Town of Walpole
Walpole, Massachusetts 02081

WALPOLE PUBLIC POOL REPLACEMENT
CONCEPTUAL DESIGN SUMMARY REPORT

JUNE 22, 2023

PREPARED FOR:
Walpole Select Board
Town of Walpole
135 School Street
Walpole, MA 02081

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VERTEX PROJECT NO: 84523

June 22, 2023

Walpole Select Board
Town of Walpole
135 School Street
Walpole, MA 02081

Re: **Walpole Public Pool Replacement Study**
Conceptual Design Summary Report
Center Pool and South Pool
144 School Street and 14 Jasons Path
Walpole, MA 02081
VERTEX Project No. 84523

Members of the Walpole Select Board:

The Vertex Companies, LLC (Vertex) is pleased to submit this Conceptual Design Summary Report as part of the Walpole Public Pool Replacement Study. The purpose of this report is to evaluate redevelopment options for two public pool facilities, known as the Center Pool and the South Pool, in the Town of Walpole. The report provides a description of existing facilities; a review of regulatory constraints and relevant code requirements; redevelopment options for the Center Pool Facility; and anticipated permitting requirements. The report also includes an opinion of probable construction cost for each redevelopment option as well as conceptual site plans and renderings of the three design options evaluated for redevelopment at the Center Pool Facility. The plans and renderings provide the location and layout of proposed aquatic features as well as site features such as parking and landscaping improvements.

Our team looks forward to discussing these redevelopment options with the Town. We will be available to meet with you following your review of the report. As always, if you have any questions or comments, please do not hesitate to contact me directly.
Sincerely,

The Vertex Companies, LLC

Gary DeBlois
Senior Project Engineer

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1.0 PROJECT SITES

1.1 Study Area Description

The Vertex Companies, LLC (Vertex) was retained by The Town of Walpole, MA to evaluate the feasibility of replacing and/or renovating two (2) town owned swimming pools known as the Center Pool, located at 144 School Street, and the South Pool, located at 14 Jasons Path, in Walpole, Massachusetts. The location of the project sites are shown on Figure 1. The Center Pool site consists of a single parcel totaling approximately 24.10 acres, improved with the existing Center Pool facility, an athletic field, a playground, an associated parking area, and Memorial Pond. The site is bounded by East Street (Route 27) to the north, School Street to the west, Stone Street to the South and Diamond Street to the East. The Center Pool site is located within zone General Residence "GR".

The South Pool site consists of a single parcel totaling approximately 5.69 acres, improved with the Boyden School, the existing South Pool facility, and associated parking. The site is bounded by Jasons Path to the north, Washington Street to the west, Water Street and wooded area to the south, and Boston Providence Highway (Route 1) and residential properties to the east. The South Pool site is located within zone Residence B "RB".

Both project sites are depicted on their respective Constraints Maps included in Attachment 1.

1.2 Site Watershed

Both project sites are located within the Neponset River Watershed. All runoff from the sites ultimately discharge to the Neponset River, either by overland flow to a nearby wetland system or by conveyance through the Town's municipal drainage. Based on review of available GIS Data layers, potential wetland resource areas under the Massachusetts Wetlands Protection and Rivers Protection Act are present on and in the vicinity of both the Center Pool and South Pool sites. These include wetlands located on the Center Pool property south of Memorial Pond, whose 100-foot buffer zone lies within a portion of the existing Center Pool. Wetlands are present

south of the South Pool site, whose 100-foot buffer zone lies within the South Pool property but not within the portion of the limits of the existing South Pool.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) identifies the developed portion of the Center Pool Site as Zone X, area of minimal flood hazard. The center and northern portion of the Center Pool site is labeled as Zone AE, special flood hazard areas without base flood elevation. This Zone AE has no elevation determination and is shown graphically only. The Zone AE is shown relative to site elevations on the Site Constraints Map, in Attachment 1. The boundary of this Zone does not follow contours and is distance offset of the Memorial Pond boundary. The FIRM identifies the entire South Pool site as Zone X, area of minimal flood hazard.

1.3 Subsurface Conditions

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Resources Report, the soils present at the Center Pool and South Pool sites are classified as Hydrologic Soil Group A. Group A soils are typically sand, loamy sand or a sandy loam type of soil. These soils have a low runoff potential and high infiltration rates even when thoroughly wetted. NRCS Soil Surveys for both sites can be found in Appendix A.

1.4 Review of Previous Site Assessments

In 2022, Weston and Sampson (W&S), on behalf of the Town of Walpole, performed a comprehensive analysis of the existing facilities conditions within the Town and presented recommendations for improving town-owned facilities. As a part of this comprehensive review, W&S reviewed the condition of the Center Pool and South Pool facilities, respectively.

As a part of the study, W&S assessed existing site conditions such as accessibility and drainage; building conditions such as structural, electrical, HVAC, and hazardous building materials; and pool conditions such as physical condition, code review, and safety. After reviewing both pool

facilities, recommendations were presented based on their findings. A summary of these high priority recommendations for each facility is provided below.

Center Pool and Splash Pad

- Building Improvements
  - Replace existing roof to stop water damage;
  - Renovate locker room, restrooms, and staff areas to meet current CMR and IBC building codes;
  - Upgrade electrical and communications systems to meet National Electric Code (NEC) and 527 CMR;
  - Remove all Asbestos Containing materials (ACM); and
  - Renovate or replace mechanical shed to meet all applicable building and safety codes.
- Pool Improvements
  - Replace current pool shell, as the current pool is no longer structurally stable.
- Site Improvements
  - Install code-compliant fencing per MA CMR 780;
  - Provide ADA accessible routes across the facility; and
  - Install a landscape buffer between the pool and the adjacent roadway.

South Pool

- Building Improvements
  - Upgrade electrical equipment to meet National Electric Code (NEC) and 527 CMR;
  - Replace roofs to stop water damage;
  - Renovate restrooms to meet current building codes;
  - Add emergency lighting to meet current code;
  - Replace outdoor drinking fountain to meet 527 CMR code requirements; and
  - Upgrade existing electrical system to meet NEC code and 527 CMR.
- Pool Improvements
  - Replace existing pool shell, as the current pool is no longer structural stable.
- Site Improvements
  - Install code compliant fencing per MA CMR 780; and
  - Provide ADA accessible routes across the facility.

Almost all of the recommendations presented by W&S involved bringing the current facilities up to current code.

Additionally, the Center Pool facility in its current state does not meet the Town's need for a competitive swim program. The existing pool length and width do not provide regulation swim lanes required for training and swim meets. Typical municipal pools in the greater Boston area that have summer swim teams have a minimum of six (6) twenty-five yard (25yd) lap lanes. The building and pool codes in Massachusetts do not dictate lap swimming requirements therefore we recommend following guidelines established by the National Federation of High School Sports or US Swimming.

1.5 Stakeholder Planning Session

On January 24, 2023, a stakeholder planning session was held at Walpole Town Hall. The planning session was attended by Town of Walpole staff from various departments, Recreation Committee members, aquatics program staff, and the Vertex design team. The Vertex team began the session with a presentation which focused on the following topics:

- Existing Facilities Overview & Programming
  - Center Pool & Splash Pad
  - South Pool
  - Parameters and Constraints
- Programming Trends and Standards
  - Aquatic Facility Trends
  - Operational Considerations and Code Requirements
- Design Elements for Consideration
  - Zero Depth Entry
  - Fitness Areas
  - Slides
  - Spray Features
  - Shade
  - Amenities
  - Reconfiguring Existing Concrete Pools
  - Pool in Pool Construction
  - Pool Enclosures

The presentation included some discussion of topics with attendees and concluded with the floor being opened for questions, comments, and general discussion, which was primarily focused on the Town's future aquatic facility needs. By the end of the planning session, the group was generally in agreement improvements at the Center Pool facility should be prioritized over the South Pool. The key takeaways from the planning session were as follows:

- Develop a conceptual design for renovation/replacement of the existing Center Pool and construction of a second pool at the Site.
- Develop a conceptual design for a major renovation/expansion of the Center Pool to create a single, larger pool.
- Develop conceptual design documents for a major renovation/expansion of the Center Pool to create a single, larger pool with an enclosure to extend to the season.
- Expansion/renovation of the South Pool facility will not be advanced at this time.

2.0 SITE AND REGULATORY RESTRAINTS

As a part of the review of site and regulatory constraints, Vertex utilized available resources provided by the Town of Walpole, and through the Massachusetts GIS System ("Mass Mapper").

2.1 Walpole Zoning Bylaw

All development on the project Sites are subject to the Walpole Zoning Bylaw. This Bylaw has mapped the Center Pool site as within the General Residence (GR) District, and the South Pool site within the Residence B (RB) District. Site zoning districts and their associated setbacks are shown in Figure 2. The purpose of the GR district is to provide an area for high density, single, and multifamily residential land use, public, semi-public, institutional and recreational uses and professional offices compatible with low density, residential land uses, and to provide a transition area between single family residential and commercial or industrial land uses. The purpose of the RB district is to provide an area for medium density and single-family residential land use.

The Bylaw also sets forth a number of dimensional requirements, including building setbacks, allowable building and impervious coverage, parking requirements (number and configuration), and required landscape buffers. These requirements are tabulated in Attachment 2.

The Dover Amendment (M.G.L. Ch. 40A, Sec. 3) exempts certain land uses, such as education, childcare, and non-profit, from local zoning regulation. It is Vertex's understanding that both the South Pool and the Center Pool may fall under the Dover Amendment as educational and/or non-profit facilities and therefore will be granted relief from the local Zoning Bylaw. The purpose of the Amendment is not to entirely disregard the Zoning Bylaw, rather to provide "…reasonable regulations concerning the bulk and height of structures and determining yard sizes, lot area, setbacks, open space, parking and building coverage requirements".

2.1.1 Parking Requirements

The pool facilities are considered public use and therefore are categorized as Parking Code 6 in the Bylaws. Parking Code 6 states that adequate parking spaces to accommodate, under all

normal conditions, the cars of occupants, employees, members, customers, clients and visitors to the premises at the discretion of the Building Inspector or applicable Special Permit Granting Authority. The existing Center Pool facility parking lot currently has approximately 60 parking spaces, three (3) of with are ADA accessible. If overflow parking is needed, the nearby baseball and municipal parking lots provide additional parking. According to the Bylaw, the total number of parking spaces required for the development improvements to the pool facilities will be at the discretion of the Building Inspector. The Town has stated their parking concerns to Vertex, that managing the needs for parking at the Center Pool is often difficult during the summer months due to the simultaneous use of the adjacent playground and ballfield. It is anticipated that an upgrade or expansion of the Center Pool facility will increase the need for available parking. Based on the Zoning Bylaw and information provided by Town staff, Vertex recommends increasing available parking to the extent practicable as part of any significant improvements to the Center Pool facility.

Additional parking facilities should be located outside of the front yard setback, at least 20 feet from the street, unless physical constraints or safety considerations dictate otherwise. In accordance with the Zoning Bylaw, all proposed 90-degree parking spaces shall be a minimum of 9’ wide by 18.5’ long and the drive aisle should be a minimum of 26’ wide for two-way traffic. Angled parking spaces shall be in compliance with the respective dimensional requirements listed in the Zoning Bylaw.

Parking areas with six (6) or more parking spaces shall provide a minimum of 10% landscaped open space in the area designated for parking, inclusive of any landscaped borders surrounding the lot. Parking lot entrances shall be landscaped with trees and shrubs; however these plantings shall not be planted in a manner which obstructs sight lines for motorists. Parking rows of fifteen (15) parking spaces or more will require a landscape island at either end of the row. If the row has more than twenty-five (25) parking spaces, additional landscape islands will be required at regular intervals. This interval shall be no more than thirteen (13) spaces, and the width of the landscape island shall be no more than eight (8) feet in width.

2.1.2 Visual Buffer Zones

Per the Walpole Zoning Bylaws Section 5.0, for all non-residential uses on any lot in zoning district, a minimum buffer zone should be provided but not in addition to the applicable minimum yard setbacks as specified by the zoning district. For any non-residential use in a residential district the buffer width shall be at a minimum the same as the applicable setback per the district zoning. For the Center Pool which falls in District GR, there is a 10-foot side yard and a 30 foot rear yard setback.

Unless specifically permitted by the Planning Board under a Site Plan Review, the existing buffer zone land shall not be disturbed during construction or thereafter unless planting or loaming is required. Buffer zones which contain some natural growth but insufficient to provide a proper screen shall be planted with drought-resistant, non-invasive trees and shrub species. At least 60% of plantings shall be evergreen species and at least 50% of the evergreen shall be spruce or have equivalent foliage. Evergreen trees shall not be less than five (5) feet tall and shall be planted no more than seven (7) feet apart. Buffer zone requirements can be found in the Walpole Zoning Bylaws Section 5-G.

2.2 Massachusetts Resource Areas

Vertex examined statewide GIS mapping for potential state regulatory jurisdictions. There are no Certified Vernal Pools, Areas of Critical Environmental Concern, or Estimated or Priority Wildlife Habitat areas within the project sites, as shown on Attachment 1. Additionally, the South Pool site is within a water resource protection area, Area 3 – Primary Recharge Area as indicated on the Town of Walpole Aquifers Overly Districts Map. This is demonstrated on Figure 3. The current and proposed site uses are not restricted within Area 3, and therefore should not add any town permits or restrictions.

2.3 Walpole Wetlands Protection Bylaw

The Wetlands Protection Act and the Walpole Wetlands Protection Bylaw include jurisdictional setbacks and other requirements that effectively limit the alteration of land near resource areas. Their applicability to the site, however, is limited since the site has already been developed and has impervious areas, and pavement, close to resource area boundaries. The Walpole Conservation Commission has discretion in how these regulations are enforced. In general, keeping all new impervious areas set back at least as far as the existing pavement edge, and reducing the total impervious coverage, will be a proactive approach to obtaining Commission approval of any development proposal.

Due to the proximity of jurisdictional resource areas to the Center Pool facility, it is anticipated that any improvements to the facility will require wetlands permitting with the Walpole Conservation Commission.

Massachusetts prefers that pool backwash from pool filters be treated as storm water and avoid discharge into sanitary systems. The backwash water would be pumped into a holding tank to be dechlorinated prior to discharge to grade. Depending on the volume of backwash, the water may be discharged into a drywell or recharge system without dichlorination if the design of the system and adequate distance from to resource areas is acceptable to the Authorities Having Jurisdiction.

2.4 Pool Building Codes

The Town of Walpole Zoning Bylaws provide limited information regarding the construction or permitting of aquatic facilities. Per the definitions provided in the bylaws, swimming pools are considered “Open Space.” In regard to setbacks, an inground swimming pool may be located in the side or rear yard setbacks, provided the pool is located at least six (6) feet from the lot line. It is Vertex’s understanding that these setbacks are intended for residential pools and not intended for public aquatic facilities.

The Town of Walpole Health Department requires an Application for a Permit to Operate a Swimming Pool/Spa with a permit fee of $175. The pool must meet all local applicable requirements and 105 CMR 435.00: Sanitary Standards for Swimming Pools. After construction is complete, a license for Public Swimming Pools is required per the Board of Health and requires an inspection. As town-owned facilities, it is anticipated that the Center Pool and South Pool already maintain these licenses. Updating of such licenses may be required as part of any significant improvements to the facilities.

2.4.1 Applicable Pool Codes

A revised 105 CMR 435.00, Minimum Standards for Swimming Pools, State Sanitary Code; Chapter V of the Commonwealth of Massachusetts has been under draft review since 2017. It is anticipated that these revisions will be adopted, and it would be recommended to include the proposed changes to the regulation in any future proposed improvements to the pool facilities.

M.G.L. c140 § 206, a statutory law that takes precedence over regulatory law, further defines the requirements for fencing and pool covers.

Some specific requirements in CMR 435 and M.G.L c140 to be considered include:

- If the swimming pool cannot be completely drained during the off season, a pool safety cover is required.
- The pool fence must be 6 ft. high chain link.
- Emergency communication must be available on the pool deck, 24 hours a day 7 days a week with direct verbal contact to emergency responders.
- Turnover rates of pool water have been updated in CMR 435. The rate varies with the number of features provided; UV sanitation is required when spray features are provided.

The Massachusetts Architectural Access Board (MAAB) regulations and the 2010 Recreational Amendments to the American with Disabilities Act (ADA) apply to a renovated or new pool.

The adoption of the 10th Edition of the Massachusetts State Building Code will include the 2021 Version of the International Pool and Spa Code. The pool designs will incorporate provisions of this code.

2.4.2 General Line Safety

The pool deck and enclosed area inside of the perimeter fence is an outdoor assembly occupancy under the IBC 2018 and NFPA 101. Most pools, for ease of control, have a single point of entry and exit. Although this works from an operational standpoint, emergency egress from the pool enclosure is needed to allow bathers to leave the pool in an emergency situation. Gates are added with emergency exit hardware, alarms, and anti-tampering panels to ensure safe exit while the pool is in use.

2.4.3 Pool Bather Load and Plumbing Fixture Count

Pool bather load is established by the Massachusetts State Sanitary Code 105 CMR. Plumbing fixture count is established by CMR 435.00 and the Massachusetts State Plumbing Code 248.00 CMR 10.00. Pool water is defined as non-swimming (less than 5 feet in water depth) and swimming (water deeper than 5 feet)

Bather load is calculated at one (1) bather per fifteen (15) square feet (S.F.) of non-swimming water and one (1) bather per twenty (20) S.F. of swimming water. One (1) toilet and one (1) shower are required for every forty (40) bathers. Exterior showers do not count towards this fixture count. Outdoor showers are classed by Massachusetts Plumbing Board as “rinse stations.”

The following table shows the code required bather load and plumbing fixture counts for the existing swimming pool and the design options described in Section 3.0 Proposed Development below. Table 1A also includes a count of actual fixtures at the Center Pool and deficiencies in comparison to code required counts. A full analysis of bather load and fixture counts can be found as Appendix B.

