

**IN THE CIRCUIT COURT OF THE ELEVENTH JUDICIAL  
CIRCUIT IN AND FOR MIAMI-DADE COUNTY, FLORIDA**

CASE NO: 2021-015089-CA-01

SECTION: CA43

JUDGE: Michael Hanzman

**In re:**

**Champlain Towers South Collapse Litigation.**

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***NOTICE OF FILING JOINT PROTOCOL FOR TESTING AND MATERIAL SAMPLING –  
COLLAPSE SITE AND [PROPOSED] ORDER REGARDING JOINT PROTOCOL FOR  
TESTING AND MATERIAL SAMPLING – COLLAPSE SITE***

Champlain Towers South Condominium Association, Inc. (the “Association”), through its Court-appointed Receiver Michael I. Goldberg, hereby files the *Joint Protocol for Testing and Material Sampling – Collapse Site* (Exhibit A) and proposed *Order Regarding Joint Protocol for Testing and Material Sampling – Collapse Site* (Exhibit B).

Dated: January 21, 2022

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

**I HEREBY CERTIFY** that on January 21, 2021, a true and correct copy of this *Notice of Filing Joint Protocol for Testing and Material Sampling – Collapse Site and [proposed] Order Regarding Joint Protocol for Testing and Material Sampling – Collapse Site* was filed electronically through the Florida Court’s E-Filing Portal, which will provide electronic service of the filing to all counsel of record.

By: /s/ Christopher S. Carver  
Attorney

# Exhibit A

## CHAMPLAIN TOWERS SOUTH COLLAPSE INVESTIGATION:

### Joint Protocol for Testing and Material Sampling – Collapse Site

In accordance with the Court Order dated September 1, 2021, this document presents the protocol for testing and material sampling at the collapse site (the "Protocol") and has been developed considering input from involved Participants.

#### DEFINITIONS

- **Consultant** – Geosyntec Consultants, Inc., an independent consultant approved by the Receiver to coordinate, plan, oversee, and provide factual reporting as defined in this Protocol to the Experts/Participants. The Consultant will employ Testing Agencies and Contractors to meet the goals of the Protocol. Payment to Consultant for its fees and costs shall be paid by all Participants as defined in the "Payment of Costs" section below.
- **Contractor** – Company, or companies, approved by the Receiver to engage in providing construction, samples, borings, security, or other support for execution of the Protocol. The Contractors shall be engaged by the Consultant. Payment for services shall be remitted to Consultant for payment to Contractors. Payment for Contractors' services shall be paid by all Participants as defined in the "Payment of Costs" section below.
- **Court** – Circuit Court of the 11<sup>th</sup> Judicial Circuit in and for Miami-Dade County, Florida.
- **Expert** – Engineers (or other disciplines) investigating the collapse on behalf of Participants.
- **Litigation** -- *In Re: Champlain Towers South Collapse Litigation*, Case No. 2021-015089-CA-01, pending in the Eleventh Judicial Circuit Court in and for Miami-Dade County, Florida
- **Participant** – A party or entity authorized or defined by the *Order Approving Protocol for Inspection, Documentation, and Storage of Components, Remnants, and Debris of The Champlain Towers South Collapse*. Notwithstanding anything to contrary herein, non-parties to the Litigation are not Participants; *however*, such non-parties may participate in the testing and investigations set forth in this Protocol if authorized to do so by the Court.
- **Protocol** – This document, titled *CHAMPLAIN TOWERS SOUTH COLLAPSE INVESTIGATION: Proposed Joint Protocol for Testing and Material Sampling – Collapse Site*.
- **Receiver** – Michael I. Goldberg, Esq., on behalf of the Champlain Towers South Condominium Association, Inc.
- **Testing Agency** – An independent company, approved by the Receiver and working under the direction of the Consultant and/or Receiver to facilitate surveying, sampling, borings, materials testing, and report factual results. The Testing Agency will use Contractors as necessary to carry out the Protocol. The Testing Agencies shall be engaged by the Consultant. Payment to Testing Agencies for their services shall be paid by all Participants as defined in the "Payment of Costs" section below.

#### GENERAL

**Scope.** The Protocol applies to the Champlain Towers South site. A separate or amended protocol for testing and materials sampling at the primary evidence facility will be developed later.

**Objective.** The Protocol is intended to provide reliable *factual* information needed to support the collapse investigations by the Experts, including but not necessarily limited to the following:

- Mechanical, physical, and chemical characteristics of construction materials
- Subsurface conditions, including soils, rocks, water, pile caps, and piles

- Physical configuration of structural and waterproofing components, including the plaza deck, perimeter foundation walls, shear walls, columns, and basement slab.

**Reporting.** It is envisioned that the Consultant, who does not represent Participants, will obtain this factual information. The factual information will be shared among Participants. Except as noted below, reporting to Participants shall include factual information only (without interpretation or opinion), including the following:

- Testing standards and methodology
- Documentation of the locations and extraction of samples for materials testing
- Test results in a format usable for engineering analysis and interpretation
- Given that geophysical testing requires interpretation to prepare result reports, one report for each geophysical test shall be prepared for the benefit of all parties. Geophysical consultants shall prepare a written narrative that shows the basis for any interpretation in each report.

**Project Updates.** The Consultant will conduct daily meetings at the end of each day at the site to discuss the work completed on that day and the work anticipated for the following day. Additionally, the Consultant will conduct weekly virtual meetings to discuss the work completed during that week and the multi-week look-ahead planned work. The Consultant will issue project updates weekly. The project updates will include:

- Field testing/sampling
  - Anticipated start dates and testing duration
  - At least one week of notice prior to commencement of testing
- Laboratory testing
  - Anticipated start dates and testing duration
  - At least one week of notice prior to commencement of testing
- Issues/deviations encountered at site
- Daily site visit reports (to be uploaded to a secure Extranet)

Photos and videotaping of site sampling operations; videotaping of laboratory testing shall be conducted and agreed upon for each laboratory test.

**Extranet.** The Consultant will provide data, photos, videos, and other factual information on a secure FTP/Sharepoint site (or equivalent).

**Access to Site.** The site is located at 8777 Collins Ave. in Surfside, Florida. The entrance and security check-in trailer are in the northeast corner of the site. Participants, Experts, Testing Agencies, Contractors, and other site visitors seeking access shall comply with the following:

- Submit all requests for access to the site through the Receiver.
- Notify the Receiver at least two (2) business days before the planned site visit.
- Sign a waiver releasing the Receiver of liability and provide proof of liability insurance coverage, naming the Receiver as additional insured.
- Comply with established procedures for signing in and signing out. These procedures include but are not limited to surrendering driver's licenses and wearing wristbands during each visit.

**Observation of Site Sampling and Testing.** Participants and Experts shall be permitted to observe sampling and testing conducted at the site and laboratories as agreed upon by all Participants prior to testing. For laboratory testing, virtual observation of testing will be provided and the ability to comment on test procedure for the first of any certain type of test, Participants shall be permitted to visit a lab and observe the first test. The first test of each test type shall also be videorecorded and promptly shared with the Participants for review and comments. The entirety of any test performed at a laboratory on a sample or material must be recorded by video if the sample or material either (i) cannot be reconstituted or retested, or (ii) will be altered by reason of the performance of the

test. Site testing can be observed in person, and any objections to the methodology can be raised on site, during daily meetings, and/or weekly virtual meetings.

**Safety.** All site visitors shall comply with state and federal safety regulations and the site safety protocol established by the Consultant. The Receiver may prohibit an individual from accessing the site in the event such individual fails to adhere to state and federal safety regulations and the site safety protocol established by the Receiver.

**Samples.** Except as permitted herein or expressly approved by the Receiver for additional testing, samples of any materials shall not be taken or removed from the site.

**Reserved/Backup Samples.** In addition to samples designated for testing under the Protocol, additional samples shall be taken and reserved for additional testing to address failed tests, ambiguous results, or disputed results. These samples shall be identified in the Testing Plans.

**Testing Plans.** Consultant and its Contractors and testing agencies shall prepare a detailed testing plan of each field and laboratory test to be performed meeting the requirements of this Protocol. The testing plans shall be shared for review by all Participants prior to executing the work.

If consensus is not reached, any dissenting Participant may bring the disagreement to the Receiver's attention for resolution. If a resolution is not achieved, counsel for the Participant may choose to bring the disagreement to the Court for resolution.

**Chain of Custody.** All sample extraction and preparation in the field will be documented by photo and videotaping as agreed upon by the Participants. Samples will be extracted, protected per appropriate testing standards, and labeled. A chain of custody form will be issued for each sample/specimen. Samples will be placed in appropriate containers for the intended laboratory testing. After testing, the samples will be stored at a secure location (TBD) and preserved for future testing or observation.

**Additional or Specialized Testing.** Each Participant may, if they choose, spend additional days on site after the joint testing is complete to take additional samples for private testing and analysis by a laboratory of their choosing or to conduct additional testing on site. The Consultant will notify the Participants when the sampling for the Protocol is complete and such additional testing can begin. If the services of the Consultant are needed for additional or specialized testing, Participants will submit additional or specialized testing requests in writing to the Consultant. The Consultant will coordinate sampling and scheduling of samples. Any such additional samples taken or testing conducted over the additional days on site shall occur immediately after work performed under this Protocol. The Consultant/Contractor will remain on site following the conclusion of this Protocol for any Participant that wishes to take additional samples. Any additional or specialized testing, or any portion of it, may be completed by the Participant's own consultants and contractors without the participation of the Consultant (1) should the Participant so choose at its discretion, or (2) should the Consultant and its contractors lack the capacity, expertise or preparation to accomplish the additional testing. The Receiver shall be consulted for the scheduling of any additional or specialized testing and the Receiver shall make the site available for such additional or specialized testing coordinated with the Consultant and the Receiver. If any non-party Participant wishes to conduct additional testing, leave of Court is required. All Participants may observe additional specialized testing at the site.

For geotechnical testing using the Consultant's services, any Participant that chooses to remain on site following the conclusion of this Protocol for the purpose of collecting additional samples will be limited to additional borings at locations to be identified and provided in advance to the Consultant to be conducted within the agreed upon period for additional testing. The location(s) where any additional samples are taken from will be appropriately documented by the Consultant. For concrete and rebar sampling, the Participants shall be authorized to take companion samples of material taken under this Protocol during the agreed upon period for additional testing or as required by the Consultant or, depending upon the sequencing of work, while joint geotechnical testing is underway provided that the taking of additional concrete and rebar sampling will not interfere with other work on site.

The Receiver will permit Non-Destructive Testing to be coordinated and proceed before sampling.

**Payment of Costs.** Except for the costs attributable to additional or specialized testing, which costs are the sole responsibility of the Participant seeking such additional or specialized testing, each Participant's or other third-party's allocation of the costs incurred through performance of this Protocol shall be determined pursuant to an order from the Court.

