60 0 60 61 \
0 0 0 0 0 \
0 0 0 0 0
-0.1 -0.002 0 0.002 0.1 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.00206897
NL= 1 NG= 0 D= 13 V= 0 S= 64 TH= 0 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
0 2 D= 8 A= 0.01 : prest, # bars, diam, area
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
7 7 5 5 : NPX, NPY, GSX, GSY
13 19.5 19.5 19.5 19.5 13 \

13 19.5 19.5 19.5 19.5 13 \

0.3 0.4 0.8
0.3 0.4 0.8
:
MISSING
44 : number of missing piles
1 1
2 1
3 1
4 1
5 1

```

```

6 1
7 1
1 2
2 2
3 2
5 2
6 2
7 2
1 3
2 3
3 3
4 3
5 3
6 3
7 3
1 4
3 4
5 4
7 4
1 5
2 5
3 5
4 5
5 5
6 5
7 5
1 6
2 6
3 6
5 6
6 6
7 6
1 7
2 7
3 7
4 7
5 7
6 7
7 7
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
REMOVE
1 1
2 1

```

13SP 8F11.in

```
5 1
6 1
1 2
6 2
1 5
6 5
1 6
2 6
5 6
6 6
:
LOAD
26 L= 1 F= 28 0 0 0 0 0
:
PADBC
:
```

```

!
! The University of Florida, Florida Department
! of Transportation, Drs. Marc Hoit, Mike McVay
! Cliff Hays, Mark Williams, Petros Christou, and
! Jae H. Chung
! disclaim any warranty, expressed or implied,
! including but not limited to, any implied
! warranty of fitness for a particular purpose
! or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
! incurred through the use of FB-MultiPier
!

```

```

!
! :::: F B - M U L T I P I E R ::::
! FB-MultiPier Version 4.17
!

```

```

!
! Written by Marc Hoit, Mike McVay, Cliff Hays
! Mark Williams, Petros Christou, Jae H. Chung.
!

```

```

!
! Civil & Coastal Engineering, University of Florida
! Supported by Florida Department of Transportation
! and the Federal Highway Administration
!

```

```

!
! The program calculates the Response
! of the Bridge Pier Pile Soil Structures
!

```

```

!
! The Analysis includes PreLoad, Static,
! Transient Dynamic or Push Over
!

```

```

!
! The Program Handles NonLinear Soil Behavior,
! Linear Pile Cap and Linear and NonLinear Piles and Piers
!

```

```

!
! Contact: Bridge Software Institute for Support
! HTTP://BSI-WEB.CE.UFL.EDU
!

```

```

*****
*
* ANALYSIS RESULTS
*
*****

```

```

*****
* RESULTS FOR LOAD CASE # 1 *
*****

```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

PILE#	X-PYM	Y-PYM
1	0.400E+00	0.100E+01
2	0.300E+00	0.100E+01
3	0.400E+00	0.100E+01
4	0.800E+00	0.100E+01
5	0.400E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 7 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.000	Kips
FXX =	2.603	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYY =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	85.1375	0.0001	0.0000
2	85.1376	0.0000	0.0000
3	85.1374	0.0000	0.0000
4	85.1374	0.0000	0.0000
5	85.1374	-0.0001	0.0000

Pile Cap Displacements (Excluding Pile Heads)

6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8	85.1376	0.0001	0.0000	0.0000	0.0000	0.0000
9	85.1375	0.0001	0.0000	0.0000	0.0000	0.0000
10	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	85.1376	0.0001	0.0000	0.0000	0.0000	0.0000
15	85.1376	0.0001	0.0000	0.0000	0.0000	0.0000
16	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
17	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	85.1381	0.0002	0.0000	0.0000	0.0000	0.0000
20	85.1376	0.0001	0.0000	0.0000	0.0000	0.0000
21	85.1375	0.0001	0.0000	0.0000	0.0000	0.0000
22	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
23	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
24	85.1374	0.0000	0.0000	0.0000	0.0000	0.0000
25	85.1375	-0.0001	0.0000	0.0000	0.0000	0.0000
26	85.1382	0.0000	0.0000	0.0000	0.0000	0.0000
27	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
28	85.1374	0.0000	0.0000	0.0000	0.0000	0.0000
29	85.1374	0.0000	0.0000	0.0000	0.0000	0.0000
30	85.1380	-0.0001	0.0000	0.0000	0.0000	0.0000

31	85.1376	-0.0001	0.0000	0.0000	0.0000	0.0000
32	85.1375	-0.0001	0.0000	0.0000	0.0000	0.0000
33	85.1374	0.0000	0.0000	0.0000	0.0000	0.0000
34	85.1374	0.0000	0.0000	0.0000	0.0000	0.0000
35	85.1374	0.0000	0.0000	0.0000	0.0000	0.0000
36	85.1374	0.0000	0.0000	0.0000	0.0000	0.0000
37	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
38	85.1376	0.0000	0.0000	0.0000	0.0000	0.0000
39	85.1375	-0.0001	0.0000	0.0000	0.0000	0.0000
40	85.1374	0.0000	0.0000	0.0000	0.0000	0.0000
41	85.1374	0.0000	0.0000	0.0000	0.0000	0.0000
42	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
43	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
44	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
45	85.1375	-0.0001	0.0000	0.0000	0.0000	0.0000
46	85.1374	-0.0001	0.0000	0.0000	0.0000	0.0000
47	85.1374	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
49	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
51	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
52	85.1376	0.0000	0.0000	0.0000	0.0000	0.0000
53	85.1376	0.0000	0.0000	0.0000	0.0000	0.0000
54	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
57	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
58	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
59	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	85.1376	0.0000	0.0000	0.0000	0.0000	0.0000
61	85.1375	0.0001	0.0000	0.0000	0.0000	0.0000
62	85.1376	0.0000	0.0000	0.0000	0.0000	0.0000
63	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
64	85.1376	0.0000	0.0000	0.0000	0.0000	0.0000
65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
66	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
67	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
68	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
69	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
70	85.1376	0.0000	0.0000	0.0000	0.0000	0.0000
71	85.1376	0.0000	0.0000	0.0000	0.0000	0.0000
72	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
73	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
74	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
75	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
76	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
77	85.1376	0.0000	0.0000	0.0000	0.0000	0.0000
78	85.1376	0.0001	0.0000	0.0000	0.0000	0.0000
79	85.1376	0.0000	0.0000	0.0000	0.0000	0.0000
80	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
81	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
82	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
83	85.1375	0.0000	0.0000	0.0000	0.00	

13SP 8F11.out

[illegible]

13SP 8F11.out

157	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
158	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
159	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
160	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
161	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
162	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
163	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
164	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
165	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
166	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
167	85.1375	0.0000	0.0000	0.0000	0.0000	0.0000
168	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
169	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.1043E-01
 Minimum = -0.1043E-01

Steel Strains for Section # 1
 Steel type = 1 (For Description see Users Manual)
 Maximum = 0.5222E-02
 Minimum = -0.5222E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)
 X Direction = 12.1384 Kips
 Y Direction = 0.0000 Kips
 Z Direction = 0.0000 Kips
 Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.18645E-10	0.78775E-13
2	-0.75715E-13	-0.19766E-10
3	0.17818E-10	0.81116E-13
4	0.79520E-13	-0.61495E-11
5	0.25596E-10	0.75037E-13

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.54427E+01	-0.21707E+02
2	0.50295E+01	-0.20582E+02
3	0.54427E+01	-0.21707E+02
4	0.66422E+01	-0.26076E+02
5	0.54430E+01	-0.21736E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.17787E-03	-0.59213E-04
2	0.89111E-04	-0.29675E-04
3	0.26550E-07	-0.79724E-07
4	0.29713E-04	-0.89227E-04
5	0.59266E-04	-0.17803E-03

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	175	0.19233E+02	0.1052E-03	0.16867E+02	-0.3158E-03
2	195	0.19233E+02	0.5271E-04	0.16867E+02	-0.1582E-03
3	214	0.16867E+02	0.1415E-06	0.19233E+02	-0.4713E-07
4	234	0.16867E+02	0.1584E-03	0.19233E+02	-0.5278E-04
5	254	0.16867E+02	0.3161E-03	0.19233E+02	-0.1053E-03

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	182	0.35800E+02	5.980	0.26333E+02	-106.2
2	202	0.35800E+02	5.986	0.26333E+02	-102.4
3	221	0.33433E+02	5.980	0.26333E+02	-106.2
4	241	0.33433E+02	4.877	0.23967E+02	-119.2
5	262	0.35800E+02	5.993	0.26333E+02	-106.3

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM D/C	PROP NO.	NODE NO.	LOAD NO.	FAX CASE (Kips)	F22 (Kips)	F33 (Kips)	M22 (Kip-ft)	M33 (Kip-ft)	TORQUE
! -> Pile Number 1 !									
0.00	1	1	1	0.00	5.44	0.00	0.00	0.00	
0.00	1	170	1	0.00	-5.44	0.00	0.00	-15.78	
0.00	2	170	1	0.00	5.44	0.00	0.00	15.78	
0.00	1	171	1	0.00	-5.44	0.00	0.00	-31.57	
0.00		77.44							

				13SP 8F11.out				
3	1	171	1	0.00	5.44	0.00	0.00	31.57
0.00		77.44						
	1	172	1	0.00	-5.44	0.00	0.00	-47.35
0.00		116.15						
4	1	172	1	0.00	5.44	0.00	0.00	47.35
0.00		116.15						
	1	173	1	0.00	-5.44	0.00	0.00	-63.14
0.00		154.87						
5	1	173	1	0.00	5.44	0.00	0.00	63.14
0.00		154.87						
	1	174	1	0.00	-5.44	0.00	0.00	-78.92
0.00		193.59						
6	1	174	1	0.00	5.04	0.00	0.00	78.92
0.00		193.59						
	1	175	1	0.00	-5.04	0.00	0.00	-90.86
0.00		222.87						
7	1	175	1	0.00	3.87	0.00	0.00	90.86
0.00		222.87						
	1	176	1	0.00	-3.87	0.00	0.00	-100.01
0.00		245.32						
8	1	176	1	0.00	2.30	0.00	0.00	100.01
0.00		245.32						
	1	177	1	0.00	-2.30	0.00	0.00	-105.46
0.00		258.69						
9	1	177	1	0.00	0.33	0.00	0.00	105.46
0.00		258.69						
	1	178	1	0.00	-0.33	0.00	0.00	-106.24
0.00		260.62						
10	1	178	1	0.00	-1.69	0.00	0.00	106.24
0.00		260.62						
	1	179	1	0.00	1.69	0.00	0.00	-102.24
0.00		250.81						
11	1	179	1	0.00	-13.77	0.00	0.00	102.24
0.00		250.81						
	1	180	1	0.00	13.77	0.00	0.00	-69.66
0.00		170.88						
12	1	180	1	0.00	-21.71	0.00	0.00	69.64
0.00		170.82						
	1	181	1	0.00	21.71	0.00	0.00	-18.26
0.00		44.80						
13	1	181	1	0.00	-10.23	0.00	0.00	18.24
0.00		44.75						
	1	182	1	0.00	10.23	0.00	0.00	5.98
0.00		14.67						
14	1	182	1	0.00	0.66	0.00	0.00	-5.98
0.00		14.67						
	1	183	1	0.00	-0.66	0.00	0.00	4.43
0.00		10.86						
15	1	183	1	0.00	1.68	0.00	0.00	-4.43
0.00		10.86						
	1	184	1	0.00	-1.68	0.00	0.00	0.44
0.00		1.08						
16	1	184	1	0.00	0.33	0.00	0.00	-0.44
0.00		1.08						
	1	185	1	0.00	-0.33	0.00	0.00	-0.35
0.00		0.86						
17	1	185	1	0.00	-0.10	0.00	0.00	0.35
0.00		0.86						
	1	186	1	0.00	0.10	0.00	0.00	-0.11
0.00		0.26						
18	1	186	1	0.00	-0.05	0.00	0.00	0.11
0.00		0.26						
	1	187	1	0.00	0.05	0.00	0.00	0.01

13SP 8F11.out

0.00		0.00						
19	1	187	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	188	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
20	1	188	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	189	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 2 !

21	1	2	1	0.00	5.03	0.00	0.00	0.00
0.00		0.00						
	1	190	1	0.00	-5.03	0.00	0.00	-14.59
0.00		35.78						
22	1	190	1	0.00	5.03	0.00	0.00	14.59
0.00		35.78						
	1	191	1	0.00	-5.03	0.00	0.00	-29.17
0.00		71.56						
23	1	191	1	0.00	5.03	0.00	0.00	29.17
0.00		71.56						
	1	192	1	0.00	-5.03	0.00	0.00	-43.76
0.00		107.34						
24	1	192	1	0.00	5.03	0.00	0.00	43.76
0.00		107.34						
	1	193	1	0.00	-5.03	0.00	0.00	-58.34
0.00		143.11						
25	1	193	1	0.00	5.03	0.00	0.00	58.34
0.00		143.11						
	1	194	1	0.00	-5.03	0.00	0.00	-72.93
0.00		178.89						
26	1	194	1	0.00	4.73	0.00	0.00	72.93
0.00		178.89						
	1	195	1	0.00	-4.73	0.00	0.00	-84.12
0.00		206.36						
27	1	195	1	0.00	3.85	0.00	0.00	84.12
0.00		206.36						
	1	196	1	0.00	-3.85	0.00	0.00	-93.23
0.00		228.70						
28	1	196	1	0.00	2.67	0.00	0.00	93.23
0.00		228.70						
	1	197	1	0.00	-2.67	0.00	0.00	-99.56
0.00		244.23						
29	1	197	1	0.00	1.20	0.00	0.00	99.56
0.00		244.23						
	1	198	1	0.00	-1.20	0.00	0.00	-102.40
0.00		251.19						
30	1	198	1	0.00	-0.42	0.00	0.00	102.40
0.00		251.19						
	1	199	1	0.00	0.42	0.00	0.00	-101.40
0.00		248.74						
31	1	199	1	0.00	-9.53	0.00	0.00	101.40
0.00		248.74						
	1	200	1	0.00	9.53	0.00	0.00	-78.85
0.00		193.43						
32	1	200	1	0.00	-20.58	0.00	0.00	78.84
0.00		193.39						
	1	201	1	0.00	20.58	0.00	0.00	-30.13
0.00		73.90						
33	1	201	1	0.00	-12.86	0.00	0.00	30.11
0.00		73.87						

13SP 8F11.out

0.00	1	202	1	0.00	12.86	0.00	0.00	0.33
0.00		0.81						
34	1	202	1	0.00	-2.39	0.00	0.00	-0.33
0.00		0.81						
	1	203	1	0.00	2.39	0.00	0.00	5.99
0.00		14.68						
35	1	203	1	0.00	1.73	0.00	0.00	-5.99
0.00		14.68						
	1	204	1	0.00	-1.73	0.00	0.00	1.88
0.00		4.62						
36	1	204	1	0.00	0.87	0.00	0.00	-1.88
0.00		4.62						
	1	205	1	0.00	-0.87	0.00	0.00	-0.16
0.00		0.40						
37	1	205	1	0.00	0.04	0.00	0.00	0.16
0.00		0.40						
	1	206	1	0.00	-0.04	0.00	0.00	-0.25
0.00		0.62						
38	1	206	1	0.00	-0.09	0.00	0.00	0.25
0.00		0.62						
	1	207	1	0.00	0.09	0.00	0.00	-0.04
0.00		0.00						
39	1	207	1	0.00	-0.02	0.00	0.00	0.04
0.00		0.00						
	1	208	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
40	1	208	1	0.00	0.01	0.00	0.00	-0.01
0.00		0.00						
	1	209	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 3 !

41	1	3	1	0.00	5.44	0.00	0.00	0.00
0.00		0.00						
	1	210	1	0.00	-5.44	0.00	0.00	-15.78
0.00		38.72						
42	1	210	1	0.00	5.44	0.00	0.00	15.78
0.00		38.72						
	1	211	1	0.00	-5.44	0.00	0.00	-31.57
0.00		77.44						
43	1	211	1	0.00	5.44	0.00	0.00	31.57
0.00		77.44						
	1	212	1	0.00	-5.44	0.00	0.00	-47.35
0.00		116.15						
44	1	212	1	0.00	5.44	0.00	0.00	47.35
0.00		116.15						
	1	213	1	0.00	-5.44	0.00	0.00	-63.13
0.00		154.87						
45	1	213	1	0.00	5.44	0.00	0.00	63.13
0.00		154.87						
	1	214	1	0.00	-5.44	0.00	0.00	-78.92
0.00		193.59						
46	1	214	1	0.00	5.04	0.00	0.00	78.92
0.00		193.59						
	1	215	1	0.00	-5.04	0.00	0.00	-90.86
0.00		222.87						
47	1	215	1	0.00	3.87	0.00	0.00	90.86
0.00		222.87						
	1	216	1	0.00	-3.87	0.00	0.00	-100.01
0.00		245.32						
48	1	216	1	0.00	2.30	0.00	0.00	100.01

13SP 8F11.out

0.00		245.32						
	1	217	1	0.00	-2.30	0.00	0.00	-105.46
0.00		258.69						
49	1	217	1	0.00	0.33	0.00	0.00	105.46
0.00		258.69						
	1	218	1	0.00	-0.33	0.00	0.00	-106.24
0.00		260.62						
50	1	218	1	0.00	-1.69	0.00	0.00	106.24
0.00		260.62						
	1	219	1	0.00	1.69	0.00	0.00	-102.24
0.00		250.81						
51	1	219	1	0.00	-13.77	0.00	0.00	102.24
0.00		250.81						
	1	220	1	0.00	13.77	0.00	0.00	-69.66
0.00		170.88						
52	1	220	1	0.00	-21.71	0.00	0.00	69.64
0.00		170.82						
	1	221	1	0.00	21.71	0.00	0.00	-18.26
0.00		44.80						
53	1	221	1	0.00	-10.23	0.00	0.00	18.24
0.00		44.75						
	1	222	1	0.00	10.23	0.00	0.00	5.98
0.00		14.67						
54	1	222	1	0.00	0.66	0.00	0.00	-5.98
0.00		14.67						
	1	223	1	0.00	-0.66	0.00	0.00	4.43
0.00		10.86						
55	1	223	1	0.00	1.68	0.00	0.00	-4.43
0.00		10.86						
	1	224	1	0.00	-1.68	0.00	0.00	0.44
0.00		1.08						
56	1	224	1	0.00	0.33	0.00	0.00	-0.44
0.00		1.08						
	1	225	1	0.00	-0.33	0.00	0.00	-0.35
0.00		0.86						
57	1	225	1	0.00	-0.10	0.00	0.00	0.35
0.00		0.86						
	1	226	1	0.00	0.10	0.00	0.00	-0.11
0.00		0.26						
58	1	226	1	0.00	-0.05	0.00	0.00	0.11
0.00		0.26						
	1	227	1	0.00	0.05	0.00	0.00	0.01
0.00		0.00						
59	1	227	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	228	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
60	1	228	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	229	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 4 !

61	1	4	1	0.00	6.64	0.00	0.00	0.00
0.00		0.00						
	1	230	1	0.00	-6.64	0.00	0.00	-19.26
0.00		47.25						
62	1	230	1	0.00	6.64	0.00	0.00	19.26
0.00		47.25						
	1	231	1	0.00	-6.64	0.00	0.00	-38.53
0.00		94.50						

				13SP 8F11.out				
63	1	231	1	0.00	6.64	0.00	0.00	38.53
0.00		94.50						
	1	232	1	0.00	-6.64	0.00	0.00	-57.79
0.00		141.75						
64	1	232	1	0.00	6.64	0.00	0.00	57.79
0.00		141.75						
	1	233	1	0.00	-6.64	0.00	0.00	-77.05
0.00		189.01						
65	1	233	1	0.00	6.64	0.00	0.00	77.05
0.00		189.01						
	1	234	1	0.00	-6.64	0.00	0.00	-96.31
0.00		236.26						
66	1	234	1	0.00	5.84	0.00	0.00	96.31
0.00		236.26						
	1	235	1	0.00	-5.84	0.00	0.00	-110.14
0.00		270.18						
67	1	235	1	0.00	3.49	0.00	0.00	110.14
0.00		270.18						
	1	236	1	0.00	-3.49	0.00	0.00	-118.39
0.00		290.42						
68	1	236	1	0.00	0.34	0.00	0.00	118.39
0.00		290.42						
	1	237	1	0.00	-0.34	0.00	0.00	-119.20
0.00		292.41						
69	1	237	1	0.00	-3.46	0.00	0.00	119.20
0.00		292.41						
	1	238	1	0.00	3.46	0.00	0.00	-111.02
0.00		272.33						
70	1	238	1	0.00	-6.93	0.00	0.00	111.02
0.00		272.33						
	1	239	1	0.00	6.93	0.00	0.00	-94.61
0.00		232.08						
71	1	239	1	0.00	-26.08	0.00	0.00	94.60
0.00		232.07						
	1	240	1	0.00	26.08	0.00	0.00	-32.89
0.00		80.69						
72	1	240	1	0.00	-15.52	0.00	0.00	32.91
0.00		80.72						
	1	241	1	0.00	15.52	0.00	0.00	3.83
0.00		9.39						
73	1	241	1	0.00	-0.44	0.00	0.00	-3.83
0.00		9.39						
	1	242	1	0.00	0.44	0.00	0.00	4.88
0.00		11.96						
74	1	242	1	0.00	1.96	0.00	0.00	-4.88
0.00		11.96						
	1	243	1	0.00	-1.96	0.00	0.00	0.24
0.00		0.59						
75	1	243	1	0.00	0.24	0.00	0.00	-0.24
0.00		0.59						
	1	244	1	0.00	-0.24	0.00	0.00	-0.33
0.00		0.81						
76	1	244	1	0.00	-0.13	0.00	0.00	0.33
0.00		0.81						
	1	245	1	0.00	0.13	0.00	0.00	-0.03
0.00		0.00						
77	1	245	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	246	1	0.00	0.02	0.00	0.00	0.02
0.00		0.00						
78	1	246	1	0.00	0.01	0.00	0.00	-0.02
0.00		0.00						
	1	247	1	0.00	-0.01	0.00	0.00	0.00

13SP 8F11.out

0.00		0.00						
79	1	247	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	248	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
80	1	248	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	249	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 5 !

81	1	5	1	0.00	5.44	0.00	0.00	0.00
0.00		0.00						
	1	250	1	0.00	-5.44	0.00	0.00	-15.78
0.00		38.72						
82	1	250	1	0.00	5.44	0.00	0.00	15.78
0.00		38.72						
	1	251	1	0.00	-5.44	0.00	0.00	-31.57
0.00		77.44						
83	1	251	1	0.00	5.44	0.00	0.00	31.57
0.00		77.44						
	1	252	1	0.00	-5.44	0.00	0.00	-47.35
0.00		116.16						
84	1	252	1	0.00	5.44	0.00	0.00	47.35
0.00		116.16						
	1	253	1	0.00	-5.44	0.00	0.00	-63.14
0.00		154.88						
85	1	253	1	0.00	5.44	0.00	0.00	63.14
0.00		154.88						
	1	254	1	0.00	-5.44	0.00	0.00	-78.92
0.00		193.60						
86	1	254	1	0.00	5.04	0.00	0.00	78.92
0.00		193.60						
	1	255	1	0.00	-5.04	0.00	0.00	-90.86
0.00		222.89						
87	1	255	1	0.00	3.87	0.00	0.00	90.86
0.00		222.89						
	1	256	1	0.00	-3.87	0.00	0.00	-100.01
0.00		245.34						
88	1	256	1	0.00	2.30	0.00	0.00	100.01
0.00		245.34						
	1	257	1	0.00	-2.30	0.00	0.00	-105.46
0.00		258.70						
89	1	257	1	0.00	0.33	0.00	0.00	105.46
0.00		258.70						
	1	258	1	0.00	-0.33	0.00	0.00	-106.25
0.00		260.64						
90	1	258	1	0.00	-1.69	0.00	0.00	106.25
0.00		260.64						
	1	259	1	0.00	1.69	0.00	0.00	-102.25
0.00		250.83						
91	1	259	1	0.00	-13.77	0.00	0.00	102.25
0.00		250.83						
	1	260	1	0.00	13.77	0.00	0.00	-69.68
0.00		170.92						
92	1	260	1	0.00	-21.74	0.00	0.00	69.65
0.00		170.86						
	1	261	1	0.00	21.74	0.00	0.00	-18.21
0.00		44.66						
93	1	261	1	0.00	-10.22	0.00	0.00	18.19
0.00		44.62						

13SP 8F11.out

0.00	1	262	1	0.00	10.22	0.00	0.00	5.99
94	1	262	1	0.00	0.67	0.00	0.00	-5.99
0.00	1	263	1	0.00	-0.67	0.00	0.00	4.41
95	1	263	1	0.00	1.68	0.00	0.00	-4.41
0.00	1	264	1	0.00	-1.68	0.00	0.00	0.44
96	1	264	1	0.00	0.33	0.00	0.00	-0.44
0.00	1	265	1	0.00	-0.33	0.00	0.00	-0.35
97	1	265	1	0.00	-0.10	0.00	0.00	0.35
0.00	1	266	1	0.00	0.10	0.00	0.00	-0.11
98	1	266	1	0.00	-0.05	0.00	0.00	0.11
0.00	1	267	1	0.00	0.05	0.00	0.00	0.01
99	1	267	1	0.00	0.00	0.00	0.00	-0.01
0.00	1	268	1	0.00	0.00	0.00	0.00	0.01
100	1	268	1	0.00	0.00	0.00	0.00	-0.01
0.00	1	269	1	0.00	0.00	0.00	0.00	0.00

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.2560E-10 Kip	1	0	5
Min Axial Force	-0.1977E-10 Kip	1	0	2
Max Shear in 2 Direction	0.6642E+01 Kip	1	0	4
Min Shear in 2 Direction	-0.2608E+02 Kip	1	0	4
Max Shear in 3 Direction	0.1779E-03 Kip	1	0	1
Min Shear in 3 Direction	-0.1780E-03 Kip	1	0	5
Max Moment about 2 Axis	0.3161E-03 Kip-ft	1	0	5
Min Moment about 2 Axis	-0.3158E-03 Kip-ft	1	0	1
Max Moment About 3 Axis	0.5993E+01 Kip-ft	1	0	5

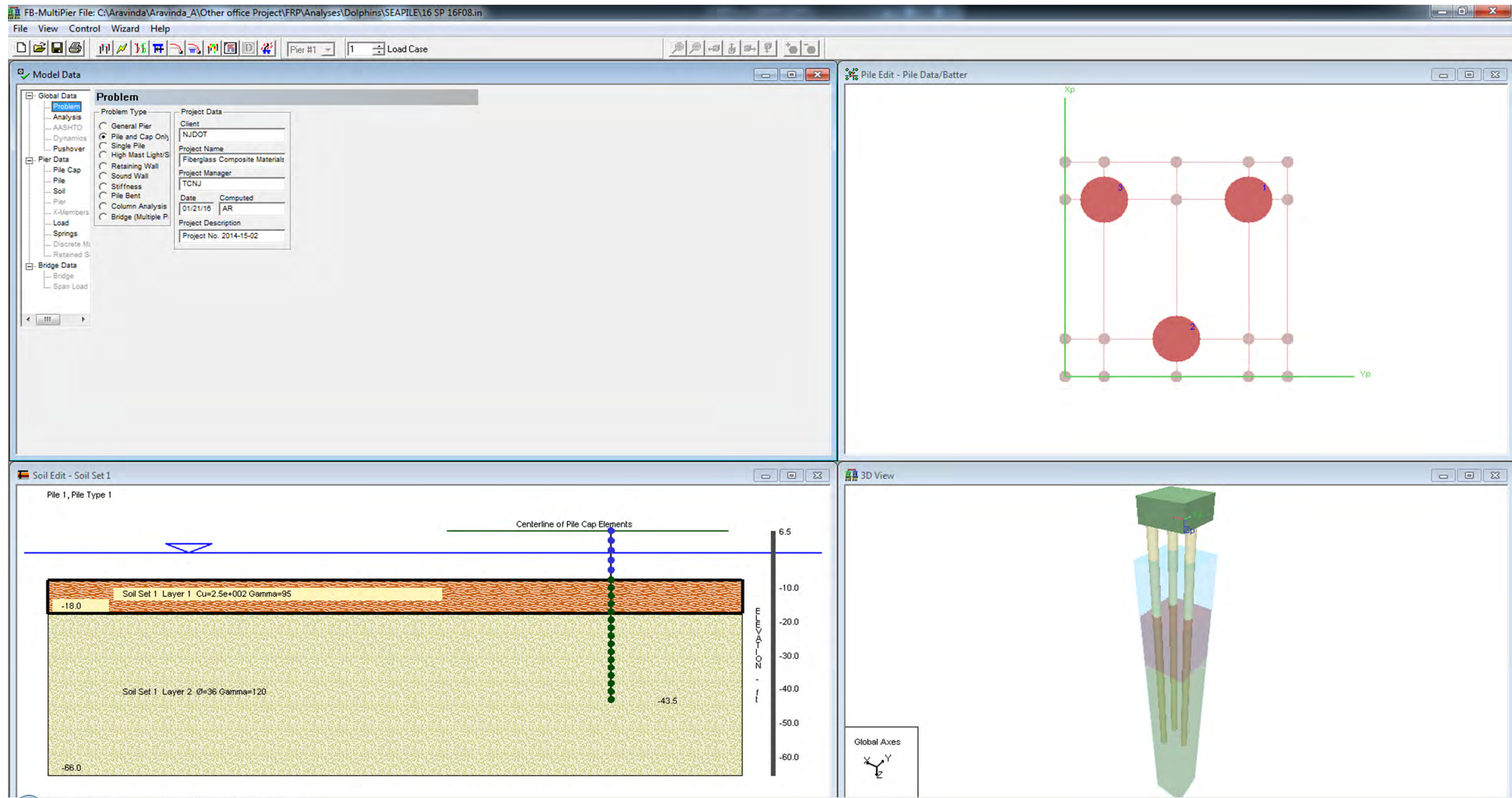
	13SP 8F11.out			
Min Moment About 3 Axis	-0.1192E+03 Kip-ft	1	0	4
Max Torsional Force	0.4106E-03 Kip-ft	1	0	1
Min Torsional Force	-0.5168E-04 Kip-ft	1	0	5
Max Demand/Capacity Ratio	0.2924E+03	1	0	4

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.0000E+00 Kip	1	0	1
Min Axial Soil Force	0.0000E+00 Kip	1	0	1
Max Lateral Force in X dir	0.1690E+02 Kip	1	0	4
Min Lateral Force in X dir	-0.1404E+02 Kip	1	0	4
Max Lateral Force in Y dir	0.4526E-03 Kip	1	0	5
Min Lateral Force in Y dir	-0.4522E-03 Kip	1	0	1
Max Torsional Soil Force	0.1985E-03 Kip-ft	1	0	5

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.8133E-13 in	1	0	2
Min Axial Displacement	-0.2431E-12 in	1	0	4
Max Displacement in X	0.8514E+02 in	1	0	2
Min Displacement in X	0.8514E+02 in	1	0	4
Max Displacement in Y	0.5544E-04 in	1	0	1
Min Displacement in Y	-0.5549E-04 in	1	0	5



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 1 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 1,0,0
I= 60 T= 3 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=2 D=2 U=0 : Drilled Shaft - nonlinear
K= 1 L= 50 M= 2 \
S= 1,0,0,0
NC= 5 -0.1 -6.75 0 6.75 0.1 \
0 0 0 0 0 \
0 0 0 0 0
-0.02 -0.0171 0 0.0171 0.02 \
0 0 0 0 0 \
0 0 0 0 0
S1= 5 -61 -60 0 60 61 \
0 0 0 0 0 \
0 0 0 0 0
-0.1 -0.002 0 0.002 0.1 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.00206897
NL= 1 NG= 0 D= 16 V= 0 S= 64 TH= 0 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
0 2 D= 10 A= 0.01 : prest, # bars, diam, area
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
4 5 5 5 : NPX, NPY, GSX, GSY
13 48 13
13 24 24 13
0.4 0.8
0.3 0.4 0.8
:
MISSING
17 : number of missing piles
1 1
2 1
3 1
4 1
1 2
2 2
4 2

```

```

1 3
3 3
4 3
1 4
2 4
4 4
1 5
2 5
3 5
4 5
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 4400 U= 0.2 T= 3 S= 0 O= 100
:
LOAD
11 L= 1 F= 27.5 0 0 0 0 0
:
PADBC
:

```

The University of Florida, Florida Department
of Transportation, Drs. Marc Hoit, Mike McVay
Cliff Hays, Mark Williams, Petros Christou, and
Jae H. Chung
disclaim any warranty, expressed or implied,
including but not limited to, any implied
warranty of fitness for a particular purpose
or accuracy of the FB-Pier software
The developers shall not be liable for any damages
incurred through the use of FB-MultiPier

:::: F B - M U L T I P I E R ::::
FB-MultiPier Version 4.17

Written by Marc Hoit, Mike McVay, Cliff Hays
Mark Williams, Petros Christou, Jae H. Chung.

Civil & Coastal Engineering, University of Florida
Supported by Florida Department of Transportation
and the Federal Highway Administration

The program calculates the Response
of the Bridge Pier Pile Soil Structures

The Analysis includes PreLoad, Static,
Transient Dynamic or Push Over

The Program Handles NonLinear Soil Behavior,
Linear Pile Cap and Linear and NonLinear Piles and Piers

Contact: Bridge Software Institute for Support
[HTTP://BSI-WEB.CE.UFL.EDU](http://BSI-WEB.CE.UFL.EDU)

* ANALYSIS RESULTS *

* RESULTS FOR LOAD CASE # 1 *

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

PILE#	X-PYM	Y-PYM
1	0.800E+00	0.100E+01
2	0.400E+00	0.100E+01
3	0.800E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 8 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	1.511	Kips
FXX =	0.000	Kips
FYY =	0.000	Kips
MXX =	0.349	Kip-in
MYY =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	88.5260	0.0000	0.0000
2	88.5261	0.0000	0.0000
3	88.5259	0.0000	0.0000

Pile Cap Displacements (Excluding Pile Heads)

4	88.5261	0.0001	0.0000	0.0000	0.0000	0.0000
5	88.5261	0.0001	0.0000	0.0000	0.0000	0.0000
6	88.5260	0.0001	0.0000	0.0000	0.0000	0.0000
7	88.5259	0.0000	0.0000	0.0000	0.0000	0.0000
8	88.5262	0.0000	0.0000	0.0000	0.0000	0.0000
9	88.5261	0.0001	0.0000	0.0000	0.0000	0.0000
10	88.5259	0.0000	0.0000	0.0000	0.0000	0.0000
11	88.5264	0.0000	0.0000	0.0000	0.0000	0.0000
12	88.5259	0.0000	0.0000	0.0000	0.0000	0.0000
13	88.5259	0.0000	0.0000	0.0000	0.0000	0.0000
14	88.5262	0.0000	0.0000	0.0000	0.0000	0.0000
15	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
16	88.5259	0.0000	0.0000	0.0000	0.0000	0.0000
17	88.5261	0.0000	0.0000	0.0000	0.0000	0.0000
18	88.5260	-0.0001	0.0000	0.0000	0.0000	0.0000
19	88.5259	-0.0001	0.0000	0.0000	0.0000	0.0000
20	88.5259	-0.0001	0.0000	0.0000	0.0000	0.0000
21	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
22	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
23	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
24	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
25	88.5261	0.0000	0.0000	0.0000	0.0000	0.0000
26	88.5261	0.0000	0.0000	0.0000	0.0000	0.0000
27	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
28	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
29	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
30	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
31	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000

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32	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
33	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
34	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
35	88.5261	0.0000	0.0000	0.0000	0.0000	0.0000
36	88.5261	0.0000	0.0000	0.0000	0.0000	0.0000
37	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
38	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
39	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
40	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
41	88.5261	0.0000	0.0000	0.0000	0.0000	0.0000
42	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
43	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
44	88.5260	0.0001	0.0000	0.0000	0.0000	0.0000
45	88.5261	0.0000	0.0000	0.0000	0.0000	0.0000
46	88.5261	0.0000	0.0000	0.0000	0.0000	0.0000
47	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
48	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
49	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
50	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
51	88.5260	0.0001	0.0000	0.0000	0.0000	0.0000
52	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
53	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
54	88.5260	0.0001	0.0000	0.0000	0.0000	0.0000
55	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
56	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
57	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
58	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
59	88.5259	0.0000	0.0000	0.0000	0.0000	0.0000
60	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
61	88.5260	0.0001	0.0000	0.0000	0.0000	0.0000
62	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000
63	88.5260	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.1217E-01
 Minimum = -0.1217E-01

Steel Strains for Section # 1
 Steel type = 1 (For Description see Users Manual)
 Maximum = 0.6189E-02
 Minimum = -0.6189E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)
 X Direction = 20.6865 Kips
 Y Direction = 0.0000 Kips
 Z Direction = 0.0000 Kips
 Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.75222E-11	-0.62636E-11
2	-0.49807E-12	-0.10091E-10
3	0.75751E-11	0.64362E-13

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.97542E+01	-0.33298E+02
2	0.79921E+01	-0.28802E+02
3	0.97546E+01	-0.33321E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.95699E-04	-0.31862E-04
2	0.88420E-04	-0.29438E-04
3	0.61339E-04	-0.18426E-03

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	68	0.16867E+02	0.5660E-04	0.14500E+02	-0.1699E-03
2	89	0.19233E+02	0.5230E-04	0.16867E+02	-0.1570E-03
3	108	0.16867E+02	0.3271E-03	0.19233E+02	-0.1090E-03

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	76	0.35800E+02	10.91	0.23967E+02	-182.9
2	97	0.38167E+02	9.308	0.26333E+02	-164.0
3	116	0.35800E+02	10.98	0.23967E+02	-182.9

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM D/C	PROP NO.	NODE NO.	LOAD CASE (Kips)	FAX (Kips)	F22 (Kips)	F33 (Kips)	M22 (Kip-ft)	M33 (Kip-ft)	TORQUE

! -> Pile Number 1 !

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1	1	1	1	0.00	9.75	0.00	0.00	0.00
0.00		0.00						
	1	64	1	0.00	-9.75	0.00	0.00	-28.29
0.00		56.64						
2	1	64	1	0.00	9.75	0.00	0.00	28.29
0.00		56.64						
	1	65	1	0.00	-9.75	0.00	0.00	-56.57
0.00		113.27						
3	1	65	1	0.00	9.75	0.00	0.00	56.57
0.00		113.27						
	1	66	1	0.00	-9.75	0.00	0.00	-84.86
0.00		169.91						
4	1	66	1	0.00	9.75	0.00	0.00	84.86
0.00		169.91						
	1	67	1	0.00	-9.75	0.00	0.00	-113.15
0.00		226.54						
5	1	67	1	0.00	9.75	0.00	0.00	113.15
0.00		226.54						
	1	68	1	0.00	-9.75	0.00	0.00	-141.44
0.00		283.18						
6	1	68	1	0.00	8.79	0.00	0.00	141.44
0.00		283.18						
	1	69	1	0.00	-8.79	0.00	0.00	-162.24
0.00		324.84						
7	1	69	1	0.00	6.10	0.00	0.00	162.24
0.00		324.84						
	1	70	1	0.00	-6.10	0.00	0.00	-176.67
0.00		353.72						
8	1	70	1	0.00	2.62	0.00	0.00	176.67
0.00		353.72						
	1	71	1	0.00	-2.62	0.00	0.00	-182.86
0.00		366.12						
9	1	71	1	0.00	-1.67	0.00	0.00	182.86
0.00		366.12						
	1	72	1	0.00	1.67	0.00	0.00	-178.90
0.00		358.19						
10	1	72	1	0.00	-5.64	0.00	0.00	178.90
0.00		358.19						
	1	73	1	0.00	5.64	0.00	0.00	-165.56
0.00		331.48						
11	1	73	1	0.00	-27.40	0.00	0.00	165.56
0.00		331.49						
	1	74	1	0.00	27.40	0.00	0.00	-100.72
0.00		201.65						
12	1	74	1	0.00	-33.30	0.00	0.00	100.70
0.00		201.61						
	1	75	1	0.00	33.30	0.00	0.00	-21.89
0.00		43.83						
13	1	75	1	0.00	-13.86	0.00	0.00	21.88
0.00		43.80						
	1	76	1	0.00	13.86	0.00	0.00	10.91
0.00		21.85						
14	1	76	1	0.00	2.06	0.00	0.00	-10.91
0.00		21.85						
	1	77	1	0.00	-2.06	0.00	0.00	6.04
0.00		12.10						
15	1	77	1	0.00	2.50	0.00	0.00	-6.04
0.00		12.10						
	1	78	1	0.00	-2.50	0.00	0.00	0.14
0.00		0.27						
16	1	78	1	0.00	0.28	0.00	0.00	-0.14
0.00		0.27						

16 SP 16F08.out

0.00	1	79	1	0.00	-0.28	0.00	0.00	-0.52
0.00	17	1.05	1	0.00	-0.19	0.00	0.00	0.52
0.00	1	80	1	0.00	0.19	0.00	0.00	-0.09
0.00	18	0.17	1	0.00	-0.05	0.00	0.00	0.09
0.00	1	81	1	0.00	0.05	0.00	0.00	0.03
0.00	19	0.00	1	0.00	0.01	0.00	0.00	-0.03
0.00	1	82	1	0.00	-0.01	0.00	0.00	0.01
0.00	20	0.00	1	0.00	0.00	0.00	0.00	-0.01
0.00	1	83	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 2 !

21	1	2	1	0.00	7.99	0.00	0.00	0.00
0.00	1	84	1	0.00	-7.99	0.00	0.00	-23.17
0.00	22	46.40	1	0.00	7.99	0.00	0.00	23.17
0.00	1	85	1	0.00	-7.99	0.00	0.00	-46.35
0.00	23	92.80	1	0.00	7.99	0.00	0.00	46.35
0.00	1	86	1	0.00	-7.99	0.00	0.00	-69.53
0.00	24	139.20	1	0.00	7.99	0.00	0.00	69.52
0.00	1	87	1	0.00	-7.99	0.00	0.00	-92.70
0.00	25	185.60	1	0.00	7.99	0.00	0.00	92.70
0.00	1	88	1	0.00	-7.99	0.00	0.00	-115.87
0.00	26	232.00	1	0.00	7.51	0.00	0.00	115.87
0.00	1	89	1	0.00	-7.51	0.00	0.00	-133.65
0.00	27	267.58	1	0.00	6.16	0.00	0.00	133.65
0.00	1	90	1	0.00	-6.16	0.00	0.00	-148.22
0.00	28	296.75	1	0.00	4.41	0.00	0.00	148.22
0.00	1	91	1	0.00	-4.41	0.00	0.00	-158.65
0.00	29	317.65	1	0.00	2.24	0.00	0.00	158.65
0.00	1	92	1	0.00	-2.24	0.00	0.00	-163.97
0.00	30	328.29	1	0.00	-0.10	0.00	0.00	163.97
0.00	1	93	1	0.00	0.10	0.00	0.00	-163.72
0.00	31	327.80	1	0.00	-11.51	0.00	0.00	163.72
		93						

16 SP 16F08.out

0.00		327.80						
	1	94	1	0.00	11.51	0.00	0.00	-136.49
0.00		273.29						
32	1	94	1	0.00	-28.80	0.00	0.00	136.50
0.00		273.29						
	1	95	1	0.00	28.80	0.00	0.00	-68.33
0.00		136.81						
33	1	95	1	0.00	-23.29	0.00	0.00	68.36
0.00		136.87						
	1	96	1	0.00	23.29	0.00	0.00	-13.25
0.00		26.54						
34	1	96	1	0.00	-9.53	0.00	0.00	13.25
0.00		26.54						
	1	97	1	0.00	9.53	0.00	0.00	9.31
0.00		18.64						
35	1	97	1	0.00	1.46	0.00	0.00	-9.31
0.00		18.64						
	1	98	1	0.00	-1.46	0.00	0.00	5.84
0.00		11.70						
36	1	98	1	0.00	2.14	0.00	0.00	-5.84
0.00		11.70						
	1	99	1	0.00	-2.14	0.00	0.00	0.78
0.00		1.57						
37	1	99	1	0.00	0.53	0.00	0.00	-0.78
0.00		1.57						
	1	100	1	0.00	-0.53	0.00	0.00	-0.48
0.00		0.96						
38	1	100	1	0.00	-0.11	0.00	0.00	0.48
0.00		0.96						
	1	101	1	0.00	0.11	0.00	0.00	-0.23
0.00		0.46						
39	1	101	1	0.00	-0.09	0.00	0.00	0.23
0.00		0.46						
	1	102	1	0.00	0.09	0.00	0.00	-0.01
0.00		0.00						
40	1	102	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
	1	103	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 3 !

