

August 17, 2023

To: Mark Saccoccio, AIA  
Saccoccio & Associates Architects  
1085 Park Avenue  
Cranston, RI 02910

From: Mark Mariano, PE, CPO  
Team Leader  
Weston & Sampson Engineers Inc.  
85 Devonshire Street  
Boston, MA 02109

### Memorandum – Budlong Park Pool, Cranston RI – Existing Conditions

Please see a of our findings of our evaluation of the existing conditions at Budlong Pool. We performed a site inspections at the pool on 7/13/23 . Below is our findings on this day. We did not perform any destructive testing, static water testing, or pressure testing on the pool and filtration.

During our inspection the pool was not in use. The filtration system was not operable at the time. The pool did contain water in the deep end.

The facility was reviewed in accordance with the governing codes established by Rhode Island Department of public health, which has adopted the Model Aquatic Health Code, (MAHC), latest version, Virginia Graham Baker Act (VGB), and American Disability Act Accessibility Guidelines (ADA).

Below is a summarized list of our findings.

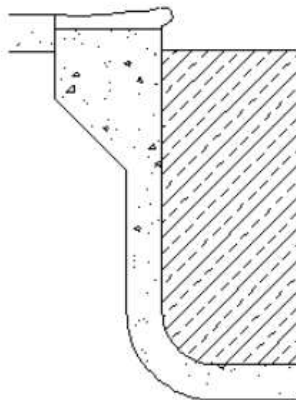
#### Compliance Concerns

1. The current pool lacks the ability to be a watertight structure. Even with the liner system, the use of approximately 15 – 20 GPM of domestic water throughout the day. To keep the pool filled the City annually uses approximately 2 million to 2.5 Million gallons a year to keep the pool filled. This shows a failure in the water tightness of the system.
  - a. The inability to hold water in the pool creates a conditions where it prohibits the ability to maintain a disinfectant residual. The dilution of required sanitizers will create an unhealth and unsafe environment. Also 2-2.5 Mil gallons of chlorinated water is leaking into the surrounding environment. Residual concentration is required per MAHC – 5.7.3
2. The current pool piping, pumps, and filtration system is under size. A minimum of a 6-hour turnover is required. The current piping cannot take the flow based on the velocity limits set by the MAHC. The filter does not have the proper square footage to properly filter the water a rate of less than 15 GPM / SF.
  - a. Turnover require is a health department code requirement (MAHC – [4.7.1.10](#) – Flow Rates / turnover Times).
3. Pool filtration backwash discharges to the neighboring stream. Pool backwash shall discharge to sanitary sewer per MAHC 4.11.6.1.1 – Pool Wastewater.
4. The Perimeter of the pool lacks depth markers and no diving symbols. These items need to be provided around the perimeter of the pool, per (4.5.19.4 – Depth Markers).
5. The pool main drains covers would need to be changed. This is a federal requirement called the Virginia Grahame Baker Act. (VGBA). The regulations require the drains to have a certain type of cover to allow for safe suction and avoid entrapment. To be compliant, the

- drain covers and sump bodies would need to be replaced. This requires removal of floor sections and replacement of piping back to the equipment room.
6. Pool skimming is supplied by a gutter. The gutter was unable to verify levelness. If the pool is out of level, the entire perimeter of the pool would need to be replaced.
  7. The gutter and deck interface with the pool has vertical deviations exceeding ¼" which is a violation of American Disability Accessibility Act (ADA), and is a trip / toe abrasion hazard.
  8. Pool needs to have ADA Accessible points at every 300 LF of pool perimeter. This is a federal mandate. A secondary lift, transfer wall, entry stairs, or ramp entry would be needed to become compliant.
  9. The surrounding fencing has fence opening that exceed 1-3/4". The fencing around the perimeter needs to be non-climbable. The fencing would need to be replaced.
  10. The pool filters have not had a media change in an extended period of time. The tanks are old and show signs of corrosion. If opened it will be difficult to seal. The media change is necessary for water quality to be able to provide proper filtration through coarse, angular sand rather than smooth sand.
  11. Surge tank is undersized for the pool. The surge tank is required to hold a minimum of 1 Gallon / SF of the pool, minus the gutter volume, which is approximately 16,000 gallons, per the requirements set in MAHC, 4.7.1.4.4.
  12. The absence of an autofill system results in manual filling of the pool. The introduction of domestic water shall be through an air gap or another protected device. The current methods of filling do not provide a dedicated cross connection device. The inability to have an auto fill on the pool also results in the operator having to manually fill the pool. Cross Connection, backflow prevention, and autofill requirements are as required in MAHC 4.7.1.4.6.
  13. Working flow meters, pressure gauges, and valves were not present or functioning which are essential components of the filtration system as detailed in 4.1.7.9-11.
  14. On the deep end pool wall there is a wall obstruction. It appears to be part of the pool as the pool was liner-ed over it. This a violation of MAHC [4.5.12.4](#) – No Protrusions, Extensions, Means of Entanglement, or Obstruction. This requires walls to be within +/- 3 Degrees in vertical tolerance. There are areas of the shallow that seem to be more than 3 % of tolerance.

***Figure 4.5.12.1: Plumb Pool Walls: Cross-Section***

Plumb within a +/- 3 degree tolerance.



**Structural Concerns:**

1. The pool was constructed in 1930's and reconstructed in the 1960s. Due to the failures in maintain water tightness, a liner was installed.
  - a. Concerns. The concrete has seen chlorinated water for a long duration of time, which has likely migrated into the concrete, and resulted in corrosion to the rebar system, and loss of strength in concrete.
  - b. The presence of the liner indicates the leaks, cracks, or structural failures have been significant that it would be difficult to repair.
  - c. Underlining issues in the previous 1930s structure would prohibit the future renovations from being successful due to inaccessibility.
2. Pool Deck. The bituminous pavement surface is uneven, exceeds 2% slope, and is a unfavorable surface to walk on around a pool.
3. Pool depth. The pool is installed into the ground water in that area. Draining and servicing the pool will be difficult without a dewatering system established.

**Program and Operational Feasibility:**

The current pool is approximately 18,000 SF of pool water surface. Based on the current permissible loading rates for pool facilities, established by MAHC, the pool would be able to accommodate a one-time occupant load of almost 1,200 people.

The current size, shape, and allowable program is one dimensional and a burden to the city. The pool does not offer the modern conveniences and programmatic space that current pools provide.

Based on the current pool, if the pool were to be rehabilitated, the City would be burdened with having to expand the bath house to accommodate the permissible amount of patrons and also need to staff it for what the expected use is.

Due to the size of the facility and the requirements needed, the value of repair will exceed the cost of replacement.

For a community of this population, it is recommended to design a facility for 500 one-time patron load, which would be around 6,000 to 7,000 Square Feet of surface area.

The new pool will be designed to provide multiple programs in the same square footage of water, allowing it to be multidimensional.

Based on our findings of the pool in the current conditions, we cannot recommend repairing the pool. We would recommend the replacement of the pool system. In its current state, the pool is not safe for patron use.

If there are any questions on the information provided in this document please feel free to contact me @ [marianom@wseinc.com](mailto:marianom@wseinc.com).

Mark Mariano, PE CPO  
Team Leader