**Audio and Video Recording.** Some or all of the work performed pursuant to this Protocol will be recorded via video and/or audio. Although the purpose of the video and/or audio recordings is to document and record the work performed pursuant to this Protocol, it is understood that said video and/or audio recordings may also capture conversations or statements made by on-site Participants and/or the Consultant. It is expressly agreed between the Participants that any conversations or statements that are captured and/or recorded in the video and/or audio recordings of the work performed pursuant to this Protocol shall not be admissible at trial for any purpose and may not be used by any Participant in this litigation or any other legal or administrative proceeding, including but not limited to at depositions, in hearings, or in any filings.

**Water Control.** Until sampling and site testing is complete, the Receiver will continue to arrange for removal of excess water that accumulates on the lower-level slab from leakage and rain. The Consultant shall implement a comprehensive dewatering program throughout the entirety of the slab and as otherwise as necessary throughout the site.

**General.** Nothing in this Protocol shall serve to confirm authorization or access to conduct inspections or testing on any property or portion thereof that is not under the ownership and control of the Champlain Towers South Condominium Association (in the "CTS Property"). There may be several boring, test pits and other tests anticipated under this Protocol that are not located on the CTS Property and are subject to access authorized by the property owner and/or Court approval.

## TESTING AGENCIES AND CONTRACTORS

Testing Agencies and Contractors extracting samples shall be named (including credentials) by the Consultant and selected by consensus among the Participants for the testing scope listed in Table 2. Laboratories performing the work shall be ISO 17025, AASHTO R 18 or USACE accredited (or acceptable equivalent) for the tests to be performed. Persons performing the work shall have documentation/training to perform the specific tests and/or tasks, (e.g., ACI certified laboratory technician performing compressive strength tests on concrete). All testing shall, at a minimum, meet the industry standard of care. The Consultant will coordinate the extraction and delivery of samples to Testing Agencies and collect and deliver testing reports to the Receiver. A Participant may request permission from the Receiver to visit (in person or virtually) one or more testing agency to examine samples and view testing procedures. Such visits will be coordinated by the Receiver and Consultant.

Table 1. Testing Agencies and Contractors

| Specialty               | Testing Scope            | Testing Agency/Contractor [website] |
|-------------------------|--------------------------|-------------------------------------|
| Structural              | Demolition               | To be determined                    |
|                         | Coring                   | To be determined                    |
|                         | Surveying                | To be determined                    |
| Surveyor                | Surveying                | To be determined                    |
| Laboratory Testing      | Concrete                 | To be determined                    |
|                         | Metals                   | To be determined                    |
| Petrography             | Petrography              | To be determined                    |
| Non-Destructive Testing | Ground penetrating radar | To be determined                    |
| Geophysics              | MASW/ER                  | To be determined                    |
|                         | Seismograph              | To be determined                    |

| Specialty    | Testing Scope                                                 | Testing Agency/Contractor [website] |
|--------------|---------------------------------------------------------------|-------------------------------------|
| Geotechnical | Borings and observation wells                                 | To be determined                    |
|              | Test pits                                                     | To be determined                    |
|              | Pile integrity testing (PIT)                                  | To be determined                    |
|              | Crosshole seismic testing                                     | To be determined                    |
|              | Laboratory testing                                            | To be determined                    |
|              | Seismic CPT testing                                           | To be determined                    |
|              | Parallel seismic testing for deep foundations and sheet piles | To be determined                    |

## TESTING METHODS AND STANDARDS

The Consultant, Testing Agencies, and Contractors shall adhere to the following standards for tests carried out. Proposed deviations from the standards shall be brought to the attention of all Participants and Experts through the Receiver. In general, non-destructive testing will occur before sampling. In addition, the following should be noted:

- General descriptions of the test methods are provided in Appendix A.
- Proposed testing locations are provided in Appendix B.



Table 2. Testing Standards

| Category           | Test                                                                       | Destructive | Standard/Guide                                                                                                                                                                                                                                                                                                                                 |
|--------------------|----------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Concrete Materials | C1 Compressive strength                                                    | Yes         | ASTM C39 and C42                                                                                                                                                                                                                                                                                                                               |
|                    | C2 Elastic modulus and Poisson's ratio                                     | Yes         | ASTM C469                                                                                                                                                                                                                                                                                                                                      |
|                    | C3 Splitting tensile strength                                              | Yes         | ASTM C496                                                                                                                                                                                                                                                                                                                                      |
|                    | C4 Air void parameters                                                     | Yes         | ASTM C457                                                                                                                                                                                                                                                                                                                                      |
|                    | C5 Petrography*                                                            | Yes         | ASTM C856 and C1723                                                                                                                                                                                                                                                                                                                            |
|                    | C6 Chloride profile                                                        | Yes         | ASTM C1218 and C1152                                                                                                                                                                                                                                                                                                                           |
|                    | C7 Ionic Species (e.g., sulphur, magnesium, sodium, and potassium) profile | Yes         | ASTM C114                                                                                                                                                                                                                                                                                                                                      |
| Reinforcing Steel  | R1 Reinforcing bar location survey using ground penetrating radar (GPR)    | No          | ASTM D6432 and ACI 228.2R-13                                                                                                                                                                                                                                                                                                                   |
|                    | R2 Tensile properties                                                      | Yes         | ASTM A615 and ASTM A370                                                                                                                                                                                                                                                                                                                        |
|                    | R3 Rockwell hardness                                                       | Yes         | ASTM E18                                                                                                                                                                                                                                                                                                                                       |
|                    | R4 Chemistry                                                               | Yes         | ASTM E415, ASTM A751                                                                                                                                                                                                                                                                                                                           |
|                    | R5 Section Loss / Pitting                                                  | Yes         | ASTM G46, ACI 364.14T-17                                                                                                                                                                                                                                                                                                                       |
| Geotechnical       | G1 Soil/rock borings**                                                     | Yes         | ASTM D1586, FDOT Soils and Foundation Handbook (as applicable) Participants request including pitcher samplers (ASTM D7015, ASTM D1587), X-ray of undisturbed samples (ASTM D4452), rock coring with inner spring barrel (ASTM D2113), RQD (D6032). Soil/rock characterization (ASTM D2487, D2488, and D5878). Permeability tests (ASTM D5912) |
|                    | G2 Observation well                                                        | Yes         | ASTM D5092; ASTM D5912.                                                                                                                                                                                                                                                                                                                        |
|                    | G3 Test pit excavation                                                     | Yes         | N/A                                                                                                                                                                                                                                                                                                                                            |
|                    | G4 Pile integrity testing (PIT)                                            | Yes         | ASTM D5882                                                                                                                                                                                                                                                                                                                                     |
|                    | G5 Crosshole seismic testing                                               | No***       | ASTM D4428                                                                                                                                                                                                                                                                                                                                     |
|                    | G6 Grain size analysis                                                     | Yes         | ASTM D6913, ASTM D7928                                                                                                                                                                                                                                                                                                                         |
|                    | G7 Moisture content                                                        | Yes         | ASTM D2216                                                                                                                                                                                                                                                                                                                                     |
|                    | G8 Organic content                                                         | Yes         | ASTM D2974                                                                                                                                                                                                                                                                                                                                     |
|                    | G9 Incremental consolidation                                               | Yes         | ASTM D2435                                                                                                                                                                                                                                                                                                                                     |
|                    | G10 Chlorides                                                              | Yes         | AASHTO T291                                                                                                                                                                                                                                                                                                                                    |
|                    | G11 Electrical resistivity                                                 | Yes         | ASTM G57                                                                                                                                                                                                                                                                                                                                       |
|                    | G12 pH                                                                     | Yes         | ASTM D4972 or G51                                                                                                                                                                                                                                                                                                                              |
|                    | G13 Sulfates                                                               | Yes         | ASTM D516                                                                                                                                                                                                                                                                                                                                      |
|                    | G14 Sulfides                                                               | Yes         | SM4500                                                                                                                                                                                                                                                                                                                                         |
|                    | G15 Unconfined compression of rock                                         | Yes         | ASTM D7012C                                                                                                                                                                                                                                                                                                                                    |
|                    | G16 Unit weight of Rock Cores                                              | Yes         | ASTM D7263                                                                                                                                                                                                                                                                                                                                     |
|                    | G17 Specific Gravity                                                       | Yes         | ASTM D854, ASTM D5778                                                                                                                                                                                                                                                                                                                          |
|                    | G18 Seismic CPT                                                            | Yes         | ASTM D5778                                                                                                                                                                                                                                                                                                                                     |
|                    | G19 Parallel Seismic Testing                                               | Yes         | ACI 228.2R and ASTM D8381                                                                                                                                                                                                                                                                                                                      |
|                    | G20 Drained and Undrained Triaxial Testing of Fine-Grained Soil Samples    | Yes         | ASTM D7181, ASTM D4767, ASTM D2850                                                                                                                                                                                                                                                                                                             |
|                    | G21 Seismograph                                                            | No          | N/A                                                                                                                                                                                                                                                                                                                                            |

| Category                                                                                                                | Test        | Destructive | Standard/Guide |
|-------------------------------------------------------------------------------------------------------------------------|-------------|-------------|----------------|
|                                                                                                                         | G22 MASW/ER | No          | NA             |
| * Due to the nature of Petrographic testing samples will be provided to labs as requested by Participants and available |             |             |                |
| **Includes SPT, and obtaining and testing of soil and rock samples                                                      |             |             |                |
| ***Uses borings; however, the test is non-destructive                                                                   |             |             |                |

## CONCRETE SAMPLING AND TESTING PLAN

The table below lists tests of concrete core samples. Final locations are to be determined by the consensus of the Experts and depend on site conditions and locations of interest and shall be provided to the Receiver at least seven (7) days prior to the commencement of the concrete core sampling.

Table 3. Concrete Sampling and Testing Plan

| Core Sample Phase/Location | Element                                                                                                                           | Original Element Location                      | Number of Cores*** | Test Type and Number<br>(See Table 2) |             |             |                         |                               |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------------------|---------------------------------------|-------------|-------------|-------------------------|-------------------------------|
|                            |                                                                                                                                   |                                                |                    | C1<br>Comp.                           | C2<br>E & v | C3<br>Tens. | C4 & C5*<br>Voids/Petro | C6 & C7<br>Cl & Ionic Species |
| Site                       | Slab                                                                                                                              | Basement                                       | 33                 | 13                                    | 3**         | 3           | 3                       | 3                             |
| Site                       | Perimeter Wall                                                                                                                    | Basement                                       | 33                 | 13                                    | 3**         | 3           | 3                       | 3                             |
| Site                       | Pile Cap                                                                                                                          | Below Basement Slab                            | 22                 | 6                                     | 4           | 4           | 4                       | 0                             |
| Site                       | Pile                                                                                                                              | Below Pile Cap                                 | 22                 | 6                                     | 4           | 4           | 4                       | 0                             |
| Site                       | Pool Deck Slab (remaining area at SE corner of site, including all layers (i.e., structural slab, topping, waterproofing, pavers) | Pool Deck at Lobby Floor                       | 8                  | 3                                     | 1**         | 2           | 1                       | 1                             |
| Site                       | Shear Walls                                                                                                                       | Gridline M at Basement and West Core           | 12                 | 6                                     | 2**         | 0           | 2                       | 0                             |
| Site                       | Columns (rubble within extant rebar)                                                                                              | Various columns on gridlines E, L, M, O, and Q | 15                 | 0                                     | 0           | 0           | 10                      | 0                             |
| Site                       | Beams                                                                                                                             | Between Gridlines N-O and 8-10                 | 9                  | 6                                     | 2           | 0           | 2                       | 0                             |
| <b>Total***</b>            |                                                                                                                                   |                                                | <b>154</b>         | <b>53</b>                             | <b>19</b>   | <b>16</b>   | <b>29</b>               | <b>7</b>                      |

\*Tests C4 and C5 will be conducted on the same core sample; separate core samples are needed for all other tests.