41	1	3	1	0.00	9.75	0.00	0.00	0.00
0.00		0.00						
	1	104	1	0.00	-9.75	0.00	0.00	-28.29
0.00		56.64						
42	1	104	1	0.00	9.75	0.00	0.00	28.29
0.00		56.64						
	1	105	1	0.00	-9.75	0.00	0.00	-56.58
0.00		113.28						
43	1	105	1	0.00	9.75	0.00	0.00	56.58
0.00		113.27						
	1	106	1	0.00	-9.75	0.00	0.00	-84.86
0.00		169.91						
44	1	106	1	0.00	9.75	0.00	0.00	84.86
0.00		169.91						
	1	107	1	0.00	-9.75	0.00	0.00	-113.15
0.00		226.55						
45	1	107	1	0.00	9.75	0.00	0.00	113.15
0.00		226.55						
	1	108	1	0.00	-9.75	0.00	0.00	-141.44
0.00		283.19						

				16 SP 16F08.out				
46	1	108	1	0.00	8.79	0.00	0.00	141.44
0.00		283.19						
	1	109	1	0.00	-8.79	0.00	0.00	-162.25
0.00		324.85						
47	1	109	1	0.00	6.10	0.00	0.00	162.25
0.00		324.85						
	1	110	1	0.00	-6.10	0.00	0.00	-176.68
0.00		353.74						
48	1	110	1	0.00	2.62	0.00	0.00	176.68
0.00		353.74						
	1	111	1	0.00	-2.62	0.00	0.00	-182.87
0.00		366.14						
49	1	111	1	0.00	-1.67	0.00	0.00	182.87
0.00		366.14						
	1	112	1	0.00	1.67	0.00	0.00	-178.91
0.00		358.21						
50	1	112	1	0.00	-5.64	0.00	0.00	178.91
0.00		358.21						
	1	113	1	0.00	5.64	0.00	0.00	-165.57
0.00		331.50						
51	1	113	1	0.00	-27.40	0.00	0.00	165.57
0.00		331.51						
	1	114	1	0.00	27.40	0.00	0.00	-100.73
0.00		201.67						
52	1	114	1	0.00	-33.32	0.00	0.00	100.71
0.00		201.63						
	1	115	1	0.00	33.32	0.00	0.00	-21.85
0.00		43.74						
53	1	115	1	0.00	-13.87	0.00	0.00	21.83
0.00		43.72						
	1	116	1	0.00	13.87	0.00	0.00	10.98
0.00		21.99						
54	1	116	1	0.00	2.11	0.00	0.00	-10.98
0.00		21.99						
	1	117	1	0.00	-2.11	0.00	0.00	5.99
0.00		12.00						
55	1	117	1	0.00	2.48	0.00	0.00	-5.99
0.00		12.00						
	1	118	1	0.00	-2.48	0.00	0.00	0.12
0.00		0.24						
56	1	118	1	0.00	0.27	0.00	0.00	-0.12
0.00		0.24						
	1	119	1	0.00	-0.27	0.00	0.00	-0.52
0.00		1.04						
57	1	119	1	0.00	-0.19	0.00	0.00	0.52
0.00		1.04						
	1	120	1	0.00	0.19	0.00	0.00	-0.08
0.00		0.00						
58	1	120	1	0.00	-0.05	0.00	0.00	0.08
0.00		0.00						
	1	121	1	0.00	0.05	0.00	0.00	0.03
0.00		0.00						
59	1	121	1	0.00	0.01	0.00	0.00	-0.03
0.00		0.00						
	1	122	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
60	1	122	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	123	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

* ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

* DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZY (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

* FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *

* PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.7575E-11 Kip	1	0	3
Min Axial Force	-0.1009E-10 Kip	1	0	2
Max Shear in 2 Direction	0.9755E+01 Kip	1	0	3
Min Shear in 2 Direction	-0.3332E+02 Kip	1	0	3
Max Shear in 3 Direction	0.9570E-04 Kip	1	0	1
Min Shear in 3 Direction	-0.1843E-03 Kip	1	0	3
Max Moment about 2 Axis	0.3271E-03 Kip-ft	1	0	3
Min Moment about 2 Axis	-0.1699E-03 Kip-ft	1	0	1
Max Moment About 3 Axis	0.1098E+02 Kip-ft	1	0	3
Min Moment About 3 Axis	-0.1829E+03 Kip-ft	1	0	3
Max Torsional Force	0.2470E-03 Kip-ft	1	0	1
Min Torsional Force	0.3429E-14 Kip-ft	1	0	3
Max Demand/Capacity Ratio	0.3661E+03	1	0	3

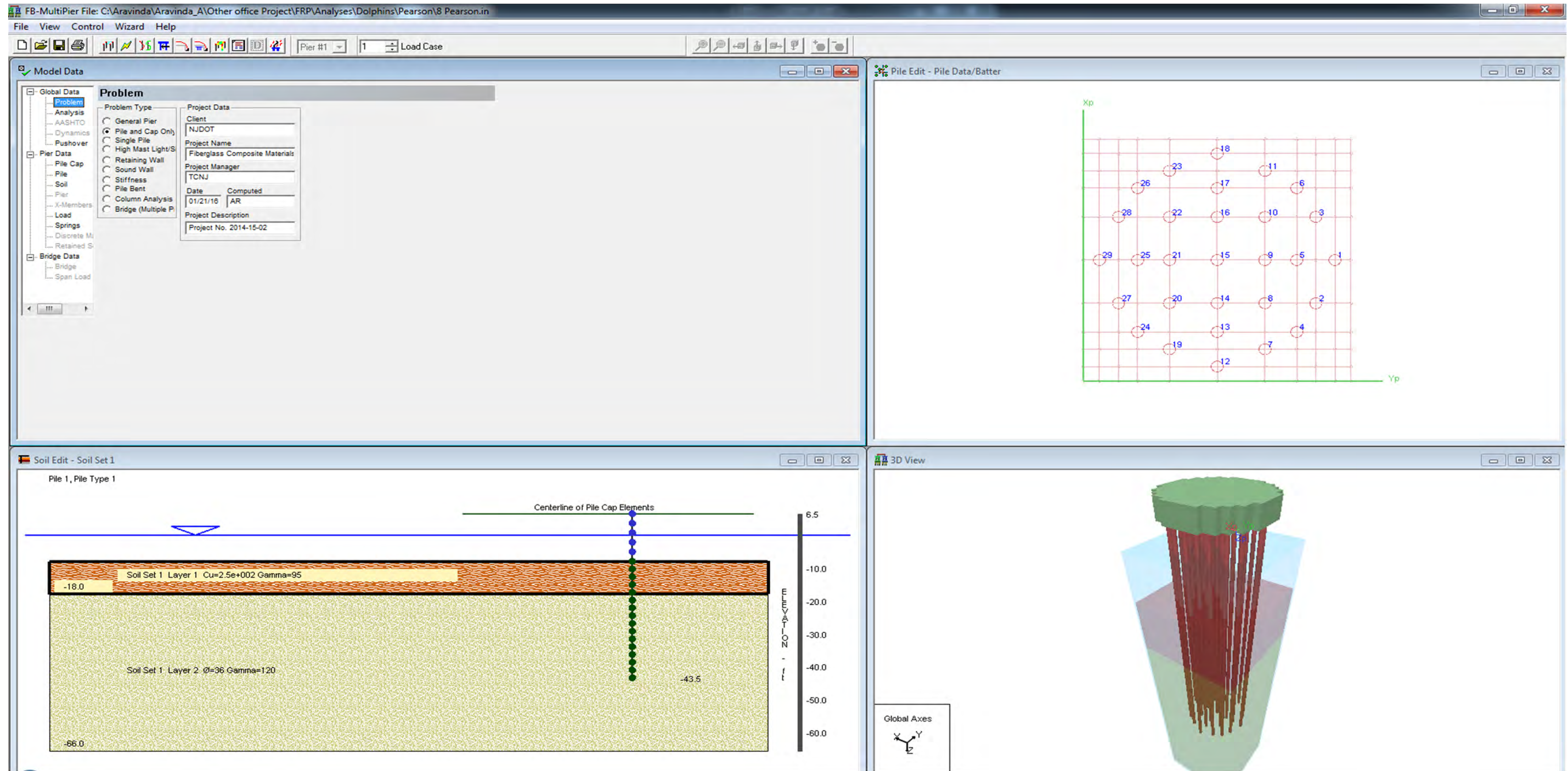
Maximum/Minimum Soil Forces

	Value	Load	Comb.	Pile
Max Axial Soil Force	0.5436E-05 Kip	1	0	2
Min Axial Soil Force	-0.1037E-04 Kip	1	0	1
Max Lateral Force in X dir	0.2055E+02 Kip	1	0	1
Min Lateral Force in X dir	-0.1906E+02 Kip	1	0	1
Max Lateral Force in Y dir	0.3512E-03 Kip	1	0	3
Min Lateral Force in Y dir	-0.2888E-03 Kip	1	0	3
Max Torsional Soil Force	-0.4114E-13 Kip-ft	1	0	3

Maximum/Minimum Pile Displacements

	Value	Load	Comb.	Pile
Max Axial Displacement	0.1079E-07 in	1	0	2
Min Axial Displacement	-0.2059E-07 in	1	0	1
Max Displacement in X	0.8853E+02 in	1	0	2
Min Displacement in X	0.8853E+02 in	1	0	3
Max Displacement in Y	0.1851E-04 in	1	0	1
Min Displacement in Y	-0.3564E-04 in	1	0	3

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```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 2 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 1,0,0
I= 60 T= 3 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -59 -58.4 0 58.4 59 \
0 0 0 0 0 \
0 0 0 0 0
-0.03 -0.013 0 0.013 0.03 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.013
NL= 0 NG= 0 D= 8 V= 0 S= 80 TH= 0.117 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
11 11 5 5 : NPX, NPY, GSX, GSY
10 12 12 20 30 30 \
20 12 12 10
10 12 12 20 30 30 \
20 12 12 10
0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.4 0.8
0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.4 0.8
:
MISSING
92 : number of missing piles
1 1
2 1
3 1
4 1
5 1
6 1

```

7 1
8 1
9 1
10 1
11 1
1 2
2 2
3 2
4 2
5 2
7 2
8 2
9 2
10 2
11 2
1 3
2 3
3 3
4 3
6 3
8 3
9 3
10 3
11 3
1 4
2 4
3 4
5 4
7 4
9 4
10 4
11 4
1 5
2 5
4 5
8 5
10 5
11 5
1 6
3 6
9 6
11 6
1 7
2 7
4 7
8 7
10 7
11 7
1 8
2 8
3 8
5 8
7 8
9 8
10 8
11 8
1 9
2 9
3 9
4 9
6 9
8 9
9 9

```

10 9
11 9
1 10
2 10
3 10
4 10
5 10
7 10
8 10
9 10
10 10
11 10
1 11
2 11
3 11
4 11
5 11
6 11
7 11
8 11
9 11
10 11
11 11
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.25 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.25 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
REMOVE
1 1
2 1
3 1
4 1
7 1
8 1
9 1
10 1
1 2
2 2
3 2
8 2
9 2
10 2
1 3
2 3
9 3
10 3

```

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```
1 4
10 4
1 7
10 7
1 8
2 8
9 8
10 8
1 9
2 9
3 9
8 9
9 9
10 9
1 10
2 10
3 10
4 10
7 10
8 10
9 10
10 10
:
LOAD
74 L= 1 F= 38 0 0 0 0 0
:
PADBC
:
```

```

!
! The University of Florida, Florida Department
! of Transportation, Drs. Marc Hoit, Mike McVay
! Cliff Hays, Mark Williams, Petros Christou, and
! Jae H. Chung
! disclaim any warranty, expressed or implied,
! including but not limited to, any implied
! warranty of fitness for a particular purpose
! or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
! incurred through the use of FB-MultiPier
!

```

```

!
! :::: F B - M U L T I P I E R ::::
! FB-MultiPier Version 4.17
!

```

```

!
! Written by Marc Hoit, Mike McVay, Cliff Hays
! Mark Williams, Petros Christou, Jae H. Chung.
!

```

```

!
! Civil & Coastal Engineering, University of Florida
! Supported by Florida Department of Transportation
! and the Federal Highway Administration
!

```

```

!
! The program calculates the Response
! of the Bridge Pier Pile Soil Structures
!

```

```

!
! The Analysis includes PreLoad, Static,
! Transient Dynamic or Push Over
!

```

```

!
! The Program Handles NonLinear Soil Behavior,
! Linear Pile Cap and Linear and NonLinear Piles and Piers
!

```

```

!
! Contact: Bridge Software Institute for Support
! HTTP://BSI-WEB.CE.UFL.EDU
!

```

```

*****
* ANALYSIS OPTIONS *
*****

```

```

Type of Stiffness      = Secant Stiffness
Type of Structure      = Full
Type of Analysis       = Static Analysis

```

```

*****
* PILE SEGMENT INFORMATION DATA *
*****

```

NOTE: The Piles Sets consist of Pile Segments based on the User Input. The program groups all segments from all the different Pile Sets and assigns a reference number to each

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The reference number for each segment together with the User Input Pile Set/Segment number is shown below. The Input section properties for each section/segment is also provided below.

The user is advised to double check these numbers

Number of segments found in all Piles (NPSEG) = 1

! -> SECTION DATA FOR SECTION/SEGMENT : 1 !

Input Pile Set Number = 1
Input Pile Set Segment = 1

Section Pile Length (L) = 50.000000 ft

Nonlinear Section/Segment Material Properties

Material Option (MATOPT) = 2
(Please Refer to the Users Guide for Details)

- User Defined Stress Strain Curves

- Tubular Steel Stress Strain Curve

Number of Points Along the Tubular steel Curve = 5

Stress (ksi)	Strain
-0.59000E+02	-0.30000E-01
-0.58400E+02	-0.13000E-01
0.00000E+00	0.00000E+00
0.58400E+02	0.13000E-01
0.59000E+02	0.30000E-01

- Shape of Section : CIRCULAR

- Steel and Confinement Data

Number of Steel Layers = 0
Section/Segment Diameter = 8.0000 in
Tied/Spiral Reinforcement Flag = 1
(NOTE : Spiral = 1, Tied = 2)
Confinement Flag = 0
(NOTE : None = 0, Confined - Spiral Only = 1, Confined - Shell = 2)
Outer Shell Thickness = 0.117 in

- Total Area of Steel Reinforcement = 0.00 in^2

* PILE SET DATA DESCRIPTION *

NOTE : The piles are organized in pile sets. Each pile set is composed of pile segments that are input by the User. A pile set is attached to each pile in order to describe its composition

List of Piles Sets and Piles

Pile Set	Piles (that are assigned the Pile Set)
1	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18
1	19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29

Total Length for Each Pile Set

Pile Set	Length
1	600.00

```
*****
*   INPUT FOR STRUCTURAL ANALYSIS   *
*****
```

```
Number of Joints           = 441
Number of Different Element Types = 3
Number of Load Conditions  = 1
```

```
*****
*   GENERAL LOAD DATA   *
*****
```

The table below shows the Applied Loads for every Load Case. The values in the table represent the magnitude of the Loads in the specified units

- Applied Load		X	Y	Z	MXX	MYX	MZZ
NODE	LOAD	(Kips)	(Kips)	(Kips)	(Kip-ft)	(Kip-ft)	(Kip-ft)
74	1	38.00	0.00	0.00	0.00	0.00	0.00

```
*****
*                               *
*   ANALYSIS RESULTS           *
*                               *
*****
```

```
*****
*   RESULTS FOR LOAD CASE #    1   *
*****
```

NOTE : PY Multipliers are applied Lead to Trail row based on the actual displacement. If there is no displacement in a Lateral direction they are defaulted to 1.0. This can happen in Axial Load and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

PILE#	X-PYM	Y-PYM
1	0.300E+00	0.100E+01
2	0.300E+00	0.100E+01
3	0.300E+00	0.100E+01

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4	0.300E+00	0.100E+01
5	0.300E+00	0.100E+01
6	0.300E+00	0.100E+01
7	0.300E+00	0.100E+01
8	0.300E+00	0.100E+01
9	0.300E+00	0.100E+01
10	0.300E+00	0.100E+01
11	0.400E+00	0.100E+01
12	0.300E+00	0.100E+01
13	0.300E+00	0.100E+01
14	0.300E+00	0.100E+01
15	0.300E+00	0.100E+01
16	0.300E+00	0.100E+01
17	0.300E+00	0.100E+01
18	0.800E+00	0.100E+01
19	0.300E+00	0.100E+01
20	0.300E+00	0.100E+01
21	0.300E+00	0.100E+01
22	0.300E+00	0.100E+01
23	0.400E+00	0.100E+01
24	0.300E+00	0.100E+01
25	0.300E+00	0.100E+01
26	0.300E+00	0.100E+01
27	0.300E+00	0.100E+01
28	0.300E+00	0.100E+01
29	0.300E+00	0.100E+01

* CONVERGENCE REPORT *

The Solution Converged in 3 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.001	Kips
FXX =	0.000	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYX =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	67.1153	0.0000	0.0000
2	67.1153	0.0000	0.0000
3	67.1152	0.0000	0.0000
4	67.1153	0.0000	0.0000
5	67.1153	0.0000	0.0000
6	67.1152	0.0000	0.0000
7	67.1153	0.0000	0.0000
8	67.1153	0.0000	0.0000
9	67.1153	0.0000	0.0000
10	67.1152	0.0000	0.0000
11	67.1152	0.0000	0.0000
12	67.1156	0.0000	0.0000
13	67.1154	0.0000	0.0000

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14	67.1153	0.0000	0.0000
15	67.1152	0.0000	0.0000
16	67.1152	0.0000	0.0000
17	67.1152	0.0000	0.0000
18	67.1152	0.0000	0.0000
19	67.1153	0.0000	0.0000
20	67.1153	0.0000	0.0000
21	67.1152	0.0000	0.0000
22	67.1152	0.0000	0.0000
23	67.1152	0.0000	0.0000
24	67.1153	0.0000	0.0000
25	67.1153	0.0000	0.0000
26	67.1152	0.0000	0.0000
27	67.1153	0.0000	0.0000
28	67.1152	0.0000	0.0000
29	67.1153	0.0000	0.0000

Pile Cap Displacements (Excluding Pile Heads)

30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
31	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
33	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
35	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
36	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
37	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
39	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
40	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
41	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
42	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
43	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
44	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
45	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
46	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
47	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
49	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
51	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
52	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
53	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
54	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
55	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
56	67.1152	0.0000	0.0000	0.0000	0.0000	0.0000
57	67.1152	0.0000	0.0000	0.0000	0.0000	0.0000
58	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
59	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
60	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
61	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
62	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
63	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
64	67.1152	0.0000	0.0000	0.0000	0.0000	0.0000
65	67.1152	0.0000	0.0000	0.0000	0.0000	0.0000
66	67.1152	0.0000	0.0000	0.0000	0.0000	0.0000
67	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
68	67.1161	0.0001	0.0000	0.0000	0.0000	0.0000
69	67.1153	0.0001	0.0000	0.0000	0.0000	0.0000
70	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
71	67.1152	0.0000	0.0000	0.0000	0.0000	0.0000
72	67.1152	0.0000	0.0000	0.0000	0.0000	0.0000
73	67.1152	0.0000	0.0000	0.0000	0.0000	0.0000
74	67.1166	0.0000	0.0000	0.0000	0.0000	0.0000

8 Pearson.out

[illegible]

8 Pearson.out

[illegible]

8 Pearson.out

[illegible]

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390	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
391	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
392	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
393	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
394	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
395	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
396	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
397	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
398	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
399	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
401	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
402	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
403	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
404	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
405	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
406	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
407	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
408	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
409	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
410	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
411	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
412	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
413	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
414	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
415	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
418	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
419	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
420	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
421	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
422	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
423	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
424	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
425	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
426	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
427	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
428	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
429	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
430	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
431	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
432	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
433	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
434	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
435	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
436	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
437	67.1153	0.0000	0.0000	0.0000	0.0000	0.0000
438	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
439	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
440	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
441	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1

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Steel type = 4 (For Description see Users Manual)
 Maximum = 0.1114E-01
 Minimum = -0.1114E-01

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)

X Direction	=	-21.7811	Kips
Y Direction	=	-0.0001	Kips
Z Direction	=	0.0000	Kips
Sum of Tip Forces	=	0.0000	Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.70666E-13	-0.30921E-12
2	0.20824E-12	0.82901E-14
3	0.12368E-12	0.65095E-14
4	0.30568E-12	-0.16778E-13
5	0.46140E-12	0.11734E-13
6	0.11663E-12	-0.26434E-12
7	0.30603E-12	0.15886E-13
8	0.48038E-12	0.15635E-13
9	0.23295E-12	-0.22927E-12
10	0.23204E-12	-0.10929E-13
11	0.71996E-12	-0.28949E-13
12	0.44306E-12	-0.34084E-12
13	0.44081E-12	0.22420E-13
14	0.42607E-12	0.22089E-13
15	0.39495E-12	0.20996E-13
16	0.70658E-12	0.21047E-13
17	0.32642E-12	0.21171E-13
18	0.27234E-12	0.18876E-13
19	0.36771E-12	-0.18455E-12
20	0.52991E-12	0.26212E-13
21	0.31164E-12	0.25556E-13
22	0.66223E-12	0.26978E-13
23	0.35608E-12	-0.71016E-13
24	0.73505E-12	0.31868E-13
25	0.48583E-12	0.31227E-13
26	0.54989E-12	0.27365E-13
27	0.54508E-12	0.32018E-13
28	0.77037E-12	0.33667E-13
29	0.53942E-12	0.34897E-13

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.12961E+01	-0.33667E+01
2	0.12961E+01	-0.33667E+01
3	0.12961E+01	-0.33667E+01
4	0.12961E+01	-0.33667E+01
5	0.12961E+01	-0.33667E+01

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6	0.12961E+01	-0.33667E+01
7	0.12961E+01	-0.33667E+01
8	0.12961E+01	-0.33667E+01
9	0.12961E+01	-0.33667E+01
10	0.12961E+01	-0.33667E+01
11	0.13616E+01	-0.34697E+01
12	0.12961E+01	-0.33667E+01
13	0.12961E+01	-0.33667E+01
14	0.12961E+01	-0.33667E+01
15	0.12961E+01	-0.33667E+01
16	0.12961E+01	-0.33667E+01
17	0.12961E+01	-0.33667E+01
18	0.15780E+01	-0.41576E+01
19	0.12961E+01	-0.33667E+01
20	0.12961E+01	-0.33667E+01
21	0.12961E+01	-0.33667E+01
22	0.12961E+01	-0.33667E+01
23	0.13616E+01	-0.34697E+01
24	0.12961E+01	-0.33667E+01
25	0.12961E+01	-0.33667E+01
26	0.12961E+01	-0.33667E+01
27	0.12961E+01	-0.33667E+01
28	0.12961E+01	-0.33667E+01
29	0.12961E+01	-0.33667E+01

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.16425E-04	-0.54178E-05
2	0.18092E-04	-0.59637E-05
3	0.89358E-05	-0.29576E-05
4	0.15625E-04	-0.51558E-05
5	0.14782E-04	-0.48792E-05
6	0.30691E-05	-0.10193E-05
7	0.19130E-04	-0.63030E-05
8	0.15399E-04	-0.50817E-05
9	0.11103E-04	-0.36710E-05
10	0.58033E-05	-0.19241E-05
11	0.40388E-06	-0.13445E-06
12	0.26419E-06	-0.87989E-07
13	0.17784E-06	-0.59237E-07
14	0.10587E-06	-0.35270E-07
15	0.69572E-09	-0.20878E-08
16	0.36660E-07	-0.11005E-06
17	0.60627E-07	-0.18201E-06
18	0.89378E-07	-0.26836E-06
19	0.61592E-05	-0.18691E-04
20	0.50126E-05	-0.15189E-04
21	0.36724E-05	-0.11107E-04
22	0.19966E-05	-0.60227E-05
23	0.28419E-06	-0.85401E-06
24	0.50397E-05	-0.15272E-04
25	0.48806E-05	-0.14786E-04
26	0.11398E-05	-0.34324E-05
27	0.58947E-05	-0.17882E-04
28	0.30299E-05	-0.91550E-05
29	0.54191E-05	-0.16429E-04

4. Bending Moment About 2 Axis (Kip-ft)

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Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	447	0.19233E+02	0.9629E-05	0.14500E+02	-0.2924E-04
2	467	0.19233E+02	0.1060E-04	0.14500E+02	-0.3222E-04
3	486	0.16867E+02	0.5255E-05	0.14500E+02	-0.1589E-04
4	507	0.19233E+02	0.9163E-05	0.14500E+02	-0.2782E-04
5	527	0.19233E+02	0.8671E-05	0.14500E+02	-0.2631E-04
6	547	0.19233E+02	0.1810E-05	0.14500E+02	-0.5453E-05
7	567	0.19233E+02	0.1120E-04	0.14500E+02	-0.3407E-04
8	586	0.16867E+02	0.9031E-05	0.14500E+02	-0.2741E-04
9	607	0.19233E+02	0.6523E-05	0.14500E+02	-0.1975E-04
10	626	0.16867E+02	0.3418E-05	0.14500E+02	-0.1032E-04
11	647	0.19233E+02	0.2387E-06	0.14500E+02	-0.7171E-06
12	667	0.19233E+02	0.1562E-06	0.14500E+02	-0.4690E-06
13	686	0.16867E+02	0.1052E-06	0.14500E+02	-0.3157E-06
14	707	0.19233E+02	0.6262E-07	0.16867E+02	-0.1879E-06
15	726	0.16867E+02	0.3706E-08	0.19233E+02	-0.1235E-08
16	745	0.14500E+02	0.1954E-06	0.19233E+02	-0.6509E-07
17	766	0.16867E+02	0.3231E-06	0.19233E+02	-0.1076E-06
18	786	0.16867E+02	0.4764E-06	0.19233E+02	-0.1587E-06
19	806	0.16867E+02	0.3329E-04	0.19233E+02	-0.1095E-04
20	826	0.16867E+02	0.2704E-04	0.16867E+02	-0.8908E-05
21	846	0.16867E+02	0.1976E-04	0.19233E+02	-0.6525E-05
22	866	0.16867E+02	0.1071E-04	0.16867E+02	-0.3547E-05
23	886	0.16867E+02	0.1517E-05	0.16867E+02	-0.5046E-06
24	906	0.16867E+02	0.2719E-04	0.19233E+02	-0.8957E-05
25	926	0.16867E+02	0.2632E-04	0.19233E+02	-0.8674E-05
26	946	0.16867E+02	0.6099E-05	0.16867E+02	-0.2024E-05
27	965	0.14500E+02	0.3184E-04	0.19233E+02	-0.1048E-04
28	986	0.16867E+02	0.1628E-04	0.16867E+02	-0.5383E-05
29	1006	0.16867E+02	0.2925E-04	0.16867E+02	-0.9631E-05

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	451	0.28700E+02	2.932	0.19233E+02	-20.93
2	470	0.26333E+02	2.932	0.19233E+02	-20.93
3	491	0.28700E+02	2.932	0.19233E+02	-20.93
4	510	0.26333E+02	2.932	0.19233E+02	-20.93
5	531	0.28700E+02	2.932	0.19233E+02	-20.93
6	550	0.26333E+02	2.932	0.19233E+02	-20.93
7	571	0.28700E+02	2.932	0.16867E+02	-20.93
8	590	0.26333E+02	2.932	0.19233E+02	-20.93
9	611	0.28700E+02	2.932	0.19233E+02	-20.93
10	631	0.28700E+02	2.932	0.19233E+02	-20.93
11	650	0.26333E+02	3.184	0.19233E+02	-21.73
12	671	0.28700E+02	2.932	0.19233E+02	-20.93
13	691	0.28700E+02	2.932	0.16867E+02	-20.93
14	710	0.26333E+02	2.932	0.19233E+02	-20.93
15	730	0.26333E+02	2.932	0.19233E+02	-20.93
16	750	0.26333E+02	2.932	0.16867E+02	-20.93
17	770	0.26333E+02	2.932	0.19233E+02	-20.93
18	790	0.26333E+02	3.023	0.19233E+02	-24.40
19	811	0.28700E+02	2.932	0.19233E+02	-20.93
20	830	0.26333E+02	2.932	0.19233E+02	-20.93
21	850	0.26333E+02	2.932	0.16867E+02	-20.93
22	870	0.26333E+02	2.932	0.19233E+02	-20.93
23	891	0.28700E+02	3.184	0.19233E+02	-21.73
24	910	0.26333E+02	2.932	0.19233E+02	-20.93

			8 Pearson.out		
25	931	0.28700E+02	2.932	0.19233E+02	-20.93
26	950	0.26333E+02	2.932	0.19233E+02	-20.93
27	970	0.26333E+02	2.932	0.19233E+02	-20.93
28	990	0.26333E+02	2.932	0.19233E+02	-20.93
29	1010	0.26333E+02	2.932	0.16867E+02	-20.93

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM	PROP	NODE	LOAD	FAX	F22	F33	M22	M33	TORQUE
D/C									
NO.	NO.	NO.	CASE	(Kips)	(Kips)	(Kips)	(Kip-ft)	(Kip-ft)	
(Kip-ft)		(Ratio)							

! -> Pile Number 1 !									

1	1	1	1	0.00	1.30	0.00	0.00	0.00	
0.00		0.00							
	1	442	1	0.00	-1.30	0.00	0.00	-3.76	
0.00		0.10							
2	1	442	1	0.00	1.30	0.00	0.00	3.76	
0.00		0.10							
	1	443	1	0.00	-1.30	0.00	0.00	-7.52	
0.00		0.21							
3	1	443	1	0.00	1.30	0.00	0.00	7.52	
0.00		0.21							
	1	444	1	0.00	-1.30	0.00	0.00	-11.28	
0.00		0.31							
4	1	444	1	0.00	1.30	0.00	0.00	11.28	
0.00		0.31							
	1	445	1	0.00	-1.30	0.00	0.00	-15.03	
0.00		0.42							
5	1	445	1	0.00	1.30	0.00	0.00	15.03	
0.00		0.42							
	1	446	1	0.00	-1.30	0.00	0.00	-18.79	
0.00		0.52							
6	1	446	1	0.00	0.90	0.00	0.00	18.79	
0.00		0.52							
	1	447	1	0.00	-0.90	0.00	0.00	-20.93	
0.00		0.58							
7	1	447	1	0.00	-0.78	0.00	0.00	20.93	
0.00		0.58							
	1	448	1	0.00	0.78	0.00	0.00	-19.09	
0.00		0.53							
8	1	448	1	0.00	-3.37	0.00	0.00	19.09	
0.00		0.53							
	1	449	1	0.00	3.37	0.00	0.00	-11.13	
0.00		0.31							
9	1	449	1	0.00	-3.25	0.00	0.00	11.13	
0.00		0.31							
	1	450	1	0.00	3.25	0.00	0.00	-3.44	
0.00		0.10							
10	1	450	1	0.00	-2.69	0.00	0.00	3.44	
0.00		0.10							

8 Pearson.out								
0.00	1	451	1	0.00	2.69	0.00	0.00	2.93
0.00	11	0.08						
0.00	1	451	1	0.00	1.07	0.00	0.00	-2.93
		0.08						
0.00	1	452	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
0.00	12	452	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
0.00	1	453	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
0.00	13	453	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
0.00	1	454	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
0.00	14	454	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
0.00	1	455	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
0.00	15	455	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
0.00	1	456	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	16	456	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	457	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	17	457	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	458	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	18	458	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	459	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	19	459	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	460	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	20	460	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	461	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 2 !

21	1	2	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
0.00	1	462	1	0.00	-1.30	0.00	0.00	-3.76
		0.10						
0.00	22	462	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
0.00	1	463	1	0.00	-1.30	0.00	0.00	-7.52
		0.21						
0.00	23	463	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
0.00	1	464	1	0.00	-1.30	0.00	0.00	-11.28
		0.31						
0.00	24	464	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
0.00	1	465	1	0.00	-1.30	0.00	0.00	-15.03
		0.42						
0.00	25	465	1	0.00	1.30	0.00	0.00	15.03

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0.00		0.42						
	1	466	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
26	1	466	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	467	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
27	1	467	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	468	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
28	1	468	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	469	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
29	1	469	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	470	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
30	1	470	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	471	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
31	1	471	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	472	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
32	1	472	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	473	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
33	1	473	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	474	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
34	1	474	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	475	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
35	1	475	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	476	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
36	1	476	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	477	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
37	1	477	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	478	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
38	1	478	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	479	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
39	1	479	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	480	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
40	1	480	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	481	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

8 Pearson.out

! -> File Number 3 !								
41	1	3	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	482	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
42	1	482	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	483	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
43	1	483	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	484	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
44	1	484	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	485	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
45	1	485	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	486	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
46	1	486	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	487	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
47	1	487	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	488	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
48	1	488	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	489	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
49	1	489	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	490	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
50	1	490	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	491	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
51	1	491	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	492	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
52	1	492	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	493	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
53	1	493	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	494	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
54	1	494	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	495	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
55	1	495	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	496	1	0.00	0.00	0.00	0.00	0.00

8 Pearson.out

0.00		0.00						
56	1	496	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	497	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
57	1	497	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	498	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
58	1	498	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	499	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
59	1	499	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	500	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
60	1	500	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	501	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 4 !

61	1	4	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	502	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
62	1	502	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	503	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
63	1	503	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	504	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
64	1	504	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	505	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
65	1	505	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	506	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
66	1	506	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	507	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
67	1	507	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	508	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
68	1	508	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	509	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
69	1	509	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	510	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
70	1	510	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						

8 Pearson.out								
0.00	1	511	1	0.00	2.69	0.00	0.00	2.93
0.00	71	0.08						
0.00	1	511	1	0.00	1.07	0.00	0.00	-2.93
		0.08						
0.00	1	512	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
0.00	72	512	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
0.00	1	513	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
0.00	73	513	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
0.00	1	514	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
0.00	74	514	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
0.00	1	515	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
0.00	75	515	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
0.00	1	516	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	76	516	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	517	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	77	517	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	518	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	78	518	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	519	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	79	519	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	520	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	80	520	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
0.00	1	521	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 5 !

81	1	5	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
0.00	1	522	1	0.00	-1.30	0.00	0.00	-3.76
		0.10						
0.00	82	522	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
0.00	1	523	1	0.00	-1.30	0.00	0.00	-7.52
		0.21						
0.00	83	523	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
0.00	1	524	1	0.00	-1.30	0.00	0.00	-11.28
		0.31						
0.00	84	524	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
0.00	1	525	1	0.00	-1.30	0.00	0.00	-15.03
		0.42						
0.00	85	525	1	0.00	1.30	0.00	0.00	15.03

8 Pearson.out

0.00		0.42						
	1	526	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
86	1	526	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	527	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
87	1	527	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	528	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
88	1	528	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	529	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
89	1	529	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	530	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
90	1	530	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	531	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
91	1	531	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	532	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
92	1	532	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	533	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
93	1	533	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	534	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
94	1	534	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	535	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
95	1	535	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	536	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
96	1	536	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	537	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
97	1	537	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	538	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
98	1	538	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	539	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
99	1	539	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	540	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
100	1	540	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	541	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

8 Pearson.out

! -> Pile Number 6 !								
101	1	6	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	542	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
102	1	542	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	543	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
103	1	543	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	544	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
104	1	544	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	545	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
105	1	545	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	546	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
106	1	546	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	547	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
107	1	547	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	548	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
108	1	548	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	549	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
109	1	549	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	550	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
110	1	550	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	551	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
111	1	551	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	552	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
112	1	552	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	553	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
113	1	553	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	554	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
114	1	554	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	555	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
115	1	555	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	556	1	0.00	0.00	0.00	0.00	0.00

8 Pearson.out

0.00		0.00						
116	1	556	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	557	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
117	1	557	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	558	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
118	1	558	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	559	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
119	1	559	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	560	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
120	1	560	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	561	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 7 !

121	1	7	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	562	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
122	1	562	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	563	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
123	1	563	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	564	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
124	1	564	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	565	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
125	1	565	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	566	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
126	1	566	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	567	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
127	1	567	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	568	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
128	1	568	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	569	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
129	1	569	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	570	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
130	1	570	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						

				8 Pearson.out				
0.00	1	571	1	0.00	2.69	0.00	0.00	2.93
0.00	131	0.08	1	0.00	1.07	0.00	0.00	-2.93
0.00	1	0.08	1	0.00	-1.07	0.00	0.00	0.40
0.00	132	0.01	1	0.00	0.24	0.00	0.00	-0.40
0.00	1	0.01	1	0.00	-0.24	0.00	0.00	-0.17
0.00	133	0.00	1	0.00	-0.07	0.00	0.00	0.17
0.00	1	0.00	1	0.00	0.07	0.00	0.00	-0.01
0.00	134	0.00	1	0.00	-0.01	0.00	0.00	0.01
0.00	1	0.00	1	0.00	0.01	0.00	0.00	0.01
0.00	135	0.00	1	0.00	0.00	0.00	0.00	-0.01
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	136	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	137	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	138	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	139	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	140	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	141	0.00	1	0.00	1.30	0.00	0.00	0.00
0.00	1	0.00	1	0.00	-1.30	0.00	0.00	-3.76
0.00	142	0.10	1	0.00	1.30	0.00	0.00	3.76
0.00	1	0.10	1	0.00	-1.30	0.00	0.00	-7.52
0.00	143	0.21	1	0.00	1.30	0.00	0.00	7.52
0.00	1	0.21	1	0.00	-1.30	0.00	0.00	-11.28
0.00	144	0.31	1	0.00	1.30	0.00	0.00	11.28
0.00	1	0.31	1	0.00	-1.30	0.00	0.00	-15.03
0.00	145	0.42	1	0.00	1.30	0.00	0.00	15.03
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00

! -> Pile Number 8 !

141	1	8	1	0.00	1.30	0.00	0.00	0.00
0.00	1	0.00	1	0.00	-1.30	0.00	0.00	-3.76
0.00	142	0.10	1	0.00	1.30	0.00	0.00	3.76
0.00	1	0.10	1	0.00	-1.30	0.00	0.00	-7.52
0.00	143	0.21	1	0.00	1.30	0.00	0.00	7.52
0.00	1	0.21	1	0.00	-1.30	0.00	0.00	-11.28
0.00	144	0.31	1	0.00	1.30	0.00	0.00	11.28
0.00	1	0.31	1	0.00	-1.30	0.00	0.00	-15.03
0.00	145	0.42	1	0.00	1.30	0.00	0.00	15.03

8 Pearson.out

0.00		0.42						
	1	586	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
146	1	586	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	587	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
147	1	587	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	588	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
148	1	588	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	589	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
149	1	589	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	590	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
150	1	590	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	591	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
151	1	591	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	592	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
152	1	592	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	593	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
153	1	593	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	594	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
154	1	594	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	595	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
155	1	595	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	596	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
156	1	596	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	597	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
157	1	597	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	598	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
158	1	598	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	599	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
159	1	599	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	600	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
160	1	600	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	601	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

8 Pearson.out

! -> File Number 9 !								
161	1	9	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	602	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
162	1	602	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	603	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
163	1	603	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	604	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
164	1	604	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	605	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
165	1	605	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	606	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
166	1	606	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	607	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
167	1	607	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	608	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
168	1	608	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	609	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
169	1	609	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	610	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
170	1	610	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	611	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
171	1	611	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	612	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
172	1	612	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	613	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
173	1	613	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	614	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
174	1	614	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	615	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
175	1	615	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	616	1	0.00	0.00	0.00	0.00	0.00

8 Pearson.out

0.00		0.00						
176	1	616	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	617	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
177	1	617	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	618	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
178	1	618	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	619	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
179	1	619	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	620	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
180	1	620	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	621	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 10 !

181	1	10	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	622	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
182	1	622	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	623	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
183	1	623	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	624	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
184	1	624	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	625	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
185	1	625	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	626	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
186	1	626	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	627	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
187	1	627	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	628	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
188	1	628	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	629	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
189	1	629	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	630	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
190	1	630	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						

				8 Pearson.out				
0.00	1	631	1	0.00	2.69	0.00	0.00	2.93
0.00	191	0.08	1	0.00	1.07	0.00	0.00	-2.93
0.00	1	0.08	1	0.00	-1.07	0.00	0.00	0.40
0.00	192	0.01	1	0.00	0.24	0.00	0.00	-0.40
0.00	1	0.01	1	0.00	-0.24	0.00	0.00	-0.17
0.00	193	0.00	1	0.00	-0.07	0.00	0.00	0.17
0.00	1	0.00	1	0.00	0.07	0.00	0.00	-0.01
0.00	194	0.00	1	0.00	-0.01	0.00	0.00	0.01
0.00	1	0.00	1	0.00	0.01	0.00	0.00	0.01
0.00	195	0.00	1	0.00	0.00	0.00	0.00	-0.01
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	196	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	197	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	198	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	199	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	200	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00

! -> Pile Number 11 !

201	1	11	1	0.00	1.36	0.00	0.00	0.00
0.00	1	0.00	1	0.00	-1.36	0.00	0.00	-3.95
0.00	202	0.11	1	0.00	1.36	0.00	0.00	3.95
0.00	1	0.11	1	0.00	-1.36	0.00	0.00	-7.90
0.00	203	0.22	1	0.00	1.36	0.00	0.00	7.90
0.00	1	0.22	1	0.00	-1.36	0.00	0.00	-11.85
0.00	204	0.33	1	0.00	1.36	0.00	0.00	11.85
0.00	1	0.33	1	0.00	-1.36	0.00	0.00	-15.79
0.00	205	0.44	1	0.00	1.36	0.00	0.00	15.79

8 Pearson.out

0.00		0.44						
	1	646	1	0.00	-1.36	0.00	0.00	-19.74
0.00		0.55						
206	1	646	1	0.00	0.84	0.00	0.00	19.74
0.00		0.55						
	1	647	1	0.00	-0.84	0.00	0.00	-21.73
0.00		0.61						
207	1	647	1	0.00	-1.39	0.00	0.00	21.73
0.00		0.61						
	1	648	1	0.00	1.39	0.00	0.00	-18.44
0.00		0.51						
208	1	648	1	0.00	-3.47	0.00	0.00	18.44
0.00		0.51						
	1	649	1	0.00	3.47	0.00	0.00	-10.23
0.00		0.29						
209	1	649	1	0.00	-3.20	0.00	0.00	10.23
0.00		0.29						
	1	650	1	0.00	3.20	0.00	0.00	-2.66
0.00		0.07						
210	1	650	1	0.00	-2.47	0.00	0.00	2.66
0.00		0.07						
	1	651	1	0.00	2.47	0.00	0.00	3.18
0.00		0.09						
211	1	651	1	0.00	1.32	0.00	0.00	-3.18
0.00		0.09						
	1	652	1	0.00	-1.32	0.00	0.00	0.06
0.00		0.00						
212	1	652	1	0.00	0.08	0.00	0.00	-0.06
0.00		0.00						
	1	653	1	0.00	-0.08	0.00	0.00	-0.14
0.00		0.00						
213	1	653	1	0.00	-0.07	0.00	0.00	0.14
0.00		0.00						
	1	654	1	0.00	0.07	0.00	0.00	0.01
0.00		0.00						
214	1	654	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	655	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
215	1	655	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	656	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
216	1	656	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	657	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
217	1	657	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	658	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
218	1	658	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	659	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
219	1	659	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	660	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
220	1	660	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	661	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

8 Pearson.out

! -> File Number 12 !								
221	1	12	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	662	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
222	1	662	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	663	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
223	1	663	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	664	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
224	1	664	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	665	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
225	1	665	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	666	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
226	1	666	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	667	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
227	1	667	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	668	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
228	1	668	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	669	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
229	1	669	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	670	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
230	1	670	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	671	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
231	1	671	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	672	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
232	1	672	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	673	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
233	1	673	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	674	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
234	1	674	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	675	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
235	1	675	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	676	1	0.00	0.00	0.00	0.00	0.00

8 Pearson.out

0.00		0.00						
236	1	676	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	677	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
237	1	677	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	678	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
238	1	678	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	679	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
239	1	679	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	680	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
240	1	680	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	681	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 13 !

241	1	13	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	682	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
242	1	682	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	683	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
243	1	683	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	684	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
244	1	684	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	685	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
245	1	685	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	686	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
246	1	686	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	687	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
247	1	687	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	688	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
248	1	688	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	689	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
249	1	689	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	690	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
250	1	690	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						

				8 Pearson.out				
0.00	1	691	1	0.00	2.69	0.00	0.00	2.93
0.00	251	0.08	1	0.00	1.07	0.00	0.00	-2.93
0.00	1	0.08	1	0.00	-1.07	0.00	0.00	0.40
0.00	252	0.01	1	0.00	0.24	0.00	0.00	-0.40
0.00	1	0.01	1	0.00	-0.24	0.00	0.00	-0.17
0.00	253	0.00	1	0.00	-0.07	0.00	0.00	0.17
0.00	1	0.00	1	0.00	0.07	0.00	0.00	-0.01
0.00	254	0.00	1	0.00	-0.01	0.00	0.00	0.01
0.00	1	0.00	1	0.00	0.01	0.00	0.00	0.01
0.00	255	0.00	1	0.00	0.00	0.00	0.00	-0.01
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	256	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	257	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	258	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	259	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	260	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	261	0.00	1	0.00	0.00	0.00	0.00	0.00
0.00	1	0.00	1	0.00	0.00	0.00	0.00	0.00

! -> Pile Number 14 !

261	1	14	1	0.00	1.30	0.00	0.00	0.00
0.00	1	0.00	1	0.00	-1.30	0.00	0.00	-3.76
0.00	262	0.10	1	0.00	1.30	0.00	0.00	3.76
0.00	1	0.10	1	0.00	-1.30	0.00	0.00	-7.52
0.00	263	0.21	1	0.00	1.30	0.00	0.00	7.52
0.00	1	0.21	1	0.00	-1.30	0.00	0.00	-11.28
0.00	264	0.31	1	0.00	1.30	0.00	0.00	11.28
0.00	1	0.31	1	0.00	-1.30	0.00	0.00	-15.03
0.00	265	0.42	1	0.00	1.30	0.00	0.00	15.03

8 Pearson.out

0.00		0.42						
	1	706	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
266	1	706	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	707	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
267	1	707	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	708	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
268	1	708	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	709	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
269	1	709	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	710	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
270	1	710	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	711	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
271	1	711	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	712	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
272	1	712	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	713	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
273	1	713	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	714	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
274	1	714	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	715	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
275	1	715	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	716	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
276	1	716	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	717	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
277	1	717	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	718	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
278	1	718	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	719	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
279	1	719	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	720	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
280	1	720	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	721	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

8 Pearson.out

! -> File Number 15 !

281	1	15	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	722	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
282	1	722	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	723	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
283	1	723	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	724	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
284	1	724	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	725	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
285	1	725	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	726	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
286	1	726	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	727	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
287	1	727	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	728	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
288	1	728	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	729	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
289	1	729	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	730	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
290	1	730	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	731	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
291	1	731	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	732	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
292	1	732	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	733	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
293	1	733	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	734	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
294	1	734	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	735	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
295	1	735	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	736	1	0.00	0.00	0.00	0.00	0.00

8 Pearson.out

0.00		0.00							
296	1	736	1	0.00	0.00	0.00	0.00	0.00	
0.00		0.00							
	1	737	1	0.00	0.00	0.00	0.00	0.00	
0.00		0.00							
297	1	737	1	0.00	0.00	0.00	0.00	0.00	
0.00		0.00							
	1	738	1	0.00	0.00	0.00	0.00	0.00	
0.00		0.00							
298	1	738	1	0.00	0.00	0.00	0.00	0.00	
0.00		0.00							
	1	739	1	0.00	0.00	0.00	0.00	0.00	
0.00		0.00							
299	1	739	1	0.00	0.00	0.00	0.00	0.00	
0.00		0.00							
	1	740	1	0.00	0.00	0.00	0.00	0.00	
0.00		0.00							
300	1	740	1	0.00	0.00	0.00	0.00	0.00	
0.00		0.00							
	1	741	1	0.00	0.00	0.00	0.00	0.00	
0.00		0.00							

! -> File Number 16 !

301	1	16	1	0.00	1.30	0.00	0.00	0.00	
0.00		0.00							
	1	742	1	0.00	-1.30	0.00	0.00	-3.76	
0.00		0.10							
302	1	742	1	0.00	1.30	0.00	0.00	3.76	
0.00		0.10							
	1	743	1	0.00	-1.30	0.00	0.00	-7.52	
0.00		0.21							
303	1	743	1	0.00	1.30	0.00	0.00	7.52	
0.00		0.21							
	1	744	1	0.00	-1.30	0.00	0.00	-11.28	
0.00		0.31							
304	1	744	1	0.00	1.30	0.00	0.00	11.28	
0.00		0.31							
	1	745	1	0.00	-1.30	0.00	0.00	-15.03	
0.00		0.42							
305	1	745	1	0.00	1.30	0.00	0.00	15.03	
0.00		0.42							
	1	746	1	0.00	-1.30	0.00	0.00	-18.79	
0.00		0.52							
306	1	746	1	0.00	0.90	0.00	0.00	18.79	
0.00		0.52							
	1	747	1	0.00	-0.90	0.00	0.00	-20.93	
0.00		0.58							
307	1	747	1	0.00	-0.78	0.00	0.00	20.93	
0.00		0.58							
	1	748	1	0.00	0.78	0.00	0.00	-19.09	
0.00		0.53							
308	1	748	1	0.00	-3.37	0.00	0.00	19.09	
0.00		0.53							
	1	749	1	0.00	3.37	0.00	0.00	-11.13	
0.00		0.31							
309	1	749	1	0.00	-3.25	0.00	0.00	11.13	
0.00		0.31							
	1	750	1	0.00	3.25	0.00	0.00	-3.44	
0.00		0.10							
310	1	750	1	0.00	-2.69	0.00	0.00	3.44	
0.00		0.10							

				8 Pearson.out				
0.00	1	751	1	0.00	2.69	0.00	0.00	2.93
311	1	751	1	0.00	1.07	0.00	0.00	-2.93
0.00	1	752	1	0.00	-1.07	0.00	0.00	0.40
0.00	1	752	1	0.00	0.24	0.00	0.00	-0.40
312	1	753	1	0.00	-0.24	0.00	0.00	-0.17
0.00	1	753	1	0.00	-0.07	0.00	0.00	0.17
313	1	754	1	0.00	0.07	0.00	0.00	-0.01
0.00	1	754	1	0.00	-0.01	0.00	0.00	0.01
314	1	755	1	0.00	0.01	0.00	0.00	0.01
0.00	1	755	1	0.00	0.00	0.00	0.00	-0.01
315	1	756	1	0.00	0.00	0.00	0.00	0.00
0.00	1	756	1	0.00	0.00	0.00	0.00	0.00
316	1	757	1	0.00	0.00	0.00	0.00	0.00
0.00	1	757	1	0.00	0.00	0.00	0.00	0.00
317	1	758	1	0.00	0.00	0.00	0.00	0.00
0.00	1	758	1	0.00	0.00	0.00	0.00	0.00
318	1	759	1	0.00	0.00	0.00	0.00	0.00
0.00	1	759	1	0.00	0.00	0.00	0.00	0.00
319	1	760	1	0.00	0.00	0.00	0.00	0.00
0.00	1	760	1	0.00	0.00	0.00	0.00	0.00
320	1	761	1	0.00	0.00	0.00	0.00	0.00
0.00	1	761	1	0.00	0.00	0.00	0.00	0.00

! -> Pile Number 17 !

321	1	17	1	0.00	1.30	0.00	0.00	0.00
0.00	1	762	1	0.00	-1.30	0.00	0.00	-3.76
0.00	1	762	1	0.00	1.30	0.00	0.00	3.76
322	1	763	1	0.00	-1.30	0.00	0.00	-7.52
0.00	1	763	1	0.00	1.30	0.00	0.00	7.52
323	1	764	1	0.00	-1.30	0.00	0.00	-11.28
0.00	1	764	1	0.00	1.30	0.00	0.00	11.28
324	1	765	1	0.00	-1.30	0.00	0.00	-15.03
0.00	1	765	1	0.00	1.30	0.00	0.00	15.03
325	1	765	1	0.00	1.30	0.00	0.00	15.03

8 Pearson.out

0.00		0.42						
	1	766	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
326	1	766	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	767	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
327	1	767	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	768	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
328	1	768	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	769	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
329	1	769	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	770	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
330	1	770	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	771	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
331	1	771	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	772	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
332	1	772	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	773	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
333	1	773	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	774	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
334	1	774	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	775	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
335	1	775	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	776	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
336	1	776	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	777	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
337	1	777	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	778	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
338	1	778	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	779	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
339	1	779	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	780	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
340	1	780	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	781	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

8 Pearson.out

! -> File Number 18 !

341	1	18	1	0.00	1.58	0.00	0.00	0.00
0.00		0.00						
	1	782	1	0.00	-1.58	0.00	0.00	-4.58
0.00		0.13						
342	1	782	1	0.00	1.58	0.00	0.00	4.58
0.00		0.13						
	1	783	1	0.00	-1.58	0.00	0.00	-9.15
0.00		0.26						
343	1	783	1	0.00	1.58	0.00	0.00	9.15
0.00		0.26						
	1	784	1	0.00	-1.58	0.00	0.00	-13.73
0.00		0.38						
344	1	784	1	0.00	1.58	0.00	0.00	13.73
0.00		0.38						
	1	785	1	0.00	-1.58	0.00	0.00	-18.30
0.00		0.51						
345	1	785	1	0.00	1.58	0.00	0.00	18.30
0.00		0.51						
	1	786	1	0.00	-1.58	0.00	0.00	-22.88
0.00		0.64						
346	1	786	1	0.00	0.64	0.00	0.00	22.88
0.00		0.64						
	1	787	1	0.00	-0.64	0.00	0.00	-24.40
0.00		0.68						
347	1	787	1	0.00	-3.32	0.00	0.00	24.40
0.00		0.68						
	1	788	1	0.00	3.32	0.00	0.00	-16.54
0.00		0.46						
348	1	788	1	0.00	-4.16	0.00	0.00	16.54
0.00		0.46						
	1	789	1	0.00	4.16	0.00	0.00	-6.70
0.00		0.19						
349	1	789	1	0.00	-2.83	0.00	0.00	6.70
0.00		0.19						
	1	790	1	0.00	2.83	0.00	0.00	0.00
0.00		0.00						
350	1	790	1	0.00	-1.28	0.00	0.00	0.00
0.00		0.00						
	1	791	1	0.00	1.28	0.00	0.00	3.02
0.00		0.08						
351	1	791	1	0.00	1.47	0.00	0.00	-3.02
0.00		0.08						
	1	792	1	0.00	-1.47	0.00	0.00	-0.46
0.00		0.01						
352	1	792	1	0.00	-0.20	0.00	0.00	0.46
0.00		0.01						
	1	793	1	0.00	0.20	0.00	0.00	0.01
0.00		0.00						
353	1	793	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	794	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
354	1	794	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	795	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
355	1	795	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	796	1	0.00	0.00	0.00	0.00	0.00

8 Pearson.out

0.00		0.00						
356	1	796	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	797	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
357	1	797	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	798	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
358	1	798	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	799	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
359	1	799	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	800	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
360	1	800	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	801	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 19 !

