The Moorings Condominiums
Building 12
325-339 Moorings Cove Drive
Tarpon Springs, FL 34689
B.A.S.I.C. File No.: B2020-018

January 26th, 2021

FINAL REPORT

BASIC ENGINEERING

Bay Area Sinkhole Investigation & Civil Engineering
2601 E. 7th Avenue, Tampa, FL 33605
Ph: (813) 885-4144 | Fx: (813) 885-4166
www.basic-engineering.com

BAY AREA SINKHOLE INVESTIGATION & CIVIL ENGINEERING

2601 East 7th Avenue • Tampa, Florida 33605
Ph: 813-885-4144 • Fx: 813-885-4166

To: The Moorings Condominiums Association
Attn: Karen Cleary, President
450 Moorings Cove Drive
Tarpon Springs, FL 34689

Date: 01/26/2021
Project # B2020-018

Subject: Injection Pin Pile, Compaction and Chemical Grouting
The Moorings Condominiums | Building 12
325-339 Moorings Cove Drive, Tarpon Springs, FL 34689

Dear Ms. Cleary,

We have reviewed a Structural Damage Evaluation and Subsidence Investigation report by SDII Global, (SDII), dated March 7th, 2018, a Geologic/Geotechnical Testing and Evaluation report by Applied Engineering & Geosciences (AEG), dated September 21st, 2018, a Sinkhole Loss Determination report by Structural Engineering and Inspections, Inc, (SEI), dated November 28th, 2018, a Peer Review report by SDII Global, (SDII), dated January 11th, 2019, a Neutral Evaluation report by Andreyev Engineering, Inc., (AEI), dated March 16th, 2020 and field work and engineering design performed by B.A.S.I.C. Engineering.

Based on the aforementioned reports, you have asked us to recommend and monitor a remediation program. B.A.S.I.C. Engineering recommended utilizing a combination of injection pin piles, compaction grouting and chemical grouting points. We have provided you with a Site Plan indicating the location of the injection pin piles, compaction grout and chemical grouting points and their estimated depths of installation. However, we were unable to accurately predict the amount of grout that would be required prior to actual field installation.

Injection Pin Piles are recommended in similar situations whereby the property requires lifting or other foundation support in addition to sealing off the limestone interface to prevent future sinkhole activity from occurring. The installation of the Injection Pin Piles is a process whereby high carbon steel pilings are hydraulically driven into the ground until a predetermined pressure reading is attained or refusal occurs where lifting of the structure takes place. The Injection Pin Piles are then grouted through a patented process allowing grout to be pumped directly at the limestone interface (Figure 12a).

In addition the installation of the Injection Pin Piles, a slump pressure grouting program is recommended as a means of sealing deep openings into underlying cavernous zones, fill in void zones, consolidate/densify the loose soils, prevent downward migration of soil particles and also to provide greater lateral stability to the steel piling. A 4-6 inch slump grout is recommended by B.A.S.I.C. Engineering so that it may be accurately placed below the structure and it may flow through the grout holes and densify soil voids with greatest efficiency.

Lastly, a total of 5,526 lbs. of chemical grout was injected through 104 chemical grout points by Helicon as shown in Figure 12e. Vertical points were pumped at depth beginning at 8', 6', 4' and 2 feet below ground surface until lift of the slab/ground refusal was achieved. Angled points were pumped at depth beginning at 12', 10', 8', 6', 4' and 2 feet below ground surface until lift of the slab/ground refusal was achieved.

It is our opinion that the injection pin piles, compaction grout and chemical grout were installed in accordance with industry standards and are an effective method to fill voids, cracks, fractures and cavities and to stabilize granular material, thus improving the physical properties of soil and rock at The Moorings Condominiums | Building #12. The proven technology utilized by the pier manufacturer and the ability to solve foundation settlement problems using a combination of injection pin piles, compaction grout and chemical grout, has demonstrated success without additional settlement. This report is not a guarantee that sinkhole activity will not continue to exist at the subject property but rather a summary and certification of the work completed by Helicon Foundation Repair Systems, Inc.

We thank you for the opportunity to provide the services to you on this project. We trust that the information provided in this letter is satisfactory. Should you have any questions, or require additional assistance, please do not hesitate to call.

Sincerely,

01/26/2021

Justin D. James, P.E.
Florida P.E. # 60886
C.O.A. # 25869
Attachments

Compaction grouting is the injection of grout into the soil to improve bearing capacity. This is accomplished by using a very viscous (low-mobility), aggregate under high pressure to form grout bulbs, which displace and densify the surrounding soils in a controlled manner through an injection pipe. The upward component of force causing heaving at the surface during compaction grouting usually limits the degree which soil can be compacted, making compaction grouting ineffective for stabilizing upper level soils (approximately the top 15 feet). Therefore, in order to stabilize the uppermost subsurface soils, chemical grouting has also been recommended.

Chemical grouting is a process whereupon a polyurethane grout is injected to fill void spaces and improve the strength of granular soils. Chemical grout behaves like a fluid but reacts with an agent and water and within usually a few seconds forms a solid, expanding to compact the soils similarly to standard compaction grouting but in a more controlled manner.