\*\*One of the three cores used for compressive strength will also be used to determine modulus of elasticity and Poisson's ratio.

\*\*\*Collect spare samples at each location for backup/additional testing (Consultant/Testing Agency to provide plan)

## REINFORCING STEEL SAMPLING AND TESTING PLAN

Table 4 lists the general location and number of samples. Final locations are to be determined by the consensus of the Experts and depend on site conditions and locations of interest and shall be provided to the Receiver at least seven (7) days prior to the commencement of the steel sampling.

Table 4. Reinforcement Sampling and Testing Plan

| Bar Sample Location | Element                                 | Original Element Location        | Bar Size  | Number of Bars***** | Test Type and Number 8<br>(See Table 2) |               |               |               |                  |
|---------------------|-----------------------------------------|----------------------------------|-----------|---------------------|-----------------------------------------|---------------|---------------|---------------|------------------|
|                     |                                         |                                  |           |                     | R1*<br>GPR                              | R2**<br>Tens. | R3**<br>Hard. | R4**<br>Chem. | R5<br>Sect. Loss |
| Site                | Slab                                    | Basement                         | #5        | 6                   | 4                                       | 6             | 3             | 1             | 6                |
| Site                | Wall                                    | Basement                         | #5        | 23                  | 4                                       | 23            | 23            | 4             | 23               |
| Site                | Column                                  | Basement                         | N/A       | N/A                 | 2                                       | 0             | 0             | 0             | 0                |
| Site                | East Shear Wall                         | Basement                         | #10/#11   | 0                   | N/A                                     | 0             | 0             | 0             | 0                |
| Site                | Slab                                    | Pool Deck                        | #4/#5**** | 16                  | 0                                       | 16            | 16            | 4             | 16               |
| Site                | South Wall                              | Pool Deck                        | #5*****   | 10                  | 0                                       | 0             | 0             | 0             | 10               |
| Site                | Columns (rebar protruding through slab) | Type N Columns***                | #7        | 3                   | N/A                                     | 3             | 3             | 1             | 3                |
| Site                | Columns (rebar protruding through slab) | Various Type A and L Columns     | #10       | 3                   | N/A                                     | 3             | 3             | 1             | 3                |
| Site                | Columns (rebar protruding through slab) | Various Type C, D, and G Columns | #11       | 3                   | N/A                                     | 3             | 3             | 1             | 3                |
| Site                | Column                                  | Various Ties from Columns        | #3/#4/#5  | 3                   | N/A                                     | 3             | 3             | 1             | 3                |
| <b>Total</b>        |                                         |                                  |           | <b>67</b>           | <b>10</b>                               | <b>57</b>     | <b>54</b>     | <b>13</b>     | <b>67</b>        |

\*Non-Destructive Testing (approximately 10 ft x 10 ft area)

\*\*Tests R1, R2 and R3 to be conducted on the same bar sample

\*\*\*No. 7 rebar remaining in the slab at columns that supported the pool deck will be over-cored and removed for inspection only.

\*\*\*\*Two bars top and bottom bars in each direction

\*\*\*\*\*Exposed Vertical Bars, perform fractography examination of exposed bar ends.

\*\*\*\*\*Collect spare samples at each location for backup/additional testing (Consultant/Testing Agency to provide plan)

## ADDITIONAL STRUCTURAL INSPECTION/SAMPLING PLAN

The following inspections and samples shall be taken by the Consultant and examined on site or in the lab as applicable:

1. Plaza pool deck investigative work, including five (5) exploratory borings in the overburden, examination, field testing, and sampling of the waterproofing for laboratory testing. NOTE: This waterproofing sampling, field testing, and exploratory work must happen before destructive work on the underlying structure.
2. Pool deck slab N/S construction joint probe:
  - a. Provide additional pool deck slab shoring as required;
  - b. Shore top edge of adjoining privacy wall against lateral out-of-plane movement as required;
  - c. Locate all bars passing through construction joint along a 4 ft length of construction joint;
  - d. In the presence of all interested parties and under video observation, sawcut and remove a 4 ft (north-south) x 3 ft (east-west) slab of the existing pool deck slab and topping slab along the joint, taking care not to damage or drop the slab during sawcutting and removal;
  - e. Two (2) sawcut openings in the west edge of the remaining pool deck plaza to expose the cold joint assembly;
  - f. One (1) sawcut opening in the west edge of the remaining pool deck plaza to expose the slab-to-hot tub wall connection;
  - g. One (1) sawcut in the north edge of the remaining pool deck plaza to expose the slab-to-corbel connection;
  - h. Seal the preserved slab in heavy plastic and set aside for retrieval by laboratory for controlled and video-documented deconstruction; and
  - i. Measure and photo document the remaining sawcut cross section of the construction joint.
3. Privacy wall probe:
  - a. Provide additional pool deck slab shoring as required;
  - b. Shore top edge of adjoining privacy wall against lateral out-of-plan movement as required;
  - c. In the location where the pool deck slab is remaining west of the pool, GPR a 4 ft wide section (wider if necessary) of the CMU wall to locate the wall vertical bar(s) and dowels,
  - d. Make two vertical sawcuts, 4 ft apart and capturing the location of the vertical bar(s), to isolate CMU wall to be inspected/demolished from remainder of privacy wall;
  - e. In the presence of all interested parties and under video observation, sawcut and remove a 3 ft (east-west) x 3 ft (tall) portion of the existing wall, taking care not to damage or drop the wall during sawcutting and removal;
  - f. Seal the preserved wall portion in heavy plastic and set aside for retrieval by laboratory for controlled and video-documented deconstruction; and
  - g. Measure and photo document the remaining sawcut cross section of the wall.
4. South foundation wall to pool deck slab joint probe:
  - a. Provide additional pool deck slab shoring as required;
  - b. Shore top edge of adjoining privacy wall against lateral out-of-plan movement as required;
  - c. Within the 4 ft wide privacy wall probe, GPR a 3 ft x 3 ft area of the pool deck slab and a 3 ft x 3 ft area of the supporting wall to locate the rebar;
  - d. In the presence of all interested parties and under video surveillance, sawcut a 3 ft (north-south) x 3 ft (east-west) slab of the existing pool deck slab and topping slab along the joint, taking care not to damage or drop the slab during sawcutting;
  - e. After sawcutting through the slab, in the presence of all interested parties and under video observation, continue to sawcut the supporting wall and remove the L-shaped portion of the slab-to-wall connection as shown in page 6 of the attached figures;
  - f. Seal the preserved wall portion in heavy plastic and set aside for retrieval by laboratory for controlled and video-documented deconstruction;
  - g. Measure and photo document the remaining sawcut cross section of the slab and wall;
  - h. Provide six (6) test pits (as shown on SK-03) to expose the beach access walkway assembly and the top of the south perimeter sheet pile wall driven for the construction of 8777 Collins Ave. Note,

- these are not test pits to the bottom of the foundation wall;
- i. Provide six (6) exploratory openings in the exposed interior face of the southern perimeter basement wall that align with the test pits in item (h). Exploratory openings shall expose the sheet pile wall and embedded steel reinforcement; and
  - j. Visually survey and use a carpenter/mason's hammer sound the exposed interior face of the wall to map cracks and detect delamination as described in ASTM D4580. At delaminated locations perform selective demolition of the concrete perimeter wall from the basement interior to expose the sheet pile wall and embedded steel reinforcement. Remove one (1) sample of embedded reinforcement steel and sheet pile wall at each opening location.
5. Measure the depth of the foundation wall sheet piling at two locations along the south wall using parallel seismic testing (cross-reference test G19);
  6. Survey top edge geometry of sheet piling at 20 ft on center maximum, capturing all abrupt elevation changes (absolute elevation or elevation relative to bottom of pool deck slab):
    - a. Where required, chip the concrete to expose the top of steel sheet pile;
    - b. Optically survey the top of the sheet piles at 20 ft on center maximum, capturing all abrupt elevation changes;
    - c. Optically survey the elevation of the bottom of pool deck slab near the pool;
    - d. Reference the surveyed elevations to a datum.
  7. Take 1 ft x 1 ft samples of sheet pile at two locations along the south wall for measuring thickness, material properties, and corrosion quantity and quality (uniform loss or pitting);
  8. Chip concrete at each shear wall boundary zone to expose boundary element ties for observation and documentation by all interested parties;
  9. Provide test pit at undocumented column at grid O/8.5;
  10. Provide two (2) exploratory openings to expose the top of the west perimeter sheet pile wall driven for the construction of 8777 Collins Ave;
  11. Provide two (2) exploratory openings to expose the top of the north perimeter sheet pile wall driven for the construction of 8777 Collins Ave;
  12. Provide two (2) exploratory openings to expose the top of the east perimeter sheet pile wall driven for the construction of 8777 Collins Ave;
  13. Provide two (2) exploratory openings to expose the slab-to-wall connection at the bottom of the south perimeter basement wall.
  14. Provide one (1) exploratory opening to expose the slab-to-wall connection at the bottom of the north, west and east perimeter basement wall; and
  15. Perform level survey of the basement slab on grade capturing slab elevation at all column locations, adjoining location at the perimeter wall as applicable, shear walls, and the midspans of bays. In addition, the surveyed elevations to a datum must be referenced.

## GEOTECHNICAL INVESTIGATION PLAN

The following geotechnical plan is developed as a basis for understanding site conditions and the foundation system. The test details and standards are to be developed based on the Experts' input and the Consultant engaged in carrying out the plan. The table lists general locations of borings and tests/samples. Final locations are to be determined by consensus of the Participants and will depend on site conditions and locations of interest. Details on sampling within the borings are shown in the attached plan (Appendix B) and described in section *G1 Soil/Rock Borings* (Appendix A).