361	1	19	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	802	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
362	1	802	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	803	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
363	1	803	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	804	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
364	1	804	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	805	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
365	1	805	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	806	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
366	1	806	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	807	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
367	1	807	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	808	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
368	1	808	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	809	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
369	1	809	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	810	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
370	1	810	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						

				8 Pearson.out				
0.00	1	811	1	0.00	2.69	0.00	0.00	2.93
371	1	811	1	0.00	1.07	0.00	0.00	-2.93
0.00	1	812	1	0.00	-1.07	0.00	0.00	0.40
0.00	1	812	1	0.00	0.24	0.00	0.00	-0.40
372	1	813	1	0.00	-0.24	0.00	0.00	-0.17
0.00	1	813	1	0.00	-0.07	0.00	0.00	0.17
373	1	814	1	0.00	0.07	0.00	0.00	-0.01
0.00	1	814	1	0.00	-0.01	0.00	0.00	0.01
374	1	815	1	0.00	0.01	0.00	0.00	0.01
0.00	1	815	1	0.00	0.00	0.00	0.00	-0.01
375	1	816	1	0.00	0.00	0.00	0.00	0.00
0.00	1	816	1	0.00	0.00	0.00	0.00	0.00
376	1	817	1	0.00	0.00	0.00	0.00	0.00
0.00	1	817	1	0.00	0.00	0.00	0.00	0.00
377	1	818	1	0.00	0.00	0.00	0.00	0.00
0.00	1	818	1	0.00	0.00	0.00	0.00	0.00
378	1	819	1	0.00	0.00	0.00	0.00	0.00
0.00	1	819	1	0.00	0.00	0.00	0.00	0.00
379	1	820	1	0.00	0.00	0.00	0.00	0.00
0.00	1	820	1	0.00	0.00	0.00	0.00	0.00
380	1	821	1	0.00	0.00	0.00	0.00	0.00
0.00	1	821	1	0.00	0.00	0.00	0.00	0.00

! -> Pile Number 20 !

381	1	20	1	0.00	1.30	0.00	0.00	0.00
0.00	1	822	1	0.00	-1.30	0.00	0.00	-3.76
0.00	1	822	1	0.00	1.30	0.00	0.00	3.76
382	1	823	1	0.00	-1.30	0.00	0.00	-7.52
0.00	1	823	1	0.00	1.30	0.00	0.00	7.52
383	1	824	1	0.00	-1.30	0.00	0.00	-11.28
0.00	1	824	1	0.00	1.30	0.00	0.00	11.28
384	1	825	1	0.00	-1.30	0.00	0.00	-15.03
0.00	1	825	1	0.00	1.30	0.00	0.00	15.03

8 Pearson.out

0.00		0.42						
	1	826	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
386	1	826	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	827	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
387	1	827	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	828	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
388	1	828	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	829	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
389	1	829	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	830	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
390	1	830	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	831	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
391	1	831	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	832	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
392	1	832	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	833	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
393	1	833	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	834	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
394	1	834	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	835	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
395	1	835	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	836	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
396	1	836	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	837	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
397	1	837	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	838	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
398	1	838	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	839	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
399	1	839	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	840	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
400	1	840	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	841	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

8 Pearson.out

! -> File Number 21 !									
401	1	21	1	0.00	1.30	0.00	0.00	0.00	
0.00		0.00							
	1	842	1	0.00	-1.30	0.00	0.00	-3.76	
0.00		0.10							
402	1	842	1	0.00	1.30	0.00	0.00	3.76	
0.00		0.10							
	1	843	1	0.00	-1.30	0.00	0.00	-7.52	
0.00		0.21							
403	1	843	1	0.00	1.30	0.00	0.00	7.52	
0.00		0.21							
	1	844	1	0.00	-1.30	0.00	0.00	-11.28	
0.00		0.31							
404	1	844	1	0.00	1.30	0.00	0.00	11.28	
0.00		0.31							
	1	845	1	0.00	-1.30	0.00	0.00	-15.03	
0.00		0.42							
405	1	845	1	0.00	1.30	0.00	0.00	15.03	
0.00		0.42							
	1	846	1	0.00	-1.30	0.00	0.00	-18.79	
0.00		0.52							
406	1	846	1	0.00	0.90	0.00	0.00	18.79	
0.00		0.52							
	1	847	1	0.00	-0.90	0.00	0.00	-20.93	
0.00		0.58							
407	1	847	1	0.00	-0.78	0.00	0.00	20.93	
0.00		0.58							
	1	848	1	0.00	0.78	0.00	0.00	-19.09	
0.00		0.53							
408	1	848	1	0.00	-3.37	0.00	0.00	19.09	
0.00		0.53							
	1	849	1	0.00	3.37	0.00	0.00	-11.13	
0.00		0.31							
409	1	849	1	0.00	-3.25	0.00	0.00	11.13	
0.00		0.31							
	1	850	1	0.00	3.25	0.00	0.00	-3.44	
0.00		0.10							
410	1	850	1	0.00	-2.69	0.00	0.00	3.44	
0.00		0.10							
	1	851	1	0.00	2.69	0.00	0.00	2.93	
0.00		0.08							
411	1	851	1	0.00	1.07	0.00	0.00	-2.93	
0.00		0.08							
	1	852	1	0.00	-1.07	0.00	0.00	0.40	
0.00		0.01							
412	1	852	1	0.00	0.24	0.00	0.00	-0.40	
0.00		0.01							
	1	853	1	0.00	-0.24	0.00	0.00	-0.17	
0.00		0.00							
413	1	853	1	0.00	-0.07	0.00	0.00	0.17	
0.00		0.00							
	1	854	1	0.00	0.07	0.00	0.00	-0.01	
0.00		0.00							
414	1	854	1	0.00	-0.01	0.00	0.00	0.01	
0.00		0.00							
	1	855	1	0.00	0.01	0.00	0.00	0.01	
0.00		0.00							
415	1	855	1	0.00	0.00	0.00	0.00	-0.01	
0.00		0.00							
	1	856	1	0.00	0.00	0.00	0.00	0.00	

8 Pearson.out

0.00		0.00						
416	1	856	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	857	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
417	1	857	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	858	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
418	1	858	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	859	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
419	1	859	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	860	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
420	1	860	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	861	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 22 !

421	1	22	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	862	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
422	1	862	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	863	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
423	1	863	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	864	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
424	1	864	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	865	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
425	1	865	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	866	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
426	1	866	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	867	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
427	1	867	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	868	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
428	1	868	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	869	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
429	1	869	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	870	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
430	1	870	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						

				8 Pearson.out				
	1	871	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
431	1	871	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	872	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
432	1	872	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	873	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
433	1	873	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	874	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
434	1	874	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	875	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
435	1	875	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	876	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
436	1	876	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	877	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
437	1	877	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	878	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
438	1	878	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	879	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
439	1	879	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	880	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
440	1	880	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	881	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 23 !

441	1	23	1	0.00	1.36	0.00	0.00	0.00
0.00		0.00						
	1	882	1	0.00	-1.36	0.00	0.00	-3.95
0.00		0.11						
442	1	882	1	0.00	1.36	0.00	0.00	3.95
0.00		0.11						
	1	883	1	0.00	-1.36	0.00	0.00	-7.90
0.00		0.22						
443	1	883	1	0.00	1.36	0.00	0.00	7.90
0.00		0.22						
	1	884	1	0.00	-1.36	0.00	0.00	-11.85
0.00		0.33						
444	1	884	1	0.00	1.36	0.00	0.00	11.85
0.00		0.33						
	1	885	1	0.00	-1.36	0.00	0.00	-15.79
0.00		0.44						
445	1	885	1	0.00	1.36	0.00	0.00	15.79

8 Pearson.out

0.00		0.44						
	1	886	1	0.00	-1.36	0.00	0.00	-19.74
0.00		0.55						
446	1	886	1	0.00	0.84	0.00	0.00	19.74
0.00		0.55						
	1	887	1	0.00	-0.84	0.00	0.00	-21.73
0.00		0.61						
447	1	887	1	0.00	-1.39	0.00	0.00	21.73
0.00		0.61						
	1	888	1	0.00	1.39	0.00	0.00	-18.44
0.00		0.51						
448	1	888	1	0.00	-3.47	0.00	0.00	18.44
0.00		0.51						
	1	889	1	0.00	3.47	0.00	0.00	-10.23
0.00		0.29						
449	1	889	1	0.00	-3.20	0.00	0.00	10.23
0.00		0.29						
	1	890	1	0.00	3.20	0.00	0.00	-2.66
0.00		0.07						
450	1	890	1	0.00	-2.47	0.00	0.00	2.66
0.00		0.07						
	1	891	1	0.00	2.47	0.00	0.00	3.18
0.00		0.09						
451	1	891	1	0.00	1.32	0.00	0.00	-3.18
0.00		0.09						
	1	892	1	0.00	-1.32	0.00	0.00	0.06
0.00		0.00						
452	1	892	1	0.00	0.08	0.00	0.00	-0.06
0.00		0.00						
	1	893	1	0.00	-0.08	0.00	0.00	-0.14
0.00		0.00						
453	1	893	1	0.00	-0.07	0.00	0.00	0.14
0.00		0.00						
	1	894	1	0.00	0.07	0.00	0.00	0.01
0.00		0.00						
454	1	894	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	895	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
455	1	895	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	896	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
456	1	896	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	897	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
457	1	897	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	898	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
458	1	898	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	899	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
459	1	899	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	900	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
460	1	900	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	901	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

8 Pearson.out

! -> File Number 24 !

461	1	24	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	902	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
462	1	902	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	903	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
463	1	903	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	904	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
464	1	904	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	905	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
465	1	905	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	906	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
466	1	906	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	907	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
467	1	907	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	908	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
468	1	908	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	909	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
469	1	909	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	910	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
470	1	910	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	911	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
471	1	911	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	912	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
472	1	912	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	913	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
473	1	913	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	914	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
474	1	914	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	915	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
475	1	915	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	916	1	0.00	0.00	0.00	0.00	0.00

8 Pearson.out

0.00		0.00						
476	1	916	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	917	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
477	1	917	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	918	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
478	1	918	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	919	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
479	1	919	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	920	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
480	1	920	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	921	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 25 !

481	1	25	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	922	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
482	1	922	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	923	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
483	1	923	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	924	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
484	1	924	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	925	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
485	1	925	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	926	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
486	1	926	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	927	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
487	1	927	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	928	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
488	1	928	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	929	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
489	1	929	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	930	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
490	1	930	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						

				8 Pearson.out				
0.00	1	931	1	0.00	2.69	0.00	0.00	2.93
491	1	931	1	0.00	1.07	0.00	0.00	-2.93
0.00	1	932	1	0.00	-1.07	0.00	0.00	0.40
0.00	1	932	1	0.00	0.24	0.00	0.00	-0.40
492	1	933	1	0.00	-0.24	0.00	0.00	-0.17
0.00	1	933	1	0.00	-0.07	0.00	0.00	0.17
493	1	934	1	0.00	0.07	0.00	0.00	-0.01
0.00	1	934	1	0.00	-0.01	0.00	0.00	0.01
494	1	935	1	0.00	0.01	0.00	0.00	0.01
0.00	1	935	1	0.00	0.00	0.00	0.00	-0.01
495	1	936	1	0.00	0.00	0.00	0.00	0.00
0.00	1	936	1	0.00	0.00	0.00	0.00	0.00
496	1	937	1	0.00	0.00	0.00	0.00	0.00
0.00	1	937	1	0.00	0.00	0.00	0.00	0.00
497	1	938	1	0.00	0.00	0.00	0.00	0.00
0.00	1	938	1	0.00	0.00	0.00	0.00	0.00
498	1	939	1	0.00	0.00	0.00	0.00	0.00
0.00	1	939	1	0.00	0.00	0.00	0.00	0.00
499	1	940	1	0.00	0.00	0.00	0.00	0.00
0.00	1	940	1	0.00	0.00	0.00	0.00	0.00
500	1	941	1	0.00	0.00	0.00	0.00	0.00
0.00	1	941	1	0.00	0.00	0.00	0.00	0.00

! -> Pile Number 26 !

501	1	26	1	0.00	1.30	0.00	0.00	0.00
0.00	1	942	1	0.00	-1.30	0.00	0.00	-3.76
0.00	1	942	1	0.00	1.30	0.00	0.00	3.76
502	1	943	1	0.00	-1.30	0.00	0.00	-7.52
0.00	1	943	1	0.00	1.30	0.00	0.00	7.52
503	1	944	1	0.00	-1.30	0.00	0.00	-11.28
0.00	1	944	1	0.00	1.30	0.00	0.00	11.28
504	1	945	1	0.00	-1.30	0.00	0.00	-15.03
0.00	1	945	1	0.00	1.30	0.00	0.00	15.03

8 Pearson.out

0.00		0.42						
	1	946	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
506	1	946	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	947	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
507	1	947	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	948	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
508	1	948	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	949	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
509	1	949	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	950	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
510	1	950	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	951	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
511	1	951	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	952	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
512	1	952	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	953	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
513	1	953	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	954	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
514	1	954	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	955	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
515	1	955	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	956	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
516	1	956	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	957	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
517	1	957	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	958	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
518	1	958	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	959	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
519	1	959	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	960	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
520	1	960	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	961	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

8 Pearson.out

! -> File Number 27 !

521	1	27	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	962	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
522	1	962	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	963	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
523	1	963	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	964	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
524	1	964	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	965	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
525	1	965	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	966	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
526	1	966	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	967	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
527	1	967	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	968	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
528	1	968	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	969	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
529	1	969	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	970	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
530	1	970	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	971	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
531	1	971	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	972	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
532	1	972	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	973	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
533	1	973	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	974	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
534	1	974	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	975	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
535	1	975	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	976	1	0.00	0.00	0.00	0.00	0.00

8 Pearson.out

0.00		0.00						
536	1	976	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	977	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
537	1	977	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	978	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
538	1	978	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	979	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
539	1	979	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	980	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
540	1	980	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	981	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 28 !

541	1	28	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	982	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
542	1	982	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	983	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
543	1	983	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	984	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
544	1	984	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	985	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
545	1	985	1	0.00	1.30	0.00	0.00	15.03
0.00		0.42						
	1	986	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
546	1	986	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	987	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
547	1	987	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	988	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
548	1	988	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	989	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
549	1	989	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	990	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
550	1	990	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						

				8 Pearson.out				
	1	991	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
551	1	991	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	992	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
552	1	992	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	993	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
553	1	993	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	994	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
554	1	994	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	995	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
555	1	995	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	996	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
556	1	996	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	997	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
557	1	997	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	998	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
558	1	998	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	999	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
559	1	999	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	1000	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
560	1	1000	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	1001	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 29 !

561	1	29	1	0.00	1.30	0.00	0.00	0.00
0.00		0.00						
	1	1002	1	0.00	-1.30	0.00	0.00	-3.76
0.00		0.10						
562	1	1002	1	0.00	1.30	0.00	0.00	3.76
0.00		0.10						
	1	1003	1	0.00	-1.30	0.00	0.00	-7.52
0.00		0.21						
563	1	1003	1	0.00	1.30	0.00	0.00	7.52
0.00		0.21						
	1	1004	1	0.00	-1.30	0.00	0.00	-11.28
0.00		0.31						
564	1	1004	1	0.00	1.30	0.00	0.00	11.28
0.00		0.31						
	1	1005	1	0.00	-1.30	0.00	0.00	-15.03
0.00		0.42						
565	1	1005	1	0.00	1.30	0.00	0.00	15.03

8 Pearson.out

0.00		0.42						
	1	1006	1	0.00	-1.30	0.00	0.00	-18.79
0.00		0.52						
566	1	1006	1	0.00	0.90	0.00	0.00	18.79
0.00		0.52						
	1	1007	1	0.00	-0.90	0.00	0.00	-20.93
0.00		0.58						
567	1	1007	1	0.00	-0.78	0.00	0.00	20.93
0.00		0.58						
	1	1008	1	0.00	0.78	0.00	0.00	-19.09
0.00		0.53						
568	1	1008	1	0.00	-3.37	0.00	0.00	19.09
0.00		0.53						
	1	1009	1	0.00	3.37	0.00	0.00	-11.13
0.00		0.31						
569	1	1009	1	0.00	-3.25	0.00	0.00	11.13
0.00		0.31						
	1	1010	1	0.00	3.25	0.00	0.00	-3.44
0.00		0.10						
570	1	1010	1	0.00	-2.69	0.00	0.00	3.44
0.00		0.10						
	1	1011	1	0.00	2.69	0.00	0.00	2.93
0.00		0.08						
571	1	1011	1	0.00	1.07	0.00	0.00	-2.93
0.00		0.08						
	1	1012	1	0.00	-1.07	0.00	0.00	0.40
0.00		0.01						
572	1	1012	1	0.00	0.24	0.00	0.00	-0.40
0.00		0.01						
	1	1013	1	0.00	-0.24	0.00	0.00	-0.17
0.00		0.00						
573	1	1013	1	0.00	-0.07	0.00	0.00	0.17
0.00		0.00						
	1	1014	1	0.00	0.07	0.00	0.00	-0.01
0.00		0.00						
574	1	1014	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
	1	1015	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
575	1	1015	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	1016	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
576	1	1016	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	1017	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
577	1	1017	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	1018	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
578	1	1018	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	1019	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
579	1	1019	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	1020	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
580	1	1020	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	1021	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

8 Pearson.out

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

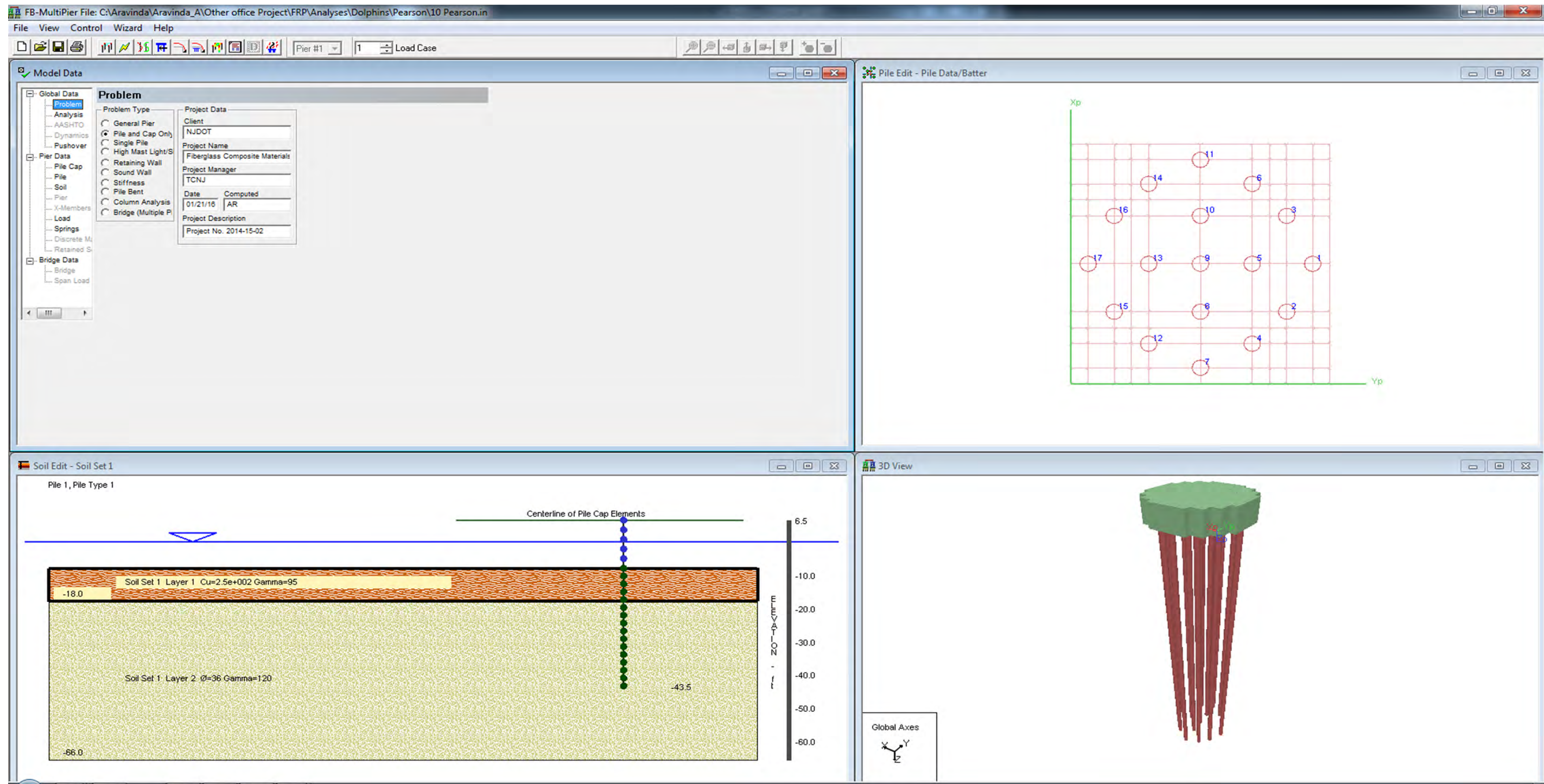
	Value	Load	Comb.	Pile
Max Axial Force	0.7704E-12 Kip	1	0	28
Min Axial Force	-0.3408E-12 Kip	1	0	12
Max Shear in 2 Direction	0.1578E+01 Kip	1	0	18
Min Shear in 2 Direction	-0.4158E+01 Kip	1	0	18
Max Shear in 3 Direction	0.1913E-04 Kip	1	0	7
Min Shear in 3 Direction	-0.1869E-04 Kip	1	0	19
Max Moment about 2 Axis	0.3329E-04 Kip-ft	1	0	19
Min Moment about 2 Axis	-0.3407E-04 Kip-ft	1	0	7
Max Moment About 3 Axis	0.3184E+01 Kip-ft	1	0	11
Min Moment About 3 Axis	-0.2440E+02 Kip-ft	1	0	18
Max Torsional Force	0.1014E-04 Kip-ft	1	0	24
Min Torsional Force	-0.9977E-05 Kip-ft	1	0	4
Max Demand/Capacity Ratio	0.6807E+00	1	0	18

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.0000E+00 Kip	1	0	1
Min Axial Soil Force	0.0000E+00 Kip	1	0	1
Max Lateral Force in X dir	0.1669E+01 Kip	1	0	18
Min Lateral Force in X dir	-0.2688E+01 Kip	1	0	18
Max Lateral Force in Y dir	0.1105E-02 Kip	1	0	7
Min Lateral Force in Y dir	-0.1092E-02 Kip	1	0	19
Max Torsional Soil Force	0.8764E-04 Kip-ft	1	0	4

Maximum/Minimum Pile Displacements

Max Axial Displacement	-0.3500E-10 in	1	0	1
Min Axial Displacement	-0.6910E-09 in	1	0	29
Max Displacement in X	0.6712E+02 in	1	0	12
Min Displacement in X	0.6712E+02 in	1	0	18
Max Displacement in Y	0.4577E-04 in	1	0	7
Min Displacement in Y	-0.4472E-04 in	1	0	19



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 1 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 1,0,0
I= 60 T= 3 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -80 -79.7 0 79.7 80 \
0 0 0 0 0 \
0 0 0 0 0
-0.03 -0.023 0 0.023 0.03 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.023
NL= 0 NG= 0 D= 10 V= 0 S= 80 TH= 0.25 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
11 11 5 5 : NPX, NPY, GSX, GSY
10 15 10 10 30 30 \
10 10 15 10
10 15 10 10 30 30 \
10 10 15 10
0.3 0.3 0.3 0.3 0.3 0.4 0.8
0.3 0.3 0.3 0.3 0.3 0.4 0.8
:
MISSING
104 : number of missing piles
1 1
2 1
3 1
4 1
5 1
6 1

```

7 1
 8 1
 9 1
 10 1
 11 1
 1 2
 2 2
 3 2
 4 2
 5 2
 7 2
 8 2
 9 2
 10 2
 11 2
 1 3
 2 3
 3 3
 4 3
 6 3
 8 3
 9 3
 10 3
 11 3
 1 4
 2 4
 3 4
 4 4
 5 4
 6 4
 7 4
 8 4
 9 4
 10 4
 11 4
 1 5
 2 5
 4 5
 5 5
 7 5
 8 5
 10 5
 11 5
 1 6
 3 6
 4 6
 8 6
 9 6
 11 6
 1 7
 2 7
 4 7
 5 7
 7 7
 8 7
 10 7
 11 7
 1 8
 2 8
 3 8
 4 8
 5 8
 6 8

```

7 8
8 8
9 8
10 8
11 8
1 9
2 9
3 9
4 9
6 9
8 9
9 9
10 9
11 9
1 10
2 10
3 10
4 10
5 10
7 10
8 10
9 10
10 10
11 10
1 11
2 11
3 11
4 11
5 11
6 11
7 11
8 11
9 11
10 11
11 11
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8,-18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18,-66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
REMOVE
1 1
2 1
3 1
4 1
7 1
8 1

```

10 Pearson.in

```
9 1
10 1
1 2
2 2
9 2
10 2
1 3
10 3
1 4
10 4
1 7
10 7
1 8
10 8
1 9
2 9
9 9
10 9
1 10
2 10
3 10
4 10
7 10
8 10
9 10
10 10
:
LOAD
67 L= 1 F= 45 0 0 0 0 0
:
PADBC
:
```

```
!-----!
!
!   The University of Florida, Florida Department
!   of Transportation, Drs. Marc Hoit, Mike McVay
!   Cliff Hays, Mark Williams, Petros Christou, and
!   Jae H. Chung
!   disclaim any warranty, expressed or implied,
!   including but not limited to, any implied
!   warranty of fitness for a particular purpose
!   or accuracy of the FB-Pier software
!   The developers shall not be liable for any damages
!   incurred through the use of FB-MultiPier
!
!-----!
```

```
!
!   :::: F B - M U L T I P I E R ::::
!   FB-MultiPier Version 4.17
!
!-----!
```

```
!
!   Written by Marc Hoit, Mike McVay, Cliff Hays
!   Mark Williams, Petros Christou, Jae H. Chung.
!
!-----!
```

```
!   Civil & Coastal Engineering, University of Florida
!   Supported by Florida Department of Transportation
!   and the Federal Highway Administration
!
!-----!
```

```
!   The program calculates the Response
!   of the Bridge Pier Pile Soil Structures
!
!-----!
```

```
!   The Analysis includes PreLoad, Static,
!   Transient Dynamic or Push Over
!
!-----!
```

```
!   The Program Handles NonLinear Soil Behavior,
!   Linear Pile Cap and Linear and NonLinear Piles and Piers
!
!-----!
```

```
!   Contact: Bridge Software Institute for Support
!   HTTP://BSI-WEB.CE.UFL.EDU
!
!-----!
```