TABLE 1A: EXISTING BATHING LOAD AND PLUMBING FIXTURE COUNTS				
LOCATION	**BATHERS**	**TOILETS**	**SHOWERS**	**LAVATORIES**
Existing Wading Pool (Required)	**132** 66 – Female 66 – Male	**4** 2 – Female 2 – Male	**4** 2 – Female 2 – Male	**4** 2 – Female 2 – Male
Existing Swimming Pool (Required)	**230** 115 – Female 115 – Male	**6** 3 – Female 3 – Male	**6** 3 – Female 3 – Male	**4** 2 – Female 2 – Male
TOTALS	**362** 181 – Female 181 – Male	**10** 5 – Female 5 – Male	**10** 5 – Female 5 – Male	**8** 4 – Female 4 – Male
Existing Fixtures (Actual)		3 – Female 2 – Male 1 – Unisex	0 – Female 0– Male	2 – Female 2– Male 1-Unisex
Deficiencies		**2 Additional Female** **3 Additional Male**	**5 Female Required*** **5 Male Required***	**2 Additional Female** **2 Additional Male**

**There are 6 exterior showers at the Center Pool. Outdoor showers are classified as rinse stations by the State Plumbing Board and DPH. They are not considered to be part of the required shower counts unless granted by variance.*

TABLE 1B: POOL OPTION 1 - BATHING LOAD AND PLUMBING FIXTURE COUNTS				
LOCATION	**BATHERS**	**TOILETS**	**SHOWERS**	**LAVATORIES**
Existing Wading Pool	**132** 66 – Female 66 – Male	**4** 2 – Female 2 – Male	**4** 2 – Female 2 – Male	**4** 2 – Female 2 – Male
Proposed Swimming Pool	**266** 133 – Female 133 – Male	**8** 4 – Female 4 – Male	**8** 4 – Female 4 – Male	**4** 2 – Female 2 – Male
TOTALS	**372** 186 – Female 186 – Male	**12** 6 – Female 6 – Male	**12** 6 – Female 6 – Male	**8** 4 – Female 4 – Male

TABLE 1C: POOL OPTION 2 - BATHING LOAD AND PLUMBING FIXTURE COUNTS				
LOCATION	**BATHERS**	**TOILETS**	**SHOWERS**	**LAVATORIES**
Existing Wading Pool	**132** 66 – Female 66 – Male	**4** 2 – Female 2 – Male	**4** 2 – Female 2 – Male	**4** 2 – Female 2 – Male
Proposed Swimming Pool	**384** 192 – Female 192 – Male	**10** 5 – Female 5 – Male	**10** 5 – Female 5 – Male	**8** 4 – Female 4 – Male
TOTALS	**516** 258 – Female 258 – Male	**14** 7 – Female 7 – Male	**14** 7 – Female 7 – Male	**12** 6 – Female 6 – Male

Observation: The current bathhouse does not provide the code required plumbing fixtures for the existing lap pool and separate wading pool. Option 1, which includes two separate pools, is slightly larger than the existing; Option 2, which includes a single new pool, is even larger. Improvements to the existing bathhouse or the addition of a separate structure to meet the code requirements may be required.

As part of the bathhouse improvements or expansion, incorporating family changing/unisex facilities should be considered. Current aquatic facilities provide accommodations for families or individuals with disabilities. These accommodations provide shower and toilet facilities separated from the larger men's and women's facilities.

2.4.4 Potable Water Cross Connection Protection

The Walpole Sewer & Water Department requires protection of the Public Water Supply from any potential cross connections per 310 CMR 22.22. The proposed swimming pool tank and recirculation systems are closed with no direct connection to the domestic water supply. The new pool will have an automatic water level control that actuates a solenoid valve that opens a water supply valve. The water supply dumps into a funnel and has a minimum 6-inch air gap to prevent cross connection of the systems. As a standard element of aquatic facilities, costs associated with cross connection protection are included with the general pool construction cost.

3.0 PROPOSED DEVELOPMENT

Vertex understands that the Town intends to evaluate options to improve its existing aquatics facilities. For purposes of this evaluation, the Center Pool has been identified as the preferred location for such improvements due to several factors, including but not limited to its central location, existing infrastructure, current programming, and site conditions. Vertex and its design team have developed three options for improvements to the Center Pool facility. The options include replacement of the existing Center Pool with two pools, one for lap swimming and one for recreation a single pool; replacement of the existing Center Pool with a single larger pool; and replacement of the existing Center Pool with a single larger pool within a removeable enclosure to extend the season. In all three options, the existing splash pad and wading pool would be maintained for future use. A detailed description of each option, including advantages and disadvantages, is provided below. Additionally, conceptual plans and renderings of the three options are provided in Attachment 3.

3.1 Conceptual Design Options

3.1.1 Pool Option 1: Separate Pools (Rectangular and U-Shaped)

Option 1 proposes replacement of the existing Center Pool with two swimming pools. The larger lap pool would be 75 feet long (25 yards) and 45 feet wide. The 3,400 SF pool includes recessed steps into the shallow end to provide easy access for kids learning to swim and a dignified entry for adults. The pool would be 3’-6” at the shallow end and 6 feet at the starting block end. The pool would have a large 2,225 SF relatively flat area for recreational programming, fitness, and swimming lessons. The pool would meet the needs of the Town’s summer swim team and would be accessible by lift for individuals with disabilities.

The second 1,880 SF pool is “U” shaped and provides a zero-depth entry on the side closest to the building and steps on the other side of the ‘U”. The pool would be three (3) feet deep at the drains. The design would provide useable recreational water while the lap pool is being used for swim practices or meets. The “U” shape’s peninsula allows for variable water depth and 3 distinct

sections of the pool for different programming and swimmers of different ages and abilities. The peninsula is required to create transitions from shallow to deep water and maintain a maximum floor slope of 1:12. A simple square pool would provide a pool with uniform depth and slope with limited variety of depth and ability to define programs.

Two pools provide distinct pools for a variety of users. The smaller pool offers depths for smaller bathers; the larger pools has depths appropriate for competitive swimming, lessons and recreation space for older swimmers comfortable in 3'-6" of water.

Two pools require two separate filter systems and allows use of one pool in the event one pool is closed.

Advantages

- The two pools are visually connected and within the same enclosure for families with children of different ages and abilities. Parents or guardians can monitor children in both pools.
- The two pools are on separate filter systems that allow one pool to remain open in the event one must close.
- The smaller pool can be filtered at a higher turnover rate to match the users and proposed code.
- The smaller pool can be provided with water features.
- The pool decks are expanded to allow adequate space for bathers and spectators during swim meets.
- The lap pool meets the requirements for competitive swimming and matches the pools in communities that participate in the Summer Suburban Swim League.
- The "U" shaped configuration pools provide 3 distinct areas for programming and lessons. Zero to 2'-6", 2'-6" to 3' and 3'- 3'-6.

Disadvantages

- The smaller pool is similar in program to the existing wading pool; however, it does provide better depths and configuration for swimming lessons.
- Two pools require to separate filtration systems.

3.1.2 Pool Option 2: Single Pool (Rectangular with Zero-Depth Entry)

Option 2 proposes replacement of the existing Center Pool with a single 6,150 SF pool that has a zero-depth recreational area separated from six 25-yard lap lanes by a projecting peninsula. The pool would combine recreational, learn to swim, and lap swimming into a single body of water. How the shallow portion of the pool would be used during swim meets becomes a programming and operational decision. The shallow end of the lap lanes can be four (4) feet deep if desired. Four (4) feet is the recommended minimum depth at the kick-turn end of a lap lane, however four (4) feet is deep for younger bathers. The pool has over 300 linear feet of perimeter and requires a second means of accessible entrance/egress. The zero-depth entry would be the main access point, a lift would be the second. A set of recessed steps would be provided in the shallow end to provide easy access for kids learning to swim and a dignified entry for adults. The radial shape of the shallow end reduces the slope of the pool floor along the edge to provide a more gradual transition for bathers. The slope along the peninsula is 1:12. The shape also adds visual interest to the pool and provides more deck space. The shape of the pool could be squared off if desired.

The shallow end of the pool can be used for recreational swimming while the main pool is set up for lap swimming. The shallow end of the 6 lane pool with a depth between 3’-6” and 4’-0” provides adequate space for lessons and recreational swimming for bathers comfortable with deeper water.

Advantages

- The single pool provides one body of water for a parent or guardian to monitor multiple children.
- The pool has one filter system reducing initial capital cost and operating maintenance.
- The shallow end of the pool can be filtered at a higher turnover rate to match the users and proposed code. The recirculating gutter and returns can be designed to turn the water over in the shallow end at 4 hours while keeping the lap area turning over every 6 hours. A 4 hour turnover for shallower water and younger bathers helps with the overall sanitation of the pool.
- The shallow end of the pool can be provided with water features.

- The pool decks are expanded to allow adequate space for bathers and spectators during swim meets.
- The lap area of the pool meets the requirements for competitive swimming and matches the pools in communities that participate in the Summer Suburban Swim League.

Disadvantages

- The pool has one filter system. If the pool is forced to close for an accident, the entire pool is closed until the pool chemistry is brought back on-line.
- One pool can limit programming and use during swim practices and meets.
- In the event of a fecal indicant or trouble with the filtration pool, the entire pool must be closed.

3.1.3 Pool Option 3: Enclosed Single Pool (Rectangular with Zero-Depth Entry)

Option 3 would utilize the same pool design as in Option 2 and adds an air supported seasonal cover. Air supported structures are used to cover an outdoor pool with a "bubble" to create a year around swimming pool facility. There are a number of air supported structures in eastern Massachusetts including the Long Fellow Clubs in Wayland and Natick, The Weymouth Club, and the Wayland Town Pool.

There are two types of air structures. The first is an air supported structure where pressurized air within the useable space supports the fabric structure. The second is an air inflated structure that traps air within the fabric layers to create an internal space.

Air-supported structures are better suited for large structures, like those needed for indoor sports or to cover large areas such as swimming pools. Air-supported structures are better able to withstand the forces of nature than inflatable buildings. A concrete grade beam is part of the foundation and is needed not just to help seal the air in, but to give added strength and support to anchor a dome in place. The air pressure in an air-supported structure can be modulated to fit the needs of whatever the weather is doing.

There are new air-inflated technologies in use in Europe and will be marketed in the US. These should be considered as part of further design.

Figure 1: *Photo courtesy of Wayland Town Pool Facebook page*

Regardless of air-supported or air-inflated, the following would be required to create a year around pool complex.

- The bathhouse would need to be designed to accommodate an entry vestibule, expanded lobby, mechanical space, and circulation. Bathers would now be arriving in winter clothing and adequate provisions within the toilet and changing rooms including lockers, would be required.

- The bathhouse would be heated, ventilated, insulated, and need to meet the requirements of the 2021 version of the Energy Code (IECC).

- If the pool was to be used for a winter swim league, the lobby would be sized to accommodate multiple swim teams and spectators. Public toilets, separate from the locker room toilets would be needed.

- The bathhouse structure must be physically connected to the pool enclosure.

- Successful indoor aquatic centers would also provide other amenities such as a lounge, and exercise (stretching space). Many indoor facilities also provide multi-purpose spaces that can be used for classrooms, “party-rooms”, or breakout space for swim meets. A

freestanding indoor pool would need amenities to draw swimmers to the pool and compete with other pool options and health clubs. It would be advisable to have a business plan prepared to evaluate the market and viability of an indoor pool.

- Large pieces of HVAC equipment would be required for the natatorium. Whether a dehumidification or an air-to-air unit is used to condition and control the space, their location must take into consideration sight lines and the impact on overall appearance and size of the building. Option 3 is showing a new structure between the pool and the street.

- The electrical service entrance would need to be sized to accommodate the increased load of lighting, heating, and ventilating equipment.

- Space would need to be provided in the filtration room for pool water heaters. A gas service will be recommended for building and pool heating; the trend towards electrical heating is possible but much less efficient.

- A sprinkler system would most likely be required for the bathhouse. A separate water service entrance from the street, as well as space within the building would need to be included in the design.

- An addressable fire alarm system would be required for the bathhouse. A BDA (Bi-Directional Amplification) system would be needed for an enclosure natatorium.

- Pool deck drains for an outdoor pool connect to storm water discharge. Pool deck drains for an indoor pool must connect to a sanitary system. Diverter valves are provided to switch drainage.

- Properly designed natatoriums provide supply air low to ensure proper flow over the water surface to remove chloramines. This is typically achieved by buried ductwork in the pool deck.

- Enclosed natatorium must provide safe egress out of the building. Location and maintenance of exits during winter months must be provided.

- The fence required to enclose the pool during summer months would need to be located away from the edge of the pool deck to allow installation of the fabric structure.

- Installation and removal of year, along with storage of the fabric, portable lights, exit ways, need to be considered for cost and available storage space.

3.1.3.1 Retractable Pool Covers

A glass and metal enclosure that can be opened to expose the pool to the exterior is an option. This option was evaluated and removed from consideration based on the following:

- The size of the proposed pools in Walpole would require fixed perimeter framing with movable roof panels and retractable doors. Sliding type enclosures that would completely open the pool are not practical at this scale.

- Leaving the frame and large sections of the roof and wall panels in place maintains the feel of an indoor pool. From a user's standpoint, you may have a direct connection to the sky and surrounding landscape, but you are still within an enclosed space. The best way to describe and experience this feeling is to visit an enclosed pool. The Boy's and Girl's Club on Blue Hills Avenue in Boston is a good example. Please note the large duct running around the perimeter of the pool which would remain in place.

Boy's and Girl's Club, Boston

- As of July 1, 2023, the new energy code is effective and uses the International Energy Code 2021 edition. An all glass enclosure, operated between 83 and 85 degrees during the winter will pose a significant challenge to meet the new code performance requirements. Sections of the enclosure may need to be opaque and insulated.

- In our experience moving components on buildings in the northeast easily foul and malfunction from leaves and other debris on the moving components. Being subject to ice and snow in the winter can also affect the operation of these systems. These systems are pre-engineered and rely on the manufacturer's experience and performance to function properly.

3.2 Features Unique to All Options

Pool Structure:

Dry or wet mix shotcrete pool tank(s) including plaster finish and tile markings. At ramps, stairs, and zero depth areas and areas indicated, provide a quartz aggregate pool finish to provide non-slip texture.

Figure 2: *Aggregate Pool Plaster*

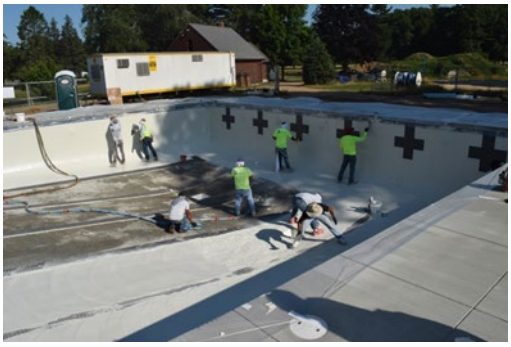


Figure 2: *White Plaster with Tile Wall Targets and Racing Lines*

Pool Gutter Options:

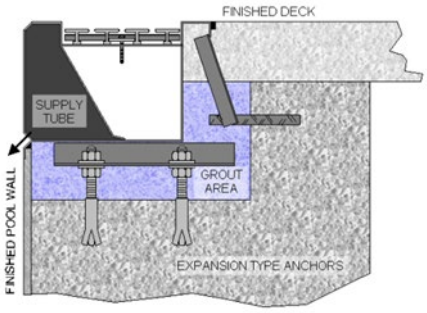


Figure 3: *Deck Level*

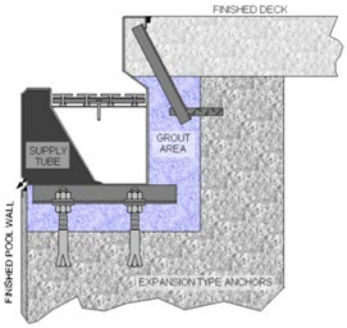


Figure 3: *Semi-Recessed Gutter*

The semi-recessed gutter would be typical around the pool. This gutter provides a visible vertical edge to the pool which is important to lap swimmers and is the location for in pool depth markers. The gutter would transition at the zero-depth area to deck level gutter. Transitions would be protected by a guard rail as shown below.

Figure 4: *Zero Depth Entry Example*

Pool Decks:

Pool deck will be flush with the top of the pool gutter to eliminate the existing curb around the pool. Decks are cast-in-place concrete with a fine broom finish.

Lifeguard Chairs:

A combination of OSHA complaint elevated chairs, and portable elevated platforms would be used by lifeguards. The type is determined by the depth of water being guarded.

Figure 5: *Lifeguard chair examples*

Accessible Lift:

The lift must be able to be operated by the user. Units are battery operated and allow a user to transfer from a wheelchair onto the lift to enter or exit the pool.

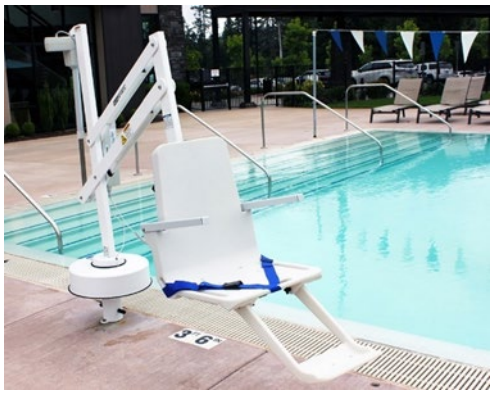


Figure 6: *Accessible Life example*

Fencing:

As noted above in the code discussion, emergency exits from the pool need to be provided. The exit device allows egress at all times, the hardware is alarmed to prevent unauthorized access, and protected to prevent tampering.

Figure 7: *Alarmed fence gate example*

3.3 Zoning Bylaw Permitting

Vertex has conducted a review of the Conceptual Site Plans for the Center Pool site relative to the dimensional requirements of the Zoning Bylaw and they are summarized in Attachment 2. This table includes the Bylaw requirements and a comparison of existing and proposed dimensional requirements where appropriate. The proposed requirements shown are as applied to the project site as a whole.

Attachment 2 demonstrates that most of the Bylaw dimensional requirements are met with the Conceptual Site Plans. The required building setbacks, parking spaces, drive aisle widths, and landscape buffer requirements are provided. Interior landscape requirements are generally met; however, this requirement is subject to interpretation and in our experience is not rigidly enforced.

The current site has approximately 5.64% percent coverage by impervious surfaces. The Conceptual Site Plans show a net addition of impervious surfaces by approximately 1.44 percent, resulting in approximately 7.08% percent impervious coverage. The addition of impervious coverage is to account for the additional parking requirement as described above. The project site in all three options is well within the required range the Bylaw permits.

During the site plan approval process on recent swimming pool projects, parking and noise have been identified as the primary concerns expressed by abutters to the development. The hours of operation, parking during peak demand, and light trespass are typically addressed in the site plan approval process. The pool surface and decks cover a large area; however their visual impact is minimal. The support structures for a pool, the bathhouse, and filtration buildings are relatively small structures and can be integrated into the scale of a surrounding area.

As discussed in Section 2.1, the Dover Amendment provides relief from local Zoning Bylaws for education and/or non-profit facilities. The design options provided on the Conceptual Site Plans are generally intended to meet the requirements of the Zoning Bylaw. It is anticipated that relief under the Dover Amendment if necessary to reduce the requirement to a reasonable restriction.

3.4 Conservation Commission Permitting

The Conceptual Site Plans and Renderings do not require any wetland resource area to be altered. There is some proposed work within the 100-foot buffer to bordering vegetated wetland (BVW). This jurisdictional limit and such work are allowable under the Wetland Protection Act and the Walpole Wetlands Protection Bylaw, subject to Walpole Conservation Commission review. Such reviews are conducted in advertised public hearings, with parties of interest notified.

In general, all paved surfaces are proposed to be no closer than the existing edge of pavement when in the buffer zone, within some minor exceptions where the existing paving edge is set back considerably from the wetland boundary. A portion of the proposed seasonal parking lot is located within the 100-foot wetland buffer. The surface of this lot is proposed to be a pervious material to allow infiltration instead of an impermeable surface like typical parking lots. The Commission is likely to look favorably upon this design approach.

The Conservation Commission's jurisdiction also includes stormwater management, and they enforce the standards included in the MassDEP Stormwater Management Handbook (SMH). These Standards include provisions to improve water quality, reduce offsite flooding, and increase stormwater recharge. Since the site impervious area is being increased and not reduced, the three pool design options would be considered new development under the SMH, which requires that all Standards be met. Water quality standards would need to be met by providing deep sump catch basins and subsurface water quality structures near points of discharge. Infiltration standards would need to be met by adding infiltration systems that receive site runoff. Site drainage has not been designed; however, Vertex recommends the network utilize existing drainage outlets where possible to minimize disturbance within the 100-foot wetland resource area buffer. The Commission may require improvements to these outlets, such as rip-rap aprons, to prevent erosion. While not yet designed, it is anticipated that discharge from the stormwater management system will be directed to nearby stream and wetland system. No additional discharge to the municipal drainage system on School Street is anticipated.

