GRIFFINENGINEERING

March 24, 2017

W. Bryan Dempsey, Borough Administrator
Spring Lake Borough Hall
423 Warren Avenue
Spring Lake, New Jersey 07762

Re: South End Pavilion & Pool Complex

Dear Mr. Dempsey:

I understand that the Borough is contemplating repairs and/or replacement of parts or all of the South End Pavilion and in anticipation of this planning effort they have requested I prepare a report on the condition of the existing facility.

On February 8, 2017 I made a site inspection of the facility and took a series of photographs numbered 1 through 74, which I have attached to this report. Throughout my report, as follows, I refer to these photographs. Additional, in 2016, prior to the closing of the facility for the season, I did make an inspection of certain issues at the facility relating to how the pumping system was operating, and I have addressed these issues below as well. There were some minor areas which were not accessible when I inspected; however, I don't think those areas are substantially different than the areas I did inspect.

General

I reviewed the entire complex for structural issues and potential safety issues. For the most part, except for the issues I reference below, which I feel require immediate attention, I generally have found the facility usable in its current condition.

Pumping System, Pump Room, and Filtration System

The current method of operating requires that the pools be emptied on a daily basis and refilled with ocean water each night. During the day, the pumps and discharge are regulated to maintain a constant flow of recirculating water, from the ocean, which replenishes any water lost and also acts as the filtering method. Obviously this is at times a maintenance struggle and what comes into the pool is whatever exists at the suction ocean side at the time the pool is refilled and during the daily recycling. The suction manifold at the ocean relies on a natural filtering of the ocean water as it is drawn through the sand bed surrounding the inlet piping. The method of dumping the water on a daily bases and continuing the

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recirculation during the day, although introducing an added maintenance effort, does provide for a pool water environment similar to that which exits each day in the ocean. The pumping system is comprised of two electric motor driven centrifugal pumps, the motors of which are removed and reconstructed on a yearly basis. In my pictures attached from February, the motors are shown removed. When I inspected the facility at the end of the 2016 season, the pumps were operating. The pump room as well as a filter room are located in a basement area, below the pavilion approximately 10' below the pool deck grade. This area can been seen in the attached pictures nos. 1 through 11 and 73 and 74. The elevation of the floor in the basement and the environment for the pumps and operating equipment, although above sea level, is not ideal due to moisture and the potential for flooding. As can be seen from the pictures, although there has been some updating of piping over the years, the general condition of the pump room, piping, and equipment is at best only fair, but still operating. Although a filter room exists with a series of seven sand filters, it is my understand that the filters are not operational and are bypassed, mainly due to the limited capacity of the filters, the maintenance involved, and the lack of need due to overall method of operating where the water is replaced daily.

When I inspected the pumping operation at the end of the 2016 season, I witnessed a condition that I feel should be remedied as soon as possible. There is currently an apparent leak in a discharge line returning to the pool area. Water runs out of the wall adjacent the piping, from an apparent break in the piping somewhere beyond the pump room wall. It starts when the pumps are on and stops when the pumps are turned off. This situation is undoubtedly flushing some fines from the fill outside the wall or under the adjacent slabs. I did not notice any settlement or cracking in the adjacent slabs or steps, however I am sure that a void has been forming due to the escaping water and fines, which if not remedied, could affect the adjacent structures. Based on what I observed, I suspect that the pipe break is relatively close to the pump room wall in that no settlement can be seen as yet and any repair may actually be able to be accessed from the pump room. The constant flow of water into the pump room, although being constantly drained away, is creating maintenance issues, adding to the moisture problems that exist, and further compounding the issues with the harsh environment in the basement area. The Borough may want to consider hiring an individual to perform a study to try and locate any voids under the slab to determine where the leak is occurring, by ground penetrating radar or similar method, or may simply want to isolate the pipe, pump air into it and try to follow the pipe back beyond the pump room wall, breaking the wall open, to locate the pipe break. I suspect the break may not be far outside the wall.

Aside from the pipe break addressed above, and continued maintenance, the system most likely will continue to operate as is for some time.

<u>Lockers</u>

The lockers can be seen in attached picture nos. 16 through 19, 35, 36, 37, and 39. Looking at the lockers, their condition speak for themselves. They are in need of more than just repairing. They are worn and shabby, but are still usable. Because they are free standing on one level, and are of simple construction, there is little I can comment on structurally. Other than minor required maintenance I would not

recommend putting a lot of money into their repair, rather look more toward replacement in the future. The structure of the lockers is not worth salvaging, the concrete slabs on which the lockers sit are deteriorated and cracking, most everything in the main locker areas are deteriorated beyond saving.

Having said that, despite their condition, the lockers are still functional.

