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SINKHOLE GEOTECH, INC.
Geotechnical & Structural Consulting
529 Broad Street, Brooksville, Florida 34604



Remediation Activities Summary Report

Maurer Nina Life Estate Property

7300 Clearmeadow Dr.
Spring Hill, FL 34606

Project No. SGT-D2209-91302

November 9, 2022



Mr. Esposito
APD Advanced Stabilization
13049 Spring Hill Dr.
Spring Hill, FL 34609

November 9, 2022

RE: Remediation Activities Summary Report
At: Maurer Nina Life Estate Property
7300 Clearmeadow Dr.
Spring Hill, FL 34606

Dear Mr. Esposito,
Sinkhole Geotech, Inc. (SGT) is pleased to submit the Remediation Activities Summary Report for monitoring the underpinning pressure piers at the above referenced site.

Per your request to provide partial underpinning pier plan to augment the foundation, SGT monitored the underpinning plan. The underpinning transfers the house load to more stable deeper soil and prevents further foundation movement.

The purpose of this report is to provide certification that SGT, as a third party, monitored the partial remediation operation performed by APD Advanced Stabilization on behalf of the client or homeowner at the above referenced structure. This report documents the pressure pier and the underpinning installation details of the work completed. The approximate locations of the perimeter underpin piers are depicted on the enclosed underpinning layout.

PURPOSE OF UNDERPINNING

WHAT IS THE UNDERPINNING?

Underpinning system is a process of augmenting the foundation underneath the building. There are a variety of methods to accomplish this, each with its own benefits and drawbacks. Generally, underpinning is a method of transferring the wall and roof loads on the foundations to deeper soils or even to the limestone itself.

HOW DOES UNDERPINNING WORK?

Underpinning involves attaching steel piers using pin brackets to the foundation of the home and driving those piers into deeper competent soils or to the limestone formation. If correctly planed out and mounted, underpinning supplies the lift the structure or foundation needs to meet a more satisfactory level, also providing a future support as a preventative from settling of the underpinned area.



WHEN SHOULD UNDERPINNING SYSTEM BE USED?

There is a variety of reasons when underpinning should be used. When buildings are on unpredictable land with voids, there is often a possibility that the foundation will become unstable. In this situation, underpinning may be necessary. Here are a few examples of situations that would require underpinning:

- Structure is not even: re-leveling the structure
- Cosmetic/structural cracks: closing of wide cracks caused by excessive settlement
- Soils have changed or cavities were created: bypass weak soil layers
- Soils have not been completely identified before construction began: pre-construction underpinning
- The foundation may no longer be strong or stable enough for support of the structure: foundation augmentation
- The structure's purpose may have changed: meeting the weight increase on the foundation
- Structure needs additional foundation capacity to footings or mats with too little bearing capacity (building movement or ground consolidation is excessive)
- Distressed or undermined Structure needs support: a catastrophic event (e.g., erosion, landslides, burst pipes, mine subsidence, etc.)
- Adding load capacity to an existing foundation system to accommodate a seismic retrofit or addition of new structure, building stories, etc.
- Cost considerations: homeowner preference

ACTUAL WORK

At the Maurer Nina Life Estate Property, the underpin piers were hydraulically driven down into the underlying soils to refusal or a pressure that was appropriate to avoid damaging the structure based the condition of the foundation at each location. The plan utilized a total of 28 piers. The pier depth ranged from 15 feet to 30 feet below foundation. However, piers no. 2, 14, 15, 16, and 17 were converted to chemical grout with 22, 21, 25, 24 and 20 lbs. in retrospect, for a total of 112 lbs.

The jacking of each pier was monitored and terminated at a pressure that was appropriate to avoid damaging the structure based the condition of the foundation at each location. All piers were jacked to a pressure up to 3,400 psi, which provides more than 20,000 pounds of foundation support per pier. When the piers reached the ultimate support depth, each underpin bracket was secured to the pressure pier with 1/2' pin. The jacking depth and pressures of each individual pier are presented in tabular form in the appendix of this report.