MONITORING

As requested, we have completed the monitoring of the subsurface injection pin piles, compaction grouting and chemical grouting operations as conducted by Helicon Foundation Repair Systems, Inc., (Helicon). This work was completed utilizing the TMG Injection Pier System, Compaction Grouting and Chemical Grouting. The remediation was started on October 27th, 2020 and completed on December 21st, 2020. A technician from our firm was present during the remediation operations to monitor operations and perform applicable grout slump tests.

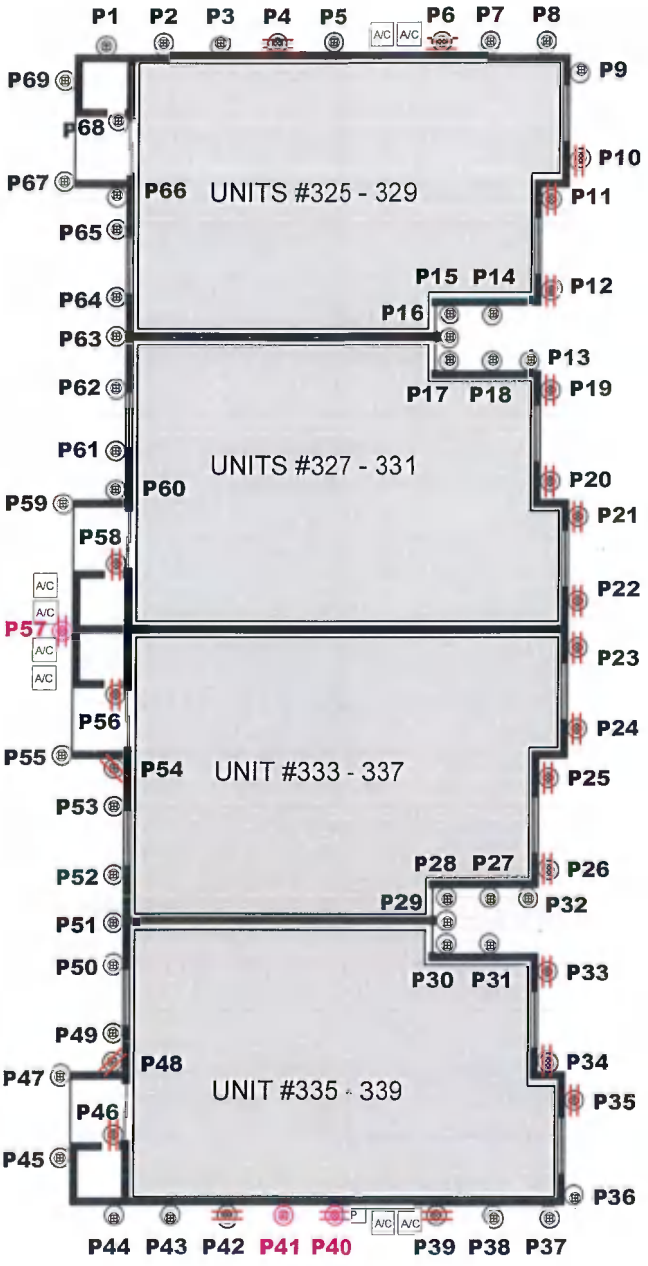
Helicon installed a total of 66 injection pin piles around the property as per our site plan recommendations, as shown in figure 12a. Due to the site conditions three (3) points were omitted from our original plan recommendations. (Injection Pin Pile Numbers 40, 41 and 57). The depths of installation ranged from a low of 23 feet to a high of 67 feet below grade. Each pin pile was hydraulically driven into the soil until enough pressure was reached for refusal. The hydraulic gauge reading (psi) was recorded for each injection pin pile along with the installed depth (Figure 12b). The contractor then accepted delivery of a 1500-psi pressure grout from Preferred Materials, Inc. The grout was a low slump 4-6 inch pressure grout. A grout gun was connected to each of the 66 injection pin piles pumped by Helicon, utilizing a TK-40 pump. The grout was pumped until a pressure gauge reading of up to 400-psi was reached on the in-line gauge. The amount of grout pumped for each injection pin pile was recorded (Figure 12b). A total of 170.0 cubic yards of grout was pumped in various quantities through 66 injection pin piles points.

Helicon then staked the compaction grout point locations as shown in Figure 12d in accordance with B.A.S.I.C. Engineering recommendations. Angled compaction grout points were installed to refusal (hard limestone bedrock) at depths ranging from 33 to 66 feet below existing grade. A total of 337 feet of grout casing was installed at the 6 compaction grout points. After the grout casing was installed, a TK-40 pump was used to inject a mixture of cement, fly ash, sand, water, and other admixtures into the loose soils and voids in the limestone and overlying sand strata. Pumping continued until a grout pressure of 200 to 400 psi was achieved (over that required to initiate grout take) or lifting of the structure was observed (via a surveyor's level). The grout casing was then extracted upward four to five feet and pumping resumed. A total of 59.8 cubic yards of grout was pumped in various quantities through 6 compaction grout points on the subject property, ranging from a minimum of 1.2 cubic yards on point #6 to a maximum of 26.3 cubic yards on point #2.