The South Pool site is located in a town-designated Area 3 – Primary Recharge Area due to its location within the watershed of a public water supply. This designation would not prevent the development or renovation of the South Pool as it falls within the allowable by-right uses within the WRPOD (Water Resource Protection Overlay District) Zone 3.

It is important to note that the Walpole Conservation Commission has discretion over how the Wetland Protection Act and Bylaw are interpreted. They can review and adjust the wetland resource area determinations, set requirements on work within the buffer zone, and interpret what is "practicable" with regard to stormwater management. The wetland resource area determinations can be reviewed and confirmed, if necessary, through a filing with the Commission called a "Notice of Resource Area Delineation" that will require the Commission to review the determinations and delineations prior to further development of a Site Plan.

3.5 Town of Walpole Permitting

The Town of Walpole has recently enacted a Stormwater Bylaw that establishes local approval procedures but otherwise refers to the Standards that are enforced by the Conservation Commission. Site drainage design will comply with the standards set forth by the Stormwater Bylaw and the MSH. It is anticipated that the project will require permitting with the Conservation Commission with respect to wetlands, stormwater management, and land disturbance.

Pool Deck Drainage is considered part of the stormwater system and needs to be collected and infiltrated on site. Deck drains can be connected to an infiltration system or drywell. The pool deck can be designed to drain towards the perimeter as long as the run-off is controlled and provided a means to infiltrate such as a perimeter French drain.

Pool backwash water, generated when the sand filters are reversed to flush contaminants and debris from the sand bed, must be disposed of in a manner acceptable to Town of Walpole authorities having jurisdiction. An indirect discharge can be made to a sanitary sewer system as long as the system can accommodate the potential flow that could be in thousands of gallons per minute. Backwash can also be discharged to a stormwater system and infiltrated once debris is

removed, and chlorination is at an appropriate level. Backwash discharge will need to be further studied with the Town's engineering, DPW, and Conservation Commission.

3.5.1 Parking Requirements

An increase in usage at the Center Pool is anticipated to increase the demand for parking and drop-off/pick-up activity. Parking generation is typically estimated for particular land uses by utilizing rates provided in the Institute of Transportation Engineers Parking Generation Manual. Parking rates for outdoor swim facilities, however, are not included in the Manual. Other methods for determining parking needs can be investigated.

Based on the current pools 8-weeks season the center pool will generate the greatest need for parking, but the use will be spread throughout the day. On weekday mornings, the pools are used by the swim team for practice from 7 to 10AM. Private swimming lessons occur between 11 and 12 at the main pool and adult swim is scheduled from noon to 1PM. The main pool currently has a very low usage through 1PM. The wading pool/splash pad adjacent opens at 10AM and averages 35 bathers each hour. Moving group swimming lessons to the Center Pool would increase the parking demand in the morning hours. After 1PM, the pool is open to public use and averages roughly 45 people per hour until 5PM. Swim meets can occur twice a week with a spectator and participant load of 100, between 5PM and 7PM.

Swim meets and public swim typically have the highest demand for parking. For typical public swimming, general rule used for parking is one (1) parking space per three (3) bathers. This assumes a certain amount of drop-off and pick-up of children as well as bathers walking or riding a bike. Parking demand is higher during meets where more spectators drive to watch the swim meet. Parking demand must also consider staff parking which can be assigned to remote municipal lots in the area to maximize parking for patrons.

The three proposed development options will utilize and replace a portion of the existing surface parking lot, re-striping sections of the lot to provide a more cohesive traffic pattern. A proposed seasonal parking lot, located north of the pool facilities building, will provide a total of thirty-six

(36) additional parking spaces. This design includes one row of parking with eighteen (18) consecutive parking spaces. A landscape island is provided on either end of the row per the Town's bylaw. An additional overflow parking lot is proposed which will provide forty (40) additional parking spaces east of the swimming pool facility. The overflow parking lot does not have more than fifteen (15) consecutive parking spaces, and therefore does not require the use of landscape islands.

3.5.2 Buffer Zones

All features of the proposed development, inclusive of all three options, are within property setbacks as required for the zoning district. In areas where the landscape buffer may need to be disturbed, plantings should be replaced, and the area should be loamed and seeded. Where practicable, existing mature healthy trees should be protected throughout construction.

3.6 Review of Pool Procurement in Massachusetts General Law c.149 vs. C30 §39M

Swimming pool construction projects that require substantial renovations to a bathhouse and filter building, accessibility upgrades, and life safety improvements are bid under MGL c.149 Building (Vertical) Construction. Substantial renovation would be defined as over $150,000. A pool renovation or new "pool" construction project with building work under $150,000 may be bid under MGL C30 §39M. Under c.149 the contract documents require an understanding of pool construction and the public bidding laws to properly assign the work to the General Contractor, a specialty pool subcontractor, and the filed sub-bid categories of waterproofing, damproofing and caulking, painting, plumbing and electrical.

There are pool contractors in the region that can act as a general contractor to perform utility, concrete flatwork, fencing, and general landscape work associated with a pool under MGL c 30. A few pool contractors are certified under General Construction by DCAMM. Regardless of the amount of building work being performed, our experience indicates that pool contractors prefer to avoid acting as a general contractor and focus on the pool and related site work.

The value of the proposed design options require the Town to engage an Owner's Project Manager (OPM) in accordance with M.G.L. §44A1/2. The OPM can be a member of Town staff meeting the law's criteria or engaged as an outside consultant.

3.6.1 Pool Construction

Swimming pool contractors in the greater Boston area construct pools using dry or wet mix shotcrete structures. It is recommended that contract documents package the pool structure, filtration, recirculation systems, and built in pool elements under Division 13 Pool Construction to provide a single contractor and source of responsibility to the Owner. A concrete pool tank can be constructed by a general contractor, finished by a painter or plastered by a pool subcontractor. The pool subcontractor would install the gutter and piping in the GC's pool tank. Pools are contracted in this manner, however, this separates the warranty of the pool tank and blurs the line of responsibility if there is a leak in the gutter or failure of the pool finish.

Projects should be planned to be bid in late spring to allow contract award in early summer. The contractor can begin submittals and ordering long lead items, (filters, features, and gutters) prior to breaking ground. Pool construction should start at the end of summer season to provide approximately 9 months to build a new pool and not lose a swim season.

4.0 OPINION OF PROBABLE CONSTRUCTION COST

An Opinion of Probable Construction Cost (OPCC) was developed for the three conceptual design options at the Center Pool. At the request of the Town of Walpole, the OPCC was broken down into five categories: Pool Options 1 through 3, a Seasonal Parking Lot and an Overflow Parking Lot. The pool options directly correspond to the conceptual design options identified throughout this report. Provided below in Table 2 is a summary of the costs developed for each of the five categories identified above. Costs have been escalated based on construction of a new facility beginning in May 2024. The full OPCC is provided as Attachment 4 to this report.

TABLE 2: OPINION OF PROBABLE CONSTRUCTION COSTS

DESIGN OPTIONS	ESTIMATED COST
Pool Option 1: Separate Pools (Rectangular and U-Shaped)	$6,037,597.00
Pool Option 2: Single Pool (Rectangular with Zero-Depth Entry)	$6,322,975.00
Pool Option 3: Enclosed Single Pool (Rectangular with Zero-Depth Entry)	$11,248,943.00
Seasonal Parking Lot (with Pervious Surface)	$586,952.00
Overflow Parking Lot (with Paved Surface)	$449,342.00

5.0 CONCLUSION

Vertex has compiled information of the project site constraints, including reviewing available town and state resources, assessment of wetland resource areas, and site soils. Vertex has also reviewed the applicable State and Town of Walpole laws and regulations that pertain to site development for their applicability to the proposed development. No information has been found that would prohibit the proposed development of the site in general accordance with the Conceptual Site Plans and Renderings. As noted in Sections 2.0 and 3.0, there are regulatory constraints that will require permits from the Town of Walpole authorities. These permits are subject to public input and to the discretion of each authority. As the project advances, it is recommended that the Town of Walpole officials be involved early in the design process to obtain their input on the necessary approvals. Initially, this input can be from informal meetings with Town officials and boards.

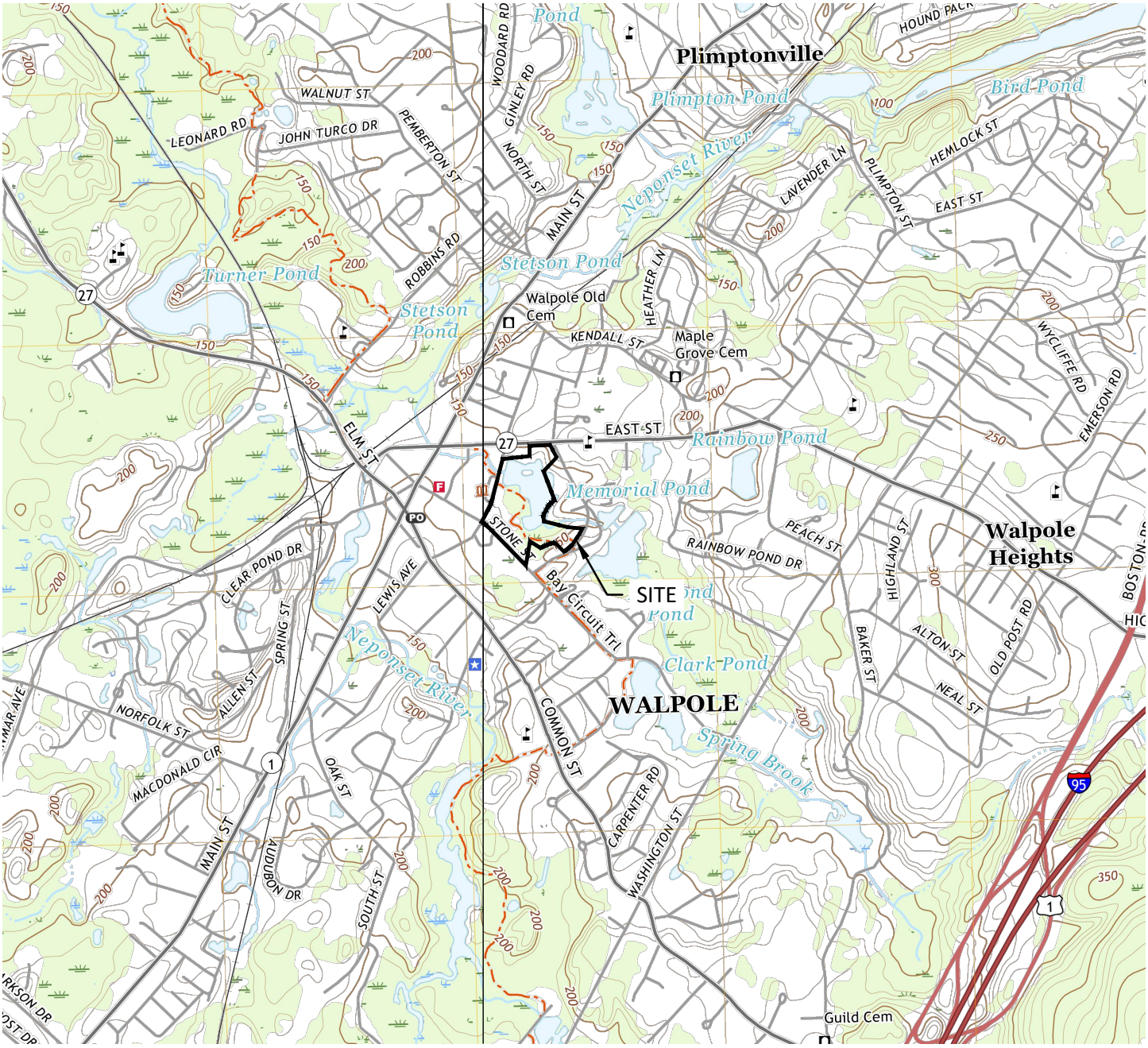
FIGURES

SITE LOCUS MAP

ZONING MAP

WATER RESOURCE PROTECTION OVERLAY DISTRICT MAP

FEMA FLOOD MAPS



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SCALE:1" = 2000'

SITE LOCUS

CENTER POOL

144 SCHOOL STREET
WALPOLE, MA 02081

FILE NO.:	N/A
DATE:	04/21/2023
DRAWN:	SMC
CHECKED:	GDB
VERTEX PROJ NO.:	84523

FIGURE 1A

VERTEX®
100 North Washington Street, Suite 302 I Boston, MA 02114
Main: 617.275.5407 I VERTEXENG.COM

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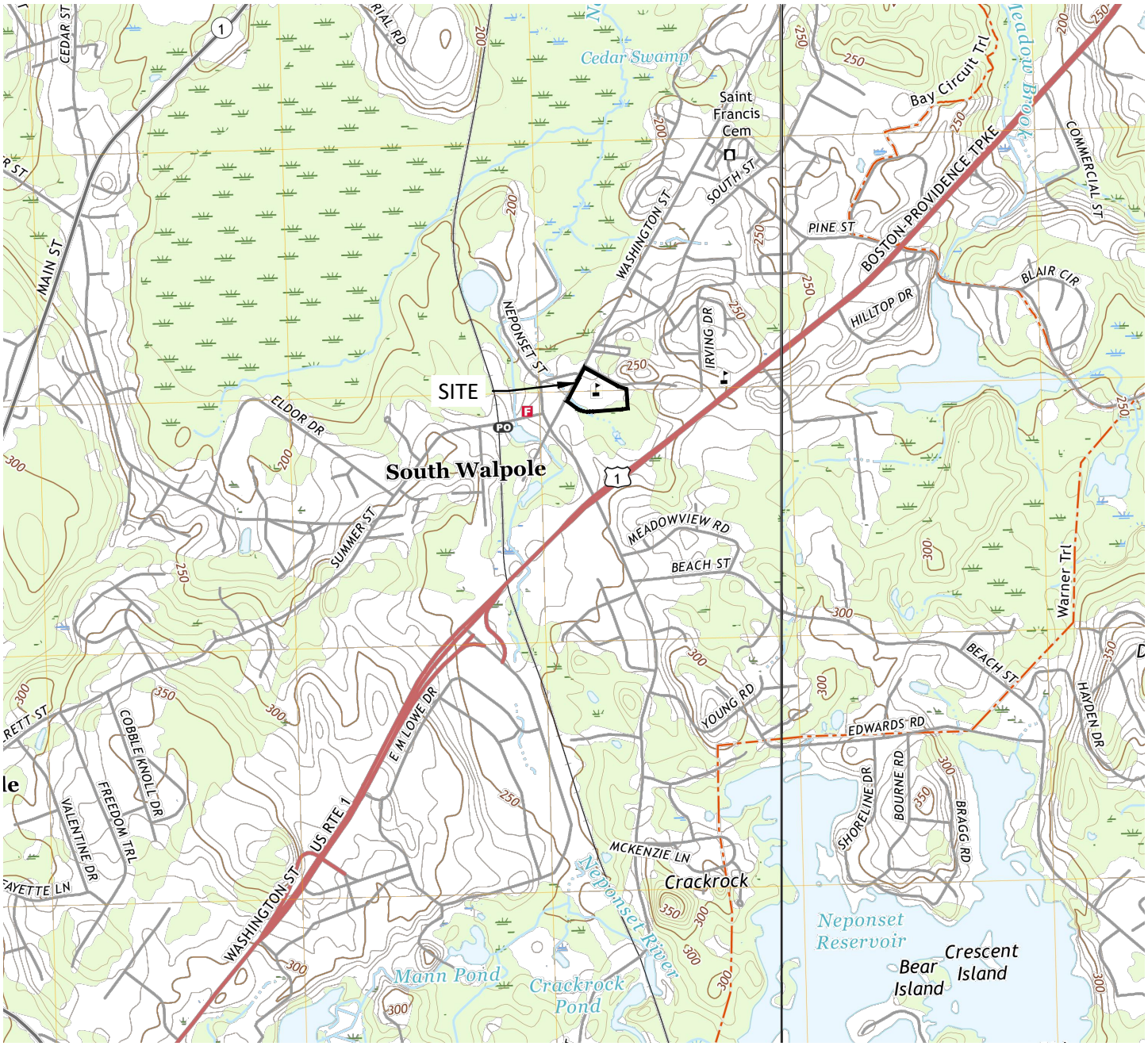

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SCALE:1" = 2000'

SITE LOCUS

SOUTH POOL

1852 WASHINGTON STREET
SOUTH WALPOLE, MA 02071

FILE NO.:	N/A
DATE:	04/21/2023
DRAWN:	SMC
CHECKED:	GDB
VERTEX PROJ NO.:	84523

FIGURE 1B

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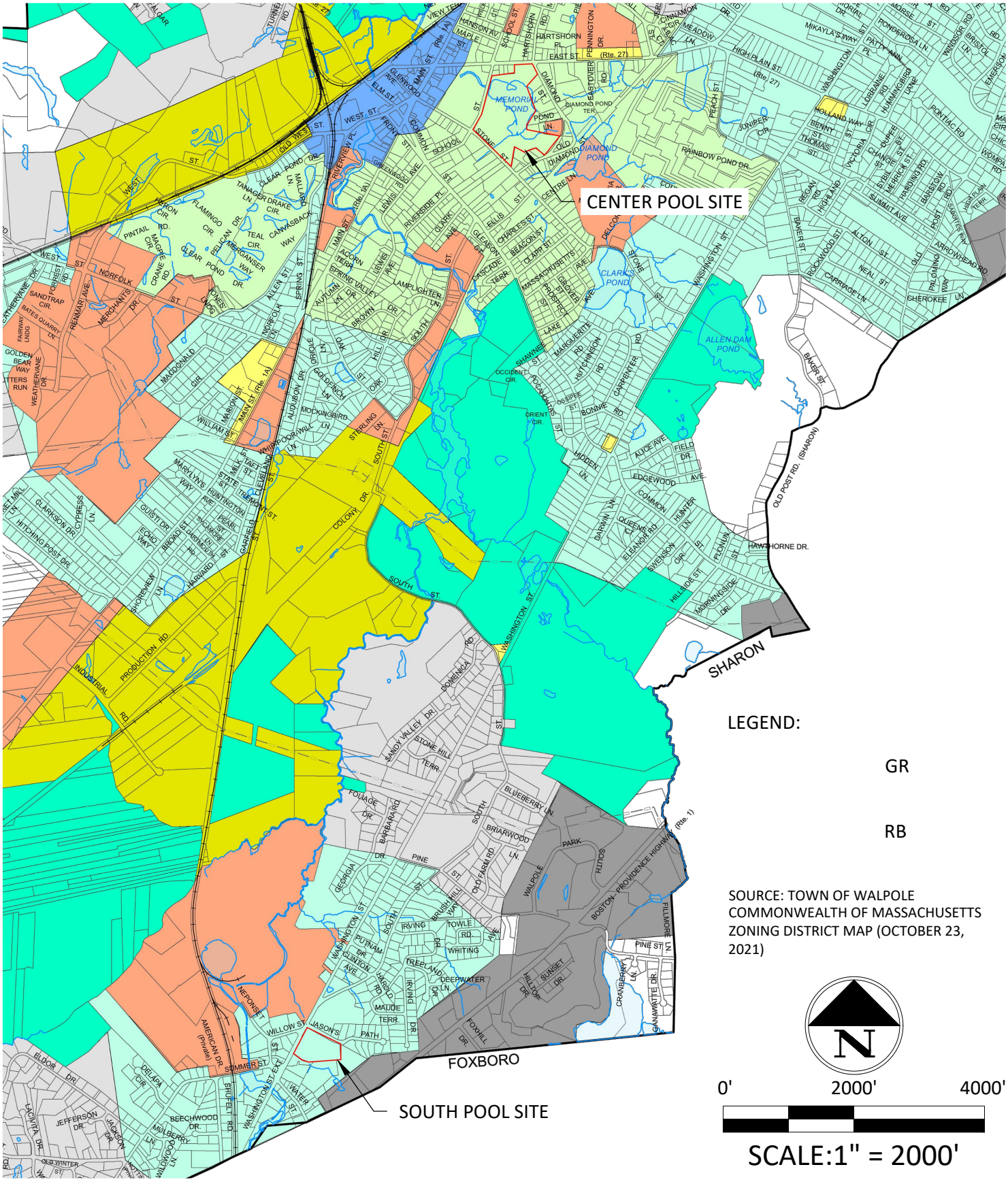