```
*****
*
*   ANALYSIS RESULTS
*
*****
```

```
*****
*   RESULTS FOR LOAD CASE #      1
*****
```

NOTE : PY Multipliers are applied Lead to Trail row based on the actual displacement. If there is no displacement in a Lateral direction they are defaulted to 1.0. This can happen in Axial Load and one direction lateral load cases

10 Pearson.out

PY Multipliers are Applied to A Pile Group

PILE#	X-PYM	Y-PYM
1	0.300E+00	0.100E+01
2	0.300E+00	0.100E+01
3	0.300E+00	0.100E+01
4	0.300E+00	0.100E+01
5	0.300E+00	0.100E+01
6	0.400E+00	0.100E+01
7	0.300E+00	0.100E+01
8	0.300E+00	0.100E+01
9	0.300E+00	0.100E+01
10	0.300E+00	0.100E+01
11	0.800E+00	0.100E+01
12	0.300E+00	0.100E+01
13	0.300E+00	0.100E+01
14	0.400E+00	0.100E+01
15	0.300E+00	0.100E+01
16	0.300E+00	0.100E+01
17	0.300E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 4 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.001	Kips
FXX =	0.000	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYY =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	70.7094	0.0000	0.0000
2	70.7094	0.0001	0.0000
3	70.7094	0.0000	0.0000
4	70.7094	0.0001	0.0000
5	70.7094	0.0000	0.0000
6	70.7093	0.0000	0.0000
7	70.7097	0.0000	0.0000
8	70.7094	0.0000	0.0000
9	70.7093	0.0000	0.0000
10	70.7093	0.0000	0.0000
11	70.7093	0.0000	0.0000
12	70.7094	0.0000	0.0000
13	70.7093	0.0000	0.0000
14	70.7093	0.0000	0.0000
15	70.7094	0.0000	0.0000
16	70.7093	0.0000	0.0000
17	70.7093	0.0000	0.0000

10 Pearson.out						
Pile	Cap	Displacements	(Excluding	Pile Heads)		
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	70.7094	0.0001	0.0000	0.0000	0.0000	0.0000
23	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
24	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
31	70.7094	0.0001	0.0000	0.0000	0.0000	0.0000
32	70.7094	0.0001	0.0000	0.0000	0.0000	0.0000
33	70.7094	0.0001	0.0000	0.0000	0.0000	0.0000
34	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
35	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
36	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
37	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
39	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
40	70.7095	0.0001	0.0000	0.0000	0.0000	0.0000
41	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
42	70.7094	0.0001	0.0000	0.0000	0.0000	0.0000
43	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
44	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
45	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
46	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
47	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
49	70.7094	0.0001	0.0000	0.0000	0.0000	0.0000
50	70.7094	0.0001	0.0000	0.0000	0.0000	0.0000
51	70.7094	0.0001	0.0000	0.0000	0.0000	0.0000
52	70.7094	0.0001	0.0000	0.0000	0.0000	0.0000
53	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
54	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
55	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
56	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
57	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
58	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
59	70.7104	0.0002	0.0000	0.0000	0.0000	0.0000
60	70.7094	0.0001	0.0000	0.0000	0.0000	0.0000
61	70.7095	0.0001	0.0000	0.0000	0.0000	0.0000
62	70.7094	0.0001	0.0000	0.0000	0.0000	0.0000
63	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
64	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
65	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
66	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
67	70.7109	0.0000	0.0000	0.0000	0.0000	0.0000
68	70.7095	0.0000	0.0000	0.0000	0.0000	0.0000
69	70.7095	0.0000	0.0000	0.0000	0.0000	0.0000
70	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
71	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
72	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
73	70.7103	-0.0001	0.0000	0.0000	0.0000	0.0000
74	70.7094	-0.0001	0.0000	0.0000	0.0000	0.0000
75	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
76	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
77	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
78	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
79	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000

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10 Pearson.out

			10 Pearson.out			
395	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
396	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
397	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
398	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
399	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
400	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
401	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
402	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
403	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
404	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
405	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
406	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
407	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
408	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
409	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
410	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
411	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
412	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
413	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
414	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
415	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
418	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
419	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
420	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
421	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
422	70.7093	0.0000	0.0000	0.0000	0.0000	0.0000
423	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
424	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
425	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
426	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
427	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
428	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
429	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
430	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
431	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
432	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
433	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
434	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
435	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
436	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
437	70.7094	0.0000	0.0000	0.0000	0.0000	0.0000
438	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
439	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
440	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
441	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1
 Steel type = 4 (For Description see Users Manual)
 Maximum = 0.1046E-01
 Minimum = -0.1046E-01

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil

(Sum of NF+FF Soil Spring Loads)

X Direction	=	-11.5962	Kips
Y Direction	=	-0.0004	Kips
Z Direction	=	0.0000	Kips
Sum of Tip Forces	=	0.0000	Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	-0.10064E-12	-0.19392E-11
2	0.32402E-12	-0.14272E-11
3	-0.52514E-13	-0.14443E-11
4	0.52153E-12	-0.46159E-12
5	-0.51482E-13	-0.97078E-12
6	0.69472E-11	-0.13248E-11
7	0.65298E-12	-0.84840E-12
8	0.66944E-12	-0.29954E-12
9	0.10384E-11	-0.35871E-12
10	0.50367E-12	-0.66153E-12
11	0.68169E-12	-0.29182E-12
12	0.18040E-11	0.25581E-13
13	0.16148E-11	0.70410E-14
14	0.11658E-10	-0.49405E-12
15	0.12058E-11	0.28953E-13
16	0.56499E-12	-0.32296E-12
17	0.42988E-12	-0.15874E-12

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.25609E+01	-0.85563E+01
2	0.25609E+01	-0.85563E+01
3	0.25607E+01	-0.85189E+01
4	0.25609E+01	-0.85563E+01
5	0.25609E+01	-0.85563E+01
6	0.28203E+01	-0.71872E+01
7	0.25607E+01	-0.85190E+01
8	0.25609E+01	-0.85563E+01
9	0.25607E+01	-0.85189E+01
10	0.25609E+01	-0.85563E+01
11	0.35077E+01	-0.93524E+01
12	0.25607E+01	-0.85189E+01
13	0.25609E+01	-0.85563E+01
14	0.28203E+01	-0.71872E+01
15	0.25609E+01	-0.85563E+01
16	0.25609E+01	-0.85563E+01
17	0.25609E+01	-0.85563E+01

3. Pile Shear Force in 3 Direction (Kips)

Pile	Maximum	Minimum
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10 Pearson.out

#	Shear	Shear
1	0.61251E-04	-0.20191E-04
2	0.79002E-04	-0.26033E-04
3	0.17799E-04	-0.58902E-05
4	0.99804E-04	-0.32841E-04
5	0.44801E-04	-0.14800E-04
6	0.56443E-05	-0.16986E-04
7	0.32448E-04	-0.10805E-04
8	0.14972E-04	-0.49865E-05
9	0.29805E-08	-0.89475E-08
10	0.49928E-05	-0.14991E-04
11	0.10812E-04	-0.32468E-04
12	0.16496E-04	-0.50135E-04
13	0.14806E-04	-0.44819E-04
14	0.10942E-04	-0.32925E-04
15	0.16209E-04	-0.49191E-04
16	0.15786E-04	-0.47701E-04
17	0.20197E-04	-0.61270E-04

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	446	0.16867E+02	0.3590E-04	0.16867E+02	-0.1091E-03
2	466	0.16867E+02	0.4629E-04	0.16867E+02	-0.1407E-03
3	486	0.16867E+02	0.1047E-04	0.16867E+02	-0.3165E-04
4	507	0.19233E+02	0.5841E-04	0.16867E+02	-0.1778E-03
5	526	0.16867E+02	0.2631E-04	0.16867E+02	-0.7972E-04
6	546	0.16867E+02	0.3017E-04	0.19233E+02	-0.1003E-04
7	566	0.16867E+02	0.1919E-04	0.16867E+02	-0.5760E-04
8	586	0.16867E+02	0.8856E-05	0.16867E+02	-0.2658E-04
9	605	0.14500E+02	0.1588E-07	0.16867E+02	-0.5293E-08
10	625	0.14500E+02	0.2661E-04	0.19233E+02	-0.8867E-05
11	646	0.16867E+02	0.5764E-04	0.19233E+02	-0.1920E-04
12	666	0.16867E+02	0.8931E-04	0.16867E+02	-0.2934E-04
13	685	0.14500E+02	0.7975E-04	0.19233E+02	-0.2632E-04
14	705	0.14500E+02	0.5849E-04	0.16867E+02	-0.1944E-04
15	725	0.14500E+02	0.8760E-04	0.16867E+02	-0.2882E-04
16	745	0.14500E+02	0.8484E-04	0.19233E+02	-0.2806E-04
17	765	0.14500E+02	0.1091E-03	0.19233E+02	-0.3591E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	453	0.33433E+02	2.176	0.19233E+02	-44.98
2	473	0.33433E+02	2.176	0.19233E+02	-44.98
3	492	0.31067E+02	2.213	0.19233E+02	-44.98
4	512	0.31067E+02	2.176	0.19233E+02	-44.98
5	532	0.31067E+02	2.176	0.19233E+02	-44.98
6	552	0.31067E+02	1.734	0.19233E+02	-48.50
7	572	0.31067E+02	2.213	0.19233E+02	-44.98
8	593	0.33433E+02	2.176	0.19233E+02	-44.98
9	612	0.31067E+02	2.213	0.19233E+02	-44.98
10	633	0.33433E+02	2.176	0.21600E+02	-44.98
11	651	0.28700E+02	2.898	0.16867E+02	-57.08
12	673	0.33433E+02	2.213	0.21600E+02	-44.98
13	693	0.33433E+02	2.176	0.21600E+02	-44.98
14	713	0.33433E+02	1.734	0.19233E+02	-48.50

10 Pearson.out

15	732	0.31067E+02	2.176	0.21600E+02	-44.98
16	752	0.31067E+02	2.176	0.19233E+02	-44.98
17	772	0.31067E+02	2.176	0.21600E+02	-44.98

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM D/C	PROP NO.	NODE NO.	LOAD NO.	FAX CASE (Kips)	F22 (Kips)	F33 (Kips)	M22 (Kip-ft)	M33 (Kip-ft)	TORQUE
(Kip-ft)		(Ratio)							

! -> Pile Number 1 !

1	1	1	1	0.00	2.56	0.00	0.00	0.00	0.00
0.00		0.00							
	1	442	1	0.00	-2.56	0.00	0.00	0.00	-7.43
0.00		0.05							
2	1	442	1	0.00	2.56	0.00	0.00	0.00	7.43
0.00		0.05							
	1	443	1	0.00	-2.56	0.00	0.00	0.00	-14.85
0.00		0.09							
3	1	443	1	0.00	2.56	0.00	0.00	0.00	14.85
0.00		0.09							
	1	444	1	0.00	-2.56	0.00	0.00	0.00	-22.28
0.00		0.14							
4	1	444	1	0.00	2.56	0.00	0.00	0.00	22.28
0.00		0.14							
	1	445	1	0.00	-2.56	0.00	0.00	0.00	-29.71
0.00		0.19							
5	1	445	1	0.00	2.56	0.00	0.00	0.00	29.71
0.00		0.19							
	1	446	1	0.00	-2.56	0.00	0.00	0.00	-37.13
0.00		0.23							
6	1	446	1	0.00	2.23	0.00	0.00	0.00	37.13
0.00		0.23							
	1	447	1	0.00	-2.23	0.00	0.00	0.00	-42.41
0.00		0.27							
7	1	447	1	0.00	1.09	0.00	0.00	0.00	42.41
0.00		0.27							
	1	448	1	0.00	-1.09	0.00	0.00	0.00	-44.98
0.00		0.28							
8	1	448	1	0.00	-0.61	0.00	0.00	0.00	44.98
0.00		0.28							
	1	449	1	0.00	0.61	0.00	0.00	0.00	-43.53
0.00		0.27							
9	1	449	1	0.00	-2.98	0.00	0.00	0.00	43.53
0.00		0.27							
	1	450	1	0.00	2.98	0.00	0.00	0.00	-36.49
0.00		0.23							
10	1	450	1	0.00	-5.10	0.00	0.00	0.00	36.49
0.00		0.23							
	1	451	1	0.00	5.10	0.00	0.00	0.00	-24.42
0.00		0.15							

10 Pearson.out								
11	1	451	1	0.00	-8.56	0.00	0.00	24.42
0.00		0.15						
	1	452	1	0.00	8.56	0.00	0.00	-4.17
0.00		0.03						
12	1	452	1	0.00	-2.68	0.00	0.00	4.17
0.00		0.03						
	1	453	1	0.00	2.68	0.00	0.00	2.18
0.00		0.01						
13	1	453	1	0.00	0.58	0.00	0.00	-2.18
0.00		0.01						
	1	454	1	0.00	-0.58	0.00	0.00	0.79
0.00		0.00						
14	1	454	1	0.00	0.37	0.00	0.00	-0.79
0.00		0.00						
	1	455	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
15	1	455	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	456	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
16	1	456	1	0.00	-0.03	0.00	0.00	0.07
0.00		0.00						
	1	457	1	0.00	0.03	0.00	0.00	0.00
0.00		0.00						
17	1	457	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	458	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
18	1	458	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	459	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
19	1	459	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	460	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
20	1	460	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	461	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 2 !

21	1	2	1	0.00	2.56	0.00	0.00	0.00
0.00		0.00						
	1	462	1	0.00	-2.56	0.00	0.00	-7.43
0.00		0.05						
22	1	462	1	0.00	2.56	0.00	0.00	7.43
0.00		0.05						
	1	463	1	0.00	-2.56	0.00	0.00	-14.85
0.00		0.09						
23	1	463	1	0.00	2.56	0.00	0.00	14.85
0.00		0.09						
	1	464	1	0.00	-2.56	0.00	0.00	-22.28
0.00		0.14						
24	1	464	1	0.00	2.56	0.00	0.00	22.28
0.00		0.14						
	1	465	1	0.00	-2.56	0.00	0.00	-29.71
0.00		0.19						
25	1	465	1	0.00	2.56	0.00	0.00	29.71
0.00		0.19						
	1	466	1	0.00	-2.56	0.00	0.00	-37.13

10 Pearson.out

0.00		0.23						
26	1	466	1	0.00	2.23	0.00	0.00	37.13
0.00		0.23						
	1	467	1	0.00	-2.23	0.00	0.00	-42.41
0.00		0.27						
27	1	467	1	0.00	1.09	0.00	0.00	42.41
0.00		0.27						
	1	468	1	0.00	-1.09	0.00	0.00	-44.98
0.00		0.28						
28	1	468	1	0.00	-0.61	0.00	0.00	44.98
0.00		0.28						
	1	469	1	0.00	0.61	0.00	0.00	-43.53
0.00		0.27						
29	1	469	1	0.00	-2.98	0.00	0.00	43.53
0.00		0.27						
	1	470	1	0.00	2.98	0.00	0.00	-36.49
0.00		0.23						
30	1	470	1	0.00	-5.10	0.00	0.00	36.49
0.00		0.23						
	1	471	1	0.00	5.10	0.00	0.00	-24.42
0.00		0.15						
31	1	471	1	0.00	-8.56	0.00	0.00	24.42
0.00		0.15						
	1	472	1	0.00	8.56	0.00	0.00	-4.17
0.00		0.03						
32	1	472	1	0.00	-2.68	0.00	0.00	4.17
0.00		0.03						
	1	473	1	0.00	2.68	0.00	0.00	2.18
0.00		0.01						
33	1	473	1	0.00	0.58	0.00	0.00	-2.18
0.00		0.01						
	1	474	1	0.00	-0.58	0.00	0.00	0.79
0.00		0.00						
34	1	474	1	0.00	0.37	0.00	0.00	-0.79
0.00		0.00						
	1	475	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
35	1	475	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	476	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
36	1	476	1	0.00	-0.03	0.00	0.00	0.07
0.00		0.00						
	1	477	1	0.00	0.03	0.00	0.00	0.00
0.00		0.00						
37	1	477	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	478	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
38	1	478	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	479	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
39	1	479	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	480	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
40	1	480	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	481	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

10 Pearson.out

! -> File Number 3 !

41	1	3	1	0.00	2.56	0.00	0.00	0.00
0.00		0.00						
	1	482	1	0.00	-2.56	0.00	0.00	-7.43
0.00		0.05						
42	1	482	1	0.00	2.56	0.00	0.00	7.43
0.00		0.05						
	1	483	1	0.00	-2.56	0.00	0.00	-14.85
0.00		0.09						
43	1	483	1	0.00	2.56	0.00	0.00	14.85
0.00		0.09						
	1	484	1	0.00	-2.56	0.00	0.00	-22.28
0.00		0.14						
44	1	484	1	0.00	2.56	0.00	0.00	22.28
0.00		0.14						
	1	485	1	0.00	-2.56	0.00	0.00	-29.70
0.00		0.19						
45	1	485	1	0.00	2.56	0.00	0.00	29.70
0.00		0.19						
	1	486	1	0.00	-2.56	0.00	0.00	-37.13
0.00		0.23						
46	1	486	1	0.00	2.23	0.00	0.00	37.13
0.00		0.23						
	1	487	1	0.00	-2.23	0.00	0.00	-42.40
0.00		0.27						
47	1	487	1	0.00	1.09	0.00	0.00	42.40
0.00		0.27						
	1	488	1	0.00	-1.09	0.00	0.00	-44.98
0.00		0.28						
48	1	488	1	0.00	-0.61	0.00	0.00	44.98
0.00		0.28						
	1	489	1	0.00	0.61	0.00	0.00	-43.53
0.00		0.27						
49	1	489	1	0.00	-2.98	0.00	0.00	43.53
0.00		0.27						
	1	490	1	0.00	2.98	0.00	0.00	-36.48
0.00		0.23						
50	1	490	1	0.00	-5.10	0.00	0.00	36.48
0.00		0.23						
	1	491	1	0.00	5.10	0.00	0.00	-24.41
0.00		0.15						
51	1	491	1	0.00	-8.52	0.00	0.00	24.41
0.00		0.15						
	1	492	1	0.00	8.52	0.00	0.00	-4.25
0.00		0.03						
52	1	492	1	0.00	-2.73	0.00	0.00	4.25
0.00		0.03						
	1	493	1	0.00	2.73	0.00	0.00	2.21
0.00		0.01						
53	1	493	1	0.00	0.59	0.00	0.00	-2.21
0.00		0.01						
	1	494	1	0.00	-0.59	0.00	0.00	0.81
0.00		0.01						
54	1	494	1	0.00	0.37	0.00	0.00	-0.81
0.00		0.01						
	1	495	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
55	1	495	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	496	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
56	1	496	1	0.00	-0.03	0.00	0.00	0.07

10 Pearson.out

0.00		0.00						
	1	497	1	0.00	0.03	0.00	0.00	0.00
0.00		0.00						
57	1	497	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	498	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
58	1	498	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	499	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
59	1	499	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	500	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
60	1	500	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	501	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 4 !

61	1	4	1	0.00	2.56	0.00	0.00	0.00
0.00		0.00						
	1	502	1	0.00	-2.56	0.00	0.00	-7.43
0.00		0.05						
62	1	502	1	0.00	2.56	0.00	0.00	7.43
0.00		0.05						
	1	503	1	0.00	-2.56	0.00	0.00	-14.85
0.00		0.09						
63	1	503	1	0.00	2.56	0.00	0.00	14.85
0.00		0.09						
	1	504	1	0.00	-2.56	0.00	0.00	-22.28
0.00		0.14						
64	1	504	1	0.00	2.56	0.00	0.00	22.28
0.00		0.14						
	1	505	1	0.00	-2.56	0.00	0.00	-29.71
0.00		0.19						
65	1	505	1	0.00	2.56	0.00	0.00	29.71
0.00		0.19						
	1	506	1	0.00	-2.56	0.00	0.00	-37.13
0.00		0.23						
66	1	506	1	0.00	2.23	0.00	0.00	37.13
0.00		0.23						
	1	507	1	0.00	-2.23	0.00	0.00	-42.41
0.00		0.27						
67	1	507	1	0.00	1.09	0.00	0.00	42.41
0.00		0.27						
	1	508	1	0.00	-1.09	0.00	0.00	-44.98
0.00		0.28						
68	1	508	1	0.00	-0.61	0.00	0.00	44.98
0.00		0.28						
	1	509	1	0.00	0.61	0.00	0.00	-43.53
0.00		0.27						
69	1	509	1	0.00	-2.98	0.00	0.00	43.53
0.00		0.27						
	1	510	1	0.00	2.98	0.00	0.00	-36.49
0.00		0.23						
70	1	510	1	0.00	-5.10	0.00	0.00	36.49
0.00		0.23						
	1	511	1	0.00	5.10	0.00	0.00	-24.42
0.00		0.15						

10 Pearson.out								
71	1	511	1	0.00	-8.56	0.00	0.00	24.42
0.00		0.15						
	1	512	1	0.00	8.56	0.00	0.00	-4.17
0.00		0.03						
72	1	512	1	0.00	-2.68	0.00	0.00	4.17
0.00		0.03						
	1	513	1	0.00	2.68	0.00	0.00	2.18
0.00		0.01						
73	1	513	1	0.00	0.58	0.00	0.00	-2.18
0.00		0.01						
	1	514	1	0.00	-0.58	0.00	0.00	0.79
0.00		0.00						
74	1	514	1	0.00	0.37	0.00	0.00	-0.79
0.00		0.00						
	1	515	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
75	1	515	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	516	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
76	1	516	1	0.00	-0.03	0.00	0.00	0.07
0.00		0.00						
	1	517	1	0.00	0.03	0.00	0.00	0.00
0.00		0.00						
77	1	517	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	518	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
78	1	518	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	519	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
79	1	519	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	520	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
80	1	520	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	521	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 5 !

81	1	5	1	0.00	2.56	0.00	0.00	0.00
0.00		0.00						
	1	522	1	0.00	-2.56	0.00	0.00	-7.43
0.00		0.05						
82	1	522	1	0.00	2.56	0.00	0.00	7.43
0.00		0.05						
	1	523	1	0.00	-2.56	0.00	0.00	-14.85
0.00		0.09						
83	1	523	1	0.00	2.56	0.00	0.00	14.85
0.00		0.09						
	1	524	1	0.00	-2.56	0.00	0.00	-22.28
0.00		0.14						
84	1	524	1	0.00	2.56	0.00	0.00	22.28
0.00		0.14						
	1	525	1	0.00	-2.56	0.00	0.00	-29.71
0.00		0.19						
85	1	525	1	0.00	2.56	0.00	0.00	29.71
0.00		0.19						
	1	526	1	0.00	-2.56	0.00	0.00	-37.13

10 Pearson.out

0.00		0.23						
86	1	526	1	0.00	2.23	0.00	0.00	37.13
0.00		0.23						
	1	527	1	0.00	-2.23	0.00	0.00	-42.41
0.00		0.27						
87	1	527	1	0.00	1.09	0.00	0.00	42.41
0.00		0.27						
	1	528	1	0.00	-1.09	0.00	0.00	-44.98
0.00		0.28						
88	1	528	1	0.00	-0.61	0.00	0.00	44.98
0.00		0.28						
	1	529	1	0.00	0.61	0.00	0.00	-43.53
0.00		0.27						
89	1	529	1	0.00	-2.98	0.00	0.00	43.53
0.00		0.27						
	1	530	1	0.00	2.98	0.00	0.00	-36.49
0.00		0.23						
90	1	530	1	0.00	-5.10	0.00	0.00	36.49
0.00		0.23						
	1	531	1	0.00	5.10	0.00	0.00	-24.42
0.00		0.15						
91	1	531	1	0.00	-8.56	0.00	0.00	24.42
0.00		0.15						
	1	532	1	0.00	8.56	0.00	0.00	-4.17
0.00		0.03						
92	1	532	1	0.00	-2.68	0.00	0.00	4.17
0.00		0.03						
	1	533	1	0.00	2.68	0.00	0.00	2.18
0.00		0.01						
93	1	533	1	0.00	0.58	0.00	0.00	-2.18
0.00		0.01						
	1	534	1	0.00	-0.58	0.00	0.00	0.79
0.00		0.00						
94	1	534	1	0.00	0.37	0.00	0.00	-0.79
0.00		0.00						
	1	535	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
95	1	535	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	536	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
96	1	536	1	0.00	-0.03	0.00	0.00	0.07
0.00		0.00						
	1	537	1	0.00	0.03	0.00	0.00	0.00
0.00		0.00						
97	1	537	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	538	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
98	1	538	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	539	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
99	1	539	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	540	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
100	1	540	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	541	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

10 Pearson.out

! -> Pile Number 6 !

101	1	6	1	0.00	2.82	0.00	0.00	0.00
0.00		0.00						
	1	542	1	0.00	-2.82	0.00	0.00	-8.18
0.00		0.05						
102	1	542	1	0.00	2.82	0.00	0.00	8.18
0.00		0.05						
	1	543	1	0.00	-2.82	0.00	0.00	-16.36
0.00		0.10						
103	1	543	1	0.00	2.82	0.00	0.00	16.36
0.00		0.10						
	1	544	1	0.00	-2.82	0.00	0.00	-24.54
0.00		0.15						
104	1	544	1	0.00	2.82	0.00	0.00	24.54
0.00		0.15						
	1	545	1	0.00	-2.82	0.00	0.00	-32.72
0.00		0.21						
105	1	545	1	0.00	2.82	0.00	0.00	32.72
0.00		0.21						
	1	546	1	0.00	-2.82	0.00	0.00	-40.89
0.00		0.26						
106	1	546	1	0.00	2.37	0.00	0.00	40.89
0.00		0.26						
	1	547	1	0.00	-2.37	0.00	0.00	-46.51
0.00		0.29						
107	1	547	1	0.00	0.84	0.00	0.00	46.51
0.00		0.29						
	1	548	1	0.00	-0.84	0.00	0.00	-48.50
0.00		0.31						
108	1	548	1	0.00	-1.36	0.00	0.00	48.50
0.00		0.31						
	1	549	1	0.00	1.36	0.00	0.00	-45.28
0.00		0.28						
109	1	549	1	0.00	-4.62	0.00	0.00	45.28
0.00		0.28						
	1	550	1	0.00	4.62	0.00	0.00	-34.35
0.00		0.22						
110	1	550	1	0.00	-7.19	0.00	0.00	34.35
0.00		0.22						
	1	551	1	0.00	7.19	0.00	0.00	-17.34
0.00		0.11						
111	1	551	1	0.00	-7.16	0.00	0.00	17.34
0.00		0.11						
	1	552	1	0.00	7.16	0.00	0.00	-0.39
0.00		0.00						
112	1	552	1	0.00	-0.90	0.00	0.00	0.39
0.00		0.00						
	1	553	1	0.00	0.90	0.00	0.00	1.73
0.00		0.01						
113	1	553	1	0.00	0.64	0.00	0.00	-1.73
0.00		0.01						
	1	554	1	0.00	-0.64	0.00	0.00	0.22
0.00		0.00						
114	1	554	1	0.00	0.14	0.00	0.00	-0.22
0.00		0.00						
	1	555	1	0.00	-0.14	0.00	0.00	-0.11
0.00		0.00						
115	1	555	1	0.00	-0.04	0.00	0.00	0.11
0.00		0.00						
	1	556	1	0.00	0.04	0.00	0.00	-0.02
0.00		0.00						
116	1	556	1	0.00	-0.01	0.00	0.00	0.02

10 Pearson.out

0.00		0.00						
	1	557	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
117	1	557	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	558	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
118	1	558	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	559	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
119	1	559	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	560	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
120	1	560	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	561	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 7 !

121	1	7	1	0.00	2.56	0.00	0.00	0.00
0.00		0.00						
	1	562	1	0.00	-2.56	0.00	0.00	-7.43
0.00		0.05						
122	1	562	1	0.00	2.56	0.00	0.00	7.43
0.00		0.05						
	1	563	1	0.00	-2.56	0.00	0.00	-14.85
0.00		0.09						
123	1	563	1	0.00	2.56	0.00	0.00	14.85
0.00		0.09						
	1	564	1	0.00	-2.56	0.00	0.00	-22.28
0.00		0.14						
124	1	564	1	0.00	2.56	0.00	0.00	22.28
0.00		0.14						
	1	565	1	0.00	-2.56	0.00	0.00	-29.70
0.00		0.19						
125	1	565	1	0.00	2.56	0.00	0.00	29.70
0.00		0.19						
	1	566	1	0.00	-2.56	0.00	0.00	-37.13
0.00		0.23						
126	1	566	1	0.00	2.23	0.00	0.00	37.13
0.00		0.23						
	1	567	1	0.00	-2.23	0.00	0.00	-42.40
0.00		0.27						
127	1	567	1	0.00	1.09	0.00	0.00	42.40
0.00		0.27						
	1	568	1	0.00	-1.09	0.00	0.00	-44.98
0.00		0.28						
128	1	568	1	0.00	-0.61	0.00	0.00	44.98
0.00		0.28						
	1	569	1	0.00	0.61	0.00	0.00	-43.53
0.00		0.27						
129	1	569	1	0.00	-2.98	0.00	0.00	43.53
0.00		0.27						
	1	570	1	0.00	2.98	0.00	0.00	-36.48
0.00		0.23						
130	1	570	1	0.00	-5.10	0.00	0.00	36.48
0.00		0.23						
	1	571	1	0.00	5.10	0.00	0.00	-24.42
0.00		0.15						

10 Pearson.out								
131	1	571	1	0.00	-8.52	0.00	0.00	24.42
0.00		0.15						
	1	572	1	0.00	8.52	0.00	0.00	-4.25
0.00		0.03						
132	1	572	1	0.00	-2.73	0.00	0.00	4.25
0.00		0.03						
	1	573	1	0.00	2.73	0.00	0.00	2.21
0.00		0.01						
133	1	573	1	0.00	0.59	0.00	0.00	-2.21
0.00		0.01						
	1	574	1	0.00	-0.59	0.00	0.00	0.81
0.00		0.01						
134	1	574	1	0.00	0.37	0.00	0.00	-0.81
0.00		0.01						
	1	575	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
135	1	575	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	576	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
136	1	576	1	0.00	-0.03	0.00	0.00	0.07
0.00		0.00						
	1	577	1	0.00	0.03	0.00	0.00	0.00
0.00		0.00						
137	1	577	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	578	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
138	1	578	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	579	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
139	1	579	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	580	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
140	1	580	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	581	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 8 !

141	1	8	1	0.00	2.56	0.00	0.00	0.00
0.00		0.00						
	1	582	1	0.00	-2.56	0.00	0.00	-7.43
0.00		0.05						
142	1	582	1	0.00	2.56	0.00	0.00	7.43
0.00		0.05						
	1	583	1	0.00	-2.56	0.00	0.00	-14.85
0.00		0.09						
143	1	583	1	0.00	2.56	0.00	0.00	14.85
0.00		0.09						
	1	584	1	0.00	-2.56	0.00	0.00	-22.28
0.00		0.14						
144	1	584	1	0.00	2.56	0.00	0.00	22.28
0.00		0.14						
	1	585	1	0.00	-2.56	0.00	0.00	-29.71
0.00		0.19						
145	1	585	1	0.00	2.56	0.00	0.00	29.71
0.00		0.19						
	1	586	1	0.00	-2.56	0.00	0.00	-37.13

10 Pearson.out								
0.00		0.23						
146	1	586	1	0.00	2.23	0.00	0.00	37.13
0.00		0.23						
	1	587	1	0.00	-2.23	0.00	0.00	-42.41
0.00		0.27						
147	1	587	1	0.00	1.09	0.00	0.00	42.41
0.00		0.27						
	1	588	1	0.00	-1.09	0.00	0.00	-44.98
0.00		0.28						
148	1	588	1	0.00	-0.61	0.00	0.00	44.98
0.00		0.28						
	1	589	1	0.00	0.61	0.00	0.00	-43.53
0.00		0.27						
149	1	589	1	0.00	-2.98	0.00	0.00	43.53
0.00		0.27						
	1	590	1	0.00	2.98	0.00	0.00	-36.49
0.00		0.23						
150	1	590	1	0.00	-5.10	0.00	0.00	36.49
0.00		0.23						
	1	591	1	0.00	5.10	0.00	0.00	-24.42
0.00		0.15						
151	1	591	1	0.00	-8.56	0.00	0.00	24.42
0.00		0.15						
	1	592	1	0.00	8.56	0.00	0.00	-4.17
0.00		0.03						
152	1	592	1	0.00	-2.68	0.00	0.00	4.17
0.00		0.03						
	1	593	1	0.00	2.68	0.00	0.00	2.18
0.00		0.01						
153	1	593	1	0.00	0.58	0.00	0.00	-2.18
0.00		0.01						
	1	594	1	0.00	-0.58	0.00	0.00	0.79
0.00		0.00						
154	1	594	1	0.00	0.37	0.00	0.00	-0.79
0.00		0.00						
	1	595	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
155	1	595	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	596	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
156	1	596	1	0.00	-0.03	0.00	0.00	0.07
0.00		0.00						
	1	597	1	0.00	0.03	0.00	0.00	0.00
0.00		0.00						
157	1	597	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	598	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
158	1	598	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	599	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
159	1	599	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	600	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
160	1	600	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	601	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

10 Pearson.out

! -> Pile Number 9 !

161	1	9	1	0.00	2.56	0.00	0.00	0.00
0.00		0.00						
	1	602	1	0.00	-2.56	0.00	0.00	-7.43
0.00		0.05						
162	1	602	1	0.00	2.56	0.00	0.00	7.43
0.00		0.05						
	1	603	1	0.00	-2.56	0.00	0.00	-14.85
0.00		0.09						
163	1	603	1	0.00	2.56	0.00	0.00	14.85
0.00		0.09						
	1	604	1	0.00	-2.56	0.00	0.00	-22.28
0.00		0.14						
164	1	604	1	0.00	2.56	0.00	0.00	22.28
0.00		0.14						
	1	605	1	0.00	-2.56	0.00	0.00	-29.70
0.00		0.19						
165	1	605	1	0.00	2.56	0.00	0.00	29.70
0.00		0.19						
	1	606	1	0.00	-2.56	0.00	0.00	-37.13
0.00		0.23						
166	1	606	1	0.00	2.23	0.00	0.00	37.13
0.00		0.23						
	1	607	1	0.00	-2.23	0.00	0.00	-42.40
0.00		0.27						
167	1	607	1	0.00	1.09	0.00	0.00	42.40
0.00		0.27						
	1	608	1	0.00	-1.09	0.00	0.00	-44.98
0.00		0.28						
168	1	608	1	0.00	-0.61	0.00	0.00	44.98
0.00		0.28						
	1	609	1	0.00	0.61	0.00	0.00	-43.53
0.00		0.27						
169	1	609	1	0.00	-2.98	0.00	0.00	43.53
0.00		0.27						
	1	610	1	0.00	2.98	0.00	0.00	-36.48
0.00		0.23						
170	1	610	1	0.00	-5.10	0.00	0.00	36.48
0.00		0.23						
	1	611	1	0.00	5.10	0.00	0.00	-24.41
0.00		0.15						
171	1	611	1	0.00	-8.52	0.00	0.00	24.41
0.00		0.15						
	1	612	1	0.00	8.52	0.00	0.00	-4.25
0.00		0.03						
172	1	612	1	0.00	-2.73	0.00	0.00	4.25
0.00		0.03						
	1	613	1	0.00	2.73	0.00	0.00	2.21
0.00		0.01						
173	1	613	1	0.00	0.59	0.00	0.00	-2.21
0.00		0.01						
	1	614	1	0.00	-0.59	0.00	0.00	0.81
0.00		0.01						
174	1	614	1	0.00	0.37	0.00	0.00	-0.81
0.00		0.01						
	1	615	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
175	1	615	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	616	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
176	1	616	1	0.00	-0.03	0.00	0.00	0.07

10 Pearson.out				
0.00		0.00		
	1	617	1	
0.00		0.00		
177	1	617	1	
0.00		0.00		
	1	618	1	
0.00		0.00		
178	1	618	1	
0.00		0.00		
	1	619	1	
0.00		0.00		
179	1	619	1	
0.00		0.00		
	1	620	1	
0.00		0.00		
180	1	620	1	
0.00		0.00		
	1	621	1	
0.00		0.00		

! -> Pile Number 10 !				
181	1	10	1	
0.00		0.00		
	1	622	1	
0.00		0.05		
182	1	622	1	
0.00		0.05		
	1	623	1	
0.00		0.09		
183	1	623	1	
0.00		0.09		
	1	624	1	
0.00		0.14		
184	1	624	1	
0.00		0.14		
	1	625	1	
0.00		0.19		
185	1	625	1	
0.00		0.19		
	1	626	1	
0.00		0.23		
186	1	626	1	
0.00		0.23		
	1	627	1	
0.00		0.27		
187	1	627	1	
0.00		0.27		
	1	628	1	
0.00		0.28		
188	1	628	1	
0.00		0.28		
	1	629	1	
0.00		0.27		
189	1	629	1	
0.00		0.27		
	1	630	1	
0.00		0.23		
190	1	630	1	
0.00		0.23		
	1	631	1	
0.00		0.15		

				10 Pearson.out				
191	1	631	1	0.00	-8.56	0.00	0.00	24.42
0.00		0.15						
	1	632	1	0.00	8.56	0.00	0.00	-4.17
0.00		0.03						
192	1	632	1	0.00	-2.68	0.00	0.00	4.17
0.00		0.03						
	1	633	1	0.00	2.68	0.00	0.00	2.18
0.00		0.01						
193	1	633	1	0.00	0.58	0.00	0.00	-2.18
0.00		0.01						
	1	634	1	0.00	-0.58	0.00	0.00	0.79
0.00		0.00						
194	1	634	1	0.00	0.37	0.00	0.00	-0.79
0.00		0.00						
	1	635	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
195	1	635	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	636	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
196	1	636	1	0.00	-0.03	0.00	0.00	0.07
0.00		0.00						
	1	637	1	0.00	0.03	0.00	0.00	0.00
0.00		0.00						
197	1	637	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	638	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
198	1	638	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	639	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
199	1	639	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	640	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
200	1	640	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	641	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 11 !

201	1	11	1	0.00	3.51	0.00	0.00	0.00
0.00		0.00						
	1	642	1	0.00	-3.51	0.00	0.00	-10.17
0.00		0.06						
202	1	642	1	0.00	3.51	0.00	0.00	10.17
0.00		0.06						
	1	643	1	0.00	-3.51	0.00	0.00	-20.34
0.00		0.13						
203	1	643	1	0.00	3.51	0.00	0.00	20.34
0.00		0.13						
	1	644	1	0.00	-3.51	0.00	0.00	-30.52
0.00		0.19						
204	1	644	1	0.00	3.51	0.00	0.00	30.52
0.00		0.19						
	1	645	1	0.00	-3.51	0.00	0.00	-40.69
0.00		0.26						
205	1	645	1	0.00	3.51	0.00	0.00	40.69
0.00		0.26						
	1	646	1	0.00	-3.51	0.00	0.00	-50.86

10 Pearson.out								
0.00		0.32						
206	1	646	1	0.00	2.63	0.00	0.00	50.86
0.00		0.32						
	1	647	1	0.00	-2.63	0.00	0.00	-57.08
0.00		0.36						
207	1	647	1	0.00	-0.40	0.00	0.00	57.08
0.00		0.36						
	1	648	1	0.00	0.40	0.00	0.00	-56.13
0.00		0.35						
208	1	648	1	0.00	-4.46	0.00	0.00	56.13
0.00		0.35						
	1	649	1	0.00	4.46	0.00	0.00	-45.59
0.00		0.29						
209	1	649	1	0.00	-9.22	0.00	0.00	45.59
0.00		0.29						
	1	650	1	0.00	9.22	0.00	0.00	-23.77
0.00		0.15						
210	1	650	1	0.00	-9.35	0.00	0.00	23.77
0.00		0.15						
	1	651	1	0.00	9.35	0.00	0.00	-1.63
0.00		0.01						
211	1	651	1	0.00	-1.91	0.00	0.00	1.63
0.00		0.01						
	1	652	1	0.00	1.91	0.00	0.00	2.90
0.00		0.02						
212	1	652	1	0.00	1.18	0.00	0.00	-2.90
0.00		0.02						
	1	653	1	0.00	-1.18	0.00	0.00	0.10
0.00		0.00						
213	1	653	1	0.00	0.11	0.00	0.00	-0.10
0.00		0.00						
	1	654	1	0.00	-0.11	0.00	0.00	-0.15
0.00		0.00						
214	1	654	1	0.00	-0.07	0.00	0.00	0.15
0.00		0.00						
	1	655	1	0.00	0.07	0.00	0.00	0.01
0.00		0.00						
215	1	655	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	656	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
216	1	656	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	657	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
217	1	657	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	658	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
218	1	658	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	659	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
219	1	659	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	660	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
220	1	660	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	661	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

10 Pearson.out

! -> Pile Number 12 !

221	1	12	1	0.00	2.56	0.00	0.00	0.00
0.00		0.00						
	1	662	1	0.00	-2.56	0.00	0.00	-7.43
0.00		0.05						
222	1	662	1	0.00	2.56	0.00	0.00	7.43
0.00		0.05						
	1	663	1	0.00	-2.56	0.00	0.00	-14.85
0.00		0.09						
223	1	663	1	0.00	2.56	0.00	0.00	14.85
0.00		0.09						
	1	664	1	0.00	-2.56	0.00	0.00	-22.28
0.00		0.14						
224	1	664	1	0.00	2.56	0.00	0.00	22.28
0.00		0.14						
	1	665	1	0.00	-2.56	0.00	0.00	-29.70
0.00		0.19						
225	1	665	1	0.00	2.56	0.00	0.00	29.70
0.00		0.19						
	1	666	1	0.00	-2.56	0.00	0.00	-37.13
0.00		0.23						
226	1	666	1	0.00	2.23	0.00	0.00	37.13
0.00		0.23						
	1	667	1	0.00	-2.23	0.00	0.00	-42.40
0.00		0.27						
227	1	667	1	0.00	1.09	0.00	0.00	42.40
0.00		0.27						
	1	668	1	0.00	-1.09	0.00	0.00	-44.98
0.00		0.28						
228	1	668	1	0.00	-0.61	0.00	0.00	44.98
0.00		0.28						
	1	669	1	0.00	0.61	0.00	0.00	-43.53
0.00		0.27						
229	1	669	1	0.00	-2.98	0.00	0.00	43.53
0.00		0.27						
	1	670	1	0.00	2.98	0.00	0.00	-36.48
0.00		0.23						
230	1	670	1	0.00	-5.10	0.00	0.00	36.48
0.00		0.23						
	1	671	1	0.00	5.10	0.00	0.00	-24.41
0.00		0.15						
231	1	671	1	0.00	-8.52	0.00	0.00	24.41
0.00		0.15						
	1	672	1	0.00	8.52	0.00	0.00	-4.25
0.00		0.03						
232	1	672	1	0.00	-2.73	0.00	0.00	4.25
0.00		0.03						
	1	673	1	0.00	2.73	0.00	0.00	2.21
0.00		0.01						
233	1	673	1	0.00	0.59	0.00	0.00	-2.21
0.00		0.01						
	1	674	1	0.00	-0.59	0.00	0.00	0.81
0.00		0.01						
234	1	674	1	0.00	0.37	0.00	0.00	-0.81
0.00		0.01						
	1	675	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
235	1	675	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	676	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
236	1	676	1	0.00	-0.03	0.00	0.00	0.07

10 Pearson.out

0.00		0.00						
	1	677	1	0.00	0.03	0.00	0.00	0.00
0.00		0.00						
237	1	677	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	678	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
238	1	678	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	679	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
239	1	679	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	680	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
240	1	680	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	681	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 13 !

241	1	13	1	0.00	2.56	0.00	0.00	0.00
0.00		0.00						
	1	682	1	0.00	-2.56	0.00	0.00	-7.43
0.00		0.05						
242	1	682	1	0.00	2.56	0.00	0.00	7.43
0.00		0.05						
	1	683	1	0.00	-2.56	0.00	0.00	-14.85
0.00		0.09						
243	1	683	1	0.00	2.56	0.00	0.00	14.85
0.00		0.09						
	1	684	1	0.00	-2.56	0.00	0.00	-22.28
0.00		0.14						
244	1	684	1	0.00	2.56	0.00	0.00	22.28
0.00		0.14						
	1	685	1	0.00	-2.56	0.00	0.00	-29.71
0.00		0.19						
245	1	685	1	0.00	2.56	0.00	0.00	29.71
0.00		0.19						
	1	686	1	0.00	-2.56	0.00	0.00	-37.13
0.00		0.23						
246	1	686	1	0.00	2.23	0.00	0.00	37.13
0.00		0.23						
	1	687	1	0.00	-2.23	0.00	0.00	-42.41
0.00		0.27						
247	1	687	1	0.00	1.09	0.00	0.00	42.41
0.00		0.27						
	1	688	1	0.00	-1.09	0.00	0.00	-44.98
0.00		0.28						
248	1	688	1	0.00	-0.61	0.00	0.00	44.98
0.00		0.28						
	1	689	1	0.00	0.61	0.00	0.00	-43.53
0.00		0.27						
249	1	689	1	0.00	-2.98	0.00	0.00	43.53
0.00		0.27						
	1	690	1	0.00	2.98	0.00	0.00	-36.49
0.00		0.23						
250	1	690	1	0.00	-5.10	0.00	0.00	36.49
0.00		0.23						
	1	691	1	0.00	5.10	0.00	0.00	-24.42
0.00		0.15						

				10 Pearson.out				
251	1	691	1	0.00	-8.56	0.00	0.00	24.42
0.00		0.15						
	1	692	1	0.00	8.56	0.00	0.00	-4.17
0.00		0.03						
252	1	692	1	0.00	-2.68	0.00	0.00	4.17
0.00		0.03						
	1	693	1	0.00	2.68	0.00	0.00	2.18
0.00		0.01						
253	1	693	1	0.00	0.58	0.00	0.00	-2.18
0.00		0.01						
	1	694	1	0.00	-0.58	0.00	0.00	0.79
0.00		0.00						
254	1	694	1	0.00	0.37	0.00	0.00	-0.79
0.00		0.00						
	1	695	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
255	1	695	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	696	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
256	1	696	1	0.00	-0.03	0.00	0.00	0.07
0.00		0.00						
	1	697	1	0.00	0.03	0.00	0.00	0.00
0.00		0.00						
257	1	697	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	698	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
258	1	698	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	699	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
259	1	699	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	700	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
260	1	700	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	701	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 14 !

261	1	14	1	0.00	2.82	0.00	0.00	0.00
0.00		0.00						
	1	702	1	0.00	-2.82	0.00	0.00	-8.18
0.00		0.05						
262	1	702	1	0.00	2.82	0.00	0.00	8.18
0.00		0.05						
	1	703	1	0.00	-2.82	0.00	0.00	-16.36
0.00		0.10						
263	1	703	1	0.00	2.82	0.00	0.00	16.36
0.00		0.10						
	1	704	1	0.00	-2.82	0.00	0.00	-24.54
0.00		0.15						
264	1	704	1	0.00	2.82	0.00	0.00	24.54
0.00		0.15						
	1	705	1	0.00	-2.82	0.00	0.00	-32.72
0.00		0.21						
265	1	705	1	0.00	2.82	0.00	0.00	32.72
0.00		0.21						
	1	706	1	0.00	-2.82	0.00	0.00	-40.89

10 Pearson.out

0.00		0.26						
266	1	706	1	0.00	2.37	0.00	0.00	40.89
0.00		0.26						
	1	707	1	0.00	-2.37	0.00	0.00	-46.51
0.00		0.29						
267	1	707	1	0.00	0.84	0.00	0.00	46.51
0.00		0.29						
	1	708	1	0.00	-0.84	0.00	0.00	-48.50
0.00		0.31						
268	1	708	1	0.00	-1.36	0.00	0.00	48.50
0.00		0.31						
	1	709	1	0.00	1.36	0.00	0.00	-45.28
0.00		0.28						
269	1	709	1	0.00	-4.62	0.00	0.00	45.28
0.00		0.28						
	1	710	1	0.00	4.62	0.00	0.00	-34.35
0.00		0.22						
270	1	710	1	0.00	-7.19	0.00	0.00	34.35
0.00		0.22						
	1	711	1	0.00	7.19	0.00	0.00	-17.34
0.00		0.11						
271	1	711	1	0.00	-7.16	0.00	0.00	17.34
0.00		0.11						
	1	712	1	0.00	7.16	0.00	0.00	-0.39
0.00		0.00						
272	1	712	1	0.00	-0.90	0.00	0.00	0.39
0.00		0.00						
	1	713	1	0.00	0.90	0.00	0.00	1.73
0.00		0.01						
273	1	713	1	0.00	0.64	0.00	0.00	-1.73
0.00		0.01						
	1	714	1	0.00	-0.64	0.00	0.00	0.22
0.00		0.00						
274	1	714	1	0.00	0.14	0.00	0.00	-0.22
0.00		0.00						
	1	715	1	0.00	-0.14	0.00	0.00	-0.11
0.00		0.00						
275	1	715	1	0.00	-0.04	0.00	0.00	0.11
0.00		0.00						
	1	716	1	0.00	0.04	0.00	0.00	-0.02
0.00		0.00						
276	1	716	1	0.00	-0.01	0.00	0.00	0.02
0.00		0.00						
	1	717	1	0.00	0.01	0.00	0.00	0.01
0.00		0.00						
277	1	717	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	718	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
278	1	718	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	719	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
279	1	719	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	720	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
280	1	720	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	721	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

10 Pearson.out

! -> Pile Number 15 !

281	1	15	1	0.00	2.56	0.00	0.00	0.00
0.00		0.00						
	1	722	1	0.00	-2.56	0.00	0.00	-7.43
0.00		0.05						
282	1	722	1	0.00	2.56	0.00	0.00	7.43
0.00		0.05						
	1	723	1	0.00	-2.56	0.00	0.00	-14.85
0.00		0.09						
283	1	723	1	0.00	2.56	0.00	0.00	14.85
0.00		0.09						
	1	724	1	0.00	-2.56	0.00	0.00	-22.28
0.00		0.14						
284	1	724	1	0.00	2.56	0.00	0.00	22.28
0.00		0.14						
	1	725	1	0.00	-2.56	0.00	0.00	-29.71
0.00		0.19						
285	1	725	1	0.00	2.56	0.00	0.00	29.71
0.00		0.19						
	1	726	1	0.00	-2.56	0.00	0.00	-37.13
0.00		0.23						
286	1	726	1	0.00	2.23	0.00	0.00	37.13
0.00		0.23						
	1	727	1	0.00	-2.23	0.00	0.00	-42.41
0.00		0.27						
287	1	727	1	0.00	1.09	0.00	0.00	42.41
0.00		0.27						
	1	728	1	0.00	-1.09	0.00	0.00	-44.98
0.00		0.28						
288	1	728	1	0.00	-0.61	0.00	0.00	44.98
0.00		0.28						
	1	729	1	0.00	0.61	0.00	0.00	-43.53
0.00		0.27						
289	1	729	1	0.00	-2.98	0.00	0.00	43.53
0.00		0.27						
	1	730	1	0.00	2.98	0.00	0.00	-36.49
0.00		0.23						
290	1	730	1	0.00	-5.10	0.00	0.00	36.49
0.00		0.23						
	1	731	1	0.00	5.10	0.00	0.00	-24.42
0.00		0.15						
291	1	731	1	0.00	-8.56	0.00	0.00	24.42
0.00		0.15						
	1	732	1	0.00	8.56	0.00	0.00	-4.17
0.00		0.03						
292	1	732	1	0.00	-2.68	0.00	0.00	4.17
0.00		0.03						
	1	733	1	0.00	2.68	0.00	0.00	2.18
0.00		0.01						
293	1	733	1	0.00	0.58	0.00	0.00	-2.18
0.00		0.01						
	1	734	1	0.00	-0.58	0.00	0.00	0.79
0.00		0.00						
294	1	734	1	0.00	0.37	0.00	0.00	-0.79
0.00		0.00						
	1	735	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
295	1	735	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	736	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
296	1	736	1	0.00	-0.03	0.00	0.00	0.07

10 Pearson.out

0.00		0.00						
	1	737	1	0.00	0.03	0.00	0.00	0.00
0.00		0.00						
297	1	737	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	738	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
298	1	738	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	739	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
299	1	739	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	740	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
300	1	740	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	741	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 16 !

301	1	16	1	0.00	2.56	0.00	0.00	0.00
0.00		0.00						
	1	742	1	0.00	-2.56	0.00	0.00	-7.43
0.00		0.05						
302	1	742	1	0.00	2.56	0.00	0.00	7.43
0.00		0.05						
	1	743	1	0.00	-2.56	0.00	0.00	-14.85
0.00		0.09						
303	1	743	1	0.00	2.56	0.00	0.00	14.85
0.00		0.09						
	1	744	1	0.00	-2.56	0.00	0.00	-22.28
0.00		0.14						
304	1	744	1	0.00	2.56	0.00	0.00	22.28
0.00		0.14						
	1	745	1	0.00	-2.56	0.00	0.00	-29.71
0.00		0.19						
305	1	745	1	0.00	2.56	0.00	0.00	29.71
0.00		0.19						
	1	746	1	0.00	-2.56	0.00	0.00	-37.13
0.00		0.23						
306	1	746	1	0.00	2.23	0.00	0.00	37.13
0.00		0.23						
	1	747	1	0.00	-2.23	0.00	0.00	-42.41
0.00		0.27						
307	1	747	1	0.00	1.09	0.00	0.00	42.41
0.00		0.27						
	1	748	1	0.00	-1.09	0.00	0.00	-44.98
0.00		0.28						
308	1	748	1	0.00	-0.61	0.00	0.00	44.98
0.00		0.28						
	1	749	1	0.00	0.61	0.00	0.00	-43.53
0.00		0.27						
309	1	749	1	0.00	-2.98	0.00	0.00	43.53
0.00		0.27						
	1	750	1	0.00	2.98	0.00	0.00	-36.49
0.00		0.23						
310	1	750	1	0.00	-5.10	0.00	0.00	36.49
0.00		0.23						
	1	751	1	0.00	5.10	0.00	0.00	-24.42
0.00		0.15						

				10 Pearson.out				
311	1	751	1	0.00	-8.56	0.00	0.00	24.42
0.00		0.15						
	1	752	1	0.00	8.56	0.00	0.00	-4.17
0.00		0.03						
312	1	752	1	0.00	-2.68	0.00	0.00	4.17
0.00		0.03						
	1	753	1	0.00	2.68	0.00	0.00	2.18
0.00		0.01						
313	1	753	1	0.00	0.58	0.00	0.00	-2.18
0.00		0.01						
	1	754	1	0.00	-0.58	0.00	0.00	0.79
0.00		0.00						
314	1	754	1	0.00	0.37	0.00	0.00	-0.79
0.00		0.00						
	1	755	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
315	1	755	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	756	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
316	1	756	1	0.00	-0.03	0.00	0.00	0.07
0.00		0.00						
	1	757	1	0.00	0.03	0.00	0.00	0.00
0.00		0.00						
317	1	757	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	758	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
318	1	758	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	759	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
319	1	759	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	760	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
320	1	760	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	761	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 17 !

321	1	17	1	0.00	2.56	0.00	0.00	0.00
0.00		0.00						
	1	762	1	0.00	-2.56	0.00	0.00	-7.43
0.00		0.05						
322	1	762	1	0.00	2.56	0.00	0.00	7.43
0.00		0.05						
	1	763	1	0.00	-2.56	0.00	0.00	-14.85
0.00		0.09						
323	1	763	1	0.00	2.56	0.00	0.00	14.85
0.00		0.09						
	1	764	1	0.00	-2.56	0.00	0.00	-22.28
0.00		0.14						
324	1	764	1	0.00	2.56	0.00	0.00	22.28
0.00		0.14						
	1	765	1	0.00	-2.56	0.00	0.00	-29.71
0.00		0.19						
325	1	765	1	0.00	2.56	0.00	0.00	29.71
0.00		0.19						
	1	766	1	0.00	-2.56	0.00	0.00	-37.13

10 Pearson.out								
0.00		0.23						
326	1	766	1	0.00	2.23	0.00	0.00	37.13
0.00		0.23						
	1	767	1	0.00	-2.23	0.00	0.00	-42.41
0.00		0.27						
327	1	767	1	0.00	1.09	0.00	0.00	42.41
0.00		0.27						
	1	768	1	0.00	-1.09	0.00	0.00	-44.98
0.00		0.28						
328	1	768	1	0.00	-0.61	0.00	0.00	44.98
0.00		0.28						
	1	769	1	0.00	0.61	0.00	0.00	-43.53
0.00		0.27						
329	1	769	1	0.00	-2.98	0.00	0.00	43.53
0.00		0.27						
	1	770	1	0.00	2.98	0.00	0.00	-36.49
0.00		0.23						
330	1	770	1	0.00	-5.10	0.00	0.00	36.49
0.00		0.23						
	1	771	1	0.00	5.10	0.00	0.00	-24.42
0.00		0.15						
331	1	771	1	0.00	-8.56	0.00	0.00	24.42
0.00		0.15						
	1	772	1	0.00	8.56	0.00	0.00	-4.17
0.00		0.03						
332	1	772	1	0.00	-2.68	0.00	0.00	4.17
0.00		0.03						
	1	773	1	0.00	2.68	0.00	0.00	2.18
0.00		0.01						
333	1	773	1	0.00	0.58	0.00	0.00	-2.18
0.00		0.01						
	1	774	1	0.00	-0.58	0.00	0.00	0.79
0.00		0.00						
334	1	774	1	0.00	0.37	0.00	0.00	-0.79
0.00		0.00						
	1	775	1	0.00	-0.37	0.00	0.00	-0.08
0.00		0.00						
335	1	775	1	0.00	0.00	0.00	0.00	0.08
0.00		0.00						
	1	776	1	0.00	0.00	0.00	0.00	-0.07
0.00		0.00						
336	1	776	1	0.00	-0.03	0.00	0.00	0.07
0.00		0.00						
	1	777	1	0.00	0.03	0.00	0.00	0.00
0.00		0.00						
337	1	777	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	778	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
338	1	778	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	779	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
339	1	779	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	780	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
340	1	780	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	781	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
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 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

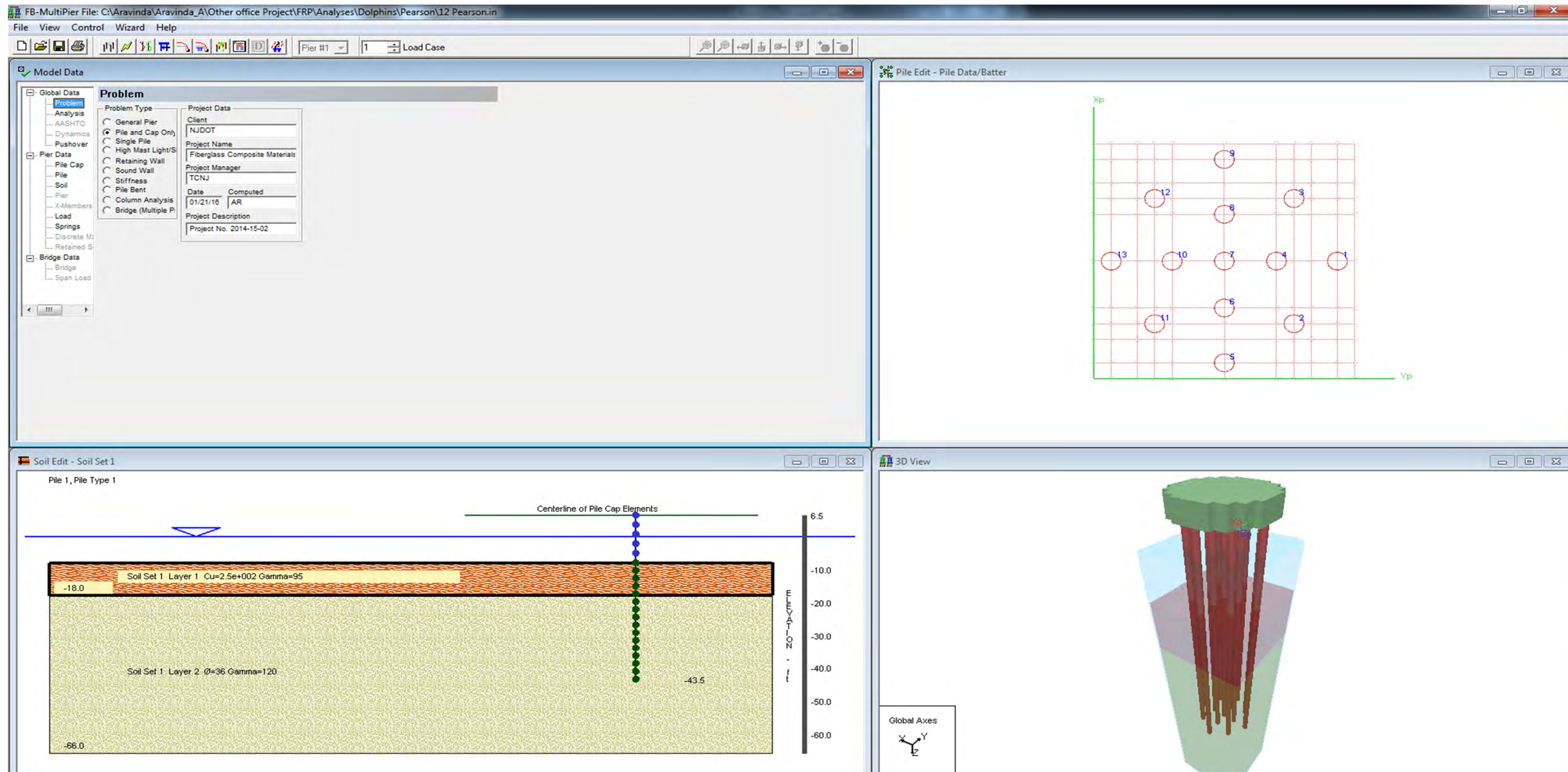
	Value	Load	Comb.	Pile
Max Axial Force	0.1166E-10 Kip	1	0	14
Min Axial Force	-0.1939E-11 Kip	1	0	1
Max Shear in 2 Direction	0.3508E+01 Kip	1	0	11
Min Shear in 2 Direction	-0.9352E+01 Kip	1	0	11
Max Shear in 3 Direction	0.9980E-04 Kip	1	0	4
Min Shear in 3 Direction	-0.6127E-04 Kip	1	0	17
Max Moment about 2 Axis	0.1091E-03 Kip-ft	1	0	17
Min Moment about 2 Axis	-0.1778E-03 Kip-ft	1	0	4
Max Moment About 3 Axis	0.2898E+01 Kip-ft	1	0	11
Min Moment About 3 Axis	-0.5708E+02 Kip-ft	1	0	11
Max Torsional Force	0.4499E-04 Kip-ft	1	0	4
Min Torsional Force	-0.2287E-04 Kip-ft	1	0	12
Max Demand/Capacity Ratio	0.3593E+00	1	0	11

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.5787E-06 Kip	1	0	1
Min Axial Soil Force	-0.6055E-06 Kip	1	0	17
Max Lateral Force in X dir	0.2649E+01 Kip	1	0	4
Min Lateral Force in X dir	-0.6650E+01 Kip	1	0	11
Max Lateral Force in Y dir	0.1498E-02 Kip	1	0	4
Min Lateral Force in Y dir	-0.1433E-02 Kip	1	0	4
Max Torsional Soil Force	0.1661E-03 Kip-ft	1	0	12

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.1276E-08 in	1	0	1
Min Axial Displacement	-0.1335E-08 in	1	0	17
Max Displacement in X	0.7071E+02 in	1	0	7
Min Displacement in X	0.7071E+02 in	1	0	11
Max Displacement in Y	0.7659E-04 in	1	0	4
Min Displacement in Y	-0.4699E-04 in	1	0	17



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 2 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 1,0,0
I= 60 T= 3 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -90 -89.4 0 89.4 90 \
0 0 0 0 0 \
0 0 0 0 0
-0.03 -0.022 0 0.022 0.03 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.022
NL= 0 NG= 0 D= 12 V= 0 S= 80 TH= 0.375 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
11 11 5 5 : NPX, NPY, GSX, GSY
10 15 10 10 30 30 \
10 10 15 10
10 15 10 10 30 30 \
10 10 15 10
0.3 0.3 0.3 0.3 0.3 0.4 0.8
0.3 0.3 0.3 0.3 0.3 0.4 0.8
:
MISSING
108 : number of missing piles
1 1
2 1
3 1
4 1
5 1
6 1

```

7 1
 8 1
 9 1
 10 1
 11 1
 1 2
 2 2
 3 2
 4 2
 5 2
 7 2
 8 2
 9 2
 10 2
 11 2
 1 3
 2 3
 3 3
 4 3
 5 3
 6 3
 7 3
 8 3
 9 3
 10 3
 11 3
 1 4
 2 4
 3 4
 5 4
 6 4
 7 4
 9 4
 10 4
 11 4
 1 5
 2 5
 3 5
 4 5
 5 5
 7 5
 8 5
 9 5
 10 5
 11 5
 1 6
 3 6
 4 6
 8 6
 9 6
 11 6
 1 7
 2 7
 3 7
 4 7
 5 7
 7 7
 8 7
 9 7
 10 7
 11 7
 1 8
 2 8

```

3 8
5 8
6 8
7 8
9 8
10 8
11 8
1 9
2 9
3 9
4 9
5 9
6 9
7 9
8 9
9 9
10 9
11 9
1 10
2 10
3 10
4 10
5 10
7 10
8 10
9 10
10 10
11 10
1 11
2 11
3 11
4 11
5 11
6 11
7 11
8 11
9 11
10 11
11 11
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
REMOVE
1 1
2 1

```

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```
3 1
4 1
7 1
8 1
9 1
10 1
1 2
2 2
9 2
10 2
1 3
10 3
1 4
10 4
1 7
10 7
1 8
10 8
1 9
2 9
9 9
10 9
1 10
2 10
3 10
4 10
7 10
8 10
9 10
10 10
:
LOAD
65 L= 1 F= 52 0 0 0 0 0
:
PADBC
:
```

```
!-----!
!
!   The University of Florida, Florida Department
!   of Transportation, Drs. Marc Hoit, Mike McVay
!   Cliff Hays, Mark Williams, Petros Christou, and
!   Jae H. Chung
!   disclaim any warranty, expressed or implied,
!   including but not limited to, any implied
!   warranty of fitness for a particular purpose
!   or accuracy of the FB-Pier software
!   The developers shall not be liable for any damages
!   incurred through the use of FB-MultiPier
!
!-----!
```

```
!
!   :::: F B - M U L T I P I E R ::::
!   FB-MultiPier Version 4.17
!
!-----!
```

```
!
!   Written by Marc Hoit, Mike McVay, Cliff Hays
!   Mark Williams, Petros Christou, Jae H. Chung.
!
!-----!
```

```
!   Civil & Coastal Engineering, University of Florida
!   Supported by Florida Department of Transportation
!   and the Federal Highway Administration
!
!-----!
```

```
!   The program calculates the Response
!   of the Bridge Pier Pile Soil Structures
!
!-----!
```

```
!   The Analysis includes PreLoad, Static,
!   Transient Dynamic or Push Over
!
!-----!
```

```
!   The Program Handles NonLinear Soil Behavior,
!   Linear Pile Cap and Linear and NonLinear Piles and Piers
!
!-----!
```

```
!   Contact: Bridge Software Institute for Support
!   HTTP://BSI-WEB.CE.UFL.EDU
!
!-----!
```