The locations and numbers of tests for G6-G17 will be recommended by the Experts in consultation with the Consultant and approved by the Receiver and/or the Court. Note: Nothing in this Protocol shall serve to confirm authorization or access to conduct inspections or testing on any property or portion thereof that is not CTS Property. There may be several boring and test pits anticipated under this Protocol that are not located on the CTS Property and are subject to access authorized by the property owner and/or Court approval. The Protocol schedule shall be adjusted if circumstances outside of the Receiver's, the Consultant's, or the Participants' control, such as, but not limited to, permitting delays, access to adjoining properties, contractors' availability, equipment and material shortages, damage to samples collected, weather events, or COVID-related issues, materially impact the schedule.

Table 5. Geotechnical Sampling and Testing Plan – Receiver to coordinate any request for additional testing by site purchaser

| Sample/Test Location          | Test Type and Number***<br>(See Table 2) |                  |                  |           |                          |            |            |
|-------------------------------|------------------------------------------|------------------|------------------|-----------|--------------------------|------------|------------|
|                               | G1<br>Borings                            | G2<br>Obs. Wells | G3*<br>Test Pits | G4<br>PIT | G5<br>Crosshole<br>Seis. | G18<br>CPT | G19<br>PSL |
| Slab Corners                  | 0                                        | 0                | 0                | 0         | 0                        | 0          | 0          |
| Within Building<br>Footprint  | 33                                       | 6                | 23               | 22        | 5                        | 12         | 0          |
| Outside Building<br>Footprint | 7                                        | 1                | 5                | 5         | 0                        | 2          | 4          |
| <b>Total</b>                  | <b>40</b>                                | <b>7</b>         | <b>28</b>        | <b>27</b> | <b>5</b>                 | <b>14</b>  | <b>4</b>   |

\*Core drill through pile cap and full length of pile

\*\*Non-Destructive Testing

## SCHEDULING AND ESTIMATED TIME REQUIRED ONSITE

The table below shows the estimated start date and time on site required for sampling and testing.

Table 6. Estimated testing start date and time required onsite

| Sampling/Test                                                                           | Estimated Start Date | Estimated Time Required on Site |
|-----------------------------------------------------------------------------------------|----------------------|---------------------------------|
| Concrete Sampling                                                                       | TBD                  | TBD                             |
| Steel Sampling                                                                          | TBD                  | TBD                             |
| Concrete/Steel Laboratory Testing                                                       | TBD                  | TBD                             |
| G1 Soil Borings, G2 Observation Wells,<br>G5 Crosshole Seismic, G18 Seismic CPT,<br>G20 | TBD                  | TBD                             |

|                                                                          |     |     |
|--------------------------------------------------------------------------|-----|-----|
| <b>G3 Test Pits, G4 Pile Integrity Testing,<br/>G19 Parallel Seismic</b> | TBD | TBD |
| <b>G6-G17,G20 Laboratory Testing</b>                                     | TBD | TBD |
| <b>G21, G22 MASW/ER, Seismographs</b>                                    | TBD | TBD |



## **APPENDIX A**

This appendix is intended to provide a brief description and outline requirements for each testing method in the Protocol. These descriptions should not be considered comprehensive and Participants should consult with their Experts for further information. Note: for all testing, the most recent and applicable testing standards and guides are to be used.

### **SITE SAFETY**

The safety and wellbeing of all individuals on site, as well as the safety and wellbeing of those that may be impacted by the work performed under this Protocol shall at all times be the first and foremost priority of all individuals and companies involved in the performance of work. All work shall be performed in accordance with all local, state and federal rules and safety regulations and guidelines, including OSHA. Consultant will develop a site safety plan for the work which anyone entering the site must accept and adhere to. If anything in this Protocol calls for work to be done in a manner deemed unsafe by the Consultant or any Contractor, then said Consultant or Contractor shall not proceed with the work and all parties shall discuss how to proceed more safely. The Participants shall not be responsible for the implementation for any safety program nor have any responsibility for site safety, with the exception of making sure that they themselves comply with the safety program implemented by the Consultant. The Consultant may request that Receiver expel a Contractor or Participant that violates the safety plan.

### **CONCRETE TESTING**

#### ***Concrete Core Removal***

All core samples shall be taken using a 4-inch diameter core barrel (core diameter =  $\pm$  3.7-inch) or largest barrel suitable to fit between bars at a specific location. Each sample shall be marked, measured (diameter and overall length), described, and photographed, including the size and condition of any embedded reinforcement.

Core samples shall be taken and conditioned per ASTM C42. Before coring, the surface shall be sounded with a hammer as described by ASTM D4580, and reinforcing bars in the vicinity shall be located using ground penetrating radar (GPR) or pachymeter. Cores for petrographic examination will be taken through near-surface reinforcing bars, especially where delamination planes have been identified by sounding. Otherwise, coring operations should avoid reinforcement. Core holes shall be inspected to determine if any cracks in the core samples are also present in the concrete. Cores intended for compression testing or splitting tensile testing shall be retaken if the cores include reinforcement, large voids, or cracks that preclude obtaining a 6-inch long sawn sample without such characteristics. After cores have been drilled, wipe off surface drill water and allow remaining surface moisture to evaporate. When surfaces appear dry, but not later than 1 hour after drilling, place cores in separate plastic bags or nonabsorbent containers, seal to prevent moisture loss, and label for identification.

Core holes through the Level 1 slab and basement wall shall be patched as required to prevent groundwater entry. Table 4 lists the general location and number of cores. Concrete core samples will be extracted with a diamond impregnated, water-cooled core drill. After removal, the core holes will be photographed and then patched with a rapid-setting, cementitious repair material. The condition and location of each core will be documented with photographs and notes.

#### ***C1 Compressive Strength***

To determine concrete compressive strength, concrete cores shall be removed using a coring drill, trimmed, prepared for testing using sulfur capping, and loaded in a loading frame at a rate within a specified range. The compressive strength of the specimen will be calculated by dividing the maximum axial load sustained by the sample by the cross-sectional area of the specimen. Concrete core samples will be prepared and tested according to ASTM

C42 *Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete* and ASTM C39 *Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens*

#### **C2 Elastic Modulus and Poisson's Ratio**

These parameters will be measured using appropriate instrumentation in a loading frame during compressive loading of the specimens. Elastic modulus and Poisson's ratio will be measured according to ASTM C469 *Standard Test Method for Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression*.

#### **C3 Splitting Tensile Strength**

Splitting tensile strength testing provides measurements to calculate the concrete tensile strength of the tested specimen. This test method consists of applying a diametral compressive force at a rate within a prescribed range along the length of a concrete core specimen in a load frame until failure occurs. The maximum load sustained by the specimen is divided by appropriate geometrical factors to obtain the splitting tensile strength. Splitting tensile strength will be measured in accordance with ASTM C496 *Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens*.

#### **C4 Air Void Parameters**

Determining air void parameters involves examining a concrete cross-section under a microscope. One of three procedures will be used to determine air void parameters, including specific surface, void frequency, spacing factor, and paste air ratio of the air-void system in hardened concrete:

1. Linear-traverse method
2. Modified point-count method
3. Contrast-enhanced method

Air void parameters will be determined in accordance with ASTM C457 *Standard Test Method for Microscopical Determination of Parameters of the Air-Void System in Hardened Concrete*.

#### **C5 Petrography**

A petrographic examination consists of a series of observations of hardened samples that are interpreted to draw conclusions about the composition, quality, water to cement ratio, and probable cause(s) of potential problems associated with concrete or other construction materials. To conduct a petrographic examination, a core sample will generally be sliced in half lengthwise. One of the resultant halves will be lapped (polished) to accentuate the appearance of the components of the concrete (air voids, aggregates, and cement paste). Additional thin sections and smaller polished sections can also be made for petrographic microscope and scanning electron microscope (SEM) evaluations of cement paste and including microscopic chemical analysis.

A powder mount is obtained by scratching off a very small portion of the paste and mounting the resultant powder on a glass microscope slide in immersion liquid. Examination of a powder mount allows the properties of the cement paste to be studied in detail. Petrographic examination will be carried out in accordance with ASTM C856 *Standard Practice for Petrographic Examination of the Hardened Concrete* and ASTM C1723 *Standard Guide for Examination of Hardened Concrete Using Scanning Electron Microscopy*.

All samples and epoxied discs shall be preserved for review by other experts if needed and access granted when requested. The petrographic report shall include descriptions of the method(s) of preparation of the samples and full documentation of the images and other aspects of the samples that the lab personnel have based their interpretations on. The preparation and cutting of the samples by the lab technicians shall be video recorded.

#### **C6 Chloride Profile**

Chloride ion content testing will be performed on selected core samples to determine whether chloride contamination from salts has accumulated to sufficient levels to promote corrosion of reinforcing steel. Selected core samples will be cut into slices at pre-determined depths, and the slices will be pulverized to facilitate chloride

content analysis in general conformance with ASTM C1152 *Test Method for Acid-Soluble Chloride in Mortar and Concrete* and ASTM C1218 *Standard Test Method for Water-Soluble Chloride in Mortar and Concrete*. The acid-soluble chloride content represents both water-soluble and chemically-bound chloride within the cement paste and any chloride that may be present in the aggregate. The water-soluble chloride content represents only the chlorides in the cement paste and aggregates that are soluble in water. Slices will be taken at depth prescribed by ASTM C1556 *Standard Test Method for Determining the Apparent Chloride Diffusion Coefficient of Cementitious Mixtures by Bulk Diffusion*, Table 1. Table 1 in C1556 describes the depth at which slices should be taken given a known water to cement ratio. Thus, the water to cement ratio should be determined from petrographic analysis and then used to determine the number of slices to be analyzed chloride and other ionic species.

### **C7 Ionic Species Profile**

The same powder used for analysis of chloride content by ASTM C1218 and ASTM C1152 can be used to determine the content of sulfur, magnesium, sodium, and potassium found in the concrete by utilizing testing methods described in ASTM C114 *Standard Test Methods for Chemical Analysis of Hydraulic Cement*. In fact, C1152 and C1218 rely on the method for chloride analysis in C114. As these elements are part of the ocean salts or cement paste, changes in depth and concrete location can be useful in pinpointing deterioration mechanisms.

## **REINFORCING STEEL TESTING**

### ***Reinforcing Steel Sample Removal***

All reinforcing steel samples shall be extracted such that the samples are straight and undamaged by chipping hammers or other removal equipment. Deep saw cutting along and perpendicular to the bar is envisioned. Samples shall be at least 36 inches long. Each extracted sample shall be measured and photographed. Repair of sample locations may be necessary to prevent water intrusion.