ZONING MAP

TOWN OF WALPOLE
135 SCHOOL STREET
WALPOLE, MA 02081

FILE NO.:	N/A
DATE:	04/21/2023
DRAWN:	STLD
CHECKED:	GDB
VERTEX PROJ NO.:	84523

FIGURE 2

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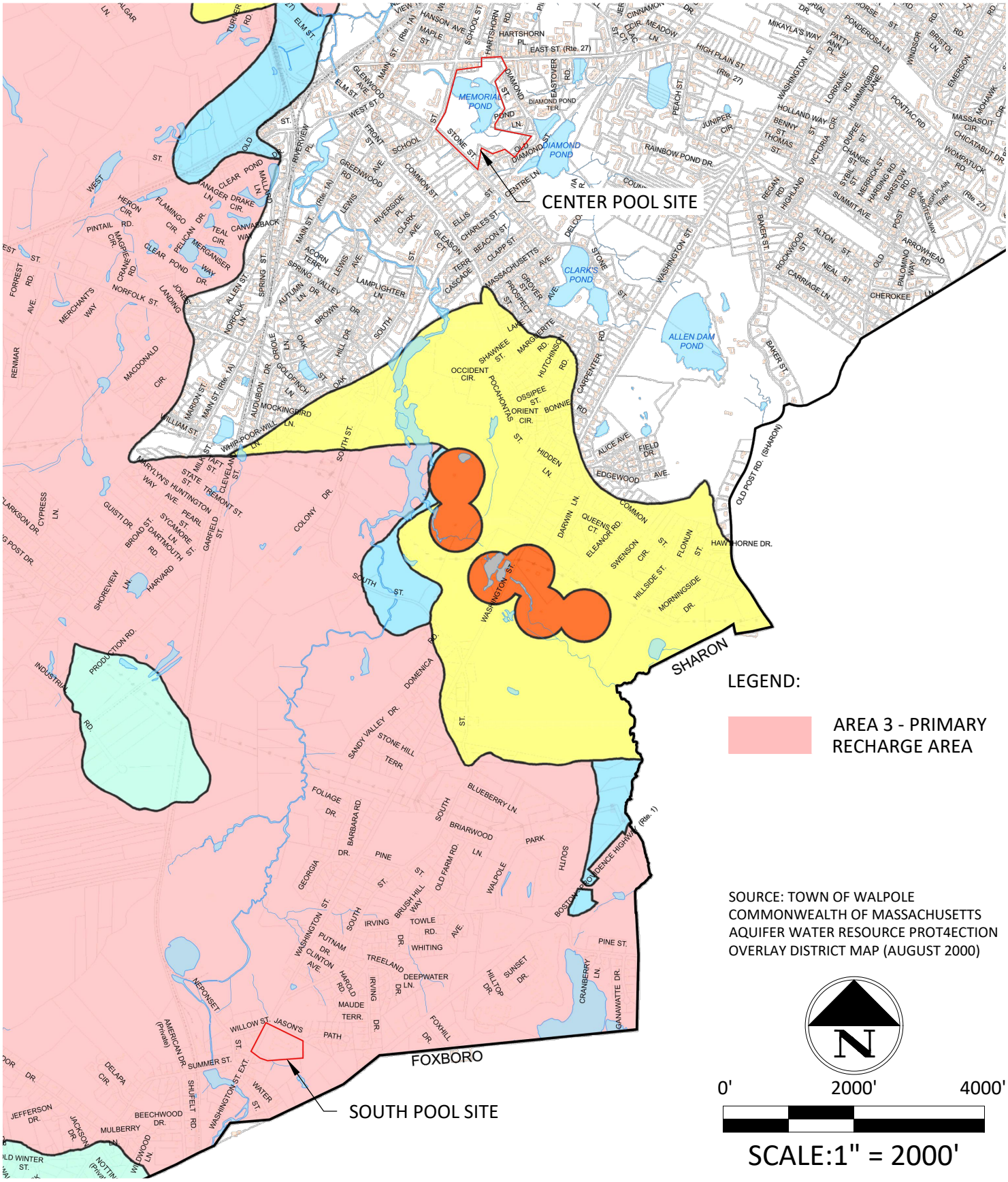

OVERLAY DISTRICT MAP

TOWN OF WALPOLE
135 SCHOOL STREET
WALPOLE, MA 02081

FILE NO.:	N/A
DATE:	04/21/2023
DRAWN:	STLD
CHECKED:	GDB
VERTEX PROJ NO.:	84523

FIGURE 3

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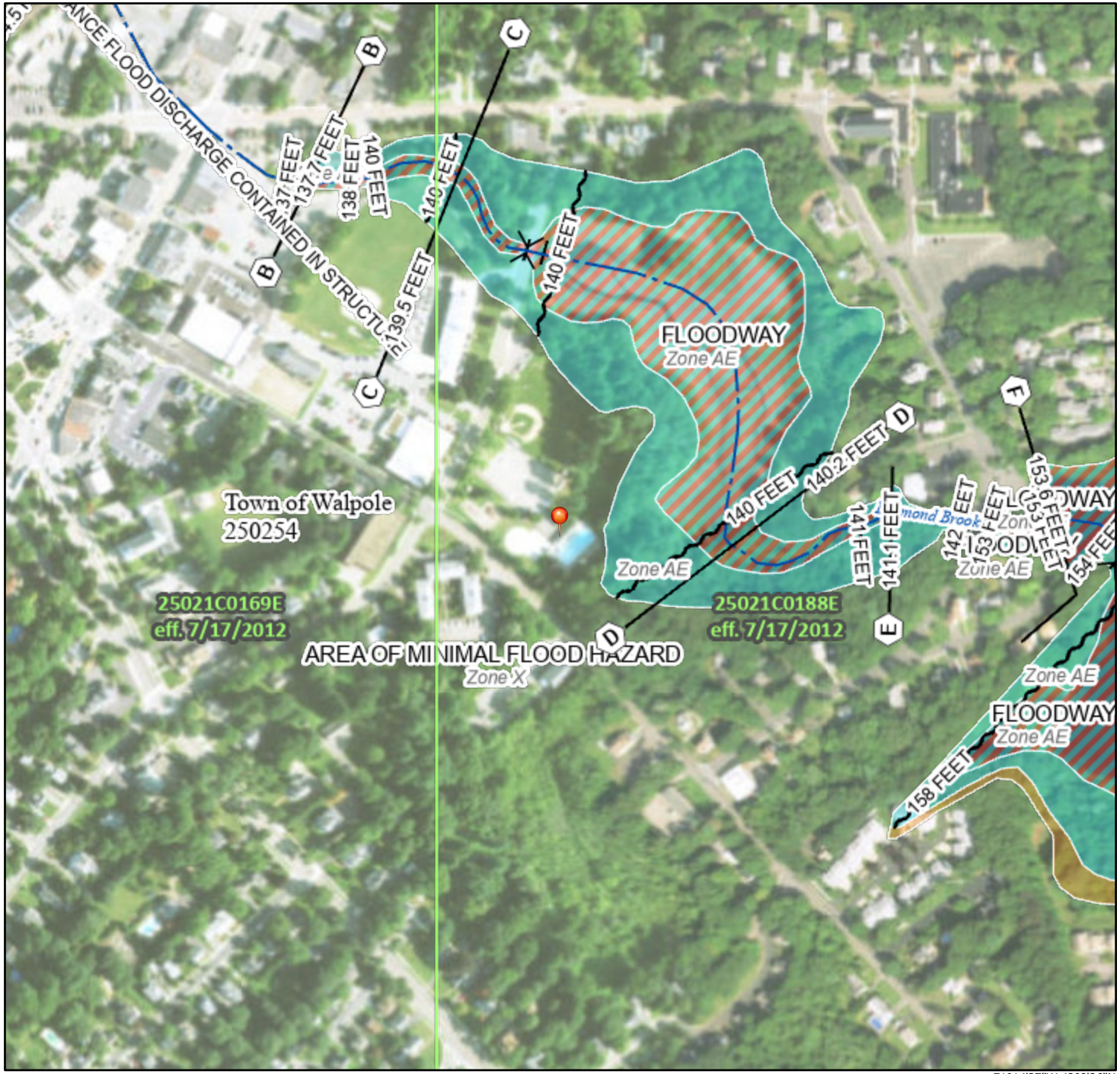
National Flood Hazard Layer FIRMette

FEMA

71°15'15"W 42°8'52"N



71°14'37"W 42°8'26"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

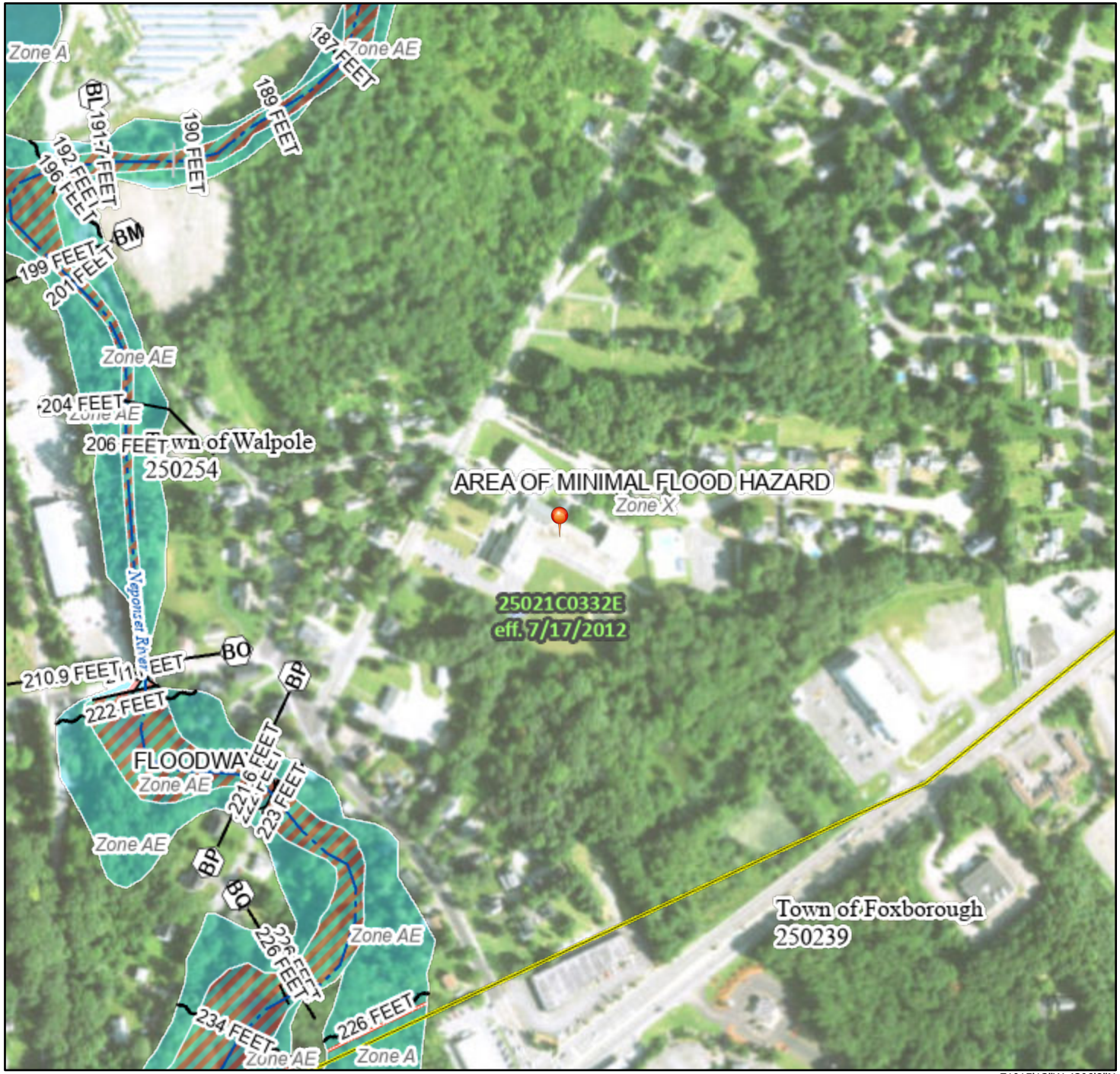
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/17/2023 at 11:20 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMette

FEMA

71°15'50"W 42°6'34"N



71°15'13"W 42°6'8"N

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1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
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- Levee, Dike, or Floodwall

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- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

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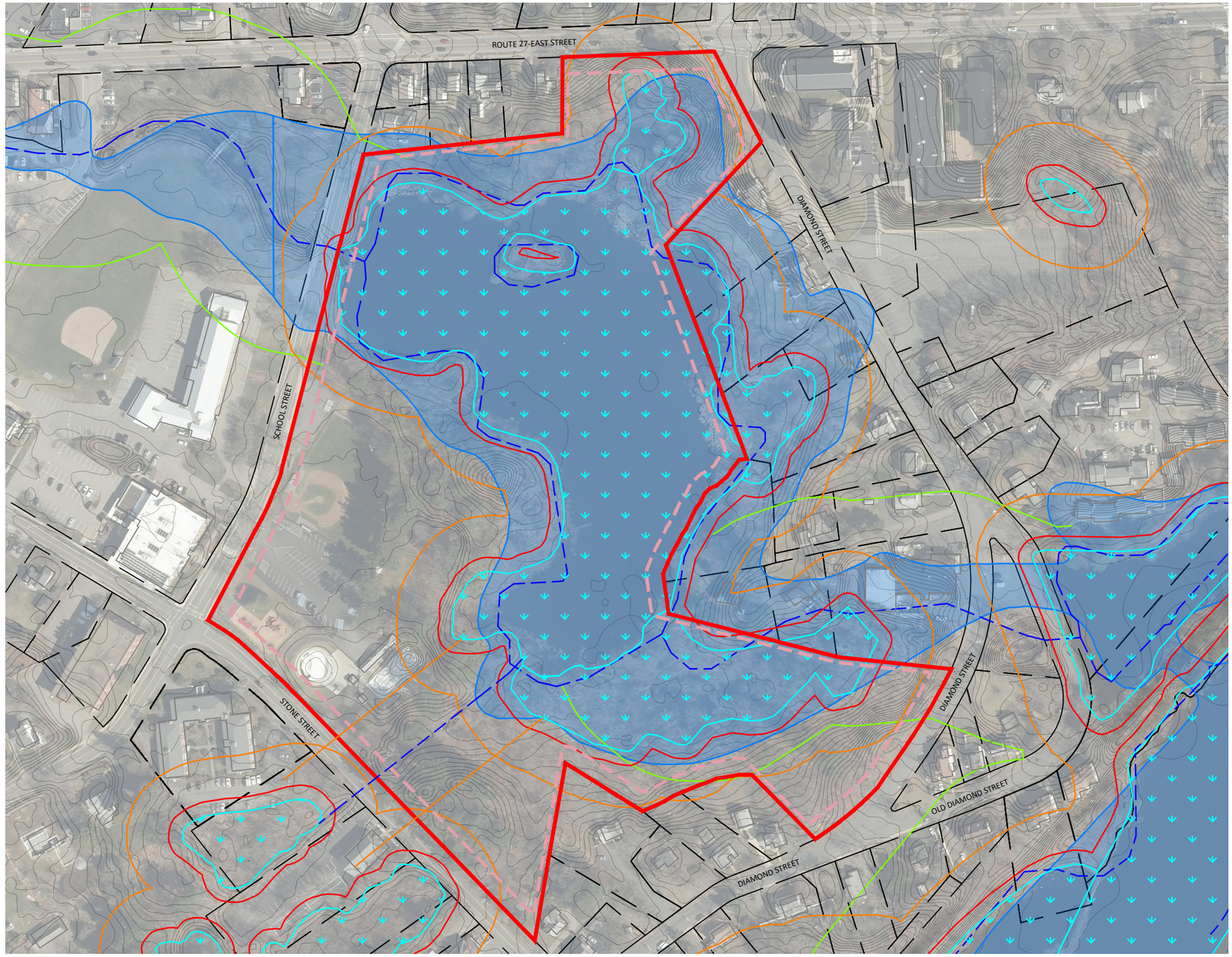
ATTACHMENT I

SITE CONSTRAINTS MAP



CONSTRAINTS MAP

144 SCHOOL STREET
WALPOLE, MA

LEGEND

- PROPERTY BOUNDARY
- SETBACK
- ABUTTING PROPERTY
- WETLAND
- 25-FT FROM WETLAND - NO ALTERATION ZONE
- 100-FT WETLAND BUFFER
- STREAM
- 200-FT RIVERFRONT AREA
- FEMA FLOOD ZONE (ZONE AE)

GENERAL RESIDENCE DISTRICT

MINIMUM FRONT YARD SETBACK	30FT
MINIMUM SIDE YARD SETBACK	10FT
MINIMUM REAR SETBACK	30FT
MAXIMUM BUILDING HEIGHT	35 FT
MAXIMUM COVERAGE (BY STRUCTURES)	30%
(BY STRUCTURES & OTHER IMP. SURFACES)	50%

*PARCEL LOCATED WITHIN MUNICIPAL IN PERPETUITY RECREATIONAL OPENSPACE

PARCEL DATA
ASSESSOR'S PARCEL ID: 33-39
CURRENT OWNER OF RECORD: TOWN OF WALPOLE
LOT SIZE 24.1 ACRES

0' 200' 400'

SCALE:1" = 200'

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Main: 617.275.5407 | VERTEXENG.COM