```
*****
*
*   ANALYSIS RESULTS   *
*
*****
```

```
*****
*   RESULTS FOR LOAD CASE #      1   *
*****
```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

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PILE#	X-PYM	Y-PYM
1	0.300E+00	0.100E+01
2	0.300E+00	0.100E+01
3	0.400E+00	0.100E+01
4	0.300E+00	0.100E+01
5	0.300E+00	0.100E+01
6	0.300E+00	0.100E+01
7	0.300E+00	0.100E+01
8	0.300E+00	0.100E+01
9	0.800E+00	0.100E+01
10	0.300E+00	0.100E+01
11	0.300E+00	0.100E+01
12	0.400E+00	0.100E+01
13	0.300E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 7 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.000	Kips
FXX =	0.000	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYX =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	50.5015	0.0001	0.0000
2	50.5016	0.0000	0.0000
3	50.5015	0.0000	0.0000
4	50.5015	0.0000	0.0000
5	50.5019	0.0000	0.0000
6	50.5016	0.0000	0.0000
7	50.5015	0.0000	0.0000
8	50.5015	0.0000	0.0000
9	50.5014	0.0000	0.0000
10	50.5015	0.0000	0.0000
11	50.5016	-0.0001	0.0000
12	50.5015	0.0000	0.0000
13	50.5016	-0.0001	0.0000

Pile Cap Displacements (Excluding Pile Heads)

14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	50.5015	0.0001	0.0000	0.0000	0.0000	0.0000
19	50.5015	0.0001	0.0000	0.0000	0.0000	0.0000
20	50.5015	0.0000	0.0000	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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[illegible]

[illegible]

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[illegible]

Page 6

[illegible]

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[illegible]

12 Pearson.out

[illegible]

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401	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
402	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
403	50.5016	-0.0001	0.0000	0.0000	0.0000	0.0000
404	50.5016	-0.0001	0.0000	0.0000	0.0000	0.0000
405	50.5016	-0.0001	0.0000	0.0000	0.0000	0.0000
406	50.5016	0.0000	0.0000	0.0000	0.0000	0.0000
407	50.5016	0.0000	0.0000	0.0000	0.0000	0.0000
408	50.5016	0.0000	0.0000	0.0000	0.0000	0.0000
409	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
410	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
411	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
412	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
413	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
414	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
415	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
416	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
417	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
418	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
419	50.5016	-0.0001	0.0000	0.0000	0.0000	0.0000
420	50.5016	-0.0001	0.0000	0.0000	0.0000	0.0000
421	50.5016	-0.0001	0.0000	0.0000	0.0000	0.0000
422	50.5016	0.0000	0.0000	0.0000	0.0000	0.0000
423	50.5016	0.0000	0.0000	0.0000	0.0000	0.0000
424	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
425	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
426	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
427	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
428	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
429	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
430	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
431	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
432	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
433	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
434	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
435	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
436	50.5016	-0.0001	0.0000	0.0000	0.0000	0.0000
437	50.5016	0.0000	0.0000	0.0000	0.0000	0.0000
438	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
439	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
440	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
441	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1
 Steel type = 4 (For Description see Users Manual)
 Maximum = 0.6525E-02
 Minimum = -0.6525E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)
 X Direction = 27.7787 Kips
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Y Direction	=	0.0000	Kips
Z Direction	=	0.0000	Kips
Sum of Tip Forces	=	0.0000	Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.25524E-11	-0.49294E-13
2	0.12817E-11	-0.17346E-11
3	0.83189E-12	-0.22448E-11
4	0.25927E-11	-0.35560E-12
5	-0.12100E-12	-0.72471E-11
6	-0.70317E-13	-0.16527E-11
7	0.20006E-12	-0.23919E-11
8	0.29221E-12	-0.24836E-11
9	0.34163E-11	0.49773E-13
10	0.27694E-11	-0.60052E-12
11	0.28541E-11	-0.10627E-11
12	0.17088E-11	-0.13667E-12
13	-0.45223E-13	-0.36409E-11

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.38571E+01	-0.14768E+02
2	0.38571E+01	-0.14768E+02
3	0.41703E+01	-0.13941E+02
4	0.38572E+01	-0.14766E+02
5	0.38572E+01	-0.14768E+02
6	0.38572E+01	-0.14766E+02
7	0.38571E+01	-0.14768E+02
8	0.38571E+01	-0.14766E+02
9	0.50881E+01	-0.18625E+02
10	0.38572E+01	-0.14766E+02
11	0.38571E+01	-0.14768E+02
12	0.41702E+01	-0.13928E+02
13	0.38571E+01	-0.14766E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.21196E-03	-0.70538E-04
2	0.15977E-03	-0.53183E-04
3	0.10363E-03	-0.34502E-04
4	0.15441E-03	-0.51399E-04
5	0.30537E-04	-0.91709E-04
6	0.14096E-04	-0.42333E-04
7	0.33316E-08	-0.10005E-07
8	0.42314E-04	-0.14090E-04
9	0.91690E-04	-0.30531E-04
10	0.51406E-04	-0.15443E-03
11	0.90678E-04	-0.27257E-03
12	0.92048E-05	-0.30651E-05
13	0.70544E-04	-0.21198E-03

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	446	0.16867E+02	0.1253E-03	0.16867E+02	-0.3763E-03
2	467	0.19233E+02	0.9447E-04	0.16867E+02	-0.2837E-03
3	487	0.19233E+02	0.6129E-04	0.16867E+02	-0.1840E-03
4	506	0.16867E+02	0.9131E-04	0.14500E+02	-0.2741E-03
5	525	0.14500E+02	0.1628E-03	0.16867E+02	-0.5424E-04
6	545	0.14500E+02	0.7515E-04	0.19233E+02	-0.2504E-04
7	565	0.14500E+02	0.1776E-07	0.19233E+02	-0.5918E-08
8	586	0.16867E+02	0.2503E-04	0.16867E+02	-0.7511E-04
9	606	0.16867E+02	0.5423E-04	0.16867E+02	-0.1628E-03
10	625	0.14500E+02	0.2742E-03	0.16867E+02	-0.9132E-04
11	645	0.14500E+02	0.4840E-03	0.19233E+02	-0.1611E-03
12	667	0.19233E+02	0.5445E-05	0.16867E+02	-0.1634E-04
13	685	0.14500E+02	0.3764E-03	0.19233E+02	-0.1253E-03

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	454	0.35800E+02	3.798	0.23967E+02	-75.70
2	475	0.38167E+02	3.798	0.23967E+02	-75.70
3	494	0.35800E+02	4.372	0.21600E+02	-78.88
4	514	0.35800E+02	3.808	0.23967E+02	-75.71
5	535	0.38167E+02	3.798	0.23967E+02	-75.70
6	555	0.38167E+02	3.808	0.23967E+02	-75.71
7	575	0.38167E+02	3.798	0.23967E+02	-75.70
8	595	0.38167E+02	3.808	0.23967E+02	-75.70
9	613	0.33433E+02	4.254	0.19233E+02	-89.19
10	634	0.35800E+02	3.808	0.23967E+02	-75.71
11	654	0.35800E+02	3.798	0.23967E+02	-75.70
12	673	0.33433E+02	4.380	0.21600E+02	-78.88
13	695	0.38167E+02	3.808	0.23967E+02	-75.70

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM D/C	PROP NO.	NODE NO.	LOAD NO.	FAX CASE (Kips)	F22 (Kips)	F33 (Kips)	M22 (Kip-ft)	M33 (Kip-ft)	TORQUE
NO. (Kip-ft)	NO.	NO. (Ratio)							
! -> Pile Number 1 !									
1	1	1	1	0.00	3.86	0.00	0.00	0.00	
0.00		0.00							
	1	442	1	0.00	-3.86	0.00	0.00	-11.19	

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0.00		0.03						
2	1	442	1	0.00	3.86	0.00	0.00	11.19
0.00		0.03						
	1	443	1	0.00	-3.86	0.00	0.00	-22.37
0.00		0.06						
3	1	443	1	0.00	3.86	0.00	0.00	22.37
0.00		0.06						
	1	444	1	0.00	-3.86	0.00	0.00	-33.56
0.00		0.09						
4	1	444	1	0.00	3.86	0.00	0.00	33.56
0.00		0.09						
	1	445	1	0.00	-3.86	0.00	0.00	-44.74
0.00		0.12						
5	1	445	1	0.00	3.86	0.00	0.00	44.74
0.00		0.12						
	1	446	1	0.00	-3.86	0.00	0.00	-55.93
0.00		0.15						
6	1	446	1	0.00	3.58	0.00	0.00	55.93
0.00		0.15						
	1	447	1	0.00	-3.58	0.00	0.00	-64.41
0.00		0.17						
7	1	447	1	0.00	2.76	0.00	0.00	64.41
0.00		0.17						
	1	448	1	0.00	-2.76	0.00	0.00	-70.95
0.00		0.19						
8	1	448	1	0.00	1.66	0.00	0.00	70.95
0.00		0.19						
	1	449	1	0.00	-1.66	0.00	0.00	-74.89
0.00		0.20						
9	1	449	1	0.00	0.34	0.00	0.00	74.89
0.00		0.20						
	1	450	1	0.00	-0.34	0.00	0.00	-75.70
0.00		0.20						
10	1	450	1	0.00	-0.92	0.00	0.00	75.70
0.00		0.20						
	1	451	1	0.00	0.92	0.00	0.00	-73.52
0.00		0.19						
11	1	451	1	0.00	-9.54	0.00	0.00	73.52
0.00		0.19						
	1	452	1	0.00	9.54	0.00	0.00	-50.93
0.00		0.13						
12	1	452	1	0.00	-14.77	0.00	0.00	50.93
0.00		0.13						
	1	453	1	0.00	14.77	0.00	0.00	-15.98
0.00		0.04						
13	1	453	1	0.00	-7.86	0.00	0.00	15.98
0.00		0.04						
	1	454	1	0.00	7.86	0.00	0.00	2.63
0.00		0.01						
14	1	454	1	0.00	-0.49	0.00	0.00	-2.63
0.00		0.01						
	1	455	1	0.00	0.49	0.00	0.00	3.80
0.00		0.01						
15	1	455	1	0.00	1.16	0.00	0.00	-3.80
0.00		0.01						
	1	456	1	0.00	-1.16	0.00	0.00	1.04
0.00		0.00						
16	1	456	1	0.00	0.50	0.00	0.00	-1.04
0.00		0.00						
	1	457	1	0.00	-0.50	0.00	0.00	-0.14
0.00		0.00						
17	1	457	1	0.00	0.01	0.00	0.00	0.14
0.00		0.00						

12 Pearson.out								
0.00	1	458	1	0.00	-0.01	0.00	0.00	-0.17
0.00	18	0.00						
0.00	1	458	1	0.00	-0.06	0.00	0.00	0.17
		0.00						
0.00	1	459	1	0.00	0.06	0.00	0.00	-0.03
0.00		0.00						
0.00	19	459	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
0.00	1	460	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
0.00	20	460	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
0.00	1	461	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 2 !								
21	1	2	1	0.00	3.86	0.00	0.00	0.00
0.00		0.00						
0.00	1	462	1	0.00	-3.86	0.00	0.00	-11.19
		0.03						
0.00	22	462	1	0.00	3.86	0.00	0.00	11.19
0.00		0.03						
0.00	1	463	1	0.00	-3.86	0.00	0.00	-22.37
		0.06						
0.00	23	463	1	0.00	3.86	0.00	0.00	22.37
0.00		0.06						
0.00	1	464	1	0.00	-3.86	0.00	0.00	-33.56
		0.09						
0.00	24	464	1	0.00	3.86	0.00	0.00	33.56
0.00		0.09						
0.00	1	465	1	0.00	-3.86	0.00	0.00	-44.74
		0.12						
0.00	25	465	1	0.00	3.86	0.00	0.00	44.74
0.00		0.12						
0.00	1	466	1	0.00	-3.86	0.00	0.00	-55.93
		0.15						
0.00	26	466	1	0.00	3.58	0.00	0.00	55.93
0.00		0.15						
0.00	1	467	1	0.00	-3.58	0.00	0.00	-64.41
		0.17						
0.00	27	467	1	0.00	2.76	0.00	0.00	64.41
0.00		0.17						
0.00	1	468	1	0.00	-2.76	0.00	0.00	-70.95
		0.19						
0.00	28	468	1	0.00	1.66	0.00	0.00	70.95
0.00		0.19						
0.00	1	469	1	0.00	-1.66	0.00	0.00	-74.89
		0.20						
0.00	29	469	1	0.00	0.34	0.00	0.00	74.89
0.00		0.20						
0.00	1	470	1	0.00	-0.34	0.00	0.00	-75.70
		0.20						
0.00	30	470	1	0.00	-0.92	0.00	0.00	75.70
0.00		0.20						
0.00	1	471	1	0.00	0.92	0.00	0.00	-73.52
		0.19						
0.00	31	471	1	0.00	-9.54	0.00	0.00	73.52
0.00		0.19						
0.00	1	472	1	0.00	9.54	0.00	0.00	-50.93
		0.13						
0.00	32	472	1	0.00	-14.77	0.00	0.00	50.93

12 Pearson.out

0.00		0.13						
	1	473	1	0.00	14.77	0.00	0.00	-15.98
0.00		0.04						
33	1	473	1	0.00	-7.86	0.00	0.00	15.98
0.00		0.04						
	1	474	1	0.00	7.86	0.00	0.00	2.63
0.00		0.01						
34	1	474	1	0.00	-0.49	0.00	0.00	-2.63
0.00		0.01						
	1	475	1	0.00	0.49	0.00	0.00	3.80
0.00		0.01						
35	1	475	1	0.00	1.16	0.00	0.00	-3.80
0.00		0.01						
	1	476	1	0.00	-1.16	0.00	0.00	1.04
0.00		0.00						
36	1	476	1	0.00	0.50	0.00	0.00	-1.04
0.00		0.00						
	1	477	1	0.00	-0.50	0.00	0.00	-0.14
0.00		0.00						
37	1	477	1	0.00	0.01	0.00	0.00	0.14
0.00		0.00						
	1	478	1	0.00	-0.01	0.00	0.00	-0.17
0.00		0.00						
38	1	478	1	0.00	-0.06	0.00	0.00	0.17
0.00		0.00						
	1	479	1	0.00	0.06	0.00	0.00	-0.03
0.00		0.00						
39	1	479	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	480	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
40	1	480	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	481	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 3 !

41	1	3	1	0.00	4.17	0.00	0.00	0.00
0.00		0.00						
	1	482	1	0.00	-4.17	0.00	0.00	-12.09
0.00		0.03						
42	1	482	1	0.00	4.17	0.00	0.00	12.09
0.00		0.03						
	1	483	1	0.00	-4.17	0.00	0.00	-24.19
0.00		0.06						
43	1	483	1	0.00	4.17	0.00	0.00	24.19
0.00		0.06						
	1	484	1	0.00	-4.17	0.00	0.00	-36.28
0.00		0.10						
44	1	484	1	0.00	4.17	0.00	0.00	36.28
0.00		0.10						
	1	485	1	0.00	-4.17	0.00	0.00	-48.38
0.00		0.13						
45	1	485	1	0.00	4.17	0.00	0.00	48.38
0.00		0.13						
	1	486	1	0.00	-4.17	0.00	0.00	-60.47
0.00		0.16						
46	1	486	1	0.00	3.81	0.00	0.00	60.47
0.00		0.16						
	1	487	1	0.00	-3.81	0.00	0.00	-69.48
0.00		0.18						

				12 Pearson.out				
47	1	487	1	0.00	2.72	0.00	0.00	69.48
0.00		0.18						
	1	488	1	0.00	-2.72	0.00	0.00	-75.91
0.00		0.20						
48	1	488	1	0.00	1.26	0.00	0.00	75.91
0.00		0.20						
	1	489	1	0.00	-1.26	0.00	0.00	-78.88
0.00		0.21						
49	1	489	1	0.00	-0.42	0.00	0.00	78.88
0.00		0.21						
	1	490	1	0.00	0.42	0.00	0.00	-77.88
0.00		0.20						
50	1	490	1	0.00	-1.99	0.00	0.00	77.88
0.00		0.20						
	1	491	1	0.00	1.99	0.00	0.00	-73.17
0.00		0.19						
51	1	491	1	0.00	-13.31	0.00	0.00	73.17
0.00		0.19						
	1	492	1	0.00	13.31	0.00	0.00	-41.67
0.00		0.11						
52	1	492	1	0.00	-13.94	0.00	0.00	41.67
0.00		0.11						
	1	493	1	0.00	13.94	0.00	0.00	-8.68
0.00		0.02						
53	1	493	1	0.00	-5.51	0.00	0.00	8.68
0.00		0.02						
	1	494	1	0.00	5.51	0.00	0.00	4.37
0.00		0.01						
54	1	494	1	0.00	0.75	0.00	0.00	-4.37
0.00		0.01						
	1	495	1	0.00	-0.75	0.00	0.00	2.60
0.00		0.01						
55	1	495	1	0.00	1.00	0.00	0.00	-2.60
0.00		0.01						
	1	496	1	0.00	-1.00	0.00	0.00	0.24
0.00		0.00						
56	1	496	1	0.00	0.20	0.00	0.00	-0.24
0.00		0.00						
	1	497	1	0.00	-0.20	0.00	0.00	-0.23
0.00		0.00						
57	1	497	1	0.00	-0.06	0.00	0.00	0.23
0.00		0.00						
	1	498	1	0.00	0.06	0.00	0.00	-0.08
0.00		0.00						
58	1	498	1	0.00	-0.04	0.00	0.00	0.08
0.00		0.00						
	1	499	1	0.00	0.04	0.00	0.00	0.01
0.00		0.00						
59	1	499	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	500	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
60	1	500	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	501	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 4 !

61	1	4	1	0.00	3.86	0.00	0.00	0.00
0.00		0.00						
	1	502	1	0.00	-3.86	0.00	0.00	-11.19

12 Pearson.out

0.00		0.03						
62	1	502	1	0.00	3.86	0.00	0.00	11.19
0.00		0.03						
	1	503	1	0.00	-3.86	0.00	0.00	-22.37
0.00		0.06						
63	1	503	1	0.00	3.86	0.00	0.00	22.37
0.00		0.06						
	1	504	1	0.00	-3.86	0.00	0.00	-33.56
0.00		0.09						
64	1	504	1	0.00	3.86	0.00	0.00	33.56
0.00		0.09						
	1	505	1	0.00	-3.86	0.00	0.00	-44.74
0.00		0.12						
65	1	505	1	0.00	3.86	0.00	0.00	44.74
0.00		0.12						
	1	506	1	0.00	-3.86	0.00	0.00	-55.93
0.00		0.15						
66	1	506	1	0.00	3.58	0.00	0.00	55.93
0.00		0.15						
	1	507	1	0.00	-3.58	0.00	0.00	-64.41
0.00		0.17						
67	1	507	1	0.00	2.76	0.00	0.00	64.41
0.00		0.17						
	1	508	1	0.00	-2.76	0.00	0.00	-70.95
0.00		0.19						
68	1	508	1	0.00	1.66	0.00	0.00	70.95
0.00		0.19						
	1	509	1	0.00	-1.66	0.00	0.00	-74.89
0.00		0.20						
69	1	509	1	0.00	0.34	0.00	0.00	74.89
0.00		0.20						
	1	510	1	0.00	-0.34	0.00	0.00	-75.71
0.00		0.20						
70	1	510	1	0.00	-0.92	0.00	0.00	75.71
0.00		0.20						
	1	511	1	0.00	0.92	0.00	0.00	-73.52
0.00		0.19						
71	1	511	1	0.00	-9.54	0.00	0.00	73.52
0.00		0.19						
	1	512	1	0.00	9.54	0.00	0.00	-50.93
0.00		0.13						
72	1	512	1	0.00	-14.77	0.00	0.00	50.93
0.00		0.13						
	1	513	1	0.00	14.77	0.00	0.00	-15.99
0.00		0.04						
73	1	513	1	0.00	-7.87	0.00	0.00	15.99
0.00		0.04						
	1	514	1	0.00	7.87	0.00	0.00	2.64
0.00		0.01						
74	1	514	1	0.00	-0.49	0.00	0.00	-2.64
0.00		0.01						
	1	515	1	0.00	0.49	0.00	0.00	3.81
0.00		0.01						
75	1	515	1	0.00	1.17	0.00	0.00	-3.81
0.00		0.01						
	1	516	1	0.00	-1.17	0.00	0.00	1.05
0.00		0.00						
76	1	516	1	0.00	0.50	0.00	0.00	-1.05
0.00		0.00						
	1	517	1	0.00	-0.50	0.00	0.00	-0.14
0.00		0.00						
77	1	517	1	0.00	0.01	0.00	0.00	0.14
0.00		0.00						

12 Pearson.out								
0.00	1	518	1	0.00	-0.01	0.00	0.00	-0.17
0.00		0.00						
78	1	518	1	0.00	-0.06	0.00	0.00	0.17
0.00		0.00						
0.00	1	519	1	0.00	0.06	0.00	0.00	-0.03
0.00		0.00						
79	1	519	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
0.00	1	520	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
80	1	520	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
0.00	1	521	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 5 !								
81	1	5	1	0.00	3.86	0.00	0.00	0.00
0.00		0.00						
0.00	1	522	1	0.00	-3.86	0.00	0.00	-11.19
0.00		0.03						
82	1	522	1	0.00	3.86	0.00	0.00	11.19
0.00		0.03						
0.00	1	523	1	0.00	-3.86	0.00	0.00	-22.37
0.00		0.06						
83	1	523	1	0.00	3.86	0.00	0.00	22.37
0.00		0.06						
0.00	1	524	1	0.00	-3.86	0.00	0.00	-33.56
0.00		0.09						
84	1	524	1	0.00	3.86	0.00	0.00	33.56
0.00		0.09						
0.00	1	525	1	0.00	-3.86	0.00	0.00	-44.74
0.00		0.12						
85	1	525	1	0.00	3.86	0.00	0.00	44.74
0.00		0.12						
0.00	1	526	1	0.00	-3.86	0.00	0.00	-55.93
0.00		0.15						
86	1	526	1	0.00	3.58	0.00	0.00	55.93
0.00		0.15						
0.00	1	527	1	0.00	-3.58	0.00	0.00	-64.41
0.00		0.17						
87	1	527	1	0.00	2.76	0.00	0.00	64.41
0.00		0.17						
0.00	1	528	1	0.00	-2.76	0.00	0.00	-70.95
0.00		0.19						
88	1	528	1	0.00	1.66	0.00	0.00	70.95
0.00		0.19						
0.00	1	529	1	0.00	-1.66	0.00	0.00	-74.89
0.00		0.20						
89	1	529	1	0.00	0.34	0.00	0.00	74.89
0.00		0.20						
0.00	1	530	1	0.00	-0.34	0.00	0.00	-75.70
0.00		0.20						
90	1	530	1	0.00	-0.92	0.00	0.00	75.70
0.00		0.20						
0.00	1	531	1	0.00	0.92	0.00	0.00	-73.52
0.00		0.19						
91	1	531	1	0.00	-9.54	0.00	0.00	73.52
0.00		0.19						
0.00	1	532	1	0.00	9.54	0.00	0.00	-50.93
0.00		0.13						
92	1	532	1	0.00	-14.77	0.00	0.00	50.93

12 Pearson.out

0.00		0.13						
	1	533	1	0.00	14.77	0.00	0.00	-15.98
0.00		0.04						
93	1	533	1	0.00	-7.86	0.00	0.00	15.98
0.00		0.04						
	1	534	1	0.00	7.86	0.00	0.00	2.63
0.00		0.01						
94	1	534	1	0.00	-0.49	0.00	0.00	-2.63
0.00		0.01						
	1	535	1	0.00	0.49	0.00	0.00	3.80
0.00		0.01						
95	1	535	1	0.00	1.16	0.00	0.00	-3.80
0.00		0.01						
	1	536	1	0.00	-1.16	0.00	0.00	1.04
0.00		0.00						
96	1	536	1	0.00	0.50	0.00	0.00	-1.04
0.00		0.00						
	1	537	1	0.00	-0.50	0.00	0.00	-0.14
0.00		0.00						
97	1	537	1	0.00	0.01	0.00	0.00	0.14
0.00		0.00						
	1	538	1	0.00	-0.01	0.00	0.00	-0.17
0.00		0.00						
98	1	538	1	0.00	-0.06	0.00	0.00	0.17
0.00		0.00						
	1	539	1	0.00	0.06	0.00	0.00	-0.03
0.00		0.00						
99	1	539	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	540	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
100	1	540	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	541	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 6 !

101	1	6	1	0.00	3.86	0.00	0.00	0.00
0.00		0.00						
	1	542	1	0.00	-3.86	0.00	0.00	-11.19
0.00		0.03						
102	1	542	1	0.00	3.86	0.00	0.00	11.19
0.00		0.03						
	1	543	1	0.00	-3.86	0.00	0.00	-22.37
0.00		0.06						
103	1	543	1	0.00	3.86	0.00	0.00	22.37
0.00		0.06						
	1	544	1	0.00	-3.86	0.00	0.00	-33.56
0.00		0.09						
104	1	544	1	0.00	3.86	0.00	0.00	33.56
0.00		0.09						
	1	545	1	0.00	-3.86	0.00	0.00	-44.74
0.00		0.12						
105	1	545	1	0.00	3.86	0.00	0.00	44.74
0.00		0.12						
	1	546	1	0.00	-3.86	0.00	0.00	-55.93
0.00		0.15						
106	1	546	1	0.00	3.58	0.00	0.00	55.93
0.00		0.15						
	1	547	1	0.00	-3.58	0.00	0.00	-64.41
0.00		0.17						

				12 Pearson.out				
107	1	547	1	0.00	2.76	0.00	0.00	64.41
0.00		0.17						
	1	548	1	0.00	-2.76	0.00	0.00	-70.95
0.00		0.19						
108	1	548	1	0.00	1.66	0.00	0.00	70.95
0.00		0.19						
	1	549	1	0.00	-1.66	0.00	0.00	-74.89
0.00		0.20						
109	1	549	1	0.00	0.34	0.00	0.00	74.89
0.00		0.20						
	1	550	1	0.00	-0.34	0.00	0.00	-75.71
0.00		0.20						
110	1	550	1	0.00	-0.92	0.00	0.00	75.71
0.00		0.20						
	1	551	1	0.00	0.92	0.00	0.00	-73.52
0.00		0.19						
111	1	551	1	0.00	-9.54	0.00	0.00	73.52
0.00		0.19						
	1	552	1	0.00	9.54	0.00	0.00	-50.93
0.00		0.13						
112	1	552	1	0.00	-14.77	0.00	0.00	50.93
0.00		0.13						
	1	553	1	0.00	14.77	0.00	0.00	-15.99
0.00		0.04						
113	1	553	1	0.00	-7.87	0.00	0.00	15.99
0.00		0.04						
	1	554	1	0.00	7.87	0.00	0.00	2.64
0.00		0.01						
114	1	554	1	0.00	-0.49	0.00	0.00	-2.64
0.00		0.01						
	1	555	1	0.00	0.49	0.00	0.00	3.81
0.00		0.01						
115	1	555	1	0.00	1.17	0.00	0.00	-3.81
0.00		0.01						
	1	556	1	0.00	-1.17	0.00	0.00	1.05
0.00		0.00						
116	1	556	1	0.00	0.50	0.00	0.00	-1.05
0.00		0.00						
	1	557	1	0.00	-0.50	0.00	0.00	-0.14
0.00		0.00						
117	1	557	1	0.00	0.01	0.00	0.00	0.14
0.00		0.00						
	1	558	1	0.00	-0.01	0.00	0.00	-0.17
0.00		0.00						
118	1	558	1	0.00	-0.06	0.00	0.00	0.17
0.00		0.00						
	1	559	1	0.00	0.06	0.00	0.00	-0.03
0.00		0.00						
119	1	559	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	560	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
120	1	560	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	561	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 7 !

121	1	7	1	0.00	3.86	0.00	0.00	0.00
0.00		0.00						
	1	562	1	0.00	-3.86	0.00	0.00	-11.19

12 Pearson.out

0.00		0.03						
122	1	562	1	0.00	3.86	0.00	0.00	11.19
0.00		0.03						
	1	563	1	0.00	-3.86	0.00	0.00	-22.37
0.00		0.06						
123	1	563	1	0.00	3.86	0.00	0.00	22.37
0.00		0.06						
	1	564	1	0.00	-3.86	0.00	0.00	-33.56
0.00		0.09						
124	1	564	1	0.00	3.86	0.00	0.00	33.56
0.00		0.09						
	1	565	1	0.00	-3.86	0.00	0.00	-44.74
0.00		0.12						
125	1	565	1	0.00	3.86	0.00	0.00	44.74
0.00		0.12						
	1	566	1	0.00	-3.86	0.00	0.00	-55.93
0.00		0.15						
126	1	566	1	0.00	3.58	0.00	0.00	55.93
0.00		0.15						
	1	567	1	0.00	-3.58	0.00	0.00	-64.41
0.00		0.17						
127	1	567	1	0.00	2.76	0.00	0.00	64.41
0.00		0.17						
	1	568	1	0.00	-2.76	0.00	0.00	-70.95
0.00		0.19						
128	1	568	1	0.00	1.66	0.00	0.00	70.95
0.00		0.19						
	1	569	1	0.00	-1.66	0.00	0.00	-74.89
0.00		0.20						
129	1	569	1	0.00	0.34	0.00	0.00	74.89
0.00		0.20						
	1	570	1	0.00	-0.34	0.00	0.00	-75.70
0.00		0.20						
130	1	570	1	0.00	-0.92	0.00	0.00	75.70
0.00		0.20						
	1	571	1	0.00	0.92	0.00	0.00	-73.52
0.00		0.19						
131	1	571	1	0.00	-9.54	0.00	0.00	73.52
0.00		0.19						
	1	572	1	0.00	9.54	0.00	0.00	-50.93
0.00		0.13						
132	1	572	1	0.00	-14.77	0.00	0.00	50.93
0.00		0.13						
	1	573	1	0.00	14.77	0.00	0.00	-15.98
0.00		0.04						
133	1	573	1	0.00	-7.86	0.00	0.00	15.98
0.00		0.04						
	1	574	1	0.00	7.86	0.00	0.00	2.63
0.00		0.01						
134	1	574	1	0.00	-0.49	0.00	0.00	-2.63
0.00		0.01						
	1	575	1	0.00	0.49	0.00	0.00	3.80
0.00		0.01						
135	1	575	1	0.00	1.16	0.00	0.00	-3.80
0.00		0.01						
	1	576	1	0.00	-1.16	0.00	0.00	1.04
0.00		0.00						
136	1	576	1	0.00	0.50	0.00	0.00	-1.04
0.00		0.00						
	1	577	1	0.00	-0.50	0.00	0.00	-0.14
0.00		0.00						
137	1	577	1	0.00	0.01	0.00	0.00	0.14
0.00		0.00						

12 Pearson.out								
0.00	1	578	1	0.00	-0.01	0.00	0.00	-0.17
0.00		0.00						
138	1	578	1	0.00	-0.06	0.00	0.00	0.17
0.00		0.00						
0.00	1	579	1	0.00	0.06	0.00	0.00	-0.03
0.00		0.00						
139	1	579	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
0.00	1	580	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
140	1	580	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
0.00	1	581	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 8 !								
141	1	8	1	0.00	3.86	0.00	0.00	0.00
0.00		0.00						
0.00	1	582	1	0.00	-3.86	0.00	0.00	-11.19
0.00		0.03						
142	1	582	1	0.00	3.86	0.00	0.00	11.19
0.00		0.03						
0.00	1	583	1	0.00	-3.86	0.00	0.00	-22.37
0.00		0.06						
143	1	583	1	0.00	3.86	0.00	0.00	22.37
0.00		0.06						
0.00	1	584	1	0.00	-3.86	0.00	0.00	-33.56
0.00		0.09						
144	1	584	1	0.00	3.86	0.00	0.00	33.56
0.00		0.09						
0.00	1	585	1	0.00	-3.86	0.00	0.00	-44.74
0.00		0.12						
145	1	585	1	0.00	3.86	0.00	0.00	44.74
0.00		0.12						
0.00	1	586	1	0.00	-3.86	0.00	0.00	-55.93
0.00		0.15						
146	1	586	1	0.00	3.58	0.00	0.00	55.93
0.00		0.15						
0.00	1	587	1	0.00	-3.58	0.00	0.00	-64.41
0.00		0.17						
147	1	587	1	0.00	2.76	0.00	0.00	64.41
0.00		0.17						
0.00	1	588	1	0.00	-2.76	0.00	0.00	-70.95
0.00		0.19						
148	1	588	1	0.00	1.66	0.00	0.00	70.95
0.00		0.19						
0.00	1	589	1	0.00	-1.66	0.00	0.00	-74.89
0.00		0.20						
149	1	589	1	0.00	0.34	0.00	0.00	74.89
0.00		0.20						
0.00	1	590	1	0.00	-0.34	0.00	0.00	-75.70
0.00		0.20						
150	1	590	1	0.00	-0.92	0.00	0.00	75.70
0.00		0.20						
0.00	1	591	1	0.00	0.92	0.00	0.00	-73.52
0.00		0.19						
151	1	591	1	0.00	-9.55	0.00	0.00	73.52
0.00		0.19						
0.00	1	592	1	0.00	9.55	0.00	0.00	-50.92
0.00		0.13						
152	1	592	1	0.00	-14.77	0.00	0.00	50.92

12 Pearson.out

0.00		0.13						
	1	593	1	0.00	14.77	0.00	0.00	-15.98
0.00		0.04						
153	1	593	1	0.00	-7.85	0.00	0.00	15.98
0.00		0.04						
	1	594	1	0.00	7.85	0.00	0.00	2.60
0.00		0.01						
154	1	594	1	0.00	-0.51	0.00	0.00	-2.60
0.00		0.01						
	1	595	1	0.00	0.51	0.00	0.00	3.81
0.00		0.01						
155	1	595	1	0.00	1.16	0.00	0.00	-3.81
0.00		0.01						
	1	596	1	0.00	-1.16	0.00	0.00	1.05
0.00		0.00						
156	1	596	1	0.00	0.50	0.00	0.00	-1.05
0.00		0.00						
	1	597	1	0.00	-0.50	0.00	0.00	-0.14
0.00		0.00						
157	1	597	1	0.00	0.01	0.00	0.00	0.14
0.00		0.00						
	1	598	1	0.00	-0.01	0.00	0.00	-0.17
0.00		0.00						
158	1	598	1	0.00	-0.06	0.00	0.00	0.17
0.00		0.00						
	1	599	1	0.00	0.06	0.00	0.00	-0.03
0.00		0.00						
159	1	599	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	600	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
160	1	600	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	601	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 9 !

161	1	9	1	0.00	5.09	0.00	0.00	0.00
0.00		0.00						
	1	602	1	0.00	-5.09	0.00	0.00	-14.76
0.00		0.04						
162	1	602	1	0.00	5.09	0.00	0.00	14.76
0.00		0.04						
	1	603	1	0.00	-5.09	0.00	0.00	-29.51
0.00		0.08						
163	1	603	1	0.00	5.09	0.00	0.00	29.51
0.00		0.08						
	1	604	1	0.00	-5.09	0.00	0.00	-44.27
0.00		0.12						
164	1	604	1	0.00	5.09	0.00	0.00	44.27
0.00		0.12						
	1	605	1	0.00	-5.09	0.00	0.00	-59.02
0.00		0.15						
165	1	605	1	0.00	5.09	0.00	0.00	59.02
0.00		0.15						
	1	606	1	0.00	-5.09	0.00	0.00	-73.78
0.00		0.19						
166	1	606	1	0.00	4.36	0.00	0.00	73.78
0.00		0.19						
	1	607	1	0.00	-4.36	0.00	0.00	-84.09
0.00		0.22						

				12 Pearson.out				
167	1	607	1	0.00	2.15	0.00	0.00	84.09
0.00		0.22						
	1	608	1	0.00	-2.15	0.00	0.00	-89.19
0.00		0.23						
168	1	608	1	0.00	-0.81	0.00	0.00	89.19
0.00		0.23						
	1	609	1	0.00	0.81	0.00	0.00	-87.28
0.00		0.23						
169	1	609	1	0.00	-3.82	0.00	0.00	87.28
0.00		0.23						
	1	610	1	0.00	3.82	0.00	0.00	-78.24
0.00		0.21						
170	1	610	1	0.00	-6.54	0.00	0.00	78.24
0.00		0.21						
	1	611	1	0.00	6.54	0.00	0.00	-62.77
0.00		0.16						
171	1	611	1	0.00	-18.63	0.00	0.00	62.77
0.00		0.16						
	1	612	1	0.00	18.63	0.00	0.00	-18.69
0.00		0.05						
172	1	612	1	0.00	-9.69	0.00	0.00	18.69
0.00		0.05						
	1	613	1	0.00	9.69	0.00	0.00	4.25
0.00		0.01						
173	1	613	1	0.00	0.60	0.00	0.00	-4.25
0.00		0.01						
	1	614	1	0.00	-0.60	0.00	0.00	2.84
0.00		0.01						
174	1	614	1	0.00	1.17	0.00	0.00	-2.84
0.00		0.01						
	1	615	1	0.00	-1.17	0.00	0.00	0.07
0.00		0.00						
175	1	615	1	0.00	0.12	0.00	0.00	-0.07
0.00		0.00						
	1	616	1	0.00	-0.12	0.00	0.00	-0.22
0.00		0.00						
176	1	616	1	0.00	-0.08	0.00	0.00	0.22
0.00		0.00						
	1	617	1	0.00	0.08	0.00	0.00	-0.03
0.00		0.00						
177	1	617	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	618	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
178	1	618	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	619	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
179	1	619	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	620	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
180	1	620	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						
	1	621	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 10 !

181	1	10	1	0.00	3.86	0.00	0.00	0.00
0.00		0.00						
	1	622	1	0.00	-3.86	0.00	0.00	-11.19

12 Pearson.out

0.00		0.03						
182	1	622	1	0.00	3.86	0.00	0.00	11.19
0.00		0.03						
	1	623	1	0.00	-3.86	0.00	0.00	-22.37
0.00		0.06						
183	1	623	1	0.00	3.86	0.00	0.00	22.37
0.00		0.06						
	1	624	1	0.00	-3.86	0.00	0.00	-33.56
0.00		0.09						
184	1	624	1	0.00	3.86	0.00	0.00	33.56
0.00		0.09						
	1	625	1	0.00	-3.86	0.00	0.00	-44.74
0.00		0.12						
185	1	625	1	0.00	3.86	0.00	0.00	44.74
0.00		0.12						
	1	626	1	0.00	-3.86	0.00	0.00	-55.93
0.00		0.15						
186	1	626	1	0.00	3.58	0.00	0.00	55.93
0.00		0.15						
	1	627	1	0.00	-3.58	0.00	0.00	-64.41
0.00		0.17						
187	1	627	1	0.00	2.76	0.00	0.00	64.41
0.00		0.17						
	1	628	1	0.00	-2.76	0.00	0.00	-70.95
0.00		0.19						
188	1	628	1	0.00	1.66	0.00	0.00	70.95
0.00		0.19						
	1	629	1	0.00	-1.66	0.00	0.00	-74.89
0.00		0.20						
189	1	629	1	0.00	0.34	0.00	0.00	74.89
0.00		0.20						
	1	630	1	0.00	-0.34	0.00	0.00	-75.71
0.00		0.20						
190	1	630	1	0.00	-0.92	0.00	0.00	75.71
0.00		0.20						
	1	631	1	0.00	0.92	0.00	0.00	-73.52
0.00		0.19						
191	1	631	1	0.00	-9.54	0.00	0.00	73.52
0.00		0.19						
	1	632	1	0.00	9.54	0.00	0.00	-50.93
0.00		0.13						
192	1	632	1	0.00	-14.77	0.00	0.00	50.93
0.00		0.13						
	1	633	1	0.00	14.77	0.00	0.00	-15.99
0.00		0.04						
193	1	633	1	0.00	-7.87	0.00	0.00	15.99
0.00		0.04						
	1	634	1	0.00	7.87	0.00	0.00	2.64
0.00		0.01						
194	1	634	1	0.00	-0.49	0.00	0.00	-2.64
0.00		0.01						
	1	635	1	0.00	0.49	0.00	0.00	3.81
0.00		0.01						
195	1	635	1	0.00	1.17	0.00	0.00	-3.81
0.00		0.01						
	1	636	1	0.00	-1.17	0.00	0.00	1.05
0.00		0.00						
196	1	636	1	0.00	0.50	0.00	0.00	-1.05
0.00		0.00						
	1	637	1	0.00	-0.50	0.00	0.00	-0.14
0.00		0.00						
197	1	637	1	0.00	0.01	0.00	0.00	0.14
0.00		0.00						

				12 Pearson.out				
0.00	1	638	1	0.00	-0.01	0.00	0.00	-0.17
198	1	638	1	0.00	-0.06	0.00	0.00	0.17
0.00	1	639	1	0.00	0.06	0.00	0.00	-0.03
0.00	1	639	1	0.00	-0.02	0.00	0.00	0.03
199	1	640	1	0.00	0.02	0.00	0.00	0.01
0.00	1	640	1	0.00	0.00	0.00	0.00	-0.01
200	1	641	1	0.00	0.00	0.00	0.00	0.00
0.00	1	641	1	0.00	0.00	0.00	0.00	0.00

! -> Pile Number 11 !

201	1	11	1	0.00	3.86	0.00	0.00	0.00
0.00	1	642	1	0.00	-3.86	0.00	0.00	-11.19
0.00	1	642	1	0.00	3.86	0.00	0.00	11.19
202	1	643	1	0.00	-3.86	0.00	0.00	-22.37
0.00	1	643	1	0.00	3.86	0.00	0.00	22.37
203	1	644	1	0.00	-3.86	0.00	0.00	-33.56
0.00	1	644	1	0.00	3.86	0.00	0.00	33.56
204	1	645	1	0.00	-3.86	0.00	0.00	-44.74
0.00	1	645	1	0.00	3.86	0.00	0.00	44.74
205	1	646	1	0.00	-3.86	0.00	0.00	-55.93
0.00	1	646	1	0.00	3.58	0.00	0.00	55.93
206	1	647	1	0.00	-3.58	0.00	0.00	-64.41
0.00	1	647	1	0.00	2.76	0.00	0.00	64.41
207	1	648	1	0.00	-2.76	0.00	0.00	-70.95
0.00	1	648	1	0.00	1.66	0.00	0.00	70.95
208	1	649	1	0.00	-1.66	0.00	0.00	-74.89
0.00	1	649	1	0.00	0.34	0.00	0.00	74.89
209	1	650	1	0.00	-0.34	0.00	0.00	-75.70
0.00	1	650	1	0.00	-0.92	0.00	0.00	75.70
210	1	651	1	0.00	0.92	0.00	0.00	-73.52
0.00	1	651	1	0.00	-9.54	0.00	0.00	73.52
211	1	652	1	0.00	9.54	0.00	0.00	-50.93
0.00	1	652	1	0.00	-14.77	0.00	0.00	50.93

12 Pearson.out

0.00		0.13						
	1	653	1	0.00	14.77	0.00	0.00	-15.98
0.00		0.04						
213	1	653	1	0.00	-7.86	0.00	0.00	15.98
0.00		0.04						
	1	654	1	0.00	7.86	0.00	0.00	2.63
0.00		0.01						
214	1	654	1	0.00	-0.49	0.00	0.00	-2.63
0.00		0.01						
	1	655	1	0.00	0.49	0.00	0.00	3.80
0.00		0.01						
215	1	655	1	0.00	1.16	0.00	0.00	-3.80
0.00		0.01						
	1	656	1	0.00	-1.16	0.00	0.00	1.04
0.00		0.00						
216	1	656	1	0.00	0.50	0.00	0.00	-1.04
0.00		0.00						
	1	657	1	0.00	-0.50	0.00	0.00	-0.14
0.00		0.00						
217	1	657	1	0.00	0.01	0.00	0.00	0.14
0.00		0.00						
	1	658	1	0.00	-0.01	0.00	0.00	-0.17
0.00		0.00						
218	1	658	1	0.00	-0.06	0.00	0.00	0.17
0.00		0.00						
	1	659	1	0.00	0.06	0.00	0.00	-0.03
0.00		0.00						
219	1	659	1	0.00	-0.02	0.00	0.00	0.03
0.00		0.00						
	1	660	1	0.00	0.02	0.00	0.00	0.01
0.00		0.00						
220	1	660	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	661	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 12 !

221	1	12	1	0.00	4.17	0.00	0.00	0.00
0.00		0.00						
	1	662	1	0.00	-4.17	0.00	0.00	-12.09
0.00		0.03						
222	1	662	1	0.00	4.17	0.00	0.00	12.09
0.00		0.03						
	1	663	1	0.00	-4.17	0.00	0.00	-24.19
0.00		0.06						
223	1	663	1	0.00	4.17	0.00	0.00	24.19
0.00		0.06						
	1	664	1	0.00	-4.17	0.00	0.00	-36.28
0.00		0.10						
224	1	664	1	0.00	4.17	0.00	0.00	36.28
0.00		0.10						
	1	665	1	0.00	-4.17	0.00	0.00	-48.37
0.00		0.13						
225	1	665	1	0.00	4.17	0.00	0.00	48.37
0.00		0.13						
	1	666	1	0.00	-4.17	0.00	0.00	-60.47
0.00		0.16						
226	1	666	1	0.00	3.81	0.00	0.00	60.47
0.00		0.16						
	1	667	1	0.00	-3.81	0.00	0.00	-69.48
0.00		0.18						

				12 Pearson.out				
227	1	667	1	0.00	2.72	0.00	0.00	69.48
0.00		0.18						
	1	668	1	0.00	-2.72	0.00	0.00	-75.91
0.00		0.20						
228	1	668	1	0.00	1.26	0.00	0.00	75.91
0.00		0.20						
	1	669	1	0.00	-1.26	0.00	0.00	-78.88
0.00		0.21						
229	1	669	1	0.00	-0.42	0.00	0.00	78.88
0.00		0.21						
	1	670	1	0.00	0.42	0.00	0.00	-77.88
0.00		0.20						
230	1	670	1	0.00	-1.99	0.00	0.00	77.88
0.00		0.20						
	1	671	1	0.00	1.99	0.00	0.00	-73.17
0.00		0.19						
231	1	671	1	0.00	-13.31	0.00	0.00	73.17
0.00		0.19						
	1	672	1	0.00	13.31	0.00	0.00	-41.66
0.00		0.11						
232	1	672	1	0.00	-13.93	0.00	0.00	41.66
0.00		0.11						
	1	673	1	0.00	13.93	0.00	0.00	-8.70
0.00		0.02						
233	1	673	1	0.00	-5.53	0.00	0.00	8.70
0.00		0.02						
	1	674	1	0.00	5.53	0.00	0.00	4.38
0.00		0.01						
234	1	674	1	0.00	0.75	0.00	0.00	-4.38
0.00		0.01						
	1	675	1	0.00	-0.75	0.00	0.00	2.61
0.00		0.01						
235	1	675	1	0.00	1.00	0.00	0.00	-2.61
0.00		0.01						
	1	676	1	0.00	-1.00	0.00	0.00	0.24
0.00		0.00						
236	1	676	1	0.00	0.20	0.00	0.00	-0.24
0.00		0.00						
	1	677	1	0.00	-0.20	0.00	0.00	-0.23
0.00		0.00						
237	1	677	1	0.00	-0.06	0.00	0.00	0.23
0.00		0.00						
	1	678	1	0.00	0.06	0.00	0.00	-0.08
0.00		0.00						
238	1	678	1	0.00	-0.04	0.00	0.00	0.08
0.00		0.00						
	1	679	1	0.00	0.04	0.00	0.00	0.01
0.00		0.00						
239	1	679	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	680	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
240	1	680	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	681	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 13 !

241	1	13	1	0.00	3.86	0.00	0.00	0.00
0.00		0.00						
	1	682	1	0.00	-3.86	0.00	0.00	-11.19

12 Pearson.out

0.00		0.03						
242	1	682	1	0.00	3.86	0.00	0.00	11.19
0.00		0.03						
	1	683	1	0.00	-3.86	0.00	0.00	-22.37
0.00		0.06						
243	1	683	1	0.00	3.86	0.00	0.00	22.37
0.00		0.06						
	1	684	1	0.00	-3.86	0.00	0.00	-33.56
0.00		0.09						
244	1	684	1	0.00	3.86	0.00	0.00	33.56
0.00		0.09						
	1	685	1	0.00	-3.86	0.00	0.00	-44.74
0.00		0.12						
245	1	685	1	0.00	3.86	0.00	0.00	44.74
0.00		0.12						
	1	686	1	0.00	-3.86	0.00	0.00	-55.93
0.00		0.15						
246	1	686	1	0.00	3.58	0.00	0.00	55.93
0.00		0.15						
	1	687	1	0.00	-3.58	0.00	0.00	-64.41
0.00		0.17						
247	1	687	1	0.00	2.76	0.00	0.00	64.41
0.00		0.17						
	1	688	1	0.00	-2.76	0.00	0.00	-70.95
0.00		0.19						
248	1	688	1	0.00	1.66	0.00	0.00	70.95
0.00		0.19						
	1	689	1	0.00	-1.66	0.00	0.00	-74.89
0.00		0.20						
249	1	689	1	0.00	0.34	0.00	0.00	74.89
0.00		0.20						
	1	690	1	0.00	-0.34	0.00	0.00	-75.70
0.00		0.20						
250	1	690	1	0.00	-0.92	0.00	0.00	75.70
0.00		0.20						
	1	691	1	0.00	0.92	0.00	0.00	-73.52
0.00		0.19						
251	1	691	1	0.00	-9.55	0.00	0.00	73.52
0.00		0.19						
	1	692	1	0.00	9.55	0.00	0.00	-50.92
0.00		0.13						
252	1	692	1	0.00	-14.77	0.00	0.00	50.92
0.00		0.13						
	1	693	1	0.00	14.77	0.00	0.00	-15.98
0.00		0.04						
253	1	693	1	0.00	-7.85	0.00	0.00	15.98
0.00		0.04						
	1	694	1	0.00	7.85	0.00	0.00	2.60
0.00		0.01						
254	1	694	1	0.00	-0.51	0.00	0.00	-2.60
0.00		0.01						
	1	695	1	0.00	0.51	0.00	0.00	3.81
0.00		0.01						
255	1	695	1	0.00	1.16	0.00	0.00	-3.81
0.00		0.01						
	1	696	1	0.00	-1.16	0.00	0.00	1.05
0.00		0.00						
256	1	696	1	0.00	0.50	0.00	0.00	-1.05
0.00		0.00						
	1	697	1	0.00	-0.50	0.00	0.00	-0.14
0.00		0.00						
257	1	697	1	0.00	0.01	0.00	0.00	0.14
0.00		0.00						

12 Pearson.out

0.00	1	698	1	0.00	-0.01	0.00	0.00	-0.17
258	1	698	1	0.00	-0.06	0.00	0.00	0.17
0.00	1	699	1	0.00	0.06	0.00	0.00	-0.03
0.00	1	699	1	0.00	-0.02	0.00	0.00	0.03
259	1	700	1	0.00	0.02	0.00	0.00	0.01
0.00	1	700	1	0.00	0.00	0.00	0.00	-0.01
260	1	701	1	0.00	0.00	0.00	0.00	0.00
0.00	1	701	1	0.00	0.00	0.00	0.00	0.00

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZY (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

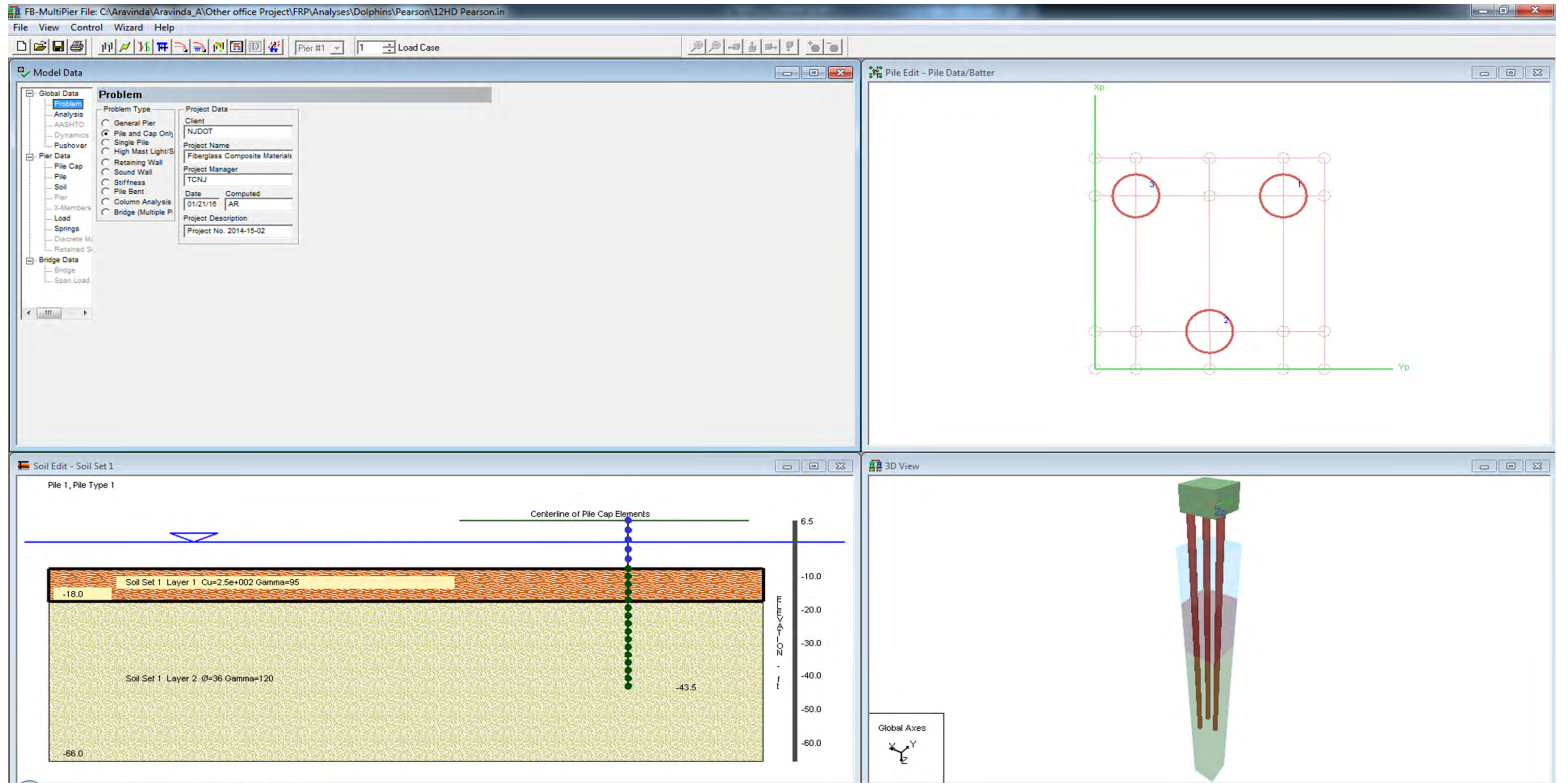
	Value	Load	Comb.	Pile
Max Axial Force	0.3416E-11 Kip	1	0	9
Min Axial Force	-0.7247E-11 Kip	1	0	5
Max Shear in 2 Direction	0.5088E+01 Kip	1	0	9
Min Shear in 2 Direction	-0.1863E+02 Kip	1	0	9
Max Shear in 3 Direction	0.2120E-03 Kip	1	0	1
Min Shear in 3 Direction	-0.2726E-03 Kip	1	0	11
Max Moment about 2 Axis	0.4840E-03 Kip-ft	1	0	11
Min Moment about 2 Axis	-0.3763E-03 Kip-ft	1	0	1
Max Moment About 3 Axis	0.4380E+01 Kip-ft	1	0	12
Min Moment About 3 Axis	-0.8919E+02 Kip-ft	1	0	9
Max Torsional Force	0.8260E-04 Kip-ft	1	0	11
Min Torsional Force	-0.1423E-03 Kip-ft	1	0	2
Max Demand/Capacity Ratio	0.2340E+00	1	0	9

Maximum/Minimum Soil Forces

	Value	Load	Comb.	Pile
Max Axial Soil Force	0.1029E-05 Kip	1	0	5
Min Axial Soil Force	-0.5205E-06 Kip	1	0	9
Max Lateral Force in X dir	0.1043E+02 Kip	1	0	3
Min Lateral Force in X dir	-0.9651E+01 Kip	1	0	9
Max Lateral Force in Y dir	0.6561E-03 Kip	1	0	11
Min Lateral Force in Y dir	-0.5258E-03 Kip	1	0	1
Max Torsional Soil Force	0.7976E-03 Kip-ft	1	0	2

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.2181E-08 in	1	0	5
Min Axial Displacement	-0.1103E-08 in	1	0	9
Max Displacement in X	0.5050E+02 in	1	0	5
Min Displacement in X	0.5050E+02 in	1	0	9
Max Displacement in Y	0.5430E-04 in	1	0	1
Min Displacement in Y	-0.6983E-04 in	1	0	11



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 P= 2 F= 1,0,0
I= 60 T= 3 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -90 -89.4 0 89.4 90 \
0 0 0 0 0 \
0 0 0 0 0
-0.03 -0.022 0 0.022 0.03 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.022
NL= 0 NG= 0 D= 12 V= 0 S= 80 TH= 0.5 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
4 5 5 5 : NPX, NPY, GSX, GSY
10 36 10
10 18 18 10
0.4 0.8
0.3 0.4 0.8
:
MISSING
17 : number of missing piles
1 1
2 1
3 1
4 1
1 2
2 2
4 2
1 3
3 3

```

```

4 3
1 4
2 4
4 4
1 5
2 5
3 5
4 5
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8,-18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18,-66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
LOAD
11 L= 1 F= 28 0 0 0 0 0
:
PADBC
:

```

```
!-----!
!
!   The University of Florida, Florida Department
!   of Transportation, Drs. Marc Hoit, Mike McVay
!   Cliff Hays, Mark Williams, Petros Christou, and
!   Jae H. Chung
!   disclaim any warranty, expressed or implied,
!   including but not limited to, any implied
!   warranty of fitness for a particular purpose
!   or accuracy of the FB-Pier software
!   The developers shall not be liable for any damages
!   incurred through the use of FB-MultiPier
!
!-----!
```

```
!
!   :::: F B - M U L T I P I E R ::::
!   FB-MultiPier Version 4.17
!
!-----!
```

```
!
!   Written by Marc Hoit, Mike McVay, Cliff Hays
!   Mark Williams, Petros Christou, Jae H. Chung.
!
!-----!
```

```
!   Civil & Coastal Engineering, University of Florida
!   Supported by Florida Department of Transportation
!   and the Federal Highway Administration
!
!-----!
```

```
!   The program calculates the Response
!   of the Bridge Pier Pile Soil Structures
!
!-----!
```

```
!   The Analysis includes PreLoad, Static,
!   Transient Dynamic or Push Over
!
!-----!
```

```
!   The Program Handles NonLinear Soil Behavior,
!   Linear Pile Cap and Linear and NonLinear Piles and Piers
!
!-----!
```

```
!   Contact: Bridge Software Institute for Support
!   HTTP://BSI-WEB.CE.UFL.EDU
!
!-----!
```

```
*****
*
*   ANALYSIS RESULTS   *
*
*****
```

```
*****
*   RESULTS FOR LOAD CASE #      1   *
*****
```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

PILE#	X-PYM	Y-PYM
1	0.800E+00	0.100E+01
2	0.400E+00	0.100E+01
3	0.800E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 10 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	1.980	Kips
FXX =	0.000	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYY =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	98.9108	0.0000	0.0000
2	98.9109	0.0000	0.0000
3	98.9108	0.0000	0.0000

Pile Cap Displacements (Excluding Pile Heads)

4	98.9110	0.0001	0.0000	0.0000	0.0000	0.0000
5	98.9109	0.0001	0.0000	0.0000	0.0000	0.0000
6	98.9108	0.0001	0.0000	0.0000	0.0000	0.0000
7	98.9108	0.0001	0.0000	0.0000	0.0000	0.0000
8	98.9111	0.0000	0.0000	0.0000	0.0000	0.0000
9	98.9109	0.0001	0.0000	0.0000	0.0000	0.0000
10	98.9108	0.0000	0.0000	0.0000	0.0000	0.0000
11	98.9114	0.0000	0.0000	0.0000	0.0000	0.0000
12	98.9108	0.0000	0.0000	0.0000	0.0000	0.0000
13	98.9108	0.0000	0.0000	0.0000	0.0000	0.0000
14	98.9111	0.0000	0.0000	0.0000	0.0000	0.0000
15	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
16	98.9108	0.0000	0.0000	0.0000	0.0000	0.0000
17	98.9110	0.0000	0.0000	0.0000	0.0000	0.0000
18	98.9109	-0.0001	0.0000	0.0000	0.0000	0.0000
19	98.9108	-0.0001	0.0000	0.0000	0.0000	0.0000
20	98.9108	-0.0001	0.0000	0.0000	0.0000	0.0000
21	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
22	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
23	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
24	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
25	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
26	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
27	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
28	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
29	98.9108	0.0000	0.0000	0.0000	0.0000	0.0000
30	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
31	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000

12HD Pearson.out						
32	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
33	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
34	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
35	98.9110	0.0000	0.0000	0.0000	0.0000	0.0000
36	98.9110	0.0000	0.0000	0.0000	0.0000	0.0000
37	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
38	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
39	98.9108	0.0000	0.0000	0.0000	0.0000	0.0000
40	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
41	98.9110	0.0000	0.0000	0.0000	0.0000	0.0000
42	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
43	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
44	98.9109	0.0001	0.0000	0.0000	0.0000	0.0000
45	98.9110	0.0000	0.0000	0.0000	0.0000	0.0000
46	98.9110	0.0000	0.0000	0.0000	0.0000	0.0000
47	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
48	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
49	98.9108	0.0000	0.0000	0.0000	0.0000	0.0000
50	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
51	98.9109	0.0001	0.0000	0.0000	0.0000	0.0000
52	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
53	98.9108	0.0000	0.0000	0.0000	0.0000	0.0000
54	98.9109	0.0001	0.0000	0.0000	0.0000	0.0000
55	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
56	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
57	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
58	98.9108	0.0000	0.0000	0.0000	0.0000	0.0000
59	98.9108	0.0000	0.0000	0.0000	0.0000	0.0000
60	98.9108	0.0000	0.0000	0.0000	0.0000	0.0000
61	98.9109	0.0001	0.0000	0.0000	0.0000	0.0000
62	98.9109	0.0000	0.0000	0.0000	0.0000	0.0000
63	98.9108	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1
 Steel type = 4 (For Description see Users Manual)
 Maximum = 0.1089E-01
 Minimum = -0.1089E-01

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)
 X Direction = 21.6609 Kips
 Y Direction = 0.0000 Kips
 Z Direction = -0.0001 Kips
 Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

12HD Pearson.out

Pile #	Maximum Force	Minimum Force
1	-0.37179E-13	-0.11298E-10
2	0.46319E-12	-0.69021E-11
3	0.16119E-10	0.11647E-11

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.99068E+01	-0.40694E+02
2	0.81863E+01	-0.28814E+02
3	0.99069E+01	-0.40696E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.13915E-03	-0.46327E-04
2	0.64394E-04	-0.21441E-04
3	0.67829E-04	-0.20374E-03

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	69	0.19233E+02	0.8230E-04	0.14500E+02	-0.2470E-03
2	89	0.19233E+02	0.3809E-04	0.16867E+02	-0.1143E-03
3	108	0.16867E+02	0.3617E-03	0.16867E+02	-0.1205E-03

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	76	0.35800E+02	11.12	0.26333E+02	-193.6
2	97	0.38167E+02	9.089	0.28700E+02	-177.4
3	115	0.33433E+02	11.16	0.26333E+02	-193.6

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM D/C	PROP NO.	NODE NO.	LOAD CASE (Kips)	FAX (Kips)	F22 (Kips)	F33 (Kips)	M22 (Kip-ft)	M33 (Kip-ft)	TORQUE

! -> Pile Number 1 !

