BIGFOOT SYSTEMS®
The Original.

Testing:
Vertical Uplift

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ANALYTICAL SERVICES

Testing of Bigfoot Systems® Footing Forms
Vertical Uplift

Conducted By: PSC Analytical Services
Mechanical Testing Services Group

PSC Project No.: 02-03825H

Client: F & S Manufacturing Inc.
R.R. #2, Mahone Bay, NS

Date: April 30, 2002

Scope: The purpose of this testing program was to determine the amount of force required to pull a Bigfoot Systems® Footing Form (The System) vertically from the ground. Previous testing has shown that do to equipment limitations the footing system could not be moved when installed at the proper depth. Therefore in this testing program The Systems were backfilled to a depth that would allow the system to move. The data collected could then be used to calculate the theoretical loads that would apply to a system which had been installed at the appropriate depth.

Test Article Description:

1. 24" Bigfoot Systems® Footing Forms with 8" Construction Tube
2. 24" Bigfoot Systems® Footing Forms with 8" Construction Tube
3. 24" Bigfoot Systems® Footing Forms with 10" Construction Tube
4. 28" Bigfoot Systems® Footing Forms with 12" Construction Tube
5. 28" Bigfoot Systems® Footing Forms with 10" Construction Tube

Installation: The cardboard construction tubes were secured to the footing forms using six one inch wood screws equally spaced around the circumference. The Systems were placed in a trench, approximately three feet deep, on undisturbed soil. The Systems were then backfilled in approximately 18" lifts, tamping between each lift. Figure 1 attached schematically shows the test set-up. The soil on which The Systems were placed and the material used for backfilling consisted primarily of a sandy loam with some stone.

Table I: Installation details.

System Description		Tube Length		
		Above Ground	Below Ground	Total
1.	24" Bigfoot 8" Tube	11 inches	25 inches	36 inches
2.	24" Bigfoot 8" Tube	10 inches	28 inches	38 inches
3.	24" Bigfoot 10" Tube	10 inches	29 inches	39 inches
4.	28" Bigfoot 12" Tube	9¼ inches	31 inches	40¼ inches
5.	28" Bigfoot 10" Tube	8½ inches	25½ inches	34 inches

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The concrete was poured directly into the Systems from the concrete truck in lifts of approximately 24 inches until the construction tubes were completely filled. The concrete was rodded approximately twelve times between lifts. Four pieces of rebar were inserted into each System with an eye being inserted into the top of the column. The concrete used was specified to have a compressive strength of 3500 psi and was a mixture of ¾ inch crushed stone aggregate, standard sand, and type 10 portland cement. The concrete had an approximate slump of 3.

Testing: The concrete was allowed to set up for over a week and then the load tests were conducted. A vertical force was applied to each of the above footing systems using a portable hydraulic ram as shown in Figure 2. The load was measured and recorded using a 50 kip load cell with digital data acquisition capabilities.

Results: The loads required to pull the systems from the ground are given in Table II below.

Table II: Load Measurements

System Description		Load Obtained (lbs)
1.	24" Bigfoot 8" Tube	5700
2.	24" Bigfoot 8" Tube	6100
3.	24" Bigfoot 10" Tube	6100
4.	28" Bigfoot 12" Tube	6600
5.	28" Bigfoot 10" Tube	5200

Verification: THIS IS TO CERTIFY THAT THE ABOVE TESTING WAS PERFORMED ACCORDING TO REQUIREMENTS SET FORTH BY THE CLIENT AND PSC ANALYTICAL SERVICES INC. IN A MANNER CONSISTENT WITH STANDARD PRACTICES.

Verified By: _____

Jeff S. McLeod, P.Eng.
Manager, Mechanical Testing

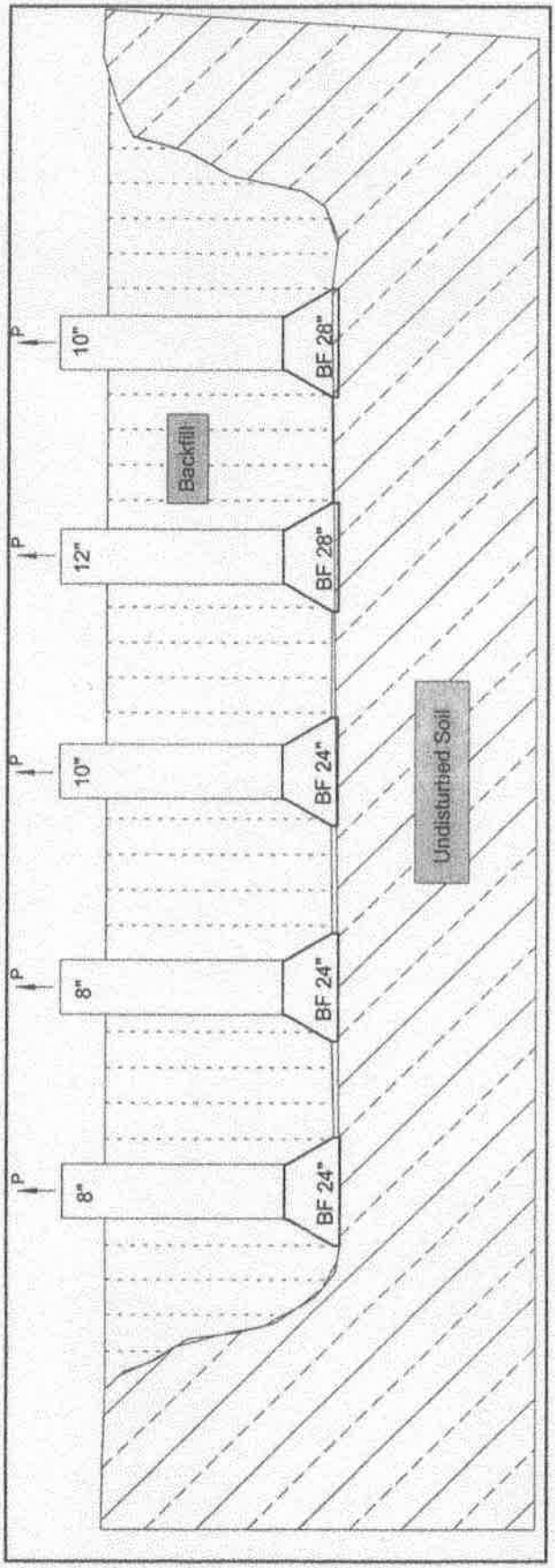

Figure 1:Footing Systems Load Test Set-Up.

Figure 2: Vertical Load Test Set-up.