TECHNICAL NOTES:

- INJECTION PIN PILE
- SPREADER BEAM
- INJECTION PIN PILE
- SEE FIGURE 12c FOR PIN PILE DETAIL
- NOT FOR PERMITTING

TWO STORY CONCRETE BLOCK & WOOD FRAME BUILDING #12



Approximate Scale
1" = 20'

0 10 20

BASIC ENGINEERING
2601 E. 7TH AVENUE, TAMPA, FL 33605 | PH: 813-885-4144 * FX: 813-885-4166
WWW.BASIC-ENGINEERING.COM

THE MOORINGS CONDO ASSOC. | BLDG #12
325-339 MOORINGS COVE DRIVE, TARPON SPRINGS, FL 34689
PINELLAS COUNTY

CONSTRUCTION INJECTION PLAN

FIGURE NO.: 12a
FILE NO.: B2020-018
DATE: 01/26/2021
CHECKED BY: JJ

TECHNICAL NOTES:

- INJECTION PIN PILE SUMMARY POINTS

Points #	PSI	Depth (ft)	Strokes	Actual Grout (cy)
1	2400	53.0	5	0.1
2	2300	58.0	54	1.1
3	2400	52.0	57	1.2
4	2400	54.0	310	6.4
5	2500	50.0	140	2.9
6	2400	47.0	37	0.8
7	2400	43.0	98	1.9
8	2400	63.0	127	2.5
9	2500	38.0	217	4.2
10	2500	52.0	73	1.4
11	2500	32.0	120	2.4
12	2500	34.0	10	0.2
13	2600	67.0	230	4.8
14	2500	34.0	20	0.4
15	2400	45.0	10	0.2
16	2400	67.0	68	1.3
17	2600	47.0	141	2.8
18	2500	61.0	135	2.7
19	2400	58.0	129	2.7
20	2600	57.0	7	0.1
21	2500	49.0	114	2.4
22	2600	49.0	98	2.0
23	2700	49.0	175	3.6
24	2600	44.0	62	1.3
25	2300	37.0	157	3.2
26	2800	48.0	140	2.8
27	2600	50.0	3	0.1
28	2400	53.0	5	0.1
29	2300	53.0	10	0.2
30	2400	53.0	250	5.1
31	2800	53.0	225	4.3
32	2400	38.0	86	1.7
33	2800	50.0	271	5.1
34	2200	29.0	31	0.6
35	2200	45.0	110	2.5

Points #	PSI	Depth (ft)	Strokes	Actual Grout (cy)
36	2000	34.0	3	0.1
37	2000	28.0	4	0.1
38	2800	35.0	104	2.4
39	2800	45.0	216	4.9
40	-	-	-	-
41	-	-	-	-
42	2800	62.0	102	2.2
43	2800	58.0	286	6.1
44	1500	24.0	15	0.3
45	2000	23.0	26	0.6
46	2100	59.0	6	0.1
47	1500	23.0	5	0.1
48	2400	42.0	30	0.6
49	2400	42.0	277	5.7
50	1500	36.0	213	4.3
51	1500	59.0	490	10.0
52	1300	58.0	57	1.1
53	1300	90.0	521	10.2
54	1300	55.0	490	9.4
55	1300	29.0	46	0.9
56	2200	53.0	222	4.1
57	-	-	-	-
58	2000	39.0	227	4.2
59	1700	33.0	10	0.2
60	1900	39.0	156	3.2
61	2000	39.0	26	0.5
62	1800	47.0	301	6.1
63	1800	33.0	201	4.7
64	1800	27.0	16	0.4
65	1900	51.0	210	4.9
66	1800	40.0	35	0.7
67	1700	40.0	8	0.2
68	1700	49.0	309	6.5
69	2000	45.0	10	0.2
	TOTALS:	**3049.0**	**8347**	**170.0**