CENTER POOL-CONSTRAINTS MAP

SITE: SCHOOL ST
SOUTH WALPOLE, MA 02081

DATE:	06/14/2023
DRAWN BY:	SMC
CHECKED BY:	GDB
VERTEX PROJ NO.:	84523
FIGURE	1

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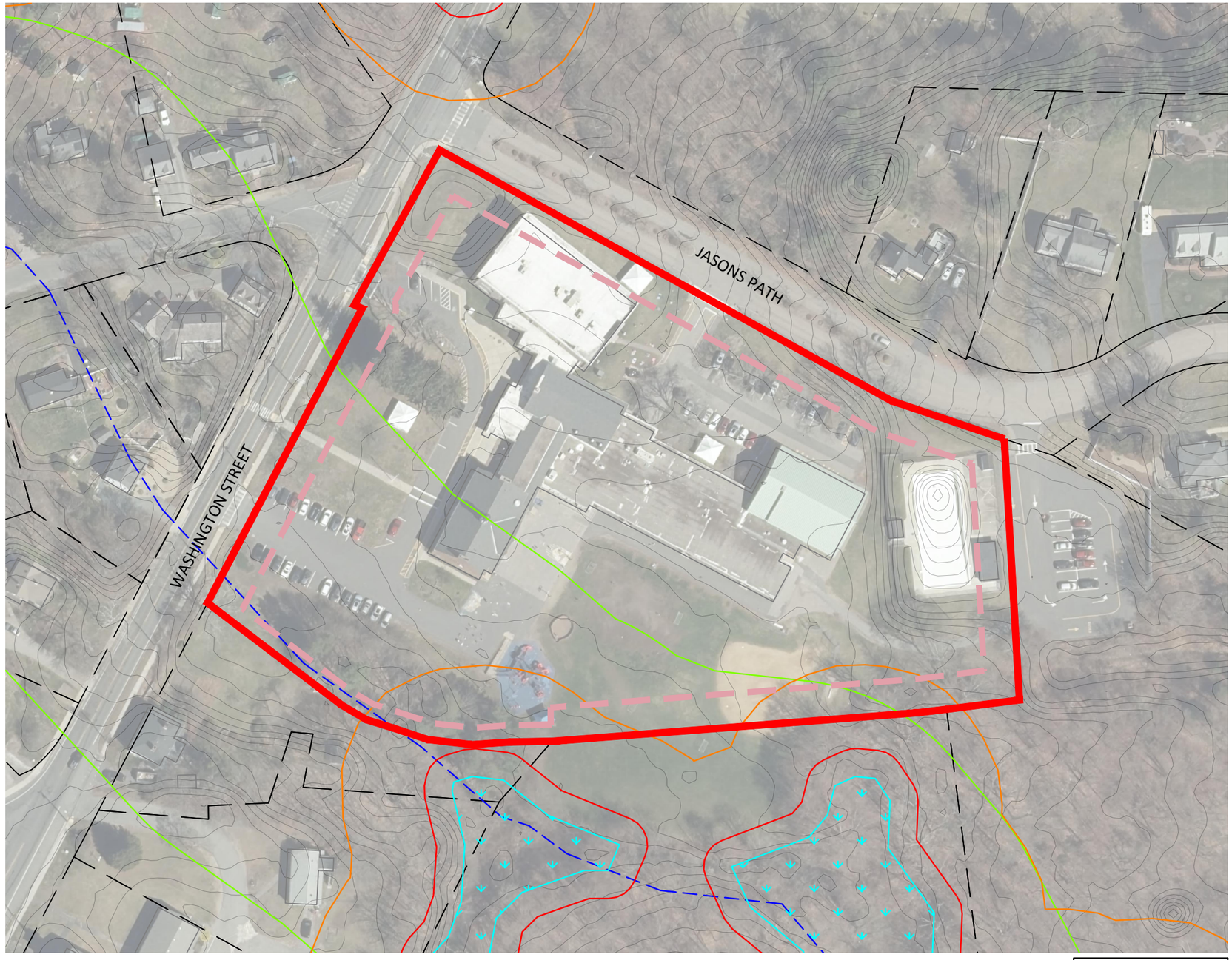

CONSTRAINTS MAP

1852 WASHINGTON STREET
WALPOLE, MA

LEGEND

- PROPERTY BOUNDARY
- SETBACK
- ABUTTING PROPERTY
- WETLAND
- 25-FT FROM WETLAND - NO ALTERATION ZONE
- 100-FT WETLAND BUFFER
- STREAM
- 200-FT RIVERFRONT AREA

RESIDENCE B DISTRICT

MINIMUM FRONT YARD SETBACK	30FT
MINIMUM SIDE YARD SETBACK	15FT
MINIMUM REAR SETBACK	30FT
MAXIMUM BUILDING HEIGHT	35 FT
MAXIMUM LOT COVERAGE (BY STRUCTURES)	25%
(BY STRUCTURES & OTHER IMP. SURFACES)	40%

PARCEL LOCATED IN AREA 3 PRIMARY RECHARGE AREA AS ESTABLISHED BY THE WATER RESOURCE PROTECTION OVERLAY DISTRICT (WRPOD)

*PARCEL LOCATED WITHIN MUNICIPAL LIMITED RECREATIONAL OPENSPACE

PARCEL DATA
ASSESSOR'S PARCEL ID: 53-216
CURRENT OWNER OF RECORD: TOWN OF WALPOLE
LOT SIZE 5.69 ACRES

0' 100' 200'

SCALE:1" = 100'

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SOUTH POOL-CONSTRAINTS MAP

SITE: 1852 WASHINGTON ST
SOUTH WALPOLE, MA 02071

DATE:	04/21/2023
DRAWN BY:	SMC
CHECKED BY:	GDB
VERTEX PROJ NO.:	84523
FIGURE	2

Z:\Shared\Projects\84000-84999\84500-84599\84523.Walpole - Pool Study - MA\05-Engineering\Vertex Drawings\84523_Constraints Maps.dwg Friday, April 21, 2023 3:46:15 PM
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ATTACHMENT II

ZONING CONSTRAINTS TABLE

Zoning Constraints Table

CENTER POOL SITE

Parcel Size:	1,049,796 S.F. (24.10 Acres)					
Zoning District:	General Residence (GR)					
Overlay District:	None					
		Minimum	**Existing**	**Option 1**	**Option 2**	**Option 3**
Dimensional Requirements:	Lot Area	15,000 S.F.	1,049,796 S.F.	1,049,796 S.F.	1,049,796 S.F.	1,049,796 S.F.
	Frontage	100 FT	290 FT	290 FT	290 FT	290 FT
	By Structures	30%	0.16%	0.16%	0.16%	0.20%
	By Structures other than Imp.	50%	5.64%	7.08%	7.08%	7.13%
	Open Space	40%	94%	93%	93%	93%
	Frontyard Setback	30 FT	30 FT	30 FT	30 FT	30 FT
	Side Yard	10 FT	24 LF	13 LF	13 LF	13 LF
	Rear Yard	30 FT	307 FT	232 LF	232 LF	232 LF
	Building Height	35 FT	1 Story (14 FT)	1 Story (14 FT)	1 Story (14 FT)	1 Story (14 FT)

Building Coverage:	Existing	1,680 S.F. (0.16%)	
	Allowed Maximum	314,938 S.F. (30%)	
Impervious Coverage:	Existing	59,219 S.F. (5.64%)	
*Including building coverage	Allowed Maximum	524,898 S.F. (50%)	
Open Space:	Existing	990,577 S.F. (94%)	Pools are considered "Open Space" per ZBL definition of
	Minimum	419,918 S.F. (40%)	Open Space

Landscape Buffers: Required Minimum to Residentially Zoned Land — 10 FT Side Yard; 30 FT Rear Yard (Table 5-G.1.1)

	Option 1	**Option 2**	**Option 3**
Proposed	22 LF	22 LF	22 LF

Parking Requirements:

Parking Lot Landscaping Requirements: Required Landscape Area - Min. 10% Landscaped Open Space within area designated for parking (ZBL Sec 8.8.B Landscaping Requirements)

Parking Area Proposed = 58,383 S.F.

		Option 1	**Option 2**	**Option 3**
Landscape Area Required =	5,834 S.F.			
Landscape Area Proposed =		10,030 S.F.	8,408 S.F.	5,468 S.F.

Landscape Island Req.: The ends of parking aisles that are more than fifteen (15) spaces in length shall incorporate landscape islands at eithe end of the row.

Maximum Island Width: 8 F.T.

Parking Requirements: *Table 8.8.1.A Parking Space & Aisle Dimensions

Requirements: See ZBL Sec. 8 Parking Requirements

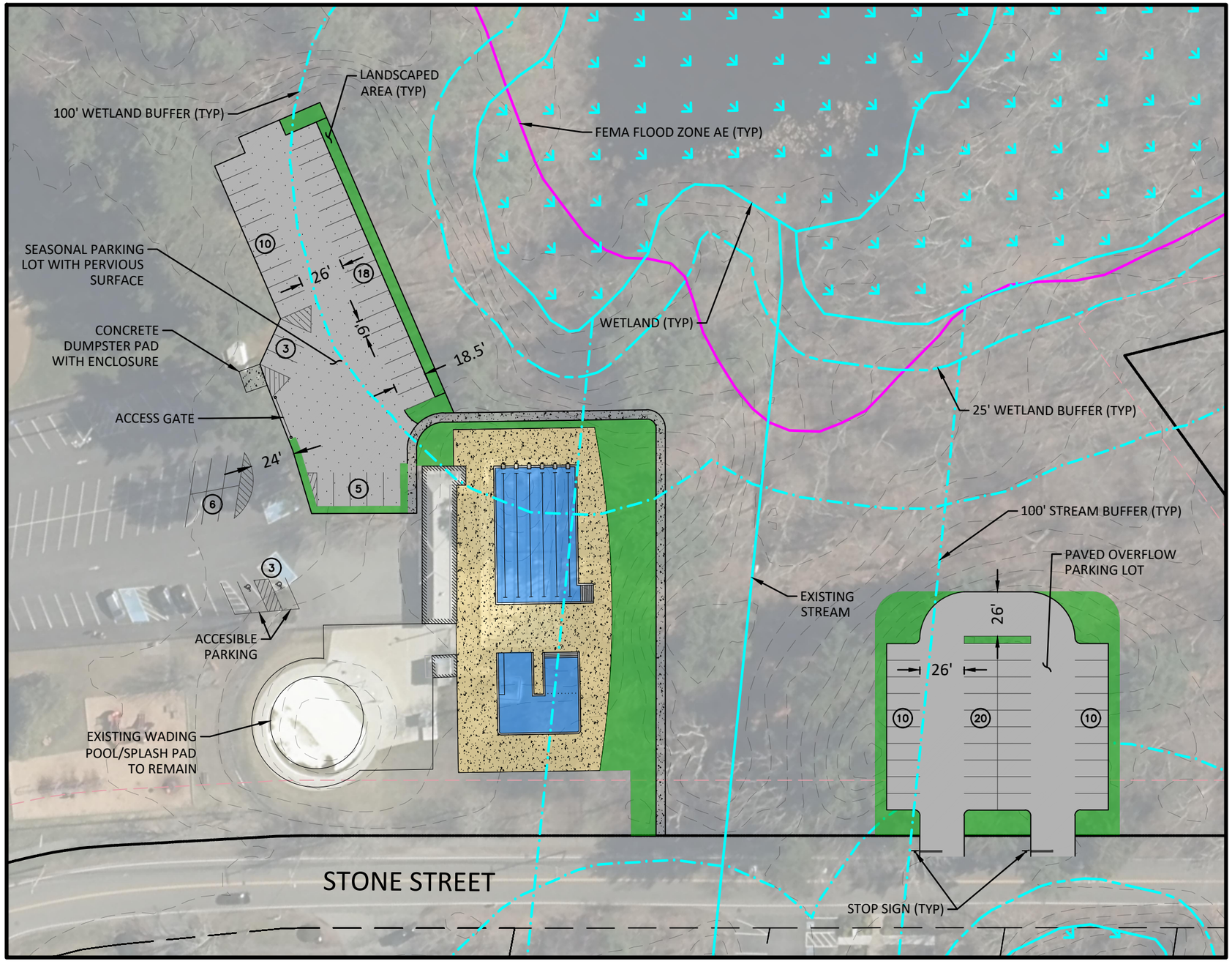
Size:	90°	9'X18.50' Minimum	45°	9.3'X19.5' Minimum
Aisle Width:		26' Minimum		23' Minimum

Required: Adequate parking spaces to accommodate, under all normal conditions, the cars of occupants, employees, members, customers, clients and visitors to the premises at the discretion of the Building Inspector or applicable Special Permit Granting Authority

Existing:	60	(approximately)				
Proposed:	60	Parking spaces	36	Seasonal spaces	40	Overflow spaces

ATTACHMENT III

CONCEPTUAL SITE PLANS AND RENDERINGS



LEGEND

- PROPERTY BOUNDARY
- SETBACK
- ABUTTING PROPERTY
- WETLAND/STREAM
- 25-FT FROM WETLAND - NO ALTERATION ZONE
- 100-FT WETLAND/STREAM BUFFER
- FEMA FLOOD ZONE (ZONE AE)
- LANDSCAPED AREA
- PERVIOUS PARKING SURFACE
- ASPHALT PAVEMENT
- CONCRETE WALK
- POOL DECK PAD

PARKING SPACES

EXISTING SPACES (TOTAL)	65
PROPOSED SPACES (TOTAL)	140
EXISTING LOT	64
PROPOSED PERVIOUS SEASONAL LOT	36
PROPOSED OVERFLOW LOT	40

0' 60' 120'

SCALE:1" = 60'

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PARKING LAYOUT - OPTION 1: SEPARATE POOLS

SITE: CENTER POOL
144 SCHOOL ST
SOUTH WALPOLE, MA 02081

DATE:	06/15/2023
DRAWN BY:	SMC
CHECKED BY:	GDB
VERTEX PROJ NO.:	84523

FIGURE 1

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TOWN OF WALPOLE

OPTION 1 - SEPARATE POOLS (RECTANGULAR AND U-SHAPED)

Bargmann Hendrie + Archetype 9 Channel Center Street Boston, MA 02210 04/21/23

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TOWN OF WALPOLE

OPTION 1 - SEPARATE POOLS (RECTANGULAR AND U-SHAPED)

Bargmann Hendrie + Archetype 9 Channel Center Street Boston, MA 02210 05/12/23

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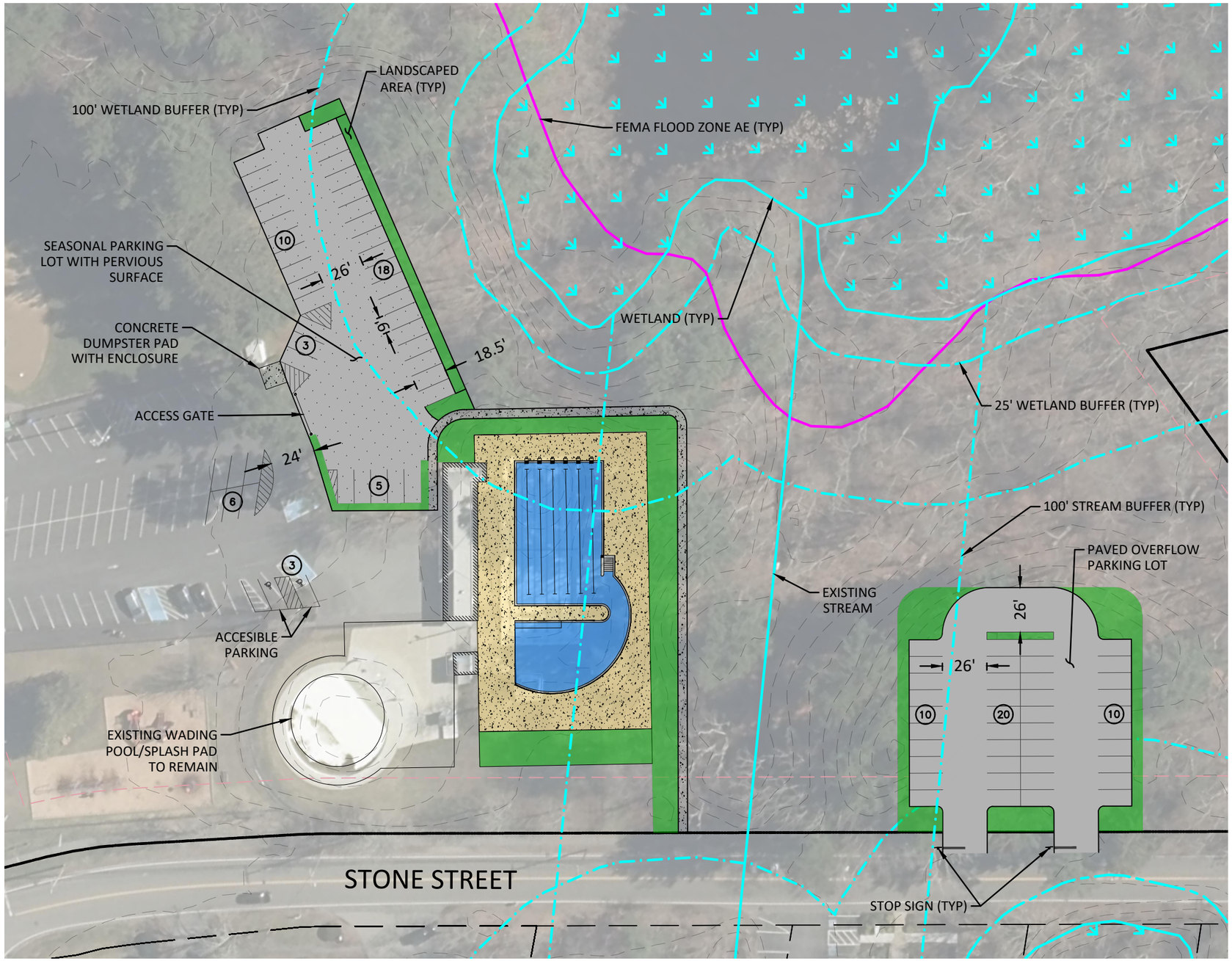
TOWN OF WALPOLE

POOL REPLACEMENT STUDY - OPTION 1: SEPARATE POOLS (RECTANGULAR AND U-SHAPED)



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PROPOSED OVERFLOW LOT	40

0' 60' 120'

SCALE:1" = 60'

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PARKING LAYOUT - OPTION 3: SINGLE POOL

SITE: CENTER POOL
144 SCHOOL ST
SOUTH WALPOLE, MA 02081

DATE:	06/15/2023
DRAWN BY:	SMC
CHECKED BY:	GDB
VERTEX PROJ NO.:	84523

FIGURE 2

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TOWN OF WALPOLE

OPTION 2 - SINGLE POOL (RECTANGULAR WITH ZERO-DEPTH ENTRY)