12HD Pearson.out

1	1	1	1	0.00	9.91	0.00	0.00	0.00
0.00	1	0.00	1	0.00	-9.91	0.00	0.00	-28.73
0.00	1	0.06	1	0.00	9.91	0.00	0.00	28.73
2	1	0.06	1	0.00	-9.91	0.00	0.00	-57.46
0.00	1	0.12	1	0.00	9.91	0.00	0.00	57.46
3	1	0.12	1	0.00	-9.91	0.00	0.00	-86.19
0.00	1	0.17	1	0.00	9.91	0.00	0.00	86.19
4	1	0.17	1	0.00	-9.91	0.00	0.00	-114.92
0.00	1	0.23	1	0.00	9.91	0.00	0.00	114.92
5	1	0.23	1	0.00	-9.91	0.00	0.00	-143.65
0.00	1	0.29	1	0.00	9.19	0.00	0.00	143.65
6	1	0.29	1	0.00	-9.19	0.00	0.00	-165.41
0.00	1	0.33	1	0.00	7.06	0.00	0.00	165.41
7	1	0.33	1	0.00	-7.06	0.00	0.00	-182.11
0.00	1	0.37	1	0.00	4.21	0.00	0.00	182.11
8	1	0.37	1	0.00	-4.21	0.00	0.00	-192.08
0.00	1	0.39	1	0.00	0.64	0.00	0.00	192.08
9	1	0.39	1	0.00	-0.64	0.00	0.00	-193.60
0.00	1	0.39	1	0.00	-3.37	0.00	0.00	193.60
10	1	0.39	1	0.00	3.37	0.00	0.00	-185.61
0.00	1	0.37	1	0.00	-24.58	0.00	0.00	185.61
11	1	0.37	1	0.00	24.58	0.00	0.00	-127.43
0.00	1	0.26	1	0.00	-40.69	0.00	0.00	127.43
12	1	0.26	1	0.00	40.69	0.00	0.00	-31.12
0.00	1	0.06	1	0.00	-17.85	0.00	0.00	31.12
13	1	0.06	1	0.00	17.85	0.00	0.00	11.12
0.00	1	0.02	1	0.00	1.89	0.00	0.00	-11.12
14	1	0.02	1	0.00	-1.89	0.00	0.00	6.64
0.00	1	0.01	1	0.00	2.73	0.00	0.00	-6.64
15	1	0.01	1	0.00	-2.73	0.00	0.00	0.18
0.00	1	0.00	1	0.00	0.31	0.00	0.00	-0.18
16	1	0.00	1	0.00		0.00	0.00	

				12HD Pearson.out				
	1	79	1	0.00	-0.31	0.00	0.00	-0.55
0.00		0.00						
17	1	79	1	0.00	-0.20	0.00	0.00	0.55
0.00		0.00						
	1	80	1	0.00	0.20	0.00	0.00	-0.09
0.00		0.00						
18	1	80	1	0.00	-0.05	0.00	0.00	0.09
0.00		0.00						
	1	81	1	0.00	0.05	0.00	0.00	0.03
0.00		0.00						
19	1	81	1	0.00	0.01	0.00	0.00	-0.03
0.00		0.00						
	1	82	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
20	1	82	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	83	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> File Number 2 !								
21	1	2	1	0.00	8.19	0.00	0.00	0.00
0.00		0.00						
	1	84	1	0.00	-8.19	0.00	0.00	-23.74
0.00		0.05						
22	1	84	1	0.00	8.19	0.00	0.00	23.74
0.00		0.05						
	1	85	1	0.00	-8.19	0.00	0.00	-47.48
0.00		0.10						
23	1	85	1	0.00	8.19	0.00	0.00	47.48
0.00		0.10						
	1	86	1	0.00	-8.19	0.00	0.00	-71.22
0.00		0.14						
24	1	86	1	0.00	8.19	0.00	0.00	71.22
0.00		0.14						
	1	87	1	0.00	-8.19	0.00	0.00	-94.96
0.00		0.19						
25	1	87	1	0.00	8.19	0.00	0.00	94.96
0.00		0.19						
	1	88	1	0.00	-8.19	0.00	0.00	-118.70
0.00		0.24						
26	1	88	1	0.00	7.83	0.00	0.00	118.70
0.00		0.24						
	1	89	1	0.00	-7.83	0.00	0.00	-137.23
0.00		0.28						
27	1	89	1	0.00	6.76	0.00	0.00	137.23
0.00		0.28						
	1	90	1	0.00	-6.76	0.00	0.00	-153.23
0.00		0.31						
28	1	90	1	0.00	5.33	0.00	0.00	153.23
0.00		0.31						
	1	91	1	0.00	-5.33	0.00	0.00	-165.84
0.00		0.33						
29	1	91	1	0.00	3.54	0.00	0.00	165.84
0.00		0.33						
	1	92	1	0.00	-3.54	0.00	0.00	-174.21
0.00		0.35						
30	1	92	1	0.00	1.37	0.00	0.00	174.21
0.00		0.35						
	1	93	1	0.00	-1.37	0.00	0.00	-177.45
0.00		0.36						
31	1	93	1	0.00	-9.48	0.00	0.00	177.45

12HD Pearson.out

0.00		0.36						
	1	94	1	0.00	9.48	0.00	0.00	-155.01
0.00		0.31						
32	1	94	1	0.00	-28.81	0.00	0.00	155.01
0.00		0.31						
	1	95	1	0.00	28.81	0.00	0.00	-86.82
0.00		0.17						
33	1	95	1	0.00	-28.43	0.00	0.00	86.82
0.00		0.17						
	1	96	1	0.00	28.43	0.00	0.00	-19.53
0.00		0.04						
34	1	96	1	0.00	-12.09	0.00	0.00	19.53
0.00		0.04						
	1	97	1	0.00	12.09	0.00	0.00	9.09
0.00		0.02						
35	1	97	1	0.00	1.28	0.00	0.00	-9.09
0.00		0.02						
	1	98	1	0.00	-1.28	0.00	0.00	6.07
0.00		0.01						
36	1	98	1	0.00	2.21	0.00	0.00	-6.07
0.00		0.01						
	1	99	1	0.00	-2.21	0.00	0.00	0.84
0.00		0.00						
37	1	99	1	0.00	0.56	0.00	0.00	-0.84
0.00		0.00						
	1	100	1	0.00	-0.56	0.00	0.00	-0.48
0.00		0.00						
38	1	100	1	0.00	-0.11	0.00	0.00	0.48
0.00		0.00						
	1	101	1	0.00	0.11	0.00	0.00	-0.23
0.00		0.00						
39	1	101	1	0.00	-0.09	0.00	0.00	0.23
0.00		0.00						
	1	102	1	0.00	0.09	0.00	0.00	-0.01
0.00		0.00						
40	1	102	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
	1	103	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 3 !

41	1	3	1	0.00	9.91	0.00	0.00	0.00
0.00		0.00						
	1	104	1	0.00	-9.91	0.00	0.00	-28.73
0.00		0.06						
42	1	104	1	0.00	9.91	0.00	0.00	28.73
0.00		0.06						
	1	105	1	0.00	-9.91	0.00	0.00	-57.46
0.00		0.12						
43	1	105	1	0.00	9.91	0.00	0.00	57.46
0.00		0.12						
	1	106	1	0.00	-9.91	0.00	0.00	-86.19
0.00		0.17						
44	1	106	1	0.00	9.91	0.00	0.00	86.19
0.00		0.17						
	1	107	1	0.00	-9.91	0.00	0.00	-114.92
0.00		0.23						
45	1	107	1	0.00	9.91	0.00	0.00	114.92
0.00		0.23						
	1	108	1	0.00	-9.91	0.00	0.00	-143.65
0.00		0.29						

				12HD Pearson.out				
46	1	108	1	0.00	9.19	0.00	0.00	143.65
0.00		0.29						
	1	109	1	0.00	-9.19	0.00	0.00	-165.41
0.00		0.33						
47	1	109	1	0.00	7.06	0.00	0.00	165.41
0.00		0.33						
	1	110	1	0.00	-7.06	0.00	0.00	-182.12
0.00		0.37						
48	1	110	1	0.00	4.21	0.00	0.00	182.12
0.00		0.37						
	1	111	1	0.00	-4.21	0.00	0.00	-192.08
0.00		0.39						
49	1	111	1	0.00	0.64	0.00	0.00	192.08
0.00		0.39						
	1	112	1	0.00	-0.64	0.00	0.00	-193.60
0.00		0.39						
50	1	112	1	0.00	-3.37	0.00	0.00	193.60
0.00		0.39						
	1	113	1	0.00	3.37	0.00	0.00	-185.61
0.00		0.37						
51	1	113	1	0.00	-24.58	0.00	0.00	185.61
0.00		0.37						
	1	114	1	0.00	24.58	0.00	0.00	-127.43
0.00		0.26						
52	1	114	1	0.00	-40.70	0.00	0.00	127.43
0.00		0.26						
	1	115	1	0.00	40.70	0.00	0.00	-31.12
0.00		0.06						
53	1	115	1	0.00	-17.86	0.00	0.00	31.12
0.00		0.06						
	1	116	1	0.00	17.86	0.00	0.00	11.16
0.00		0.02						
54	1	116	1	0.00	1.92	0.00	0.00	-11.16
0.00		0.02						
	1	117	1	0.00	-1.92	0.00	0.00	6.62
0.00		0.01						
55	1	117	1	0.00	2.73	0.00	0.00	-6.62
0.00		0.01						
	1	118	1	0.00	-2.73	0.00	0.00	0.17
0.00		0.00						
56	1	118	1	0.00	0.30	0.00	0.00	-0.17
0.00		0.00						
	1	119	1	0.00	-0.30	0.00	0.00	-0.55
0.00		0.00						
57	1	119	1	0.00	-0.20	0.00	0.00	0.55
0.00		0.00						
	1	120	1	0.00	0.20	0.00	0.00	-0.08
0.00		0.00						
58	1	120	1	0.00	-0.05	0.00	0.00	0.08
0.00		0.00						
	1	121	1	0.00	0.05	0.00	0.00	0.03
0.00		0.00						
59	1	121	1	0.00	0.01	0.00	0.00	-0.03
0.00		0.00						
	1	122	1	0.00	-0.01	0.00	0.00	0.01
0.00		0.00						
60	1	122	1	0.00	0.00	0.00	0.00	-0.01
0.00		0.00						
	1	123	1	0.00	0.00	0.00	0.00	0.00
0.00		0.00						

12HD Pearson.out

* ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

* DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZY (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

* FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *

* PIER # 1 *

Maximum/Minimum Pile Forces

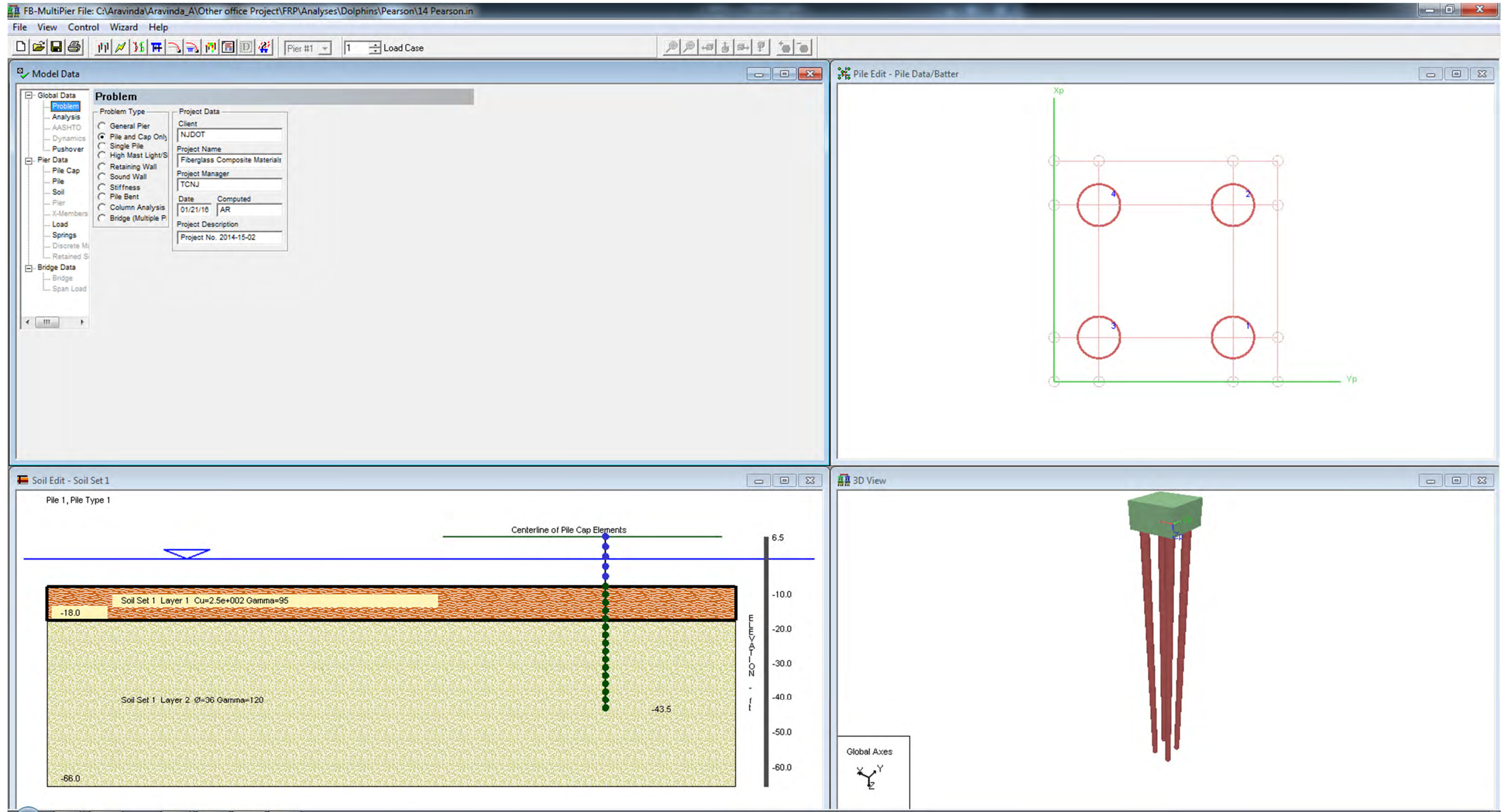
	Value	Load	Comb.	Pile
Max Axial Force	0.1612E-10 Kip	1	0	3
Min Axial Force	-0.1130E-10 Kip	1	0	1
Max Shear in 2 Direction	0.9907E+01 Kip	1	0	3
Min Shear in 2 Direction	-0.4070E+02 Kip	1	0	3
Max Shear in 3 Direction	0.1391E-03 Kip	1	0	1
Min Shear in 3 Direction	-0.2037E-03 Kip	1	0	3
Max Moment about 2 Axis	0.3617E-03 Kip-ft	1	0	3
Min Moment about 2 Axis	-0.2470E-03 Kip-ft	1	0	1
Max Moment About 3 Axis	0.1116E+02 Kip-ft	1	0	3
Min Moment About 3 Axis	-0.1936E+03 Kip-ft	1	0	3
Max Torsional Force	0.7367E-04 Kip-ft	1	0	1
Min Torsional Force	0.1119E-18 Kip-ft	1	0	3
Max Demand/Capacity Ratio	0.3893E+00	1	0	3

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.5353E-05 Kip	1	0	2
Min Axial Soil Force	-0.1979E-04 Kip	1	0	3
Max Lateral Force in X dir	0.2086E+02 Kip	1	0	1
Min Lateral Force in X dir	-0.2310E+02 Kip	1	0	1
Max Lateral Force in Y dir	0.2682E-03 Kip	1	0	3
Min Lateral Force in Y dir	-0.2289E-03 Kip	1	0	3
Max Torsional Soil Force	-0.1343E-17 Kip-ft	1	0	3

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.1135E-07 in	1	0	2
Min Axial Displacement	-0.4195E-07 in	1	0	3
Max Displacement in X	0.9891E+02 in	1	0	2
Min Displacement in X	0.9891E+02 in	1	0	3
Max Displacement in Y	0.2761E-04 in	1	0	1
Min Displacement in Y	-0.4043E-04 in	1	0	3



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 2 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 1,0,0
I= 60 T= 3 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -92 -91.5 0 91.5 92 \
0 0 0 0 0 \
0 0 0 0 0
-0.03 -0.022 0 0.022 0.03 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.022
NL= 0 NG= 0 D= 14 V= 0 S= 80 TH= 0.375 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
4 4 5 5 : NPX, NPY, GSX, GSY
14 42 14
14 42 14
0.4 0.8
0.4 0.8
:
MISSING
12 : number of missing piles
1 1
2 1
3 1
4 1
1 2
4 2
1 3
4 3

```

```

1 4
2 4
3 4
4 4
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
LOAD
30 L= 1 F= 35 0 0 0 0 0
:
PADBC
:

```

```

!
! The University of Florida, Florida Department
! of Transportation, Drs. Marc Hoit, Mike McVay
! Cliff Hays, Mark Williams, Petros Christou, and
! Jae H. Chung
! disclaim any warranty, expressed or implied,
! including but not limited to, any implied
! warranty of fitness for a particular purpose
! or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
! incurred through the use of FB-MultiPier
!

```

```

!
! :::: F B - M U L T I P I E R ::::
! FB-MultiPier Version 4.17
!

```

```

!
! Written by Marc Hoit, Mike McVay, Cliff Hays
! Mark Williams, Petros Christou, Jae H. Chung.
!

```

```

!
! Civil & Coastal Engineering, University of Florida
! Supported by Florida Department of Transportation
! and the Federal Highway Administration
!

```

```

!
! The program calculates the Response
! of the Bridge Pier Pile Soil Structures
!

```

```

!
! The Analysis includes PreLoad, Static,
! Transient Dynamic or Push Over
!

```

```

!
! The Program Handles NonLinear Soil Behavior,
! Linear Pile Cap and Linear and NonLinear Piles and Piers
!

```

```

!
! Contact: Bridge Software Institute for Support
! HTTP://BSI-WEB.CE.UFL.EDU
!

```

```

*****
*
* ANALYSIS RESULTS
*
*****

```

```

*****
* RESULTS FOR LOAD CASE # 1 *
*****

```

NOTE : PY Multipliers are applied Lead to Trail row based on the actual displacement. If there is no displacement in a Lateral direction they are defaulted to 1.0. This can happen in Axial Load and one direction lateral load cases

 PY Multipliers are Applied to A Pile Group

PILE#	X-PYM	Y-PYM
1	0.400E+00	0.100E+01
2	0.800E+00	0.100E+01
3	0.400E+00	0.100E+01
4	0.800E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 8 Iterations

 Summary of Abs Maximum Out-Of-Balance Forces

FZZ = 0.000 Kips
 FXX = 0.000 Kips
 FYY = 0.000 Kips
 MXX = 1.752 Kip-in
 MYY = 0.000 Kip-in
 MZZ = 0.000 Kip-in

 Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	72.0059	0.0000	0.0000
2	72.0058	0.0000	0.0000
3	72.0058	0.0000	0.0000
4	72.0058	0.0000	0.0000

 Pile Cap Displacements (Excluding Pile Heads)

5	72.0058	-0.0001	0.0000	0.0000	0.0000	0.0000
6	72.0058	-0.0001	0.0000	0.0000	0.0000	0.0000
7	72.0058	0.0000	0.0000	0.0000	0.0000	0.0000
8	72.0059	-0.0001	0.0000	0.0000	0.0000	0.0000
9	72.0058	0.0000	0.0000	0.0000	0.0000	0.0000
10	72.0059	0.0000	0.0000	0.0000	0.0000	0.0000
11	72.0058	0.0001	0.0000	0.0000	0.0000	0.0000
12	72.0059	0.0000	0.0000	0.0000	0.0000	0.0000
13	72.0057	0.0001	0.0000	0.0000	0.0000	0.0000
14	72.0058	0.0001	0.0000	0.0000	0.0000	0.0000
15	72.0058	0.0000	0.0000	0.0000	0.0000	0.0000
16	72.0059	0.0000	0.0000	0.0000	0.0000	0.0000
17	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
18	72.0060	0.0001	0.0000	0.0000	0.0000	0.0000
19	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
20	72.0061	0.0000	0.0000	0.0000	0.0000	0.0000
21	72.0059	0.0000	0.0000	0.0000	0.0000	0.0000
22	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
23	72.0059	0.0000	0.0000	0.0000	0.0000	0.0000
24	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
25	72.0059	0.0000	0.0000	0.0000	0.0000	0.0000
26	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
27	72.0061	0.0000	0.0000	0.0000	0.0000	0.0000
28	72.0061	0.0000	0.0000	0.0000	0.0000	0.0000

14 Pearson.out

29	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
30	72.0064	0.0000	0.0000	0.0000	0.0000	0.0000
31	72.0061	0.0000	0.0000	0.0000	0.0000	0.0000
32	72.0062	0.0000	0.0000	0.0000	0.0000	0.0000
33	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
34	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
35	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
36	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
37	72.0061	0.0000	0.0000	0.0000	0.0000	0.0000
38	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
39	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
40	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
41	72.0059	0.0000	0.0000	0.0000	0.0000	0.0000
42	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
43	72.0059	0.0000	0.0000	0.0000	0.0000	0.0000
44	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
45	72.0059	0.0000	0.0000	0.0000	0.0000	0.0000
46	72.0059	0.0000	0.0000	0.0000	0.0000	0.0000
47	72.0060	0.0000	0.0000	0.0000	0.0000	0.0000
48	72.0060	-0.0001	0.0000	0.0000	0.0000	0.0000
49	72.0060	-0.0001	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1
 Steel type = 4 (For Description see Users Manual)
 Maximum = 0.9547E-02
 Minimum = -0.9547E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)
 X Direction = 25.9185 Kips
 Y Direction = 0.0001 Kips
 Z Direction = 0.0000 Kips
 Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	-0.30387E-12	-0.63620E-11
2	-0.25658E-13	-0.57259E-11
3	-0.27317E-13	-0.95320E-11
4	0.96871E-11	0.47334E-12

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.78761E+01	-0.28311E+02
2	0.96238E+01	-0.34499E+02
3	0.78761E+01	-0.28311E+02
4	0.96239E+01	-0.34512E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.14456E-04	-0.43423E-04
2	0.15485E-04	-0.51556E-05
3	0.13280E-03	-0.44202E-04
4	0.34894E-04	-0.10486E-03

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	53	0.14500E+02	0.7708E-04	0.16867E+02	-0.2568E-04
2	74	0.16867E+02	0.9159E-05	0.16867E+02	-0.2749E-04
3	95	0.19233E+02	0.7853E-04	0.16867E+02	-0.2358E-03
4	113	0.14500E+02	0.1862E-03	0.16867E+02	-0.6199E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	63	0.38167E+02	8.362	0.26333E+02	-165.3
2	82	0.35800E+02	10.80	0.23967E+02	-182.9
3	103	0.38167E+02	8.362	0.26333E+02	-165.3
4	122	0.35800E+02	10.80	0.21600E+02	-182.9

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM D/C	PROP NO.	NODE NO.	LOAD NO.	FAX CASE (Kips)	F22 (Kips)	F33 (Kips)	M22 (Kip-ft)	M33 (Kip-ft)	TORQUE
! -> Pile Number 1 !									
1	1	1	1	0.00	7.88	0.00	0.00	0.00	0.00
0.00		0.00							
	1	50	1	0.00	-7.88	0.00	0.00	-22.84	
0.00		0.04							
2	1	50	1	0.00	7.88	0.00	0.00	22.84	

14 Pearson.out

0.00		0.04						
	1	51	1	0.00	-7.88	0.00	0.00	-45.68
0.00		0.09						
3	1	51	1	0.00	7.88	0.00	0.00	45.68
0.00		0.09						
	1	52	1	0.00	-7.88	0.00	0.00	-68.52
0.00		0.13						
4	1	52	1	0.00	7.88	0.00	0.00	68.52
0.00		0.13						
	1	53	1	0.00	-7.88	0.00	0.00	-91.36
0.00		0.17						
5	1	53	1	0.00	7.88	0.00	0.00	91.36
0.00		0.17						
	1	54	1	0.00	-7.88	0.00	0.00	-114.20
0.00		0.21						
6	1	54	1	0.00	7.46	0.00	0.00	114.20
0.00		0.21						
	1	55	1	0.00	-7.46	0.00	0.00	-131.85
0.00		0.25						
7	1	55	1	0.00	6.24	0.00	0.00	131.85
0.00		0.25						
	1	56	1	0.00	-6.24	0.00	0.00	-146.63
0.00		0.27						
8	1	56	1	0.00	4.66	0.00	0.00	146.63
0.00		0.27						
	1	57	1	0.00	-4.66	0.00	0.00	-157.65
0.00		0.29						
9	1	57	1	0.00	2.69	0.00	0.00	157.65
0.00		0.29						
	1	58	1	0.00	-2.69	0.00	0.00	-164.01
0.00		0.31						
10	1	58	1	0.00	0.55	0.00	0.00	164.01
0.00		0.31						
	1	59	1	0.00	-0.55	0.00	0.00	-165.31
0.00		0.31						
11	1	59	1	0.00	-10.57	0.00	0.00	165.31
0.00		0.31						
	1	60	1	0.00	10.57	0.00	0.00	-140.29
0.00		0.26						
12	1	60	1	0.00	-28.31	0.00	0.00	140.29
0.00		0.26						
	1	61	1	0.00	28.31	0.00	0.00	-73.29
0.00		0.14						
13	1	61	1	0.00	-24.06	0.00	0.00	73.29
0.00		0.14						
	1	62	1	0.00	24.06	0.00	0.00	-16.34
0.00		0.03						
14	1	62	1	0.00	-10.44	0.00	0.00	16.34
0.00		0.03						
	1	63	1	0.00	10.44	0.00	0.00	8.36
0.00		0.02						
15	1	63	1	0.00	0.89	0.00	0.00	-8.36
0.00		0.02						
	1	64	1	0.00	-0.89	0.00	0.00	6.27
0.00		0.01						
16	1	64	1	0.00	2.12	0.00	0.00	-6.27
0.00		0.01						
	1	65	1	0.00	-2.12	0.00	0.00	1.26
0.00		0.00						
17	1	65	1	0.00	0.70	0.00	0.00	-1.26
0.00		0.00						
	1	66	1	0.00	-0.70	0.00	0.00	-0.40
0.00		0.00						

				14 Pearson.out				
18	1	66	1	0.00	-0.04	0.00	0.00	0.40
0.00		0.00						
	1	67	1	0.00	0.04	0.00	0.00	-0.30
0.00		0.00						
19	1	67	1	0.00	-0.11	0.00	0.00	0.30
0.00		0.00						
	1	68	1	0.00	0.11	0.00	0.00	-0.04
0.00		0.00						
20	1	68	1	0.00	-0.02	0.00	0.00	0.04
0.00		0.00						
	1	69	1	0.00	0.02	0.00	0.00	0.00
0.00		0.00						

! -> File Number 2 !								
21	1	2	1	0.00	9.62	0.00	0.00	0.00
0.00		0.00						
	1	70	1	0.00	-9.62	0.00	0.00	-27.91
0.00		0.05						
22	1	70	1	0.00	9.62	0.00	0.00	27.91
0.00		0.05						
	1	71	1	0.00	-9.62	0.00	0.00	-55.82
0.00		0.10						
23	1	71	1	0.00	9.62	0.00	0.00	55.82
0.00		0.10						
	1	72	1	0.00	-9.62	0.00	0.00	-83.73
0.00		0.16						
24	1	72	1	0.00	9.62	0.00	0.00	83.73
0.00		0.16						
	1	73	1	0.00	-9.62	0.00	0.00	-111.64
0.00		0.21						
25	1	73	1	0.00	9.62	0.00	0.00	111.64
0.00		0.21						
	1	74	1	0.00	-9.62	0.00	0.00	-139.55
0.00		0.26						
26	1	74	1	0.00	8.78	0.00	0.00	139.55
0.00		0.26						
	1	75	1	0.00	-8.78	0.00	0.00	-160.33
0.00		0.30						
27	1	75	1	0.00	6.36	0.00	0.00	160.33
0.00		0.30						
	1	76	1	0.00	-6.36	0.00	0.00	-175.38
0.00		0.33						
28	1	76	1	0.00	3.18	0.00	0.00	175.38
0.00		0.33						
	1	77	1	0.00	-3.18	0.00	0.00	-182.91
0.00		0.34						
29	1	77	1	0.00	-0.72	0.00	0.00	182.91
0.00		0.34						
	1	78	1	0.00	0.72	0.00	0.00	-181.20
0.00		0.34						
30	1	78	1	0.00	-4.37	0.00	0.00	181.20
0.00		0.34						
	1	79	1	0.00	4.37	0.00	0.00	-170.87
0.00		0.32						
31	1	79	1	0.00	-27.40	0.00	0.00	170.87
0.00		0.32						
	1	80	1	0.00	27.40	0.00	0.00	-106.01
0.00		0.20						
32	1	80	1	0.00	-34.50	0.00	0.00	106.01
0.00		0.20						
	1	81	1	0.00	34.50	0.00	0.00	-24.36

14 Pearson.out

0.00		0.05						
33	1	81	1	0.00	-14.86	0.00	0.00	24.36
0.00		0.05						
	1	82	1	0.00	14.86	0.00	0.00	10.80
0.00		0.02						
34	1	82	1	0.00	1.75	0.00	0.00	-10.80
0.00		0.02						
	1	83	1	0.00	-1.75	0.00	0.00	6.66
0.00		0.01						
35	1	83	1	0.00	2.62	0.00	0.00	-6.66
0.00		0.01						
	1	84	1	0.00	-2.62	0.00	0.00	0.46
0.00		0.00						
36	1	84	1	0.00	0.44	0.00	0.00	-0.46
0.00		0.00						
	1	85	1	0.00	-0.44	0.00	0.00	-0.57
0.00		0.00						
37	1	85	1	0.00	-0.18	0.00	0.00	0.57
0.00		0.00						
	1	86	1	0.00	0.18	0.00	0.00	-0.15
0.00		0.00						
38	1	86	1	0.00	-0.07	0.00	0.00	0.15
0.00		0.00						
	1	87	1	0.00	0.07	0.00	0.00	0.03
0.00		0.00						
39	1	87	1	0.00	0.00	0.00	0.00	-0.03
0.00		0.00						
	1	88	1	0.00	0.00	0.00	0.00	0.02
0.00		0.00						
40	1	88	1	0.00	0.01	0.00	0.00	-0.02
0.00		0.00						
	1	89	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 3 !

41	1	3	1	0.00	7.88	0.00	0.00	0.00
0.00		0.00						
	1	90	1	0.00	-7.88	0.00	0.00	-22.84
0.00		0.04						
42	1	90	1	0.00	7.88	0.00	0.00	22.84
0.00		0.04						
	1	91	1	0.00	-7.88	0.00	0.00	-45.68
0.00		0.09						
43	1	91	1	0.00	7.88	0.00	0.00	45.68
0.00		0.09						
	1	92	1	0.00	-7.88	0.00	0.00	-68.52
0.00		0.13						
44	1	92	1	0.00	7.88	0.00	0.00	68.52
0.00		0.13						
	1	93	1	0.00	-7.88	0.00	0.00	-91.36
0.00		0.17						
45	1	93	1	0.00	7.88	0.00	0.00	91.36
0.00		0.17						
	1	94	1	0.00	-7.88	0.00	0.00	-114.20
0.00		0.21						
46	1	94	1	0.00	7.46	0.00	0.00	114.20
0.00		0.21						
	1	95	1	0.00	-7.46	0.00	0.00	-131.85
0.00		0.25						
47	1	95	1	0.00	6.24	0.00	0.00	131.85
0.00		0.25						

				14 Pearson.out				
0.00	1	96	1	0.00	-6.24	0.00	0.00	-146.63
0.00		0.27						
48	1	96	1	0.00	4.66	0.00	0.00	146.63
0.00		0.27						
	1	97	1	0.00	-4.66	0.00	0.00	-157.65
0.00		0.29						
49	1	97	1	0.00	2.69	0.00	0.00	157.65
0.00		0.29						
	1	98	1	0.00	-2.69	0.00	0.00	-164.01
0.00		0.31						
50	1	98	1	0.00	0.55	0.00	0.00	164.01
0.00		0.31						
	1	99	1	0.00	-0.55	0.00	0.00	-165.31
0.00		0.31						
51	1	99	1	0.00	-10.57	0.00	0.00	165.31
0.00		0.31						
	1	100	1	0.00	10.57	0.00	0.00	-140.29
0.00		0.26						
52	1	100	1	0.00	-28.31	0.00	0.00	140.29
0.00		0.26						
	1	101	1	0.00	28.31	0.00	0.00	-73.29
0.00		0.14						
53	1	101	1	0.00	-24.06	0.00	0.00	73.29
0.00		0.14						
	1	102	1	0.00	24.06	0.00	0.00	-16.34
0.00		0.03						
54	1	102	1	0.00	-10.44	0.00	0.00	16.34
0.00		0.03						
	1	103	1	0.00	10.44	0.00	0.00	8.36
0.00		0.02						
55	1	103	1	0.00	0.89	0.00	0.00	-8.36
0.00		0.02						
	1	104	1	0.00	-0.89	0.00	0.00	6.27
0.00		0.01						
56	1	104	1	0.00	2.12	0.00	0.00	-6.27
0.00		0.01						
	1	105	1	0.00	-2.12	0.00	0.00	1.26
0.00		0.00						
57	1	105	1	0.00	0.70	0.00	0.00	-1.26
0.00		0.00						
	1	106	1	0.00	-0.70	0.00	0.00	-0.40
0.00		0.00						
58	1	106	1	0.00	-0.04	0.00	0.00	0.40
0.00		0.00						
	1	107	1	0.00	0.04	0.00	0.00	-0.30
0.00		0.00						
59	1	107	1	0.00	-0.11	0.00	0.00	0.30
0.00		0.00						
	1	108	1	0.00	0.11	0.00	0.00	-0.04
0.00		0.00						
60	1	108	1	0.00	-0.02	0.00	0.00	0.04
0.00		0.00						
	1	109	1	0.00	0.02	0.00	0.00	0.00
0.00		0.00						

! -> Pile Number 4 !

61	1	4	1	0.00	9.62	0.00	0.00	0.00
0.00		0.00						
	1	110	1	0.00	-9.62	0.00	0.00	-27.91
0.00		0.05						
62	1	110	1	0.00	9.62	0.00	0.00	27.91

14 Pearson.out

0.00		0.05						
	1	111	1	0.00	-9.62	0.00	0.00	-55.82
0.00		0.10						
63	1	111	1	0.00	9.62	0.00	0.00	55.82
0.00		0.10						
	1	112	1	0.00	-9.62	0.00	0.00	-83.73
0.00		0.16						
64	1	112	1	0.00	9.62	0.00	0.00	83.73
0.00		0.16						
	1	113	1	0.00	-9.62	0.00	0.00	-111.64
0.00		0.21						
65	1	113	1	0.00	9.62	0.00	0.00	111.64
0.00		0.21						
	1	114	1	0.00	-9.62	0.00	0.00	-139.55
0.00		0.26						
66	1	114	1	0.00	8.78	0.00	0.00	139.55
0.00		0.26						
	1	115	1	0.00	-8.78	0.00	0.00	-160.34
0.00		0.30						
67	1	115	1	0.00	6.36	0.00	0.00	160.34
0.00		0.30						
	1	116	1	0.00	-6.36	0.00	0.00	-175.39
0.00		0.33						
68	1	116	1	0.00	3.18	0.00	0.00	175.39
0.00		0.33						
	1	117	1	0.00	-3.18	0.00	0.00	-182.91
0.00		0.34						
69	1	117	1	0.00	-0.72	0.00	0.00	182.91
0.00		0.34						
	1	118	1	0.00	0.72	0.00	0.00	-181.20
0.00		0.34						
70	1	118	1	0.00	-4.37	0.00	0.00	181.20
0.00		0.34						
	1	119	1	0.00	4.37	0.00	0.00	-170.87
0.00		0.32						
71	1	119	1	0.00	-27.40	0.00	0.00	170.87
0.00		0.32						
	1	120	1	0.00	27.40	0.00	0.00	-106.01
0.00		0.20						
72	1	120	1	0.00	-34.51	0.00	0.00	106.01
0.00		0.20						
	1	121	1	0.00	34.51	0.00	0.00	-24.34
0.00		0.05						
73	1	121	1	0.00	-14.85	0.00	0.00	24.34
0.00		0.05						
	1	122	1	0.00	14.85	0.00	0.00	10.80
0.00		0.02						
74	1	122	1	0.00	1.75	0.00	0.00	-10.80
0.00		0.02						
	1	123	1	0.00	-1.75	0.00	0.00	6.65
0.00		0.01						
75	1	123	1	0.00	2.61	0.00	0.00	-6.65
0.00		0.01						
	1	124	1	0.00	-2.61	0.00	0.00	0.46
0.00		0.00						
76	1	124	1	0.00	0.44	0.00	0.00	-0.46
0.00		0.00						
	1	125	1	0.00	-0.44	0.00	0.00	-0.57
0.00		0.00						
77	1	125	1	0.00	-0.18	0.00	0.00	0.57
0.00		0.00						
	1	126	1	0.00	0.18	0.00	0.00	-0.15
0.00		0.00						

14 Pearson.out

78	1	126	1	0.00	-0.07	0.00	0.00	0.15
0.00		0.00						
	1	127	1	0.00	0.07	0.00	0.00	0.03
0.00		0.00						
79	1	127	1	0.00	0.00	0.00	0.00	-0.03
0.00		0.00						
	1	128	1	0.00	0.00	0.00	0.00	0.01
0.00		0.00						
80	1	128	1	0.00	0.01	0.00	0.00	-0.01
0.00		0.00						
	1	129	1	0.00	-0.01	0.00	0.00	0.00
0.00		0.00						

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXF (Kip)	FYY (Kip)	FZZ (Kip)	MXF (Kip)	MYF (Kip)	MZF (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.9687E-11 Kip	1	0	4
Min Axial Force	-0.9532E-11 Kip	1	0	3
Max Shear in 2 Direction	0.9624E+01 Kip	1	0	4
Min Shear in 2 Direction	-0.3451E+02 Kip	1	0	4
Max Shear in 3 Direction	0.1328E-03 Kip	1	0	3
Min Shear in 3 Direction	-0.1049E-03 Kip	1	0	4
Max Moment about 2 Axis	0.1862E-03 Kip-ft	1	0	4
Min Moment about 2 Axis	-0.2358E-03 Kip-ft	1	0	3
Max Moment About 3 Axis	0.1080E+02 Kip-ft	1	0	4
Min Moment About 3 Axis	-0.1829E+03 Kip-ft	1	0	4
Max Torsional Force	0.2619E-03 Kip-ft	1	0	3
Min Torsional Force	-0.1731E-03 Kip-ft	1	0	1
Max Demand/Capacity Ratio	0.3417E+00	1	0	4

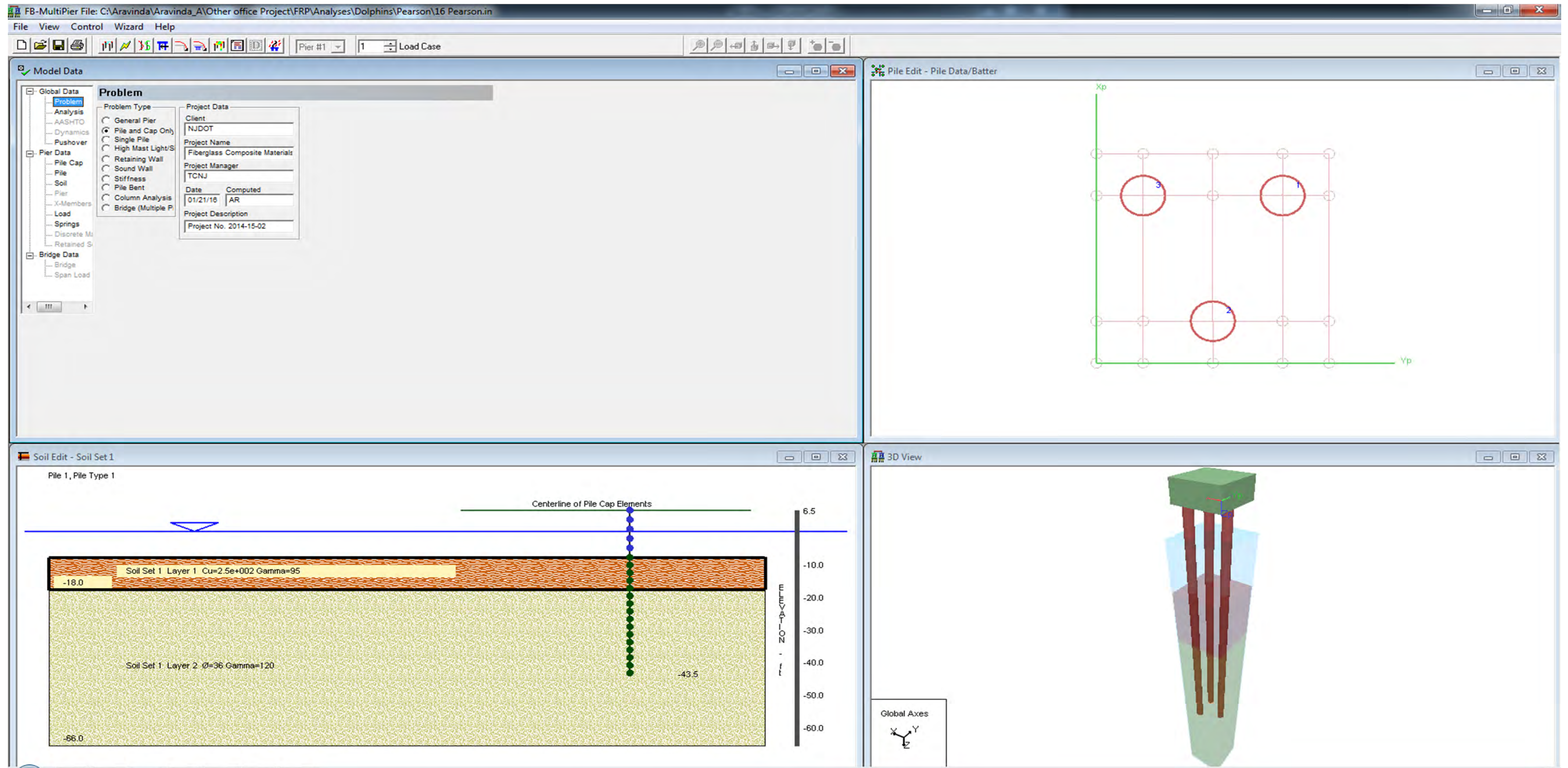
Maximum/Minimum Soil Forces

Max Axial Soil Force	0.5076E-05 Kip	1	0	1
Min Axial Soil Force	-0.5076E-05 Kip	1	0	4
Max Lateral Force in X dir	0.2129E+02 Kip	1	0	2
Min Lateral Force in X dir	-0.1933E+02 Kip	1	0	2
Max Lateral Force in Y dir	0.3729E-03 Kip	1	0	4
Min Lateral Force in Y dir	-0.2982E-03 Kip	1	0	3
Max Torsional Soil Force	0.8993E-03 Kip-ft	1	0	1

Maximum/Minimum Pile Displacements

14 Pearson.out

Max Axial Displacement	0.1039E-07 in	1	0	1
Min Axial Displacement	-0.1039E-07 in	1	0	4
Max Displacement in X	0.7201E+02 in	1	0	1
Min Displacement in X	0.7201E+02 in	1	0	4
Max Displacement in Y	0.2064E-04 in	1	0	3
Min Displacement in Y	-0.1630E-04 in	1	0	4



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 2 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=1 T=1 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=0 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 1,0,0
I= 60 T= 3 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 50 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 5 -90 -89.6 0 89.6 90 \
0 0 0 0 0 \
0 0 0 0 0
-0.03 -0.023 0 0.023 0.03 \
0 0 0 0 0 \
0 0 0 0 0 Y= 0.022
NL= 0 NG= 0 D= 16 V= 0 S= 80 TH= 0.5 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
4 5 5 5 : NPX, NPY, GSX, GSY
16 48 16
16 24 24 16
0.4 0.8
0.3 0.4 0.8
:
MISSING
17 : number of missing piles
1 1
2 1
3 1
4 1
1 2
2 2
4 2
1 3

```

```

3 3
4 3
1 4
2 4
4 4
1 5
2 5
3 5
4 5
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 30 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 30 95 250 0.02 0 0.6 0.25 175
36 100 120 30 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 30 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 100
:
LOAD
11 L= 1 F= 40 0 0 0 0 0
:
PADBC
:

```

```

!
! The University of Florida, Florida Department
! of Transportation, Drs. Marc Hoit, Mike McVay
! Cliff Hays, Mark Williams, Petros Christou, and
! Jae H. Chung
! disclaim any warranty, expressed or implied,
! including but not limited to, any implied
! warranty of fitness for a particular purpose
! or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
! incurred through the use of FB-MultiPier
!