BASIC ENGINEERING
2601 E. 7TH AVENUE, TAMPA, FL 33605 | PH: 813-885-4144 * FX: 813-885-4166
WWW.BASIC-ENGINEERING.COM

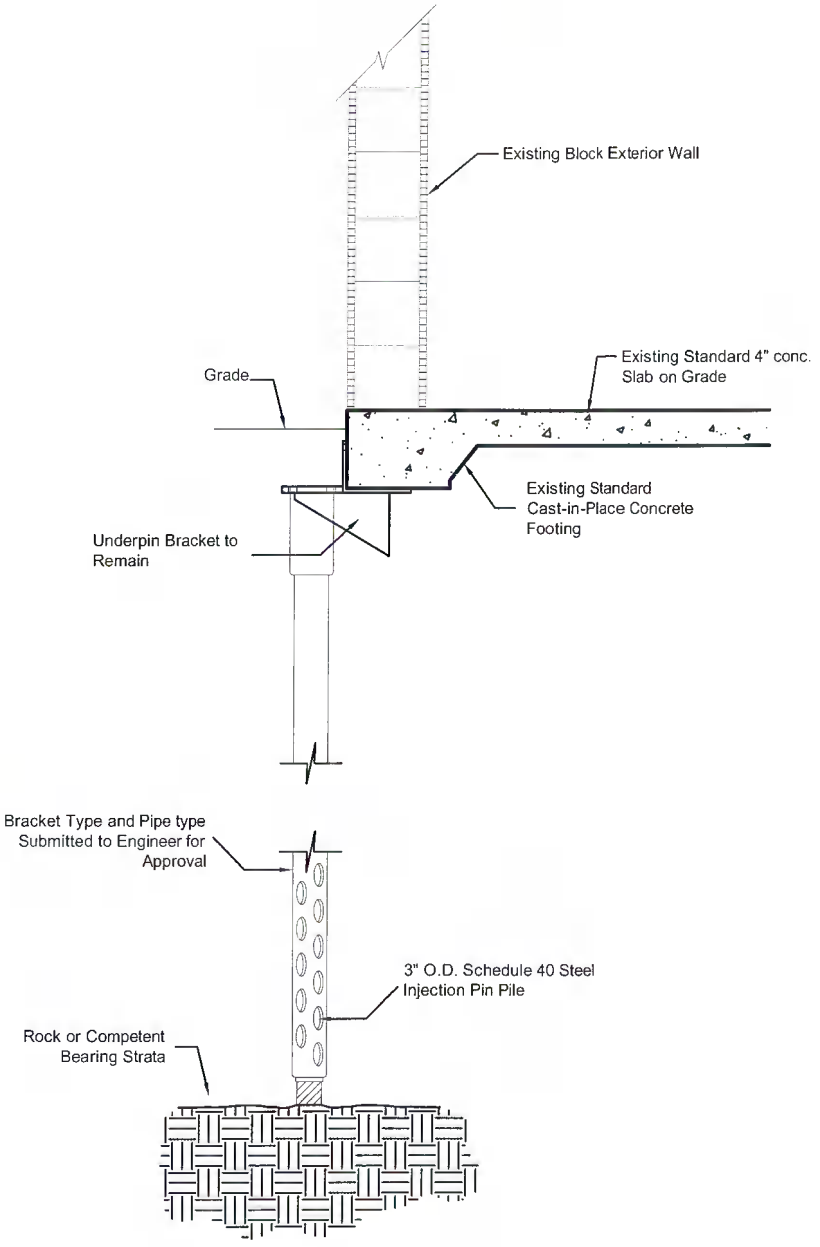
THE MOORINGS CONDO ASSOC. | BLDG #12
325-339 MOORINGS COVE DRIVE, TARPON SPRINGS, FL 34689
PINELLAS COUNTY

INJECTION PIN PILE SUMMARY POINTS

FIGURE NO.: 12b
FILE NO.: B2020-018
DATE: 01/26/2021
CHECKED BY: JJ

Block on Spread Footer:

Injection Pin Pile Detail
(NOT FOR PERMITTING)



BASIC ENGINEERING
2601 E. 7TH AVENUE, TAMPA, FL 33605 | PH: 813-885-4144 * FX: 813-885-4166
WWW.BASIC-ENGINEERING.COM

THE MOORINGS CONDO ASSOC. | BLDG #12
325-339 MOORINGS COVE DRIVE, TARPON SPRINGS, FL 34689
PINELLAS COUNTY

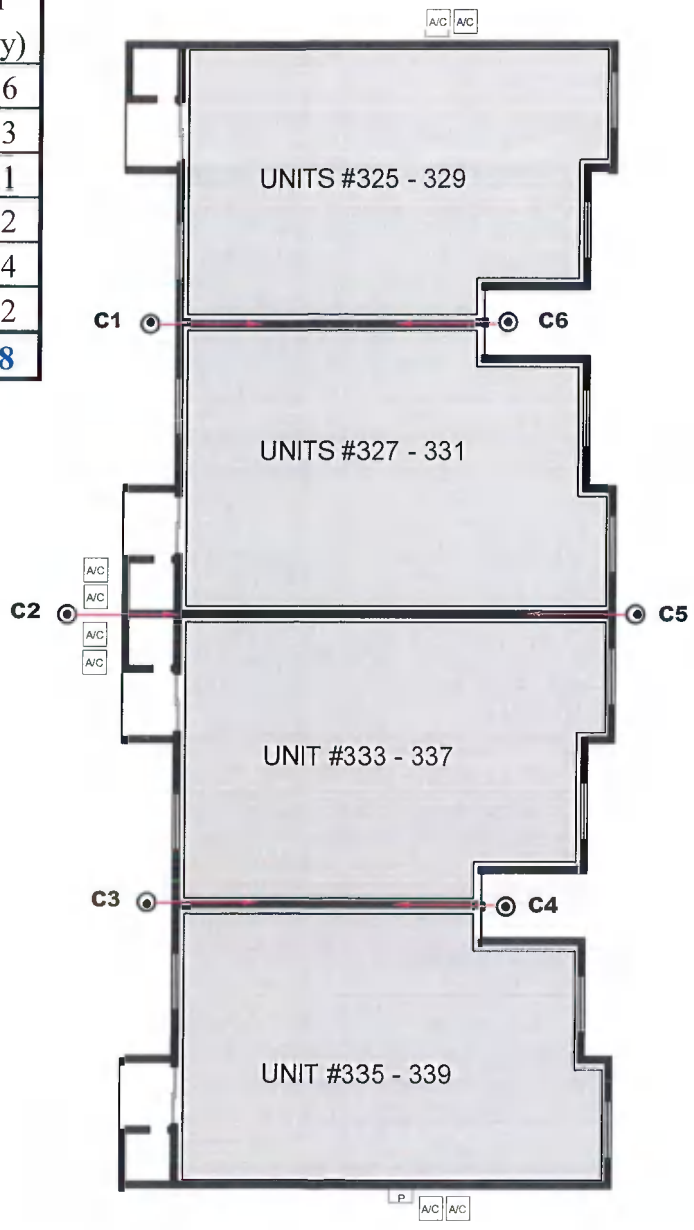
INJECTION PIN PILE DETAIL PLAN

FIGURE NO.: 12c
FILE NO.: B2020-018
DATE: 01/26/2021
CHECKED BY: JJ

TECHNICAL NOTES:

- INSTALLED POINTS DEPTH: 33' - 66'
- ANGLED COMPACTION GROUT POINTS
- NOT FOR PERMITTING

Points #	Depth (ft)	Strokes	Actual Grout (cy)
1	60	400	7.6
2	64	1,304	26.3
3	66	340	7.1
4	57	458	9.2
5	33	362	8.4
6	57	64	1.2
Total:	**337**	**Total:**	**59.8**



TWO STORY
CONCRETE BLOCK
& WOOD FRAME
BUILDING #12

Approximate Scale
1" = 20'
0 10 20

BASIC ENGINEERING
2601 E. 7TH AVENUE, TAMPA, FL 33605 | PH: 813-885-4144 * FX: 813-885-4166
WWW.BASIC-ENGINEERING.COM

THE MOORINGS CONDO ASSOC. | BLDG #12
325-339 MOORINGS COVE DRIVE, TARPON SPRINGS, FL 34689
PINELLAS COUNTY

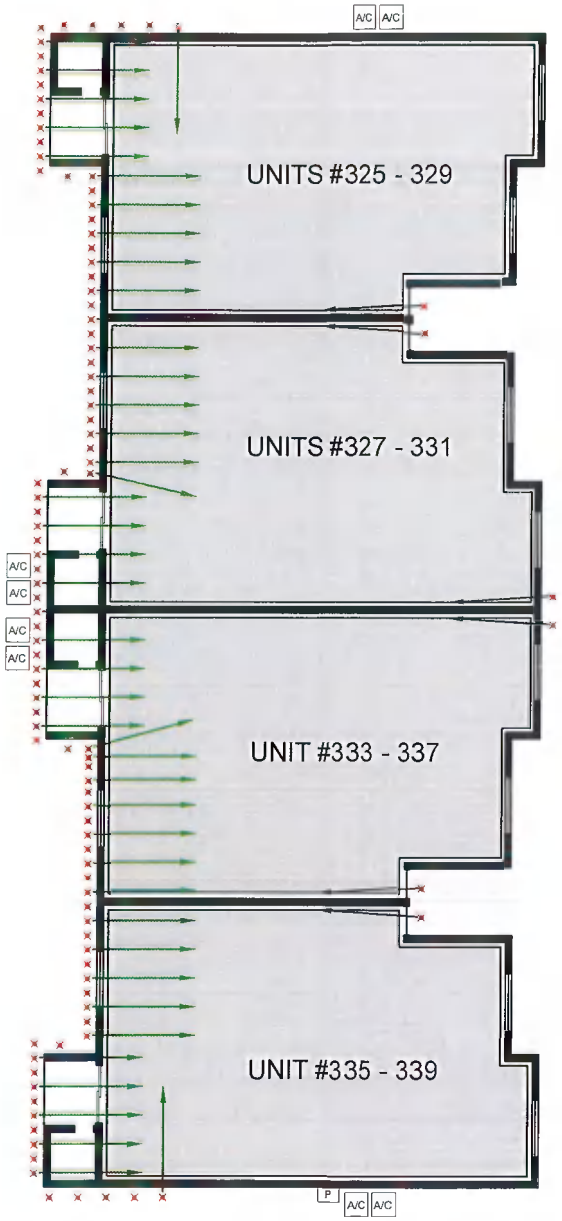
COMPACTION GROUT PLAN

FIGURE NO.: 12d
FILE NO.: B2020-018
DATE: 01/26/2021
CHECKED BY: JJ

TECHNICAL NOTES:

- INSTALLED DEPTH:
- VERTICAL POINTS: 8', 6', 4, & 2' BGS
- ANGLED POINTS: 12', 10', 8', 6', 4' & 2' BGS
- INSTALLED EXTERIOR CHEMICAL GROUT POINTS = 104
- INSTALLED EXTERIOR CHEMICAL GROUT QUANTITY = 5,526.0
- NOT FOR PERMITTING

TWO STORY CONCRETE BLOCK & WOOD FRAME BUILDING #12



Approximate Scale
1" = 20'
0 10 20

BASIC ENGINEERING
2601 E. 7TH AVENUE, TAMPA, FL 33605 | PH: 813-885-4144 * FX: 813-885-4166
WWW.BASIC-ENGINEERING.COM

THE MOORINGS CONDO ASSOC. | BLDG #12
325-339 MOORINGS COVE DRIVE, TARPON SPRINGS, FL 34689
PINELLAS COUNTY

CHEMICAL GROUT PLAN

FIGURE NO.: 12e
FILE NO.: B2020-018
DATE: 01/26/2021
CHECKED BY: JJ

TECHNICAL NOTES:

- CHEMICAL GROUT SUMMARY POINTS

Point #s	Depth (ft)	PSI	Lbs.
1	12	1200	20.4
	10	1200	15.1
	8	1200	10.2
	6	1000	8.1
	4	1000	5.6
	2	1000	3.9
2	8	1000	25
	6	1000	17.6
	4	1000	3.5
	2	1000	4.9
3	8	1000	20.4
	6	1000	22.2
	4	1300	3.9
	2	1300	2.5
4	8	1300	25
	6	1300	17.6
	4	1000	3.9
	2	1000	4.9
5	8	1300	25
	6	1000	17.6
	4	1300	10.2
	2	1300	3.2
6	12	1000	7.7
	10	1300	15.1
	8	1000	8.4
	6	1300	8.1
	4	1000	2.5
	2	1000	3.9
7	8	1300	25
	6	1000	17.6
	4	1000	14.1
	2	1300	4.9
8	12	1000	6.0
	10	1000	28.9
	8	1000	10.2
	6	1300	8.1
	4	1300	8.1
	2	1000	4.6
9	8	1000	9.1
	6	900	2.8
	4	1300	9.8
	2	1000	2.1
10	12	1300	20.4
	10	1000	15.1
	8	1000	8.4
	6	1300	8.1
	4	1000	4.9
	2	1300	3.5

Point #s	Depth (ft)	PSI	Lbs.
11	8	1000	25.0
	6	1000	17.6
	4	1300	11.3
	2	1000	4.9
12	12	900	20.4
	10	1300	15.1
	8	1300	10.2
	6	1000	8.1
	4	1000	4.9
	2	1000	3.9
13	8	1300	8.1
	6	1000	2.1
	4	1300	2.1
	2	1300	1.4
14	12	1000	20.4
	10	1000	14.1
	8	1300	10.2
	6	1300	6.0
	4	1000	4.9
	2	1000	3.9
15	8	1000	25.0
	6	1000	13.4
	4	1000	10.5
	2	1000	4.9
16	8	1300	25.0
	6	1000	17.6
	4	900	15.1
	2	1000	2.8
17	12	1300	20.4
	10	1000	15.1
	8	1300	10.2
	6	1200	8.1
	4	1000	4.9
	2	900	3.9
18	8	1300	25.0
	6	1000	17.6
	4	1300	15.1
	2	1000	4.9
19	12	1300	20.4
	10	1300	15.1
	8	1000	10.2
	6	1000	8.1
	4	1300	4.9
	2	1300	3.9
20	8	1000	25.0
	6	1300	17.6
	4	1300	15.1
	2	1300	4.9

Point #s	Depth (ft)	PSI	Lbs.
21	12	1300	20.4
	10	1300	15.1
	8	1300	10.2
	6	1300	8.1
	4	1300	4.9
	2	1000	3.9
22	8	1000	25.0
	6	1300	12.3
	4	1300	7.0
	2	1300	3.9
23	12	1300	20.4
	10	1300	15.1
	8	1000	10.2
	6	1300	8.1
	4	1300	4.9
	2	1300	3.9
24	8	1300	5.3
	6	1000	3.9
	4	1300	3.2
	2	1300	2.1
25	12	1000	20.4
	10	1300	15.1
	8	1300	10.2
	6	1300	8.1
	4	1000	4.9
	2	1000	3.9
26	8	1300	25.0
	6	1000	2.8
	4	1000	15.1
	2	1300	4.9
27	12	1000	20.4
	10	1000	15.1
	8	1000	10.2
	6	1300	8.1
	4	1300	4.9
	2	1300	3.9
28	8	1000	25.0
	6	1000	17.6
	4	1000	15.1
	2	1000	4.9
29	12	1000	20.4
	10	1000	15.1
	8	1300	10.2
	6	1000	8.1
	4	1300	4.9
	2	1000	3.9
30	8	1000	25.0
	6	1300	17.6

BASIC ENGINEERING
2601 E. 7TH AVENUE, TAMPA, FL 33605 | PH: 813-885-4144 * FX: 813-885-4166
WWW.BASIC-ENGINEERING.COM

THE MOORINGS CONDO ASSOC. | BLDG #12
325-339 MOORINGS COVE DRIVE, TARPON SPRINGS, FL 34689
PINELLAS COUNTY

CHEMICAL GROUT SUMMARY POINTS

FIGURE NO.: 12f
FILE NO.: B2020-018
DATE: 01/26/2021
CHECKED BY: JJ

TECHNICAL NOTES:

- CHEMICAL GROUT SUMMARY POINTS

Point #s	Depth (ft)	PSI	Lbs.
30	4	1000	15.1
	2	1300	4.9
31	12	1000	20.4
	10	1300	15.1
	8	900	3.9
	6	900	8.1
	4	1300	3.2
	2	-	-
32	8	900	25.0
	6	900	17.6
	4	1300	15.1
	2	1300	0.7
33	12	1300	20.4
	10	1000	15.1
	8	900	10.2
	6	1300	8.1
	4	1000	4.9
	2	1300	3.9
34	8	1300	20.1
	6	-	-
	4	1000	15.1
	2	900	4.9
35	12	1300	20.4
	10	900	15.1
	8	1000	10.2
	6	900	8.1
	4	900	1.4
	2	-	-
36	8	1000	25.0
	6	900	17.6
	4	600	15.1
	2	1300	4.9
37	12	900	20.4
	10	1000	15.1
	8	1000	10.2
	6	1300	8.1
	4	1300	4.9
	2	1300	3.9
38	12	1000	20.4
	10	1300	15.1
	8	1000	10.2
	6	900	8.1
	4	900	4.9
	2	1000	3.9
39	8	1300	25.0
	6	1000	17.6
	4	900	15.1
	2	1000	4.9