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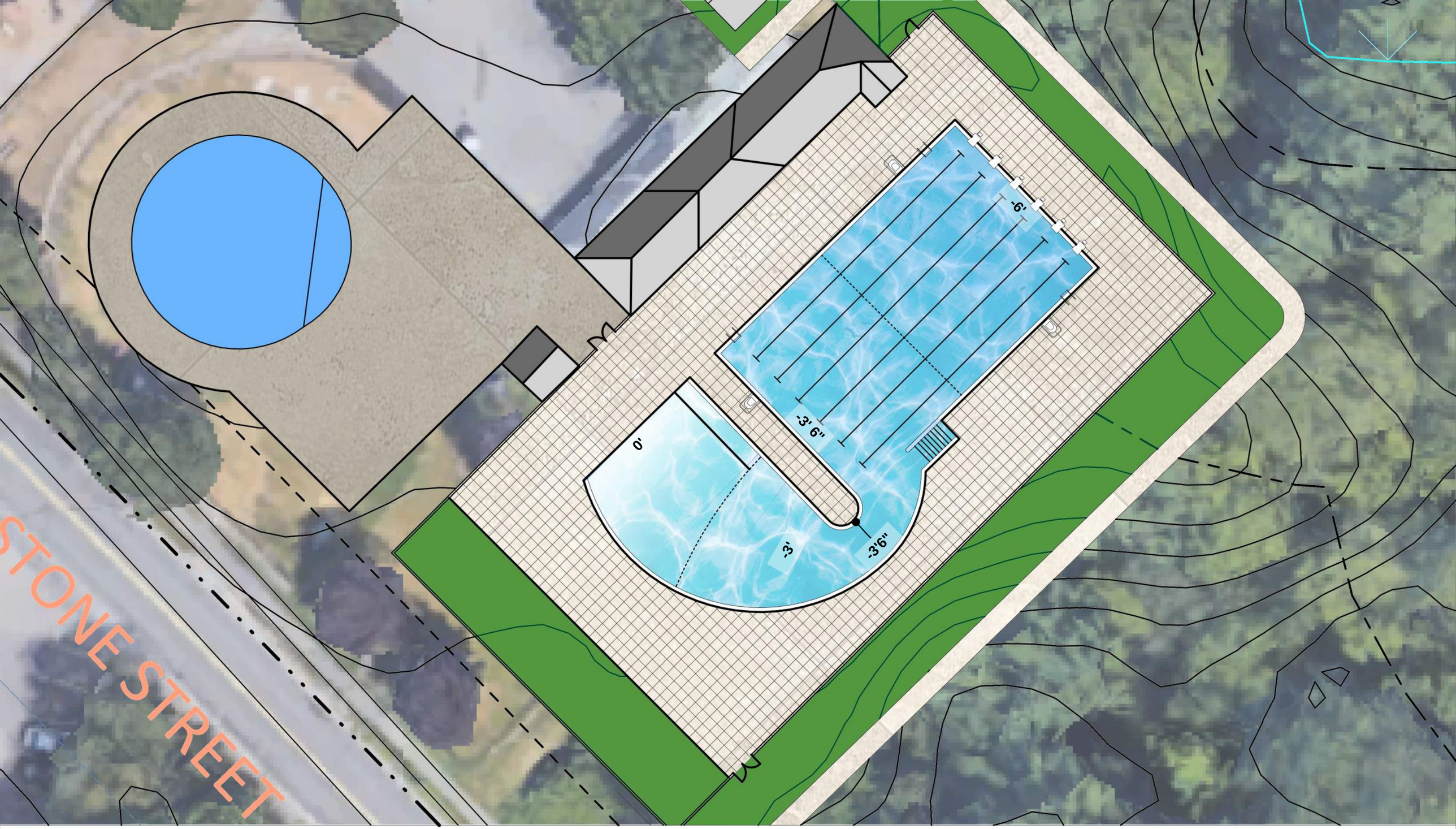

TOWN OF WALPOLE

OPTION 2 - SINGLE POOL (RECTANGULAR WITH ZERO-DEPTH ENTRY)

Bargmann Hendrie + Archetype 9 Channel Center Street Boston, MA 02210 05/12/23

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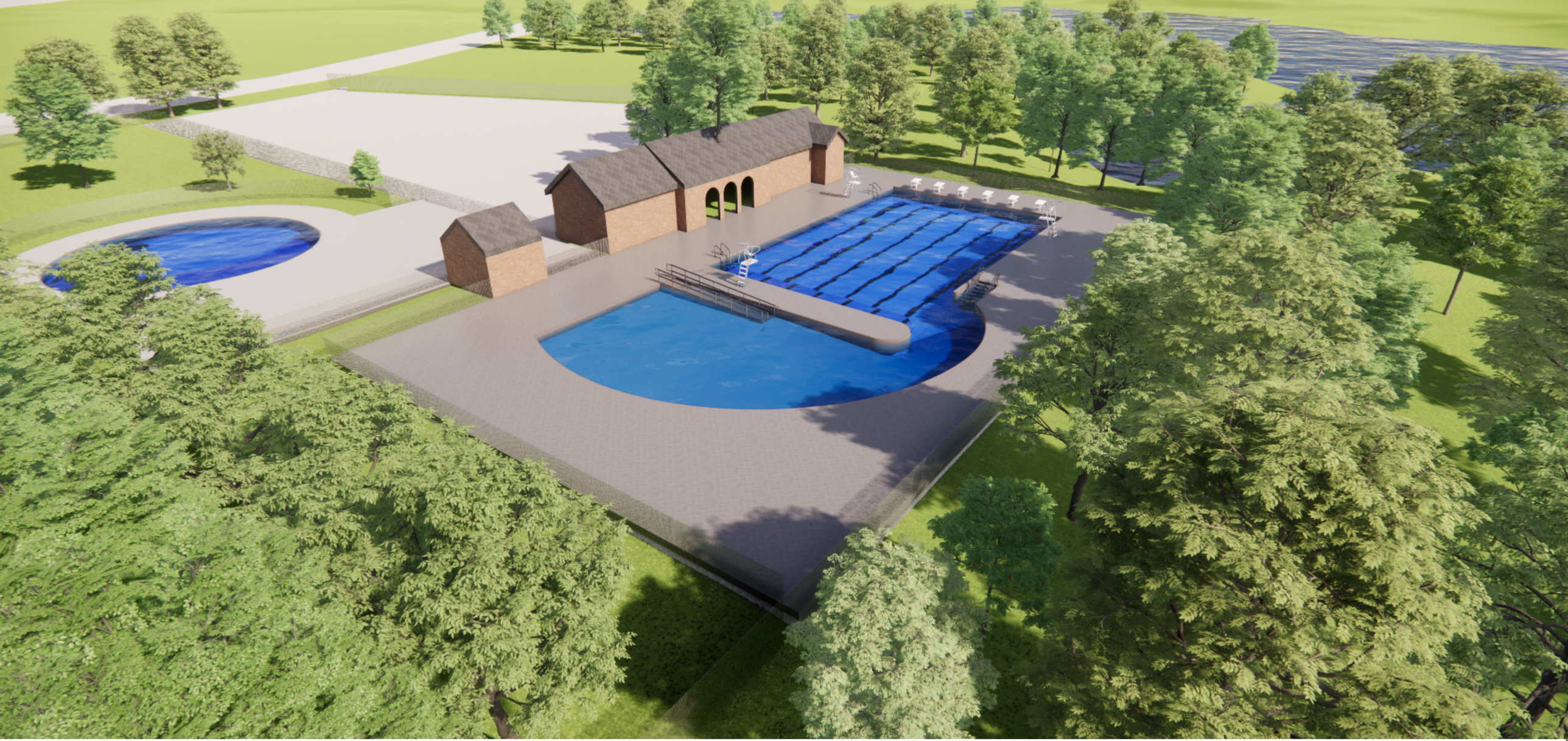
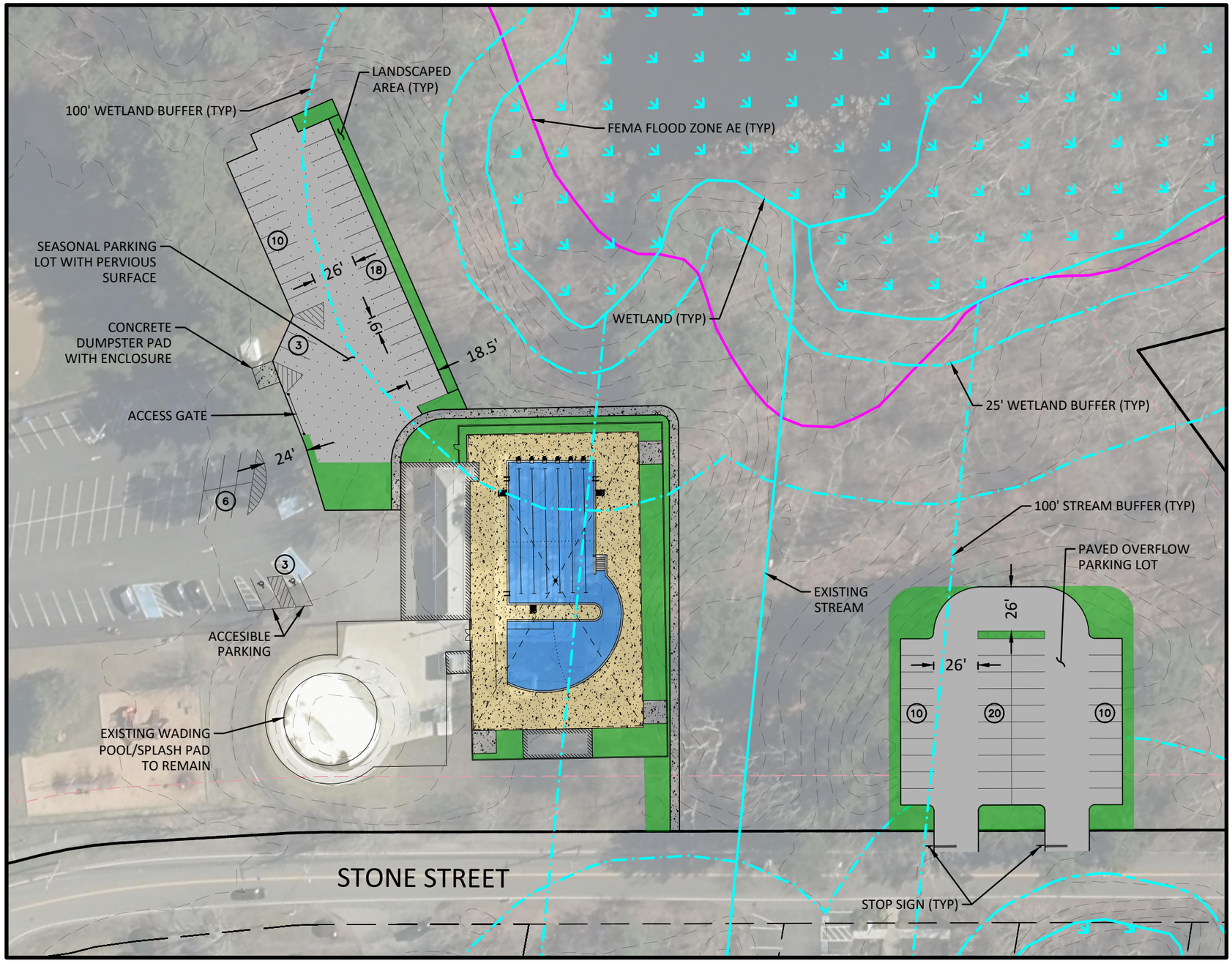


TOWN OF WALPOLE

POOL REPLACEMENT STUDY - OPTION 2: SINGLE POOL (RECTANGULAR WITH ZERO-DEPTH ENTRY)



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- CONCRETE WALK
- POOL DECK PAD

PARKING SPACES

EXISTING SPACES (TOTAL)	65
PROPOSED SPACES (TOTAL)	135
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PROPOSED PERVIOUS SEASONAL LOT	31
PROPOSED OVERFLOW LOT	40

0' 60' 120'

SCALE:1" = 60'

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PARKING LAYOUT - OPTION 3: ENCLOSED SINGLE POOL

SITE: CENTER POOL
144 SCHOOL ST
SOUTH WALPOLE, MA 02081

DATE:	06/15/2023
DRAWN BY:	SMC
CHECKED BY:	GDB
VERTEX PROJ NO.:	84523

FIGURE 3

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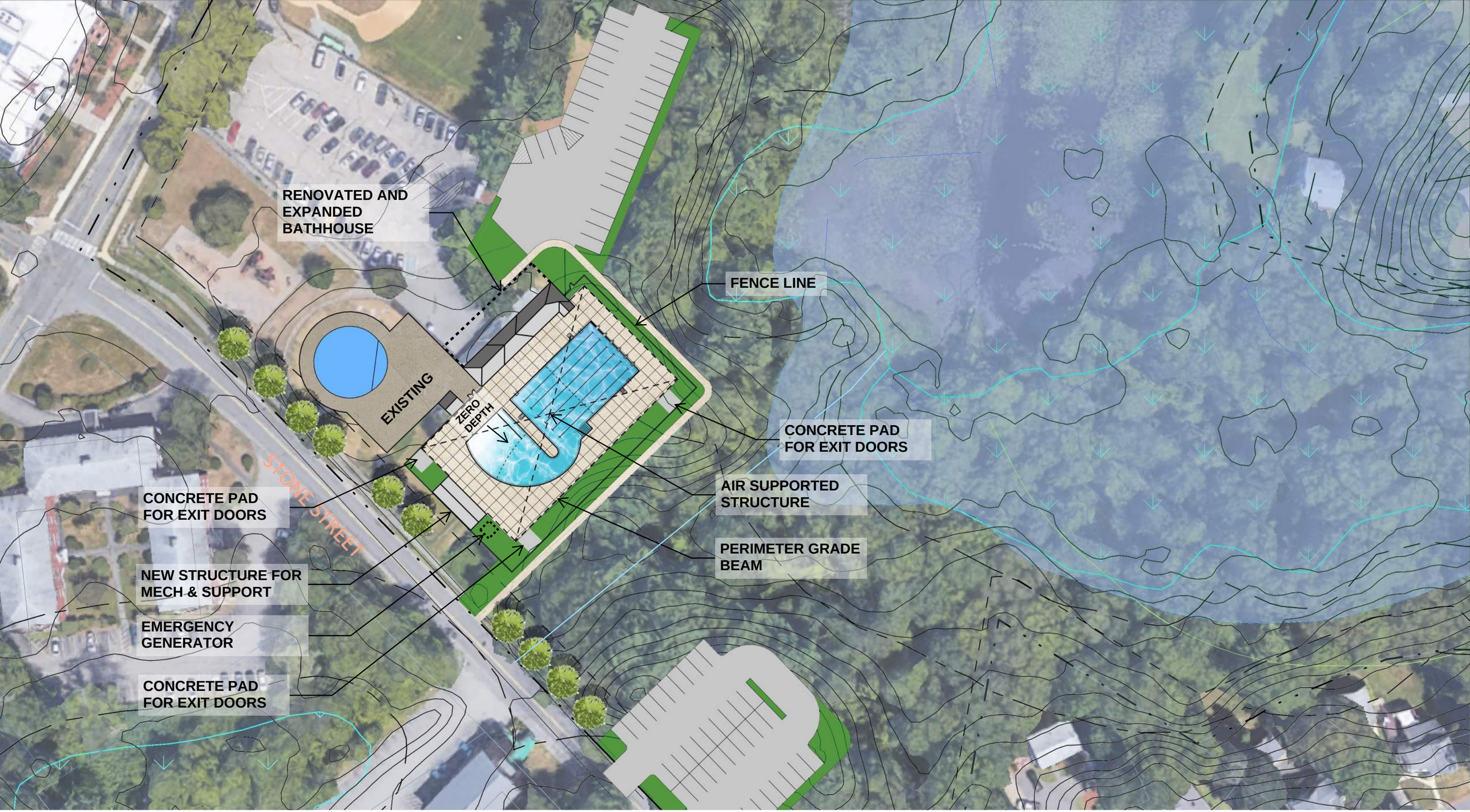

TOWN OF WALPOLE

OPTION 3 - ENCLOSED SINGLE POOL (RECTANGULAR WITH ZERO-DEPTH ENTRY)

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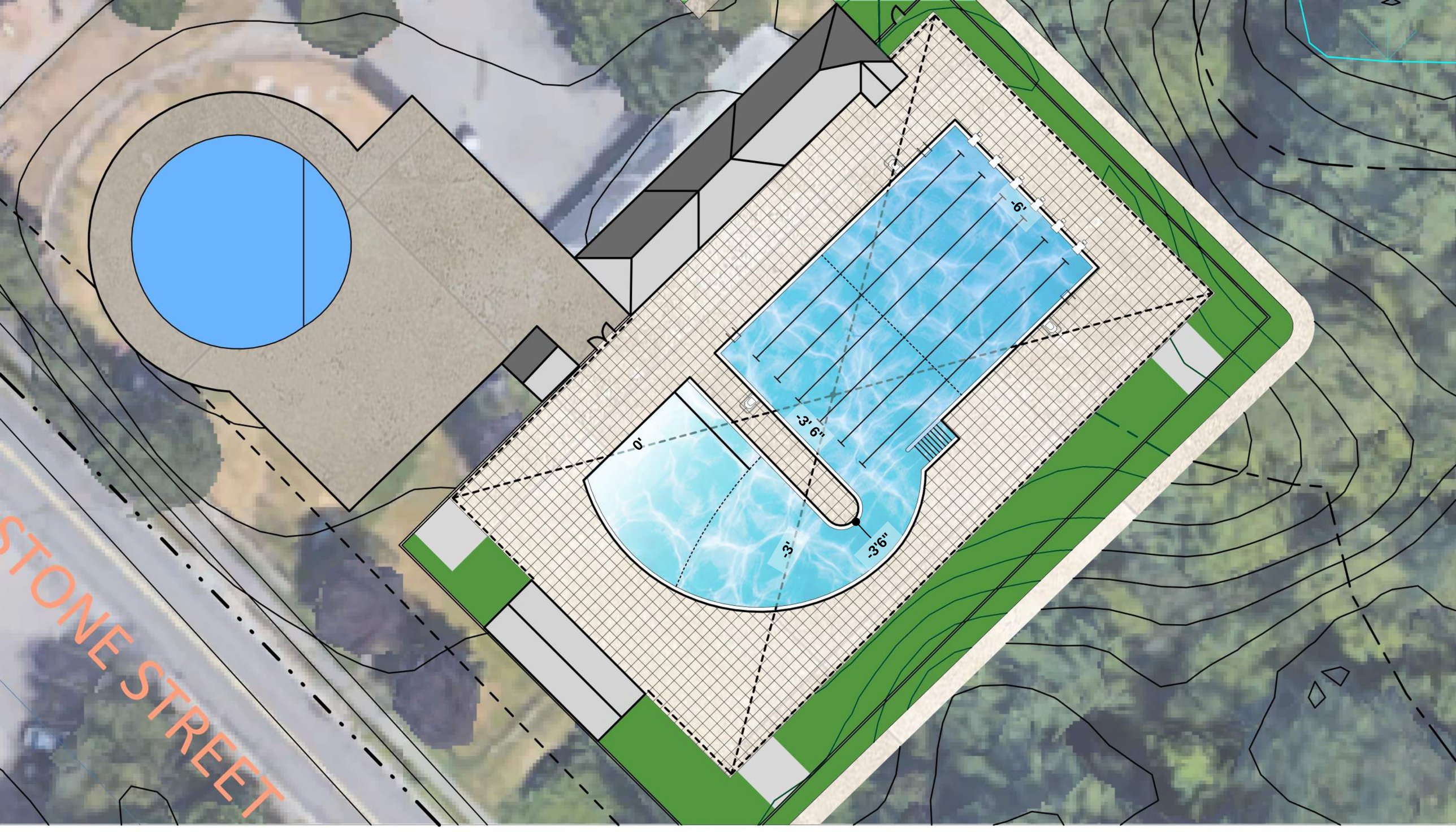