```

```

!
! :::: F B - M U L T I P I E R ::::
! FB-MultiPier Version 4.17
!

```

```

!
! Written by Marc Hoit, Mike McVay, Cliff Hays
! Mark Williams, Petros Christou, Jae H. Chung.
!

```

```

!
! Civil & Coastal Engineering, University of Florida
! Supported by Florida Department of Transportation
! and the Federal Highway Administration
!

```

```

!
! The program calculates the Response
! of the Bridge Pier Pile Soil Structures
!

```

```

!
! The Analysis includes PreLoad, Static,
! Transient Dynamic or Push Over
!

```

```

!
! The Program Handles NonLinear Soil Behavior,
! Linear Pile Cap and Linear and NonLinear Piles and Piers
!

```

```

!
! Contact: Bridge Software Institute for Support
! HTTP://BSI-WEB.CE.UFL.EDU
!

```

```

*****
* ANALYSIS RESULTS *
*****

```

```

*****
* RESULTS FOR LOAD CASE # 1 *
*****

```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

16 Pearson.out

PILE#	X-PYM	Y-PYM
1	0.800E+00	0.100E+01
2	0.400E+00	0.100E+01
3	0.800E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 8 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	2.369	Kips
FXX =	0.000	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYX =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	67.1409	0.0001	0.0000
2	67.1410	0.0000	0.0000
3	67.1409	-0.0001	0.0000

Pile Cap Displacements (Excluding Pile Heads)

4	67.1412	0.0001	0.0000	0.0000	0.0000	0.0000
5	67.1410	0.0001	0.0000	0.0000	0.0000	0.0000
6	67.1409	0.0001	0.0000	0.0000	0.0000	0.0000
7	67.1408	0.0001	0.0000	0.0000	0.0000	0.0000
8	67.1413	0.0000	0.0000	0.0000	0.0000	0.0000
9	67.1410	0.0001	0.0000	0.0000	0.0000	0.0000
10	67.1408	0.0001	0.0000	0.0000	0.0000	0.0000
11	67.1416	0.0000	0.0000	0.0000	0.0000	0.0000
12	67.1409	0.0000	0.0000	0.0000	0.0000	0.0000
13	67.1408	0.0000	0.0000	0.0000	0.0000	0.0000
14	67.1413	0.0000	0.0000	0.0000	0.0000	0.0000
15	67.1410	-0.0001	0.0000	0.0000	0.0000	0.0000
16	67.1408	0.0000	0.0000	0.0000	0.0000	0.0000
17	67.1412	-0.0001	0.0000	0.0000	0.0000	0.0000
18	67.1410	-0.0001	0.0000	0.0000	0.0000	0.0000
19	67.1409	-0.0001	0.0000	0.0000	0.0000	0.0000
20	67.1408	-0.0001	0.0000	0.0000	0.0000	0.0000
21	67.1410	-0.0001	0.0000	0.0000	0.0000	0.0000
22	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
23	67.1409	0.0000	0.0000	0.0000	0.0000	0.0000
24	67.1410	-0.0001	0.0000	0.0000	0.0000	0.0000
25	67.1411	0.0000	0.0000	0.0000	0.0000	0.0000
26	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
27	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
28	67.1409	0.0000	0.0000	0.0000	0.0000	0.0000
29	67.1409	0.0000	0.0000	0.0000	0.0000	0.0000
30	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
31	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
32	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000

16 Pearson.out

33	67.1409	0.0000	0.0000	0.0000	0.0000	0.0000
34	67.1410	-0.0001	0.0000	0.0000	0.0000	0.0000
35	67.1411	0.0000	0.0000	0.0000	0.0000	0.0000
36	67.1411	0.0000	0.0000	0.0000	0.0000	0.0000
37	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
38	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
39	67.1409	0.0000	0.0000	0.0000	0.0000	0.0000
40	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
41	67.1412	0.0000	0.0000	0.0000	0.0000	0.0000
42	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
43	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
44	67.1410	0.0001	0.0000	0.0000	0.0000	0.0000
45	67.1411	0.0000	0.0000	0.0000	0.0000	0.0000
46	67.1411	0.0000	0.0000	0.0000	0.0000	0.0000
47	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
48	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
49	67.1409	0.0000	0.0000	0.0000	0.0000	0.0000
50	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
51	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
52	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
53	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
54	67.1410	0.0001	0.0000	0.0000	0.0000	0.0000
55	67.1411	0.0000	0.0000	0.0000	0.0000	0.0000
56	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
57	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
58	67.1409	0.0000	0.0000	0.0000	0.0000	0.0000
59	67.1409	0.0000	0.0000	0.0000	0.0000	0.0000
60	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
61	67.1410	0.0001	0.0000	0.0000	0.0000	0.0000
62	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000
63	67.1410	0.0000	0.0000	0.0000	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1

Maximum = 0.0000E+00

Minimum = 0.0000E+00

Steel Strains for Section # 1

Steel type = 4 (For Description see Users Manual)

Maximum = 0.9211E-02

Minimum = -0.9211E-02

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)

X Direction = 27.2927 Kips

Y Direction = 0.0001 Kips

Z Direction = 0.0003 Kips

Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	-0.11646E-11	-0.18445E-10
2	-0.88171E-12	-0.13846E-10
3	-0.53767E-13	-0.10357E-10

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.14190E+02	-0.48940E+02
2	0.11620E+02	-0.40613E+02
3	0.14190E+02	-0.48941E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.63254E-03	-0.20980E-03
2	0.86863E-05	-0.26097E-04
3	0.20115E-03	-0.60647E-03

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	69	0.19233E+02	0.3729E-03	0.16867E+02	-0.1124E-02
2	87	0.14500E+02	0.4633E-04	0.16867E+02	-0.1544E-04
3	108	0.16867E+02	0.1078E-02	0.16867E+02	-0.3575E-03

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	77	0.38167E+02	15.54	0.23967E+02	-285.4
2	97	0.38167E+02	13.20	0.26333E+02	-259.6
3	116	0.35800E+02	15.51	0.26333E+02	-285.4

- Analytical Force Results for each Pile

NOTE : The results are presented in the Local Axes (1-2-3) of each Pile. The Orientation of the Local Axes are shown in the Users Manual. The Demand/Capacity Ratio that is Displayed below each Pile Segment refers to the Ratio of the Calculated Force Divided by the Capacity of the Segment

ELEM D/C NO.	PROP NO.	NODE NO.	LOAD CASE	FAX (Kips)	F22 (Kips)	F33 (Kips)	M22 (Kip-ft)	M33 (Kip-ft)	TORQUE
(Kip-ft)		(Ratio)							

! -> Pile Number 1 !

16 Pearson.out								
1	1	1	1	0.00	14.19	0.00	0.00	0.00
0.00		0.00						
	1	64	1	0.00	-14.19	0.00	0.00	-41.15
0.00		0.05						
2	1	64	1	0.00	14.19	0.00	0.00	41.15
0.00		0.05						
	1	65	1	0.00	-14.19	0.00	0.00	-82.30
0.00		0.09						
3	1	65	1	0.00	14.19	0.00	0.00	82.30
0.00		0.09						
	1	66	1	0.00	-14.19	0.00	0.00	-123.45
0.00		0.14						
4	1	66	1	0.00	14.19	0.00	0.00	123.45
0.00		0.14						
	1	67	1	0.00	-14.19	0.00	0.00	-164.60
0.00		0.18						
5	1	67	1	0.00	14.19	0.00	0.00	164.60
0.00		0.18						
	1	68	1	0.00	-14.19	0.00	0.00	-205.76
0.00		0.23						
6	1	68	1	0.00	13.23	0.00	0.00	205.76
0.00		0.23						
	1	69	1	0.00	-13.23	0.00	0.00	-237.07
0.00		0.26						
7	1	69	1	0.00	10.54	0.00	0.00	237.07
0.00		0.26						
	1	70	1	0.00	-10.54	0.00	0.00	-262.01
0.00		0.29						
8	1	70	1	0.00	7.07	0.00	0.00	262.01
0.00		0.29						
	1	71	1	0.00	-7.07	0.00	0.00	-278.75
0.00		0.31						
9	1	71	1	0.00	2.80	0.00	0.00	278.75
0.00		0.31						
	1	72	1	0.00	-2.80	0.00	0.00	-285.38
0.00		0.32						
10	1	72	1	0.00	-1.38	0.00	0.00	285.38
0.00		0.32						
	1	73	1	0.00	1.38	0.00	0.00	-282.11
0.00		0.31						
11	1	73	1	0.00	-22.97	0.00	0.00	282.11
0.00		0.31						
	1	74	1	0.00	22.97	0.00	0.00	-227.74
0.00		0.25						
12	1	74	1	0.00	-48.94	0.00	0.00	227.74
0.00		0.25						
	1	75	1	0.00	48.94	0.00	0.00	-111.91
0.00		0.12						
13	1	75	1	0.00	-38.44	0.00	0.00	111.91
0.00		0.12						
	1	76	1	0.00	38.44	0.00	0.00	-20.94
0.00		0.02						
14	1	76	1	0.00	-15.42	0.00	0.00	20.94
0.00		0.02						
	1	77	1	0.00	15.42	0.00	0.00	15.54
0.00		0.02						
15	1	77	1	0.00	2.45	0.00	0.00	-15.54
0.00		0.02						
	1	78	1	0.00	-2.45	0.00	0.00	9.75
0.00		0.01						
16	1	78	1	0.00	3.49	0.00	0.00	-9.75
0.00		0.01						
	1	79	1	0.00	-3.49	0.00	0.00	1.50

16 Pearson.out

0.00		0.00						
17	1	79	1	0.00	0.96	0.00	0.00	-1.50
0.00		0.00						
	1	80	1	0.00	-0.96	0.00	0.00	-0.77
0.00		0.00						
18	1	80	1	0.00	-0.14	0.00	0.00	0.77
0.00		0.00						
	1	81	1	0.00	0.14	0.00	0.00	-0.43
0.00		0.00						
19	1	81	1	0.00	-0.17	0.00	0.00	0.43
0.00		0.00						
	1	82	1	0.00	0.17	0.00	0.00	-0.04
0.00		0.00						
20	1	82	1	0.00	-0.02	0.00	0.00	0.04
0.00		0.00						
	1	83	1	0.00	0.02	0.00	0.00	0.00
0.00		0.00						

! -> File Number 2 !

21	1	2	1	0.00	11.62	0.00	0.00	0.00
0.00		0.00						
	1	84	1	0.00	-11.62	0.00	0.00	-33.70
0.00		0.04						
22	1	84	1	0.00	11.62	0.00	0.00	33.70
0.00		0.04						
	1	85	1	0.00	-11.62	0.00	0.00	-67.40
0.00		0.07						
23	1	85	1	0.00	11.62	0.00	0.00	67.40
0.00		0.07						
	1	86	1	0.00	-11.62	0.00	0.00	-101.09
0.00		0.11						
24	1	86	1	0.00	11.62	0.00	0.00	101.09
0.00		0.11						
	1	87	1	0.00	-11.62	0.00	0.00	-134.79
0.00		0.15						
25	1	87	1	0.00	11.62	0.00	0.00	134.79
0.00		0.15						
	1	88	1	0.00	-11.62	0.00	0.00	-168.49
0.00		0.19						
26	1	88	1	0.00	11.14	0.00	0.00	168.49
0.00		0.19						
	1	89	1	0.00	-11.14	0.00	0.00	-194.85
0.00		0.22						
27	1	89	1	0.00	9.79	0.00	0.00	194.85
0.00		0.22						
	1	90	1	0.00	-9.79	0.00	0.00	-218.03
0.00		0.24						
28	1	90	1	0.00	8.06	0.00	0.00	218.03
0.00		0.24						
	1	91	1	0.00	-8.06	0.00	0.00	-237.11
0.00		0.26						
29	1	91	1	0.00	5.93	0.00	0.00	237.11
0.00		0.26						
	1	92	1	0.00	-5.93	0.00	0.00	-251.15
0.00		0.28						
30	1	92	1	0.00	3.55	0.00	0.00	251.15
0.00		0.28						
	1	93	1	0.00	-3.55	0.00	0.00	-259.56
0.00		0.29						
31	1	93	1	0.00	-7.18	0.00	0.00	259.56
0.00		0.29						

16 Pearson.out								
0.00	1	94	1	0.00	7.18	0.00	0.00	-242.58
0.00	32	0.27	1	0.00	-25.65	0.00	0.00	242.58
0.00	1	94	1	0.00	25.65	0.00	0.00	-181.87
0.00	1	95	1	0.00	-40.61	0.00	0.00	181.87
0.00	33	0.20	1	0.00	40.61	0.00	0.00	-85.76
0.00	1	95	1	0.00	-29.40	0.00	0.00	85.76
0.00	1	96	1	0.00	29.40	0.00	0.00	-16.19
0.00	34	0.09	1	0.00	-12.42	0.00	0.00	16.19
0.00	1	96	1	0.00	12.42	0.00	0.00	13.20
0.00	1	97	1	0.00	1.08	0.00	0.00	-13.20
0.00	35	0.02	1	0.00	-1.08	0.00	0.00	10.65
0.00	1	98	1	0.00	3.13	0.00	0.00	-10.65
0.00	1	99	1	0.00	-3.13	0.00	0.00	3.25
0.00	36	0.01	1	0.00	1.45	0.00	0.00	-3.25
0.00	1	98	1	0.00	-1.45	0.00	0.00	-0.17
0.00	1	99	1	0.00	0.13	0.00	0.00	0.17
0.00	37	0.01	1	0.00	-0.13	0.00	0.00	-0.47
0.00	1	100	1	0.00	-0.20	0.00	0.00	0.47
0.00	1	101	1	0.00	0.20	0.00	0.00	0.00
0.00	38	0.00	1	0.00		0.00	0.00	
0.00	1	100	1	0.00		0.00	0.00	
0.00	1	101	1	0.00		0.00	0.00	
0.00	39	0.00	1	0.00		0.00	0.00	
0.00	1	101	1	0.00		0.00	0.00	
0.00	1	102	1	0.00		0.00	0.00	
0.00	40	0.00	1	0.00		0.00	0.00	
0.00	1	102	1	0.00		0.00	0.00	
0.00	1	103	1	0.00		0.00	0.00	
0.00	1	104	1	0.00		0.00	0.00	

! -> File Number 3 !

41	1	3	1	0.00	14.19	0.00	0.00	0.00
0.00		0.00						
	1	104	1	0.00	-14.19	0.00	0.00	-41.15
0.00		0.05						
42	1	104	1	0.00	14.19	0.00	0.00	41.15
0.00		0.05						
	1	105	1	0.00	-14.19	0.00	0.00	-82.30
0.00		0.09						
43	1	105	1	0.00	14.19	0.00	0.00	82.30
0.00		0.09						
	1	106	1	0.00	-14.19	0.00	0.00	-123.45
0.00		0.14						
44	1	106	1	0.00	14.19	0.00	0.00	123.45
0.00		0.14						
	1	107	1	0.00	-14.19	0.00	0.00	-164.60
0.00		0.18						
45	1	107	1	0.00	14.19	0.00	0.00	164.60
0.00		0.18						
	1	108	1	0.00	-14.19	0.00	0.00	-205.76
0.00		0.23						
46	1	108	1	0.00	13.23	0.00	0.00	205.76

16 Pearson.out

0.00		0.23						
	1	109	1	0.00	-13.23	0.00	0.00	-237.07
0.00		0.26						
47	1	109	1	0.00	10.54	0.00	0.00	237.07
0.00		0.26						
	1	110	1	0.00	-10.54	0.00	0.00	-262.01
0.00		0.29						
48	1	110	1	0.00	7.07	0.00	0.00	262.01
0.00		0.29						
	1	111	1	0.00	-7.07	0.00	0.00	-278.75
0.00		0.31						
49	1	111	1	0.00	2.80	0.00	0.00	278.75
0.00		0.31						
	1	112	1	0.00	-2.80	0.00	0.00	-285.38
0.00		0.32						
50	1	112	1	0.00	-1.38	0.00	0.00	285.38
0.00		0.32						
	1	113	1	0.00	1.38	0.00	0.00	-282.11
0.00		0.31						
51	1	113	1	0.00	-22.97	0.00	0.00	282.11
0.00		0.31						
	1	114	1	0.00	22.97	0.00	0.00	-227.74
0.00		0.25						
52	1	114	1	0.00	-48.94	0.00	0.00	227.74
0.00		0.25						
	1	115	1	0.00	48.94	0.00	0.00	-111.91
0.00		0.12						
53	1	115	1	0.00	-38.44	0.00	0.00	111.91
0.00		0.12						
	1	116	1	0.00	38.44	0.00	0.00	-20.94
0.00		0.02						
54	1	116	1	0.00	-15.40	0.00	0.00	20.94
0.00		0.02						
	1	117	1	0.00	15.40	0.00	0.00	15.51
0.00		0.02						
55	1	117	1	0.00	2.43	0.00	0.00	-15.51
0.00		0.02						
	1	118	1	0.00	-2.43	0.00	0.00	9.76
0.00		0.01						
56	1	118	1	0.00	3.49	0.00	0.00	-9.76
0.00		0.01						
	1	119	1	0.00	-3.49	0.00	0.00	1.51
0.00		0.00						
57	1	119	1	0.00	0.96	0.00	0.00	-1.51
0.00		0.00						
	1	120	1	0.00	-0.96	0.00	0.00	-0.77
0.00		0.00						
58	1	120	1	0.00	-0.14	0.00	0.00	0.77
0.00		0.00						
	1	121	1	0.00	0.14	0.00	0.00	-0.43
0.00		0.00						
59	1	121	1	0.00	-0.17	0.00	0.00	0.43
0.00		0.00						
	1	122	1	0.00	0.17	0.00	0.00	-0.04
0.00		0.00						
60	1	122	1	0.00	-0.02	0.00	0.00	0.04
0.00		0.00						
	1	123	1	0.00	0.02	0.00	0.00	0.00
0.00		0.00						

* ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

16 Pearson.out

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	-0.5377E-13 Kip	1	0	3
Min Axial Force	-0.1845E-10 Kip	1	0	1
Max Shear in 2 Direction	0.1419E+02 Kip	1	0	1
Min Shear in 2 Direction	-0.4894E+02 Kip	1	0	3
Max Shear in 3 Direction	0.6325E-03 Kip	1	0	1
Min Shear in 3 Direction	-0.6065E-03 Kip	1	0	3
Max Moment about 2 Axis	0.1078E-02 Kip-ft	1	0	3
Min Moment about 2 Axis	-0.1124E-02 Kip-ft	1	0	1
Max Moment About 3 Axis	0.1554E+02 Kip-ft	1	0	1
Min Moment About 3 Axis	-0.2854E+03 Kip-ft	1	0	1
Max Torsional Force	0.9450E-04 Kip-ft	1	0	1
Min Torsional Force	-0.1276E-03 Kip-ft	1	0	3
Max Demand/Capacity Ratio	0.3159E+00	1	0	1

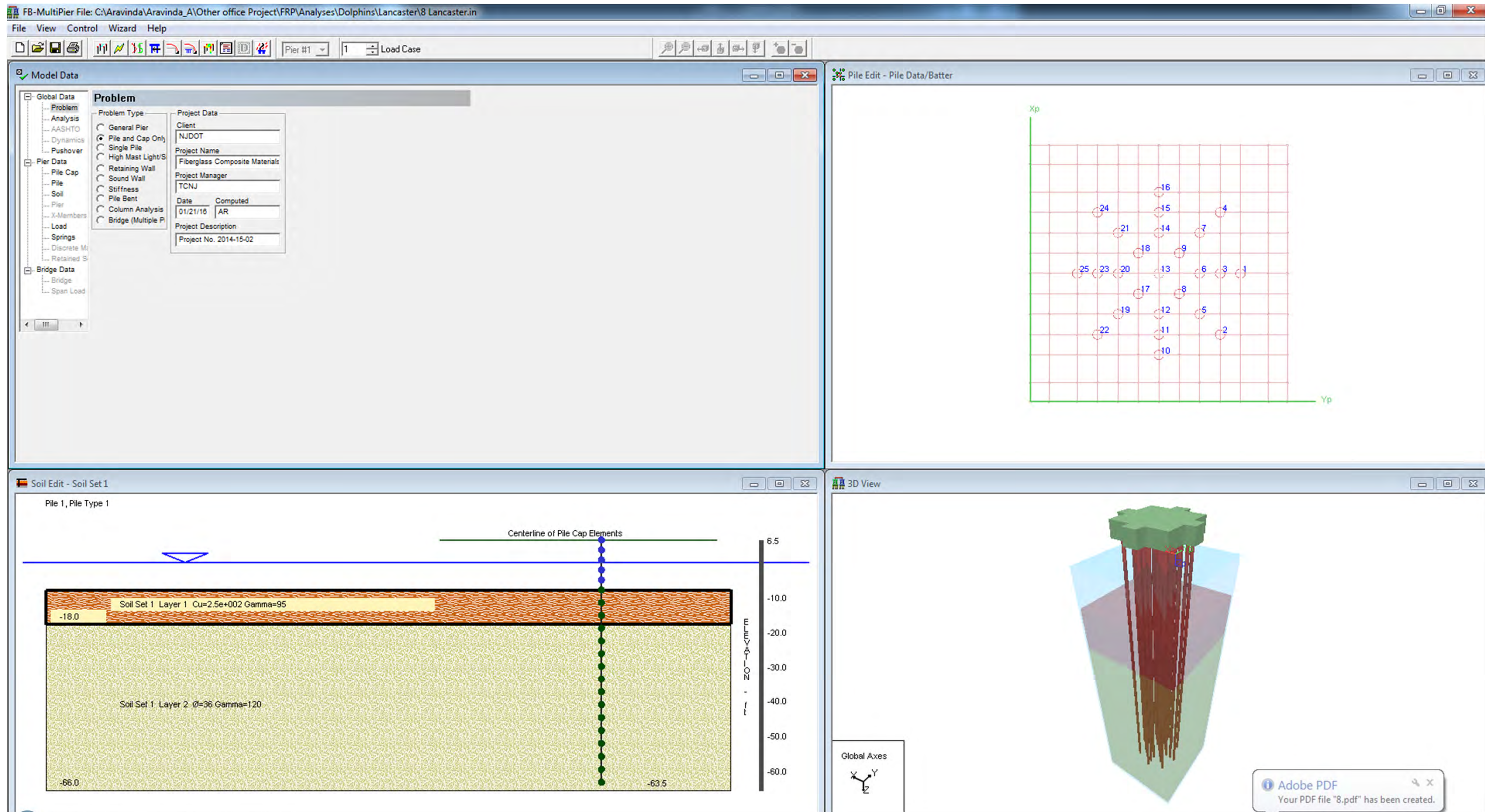
Maximum/Minimum Soil Forces

Max Axial Soil Force	0.1685E-04 Kip	1	0	1
Min Axial Soil Force	0.0000E+00 Kip	1	0	3
Max Lateral Force in X dir	0.2439E+02 Kip	1	0	3
Min Lateral Force in X dir	-0.2311E+02 Kip	1	0	3
Max Lateral Force in Y dir	0.1068E-02 Kip	1	0	3
Min Lateral Force in Y dir	-0.1083E-02 Kip	1	0	1
Max Torsional Soil Force	0.5738E-03 Kip-ft	1	0	3

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.3345E-07 in	1	0	1
Min Axial Displacement	0.3418E-13 in	1	0	3
Max Displacement in X	0.6714E+02 in	1	0	2
Min Displacement in X	0.6714E+02 in	1	0	1
Max Displacement in Y	0.5355E-04 in	1	0	1
Min Displacement in Y	-0.5134E-04 in	1	0	3

Lancaster



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 1 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=0 T=0 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=1 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 0,0,0
I= 200 T= 0.1 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 70 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 7 -71 -70 -70 0 70 \
70 70 0 0 0 \
0 0 0 0 0
-0.2 -0.02 -0.0175 0 0.0175 \
0.02 0.2 0 0 0 \
0 0 0 0 0 Y= 0.01742
NL= 0 NG= 0 D= 8.6 V= 0 S= 80 TH= 0.125 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
13 13 1 1 : NPX, NPY, GSX, GSY
16 24 17.5 17.5 17.5 17.5 \
17.5 17.5 17.5 17.5 24 16 \

16 24 17.5 17.5 17.5 17.5 \
17.5 17.5 17.5 17.5 24 16 \

0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.4 0.8
0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.4 0.8
:
MISSING
144 : number of missing piles
1 1
2 1
3 1
4 1

```

8 Lancaster.in

5 1
6 1
7 1
8 1
9 1
10 1
11 1
12 1
13 1
1 2
2 2
3 2
4 2
5 2
6 2
7 2
8 2
9 2
10 2
11 2
12 2
13 2
1 3
2 3
3 3
4 3
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1 5
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6 5
8 5
10 5
11 5
12 5
13 5
1 6
2 6
3 6
4 6
5 6
7 6
9 6
10 6
11 6

8 Lancaster.in

12 6
13 6
1 7
2 7
6 7
8 7
12 7
13 7
1 8
2 8
3 8
4 8
5 8
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9 8
10 8
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11 11
12 11
13 11
1 12
2 12
3 12
4 12
5 12
6 12
7 12
8 12
9 12
10 12
11 12
12 12

```

13 12
1 13
2 13
3 13
4 13
5 13
6 13
7 13
8 13
9 13
10 13
11 13
12 13
13 13
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 0 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8,-18 B=0 S=1 A=0
30 0 95 250 0.02 0 0.6 0.25 175
36 100 120 0 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18,-66 B=0 S=0 A=0
36 100 120 0 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 0
:
REMOVE
1 1
2 1
3 1
4 1
5 1
6 1
7 1
8 1
9 1
10 1
11 1
12 1
1 2
2 2
3 2
4 2
5 2
8 2
9 2
10 2
11 2
12 2
1 3
2 3
11 3
12 3
1 4

```

8 Lancaster.in

```
2 4
11 4
12 4
1 5
2 5
11 5
12 5
1 6
12 6
1 7
12 7
1 8
2 8
11 8
12 8
1 9
2 9
11 9
12 9
1 10
2 10
11 10
12 10
1 11
2 11
3 11
4 11
5 11
8 11
9 11
10 11
11 11
12 11
1 12
2 12
3 12
4 12
5 12
6 12
7 12
8 12
9 12
10 12
11 12
12 12
:
LOAD
96 L= 1 F= 35 0 0 0 0 0
:
PADBC
:
```

```
!-----!
!
! The University of Florida, Florida Department
! of Transportation, Drs. Marc Hoit, Mike McVay
! Cliff Hays, Mark Williams, Petros Christou, and
! Jae H. Chung
! disclaim any warranty, expressed or implied,
! including but not limited to, any implied
! warranty of fitness for a particular purpose
! or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
! incurred through the use of FB-MultiPier
!
!-----!
```

```
!
! :::: F B - M U L T I P I E R ::::
! FB-MultiPier Version 4.17
!
!-----!
```

```
!
! Written by Marc Hoit, Mike McVay, Cliff Hays
! Mark Williams, Petros Christou, Jae H. Chung.
!
!-----!
```

```
!
! Civil & Coastal Engineering, University of Florida
! Supported by Florida Department of Transportation
! and the Federal Highway Administration
!
!-----!
```

```
!
! The program calculates the Response
! of the Bridge Pier Pile Soil Structures
!
!-----!
```

```
!
! The Analysis includes PreLoad, Static,
! Transient Dynamic or Push Over
!
!-----!
```

```
!
! The Program Handles NonLinear Soil Behavior,
! Linear Pile Cap and Linear and NonLinear Piles and Piers
!
!-----!
```

```
!
! Contact: Bridge Software Institute for Support
! HTTP://BSI-WEB.CE.UFL.EDU
!
!-----!
```

```
*****
*
* ANALYSIS RESULTS
*
*****
```

```
*****
* RESULTS FOR LOAD CASE # 1 *
*****
```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

PILE#	X-PYM	Y-PYM
1	0.300E+00	0.100E+01
2	0.300E+00	0.100E+01
3	0.300E+00	0.100E+01
4	0.400E+00	0.100E+01
5	0.300E+00	0.100E+01
6	0.300E+00	0.100E+01
7	0.300E+00	0.100E+01
8	0.300E+00	0.100E+01
9	0.300E+00	0.100E+01
10	0.300E+00	0.100E+01
11	0.300E+00	0.100E+01
12	0.300E+00	0.100E+01
13	0.300E+00	0.100E+01
14	0.300E+00	0.100E+01
15	0.400E+00	0.100E+01
16	0.800E+00	0.100E+01
17	0.300E+00	0.100E+01
18	0.300E+00	0.100E+01
19	0.300E+00	0.100E+01
20	0.300E+00	0.100E+01
21	0.300E+00	0.100E+01
22	0.300E+00	0.100E+01
23	0.300E+00	0.100E+01
24	0.400E+00	0.100E+01
25	0.300E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 14 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.000	Kips
FXX =	0.000	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYY =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	96.7503	0.0000	0.0000
2	96.7504	0.0000	0.0000
3	96.7503	0.0000	0.0000
4	96.7503	0.0000	0.0000
5	96.7504	0.0001	0.0000
6	96.7503	0.0000	0.0000
7	96.7503	0.0000	0.0000
8	96.7503	0.0000	0.0000
9	96.7503	0.0000	0.0000

8 Lancaster.out

10	96.7506	0.0000	0.0000
11	96.7504	0.0000	0.0000
12	96.7504	0.0000	0.0000
13	96.7503	0.0000	0.0000
14	96.7503	0.0000	0.0000
15	96.7503	0.0000	0.0000
16	96.7503	0.0000	0.0000
17	96.7503	0.0000	0.0000
18	96.7503	0.0000	0.0000
19	96.7504	-0.0001	0.0000
20	96.7503	0.0000	0.0000
21	96.7503	0.0000	0.0000
22	96.7504	0.0000	0.0000
23	96.7503	0.0000	0.0000
24	96.7503	0.0000	0.0000
25	96.7503	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1

Maximum = 0.0000E+00

Minimum = 0.0000E+00

Steel Strains for Section # 1

Steel type = 4 (For Description see Users Manual)

Maximum = 0.1247E-01

Minimum = -0.1247E-01

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)

X Direction	=	34.9653	Kips
Y Direction	=	0.0000	Kips
Z Direction	=	0.0000	Kips
Sum of Tip Forces	=	0.0000	Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	0.44165E-12	-0.76044E-12
2	0.36826E-12	-0.98255E-14
3	0.28577E-12	-0.57793E-12
4	0.36435E-12	-0.43091E-12
5	0.79962E-12	-0.33251E-13
6	-0.32691E-14	-0.16550E-11
7	-0.30816E-14	-0.16808E-11
8	-0.30831E-14	-0.16250E-11
9	-0.38404E-14	-0.16702E-11
10	-0.11648E-14	-0.17289E-11
11	-0.23495E-14	-0.16627E-11
12	-0.36473E-14	-0.21174E-11
13	-0.48325E-14	-0.12372E-11

8 Lancaster.out

14	-0.61130E-15	-0.13002E-11
15	-0.39309E-14	-0.13625E-11
16	-0.15724E-14	-0.15090E-11
17	-0.45276E-14	-0.13655E-11
18	0.12441E-13	-0.14612E-11
19	-0.33598E-14	-0.14444E-11
20	-0.17714E-14	-0.13483E-11
21	-0.24427E-14	-0.16565E-11
22	-0.22586E-14	-0.14374E-11
23	-0.44773E-14	-0.13990E-11
24	-0.21264E-14	-0.13294E-11
25	-0.26050E-14	-0.14102E-11

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.13684E+01	-0.54256E+01
2	0.13684E+01	-0.54257E+01
3	0.13684E+01	-0.54257E+01
4	0.14746E+01	-0.46526E+01
5	0.13684E+01	-0.54257E+01
6	0.13684E+01	-0.54256E+01
7	0.13684E+01	-0.54257E+01
8	0.13684E+01	-0.54257E+01
9	0.13684E+01	-0.54256E+01
10	0.13684E+01	-0.54257E+01
11	0.13684E+01	-0.54257E+01
12	0.13684E+01	-0.54256E+01
13	0.13684E+01	-0.54257E+01
14	0.13684E+01	-0.54257E+01
15	0.14746E+01	-0.46525E+01
16	0.18393E+01	-0.53952E+01
17	0.13684E+01	-0.54257E+01
18	0.13684E+01	-0.54257E+01
19	0.13684E+01	-0.54257E+01
20	0.13684E+01	-0.54257E+01
21	0.13684E+01	-0.54256E+01
22	0.13684E+01	-0.54256E+01
23	0.13684E+01	-0.54257E+01
24	0.14746E+01	-0.46526E+01
25	0.13684E+01	-0.54257E+01

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.12894E-04	-0.42670E-05
2	0.98500E-05	-0.32597E-05
3	0.11890E-04	-0.39349E-05
4	0.97894E-06	-0.32397E-06
5	0.15255E-04	-0.50484E-05
6	0.95338E-05	-0.31551E-05
7	0.34612E-05	-0.11454E-05
8	0.75776E-05	-0.25077E-05
9	0.37461E-05	-0.12397E-05
10	0.56727E-09	-0.17142E-08
11	0.32337E-08	-0.10701E-08
12	0.81811E-08	-0.27074E-08
13	0.18076E-07	-0.59821E-08
14	0.27972E-07	-0.92569E-08

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15	0.32919E-07	-0.10894E-07
16	0.37867E-07	-0.12532E-07
17	0.24990E-05	-0.75514E-05
18	0.12245E-05	-0.37001E-05
19	0.50430E-05	-0.15239E-04
20	0.31431E-05	-0.94977E-05
21	0.11269E-05	-0.34052E-05
22	0.32576E-05	-0.98435E-05
23	0.39229E-05	-0.11854E-04
24	0.30218E-06	-0.91310E-06
25	0.42550E-05	-0.12858E-04

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	631	0.21900E+02	0.1191E-04	0.14500E+02	-0.3580E-04
2	651	0.21900E+02	0.9095E-05	0.14500E+02	-0.2735E-04
3	671	0.21900E+02	0.1098E-04	0.18200E+02	-0.3301E-04
4	691	0.21900E+02	0.9039E-06	0.18200E+02	-0.2718E-05
5	711	0.21900E+02	0.1409E-04	0.14500E+02	-0.4236E-04
6	731	0.21900E+02	0.8803E-05	0.14500E+02	-0.2647E-04
7	751	0.21900E+02	0.3196E-05	0.18200E+02	-0.9610E-05
8	771	0.21900E+02	0.6997E-05	0.18200E+02	-0.2104E-04
9	791	0.21900E+02	0.3459E-05	0.18200E+02	-0.1040E-04
10	810	0.18200E+02	0.4760E-08	0.18200E+02	-0.1583E-08
11	831	0.21900E+02	0.2986E-08	0.18200E+02	-0.8979E-08
12	851	0.21900E+02	0.7554E-08	0.18200E+02	-0.2272E-07
13	871	0.21900E+02	0.1669E-07	0.14500E+02	-0.5019E-07
14	891	0.21900E+02	0.2583E-07	0.14500E+02	-0.7767E-07
15	911	0.21900E+02	0.3040E-07	0.18200E+02	-0.9141E-07
16	931	0.21900E+02	0.3496E-07	0.18200E+02	-0.1051E-06
17	950	0.18200E+02	0.2097E-04	0.21900E+02	-0.6972E-05
18	969	0.14500E+02	0.1027E-04	0.18200E+02	-0.3416E-05
19	990	0.18200E+02	0.4231E-04	0.18200E+02	-0.1407E-04
20	1010	0.18200E+02	0.2637E-04	0.18200E+02	-0.8770E-05
21	1030	0.18200E+02	0.9455E-05	0.18200E+02	-0.3144E-05
22	1050	0.18200E+02	0.2733E-04	0.18200E+02	-0.9089E-05
23	1069	0.14500E+02	0.3291E-04	0.18200E+02	-0.1095E-04
24	1089	0.14500E+02	0.2535E-05	0.18200E+02	-0.8431E-06
25	1110	0.18200E+02	0.3570E-04	0.18200E+02	-0.1187E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	634	0.33000E+02	3.588	0.21900E+02	-23.80
2	653	0.29300E+02	3.588	0.21900E+02	-23.80
3	674	0.33000E+02	3.588	0.21900E+02	-23.80
4	694	0.33000E+02	3.683	0.21900E+02	-25.37
5	713	0.29300E+02	3.588	0.21900E+02	-23.80
6	733	0.29300E+02	3.588	0.21900E+02	-23.80
7	753	0.29300E+02	3.588	0.21900E+02	-23.80
8	774	0.33000E+02	3.588	0.21900E+02	-23.80
9	794	0.33000E+02	3.588	0.21900E+02	-23.80
10	814	0.33000E+02	3.588	0.21900E+02	-23.80
11	833	0.29300E+02	3.588	0.21900E+02	-23.80
12	854	0.33000E+02	3.588	0.21900E+02	-23.80
13	874	0.33000E+02	3.588	0.21900E+02	-23.80

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14	894	0.33000E+02	3.588	0.21900E+02	-23.80
15	914	0.33000E+02	3.683	0.21900E+02	-25.37
16	934	0.33000E+02	0.9805	0.21900E+02	-30.53
17	954	0.33000E+02	3.588	0.21900E+02	-23.80
18	973	0.29300E+02	3.588	0.21900E+02	-23.80
19	994	0.33000E+02	3.588	0.21900E+02	-23.80
20	1014	0.33000E+02	3.588	0.21900E+02	-23.80
21	1034	0.33000E+02	3.588	0.21900E+02	-23.80
22	1053	0.29300E+02	3.588	0.21900E+02	-23.80
23	1074	0.33000E+02	3.588	0.21900E+02	-23.80
24	1094	0.33000E+02	3.683	0.21900E+02	-25.37
25	1114	0.33000E+02	3.588	0.21900E+02	-23.80

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXF (Kip)	FYY (Kip)	FZZ (Kip)	MXF (Kip)	MYF (Kip)	MZF (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.7996E-12 Kip	1	0	5
Min Axial Force	-0.2117E-11 Kip	1	0	12
Max Shear in 2 Direction	0.1839E+01 Kip	1	0	16
Min Shear in 2 Direction	-0.5426E+01 Kip	1	0	11
Max Shear in 3 Direction	0.1525E-04 Kip	1	0	5
Min Shear in 3 Direction	-0.1524E-04 Kip	1	0	19
Max Moment about 2 Axis	0.4231E-04 Kip-ft	1	0	19
Min Moment about 2 Axis	-0.4236E-04 Kip-ft	1	0	5
Max Moment About 3 Axis	0.3683E+01 Kip-ft	1	0	24
Min Moment About 3 Axis	-0.3053E+02 Kip-ft	1	0	16
Max Torsional Force	0.2263E-04 Kip-ft	1	0	22
Min Torsional Force	-0.2265E-04 Kip-ft	1	0	2
Max Demand/Capacity Ratio	0.5789E+00	1	0	16

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.0000E+00 Kip	1	0	1
Min Axial Soil Force	0.0000E+00 Kip	1	0	1
Max Lateral Force in X dir	0.3585E+01 Kip	1	0	11
Min Lateral Force in X dir	-0.6556E+01 Kip	1	0	10
Max Lateral Force in Y dir	0.6769E-04 Kip	1	0	19
Min Lateral Force in Y dir	-0.6382E-04 Kip	1	0	1
Max Torsional Soil Force	0.2329E-03 Kip-ft	1	0	2

Maximum/Minimum Pile Displacements

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Max Axial Displacement	0.3088E-13 in	1	0	2
Min Axial Displacement	0.2193E-13 in	1	0	24
Max Displacement in X	0.9675E+02 in	1	0	10
Min Displacement in X	0.9675E+02 in	1	0	16
Max Displacement in Y	0.5103E-04 in	1	0	5
Min Displacement in Y	-0.5097E-04 in	1	0	19

Model Data

- Global Data
 - Problem
 - Analysis
 - AASHTO
 - Dynamics
 - Pushover
- Pier Data
 - Pile Cap
 - Pile
 - Soil
 - Pier
 - X-Members
 - Load
 - Springs
 - Discrete M
 - Retained S
- Bridge Data
 - Bridge
 - Span Load

Problem

- Problem Type
- ☐ General Pier
 - ☒ Pile and Cap Only
 - ☐ Single Pile
 - ☐ High Mast Light/S
 - ☐ Retaining Wall
 - ☐ Sound Wall
 - ☐ Stiffness
 - ☐ Pile Bent
 - ☐ Column Analysis
 - ☐ Bridge (Multiple P

Project Data

Client: NJDOT

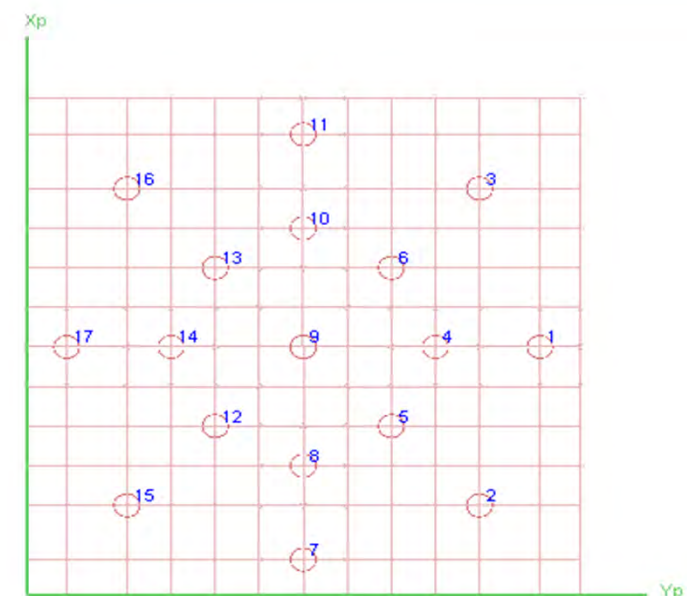
Project Name: Fiberglass Composite Materials

Project Manager: TCNJ

Date: 01/21/16 Computed: AR

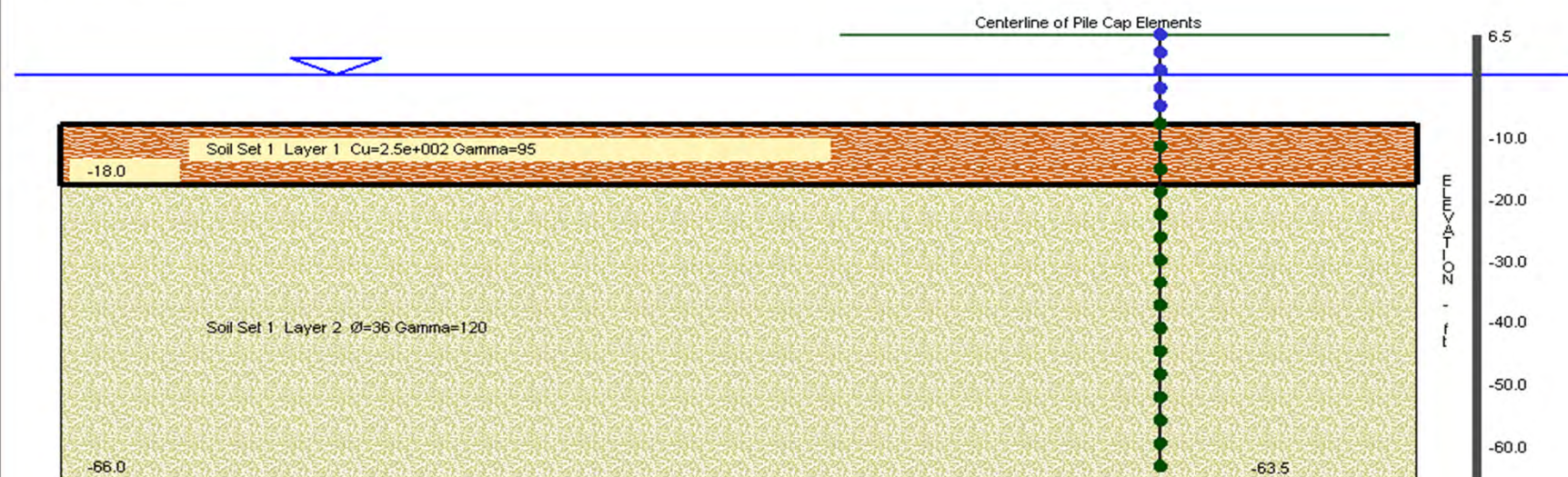
Project Description: Project No. 2014-15-02

Pile Edit - Pile Data/Batter

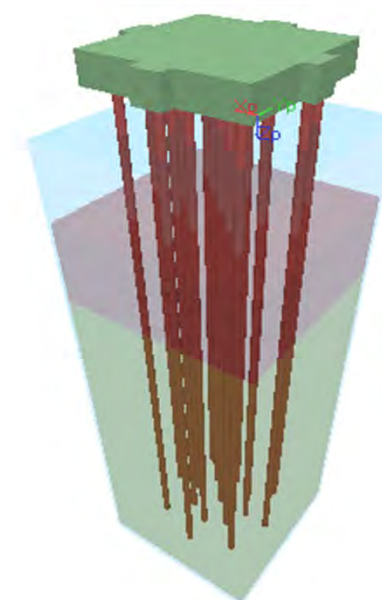


Soil Edit - Soil Set 1

Pile 1, Pile Type 1



3D View



Global Axes



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 2 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=0 T=0 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=1 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 P= 2 F= 0,0,0
I= 200 T= 0.1 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 70 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 7 -71 -71 -70 0 70 \
70 71 0 0 0 \
0 0 0 0 0
-0.2 -0.02 -0.0175 0 0.0175 \
0.02 0.2 0 0 0 \
0 0 0 0 0 Y= 0.01742
NL= 0 NG= 0 D= 10.75 V= 0 S= 150 TH= 0.145 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
13 13 1 1 : NPX, NPY, GSX, GSY
16 24 17.5 17.5 17.5 17.5 \
17.5 17.5 17.5 17.5 24 16 \

16 24 17.5 17.5 17.5 17.5 \
17.5 17.5 17.5 17.5 24 16 \

0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.4 0.8
0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.4 0.8
:
MISSING
152 : number of missing piles
1 1
2 1
3 1
4 1

```

10 Lancaster.in

5 1
6 1
7 1
8 1
9 1
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3 12

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12 13
13 13
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 0 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 0 95 250 0.02 0 0.6 0.25 175
36 100 120 0 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 0 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 0
:
REMOVE
1 1
2 1
3 1
4 1
5 1
8 1
9 1
10 1
11 1
12 1
1 2
12 2
1 3
12 3
1 4
12 4
1 5
12 5
1 8

```

10 Lancaster.in

```
12 8
1 9
12 9
1 10
12 10
1 11
12 11
1 12
2 12
3 12
4 12
5 12
8 12
9 12
10 12
11 12
12 12
:
LOAD
90 L= 1 F= 40 0 0 0 0 0
:
PADBC
:
```

```
!-----!
!
!   The University of Florida, Florida Department
!   of Transportation, Drs. Marc Hoit, Mike McVay
!   Cliff Hays, Mark Williams, Petros Christou, and
!   Jae H. Chung
!   disclaim any warranty, expressed or implied,
!   including but not limited to, any implied
!   warranty of fitness for a particular purpose
!   or accuracy of the FB-Pier software
!   The developers shall not be liable for any damages
!   incurred through the use of FB-MultiPier
!
!-----!
```

```
!
!   :::: F B - M U L T I P I E R ::::
!   FB-MultiPier Version 4.17
!
!-----!
```

```
!
!   Written by Marc Hoit, Mike McVay, Cliff Hays
!   Mark Williams, Petros Christou, Jae H. Chung.
!
!-----!
```

```
!   Civil & Coastal Engineering, University of Florida
!   Supported by Florida Department of Transportation
!   and the Federal Highway Administration
!
!-----!
```

```
!   The program calculates the Response
!   of the Bridge Pier Pile Soil Structures
!
!-----!
```

```
!   The Analysis includes PreLoad, Static,
!   Transient Dynamic or Push Over
!
!-----!
```

```
!   The Program Handles NonLinear Soil Behavior,
!   Linear Pile Cap and Linear and NonLinear Piles and Piers
!
!-----!
```

```
!   Contact: Bridge Software Institute for Support
!   HTTP://BSI-WEB.CE.UFL.EDU
!
!-----!
```