Point #s	Depth (ft)	PSI	Lbs.
40	12	1000	20.4
	10	1300	15.1
	8	1300	10.2
	6	1000	9.8
	4	1300	-
	2	1000	-
41	8	900	25.0
	6	1000	17.6
	4	1300	12.7
	2	1300	-
42	12	1300	20.4
	10	900	15.1
	8	900	0.3
	6	1000	8.1
	4	900	4.9
	2	1300	3.9
43	8	1300	25.0
	6	1000	17.6
	4	900	15.1
	2	1300	4.9
44	12	1000	20.4
	10	900	15.1
	8	1300	10.2
	6	1000	8.1
	4	900	4.9
	2	1000	3.9
45	8	900	25.0
	6	1300	17.6
	4	1300	15.1
	2	1000	1.4
46	12	900	20.4
	10	1000	4.6
	8	900	-
	6	1000	1.8
	4	-	-
	2	-	-
47	8	1000	24.3
	6	-	-
	4	1000	15.1
	2	1300	4.9
48	12	1000	20.4
	10	900	4.2
	8	7	2.5
	6	900	5.3
	4	-	-
	2	-	-
49	8	1000	7.7
	6	1300	-

Point #s	Depth (ft)	PSI	Lbs.
49	4	1300	15.1
	2	1000	4.9
50	12	1300	10.1
	10	1000	-
	8	1300	-
	6	1300	6.3
	4	1000	-
	2	1000	-
51	8	1300	25.0
	6	1300	17.6
	4	1000	15.1
	2	900	4.9
52	12	900	20.4
	10	1000	7.7
	8	1300	-
	6	1300	8.1
	4	1300	3.2
	2	1000	-
53	8	1100	25.0
	6	1000	17.6
	4	1200	8.8
	2	1300	-
54	12	1000	15.5
	10	-	-
	8	-	-
	6	1000	8.1
	4	1000	4.9
	2	1300	3.9
55	8	1300	25.0
	6	1000	11.3
	4	900	15.1
	2	900	4.9
56	12	1300	20.4
	10	1300	15.1
	8	1300	6.7
	6	1300	-
	4	1000	-
	2	-	-
57	8	1300	25.0
	6	1300	2.1
	4	1300	11.3
	2	-	-
58	12	1000	20.4
	10	1300	15.1
	8	1000	10.2
	6	900	8.1
	4	900	4.9
	2	900	3.9

BASIC ENGINEERING
2601 E. 7TH AVENUE, TAMPA, FL 33605 | PH: 813-885-4144 * FX: 813-885-4166
WWW.BASIC-ENGINEERING.COM

THE MOORINGS CONDO ASSOC. | BLDG #12
325-339 MOORINGS COVE DRIVE, TARPON SPRINGS, FL 34689
PINELLAS COUNTY

CHEMICAL GROUT SUMMARY POINTS

FIGURE NO.: 12g
FILE NO.: B2020-018
DATE: 01/26/2021
CHECKED BY: JJ

TECHNICAL NOTES:

- CHEMICAL GROUT SUMMARY POINTS

Point #s	Depth (ft)	PSI	Lbs.
59	8	900	4.1
	6	-	-
	4	1100	10.6
	2	-	-
60	12	1000	20.4
	10	1300	15.1
	8	1000	10.2
	6	1300	8.1
	4	1000	4.9
	2	900	3.9
61	12	1000	25.0
	10	1300	17.6
	8	1300	9.5
	6	1000	8.1
	4	1300	3.5
	2	-	-
62	8	1300	25.0
	6	1000	17.6
	4	1300	15.1
	2	1300	4.9
63	12	1000	16.9
	10	-	-
	8	-	-
	6	1300	6.3
	4	-	-
	2	-	-
64	8	1300	25.0
	6	1000	17.6
	4	1300	5.6
	2	-	-
65	12	900	20.4
	10	1300	15.1
	8	1000	10.2
	6	1300	8.1
	4	1300	4.9
	2	1000	3.9
66	8	1000	25.0
	6	1300	17.6
	4	1300	10.6
	2	1000	-
67	12	1300	20.4
	10	1000	15.1
	8	1300	10.2
	6	900	8.1
	4	1000	0.7
	2	1300	-
68	8	1000	25.0
	6	1300	17.6

Point #s	Depth (ft)	PSI	Lbs.
68	4	1000	5.6
	2	-	-
69	12	1000	20.4
	10	1000	17.4
	8	-	-
	6	900	8.1
	4	1000	4.9
	2	1000	3.9
70	8	1300	25.0
	6	1000	17.6
	4	1300	10.6
	2	-	-
71	12	1300	20.4
	10	1000	15.1
	8	1300	10.2
	6	1000	8.1
	4	1300	4.9
	2	1000	3.9
72	8	1300	25.0
	6	1000	17.6
	4	1300	13.4
	2	1300	-
73	12	1000	20.4
	10	1000	15.1
	8	1300	10.2
	6	1300	8.1
	4	1300	4.9
	2	1000	3.9
74	8	1000	21.5
	6	-	-
	4	1300	15.1
	2	1000	4.9
75	12	1300	20.4
	10	1300	15.1
	8	1000	10.2
	6	1300	8.1
	4	1000	4.9
	2	1000	3.9
76	8	1300	14.3
	6	-	-
	4	1300	15.1
	2	1000	4.9
77	12	1300	20.4
	10	1300	15.1
	8	1300	10.2
	6	1300	8.1
	4	1300	4.9
	2	1300	3.9