### ***R1 Reinforcing Bar Location Survey Using Ground Penetrating Radar (GPR) – Non-Destructive***

To determine location (depth and spacing) and concrete cover of the reinforcing steel, ground penetrating radar (GPR) will be used. In addition to the non-destructive testing, limited destructive measures (e.g., drilling small ~1/2 in. diameter holes) will be used for correlation and calibration. GPR involves the use of a high-frequency radar antenna, which transmits electromagnetic radar pulses along with a discrete longitudinal scan at the surface of a structural element. Electromagnetic signals reflected from material interfaces having different dielectric properties (i.e., reinforcing steel embedded in concrete) are collected by the antennae and displayed graphically for direct interpretation in the field. Guidelines for GPR considered during this work included ACI 228.2R-13 *Report on Nondestructive Test Methods for Evaluation of Concrete in Structures* and ASTM D6432 *Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation*.

### ***R2 Tensile Properties***

Tensile properties of reinforcing bar specimens include yield strength, ultimate tensile strength, elongation, and elastic modulus. Tensile properties will be determined by testing as-rolled bar specimens in a load frame. Testing of tensile property shall be carried out in accordance with the applicable portions of ASTM A615 *Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement* and ASTM A370 *Standard Test Methods and Definitions for Mechanical Testing of Steel Products*.

### ***R3 Rockwell Hardness***

The Rockwell hardness test is an indentation hardness test that involves the use of a verified machine to force a diamond spheroconical indenter or tungsten carbide (or steel) ball indenter into the surface of a material. Hardness is determined based on the size of the indentation. Rockwell hardness testing will be carried out in accordance with ASTM E18 *Standard Test Methods for Rockwell Hardness of Metallic Materials*.

#### **R4 Chemistry**

A spectrometric analysis will be used to determine the quantity of carbon, iron, and residual elements in carbon steel (copper, nickel, arsenic, lead, tin, chromium, etc.) for the determination of compliance with compositional specifications (in this case, ASTM A615). Testing will be carried out in accordance with ASTM E415 *Standard Test Method for Analysis of Carbon and Low-Alloy Steel by Spark Atomic Emission Spectrometry*.

#### **R5 Section Loss/Pitting**

The extent of section loss and pitting on samples (particularly those tested in R2) will be determined according to ASTM G46 *Standard Guide for Examination and Evaluation of Pitting Corrosion* and ACI 364.14T-17 *Section Loss Determination of Damaged or Corroded Reinforcing Steel Bars*.

### **GEOTECHNICAL INVESTIGATION**

#### **G1 Soil/Rock Borings**

The following geotechnical investigation is proposed:

- Forty (40) borings with approximate locations as annotated in the attached Appendix B are proposed. Borings SPT-8, SPT-9, SPT-10 and SPT 14, which lie outside the perimeter of the Champlain tower walls to the south, will be performed with a smaller rig that fits in the narrow passageway.
- All borings are generally expected to extend to a rock layer at about 80 feet deep unless determined otherwise by the Participants.
- Boreholes for sampling shall be kept full of drilling fluid at all times. If needed, bentonite or suitable alternative should be added to keep the borehole full of drilling fluid and avoid borehole squeeze.
- The driller will open the SPT sampler and allow Participants to visually inspect the contents. Samples from the SPT sampler will be collected at various depths within the boreholes as directed by the Consultant and sealed in watertight containers. The drilling contractor will perform SPT testing and obtain samples at a maximum interval of every 5 feet, or as otherwise directed by the Participants. SPT samples will be collected continuously as directed by the Participants.
- Samples of the interbedded limestone/sand stratum will be obtained using Pitcher samplers in addition to split-spoon samples during the initiation of the subsurface investigation. The Consultant, in agreement with the Participants, shall evaluate and determine the need for subsequent Pitcher sampling as the subsurface investigation continues; however, pitcher sampling shall not be eliminated and shall be incorporated as a supplement in select borings to provide a comparison between split-spoon samples and pitcher samples. An alternative to the Pitcher sampler may be the use of a triple-tube core barrel to increase sample recovery and quality.
- The drilling subcontractor shall use methods and procedures to maximize core recovery. Coring shall be in accordance with FDOT standards. In addition, coring should be continuous, whether 5-ft or 10-ft core runs are used.
- Samples of soil and rock cores will be retrieved and shipped for further laboratory testing at a mutually agreed upon geotechnical testing laboratory. The Consultant will develop a protocol for adequate sample preservation and shipping.
- All Participants will be allowed to visually observe the joint investigation. Participants will not direct the drilling contractor for the forty (40) joint borings. All soil and rock samples will be allowed to be visually evaluated by all Participants on-site during the investigation.

The forty (40) boring locations are to be drilled by the same mutually agreed upon drilling contractor who will work with the Consultant to observe, log samples, and provide investigation reports. The drilling contractor shall provide sample boring and drilling logs and list of items to be included in the visual description for review by Participants. The Consultant will provide a sample boring log also for review by Participants. The Consultant will provide reports including, but not limited to, visual-manual soil identification per ASTM D2487 and D2488, SPT blow counts, RQD

and water level observations. The same contractor shall remain on site after the completion of the 40 borings so each Participant can perform additional tests, if so requested, for an agreed upon duration of time. The testing performed by each Participant after the first 40 borings can be visually observed by all Participants; however, the samples extracted will belong to the specific Participant coordinating the testing and can be destructively tested as needed.

In the standard penetration test (SPT) procedure, a 2-inch outer diameter split-barrel sampler is driven into the soil by repeatedly dropping a 140-pound hammer from a height of 30 inches. The length of the samplers can be 18 or 24 inches. The number of blows required to advance the sampler every 6 inches are recorded. The sum of the second and third blows is recorded as the SPT N values for that depth. SPT N values are utilized to correlate strength parameters for the soils. Accompanying energy measurements will be reported. Soil and rock borings shall be carried out in accordance with ASTM D1586 *Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils*.

- Soil borings will be advanced using the standard penetration test (SPT) procedure described above unless otherwise directed by the Consultant's geologist or engineer. The test provides samples for identification purposes and provides a measure of penetration resistance which can be used for geotechnical design purposes. The standard penetration test recovers a highly disturbed sample, which is generally not suitable for tests that measure properties of the in-situ soil structure, such as density, strength, and consolidation characteristics. The samples will be labeled, sealed, and transported to a laboratory for further index and classification testing. If fine-grained material is encountered, thin-walled tube samples should be used for obtaining intact specimens of fine-grained soils for laboratory tests to determine engineering properties. Similarly, if soils containing cohesive materials (clays) are encountered, thin-walled tube sampling should be performed to obtain minimally-disturbed samples. Drained and undrained triaxial testing will be performed on any samples of clay to establish strength parameters.
- The Consultant should provide draft investigation logs every week or sooner of all work completed the prior week.

## ***G2 Observation Wells and Water Quality Samples***

A standpipe will be installed after the completion of specified boreholes. Observation wells should be screened in separate strata. Certain observation wells should be screened in the sand stratum above the interbedded limestone/sand, and others should be screened in the interbedded limestone/sand stratum itself. These standpipes will be monitored for groundwater levels in the subsequent days of the investigation. An electronic transducer connected to a datalogger shall be installed in each well. The groundwater should be monitored at least six times daily until it is determined by Participants that it can be stopped, to develop a record of seasonal and other variations. A barometer shall be installed at the site. Sufficient dataloggers shall be installed at the site to read all installed sensors with provisions for the data to be provided to the Participants at regular intervals. Water quality samples will be collected and sent to an approved laboratory for testing. Field permeability testing in the sand and the interbedded limestone/sand strata in general shall be performed accordance with ASTM D5912. The Participants shall identify the location of each field permeability test. The Participants shall fully develop the requirements and details for the observation wells after the Consultant obtains subsurface information from the borings.

Monitoring wells will be installed at the locations shown on Appendix B and any other location identified by the Participants to determine long-term, stabilized groundwater readings. A slotted pipe will be installed within the borehole and packed with sand on the outside to ensure the slots in the pipe are not clogged. A bentonite seal shall be established above the top of the screened zone. In addition, grout will be placed near the top of the pipe to ensure surface water does not percolate into the observation well. The top of the pipe will be capped and sealed to ensure precipitation does not enter the observation well. Observation wells will be installed and monitored in accordance with ASTM D5092 *Standard Practice for Design and Installation of Groundwater Monitoring Wells*.

Samples at 10-ft intervals within the borehole shall be obtained for the purposes of water quality sample testing. Samples shall be obtained in accordance with the FDOT Soils and Foundation Handbook for investigations for Structures and shall be tested in accordance with Section 4.10 – Environmental Corrosion Test Guidelines.

### ***G3 Test Pit Excavation***

Two (2) test pit excavations (TP-5 and TP-17) and full-length cores at the piles identified as TP-5 and TP-17 on Appendix B shall be performed prior to commencement of any borings in order to establish the lengths of the borings. The remainder of the test pits shall be performed after the borings are completed.

The structural slab and remaining column shall be extracted labeled and set aside for inspection and additional sampling if necessary. Care should be taken to remove the column and structural slab as to minimize damage.

Test pits shall be sufficiently deep to expose the pile caps and the top 2 to 3 feet of the pile. At each test pit, core drill or saw cut through the pile cap and portion of the pile to extract samples and permit pile integrity testing. Test pits shall be dewatered as required to permit observation and pile integrity testing. Contractor shall cut through concrete, remove materials and provide needed dewatering under the direction of the Consultant. At the basement wall, test pits shall be sufficiently deep to expose or extend to the elevation of the bottom of the foundation wall.

Walkway test pits shall be sufficiently deep to expose or extend to the elevation of the bottom of the foundation wall. Test pits shall be dewatered as required to permit observation. Contractor shall cut through concrete, remove materials and provide needed dewatering under the direction of the designated engineer/geologist.

The Consultant will engineer each test pit excavation for safe access. The test pit designs will be shared with all parties. OSHA standards will be complied with in relation to design, execution and access.

### ***G4 Pile Integrity Testing (PIT)***

PIT Testing is performed by placing accelerometers at several locations on the pile and then hitting the pile or as necessary to obtain conclusive and accurate test results, with different size hammers and then measuring the response of the pile to the impact. The results are used to estimate the length of the pile. For higher quality of results, it is recommended to access the pile at the top and the side. Pile integrity testing will be performed in accordance with ASTM D5882 *Standard Test Method for Low Strain Impact Integrity Testing of Deep Foundations*.

PIT will be performed by an agreed upon subcontractor. The PIT subcontractor will work under the direction of the Consultant and, subsequent to the testing, will provide raw data and interpretive reports to all Participants. Depending on the data available for the design and as-built length of piles, PIT must be performed a few days prior to the geotechnical boring investigation for all Phase 1 test pits to determine the necessary depth of borings. Sufficient time will be provided to allow interpretation of PIT data and if inconclusive results are obtained, alternative testing techniques should be implemented. Refer to G19 Parallel Seismic logging.