Pool Structure

I inspected the pool structure both when it was full and operating at the end of the 2016 season and when it was empty on February 8, 2017. The surface water skimming that occurs in the pool is not ideal due to the minimal difference in elevation between the skimming level and the deck level causing issues with the current operation; however, the pool structure looks good. The pool can be seen in my attached picture nos. 17, 18, 19, 20, 23, 41-46, and 48-51. The pool bottom appears very regular, the liner seems to be in good condition, the walls all appear, true, straight, and plumb, and the coping seems fine. The pool does not have the features of a more modern pool; however, the structure seems sound.

Pool Deck

The pool deck shows signs of wearing and cracking, but it is generally in fair condition structurally. I did not find any areas of settlement; however, I did find some areas of cracking and spalling, which should be addressed by sealing, filling, leveling and repairing. There is also a drain grate which is lose that should be repair in that it is in a walking area. The grate is shown in picture 67, attached. Pictures relating to the pool deck can be found attached picture nos. 17, 18, 19, 20, 23, 24, 25 and 41-51.

The Pavilion

I understand that not too long ago, there were some renovations done to the pavilion structure. Some of the areas look reconstructed as compared to the older existing areas. Pavilion pictures can be found in attached picture nos. 12, 13, 14, 20, 21, 22, 23, 29, 40, 47, 52, 53, 54, and 55. The pavilion structure, walls, columns, steps, 2nd floor deck, 1st and 2nd floor ceilings, and roof, excluding the railings on the 2nd floor, appear to be in fair to good condition. I did not see any structural issues. There was one area of the 2nd floor decking which should be repair to prevent leaking and damage to the underlayment. This is shown in picture no. 64 attached. The railings on the second floor are in need of repair and I suggest that the Borough deal with the railing as soon as possible. The main issues with the railings stem from corrosion / rusting at the bases of all most all of the supporting posts and the fact that the railings are not continuous between the structure columns with a solid rigid upper rail. Many of the column locations have sufficiently deteriorated bases that they can actually be moved outward easily by pushing on them. I could not tell without taking the posts apart, but it appears that there is a bolted down steel base on the columns which in many cases has rusted out and the vertical portion of the post is separated from the bolted down base. The Borough should replace the bolted down bases which are deteriorated as soon as possible and should also consider adding a rigid top rail that spans the full length between the structural columns. This could

be accomplished with a fabricated, galvanized and painted white channel. Appearance wise this might not be the best solution, although it would make the railings structurally sound. The overall best approach may be to replace the railings entirely. Pictures specifically of the railing at the 2nd floor of the Pavilion are shown in attached nos. 55-63, and 65-66.

Perimeter Walls

The perimeter walls, in many areas, exhibit a bulging of the walls outward at about the bottom 1/3. This location coincides with the inside elevation of the decking and fills behind the walls. The pressures of the decking and fills on the inside of the block and brick walls, over the years, have created this bulging. I did not see anywhere where the walls looked like they could actually cave, and more than likely the bulging that has occurred will remain as is and will not increase that much in time. There are areas of the walls which are more deteriorated than others, and there are many cracks which detract from appearance but I did not see areas of immediate concern. Pictures of the perimeter wall are attached nos. 27-29, 31-34, 38, 68, and 69.

Bathroom, Showers, and Drains

As with much of the facility, the fixtures are old and are in need of replacement, and are barely functioning in many cases, but are still functioning. As with much of the original pavilion structure, they are dated, and maintenance as required is the best way to deal with continuing, until entire replacement can occur.

Front Life Guard Storage & Electrical Entry Room

It appears that there has been some recent electrical replacement work performed. As is the case with the basement area beneath the pavilion, the storage room and electrical entry room, are below the deck grade, access is not great via a set of wooden steps, and the environment is conducive to flooding, moisture, and continued deterioration due to the dampness. The space remains functional. Pictures are shown in attached nos. 70-72.

Office Area

The office area appears to have been part of the more recent renovations at the pavilion. The area is generally in fair condition, no real structural issues, and remains usable.

Conclusion

Generally the facility is old, it has its better areas such as the pavilion structure and the pool structure, which I understand have had some more recent modifications, and it has some problem areas, such as the leaking discharge line and the 2nd floor railings, which should be addressed as soon as possible, but aside from these areas which require addressing and performing maintenance as necessary, it appears that the

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South End Pavilion can remain functioning as is for some time. In my opinion, its conditions does not justify the expense of any major renovations, rather maintenance as required. I think the renovations performed to the pool structure and the pavilion were wise investments at the time and certainly have appeared to pay off. If the Borough wanted to consider renovations to the existing facility to prolong the life of the existing facility I think the areas to address would be the locker areas, the bathrooms, and the pump room.

The following is a summary of the items addressed above which I do believe the Borough should deal with as soon as possible.

- Second floor railings
- Leaking pool discharge
- Pool deck crack & spall repairs including the loose drain grate
- Second floor deck repair to prevent leaks and underlayment damage

I hope the above addresses your request. Please advise if you need anything additional.

Sincerely,

Joseph Griffin, PE
Griffin Engineering, LLC

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