A2B ENGINEERING, LLC
CONSULTING ENGINEERS

February 5, 2025

Complete Highway Identity, Inc
1521 Alton Road Suite #571
Miami Beach, Florida 33139

Attention: Ms. Mirnesa Hasanovic

Subject: Wifi Pole Drilled Shaft Repair Letter
SFCT Cargo Yard Densification Phase 2, Port Miami
Miami-Dade County, Florida

Dear Ms. Hasanovic,

The drilled shaft to support the SFCT Yard wifi pole was installed on January 7th, 2025. The shaft in question is a 4.5' Ø x 40' long drilled shaft with 18 #11 bars and #5 rebar ties. The adequacy of the drilled shaft in the as-built condition has come into question for the following three points of concern:

1. The tremie pipe was removed from the drilled shaft concrete and then reinserted during the pour. It was noted that this created a potential for cave-ins which may not be observed in cross-hole sonic logging results.
2. Placement time was 5.25 hours creating concerns that a minimum slump of 5-inches may not have been maintained during the concrete placement period.
3. Theoretical vs. actual concrete placement volumes shown in the drilled shaft log are inaccurate.

In regard to these concerns, cross-hole sonic logging (CSL) testing was performed, and the ready-mix concrete supplier provided the results of their slump loss test performed for the drilled shaft's concrete mix (Mix 5002.011, see Figure 1). **Per the CSL report, "no velocity reductions greater than 10 percent were observed throughout the tested shaft length. Based on the CSL analysis, the integrity of the subject shaft is recommended to be acceptable.".**

PAVEMENT CORP

MAC Sample ID:

Slump Loss Test
Mix: 5002.011
Ticket: 136556
Date: 5/3/2024

Time	Slump	Ambient Temp	Concrete Temp	Air (%) Roller M	Time
9:50 AM					
10:00 AM	10	81.0	80.0	3.75	0:10
10:30 AM	10	81.0	82.0		0:40
11:00 AM	10	81.5	83.0		1:10
11:30 AM	9 3/4	82.0	83.0		1:40
12:00 PM	9 1/4	84.0	85.0		2:10
12:30 PM	9	84.0	86.0		2:40
1:00 PM	8 1/2	84.0	86.0		3:10
1:30 PM	8	85.0	87.0		3:40
2:00 PM	7 1/2	86.0	89.0		4:10
2:30 PM	6 3/4	86.0	90.0		4:40
3:00 PM	5 1/2	87.0	91.0		5:10
3:30 PM	4	87.0	93.0		5:40

Figure 1: Slump Loss Test

In regard to the first point of concern, A2B sees no significant risk of cave-ins associated with the removal of the tremie pipe. The tremie pipe had

an inside diameter of 5" per the drilled shaft concrete placement log. Compared to the 54" drilled shaft diameter (80 times the cross-sectional area of an assumed 6" outer diameter tremie pipe), the change in elevation of the top of the fluid drilled shaft concrete was not significant (estimated 3"). As the polymer slurry was still present, this provided resistance against cave-ins. The tremie pipe was removed due to delayed concrete delivery trucks but was reinserted by 4:16 pm. As the initial concrete batch time for the first placed batch was 2:24pm, based on the slump loss testing, this indicates that the previously placed concrete maintained a significant slump of 9¼" indicating good workability of the concrete during reinsertion of the tremie pipe. This allowed for escape of any trapped air/slurry as supported by the CSL results which verified the center of the drilled shaft concrete quality (polygon between CSL tubes).

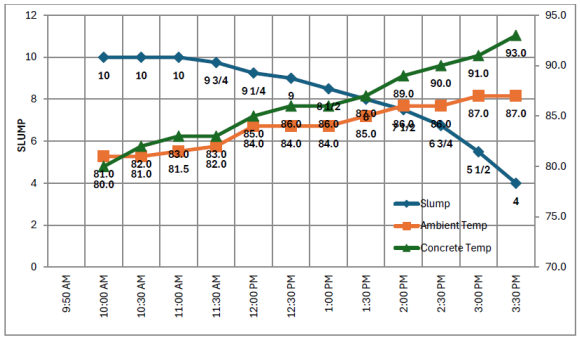

Figure 2: Slump Loss Chart

In regard to the second point of concern, the pour took 5.25 hours and the interpolated slump per the concrete supplier's slump test data indicates that initially placed concrete would have a slump of 4¾" at the conclusion of the pour (5" minimum at time of placement is required). This poses concerns of disturbing partially set concrete which could lead to compromised structural integrity of the concrete, cracks, or reductions in serviceability. However, the concrete with slump anticipated to be less than 5" was in the bottom of the drilled shaft and only outside of acceptable limits for the final 15 minutes of the pour. This concrete is well away from the limits of disturbance from the concrete placement. It is therefore our finding that concrete within areas disturbed by concrete placement satisfied 5" slump criteria for the duration of the pour. It is our finding that there are no reductions in strength or serviceability associated with the slumps of the concrete during placement.

In regard to the third point of concern, A2B reviewed the drilled shaft log, and has requested that Skyrise Engineering revise and resubmit with updated calculations. Based on our review of the drilled shaft log, the provided rebar cage is 39' long and the top of the cage is positioned at EL. 4.50 (corresponding to a top of shaft elevation of 4.83'). **Per page 5 of the drilled shaft log, the final concrete elevation after truck 559 was not updated from 0.33 to the top of the beauty ring elevation, but the volume of concrete placed was considered within the drilled shaft. If the beauty ring is ignored the volume of concrete placed should be 23.55 cubic yards (excluding truck 559). This corresponds to a more reasonable A/T ratio of 23.55/21.64 = 1.09 for the first three trucks.** It should be noted that most of the difference between actual and theoretical volumes occurred during the first truck's concrete placement. The concrete was reported to have changed in elevation from -36.40 to -24.27 during the first truck's delivery. This corresponds to only a theoretical volume of concrete of 7.14 cubic yards, but it is reported that

8.25 cubic yards were placed. The bottom of the shaft is likely to be slightly oversized from the initial excavation. The balance of concrete overpour may be attributed to truck 3 overpouring.
It is our finding that the as-built drilled shaft has no reductions in structural functionality or serviceability. We therefore recommend its acceptance so that it may be incorporated into the final structure.

We trust that the above will be acceptable. Please let us know if you require any additional information.

Sincerely,

A2B Engineering, LLC,

Paul R. Steijlen, P.E. 44780
Senior Bridge Engineer