```
*****
*                               *
*   ANALYSIS RESULTS           *
*                               *
*****
```

```
*****
*   RESULTS FOR LOAD CASE #      1  *
*****
```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

PILE#	X-PYM	Y-PYM
1	0.300E+00	0.100E+01
2	0.300E+00	0.100E+01
3	0.400E+00	0.100E+01
4	0.300E+00	0.100E+01
5	0.300E+00	0.100E+01
6	0.300E+00	0.100E+01
7	0.300E+00	0.100E+01
8	0.300E+00	0.100E+01
9	0.300E+00	0.100E+01
10	0.300E+00	0.100E+01
11	0.800E+00	0.100E+01
12	0.300E+00	0.100E+01
13	0.300E+00	0.100E+01
14	0.300E+00	0.100E+01
15	0.300E+00	0.100E+01
16	0.400E+00	0.100E+01
17	0.300E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 12 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.000	Kips
FXX =	0.049	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYY =	0.000	Kip-in
MZZ =	0.000	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	81.6013	0.0000	0.0000
2	81.6013	0.0000	0.0000
3	81.6012	0.0000	0.0000
4	81.6013	0.0000	0.0000
5	81.6013	0.0000	0.0000
6	81.6012	0.0000	0.0000
7	81.6016	0.0000	0.0000
8	81.6013	0.0000	0.0000
9	81.6013	0.0000	0.0000
10	81.6012	0.0000	0.0000
11	81.6012	0.0000	0.0000
12	81.6013	0.0000	0.0000
13	81.6012	0.0000	0.0000
14	81.6013	0.0000	0.0000
15	81.6013	0.0000	0.0000
16	81.6012	0.0000	0.0000
17	81.6013	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1

Maximum = 0.0000E+00

Minimum = 0.0000E+00

Steel Strains for Section # 1

Steel type = 4 (For Description see Users Manual)

Maximum = 0.1131E-01

Minimum = -0.1131E-01

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)

X Direction	=	39.9276	Kips
Y Direction	=	0.0001	Kips
Z Direction	=	0.0000	Kips
Sum of Tip Forces	=	0.0000	Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	-0.75608E-14	-0.41924E-11
2	0.34844E-12	-0.58895E-12
3	0.44781E-11	-0.11523E-13
4	-0.29743E-14	-0.60417E-11
5	0.55650E-12	-0.61542E-12
6	-0.65431E-14	-0.24129E-11
7	0.10518E-11	-0.45036E-12
8	0.11655E-11	-0.29504E-12
9	-0.38851E-14	-0.76522E-11
10	0.34964E-12	-0.12665E-11
11	0.52447E-11	-0.92951E-14
12	0.28866E-13	-0.21455E-12
13	-0.68767E-14	-0.43293E-11
14	0.26906E-12	-0.13959E-11
15	0.10113E-11	-0.20151E-12
16	-0.38936E-14	-0.14998E-11
17	0.13087E-12	-0.10206E-11

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.22948E+01	-0.10036E+02
2	0.22948E+01	-0.10036E+02
3	0.24542E+01	-0.10208E+02
4	0.22948E+01	-0.10036E+02
5	0.22948E+01	-0.10036E+02
6	0.22948E+01	-0.10036E+02
7	0.22948E+01	-0.10036E+02
8	0.22948E+01	-0.10036E+02

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9	0.22948E+01	-0.10036E+02
10	0.22948E+01	-0.10036E+02
11	0.29648E+01	-0.77526E+01
12	0.22948E+01	-0.10036E+02
13	0.22948E+01	-0.10036E+02
14	0.22948E+01	-0.10036E+02
15	0.22948E+01	-0.10036E+02
16	0.24542E+01	-0.10208E+02
17	0.22948E+01	-0.10036E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.31668E-04	-0.10399E-04
2	0.13237E-04	-0.43470E-05
3	0.47823E-05	-0.15704E-05
4	0.25337E-04	-0.83203E-05
5	0.29091E-04	-0.95532E-05
6	0.11220E-04	-0.36844E-05
7	0.66079E-06	-0.21699E-06
8	0.37643E-06	-0.12362E-06
9	0.16705E-07	-0.54856E-08
10	0.11264E-06	-0.34302E-06
11	0.20602E-06	-0.62738E-06
12	0.93847E-05	-0.28578E-04
13	0.38309E-05	-0.11666E-04
14	0.83093E-05	-0.25304E-04
15	0.40210E-05	-0.12245E-04
16	0.18745E-05	-0.57081E-05
17	0.10388E-04	-0.31635E-04

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	630	0.18200E+02	0.2918E-04	0.14500E+02	-0.8799E-04
2	650	0.18200E+02	0.1220E-04	0.14500E+02	-0.3678E-04
3	670	0.18200E+02	0.4407E-05	0.14500E+02	-0.1329E-04
4	690	0.18200E+02	0.2335E-04	0.14500E+02	-0.7040E-04
5	710	0.18200E+02	0.2681E-04	0.14500E+02	-0.8083E-04
6	731	0.21900E+02	0.1034E-04	0.18200E+02	-0.3117E-04
7	750	0.18200E+02	0.6090E-06	0.14500E+02	-0.1836E-05
8	770	0.18200E+02	0.3469E-06	0.14500E+02	-0.1046E-05
9	790	0.18200E+02	0.1539E-07	0.14500E+02	-0.4641E-07
10	810	0.18200E+02	0.9531E-06	0.21900E+02	-0.3161E-06
11	830	0.18200E+02	0.1743E-05	0.21900E+02	-0.5782E-06
12	850	0.18200E+02	0.7940E-04	0.21900E+02	-0.2634E-04
13	870	0.18200E+02	0.3241E-04	0.21900E+02	-0.1075E-04
14	890	0.18200E+02	0.7030E-04	0.21900E+02	-0.2332E-04
15	910	0.18200E+02	0.3402E-04	0.21900E+02	-0.1128E-04
16	929	0.14500E+02	0.1586E-04	0.21900E+02	-0.5260E-05
17	950	0.18200E+02	0.8790E-04	0.21900E+02	-0.2915E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
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10 Lancaster.out

1	634	0.33000E+02	2.075	0.25600E+02	-42.40
2	655	0.36700E+02	2.075	0.25600E+02	-42.40
3	674	0.33000E+02	2.926	0.25600E+02	-43.27
4	695	0.36700E+02	2.075	0.25600E+02	-42.40
5	715	0.36700E+02	2.075	0.25600E+02	-42.40
6	735	0.36700E+02	2.075	0.25600E+02	-42.40
7	755	0.36700E+02	2.075	0.25600E+02	-42.40
8	775	0.36700E+02	2.075	0.25600E+02	-42.40
9	795	0.36700E+02	2.075	0.25600E+02	-42.40
10	814	0.33000E+02	2.075	0.25600E+02	-42.40
11	834	0.33000E+02	6.077	0.21900E+02	-50.28
12	855	0.36700E+02	2.075	0.25600E+02	-42.40
13	874	0.33000E+02	2.075	0.25600E+02	-42.40
14	895	0.36700E+02	2.075	0.25600E+02	-42.40
15	914	0.33000E+02	2.075	0.25600E+02	-42.40
16	934	0.33000E+02	2.926	0.25600E+02	-43.27
17	954	0.33000E+02	2.075	0.25600E+02	-42.40

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.5245E-11 Kip	1	0	11
Min Axial Force	-0.7652E-11 Kip	1	0	9
Max Shear in 2 Direction	0.2965E+01 Kip	1	0	11
Min Shear in 2 Direction	-0.1021E+02 Kip	1	0	3
Max Shear in 3 Direction	0.3167E-04 Kip	1	0	1
Min Shear in 3 Direction	-0.3163E-04 Kip	1	0	17
Max Moment about 2 Axis	0.8790E-04 Kip-ft	1	0	17
Min Moment about 2 Axis	-0.8799E-04 Kip-ft	1	0	1
Max Moment About 3 Axis	0.6077E+01 Kip-ft	1	0	11
Min Moment About 3 Axis	-0.5028E+02 Kip-ft	1	0	11
Max Torsional Force	0.5040E-04 Kip-ft	1	0	15
Min Torsional Force	-0.4988E-04 Kip-ft	1	0	2
Max Demand/Capacity Ratio	0.5209E+00	1	0	11

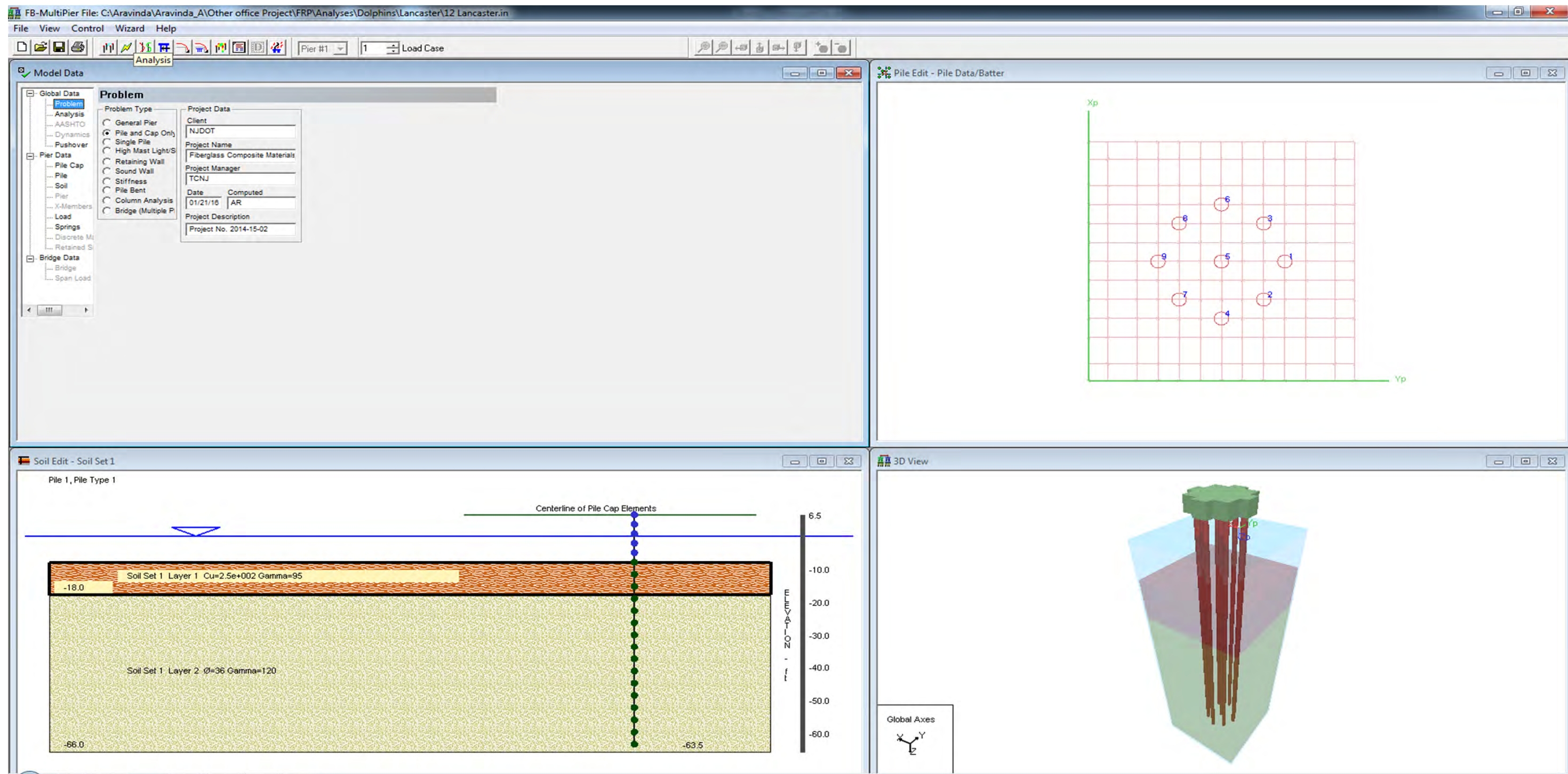
Maximum/Minimum Soil Forces

Max Axial Soil Force	0.0000E+00 Kip	1	0	1
Min Axial Soil Force	0.0000E+00 Kip	1	0	1
Max Lateral Force in X dir	0.8688E+01 Kip	1	0	15
Min Lateral Force in X dir	-0.1078E+02 Kip	1	0	16
Max Lateral Force in Y dir	0.7812E-04 Kip	1	0	12

	10 Lancaster.out			
Min Lateral Force in Y dir	-0.7901E-04 Kip	1	0	5
Max Torsional Soil Force	0.4843E-03 Kip-ft	1	0	2

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.2959E-12 in	1	0	7
Min Axial Displacement	-0.6974E-13 in	1	0	11
Max Displacement in X	0.8160E+02 in	1	0	7
Min Displacement in X	0.8160E+02 in	1	0	11
Max Displacement in Y	0.4664E-04 in	1	0	1
Min Displacement in Y	-0.4659E-04 in	1	0	17



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 1 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=0 T=0 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=1 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 0,0,0
I= 200 T= 0.1 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 70 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 7 -71 -71 -70 0 70 \
71 71 0 0 0 \
0 0 0 0 0
-0.2 -0.02 -0.0175 0 0.0175 \
0.02 0.2 0 0 0 \
0 0 0 0 0 Y= 0.01742
NL= 0 NG= 0 D= 12.7 V= 0 S= 150 TH= 0.175 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
13 13 1 1 : NPX, NPY, GSX, GSY
16 24 17.5 17.5 17.5 17.5 \
17.5 17.5 17.5 17.5 24 16 \

16 24 17.5 17.5 17.5 17.5 \
17.5 17.5 17.5 17.5 24 16 \

0.3 0.3 0.3 0.4 0.8
0.3 0.3 0.3 0.4 0.8
:
MISSING
160 : number of missing piles
1 1
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4 1

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12 Lancaster.in

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12 Lancaster.in

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12 Lancaster.in

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:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 0 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 0 95 250 0.02 0 0.6 0.25 175
36 100 120 0 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 0 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 0
:
REMOVE
1 1
2 1
3 1
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6 1
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12 Lancaster.in

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12 Lancaster.in

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:
LOAD
87 L= 1 F= 35 0 0 0 0 0
:
PADBC
:
```

```
!-----!
!
!   The University of Florida, Florida Department
!   of Transportation, Drs. Marc Hoit, Mike McVay
!   Cliff Hays, Mark Williams, Petros Christou, and
!   Jae H. Chung
!   disclaim any warranty, expressed or implied,
!   including but not limited to, any implied
!   warranty of fitness for a particular purpose
!   or accuracy of the FB-Pier software
!   The developers shall not be liable for any damages
!   incurred through the use of FB-MultiPier
!
!-----!
```

```
!
!   :::: F B - M U L T I P I E R ::::
!   FB-MultiPier Version 4.17
!
!-----!
```

```
!
!   Written by Marc Hoit, Mike McVay, Cliff Hays
!   Mark Williams, Petros Christou, Jae H. Chung.
!
!-----!
```

```
!   Civil & Coastal Engineering, University of Florida
!   Supported by Florida Department of Transportation
!   and the Federal Highway Administration
!
!-----!
```

```
!   The program calculates the Response
!   of the Bridge Pier Pile Soil Structures
!
!-----!
```

```
!   The Analysis includes PreLoad, Static,
!   Transient Dynamic or Push Over
!
!-----!
```

```
!   The Program Handles NonLinear Soil Behavior,
!   Linear Pile Cap and Linear and NonLinear Piles and Piers
!
!-----!
```

```
!   Contact: Bridge Software Institute for Support
!   HTTP://BSI-WEB.CE.UFL.EDU
!
!-----!
```

```
*****
*
*   ANALYSIS RESULTS   *
*
*****
```

```
*****
*   RESULTS FOR LOAD CASE #      1   *
*****
```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

PILE#	X-PYM	Y-PYM
1	0.300E+00	0.100E+01
2	0.300E+00	0.100E+01
3	0.400E+00	0.100E+01
4	0.300E+00	0.100E+01
5	0.300E+00	0.100E+01
6	0.800E+00	0.100E+01
7	0.300E+00	0.100E+01
8	0.400E+00	0.100E+01
9	0.300E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 15 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ =	0.000	Kips
FXX =	0.000	Kips
FYY =	0.000	Kips
MXX =	0.000	Kip-in
MYX =	0.000	Kip-in
MZZ =	0.074	Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	78.9762	0.0001	0.0000
2	78.9762	0.0001	0.0000
3	78.9761	0.0000	0.0000
4	78.9764	0.0000	0.0000
5	78.9762	0.0000	0.0000
6	78.9761	0.0000	0.0000
7	78.9762	-0.0001	0.0000
8	78.9761	0.0000	0.0000
9	78.9762	-0.0001	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1
 Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1
 Steel type = 4 (For Description see Users Manual)
 Maximum = 0.1160E-01
 Minimum = -0.1160E-01

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
(Sum of NF+FF Soil Spring Loads)

X Direction	=	34.9345	Kips
Y Direction	=	-0.0001	Kips
Z Direction	=	0.0000	Kips
Sum of Tip Forces	=	0.0000	Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	-0.58938E-14	-0.82027E-11
2	0.35205E-12	-0.79881E-12
3	0.26935E-11	-0.98033E-13
4	0.32464E-11	-0.97367E-13
5	0.22051E-11	-0.42133E-13
6	0.38961E-12	-0.12650E-11
7	-0.52649E-14	-0.68149E-11
8	0.11429E-11	-0.51803E-12
9	-0.70981E-14	-0.32876E-11

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.36737E+01	-0.10681E+02
2	0.36737E+01	-0.10681E+02
3	0.40402E+01	-0.14988E+02
4	0.36737E+01	-0.10681E+02
5	0.36737E+01	-0.10681E+02
6	0.48776E+01	-0.18861E+02
7	0.36737E+01	-0.10681E+02
8	0.40402E+01	-0.14988E+02
9	0.36737E+01	-0.10681E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.71383E-04	-0.23218E-04
2	0.79447E-04	-0.25841E-04
3	0.22810E-04	-0.74192E-05
4	0.68566E-05	-0.22302E-05
5	0.43155E-07	-0.14037E-07
6	0.22021E-05	-0.67703E-05
7	0.22858E-04	-0.70276E-04
8	0.10346E-04	-0.31808E-04
9	0.23190E-04	-0.71297E-04

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	630	0.18200E+02	0.6563E-04	0.18200E+02	-0.1985E-03

12 Lancaster.out

2	650	0.18200E+02	0.7304E-04	0.14500E+02	-0.2209E-03
3	670	0.18200E+02	0.2097E-04	0.14500E+02	-0.6342E-04
4	690	0.18200E+02	0.6304E-05	0.14500E+02	-0.1907E-04
5	710	0.18200E+02	0.3968E-07	0.14500E+02	-0.1200E-06
6	729	0.14500E+02	0.1883E-04	0.21900E+02	-0.6225E-05
7	750	0.18200E+02	0.1954E-03	0.21900E+02	-0.6461E-04
8	770	0.18200E+02	0.8845E-04	0.21900E+02	-0.2924E-04
9	790	0.18200E+02	0.1982E-03	0.21900E+02	-0.6555E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	634	0.33000E+02	4.718	0.25600E+02	-71.51
2	655	0.36700E+02	4.719	0.21900E+02	-71.51
3	675	0.36700E+02	5.713	0.25600E+02	-76.56
4	694	0.33000E+02	4.718	0.25600E+02	-71.51
5	714	0.33000E+02	4.719	0.25600E+02	-71.51
6	734	0.33000E+02	6.004	0.21900E+02	-84.43
7	754	0.33000E+02	4.719	0.25600E+02	-71.51
8	775	0.36700E+02	5.713	0.21900E+02	-76.56
9	794	0.33000E+02	4.719	0.25600E+02	-71.51

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYY (Kip)	MZZ (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.3246E-11 Kip	1	0	4
Min Axial Force	-0.8203E-11 Kip	1	0	1
Max Shear in 2 Direction	0.4878E+01 Kip	1	0	6
Min Shear in 2 Direction	-0.1886E+02 Kip	1	0	6
Max Shear in 3 Direction	0.7945E-04 Kip	1	0	2
Min Shear in 3 Direction	-0.7130E-04 Kip	1	0	9
Max Moment about 2 Axis	0.1982E-03 Kip-ft	1	0	9
Min Moment about 2 Axis	-0.2209E-03 Kip-ft	1	0	2
Max Moment About 3 Axis	0.6004E+01 Kip-ft	1	0	6
Min Moment About 3 Axis	-0.8443E+02 Kip-ft	1	0	6
Max Torsional Force	0.6164E-04 Kip-ft	1	0	7
Min Torsional Force	-0.5197E-04 Kip-ft	1	0	2
Max Demand/Capacity Ratio	0.5183E+00	1	0	6

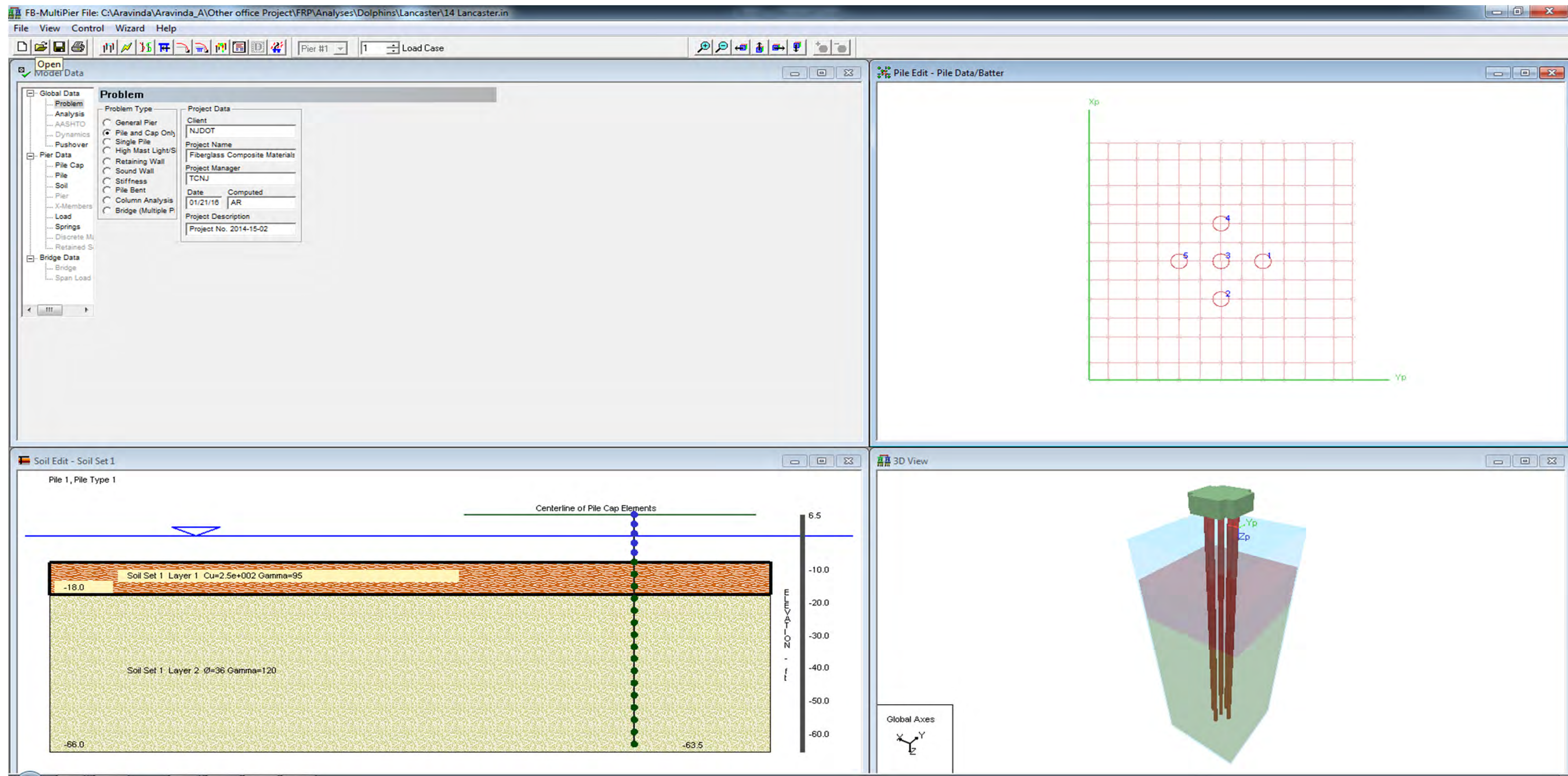
Maximum/Minimum Soil Forces

12 Lancaster.out

Max Axial Soil Force	0.0000E+00 Kip	1	0	1
Min Axial Soil Force	0.0000E+00 Kip	1	0	1
Max Lateral Force in X dir	0.1368E+02 Kip	1	0	6
Min Lateral Force in X dir	-0.2007E+02 Kip	1	0	6
Max Lateral Force in Y dir	0.9343E-04 Kip	1	0	1
Min Lateral Force in Y dir	-0.9786E-04 Kip	1	0	2
Max Torsional Soil Force	0.4713E-03 Kip-ft	1	0	2

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.1036E-12 in	1	0	2
Min Axial Displacement	0.5045E-15 in	1	0	8
Max Displacement in X	0.7898E+02 in	1	0	4
Min Displacement in X	0.7898E+02 in	1	0	6
Max Displacement in Y	0.5891E-04 in	1	0	2
Min Displacement in Y	-0.5286E-04 in	1	0	9



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
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PRINT
L=0 M=0 D=0 O=0 S=0 P=0 T=0 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=1 A=0 E=0 K=0 Q=0 V=0
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CONTROL
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L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 P= 2 F= 0,0,0
I= 200 T= 0.1 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 70 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 7 -62 -61 -61 0 61 \
61 62 0 0 0 \
0 0 0 0 0
-0.2 -0.02 -0.01742 0 0.01742 \
0.02 0.2 0 0 0 \
0 0 0 0 0 Y= 0.01742
NL= 0 NG= 0 D= 14.43 V= 0 S= 80 TH= 0.185 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
13 13 1 1 : NPX, NPY, GSX, GSY
16 24 17.5 17.5 17.5 17.5 \
17.5 17.5 17.5 17.5 24 16 \

16 24 17.5 17.5 17.5 17.5 \
17.5 17.5 17.5 17.5 24 16 \

0.3 0.4 0.8
0.3 0.4 0.8
:
MISSING
164 : number of missing piles
1 1
2 1
3 1
4 1
5 1

```

14 Lancaster.in

6 1
7 1
8 1
9 1
10 1
11 1
12 1
13 1
1 2
2 2
3 2
4 2
5 2
6 2
7 2
8 2
9 2
10 2
11 2
12 2
13 2
1 3
2 3
3 3
4 3
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4 6

14 Lancaster.in

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7 11
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13 11
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2 12
3 12
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11 12
12 12
13 12
1 13
2 13
3 13
4 13
5 13
6 13
7 13
8 13
9 13
10 13
11 13
12 13
13 13
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 0 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8, -18 B=0 S=1 A=0
30 0 95 250 0.02 0 0.6 0.25 175
36 100 120 0 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18, -66 B=0 S=0 A=0
36 100 120 0 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 0
:
REMOVE
1 1
2 1
3 1
4 1
5 1
6 1
7 1
8 1

```

9 1
10 1
11 1
12 1
1 2
2 2
3 2
4 2
5 2
6 2
7 2
8 2
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10 2
11 2
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1 3
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14 Lancaster.in

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4 9
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11 11
12 11
1 12
2 12
3 12
4 12
5 12
6 12
7 12
8 12
9 12
10 12
11 12
12 12
:
LOAD
86 L= 1 F= 28 0 0 0 0 0
:
PADBC
:
```

```
!-----!
!
!   The University of Florida, Florida Department
!   of Transportation, Drs. Marc Hoit, Mike McVay
!   Cliff Hays, Mark Williams, Petros Christou, and
!   Jae H. Chung
!   disclaim any warranty, expressed or implied,
!   including but not limited to, any implied
!   warranty of fitness for a particular purpose
!   or accuracy of the FB-Pier software
!   The developers shall not be liable for any damages
!   incurred through the use of FB-MultiPier
!
!-----!
```

```
!
!   :::: F B - M U L T I P I E R ::::
!   FB-MultiPier Version 4.17
!
!-----!
```

```
!
!   Written by Marc Hoit, Mike McVay, Cliff Hays
!   Mark Williams, Petros Christou, Jae H. Chung.
!
!-----!
```

```
!   Civil & Coastal Engineering, University of Florida
!   Supported by Florida Department of Transportation
!   and the Federal Highway Administration
!
!-----!
```

```
!   The program calculates the Response
!   of the Bridge Pier Pile Soil Structures
!
!-----!
```

```
!   The Analysis includes PreLoad, Static,
!   Transient Dynamic or Push Over
!
!-----!
```

```
!   The Program Handles NonLinear Soil Behavior,
!   Linear Pile Cap and Linear and NonLinear Piles and Piers
!
!-----!
```

```
!   Contact: Bridge Software Institute for Support
!   HTTP://BSI-WEB.CE.UFL.EDU
!
!-----!
```

```
*****
*
*   ANALYSIS RESULTS   *
*
*****
```

```
*****
*   RESULTS FOR LOAD CASE #      1   *
*****
```

NOTE : PY Multipliers are applied Lead to Trail row
based on the actual displacement. If there is
no displacement in a Lateral direction they are
defaulted to 1.0. This can happen in Axial Load
and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

14 Lancaster.out

PILE#	X-PYM	Y-PYM
1	0.400E+00	0.100E+01
2	0.300E+00	0.100E+01
3	0.400E+00	0.100E+01
4	0.800E+00	0.100E+01
5	0.400E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 13 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ = 0.000 Kips
 FXX = 0.062 Kips
 FYY = 0.000 Kips
 MXX = 0.000 Kip-in
 MYY = 0.000 Kip-in
 MZZ = 0.000 Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	87.1663	0.0000	0.0000
2	87.1664	0.0000	0.0000
3	87.1663	0.0000	0.0000
4	87.1662	0.0000	0.0000
5	87.1663	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1

Maximum = 0.0000E+00
 Minimum = 0.0000E+00

Steel Strains for Section # 1

Steel type = 4 (For Description see Users Manual)
 Maximum = 0.1387E-01
 Minimum = -0.1387E-01

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)
 X Direction = 28.0745 Kips
 Y Direction = 0.0000 Kips
 Z Direction = 0.0004 Kips
 Sum of Tip Forces = 0.0000 Kips

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Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	-0.17940E-12	-0.23835E-11
2	-0.25898E-12	-0.45417E-11
3	0.11115E-11	-0.51755E-11
4	-0.22576E-12	-0.40008E-11
5	-0.26795E-12	-0.43459E-11

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.54240E+01	-0.15145E+02
2	0.49865E+01	-0.17483E+02
3	0.54240E+01	-0.15147E+02
4	0.67415E+01	-0.27196E+02
5	0.54240E+01	-0.15147E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.86232E-04	-0.27875E-04
2	0.24380E-04	-0.78808E-05
3	0.43628E-07	-0.14103E-07
4	0.78526E-05	-0.24292E-04
5	0.27847E-04	-0.86145E-04

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	631	0.21900E+02	0.7916E-04	0.18200E+02	-0.2399E-03
2	651	0.21900E+02	0.2238E-04	0.14500E+02	-0.6782E-04
3	671	0.21900E+02	0.4005E-07	0.14500E+02	-0.1214E-06
4	689	0.14500E+02	0.6758E-04	0.18200E+02	-0.2230E-04
5	710	0.18200E+02	0.2397E-03	0.18200E+02	-0.7908E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	634	0.33000E+02	5.940	0.25600E+02	-105.6
2	656	0.40400E+02	5.383	0.29300E+02	-101.0
3	674	0.33000E+02	5.947	0.25600E+02	-105.6
4	694	0.33000E+02	7.079	0.25600E+02	-121.3
5	714	0.33000E+02	5.947	0.25600E+02	-105.6

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

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 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
--------	--------------	--------------	--------------	--------------	--------------	--------------

 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

Maximum/Minimum Pile Forces

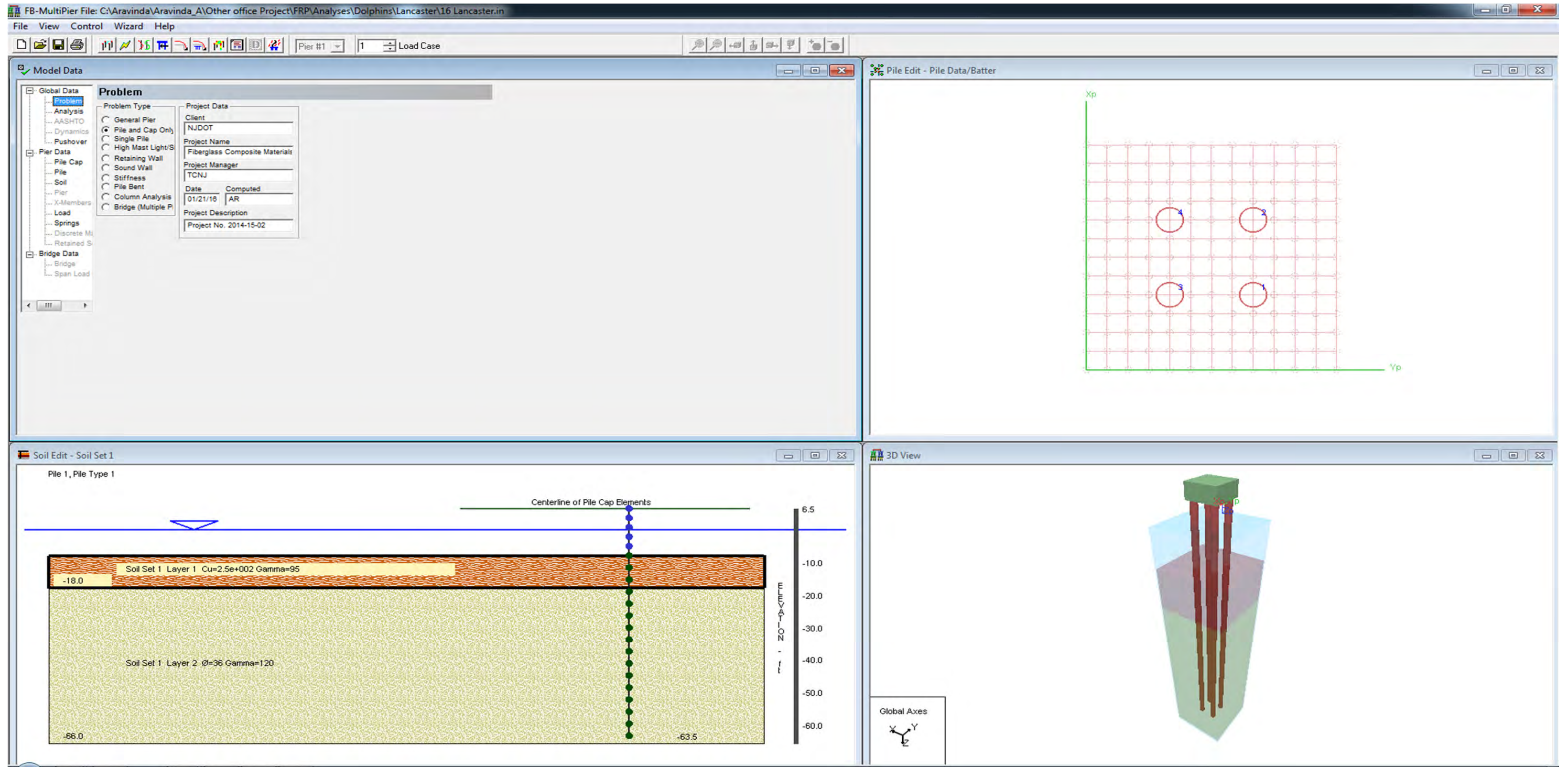
	Value	Load	Comb.	Pile
Max Axial Force	0.1112E-11 Kip	1	0	3
Min Axial Force	-0.5176E-11 Kip	1	0	3
Max Shear in 2 Direction	0.6741E+01 Kip	1	0	4
Min Shear in 2 Direction	-0.2720E+02 Kip	1	0	4
Max Shear in 3 Direction	0.8623E-04 Kip	1	0	1
Min Shear in 3 Direction	-0.8614E-04 Kip	1	0	5
Max Moment about 2 Axis	0.2397E-03 Kip-ft	1	0	5
Min Moment about 2 Axis	-0.2399E-03 Kip-ft	1	0	1
Max Moment About 3 Axis	0.7079E+01 Kip-ft	1	0	4
Min Moment About 3 Axis	-0.1213E+03 Kip-ft	1	0	4
Max Torsional Force	0.7224E-04 Kip-ft	1	0	1
Min Torsional Force	-0.2054E-04 Kip-ft	1	0	5
Max Demand/Capacity Ratio	0.6262E+00	1	0	4

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.8611E-05 Kip	1	0	5
Min Axial Soil Force	0.8680E-07 Kip	1	0	1
Max Lateral Force in X dir	0.2270E+02 Kip	1	0	4
Min Lateral Force in X dir	-0.2422E+02 Kip	1	0	4
Max Lateral Force in Y dir	0.1086E-03 Kip	1	0	5
Min Lateral Force in Y dir	-0.1087E-03 Kip	1	0	1
Max Torsional Soil Force	0.1841E-03 Kip-ft	1	0	5

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.1368E-07 in	1	0	5
Min Axial Displacement	0.5514E-08 in	1	0	1
Max Displacement in X	0.8717E+02 in	1	0	2
Min Displacement in X	0.8717E+02 in	1	0	4
Max Displacement in Y	0.4699E-04 in	1	0	1
Min Displacement in Y	-0.4694E-04 in	1	0	5



```

PROBLEM
Pile And Cap
Units are Kips and Inches
NJDOT
Fiberglass Composite Materials Specification Redevelopment
TCNJ
01/21/16
AR
Project No. 2014-15-02
:
TIME
Analysis Time - 1 second(s)
:
PRINT
L=0 M=0 D=0 O=0 S=0 P=0 T=0 F=1 C=0 B=0 J=0 H=0 I=0 R=0 N=0 \
X=0 G=1 A=0 E=0 K=0 Q=0 V=0
:
CONTROL
1 U= 0 D= 0 S= 0 K= 0 R= 0 N= 17 Z= 0 E= 0 H= 0 P= 0 V=1.0 F= 0 \
L= 0 Y= 0 B= 0 G= 0 A= 1
S= 0 T= 0 0 P= 2 F= 0,0,0
I= 200 T= 0.1 M= 512 X= 0 V= 4.17 L=
:
SWFACT
1 F= 0 0
:
PILE
NSET= 1 N= 17 S= 0 M= 0 NSEG= 1
C Custom
C T=3 D=2 U=0 : nonlinear
K= 1 L= 70 M= 2 \
S= 0,0,0,1
NC= 0 0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
0 0 0 0 0 \
0 0 0 0 0 \
0 0 0 0 0
S4= 7 -55 -54 -54 0 54 \
54 55 0 0 0 \
0 0 0 0 0
-0.2 -0.02 -0.01742 0 0.01742 \
0.02 0.2 0 0 0 \
0 0 0 0 0 Y= 0.01742
NL= 0 NG= 0 D= 16.47 V= 0 S= 80 TH= 0.205 IC= 0 T= 1 HPI= 0 \
BM= 0 X= 0 Z= -1 : (round)
E= 6.5 H= 0 A= 1 S= 5 G= 0 C= 0
13 13 1 1 : NPX, NPY, GSX, GSY
12 12 12 12 12 12 \
12 12 12 12 12 12 \

12 12 12 12 12 12 \
12 12 12 12 12 12 \

0.4 0.8
0.4 0.8
:
MISSING
165 : number of missing piles
1 1
2 1
3 1
4 1

```

16 Lancaster.in

5 1
6 1
7 1
8 1
9 1
10 1
11 1
12 1
13 1
1 2
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7 2
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16 Lancaster.in

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7 13
8 13
9 13
10 13
11 13
12 13
13 13
:
SOIL
NSET= 1 L= 2 R= 2 C= 0 W= 0 O= 0 S= 0 B= 0 \
X= 0 : Nlayers,kcyc
30 0 95 250 0.02 0 0.6 0.25 175 10 \
4 1 1 1 0 0 0 0 0 \
E=-8,-18 B=0 S=1 A=0
30 0 95 250 0.02 0 0.6 0.25 175
36 100 120 0 0 0 12 0.3 525 48 \
2 1 1 1 0 0 0 0 0 \
E=-18,-66 B=0 S=0 A=0
36 100 120 0 0 0 12 0.3 525
12 0.31 100 1 : Soil set 1 tip info
:
SOILSET
:
PILESET
:
CAP
E= 3600 U= 0.2 T= 3 S= 0 O= 0
:
REMOVE
1 1
2 1
3 1
4 1
5 1
6 1

```

7 1
8 1
9 1
10 1
11 1
12 1
1 2
2 2
3 2
4 2
5 2
6 2
7 2
8 2
9 2
10 2
11 2
12 2
1 3
2 3
3 3
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16 Lancaster.in

```
10 9
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9 11
10 11
11 11
12 11
1 12
2 12
3 12
4 12
5 12
6 12
7 12
8 12
9 12
10 12
11 12
12 12
:
LOAD
84 L= 1 F= 31 0 0 0 0 0
:
PADBC
:
```

```

!
! The University of Florida, Florida Department
! of Transportation, Drs. Marc Hoit, Mike McVay
! Cliff Hays, Mark Williams, Petros Christou, and
! Jae H. Chung
! disclaim any warranty, expressed or implied,
! including but not limited to, any implied
! warranty of fitness for a particular purpose
! or accuracy of the FB-Pier software
! The developers shall not be liable for any damages
! incurred through the use of FB-MultiPier
!

```

```

!
! :::: F B - M U L T I P I E R ::::
! FB-MultiPier Version 4.17
!

```

```

!
! Written by Marc Hoit, Mike McVay, Cliff Hays
! Mark Williams, Petros Christou, Jae H. Chung.
!

```

```

!
! Civil & Coastal Engineering, University of Florida
! Supported by Florida Department of Transportation
! and the Federal Highway Administration
!

```

```

!
! The program calculates the Response
! of the Bridge Pier Pile Soil Structures
!

```

```

!
! The Analysis includes PreLoad, Static,
! Transient Dynamic or Push Over
!

```

```

!
! The Program Handles NonLinear Soil Behavior,
! Linear Pile Cap and Linear and NonLinear Piles and Piers
!

```

```

!
! Contact: Bridge Software Institute for Support
! HTTP://BSI-WEB.CE.UFL.EDU
!

```

```

*****
* ANALYSIS OPTIONS *
*****

```

```

Type of Stiffness      = Secant Stiffness
Type of Structure      = Full
Type of Analysis       = Static Analysis

```

```

*****
* PILE SEGMENT INFORMATION DATA *
*****

```

NOTE: The Piles Sets consist of Pile Segments based on the User Input. The program groups all segments from all the different Pile Sets and assigns a reference number to each

The reference number for each segment together with the User Input Pile Set/Segment number is shown below.

Input section properties for each section/segment is also provided below.

The user is advised to double check these numbers

Number of segments found in all Piles (NPSEG) = 1

! -> SECTION DATA FOR SECTION/SEGMENT : 1 !

Input Pile Set Number = 1
Input Pile Set Segment = 1

Section Pile Length (L) = 70.000000 ft

Nonlinear Section/Segment Material Properties

Material Option (MATOPT) = 2
(Please Refer to the Users Guide for Details)

- User Defined Stress Strain Curves

- Tubular Steel Stress Strain Curve

Number of Points Along the Tubular steel Curve = 7

Stress (ksi)	Strain
-0.55000E+02	-0.20000E+00
-0.54000E+02	-0.20000E-01
-0.54000E+02	-0.17420E-01
0.00000E+00	0.00000E+00
0.54000E+02	0.17420E-01
0.54000E+02	0.20000E-01
0.55000E+02	0.20000E+00

- Shape of Section : CIRCULAR

- Steel and Confinement Data

Number of Steel Layers = 0
Section/Segment Diameter = 16.4700 in
Tied/Spiral Reinforcement Flag = 1
(NOTE : Spiral = 1, Tied = 2)
Confinement Flag = 0
(NOTE : None = 0, Confined - Spiral Only = 1, Confined - Shell = 2)
Outer Shell Thickness = 0.205 in

- Total Area of Steel Reinforcement = 0.00 in^2

* PILE SET DATA DESCRIPTION *

NOTE : The piles are organized in pile sets. Each pile set is composed of pile segments that are input by the User. A pile set is attached to each pile in order to describe its composition

List of Piles Sets and Piles

Pile Set	Piles (that are assigned the Pile Set)
1	1, 2, 3, 4

Total Length for Each Pile Set

Pile Set	Length
1	840.00

```
*****
*   INPUT FOR STRUCTURAL ANALYSIS   *
*****
```

```
Number of Joints           = 625
Number of Different Element Types = 3
Number of Load Conditions  = 1
```

```
*****
*   GENERAL LOAD DATA   *
*****
```

The table below shows the Applied Loads for every Load Case. The values in the table represent the magnitude of the Loads in the specified units

- Applied Load							
NODE	LOAD	X	Y	Z	MXX	MYX	MZZ
		(Kips)	(Kips)	(Kips)	(Kip-ft)	(Kip-ft)	(Kip-ft)
84	1	31.00	0.00	0.00	0.00	0.00	0.00

```
*****
*                               *
*   ANALYSIS RESULTS           *
*                               *
*****
```

```
*****
*   RESULTS FOR LOAD CASE #    1   *
*****
```

NOTE : PY Multipliers are applied Lead to Trail row based on the actual displacement. If there is no displacement in a Lateral direction they are defaulted to 1.0. This can happen in Axial Load and one direction lateral load cases

PY Multipliers are Applied to A Pile Group

PILE#	X-PYM	Y-PYM
1	0.400E+00	0.100E+01
2	0.800E+00	0.100E+01
3	0.400E+00	0.100E+01
4	0.800E+00	0.100E+01

 * CONVERGENCE REPORT *

The Solution Converged in 15 Iterations

Summary of Abs Maximum Out-Of-Balance Forces

FZZ = 0.000 Kips
 FXX = 0.065 Kips
 FYY = 0.000 Kips
 MXX = 0.000 Kip-in
 MYY = 0.000 Kip-in
 MZZ = 0.000 Kip-in

Summary of Displacements at Pile Heads

Node	X (in)	Y (in)	Z (in)
1	82.4336	0.0000	0.0000
2	82.4334	0.0000	0.0000
3	82.4336	0.0000	0.0000
4	82.4334	0.0000	0.0000

 * MAXIMUM/MINIMUM STRAINS IN THE PILES *

Concrete Strains for Section # 1

Maximum = 0.0000E+00

Minimum = 0.0000E+00

Steel Strains for Section # 1

Steel type = 4 (For Description see Users Manual)

Maximum = 0.1415E-01

Minimum = -0.1415E-01

SUM OF TOTAL SOIL SPRING LOADS

CHECK: Total Load Carried by the Soil
 (Sum of NF+FF Soil Spring Loads)

X Direction = 30.9056 Kips

Y Direction = 0.0000 Kips

Z Direction = 0.0001 Kips

Sum of Tip Forces = 0.0000 Kips

Summary of Pile Forces for Load CASE 1

1. Axial Force (Kips)

Pile #	Maximum Force	Minimum Force
1	-0.24139E-12	-0.51982E-11

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2	-0.32143E-12	-0.67510E-11
3	0.30052E-11	0.13707E-12
4	0.15006E-13	-0.11467E-10

2. Pile Shear Force in 2 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.68951E+01	-0.23164E+02
2	0.86049E+01	-0.30598E+02
3	0.68951E+01	-0.23164E+02
4	0.86049E+01	-0.30598E+02

3. Pile Shear Force in 3 Direction (Kips)

Pile #	Maximum Shear	Minimum Shear
1	0.42977E-04	-0.13744E-04
2	0.83973E-04	-0.26854E-04
3	0.13745E-04	-0.42980E-04
4	0.26835E-04	-0.83912E-04

4. Bending Moment About 2 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	630	0.18200E+02	0.3935E-04	0.14500E+02	-0.1197E-03
2	651	0.21900E+02	0.7689E-04	0.18200E+02	-0.2338E-03
3	669	0.14500E+02	0.1197E-03	0.21900E+02	-0.3935E-04
4	690	0.18200E+02	0.2336E-03	0.18200E+02	-0.7683E-04

5. Bending Moment About 3 Axis (Kip-ft)

Pile #	Pile Node	At Depth Below Cap	Maximum Moment	At Depth Below Cap	Minimum Moment
1	636	0.40400E+02	8.563	0.25600E+02	-137.4
2	654	0.33000E+02	12.54	0.21900E+02	-159.0
3	676	0.40400E+02	8.563	0.29300E+02	-137.4
4	695	0.36700E+02	12.54	0.21900E+02	-159.0

 * ANALYTICAL PILE CAP - SHELL STRESS RESULTS *

 * DAMPING FORCES *

Node #	FXX (Kip)	FYY (Kip)	FZZ (Kip)	MXX (Kip)	MYX (Kip)	MZZ (Kip)
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 * FINAL MAXIMUMS/MINIMUMS FOR ALL LOAD CASES *
 * PIER # 1 *

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Maximum/Minimum Pile Forces

	Value	Load	Comb.	Pile
Max Axial Force	0.3005E-11 Kip	1	0	3
Min Axial Force	-0.1147E-10 Kip	1	0	4
Max Shear in 2 Direction	0.8605E+01 Kip	1	0	4
Min Shear in 2 Direction	-0.3060E+02 Kip	1	0	2
Max Shear in 3 Direction	0.8397E-04 Kip	1	0	2
Min Shear in 3 Direction	-0.8391E-04 Kip	1	0	4
Max Moment about 2 Axis	0.2336E-03 Kip-ft	1	0	4
Min Moment about 2 Axis	-0.2338E-03 Kip-ft	1	0	2
Max Moment About 3 Axis	0.1254E+02 Kip-ft	1	0	2
Min Moment About 3 Axis	-0.1590E+03 Kip-ft	1	0	4
Max Torsional Force	0.5245E-03 Kip-ft	1	0	3
Min Torsional Force	-0.5245E-03 Kip-ft	1	0	1
Max Demand/Capacity Ratio	0.6412E+00	1	0	4

Maximum/Minimum Soil Forces

Max Axial Soil Force	0.4267E-05 Kip	1	0	2
Min Axial Soil Force	-0.1058E-05 Kip	1	0	3
Max Lateral Force in X dir	0.2683E+02 Kip	1	0	2
Min Lateral Force in X dir	-0.2000E+02 Kip	1	0	3
Max Lateral Force in Y dir	0.1074E-03 Kip	1	0	4
Min Lateral Force in Y dir	-0.1075E-03 Kip	1	0	2
Max Torsional Soil Force	0.4580E-02 Kip-ft	1	0	1

Maximum/Minimum Pile Displacements

Max Axial Displacement	0.6608E-08 in	1	0	2
Min Axial Displacement	-0.1638E-08 in	1	0	3
Max Displacement in X	0.8243E+02 in	1	0	3
Min Displacement in X	0.8243E+02 in	1	0	2
Max Displacement in Y	0.3137E-04 in	1	0	2
Min Displacement in Y	-0.3134E-04 in	1	0	4