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15 April 2022

Mr. Robert Williams, Facilities Manager
City of Boston Treasury Department M-5
1 City Hall Square
Boston, MA 02201

Reference: Clougherty Pool, 331 Bunker Hill Street, Charlestown, MA
Site Visit for Observation of Condition of Structure

Dear Bob,

At your request we visited the above City of Boston seasonal recreational facility on 12 April 2022 for the purpose of observing the condition of structure in anticipation of the pool reopening. Accompanying us during the visit were Edward McGuire from Neighborhood Service as well as Pat McDonough and David Curran from Boston Center for Youth and Families. The purpose of our visit was to observe the prior efforts to stabilize and make safe the facility, and to determine necessary measures to be able to open the facility this season. During the visit we observed the exterior, accessed the filtration room below grade from the headhouse, walked the below grade tunnels, and visited the bath house. Following is a description of the facility along with our observations and recommendations:

Description: The Clougherty pool is a seasonal facility with an outdoor diving pool and an outdoor 7 lane 40x20 yard lap pool. The bathhouse occurs at the south end. The pools are supported directly on grade with surrounding concrete pool decks on framed structural slabs over a combination of utility tunnels and a filtration room. The filtration room occurs at the north end of the facility and is accessed through a head-house in the northeast corner. The room contains chlorine tanks, pumps, filtration tanks, and extensive hanger supported piping. The 3-story bathhouse occurs at the south end of the facility and is adjacent to a park that borders on Bunker Hill Street. The bathhouse contains supporting functions including concessions, lifeguard rooms, and men's and women's locker rooms. The entire facility is constructed of reinforced cast in place concrete, and was reportedly built in 1949 (See key plan, attached).

Observations: We were provided with the October 2017 Boston Building Consultants report assessing the pump (i.e. filtration) room conditions. In that report the deterioration of the concrete columns in the room was noted as well as the necessity for shoring the supported concrete beams. We understand that the shoring was installed in 2019, but we have not seen documentation or confirmation that it was engineered. It appeared that all of the beams framing to deteriorated columns had been shored with tubular steel column extending from the underside of concrete beam to the filtration room slab on grade (see photo 5). In observing the shoring in relation to the deterioration, we identified at least 3 more areas where shoring should be placed due to the condition of the concrete beams (see photo 8).

Within the tunnels that occur on the perimeter and between the pools we noted an extensive network of piping. There were three locations in the tunnels where the slab supporting the pool deck has spalled, and one location on the east side that is deteriorated badly enough to require shoring (see photo 9). On the same east side tunnel there was an electrical conduit that had broken off and a junction box that was suspended from the wiring. The wiring is reportedly live, so this is an immediate hazard and concern.

At the headhouse to the filtration room we noted spalling of ceiling and past overhead patches (see photo 4).

Within the filtration room, we noted that the steel large filter tanks are badly corroded, including the underside and the legs. Exfoliated metal was observed coming off the bottom of the tanks (see photo 7).

At the pool deck the surface is likely to be a sandwich slab over the structural slab, and the surface of the upper slab is irregular in areas, likely due to water getting under the slabs and freezing. The irregularity causes a trip hazard (see photo 3).

Within the pool house we noted concrete spalls on the ceiling directly over the reception desk area, and spalls within the stairwell to the locker rooms upstairs (see photos 6 and 10) .

Conclusions/Recommendations: The Clougherty Pool facility is in from fair to poor condition throughout, primarily due to age and exposure to both the elements (exterior) and to the harsh chlorine environment (below grade areas, filtration room). The shoring work that was done in 2019 was intended to be for the short term and assumed that a major repair project was forthcoming. In speaking with pool administration personnel, a replacement facility is planned in three years' time. There are components of work that must be completed before the pool can be opened and safely utilized that include the following:

Existing and Additional Shoring (filtration room): The existing shoring should be inspected by the installer to confirm that the top plates are in contact with the supported concrete beams and additional shimming should be provided if they are not. Additional shoring locations were identified and a minimum of three additional shoring posts should be placed where noted. Shoring design should be confirmed by the installer, and if not engineered, confirmation of adequate capacity should be confirmed.

Concrete Spalls: Spalls occur overhead in many locations and were identified in the walk-through. All overhead spalls should be removed including in the pool headhouse, filtration room, tunnels, and bathhouse. Exterior concrete spalls including the one at the base of the flagpole at the second floor of the bathhouse should also be removed (see photo 1).

Filtration Tanks: Though not part of the structural assessment, the filtration tanks are in a badly deteriorated condition with concern for both support and retention. The underside of the tanks should be resupported to the slab on grade around the perimeter of the tanks. The tanks should be observed daily for leaks. A tank that fails at the supports is large enough to take out the shoring and the deteriorated columns and is a serious concern.

Piping and Pipe supports: Pipe supports which consist of anchored hanger rods to the overhead concrete in the filtration room and tunnels should be inspected throughout by qualified personnel and replaced or supplemented where needed. Abandoned piping should be removed. Piping and pipe supports should be inspected weekly during pool operations by qualified personnel.