### ***G5 Crosshole Seismic Testing***

Crosshole seismic testing will be performed between boreholes as directed during the field investigation as identified in Appendix B. Crosshole Seismic Testing will measure compression and shear waves between two adjacent boreholes at various depths according to ASTM D4428. The Consultant will determine the final holes to be tested based on findings of the borehole sampling and initial test results. Additional borings shall be made if necessary to satisfy the requirements of ASTM D4428. A crosshole testing plan will be provided by the consultant prior to execution.

### ***G6 through G17, Laboratory Testing***

Select samples from the field investigation of all joint borings and the test pits will be tested in a commonly agreed upon laboratory proposed by the Consultant. Specific tests and testing locations will be agreed upon on a rolling basis by all Participants as the field work is completed, and drilling logs have been provided. Reasonable efforts will

be made depending on available sample quantities to provide every requested test. Participants may request to use samples that were not selected for laboratory testing as part of this Protocol, for laboratory testing at their own expenses. The Consultant shall provide weekly drilling/investigation logs and testing will be agreed upon and ordered every week based on the field observations and the drill logs.

#### **G6 Grain Size Analysis**

Soils consist of particles of various shapes and sizes. The particle-size distribution (gradation) of soil can be determined from representative specimen following ASTM D6913 *Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis*. In cases where the gradation of particles smaller than No. 200 (75- $\mu$ m) sieve is needed, *Test Method D7928* may be used. All samples subjected to grain size evaluation with more than 10% fines should include hydrometer testing such that the D10 of the material can be determined for estimation of permeability.

#### **G7 Moisture content**

The moisture content of soil and rock can be determined in the laboratory by drying the material and measuring the reduction in mass of the material. The water content is the ratio of the mass of water contained in the pore spaces of soil or rock material to the solid mass of particles expressed as a percentage. The test is performed according to ASTM D2216 *Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass*.

#### **G8 Organic Content**

Percentage of organic matter is important for classifying or evaluating peat or other organic soil, and for geotechnical and general soil classification purposes. This test can be used to determine the moisture content, ash content, and percent organic matter in the soil. The test is performed according to ASTM D2974 *Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils*.

#### **G9 Incremental Consolidation**

The magnitude and rate of consolidation of fine-grained soil can be determined when it is restrained laterally and drained axially while subjected to incrementally applied controlled-stress loading. The test is performed on undisturbed soil samples in accordance with ASTM D2435 *Standard Test Methods for One-Dimensional Consolidation Properties of Soils Using Incremental Loading*. Loading increments specified for the lab will need to be agreed upon by all Participants.

At the request of any Participant, testing will be performed on reconstituted samples of sand to obtain stiffness parameters.

#### **G10 Electrical Resistivity**

Electrical resistivity for representative samples will be determined in situ and in the laboratory. Measurement of soil resistivity is used for the control of corrosion of buried structures and for the estimation of expected corrosion rates. The test will be performed according to ASTM G57 *Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method*.

#### **G11 Chlorides, G12 pH, G13 Sulfates, G14 Sulfides**

This group of tests is performed in a laboratory setting to determine chloride ion, sulfate ion, sulfide content, and pH level in the representative samples. The principal use of the pH test is to supplement soil resistivity measurements and thereby identify conditions under which the corrosion of metals in soil may be accentuated. The individual tests will be performed according to ASTM D512 *Standard Test Methods for Chloride Ion in Water*, ASTM D516 *Standard Test Method for Sulfate Ion in Water*, SM 4500 *Sulfide by Standard Methods Committee*, and G51 *Standard Test*

*Method for Measuring pH of Soil for Use in Corrosion Testing.* Water samples from bailed observation wells for groundwater chemistry testing shall be obtained.

#### **G15 Unconfined Compression of Rock**

The strength of intact rock core specimens in uniaxial compression will be determined following ASTM D7012C *Standard Test Methods for Compressive Strength and Elastic Moduli of Intact Rock Core Specimens under Varying States of Stress and Temperatures*. In the laboratory, a rock core specimen is cut to length and the ends are machined flat if possible and if not possible, as otherwise determined by the Participants. The specimen is placed in a loading frame, where the axial load on the specimen is increased and measured continuously until the sample fails. The uniaxial compressive strength is calculated as the maximum load at failure divided by the cross-sectional area of the specimen. Adequate instrumentation shall be included to determine Young's modulus.

#### **G16 Unit weight of Rock Cores**

Unit weight of rock cores will be determined in general accordance with ASTM D7263 *Standard Test Methods for Laboratory Determination of Density and Unit Weight of Soil Specimens*, method B (direct measurement). For a rock core specimen of cylindrical shape, the dimensions and mass of a specimen are measured. The density and unit weight are then calculated using these direct measurements.

#### **G17 Specific Gravity**

Specific gravity of soil samples will be determined in general accordance with ASTM D854, *Standard Test Methods for Specific Gravity of Soil Solids by Water Pycnometer*. These test methods cover the determination of the specific gravity of soil solids passing a sieve using a water pycnometer. These test methods are not viable for solids that can be altered by these methods, are contaminated with a substance that prohibits the use of these methods, or are highly organic (such as fibrous matter which floats in water).

#### **G18 Seismic Cone Penetration Testing (CPT)**

Seismic cone penetration testing estimates the small strain shear modulus of the soil by measuring shear wave velocities in the ground. The seismic CPT testing is performed as part of CPTU testing. The CPTU test will additionally measure continuous point and frictional resistance during penetration of the cone, pore pressures, and dissipation of pore pressures with time at constant depths. This testing will be carried out in general accordance with ASTM D5778 *Standard Test Method for Electronic Friction Cone and Piezocone Penetration Testing of Soils*.

The following geotechnical investigation is proposed:

- Seismic CPTs capped at 400-500 tsf with approximate locations as annotated in the attached Appendix B.
- CPTs will be pushed until refusal.
- Continuous measurements of point resistance, frictional resistance, pore pressure and shear wave velocity will be performed while the cone is pushed at a constant rate of 2 cm/sec. Three dissipation tests for each CPT location will be performed to establish groundwater and dissipation properties at those depths as directed by the Consultant.
- No sample recovery is performed with this testing.

The Seismic CPTs will be performed by the same mutually agreed upon contractor who will work with Consultant to observe and provide investigation reports. The Seismic CPT contractor will provide both raw data and reports including, but not limited to, cone tip resistance, frictional resistance, pore pressure measurement with depth, and pore pressure measurements with time during dissipation testing. Permeability values determined from pore pressure dissipation tests will be included.

#### **G19 Parallel Seismic Logging**



Parallel Seismic Logging (PSL) will be performed at indicated locations as annotated in the attached Appendix B. Boreholes will have casing and grout installed for the PSL testing that will be performed subsequent to the drilling activities. This testing involves sending a transceiver down the cased borehole to measure the depth of the buried sheet pile wall and will be carried out in general accordance with ASTM D8381 *Standard Test Methods for Measuring the Depth of Deep Foundations by Parallel Seismic Logging*.

Parallel seismic logging shall be accomplished as a supplemental means of determination of foundation lengths in the event that PIT interpretations are deemed inconclusive.

#### ***G20 Drained and Undrained Triaxial Testing of Fine-Grained Soil Samples***

If fine-grained material is encountered and if thin-walled tube samples are used for obtaining intact specimens of fine-grained soils for laboratory tests to determine engineering properties, then triaxial testing will be performed on the specimens. This testing will be carried out in general accordance with ASTM D7181 *Standard Method for Consolidated Drained Triaxial Compression Test for Soils*, ASTM D4767 *Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils*, and/or ASTM D2850 *Standard Test Method for Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils*.

At the request of any Participant, testing will be performed on reconstituted samples of sand to obtain shear strength parameters.

The Participants shall endeavor, but are not required, to agree on the Protocol of testing G20 including initial stress state before shearing, stress levels, strain rate, and drainage conditions during testing.

#### ***G21 Seismograph***

Vibration monitoring shall be accomplished via a calibrated seismograph throughout the duration of all work accomplished on site at various locations, including those shown on Appendix B, with the monitors installed per location at different distances. The vibration monitoring shall start one week prior to the beginning of testing under the Protocol to establish a baseline at a trigger level of 0.05 in/s or lower, as required to record ambient/background levels; and shall continue 24- hours per day and 7-days per week for the duration of the work under the Protocol.

#### ***G22 MASW/ER***

MASW and ER geophysical testing shall be accomplished along the entire length of the perimeter wall and on the extent of the basement slab.

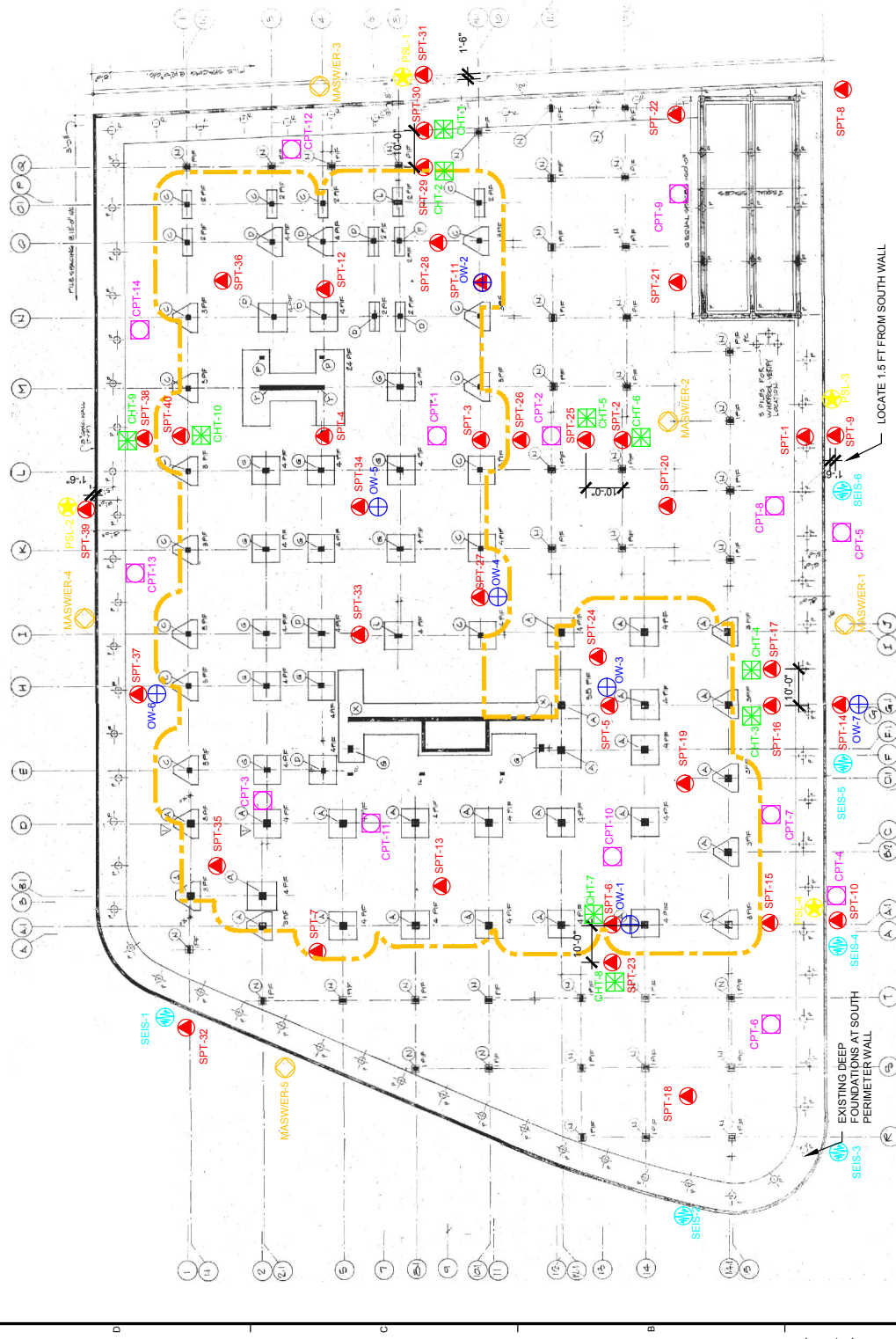
Appendix B  
Champlain Towers South Investigation - Joint Protocol for Testing and Material Sampling (Collapse Site)