CONCLUSION

In conclusion, to the best of our belief or knowledge, APD Advanced Stabilization has completed piers installation in accordance with applicable standard practice and the foundation has been stabilized and habitable at this time. Therefore, it is also our opinion that there is no visual evidence of new or continued settlement activity at this location at this time. This



documentation is limited to the underpinning piers installation only and not intended to deal with problem behind the limits of this remediation. Our opinion is based on a reasonable professional probability from similar conditions and similar locations. In addition, it is not intended to remediate soil conditions that may or may not exist at the site such as buried debris, organic matter, or improper foundation design or embedment. No structural analysis has been performed to determine the structural integrity of covered structural members. SGT does not imply any warranty to the effectiveness of work performed nor should any be implied, but only accuracy of the information reported herein. We cannot be responsible for unforeseen soil shifts, movements, or building cracking that may result as part of implementing this stabilization process.

LIMITATIONS

This report and information contained herein was prepared for the specific and exclusive use of APD Advanced Stabilization. Any other use of this report or parts of this report shall be authorized in writing by Sinkhole Geotech, Inc.

The reproduction of any portion of this report in plans or other engineering documents supplied to parties other than the client or assigned parties must bear the language indicating that the information contained in the report is for general information only, and that neither the Client nor SGT are liable to such parties.

Respectfully Submitted,
SINKHOLE GEOTECH, INC.

A handwritten signature in black ink, appearing to read 'Ahmed Said', with a stylized flourish at the end.

Ahmed Said., Ph.D.
Principal Engineering Consultant
Florida P.E. #70901
November 9, 2022

Appendix

A. As-built Plan

B. Underpinning Logs

C. Site Photos

PIER #1			PIER #2			PIER #3			PIER #4			PIER #5			PIER #6		
DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.	
(feet)	(psi)		(feet)	(psi)		(feet)	(psi)		(feet)	(psi)		(feet)	(psi)		(feet)	(psi)	
3	600		3			3	1000		3	500		3	500		3	500	
6	900		6			6	1000		6	800		6	900		6	800	
9	1400		9	8 ft		9	1300		9	1300		9	1200		9	1200	
12	1700		12	Rod		12	2500		12	1600		12	1700		12	1400	
15	2500		15			15	3400		15	1800		15	2300		15	1900	
18	3400		18			18			18	2500		18	2300		18	2200	
21			21	147.2		21			21			21	2300		21	3400	
24			24	Strokes		24			24			24	3400		24		
27			27			27			27			27			27		
30			30			30			30			30			30		
33			33	16 lbs.		33			33			33			33		
36			36			36			36			36			36		
39			39			39			39			39			39		
42			42			42			42			42			42		
45			45			45			45			45			45		
48			48			48			48			48			48		
51			51			51			51			51			51		
54			54			54			54			54			54		
57			57			57			57	Kicking		57			57		
60			60			60			60	Out		60			60		
63			63			63			63			63			63		
66	Corner		66			66			66			66			66		
69	Lift 1/2"		69			69			69			69			69		
TOTAL LENGTH	18'		TOTAL LENGTH			TOTAL LENGTH	15'		TOTAL LENGTH	18'		TOTAL LENGTH	24'		TOTAL LENGTH	21'	

PIER #7			PIER #8			PIER #9			PIER #10			PIER #11			PIER #12		
DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.	
(feet)	(psi)		(feet)	(psi)		(feet)	(psi)		(feet)	(psi)		(feet)	(psi)		(feet)	(psi)	
3	600		3	700		3	800		3	900		3	600		3	800	
6	700		6	800		6	800		6	900		6	600		6	900	
9	1000		9	1500		9	900		9	1200		9	1000		9	1200	
12	1300		12	1700		12	1400		12	1500		12	1200		12	1800	
15	1800		15	2300		15	2500		15	3400		15	1800		15	3400	
18	2300		18	2500		18			18			18	2200		18		
21	2300		21	3400		21			21			21	2200		21		
24	2000		24			24			24			24	1900		24		
27	2200		27			27			27			27	3400		27		
30	3400		30			30			30			30			30		
33			33			33			33			33			33		
36			36			36			36			36			36		
39			39			39			39			39			39		
42			42			42			42			42			42		
45			45			45			45			45			45		
48			48			48			48			48			48		
51			51			51			51			51			51		
54			54			54			54			54			54		
57			57			57	Kicking		57			57			57		
60			60			60	Out		60			60			60		
63			63			63			63			63			63		
66			66			66			66			66			66		
69			69			69	Lift 1/4"		69			69			69		
TOTAL LENGTH	30'		TOTAL LENGTH	21'		TOTAL LENGTH	15'		TOTAL LENGTH	15'		TOTAL LENGTH	27'		TOTAL LENGTH	15'	