Point #s	Depth (ft)	PSI	Lbs.
78	8	1300	25.0
	6	1000	17.6
	4	1000	10.6
	2	-	-
79	12	1300	20.4
	10	1000	15.1
	8	1300	10.2
	6	1300	8.1
	4	1300	3.9
	2	-	-
80	8	1000	25.0
	6	1300	17.6
	4	1000	13.4
	2	1000	-
81	12	1000	20.4
	10	1300	6.0
	8	-	-
	6	1000	7.4
	4	-	-
	2	-	-
82	8	1000	25.0
	6	1000	17.6
	4	1300	15.1
	2	1300	4.9
83	8	1300	25.0
	6	1000	17.6
	4	1300	12.7
	2	-	-
84	12	1300	20.4
	10	1000	15.1
	8	1300	10.2
	6	1000	8.1
	4	-	-
	2	-	-
85	8	1000	25.0
	6	1300	17.6
	4	1300	15.1
	2	1000	1.0
86	12	900	20.4
	10	1000	15.1
	8	1300	10.2
	6	1300	8.1
	4	1300	4.9
	2	1000	3.9
87	8	1000	25.0
	6	1300	17.6
	4	1300	15.1
	2	1300	4.9

BASIC ENGINEERING
2601 E. 7TH AVENUE, TAMPA, FL 33605 | PH: 813-885-4144 * FX: 813-885-4166
WWW.BASIC-ENGINEERING.COM

THE MOORINGS CONDO ASSOC. | BLDG #12
325-339 MOORINGS COVE DRIVE, TARPON SPRINGS, FL 34689
PINELLAS COUNTY

CHEMICAL GROUT SUMMARY POINTS

FIGURE NO.: 12h
FILE NO.: B2020-018
DATE: 01/26/2021
CHECKED BY: JJ

TECHNICAL NOTES:

- CHEMICAL GROUT SUMMARY POINTS

Point #s	Depth (ft)	PSI	Lbs.
88	12	1300	20.4
	10	1300	15.1
	8	1000	10.2
	6	1000	8.1
	4	1000	4.9
	2	1300	3.9
89	8	1300	25.0
	6	1000	17.6
	4	1000	13.4
	2	-	-
90	12	1000	19.0
	10	-	-
	8	-	-
	6	1000	8.1
	4	1000	4.9
	2	1000	3.9
91	8	1300	25.0
	6	1000	17.6
	4	1300	15.1
	2	1000	0.7
92	12	1300	20.4
	10	1000	15.1
	8	1000	1.8
	6	1300	8.1
	4	1000	4.9
	2	1000	3.9
93	8	1300	25.0
	6	1300	12.6
	4	1000	4.2
	2	1300	-
94	8	1000	25.0
	6	900	17.6
	4	1300	15.1
	2	1300	4.9
95	8	1300	25.0
	6	1000	17.6
	4	1300	15.1
	2	1300	2.5
96	8	1000	25.0
	6	1000	1.4
	4	1000	4.6
	2	1300	-
97	8	1300	25.0
	6	1300	17.6
	4	1300	15.1
	2	1000	4.9
98	12	1000	20.4
	10	1300	15.1

Point #s	Depth (ft)	PSI	Lbs.
98	8	1300	10.2
	6	1300	8.1
	4	1000	4.9
	2	1300	3.9
99	12	1000	20.4
	10	1000	15.1
	8	1000	10.2
	6	1000	8.1
	4	900	4.9
	2	1000	3.9
100	12	1300	20.4
	10	1300	15.1
	8	1000	10.2
	6	1300	8.1
	4	1300	4.9
	2	1300	3.9
101	12	1000	20.4
	10	1300	13.7
	8	1300	-
	6	1000	8.1
	4	1000	4.9
	2	1300	3.9
102	12	1300	20.4
	10	1300	15.1
	8	1300	10.2
	6	1000	8.1
	4	1000	4.9
	2	1300	3.9
103	12	1300	20.4
	10	1300	15.1
	8	1000	10.2
	6	1000	8.1
	4	1300	4.9
	2	1000	3.9
104	12	1300	20.4
	10	1000	15.1
	8	1300	10.2
	6	1300	8.1
	4	1300	4.9
	2	1300	3.9
		Total:	**5526.0**

BASIC ENGINEERING
2601 E. 7TH AVENUE. TAMPA, FL 33605 | PH: 813-885-4144 * FX: 813-885-4166
WWW.BASIC-ENGINEERING.COM

THE MOORINGS CONDO ASSOC. | BLDG #12
325-339 MOORINGS COVE DRIVE, TARPON SPRINGS, FL 34689
PINELLAS COUNTY

CHEMICAL GROUT SUMMARY POINTS

FIGURE NO.: 12i
FILE NO.: B2020-018
DATE: 01/26/2021
CHECKED BY: JJ