TOWN OF WALPOLE

OPTION 3 - ENCLOSED SINGLE POOL (RECTANGULAR WITH ZERO-DEPTH ENTRY)

Bargmann Hendrie + Archetype 9 Channel Center Street Boston, MA 02210 05/12/23

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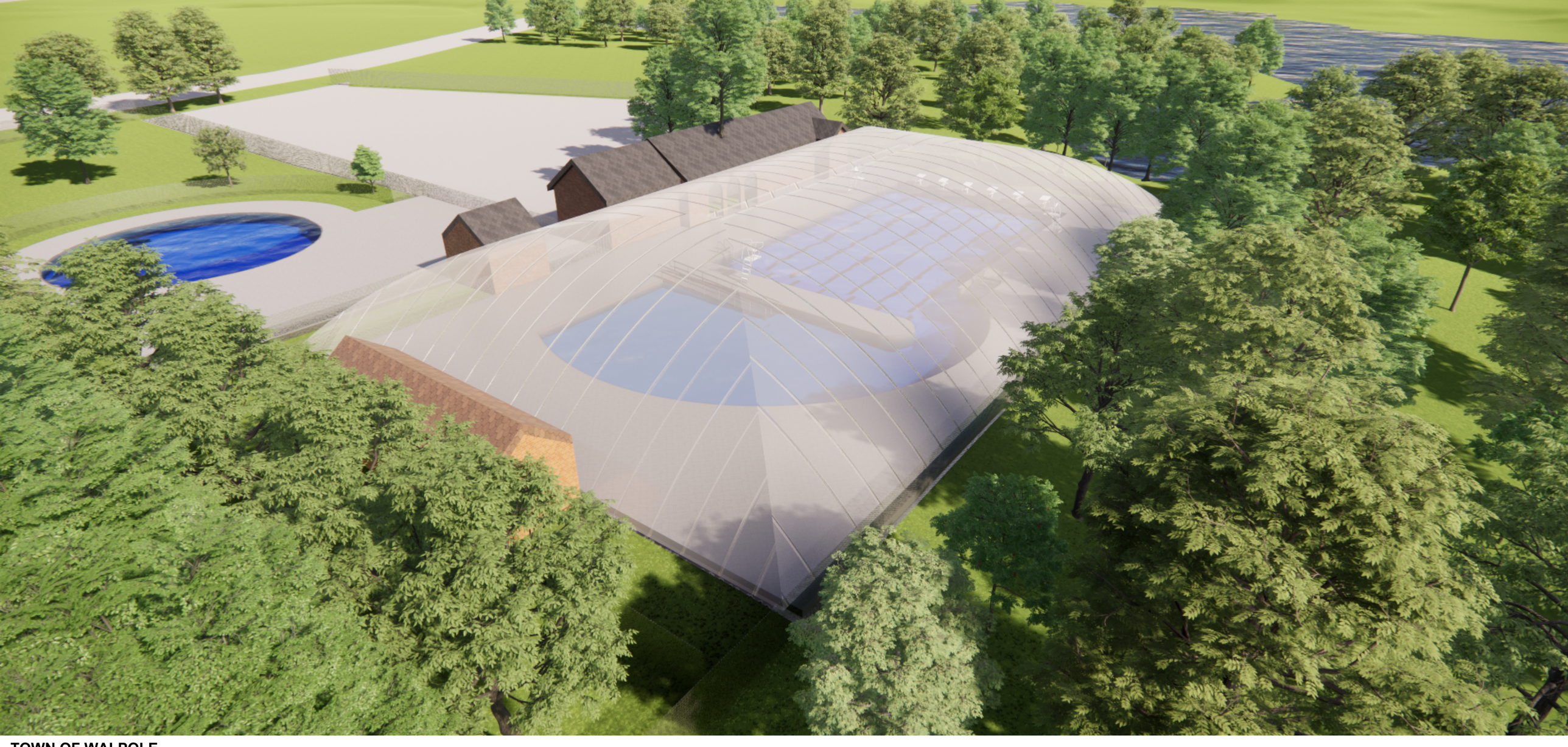

TOWN OF WALPOLE

POOL REPLACEMENT STUDY - OPTION 3: ENCLOSED SINGLE POOL (RECTANGULAR WITH ZERO-DEPTH ENTRY)

ATTACHMENT IV

OPINION OF PROBABLE CONSTRUCTION COSTS

Concept Cost Estimate

Center Pool

Three Pool Options

Walpole, MA

PMC LLC
20 Downer Avenue, Suite 5
Hingham
MA 02043
(ph) 781-740-8007
(f) 781-740-1012

Prepared for:

The Vertex Companies, LLC.

May 17, 2023

PM&C

Center Pool
Three Pool Options
Walpole, MA

17-May-23

Concept Cost Estimate

MAIN CONSTRUCTION COST SUMMARY

	Construction Start	Gross Floor Area	$/sf	Estimated Cost
POOL OPTION #1				
BUILDING: LIGHT RENO	May-24	1,750	$500.00	$875,000
HAZ MAT Abatement				TBD
SITEWORK				$3,304,349
SUB-TOTAL				$4,179,349
DESIGN AND PRICING CONTINGENCY	15.0%			$626,902
ESCALATION	7.0%			$336,438
SUB-TOTAL				$5,142,689
GENERAL CONDITIONS	8.00%			$411,415
GENERAL REQUIREMENTS	2.00%			$102,854
BONDS	0.90%			$46,284
INSURANCE	1.50%			$77,140
ENGINEERING FOR PERMIT				$25,000
PERMIT				NIC
SUB-TOTAL				$5,805,382
OVERHEAD AND FEE	4.00%			$232,215
TOTAL OF ALL CONSTRUCTION	May-24			**$6,037,597**

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Center Pool
Three Pool Options
Walpole, MA

17-May-23

Concept Cost Estimate

	Construction Start	Gross Floor Area	$/sf	Estimated Cost
POOL OPTION #2				
BUILDING: LIGHT RENO	May-24	1,750	$500.00	$875,000
HAZ MAT Abatement				TBD
SITEWORK				$3,502,748
SUB-TOTAL				$4,377,748
DESIGN AND PRICING CONTINGENCY	15.0%			$656,662
ESCALATION	7.0%			$352,409
SUB-TOTAL				$5,386,819
GENERAL CONDITIONS	8.00%			$430,946
GENERAL REQUIREMENTS	2.00%			$107,736
BONDS	0.90%			$48,481
INSURANCE	1.50%			$80,802
ENGINEERING FOR PERMIT				$25,000
PERMIT				NIC
SUB-TOTAL				$6,079,784
OVERHEAD AND FEE	4.00%			$243,191
TOTAL OF ALL CONSTRUCTION	May-24			**$6,322,975**

Center Pool
Three Pool Options
Walpole, MA

17-May-23

Concept Cost Estimate

	Construction Start	Gross Floor Area	$/sf	Estimated Cost
POOL OPTION #3				
BUILDING MAJOR RENO- MAKE YEAR ROUND	May-24	1,750	$800.00	$1,400,000
BUILDING ADDITION	May-24	1,300	$1,000.00	$1,300,000
NEW MECH BUILDING	May-24	600	$400.00	$240,000
HAZ MAT Abatement				TBD
SITEWORK				$4,862,351
SUB-TOTAL				$7,802,351
DESIGN AND PRICING CONTINGENCY	15.0%			$1,170,353
ESCALATION	7.0%			$628,089
SUB-TOTAL				$9,600,793
GENERAL CONDITIONS	8.00%			$768,063
GENERAL REQUIREMENTS	2.00%			$192,016
BONDS	0.90%			$86,407
INSURANCE	1.50%			$144,012
ENGINEERING FOR PERMIT				$25,000
PERMIT				NIC
SUB-TOTAL				$10,816,291
OVERHEAD AND FEE	4.00%			$432,652
TOTAL OF ALL CONSTRUCTION	May-24			**$11,248,943**

Center Pool
Three Pool Options
Walpole, MA

17-May-23

Concept Cost Estimate

	Construction Start	Gross Floor Area	$/sf	Estimated Cost
PARKING OPTION #1				
BUILDING	May-24	1,750	$500.00	NIC
HAZ MAT Abatement				TBD
SITEWORK				$400,607
SUB-TOTAL				$400,607
DESIGN AND PRICING CONTINGENCY	15.0%			$60,091
ESCALATION	7.0%			$32,249
SUB-TOTAL				$492,947
GENERAL CONDITIONS	8.00%			$39,436
GENERAL REQUIREMENTS	3.00%			$14,788
BONDS	0.90%			$4,437
INSURANCE	1.50%			$7,394
ENGINEERING FOR PERMIT				See Pool Options
PERMIT				NIC
SUB-TOTAL				$559,002
OVERHEAD AND FEE	5.00%			$27,950
TOTAL OF ALL CONSTRUCTION	May-24			**$586,952**

Center Pool
Three Pool Options
Walpole, MA

17-May-23

Concept Cost Estimate

	Construction Start	Gross Floor Area	$/sf	Estimated Cost
PARKING OPTION #2				
BUILDING	May-24	1,750	$500.00	NIC
HAZ MAT Abatement				TBD
SITEWORK				$306,686
SUB-TOTAL				$306,686
DESIGN AND PRICING CONTINGENCY	15.0%			$46,003
ESCALATION	7.0%			$24,688
SUB-TOTAL				$377,377
GENERAL CONDITIONS	8.00%			$30,190
GENERAL REQUIREMENTS	3.00%			$11,321
BONDS	0.90%			$3,396
INSURANCE	1.50%			$5,661
ENGINEERING FOR PERMIT				See Pool Options
PERMIT				NIC
SUB-TOTAL				$427,945
OVERHEAD AND FEE	5.00%			$21,397
TOTAL OF ALL CONSTRUCTION	May-24			**$449,342**

Center Pool
Three Pool Options
Walpole, MA

17-May-23

Concept Cost Estimate

This Concept cost estimate was produced from drawings and other documentation prepared by The Vertex Companies LLC . and their design team dated April 21, 2023. Design and engineering changes occurring subsequent to the issue of these documents have not been incorporated in this estimate.

This estimate includes all direct construction costs, general contractor's overhead and profit and design contingency. Cost escalation assumes start dates indicated above.

Bidding conditions are expected to be public bidding under C.149 to qualified general contractors, open bidding for sub-contractors, open specifications for materials and manufacturers.

The estimate is based on prevailing wage rates for construction in this market and represents a reasonable opinion of cost. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack or surplus of bidders, perception of risk, etc. Consequently the estimate is expected to fall within the range of bids from a number of competitive contractors or subcontractors, however we do not warrant that bids or negotiated prices will not vary from the final construction cost estimate.

ITEMS NOT INCLUDED IN THIS ESTIMATE

Items not included in this estimate are:

- All professional fees and insurance
- Site or existing conditions surveys investigations costs, including to determine subsoil conditions
- Items identified in the design as Not In Contract (NIC)
- Items identified in the design as by others
- Owner supplied and/or installed items (e.g. technology, furniture and equipment, etc.)
- Rock excavation; special foundations (unless indicated by design engineers)
- Utility company back charges, including work required off-site
- Work to City streets and sidewalks, (except as noted in this estimate)

PM&C

Center Pool
Three Pool Options
Walpole, MA

17-May-23

Concept Cost Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	SITEWORK POOL OPTION #1						
	G SITEWORK						
G10	**SITE PREPARATION & DEMOLITION**						
	Site construction fence/barricades	**200**	lf	20.00	4,000		
	Site construction gate & stabilized construction entrance	**1**	sf	10,000.00	10,000		
	Remove existing pool deck	**10,000**	sf	3.00	30,000		
	Remove existing pool	**5,000**	sf	5.00	25,000		
	Remove shed at south side of pool	**400**	sf	4.00	1,600		
	Remove existing utilities /cut/cap - allow				See Option #3		
	Protect existing utilities - allow				See Option #3		
	Remove trees	**4**	ea	850.00	3,400		
	Remove and stockpile site furnishings - allow	**1**	ls	1,500.00	1,500		
	Misc. demolition	**1**	ls	5,000.00	5,000		
	Topsoil management						
	Strip topsoil & stockpile	**119**	cy	18.00	2,142		
	SUBTOTAL					82,642	
	Site Earthwork						
	Pool unit cost includes earthwork						
	Fine grading	**1,046**	sy	3.25	3,400		
	SUBTOTAL					3,400	
	Erosion control						
	Silt fence and compost tube				See Parking		
	Silt sacks				See Parking		
	Silt fence maintenance and monitoring				See Parking		
	Street sweeping- allowance				See Parking		
	Hazardous Waste Remediation						
	Dispose/treat contaminated soils/water				NR		
	SUBTOTAL					-	
G20	**SITE IMPROVEMENTS**						
	Roadways and Parking Lots						
	Parking lot						
	gravel base; 6" borrow type C				See Parking		
	Crushed stone base; 6" thick				See Parking		
	asphalt top; 1.5" thick				See Parking		
	asphalt binder; 2" thick				See Parking		
	SUBTOTAL					-	
	Pedestrian Paving						
	Concrete paving at pool deck	*9,417*	sf				
	gravel base; 6" thick	**174**	cy	45.00	7,830		
	5" concrete paving	**9,417**	sf	12.00	113,004		
	Concrete patterning allowance	**9,417**	sf	1.00	9,417		
	SUBTOTAL					130,251	
	Site Improvements						
	Flagpole allowance				assumed not required		
	Dumpster enclosure - allowance				See Parking		
	Dumpster enclosure; double gate allowance				See Parking		

PM&C

Center Pool
Three Pool Options
Walpole, MA

17-May-23

Concept Cost Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK POOL OPTION #1							
	6' Chain-link, vinyl coated at perimeter of pool	**420**	lf	65.00	27,300		
	6' Chain-link, vinyl coated double gate	**3**	pr	2,500.00	7,500		
	New Pool Costs						
	Pool construction, including excavation removal, stone base, gunite (shotcrete) structure and finishes	**5,272**	sf	300.00	1,581,600		
	New pool filtration system family pool	**39,640**	gallon	5.00	198,200		
	New pool filtration system lap pool	**120,234**	gallon	5.00	601,170		
	Perimeter gutter/drain	**478**	lf	860.00	411,080		
	HC lift	**1**	ea	6,000.00	6,000		
	Lifeguard chair	**3**	ea	1,600.00	4,800		
	Pool ladder	**4**	ea	1,000.00	4,000		
	Race blocks	**6**	EA	3,000.00	18,000		
	SUBTOTAL					2,859,650	
	Landscaping						
	Screen topsoil	**119**	cy	7.50	893		
	Export tailings from screening process - assume clean rock	**35.7**	cy	8.50	303		
	Amend/Place for new seeded area & at plantings	**83**	cy	20.00	1,660		
	Planting soil/amendments allowance	**100**	cy	60.00	6,000		
	Lawn seed	**3,000**	sf	0.35	1,050		
	Tree allowance	**5**	ea	1,200.00	6,000		
	Shrubs allowance	**20**	ea	75.00	1,500		
	Lawn irrigation allowance -	**3,000**	sf	1.25	NIC		
	SUBTOTAL					17,406	
G30	**CIVIL MECHANICAL UTILITIES**						
210000	*FIRE PROTECTION*						
	6" CLDI	**200**	lf	80.00	See Option #3		
	Fire department connection	**1**	ea	2,500.00	See Option #3		
	Gate valve	**2**	ea	1,200.00	See Option #3		
	Fire hydrant	**1**	ea	6,500.00	See Option #3		
	Thrust blocks	**1**	ea	500.00	See Option #3		
331000	*WATER UTILITIES*						
	2" Type K Copper	**200**	lf	40.00	See Option #3		
	Curb stop and road box	**1**	loc	1,200.00	See Option #3		
	Connect to existing water line	**2**	ea	10,000.00	See Option #3		
312000	*EXCAVATION & BACKFILL*						
	DI piping excavation/backfill (inside site)	**400**	lf	45.00	See Option #3		
	Pressure test & chlorinate	**400**	lf	5.00	See Option #3		
	Allowance for temporary water service	**1**	ea	25,000.00	See Option #3		
	Allowance for temporary support of existing utilities	**1**	ea	15,000.00	See Option #3		
	SUBTOTAL						
333000	*SANITARY SEWER*						
	Assumes ETR						
	4" PVC	**200**	lf	35.00	See Option #3		
	SMH	**2**	ea	4,500.00	See Option #3		
	Oil/Gas Separator	**1**	ea	12,000.00	See Option #3		
	Connect to existing structure (inside site)	**1**	ea	5,000.00	See Option #3		
312000	*EXCAVATION & BACKFILL*						

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Center Pool
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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK POOL OPTION #1							
	PVC gravity piping excavation/backfill (inside site)	**200**	lf	40.00	See Option #3		
	Pressure testing	**200**	lf	4.00	See Option #3		
	Video Inspection	**1**	ls	5,000.00	See Option #3		
	Allowance for temporary sewer service	**1**	ea	25,000.00	See Option #3		
	Allowance for temporary support of existing utilities	**1**	ea	10,000.00	See Option #3		
	Oil/Gas Separator (e/b only) incl. shoring	**1**	ea	5,000.00	See Option #3		
	SUBTOTAL					-	
334000	*STORM DRAINAGE*						
	See parking option #2				ETR		
	SUBTOTAL					-	
334000	*GAS SERVICES*						
	Gas service						
	E&B trench for new gas main, pipe and install by utilities	**115**	lf	35.00	ETR		
	Gas Meter					-	
	SUBTOTAL						
	ELECTRICAL SERVICES						
	Excavate, backfill and make good; allow	**200**	lf	25.00	5,000		
	Concrete encasement	**200**	lf	80.00	16,000		
	New secondary service	**200**	lf	500.00	100,000		
	Allowance for new distribution panel and sub panels	**1**	ls	75,000.00	75,000		
	Feed to pool house	**1**	ls	15,000.00	15,000		
	SUBTOTAL					211,000	
	SUBTOTAL - SITE DEVELOPMENT POOL OP #1						***$3,304,349***

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	SITEWORK POOL OPTION #2						
	G SITEWORK						
G10	**SITE PREPARATION & DEMOLITION**						
	Site construction fence/barricades	**200**	lf	20.00	4,000		
	Site construction gate & stabilized construction entrance	**1**	sf	10,000.00	10,000		
	Remove existing pool deck	**10,000**	sf	3.00	30,000		
	Remove existing pool	**5,000**	sf	5.00	25,000		
	Remove shed at south side of pool	**400**	sf	4.00	1,600		
	Remove existing utilities /cut/cap - allow				See Option #3		
	Protect existing utilities - allow				See Option #3		
	Remove trees	**4**	ea	850.00	3,400		
	Remove and stockpile site furnishings - allow	**1**	ls	1,500.00	1,500		
	Misc. demolition	**1**	ls	5,000.00	5,000		
	Topsoil management						
	Strip topsoil & stockpile	**119**	cy	18.00	2,142		
	SUBTOTAL					82,642	
	Site Earthwork						
	Pool unit cost includes earthwork						
	Fine grading	**972**	sy	3.25	3,159		
	SUBTOTAL					3,159	
	Erosion control						
	Silt fence and compost tube				See Parking		
	Silt sacks				See Parking		
	Silt fence maintenance and monitoring				See Parking		
	Street sweeping- allowance				See Parking		
	Hazardous Waste Remediation						
	Dispose/treat contaminated soils/water				NR		
	SUBTOTAL					-	
G20	**SITE IMPROVEMENTS**						
	Roadways and Parking Lots						
	Parking lot						
	gravel base; 6" borrow type C				See Parking		
	Crushed stone base; 6" thick				See Parking		
	asphalt top; 1.5" thick				See Parking		
	asphalt binder; 2" thick				See Parking		
	SUBTOTAL					-	
	Pedestrian Paving						
	Concrete paving at pool deck	*8,750*	sf				
	gravel base; 6" thick	**162**	cy	45.00	7,290		
	5" concrete paving	**8,750**	sf	12.00	105,000		
	Concrete patterning allowance	**8,750**	sf	1.00	8,750		
	SUBTOTAL					121,040	
	Site Improvements						
	Flagpole allowance				ıed not required		
	Dumpster enclosure - allowance				See Parking		