Pool Deck Irregularities: The edges of the topping slab at the pool deck that are raised should be ground to create a smooth transition to reduce trip hazards.

Once all of the above issues have been addressed, the facility should be observed again to confirm that the work is complete and the hazards eliminated.

For the facility to be utilized in subsequent years, pre-season inspections to assess condition of structure should be done again prior to opening.

Report Limitations: This report is summary of readily visible conditions and was conducted during a single site visit to the facility. It is strictly visual and includes only observations for the readily visible structure: No undisclosed conditions were investigated and no calculations have been performed to determine whether the existing construction complies with past or present building codes. Further detailed examination of existing conditions could affect the conclusions and recommendations of this report. No building systems are evaluated, including plumbing, heating, electrical, means of egress, and energy code requirements.

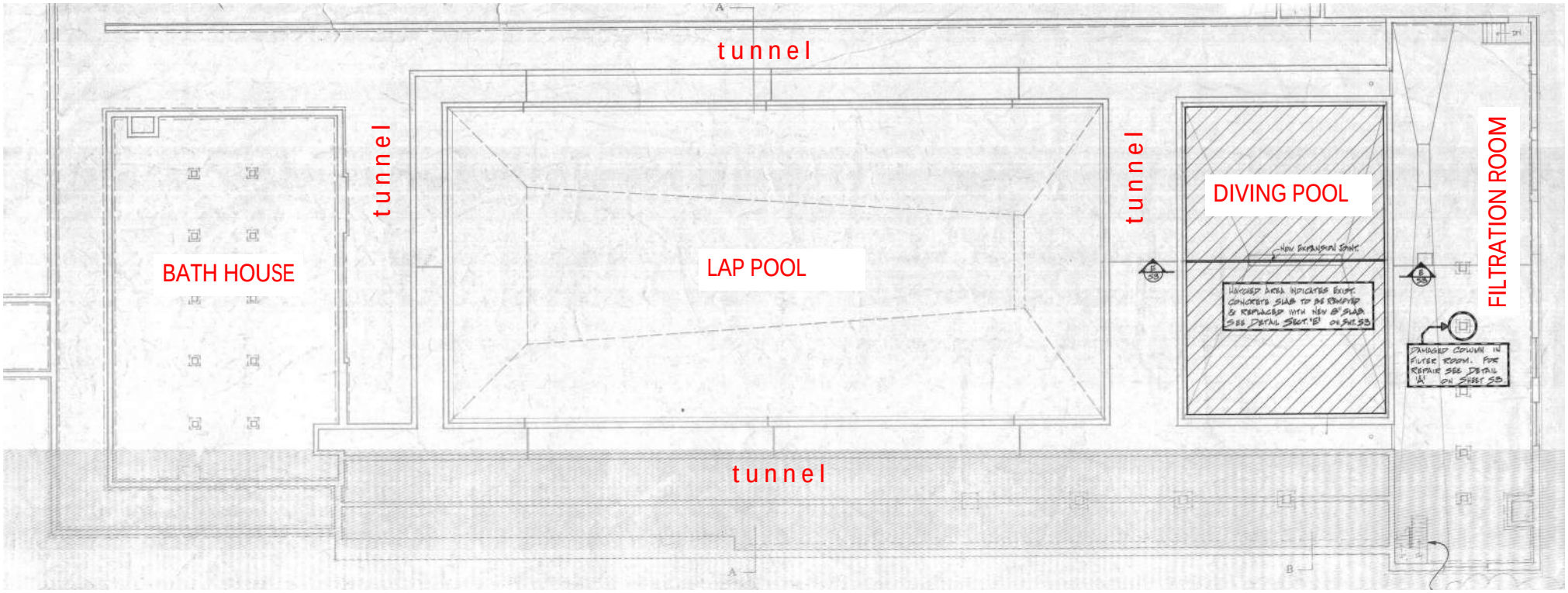
We hope that the above information provides you with the necessary information to make repairs prior to the pool reopening. If we can be of further assistance, please do not hesitate to contact this office.

Very Truly Yours,
Structures North Consulting Engineers, Inc.

Edward Moll, P.E.
Principal

attachments: Key Plan, Representative photos 1 to 10

NORTH



KEY PLAN

NO SCALE

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CLOUGHERTY POOL
331 Bunker Hill Street
Charlestown, MA

Photo 1:
Base of Flagpole Concrete Spall, North Wall of Bathhouse

Photo 2: Soffit Concrete Spall, North Wall of Bathhouse

Photo 3: Irregular Apron Slab Surface - Trip Hazard

Photo 4: Concrete Spalling, Ceiling of Filter Room Headhouse

Photo 5: Typical Shoring - Filtration Room Roof Beams

Photo 6: Bathhouse Ceiling Concrete Spalling

Photo 7: Concrete Spalls Ceiling of Men's Changing Room, Bathhouse

Photo 8: Filter Room Concrete (Double) Beam Requiring Additional Shoring

Photo 9: East Tunnel Concrete Ceiling Spall Requiring Shoring

Photo 10: Bathhouse Reception Area Concrete Ceiling Spall