PIER #13			PIER #14			PIER #15			PIER #16			PIER #17			PIER #18		
DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.	
(feet)	(psi)		(feet)	(psi)		(feet)	(psi)		(feet)	(psi)		(feet)	(psi)		(feet)	(psi)	
3	600		3			3			3			3			3	700	
6	900		6			6			6			6			6	1000	
9	1200		9	8 ft		9	8 ft		9	8 ft		9	8 ft		9	1300	
12	1700		12	Rod		12	Rod		12	Rod		12	Rod		12	1500	
15	2200		15			15			15			15			15	2800	
18	2300		18			18			18			18			18		
21	3400		21	193.2		21	230		21	220.8		21	184		21		
24			24	Strokes		24	Strokes		24	Strokes		24	Strokes		24		
27			27			27			27			27			27		
30			30			30			30			30			30		
33			33	21 lbs.		33	25 lbs.		33	24 lbs.		33	20 lbs.		33		
36			36			36			36			36			36		
39			39			39			39			39			39		
42			42			42			42			42			42		
45			45			45			45			45			45		
48			48			48			48			48			48		
51			51			51			51			51			51		
54			54	COG		54			54			54			54		
57			57			57			57			57			57		
60			60			60			60			60			60		
63			63			63			63			63			63		
66	Corner		66			66			66			66			66		
69	Lift 1/4"		69			69			69			69			69	Lift 1/2"	
TOTAL LENGTH	21'		TOTAL LENGTH			TOTAL LENGTH			TOTAL LENGTH			TOTAL LENGTH			TOTAL LENGTH	15'	

PIER #19			PIER #20			PIER #21			PIER #22			PIER #23			PIER #24		
DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.	
(feet)	(psi)		(feet)	(psi)		(feet)	(psi)		(feet)	(psi)		(feet)	(psi)		(feet)	(psi)	
3	600		3	800		3	700		3	800		3	700		3	700	
6	800		6	1100		6	900		6	1000		6	900		6	800	
9	1100		9	1300		9	1300		9	1400		9	1400		9	1300	
12	1700		12	1700		12	1700		12	1700		12	2000		12	1500	
15	1900		15	2400		15	2200		15	2500		15	2800		15	2500	
18	3400		18	3400		18	3400		18	3400		18			18	2500	
21			21			21			21			21			21	3400	
24			24			24			24			24			24		
27			27			27			27			27			27		
30			30			30			30			30			30		
33			33			33			33			33			33		
36			36			36			36			36			36		
39			39			39			39			39			39		
42			42			42			42			42			42		
45			45			45			45			45			45		
48			48			48			48			48			48		
51			51			51			51			51			51		
54			54			54			54			54			54		
57			57			57			57			57			57		
60			60			60			60			60			60		
63			63			63			63			63			63		
66			66			66			66			66			66	Corner	
69			69			69			69			69	Lift 1/2"		69	Lift 1/4"	
TOTAL LENGTH	18'		TOTAL LENGTH	18'		TOTAL LENGTH	18'		TOTAL LENGTH	18'		TOTAL LENGTH	15'		TOTAL LENGTH	21'	

PIER #25			PIER #26			PIER #27			PIER #28		
DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.		DEPTH	PRESS.	
(feet)	(psi)		(feet)	(psi)		(feet)	(psi)		(feet)	(psi)	
3	700		3	600		3	700		3	800	
6	1000		6	900		6	900		6	1300	
9	1300		9	1200		9	1300		9	1600	
12	1600		12	1700		12	1700		12	1800	
15	2000		15	2200		15	2500		15	3400	
18	2500		18	2500		18			18		
21	3400		21	3000		21			21		
24			24			24			24		
27			27			27			27		
30			30			30			30		
33			33			33			33		
36			36			36			36		
39			39			39			39		
42			42			42			42		
45			45			45			45		
48			48			48			48		
51			51			51			51		
54			54			54			54		
57			57			57			57		
60			60			60			60		
63			63			63	Colum		63	Colum	
66			66			66	Corner		66		
69	Lift 1/4"		69	Lift 1/4"		69	Lift 1/2"		69		
TOTAL LENGTH	21'		TOTAL LENGTH	21'		TOTAL LENGTH	15'		TOTAL LENGTH	15'	