5

LEGEND

- SPT-X SOIL ROCK BORINGS
- OW-X OBSERVATION WELLS WITH WATER SAMPLES
- CPT-X CPT
- SEIS-X SEISMOGRAPH
- CHT-X PREPARE BOREHOLE FOR CROSS-HOLE ACOUSTIC TESTING
- PSL-X PREPARE BOREHOLE FOR PARALLEL SEISMIC TESTING
- MASWER-X SURFACE WAVE AND ELECTRICAL RESISTIVITY
- APPROXIMATE EXTENT OF BUILDING

- NOTES:
- LOCATIONS ARE APPROXIMATE. EXPLORATION PLAN SUBJECT TO CHANGE DURING THE FIELD INVESTIGATION PROGRAM.
  - PILE TYPE IS UNKNOWN AT THIS TIME AND AS A RESULT PILE CAP PLAN IS APPROXIMATE.



1 Boring Plan

\* BASE PLAN FROM DRAWINGS TITLED "CHAMPLAIN TOWERS SOUTH" PREPARED BY BREITERMAN JURADO & ASSOCIATES CONSULTING ENGINEERS, DATED 8/27/19  
 Project: 12/10/2021 5:55 PM by Andrew\_Sarda File Name: CWUE Work2021 4155 - SarsideSheets SK-01 Borings.dwg

|                                                 |  |                           |  |
|-------------------------------------------------|--|---------------------------|--|
| Project                                         |  | Revised: January 13, 2022 |  |
| Champlain Towers South - Joint Testing Protocol |  | 2021.4155                 |  |
| 8777 Collins Ave., Surfside, Florida 33154      |  | December 10, 2021         |  |
| Sheet Title                                     |  | SKA                       |  |
| Borings                                         |  | MFF                       |  |
|                                                 |  | As Noted                  |  |
|                                                 |  | Sheet No.                 |  |

SK-01

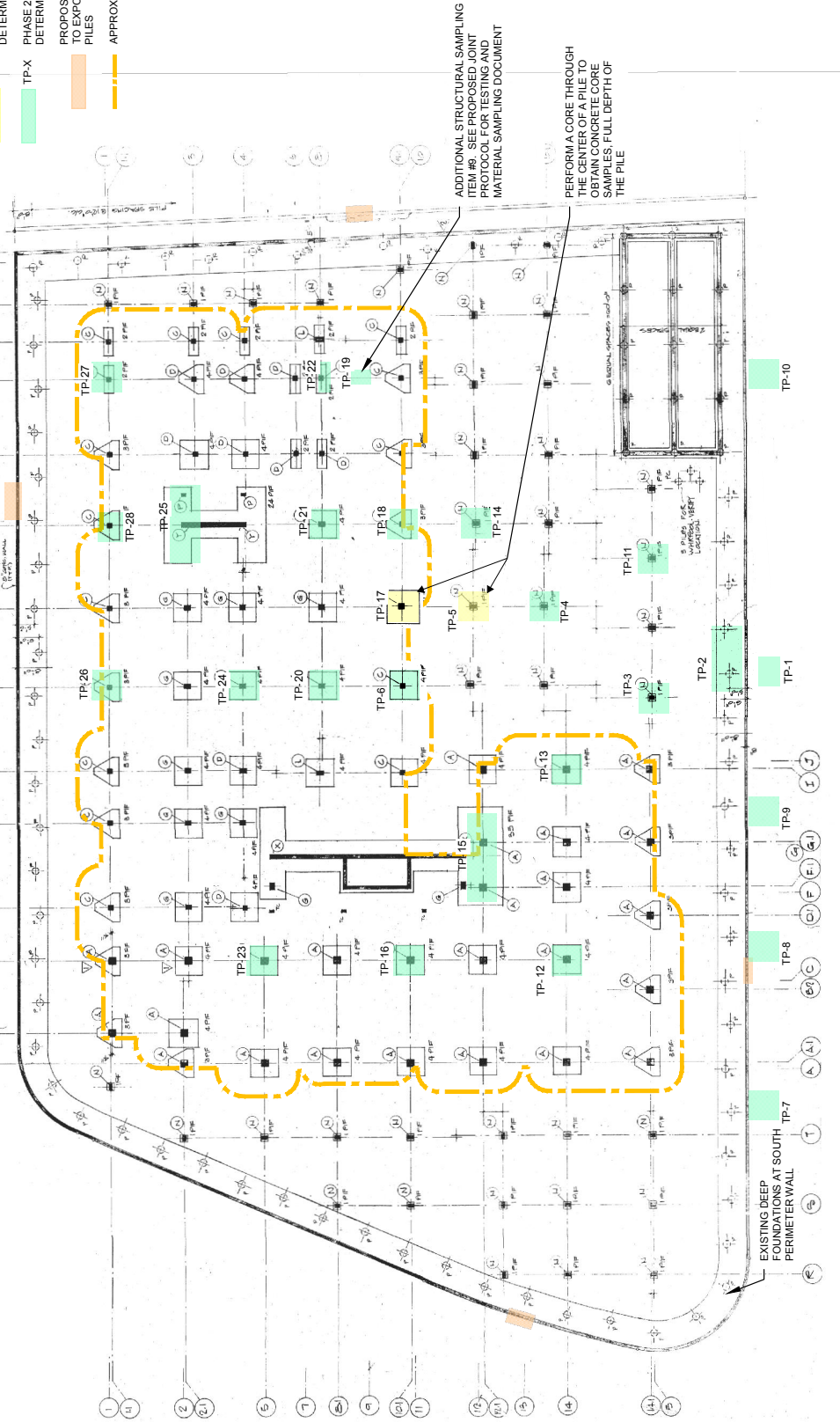
Appendix B  
Champlain Towers South Investigation - Joint Protocol for Testing and Material Sampling (Collapse Site)

5

1

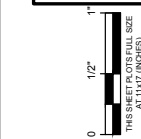
LEGEND

- TP-X PHASE 1 - PROPOSED TEST PIT AND NOT TO DETERMINE LENGTH OF PILE
- TP-X PHASE 2 - PROPOSED TEST PIT AND NOT TO DETERMINE LENGTH OF PILE
- PROPOSED CONCRETE EXPLORATORY OPENING TO EXPOSE AND DOCUMENT EXISTING SHEET PILES
- APPROXIMATE EXTENTS OF BUILDING



1 Test Pits \*

\* BASE PLAN FROM DRAWINGS TITLED "CHAMPLAIN TOWERS SOUTH" PREPARED BY BREITERMAN JURADO & ASSOCIATES CONSULTING ENGINEERS, DATED 8/27/19  
 Plotter: 12/10/2021 5:55 PM by Andrew\_Sarda File Name: CWUE Work2021 4155 - SardsaSheetSK-02 Test Pits

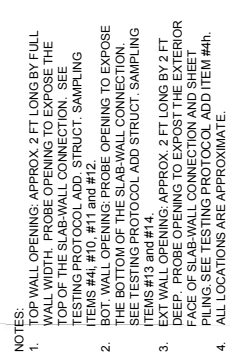


Revised: January 13, 2022

|                                                                                                          |           |                   |
|----------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Project<br>Champlain Towers South - Joint Testing Protocol<br>8777 Collins Ave., Surfside, Florida 33154 | Proj. No. | 2021.4155         |
|                                                                                                          | Date      | December 10, 2021 |
|                                                                                                          | Drawn     | SKA               |
|                                                                                                          | Checked   | MFF               |
| Sheet Title<br>Test Pits                                                                                 | Scale     | As Noted          |
|                                                                                                          | Sheet No. | SK-02             |



## 1



Revised: January 12, 2003

SK-03

\* BASE PLAN FROM DRAWINGS TITLED "CHAMPLAIN TOWERS SOUTH" PREPARED BY BREITERMAN JURADO & ASSOCIATES CONSULTING ENGINEERS, DATED 8/27/79

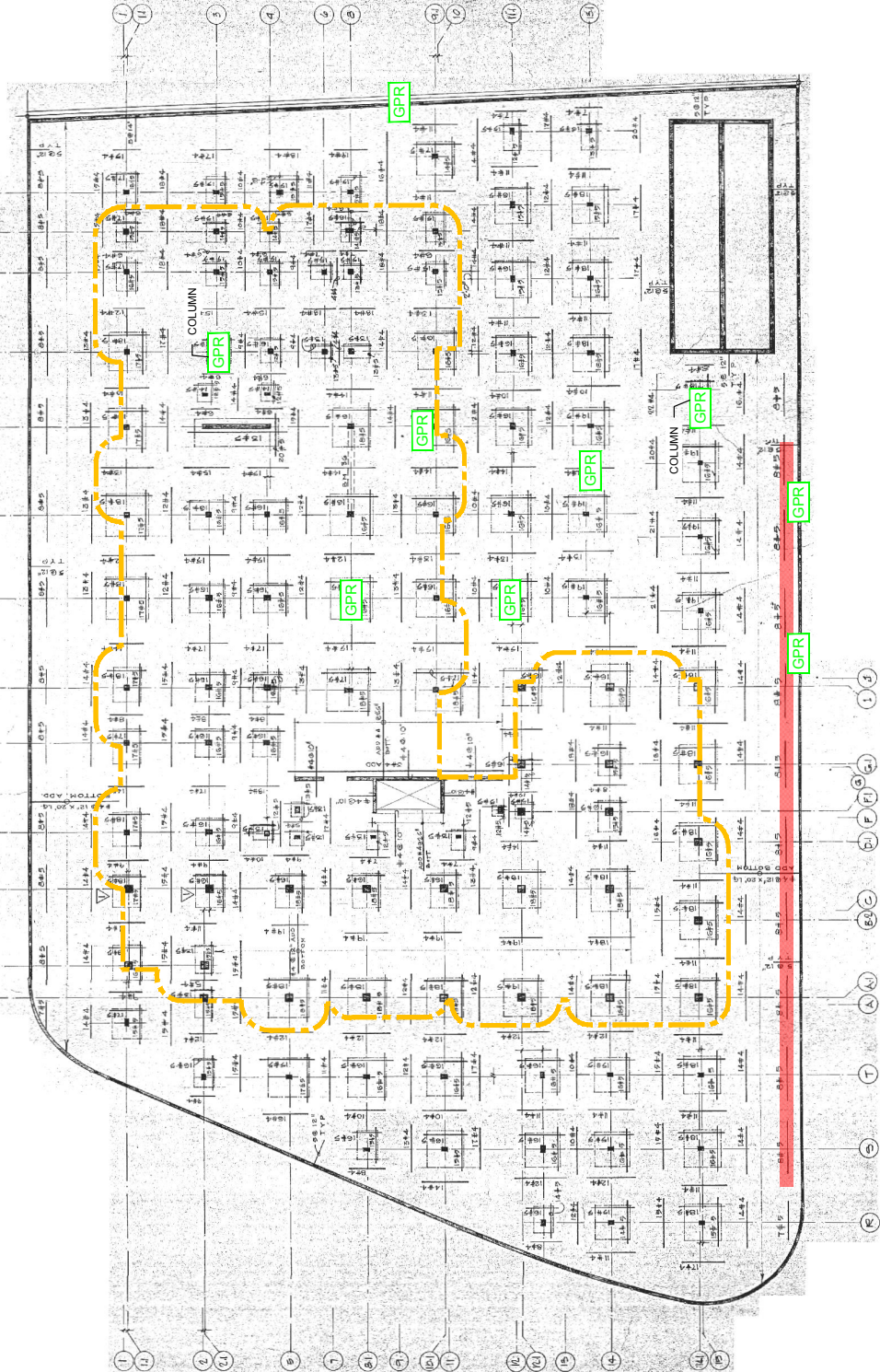


Appendix B  
Champlain Towers South Investigation - Joint Protocol for Testing and Material Sampling (Collapse Site)

5

LEGEND

- CONCRETE CHIPPING PER TESTING PROTOCOL
- CMU WALL SAMPLE AND CHIPPING PER TESTING PROTOCOL
- GPR (~10 FT x 10 FT AREA, UNO.)
- ADDITIONAL STRUCTURAL SAMPLING ITEM. SEE PROPOSED JOINT PROTOCOL FOR TESTING AND MATERIAL SAMPLING DOCUMENT
- A.S.
- APPROXIMATE AREA OF GPR SCAN
- APPROXIMATE EXTENT OF BUILDING



1 Basement Plan

Revised: January 13, 2022

|                                                                                                          |           |                   |
|----------------------------------------------------------------------------------------------------------|-----------|-------------------|
| Project<br>Champlain Towers South - Joint Testing Protocol<br>8777 Collins Ave., Surfside, Florida 33154 | Proj. No. | 2021.4155         |
|                                                                                                          | Date      | December 10, 2021 |
|                                                                                                          | Drawn     | SKA               |
|                                                                                                          | Checked   | MFF               |
| Sheet Title<br>Basement NDT                                                                              | Scale     | As Noted          |
|                                                                                                          | Sheet No. | SK-04             |

\* BASE PLAN FROM DRAWINGS TITLED "CHAMPLAIN TOWERS SOUTH" PREPARED BY BREITERMAN JURADO & ASSOCIATES CONSULTING ENGINEERS, DATED 8/27/19  
 Plotter: 12/10/2021 5:55 PM by Andrew\_Sarda File Name: CWUE Work2021 4155 - Surfside\Sheets\SK-04 Basement NDT.rvt



Appendix B  
Champlain Towers South Investigation - Joint Protocol for Testing and Material Sampling (Collapse Site)

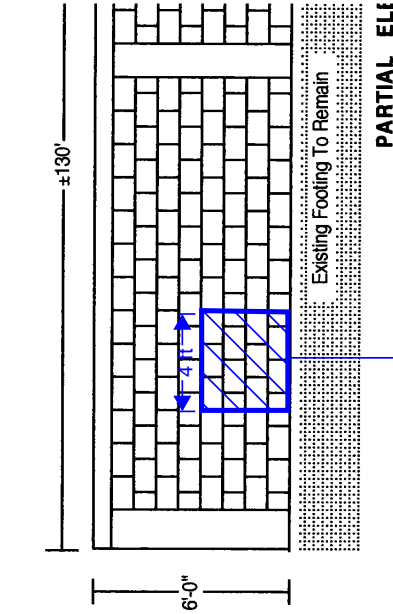
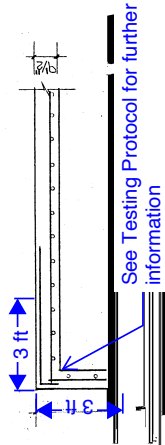
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|---------------------------|--|-------------------------------------------------|--|-------------------------------------------------|--|-------------|--|-------------------|--|
| Revised: January 13, 2022 |  | Project                                         |  | Champlain Towers South - Joint Testing Protocol |  | Project No. |  | 2021.4155         |  |
| Project                   |  | Champlain Towers South - Joint Testing Protocol |  | 8777 Collins Ave., Surfside, Florida 33154      |  | Date        |  | December 10, 2021 |  |
| Sheet Title               |  | Pool Deck Level                                 |  | Sheet No.                                       |  | Drawn       |  | SKA               |  |
| WJE                       |  | Wiss, Janney, Elstner Associates, Inc.          |  | Checked                                         |  | MFF         |  | As Noted          |  |
| 330 Pingree Road          |  | 847.272.7400 (tel) 847.480.9834 fax             |  | Scale                                           |  | As Noted    |  | SK-05             |  |
| NORTH                     |  | 847.272.7400 (tel) 847.480.9834 fax             |  | Sheet No.                                       |  | As Noted    |  | SK-05             |  |
| 1" = 12"                  |  | THIS SHEET IS PARTIAL 829                       |  | Sheet No.                                       |  | As Noted    |  | SK-05             |  |
| AT 11/17/2021             |  | THIS SHEET IS PARTIAL 829                       |  | Sheet No.                                       |  | As Noted    |  | SK-05             |  |

\* BASE PLAN FROM DRAWINGS TITLED "CHAMPLAIN TOWERS SOUTH" PREPARED BY BREITERMAN JURADO & ASSOCIATES CONSULTING ENGINEERS, DATED 8/27/19

Project: 12/10/2021 5:58 PM by Andrew\_Sarda File Name: CWJE\_Works2021\_4155 - SurfsideSheetSK-05 Pool Deck Level.dwg



TESTING PROTOCOL ADDITIONAL  
STRUCTURAL ITEM #3

1

TESTING PROTOCOL ADDITIONAL  
STRUCTURAL ITEM #4

2

NOTE:  
AT GRIDLINE K, REMOVAL CONSISTS OF THE  
PRIVACY WALL, FOUNDATION WALL, AND  
RESIDUAL SLAB.  
AT GRIDLINE H, REMOVAL CONSISTS OF THE  
FOUNDATION WALL AND RESIDUAL SLAB.

WJE

ENGINEERS  
ARCHITECTS  
MATERIALS SCIENTISTS

Wiss, Janney, Elstner Associates, Inc.  
330 Pingree Road  
Naperville, IL 60563  
847.272.7400 (tel) 847.490.0634 fax  
www.wje.com

Project

Champlain Towers South - Joint Testing Protocol  
8777 Collins Ave., Surfside, Florida 33154

Sheet Title

Additional Items

Proj. No.

2021.4155

Date

December 10, 2021

Drawn

SKA

Checked

MFF

Scale

As Noted

Sheet No.

SK-06

0 1/2" 1"

THIS SHEET IS OR SHALL BE  
AT 11x17 (ARCHES)

\* BASE PLAN FROM UNDATED DRAWING SHEET NO. S1 TITLED CHAMPLAIN TOWERS SOUTH  
PREPARED BY BREITERMAN JURADO & ASSOCIATES CONSULTING ENGINEERS

Postcard: 12/10/2021 5:58 PM by Andrew\_Sarda File Name: CWJE\_Work2021\_4155 - Surfside Sheets SK-06 Additional Items.dwg

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# Exhibit B



**IN THE CIRCUIT COURT OF THE  
ELEVENTH JUDICIAL CIRCUIT  
IN AND FOR MIAMI-DADE COUNTY**

**COMPLEX BUSINESS  
LITIGATION DIVISION**

**IN RE: CHAMPLAIN TOWERS SOUTH  
COLLAPSE LITIGATION.**

**CLASS REPRESENTATION**

CASE NO. 2021-015089-CA-01

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**ORDER REGARDING  
JOINT PROTOCOL FOR TESTING AND MATERIAL SAMPLING – COLLAPSE SITE**

**THIS CAUSE** came before the Court upon a series of conferences and hearings, including the December 22, 2021 evidentiary hearing, the Court’s December 30, 2021 *sua sponte* Order, the Court’s January 3, 2022 Order, and hearings on January 14, 2022 and January 21, 2022. The Court having considered the issues and positions of the parties, it is **ORDERED AND ADJUDGED** as follows:

1. The parties and their respective experts, consultants, and subcontractors shall promptly mobilize and begin invasive testing at the collapse site at the beginning of February. The invasive testing shall be performed pursuant to the agreed upon Champlain Towers South Collapse Investigation: Joint Protocol for Testing and Material Sampling – Collapse Site (the “Joint Testing Protocol”), which was submitted to the Court on January 21, 2022.

2. Unless otherwise provided in the Joint Testing Protocol, the testing performed on site will be coordinated and overseen by the independent Consultant, Geosyntec Consultants, Inc. (“Consultant”), which was chosen by the Receiver with the consent of the Parties. The Consultant, subject to review by all parties, will employ testing agencies and contractors required to carry out the goals of the Joint Testing Protocol.

3. The Joint Testing Protocol shall allow all parties adequate opportunity to collect and test evidence so as to allow the parties to properly investigate the cause of this collapse as well as the claims advanced by Plaintiffs and any potential defenses.

4. The Parties shall keep the Court informed as to the scheduling and progress of the testing being performed pursuant to the Joint Testing Protocol.

5. Except for the costs attributable to additional or specialized testing, which costs are the sole responsibility of the Participant seeking such additional or specialized testing, each Participant's or other third-party's allocation of the costs incurred through performance of this Protocol shall be determined pursuant to an order from the Court to be issued subsequently.

**DONE and ORDERED** in Chambers at Miami-Dade County, Florida, on this \_\_\_\_\_ day of January, 2022.