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK POOL OPTION #2							
	Dumpster enclosure; double gate allowance				See Parking		
	6' Chain-link, vinyl coated at perimeter of pool	**405**	lf	65.00	26,325		
	6' Chain-link, vinyl coated double gate	**2**	pr	2,500.00	5,000		
	6' Chain-link, vinyl coated single gate	**1**	ea	1,250.00	1,250		
	New Pool Costs						
	Pool construction, including excavation removal, stone base, gunite (shotcrete) structure and finishes	**6,040**	sf	300.00	1,812,000		
	New pool filtration system	**163,000**	gallon	5.00	815,000		
	Perimeter gutter/drain	**444**	lf	860.00	381,840		
	HC lift	**1**	ea	6,000.00	NIC		
	Lifeguard chair	**3**	ea	1,600.00	4,800		
	Pool ladder	**3**	ea	1,000.00	3,000		
	Race blocks	**6**	ea	3,000.00	18,000		
	SUBTOTAL					3,067,215	
	Landscaping						
	Screen topsoil	**119**	cy	7.50	893		
	Export tailings from screening process - assume clean rock	**35.7**	cy	8.50	303		
	Amend/Place for new seeded area & at plantings	**83**	cy	20.00	1,660		
	Planting soil/amendments allowance	**100**	cy	60.00	6,000		
	Lawn seed	**3,816**	sf	0.35	1,336		
	Tree allowance	**5**	ea	1,200.00	6,000		
	Shrubs allowance	**20**	ea	75.00	1,500		
	Lawn irrigation allowance -	**3,816**	sf	1.25	NIC		
	SUBTOTAL					17,692	
G30	**CIVIL MECHANICAL UTILITIES**						
210000	*FIRE PROTECTION*						
	6" CLDI	**200**	lf	80.00	See Option #3		
	Fire department connection	**1**	ea	2,500.00	See Option #3		
	Gate valve	**2**	ea	1,200.00	See Option #3		
	Fire hydrant	**1**	ea	6,500.00	See Option #3		
	Thrust blocks	**1**	ea	500.00	See Option #3		
331000	*WATER UTILITIES*						
	2" Type K Copper	**200**	lf	40.00	See Option #3		
	Curb stop and road box	**1**	loc	1,200.00	See Option #3		
	Connect to existing water line	**2**	ea	10,000.00	See Option #3		
312000	*EXCAVATION & BACKFILL*						
	DI piping excavation/backfill (inside site)	**400**	lf	45.00	See Option #3		
	Pressure test & chlorinate	**400**	lf	5.00	See Option #3		
	Allowance for temporary water service	**1**	ea	25,000.00	See Option #3		
	Allowance for temporary support of existing utilities	**1**	ea	15,000.00	See Option #3		
	SUBTOTAL						
333000	*SANITARY SEWER*						
	Assumes ETR						
	4" PVC	**200**	lf	35.00	See Option #3		
	SMH	**2**	ea	4,500.00	See Option #3		
	Oil/Gas Separator	**1**	ea	12,000.00	See Option #3		
	Connect to existing structure (inside site)	**1**	ea	5,000.00	See Option #3		

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	CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	SITEWORK POOL OPTION #2							
106	*312000*	*EXCAVATION & BACKFILL*						
107		PVC gravity piping excavation/backfill (inside site)	**200**	lf	40.00	See Option #3		
108		Pressure testing	**200**	lf	4.00	See Option #3		
109		Video Inspection	**1**	ls	5,000.00	See Option #3		
110		Allowance for temporary sewer service	**1**	ea	25,000.00	See Option #3		
111		Allowance for temporary support of existing utilities	**1**	ea	10,000.00	See Option #3		
112		Oil/Gas Separator (e/b only) incl. shoring	**1**	ea	5,000.00	See Option #3		
113		SUBTOTAL					-	
114								
115	*334000*	*STORM DRAINAGE*						
116		See parking option #2				ETR		
117								
118		SUBTOTAL					-	
119								
120	*334000*	*GAS SERVICES*						
121		Gas service						
122		E&B trench for new gas main, pipe and install by utilities	**115**	lf	35.00	ETR		
123		Gas Meter					-	
124		SUBTOTAL						
125								
126		*ELECTRICAL SERVICES*						
127		Excavate, backfill and make good; allow	**200**	lf	25.00	5,000		
128		Concrete encasement	**200**	lf	80.00	16,000		
129								
130		New secondary service	**200**	lf	500.00	100,000		
131		Allowance for new distribution panel and sub panels	**1**	ls	75,000.00	75,000		
132		Feed to pool house	**1**	ls	15,000.00	15,000		
133								
135		SUBTOTAL					211,000	
136								
137		**SUBTOTAL - SITE DEVELOPMENT POOL OP #2**						***$3,502,748***

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	SITEWORK POOL OPTION #3						
	G SITEWORK						
G10	**SITE PREPARATION & DEMOLITION**						
	Site construction fence/barricades	**200**	lf	20.00	4,000		
	Site construction gate & stabilized construction entrance	**1**	sf	10,000.00	10,000		
	Remove existing pool deck	**10,000**	sf	3.00	30,000		
	Remove existing pool	**5,000**	sf	5.00	25,000		
	Remove shed at south side of pool	**400**	sf	4.00	1,600		
	Remove existing utilities /cut/cap - allow	**1**	ls	15,000.00	15,000		
	Protect existing utilities - allow	**1**	ls	10,000.00	10,000		
	Remove trees	**4**	ea	850.00	3,400		
	Remove and stockpile site furnishings - allow	**1**	ls	1,500.00	1,500		
	Misc. demolition	**1**	ls	5,000.00	5,000		
	Topsoil management						
	Strip topsoil & stockpile	**119**	cy	18.00	2,142		
	SUBTOTAL					107,642	
	Site Earthwork						
	Pool unit cost includes earthwork						
	Fine grading	**1,099**	sy	3.25	3,572		
	SUBTOTAL					3,572	
	Erosion control						
	Silt fence and compost tube				See Parking		
	Silt sacks				See Parking		
	Silt fence maintenance and monitoring				See Parking		
	Street sweeping- allowance				See Parking		
	Hazardous Waste Remediation						
	Dispose/treat contaminated soils/water				NR		
	SUBTOTAL					-	
G20	**SITE IMPROVEMENTS**						
	Roadways and Parking Lots						
	Parking lot						
	gravel base; 6" borrow type C				See Parking		
	Crushed stone base; 6" thick				See Parking		
	asphalt top; 1.5" thick				See Parking		
	asphalt binder; 2" thick				See Parking		
	SUBTOTAL					-	
	Pedestrian Paving						
	Concrete paving at pool deck	*9,417*	sf				
	gravel base; 6" thick	**174**	cy	45.00	7,830		
	5" concrete paving	**9,417**	sf	12.00	113,004		
	Concrete patterning allowance	**9,417**	sf	1.00	9,417		
	Concrete pads	*470*	sf				
	gravel base; 12" thick	**17**	cy	45.00	765		
	6" concrete paving	**470**	sf	22.00	10,340		
	SUBTOTAL					141,356	

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK POOL OPTION #3							
	Site Improvements						
	Flagpole allowance				ıed not required		
	Dumpster enclosure - allowance				See Parking		
	Dumpster enclosure; double gate allowance				See Parking		
	6' Chain-link, vinyl coated at perimeter of pool	**430**	lf	65.00	27,950		
	6' Chain-link, vinyl coated double gate	**4**	ea	2,500.00	10,000		
	6' Chain-link, vinyl coated single gate	**1**	ea	400.00	400		
	New Pool Costs						
	Pool construction, including excavation removal, stone base, gunite (shotcrete) structure and finishes	**6,040**	sf	300.00	1,812,000		
	New pool filtration system	**163,000**	gallon	5.00	815,000		
	Perimeter gutter/drain	**444**	lf	860.00	381,840		
	HC lift	**1**	ea	6,000.00	NIC		
	Lifeguard chair	**3**	ea	1,600.00	4,800		
	Pool ladder	**3**	ea	1,000.00	3,000		
	Race blocks	**6**	EA	3,000.00	18,000		
	New pressurized bubble	**14,546**	sf	60.00	872,760		
	Grade beam required to support structure	**506**	lf	450.00	227,700		
	SUBTOTAL					4,173,450	
	Landscaping						
	Screen topsoil	**119**	cy	7.50	893		
	Export tailings from screening process - assume clean rock	**35.7**	cy	8.50	303		
	Amend/Place for new seeded area & at plantings	**83**	cy	20.00	1,660		
	Planting soil/amendments allowance	**100**	cy	60.00	6,000		
	Lawn seed	**3,000**	sf	0.35	1,050		
	Tree allowance	**5**	ea	1,200.00	6,000		
	Shrubs allowance	**20**	ea	75.00	1,500		
	Lawn irrigation allowance -	**3,000**	sf	1.25	NIC		
	SUBTOTAL					17,406	
G30	**CIVIL MECHANICAL UTILITIES**						
210000	*FIRE PROTECTION*						
	6" CLDI	**200**	lf	80.00	16,000		
	Fire department connection	**1**	ea	2,500.00	2,500		
	Gate valve	**2**	ea	1,200.00	2,400		
	Fire hydrant	**1**	ea	6,500.00	6,500		
	Thrust blocks	**1**	ea	500.00	500		
331000	*WATER UTILITIES*						
	2" Type K Copper	**200**	lf	40.00	8,000		
	Curb stop and road box	**1**	loc	1,200.00	1,200		
	Connect to existing water line	**2**	ea	10,000.00	20,000		
312000	*EXCAVATION & BACKFILL*						
	DI piping excavation/backfill (inside site)	**400**	lf	45.00	18,000		
	Pressure test & chlorinate	**400**	lf	5.00	2,000		
	Allowance for temporary water service	**1**	ea	25,000.00	25,000		
	Allowance for temporary support of existing utilities	**1**	ea	15,000.00	15,000		
	SUBTOTAL					117,100	

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK POOL OPTION #3							
333000	*SANITARY SEWER*						
	Assumes ETR						
	4" PVC	**200**	lf	35.00	7,000		
	SMH	**2**	ea	4,500.00	9,000		
	Oil/Gas Separator	**1**	ea	12,000.00	12,000		
	Connect to existing structure (inside site)	**1**	ea	5,000.00	5,000		
312000	*EXCAVATION & BACKFILL*						
	PVC gravity piping excavation/backfill (inside site)	**200**	lf	40.00	8,000		
	Pressure testing	**200**	lf	4.00	800		
	Video Inspection	**1**	ls	5,000.00	5,000		
	Allowance for temporary sewer service	**1**	ea	25,000.00	25,000		
	Allowance for temporary support of existing utilities	**1**	ea	10,000.00	10,000		
	Oil/Gas Separator (e/b only) incl. shoring	**1**	ea	5,000.00	5,000		
	SUBTOTAL					86,800	
334000	*STORM DRAINAGE*						
	See parking option #2						
	SUBTOTAL					-	
334000	*GAS SERVICES*						
	Gas service						
	E&B trench for new gas main, pipe and install by utilities	**115**	lf	35.00	4,025		
	Gas Meter					4,025	
	SUBTOTAL						
	ELECTRICAL SERVICES						
	Excavate, backfill and make good; allow	**200**	lf	25.00	5,000		
	Concrete encasement	**200**	lf	80.00	16,000		
	New secondary service	**200**	lf	500.00	100,000		
	Allowance for new distribution panel and sub panels	**1**	ls	75,000.00	75,000		
	Feed to pool house	**1**	ls	15,000.00	15,000		
	SUBTOTAL					211,000	
	SUBTOTAL - SITE DEVELOPMENT POOL OP #3						***$4,862,351***

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	SITEWORK PARKING OPTION #1						
	G SITEWORK						
G10	**SITE PREPARATION & DEMOLITION**						
	Site construction fence/barricades	**736**	lf	20.00	14,720		
	Site construction gate & stabilized construction entrance	**1**	sf	10,000.00	10,000		
	Sawcut existing pavement	**50**	lf	8.00	400		
	Remove existing pvmt and curbing	**1**	ls	2,000.00	2,000		
	Remove/reset curbing	**154**	lf	28.00	4,312		
	Remove existing utilities /cut/cap - allow	**1**	ls	15,000.00	See Pool Option #3		
	Protect existing utilities - allow	**1**	ls	10,000.00	See Pool Option #3		
	Remove trees	**10**	ea	850.00	8,500		
	Remove and stockpile site furnishings - allow	**1**	ls	2,500.00	2,500		
	Remove line stripping	**828**	sf	2.00	1,656		
	Misc. demolition	**1**	ls	10,000.00	10,000		
	Topsoil management						
	Strip topsoil & stockpile	**466**	cy	12.00	5,592		
	SUBTOTAL					59,680	
	Site Earthwork						
	Cut/fill allowance at new geo-grid parking	**1**	ls	10,000.00	10,000		
	Fine grading	**1,567**	sy	3.25	5,093		
	SUBTOTAL					15,093	
	Erosion control						
	Silt fence and compost tube	**450**	lf	18.00	8,100		
	Silt fence at stockpiled materials	**1**	ls	5,000.00	5,000		
	Silt sacks	**7**	ea	250.00	1,750		
	Silt fence maintenance and monitoring	**1**	ls	5,000.00	5,000		
	Street sweeping- allowance	**1**	ls	1,500.00	1,500		
	Hazardous Waste Remediation						
	Dispose/treat contaminated soils/water				NIC		
	SUBTOTAL					21,350	
G20	**SITE IMPROVEMENTS**						
	Roadways and Parking Lots						
	Parking lot Geo Grid	*13,442*	sf				
	gravel base; 6" borrow type C	**249**	cy	45.00	11,205		
	Crushed stone base; 6" thick	**249**	cy	50.00	12,450		
	Geo grid w. filter fabric	**13,442**	sf	13.65	183,483		
	gravel fill; 6"	**249**	cy	45.00	11,205		
	Allowance to patch ETR paving	**1**	ls	2,500.00	2,500		
	New wheel stops	**36**	loc	500.00	18,000		
	Single solid lines, 4" thick	**7**	space	100.00	700		
	Wheelchair Parking (allowance)	**2**	space	200.00	400		
	Other road markings	**1**	ls	2,000.00	2,000		
	New access gate	**1**	loc	5,000.00	5,000		
	Signage- allowance	**1**	ls	3,000.00	3,000		
	SUBTOTAL					249,943	
	Pedestrian Paving						
	Concrete paving	*500*	sf				
	gravel base; 6" thick	**9**	cy	45.00	405		

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	SITEWORK PARKING OPTION #1						
	5" concrete paving	**500**	sf	12.00	6,000		
	Concrete ramp premium	**175**	sf	20.00	3,500		
	Concrete stairs	**30**	lf	225.00	6,750		
	Concrete pads	*160*	sf				
	gravel base; 12" thick	**6**	cy	38.00	228		
	6" concrete paving	**160**	sf	16.00	2,560		
	SUBTOTAL					19,443	
	Site Improvements						
	Flagpole allowance				assumed not required		
	Dumpster enclosure - allowance	**35**	lf	250.00	8,750		
	Dumpster enclosure; double gate allowance	**1**	ls	5,000.00	5,000		
	SUBTOTAL					13,750	
	Landscaping						
	Screen topsoil	**466**	cy	7.50	3,495		
	Export tailings from screening process - assume clean rock	**139.8**	cy	8.50	1,188		
	Amend/Place for new seeded area & at plantings	**326**	cy	20.00	6,520		
	Planting soil/amendments allowance	**50**	cy	60.00	3,000		
	Lawn seed area	**2,200**	sf	0.35	770		
	Tree allowance	**5**	ea	1,200.00	6,000		
	Shrubs allowance	**5**	ea	75.00	375		
	Lawn irrigation allowance - design build per notes				NIC		
	SUBTOTAL					21,348	
G30	**CIVIL MECHANICAL UTILITIES**						
210000	*FIRE PROTECTION*						
	See Option #3						
331000	*WATER UTILITIES*						
	See Option #3						
312000	*EXCAVATION & BACKFILL*						
	See Option #3						
	SUBTOTAL						
333000	*SANITARY SEWER*						
	See Option #3						
	SUBTOTAL					-	
334000	*STORM DRAINAGE*						
	See Option #3						
	SUBTOTAL						
334000	*GAS SERVICES*						
	Gas service						
	No work assumed						
	SUBTOTAL						
	ELECTRICAL SERVICES						
	See pool options						
	SUBTOTAL					-	
	SUBTOTAL - SITE DEVELOPMENT PARKING OP#1						***$400,607***

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CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	SITEWORK PARKING OPTION #2						
	G SITEWORK						
G10	**SITE PREPARATION & DEMOLITION**						
	Site construction fence/barricades	**608**	lf	14.00	8,512		
	Site construction gate & stabilized construction entrance	**1**	sf	10,000.00	10,000		
	Remove existing trees, clear and grub	**18,831**	sf	2.00	37,662		
	Remove/reset curbing	**50**	lf	28.00	1,400		
	Misc. demolition	**1**	ls	10,000.00	10,000		
	Topsoil management						
	Strip topsoil & stockpile	**141**	cy	12.00	1,692		
	SUBTOTAL					69,266	
	Site Earthwork						
	Cut/fill allowance	**1**	ls	10,000.00	10,000		
	Fine grading	**1,723**	sy	3.25	5,600		
	SUBTOTAL					15,600	
	Erosion control						
	Silt fence and compost tube	**400**	lf	18.00	7,200		
	Silt fence at stockpiled materials	**1**	ls	5,000.00	5,000		
	Silt sacks	**7**	ea	250.00	1,750		
	Silt fence maintenance and monitoring	**1**	ls	2,000.00	2,000		
	Street sweeping- allowance	**1**	ls	1,500.00	1,500		
	Hazardous Waste Remediation						
	Dispose/treat contaminated soils/water				NIC		
	SUBTOTAL					17,450	
G20	**SITE IMPROVEMENTS**						
	Roadways and Parking Lots						
	Parking lot	*14,388*	sf				
	gravel base; 6" borrow type C	**266**	cy	45.00	11,970		
	Crushed stone base; 6" thick	**266**	cy	50.00	13,300		
	asphalt top; 1.5" thick	**138**	tns	150.00	20,700		
	asphalt binder; 2" thick	**184**	tns	130.00	23,920		
	Concrete granite curb	**578**	lf	45.00	26,010		
	Single solid lines, 4" thick	**40**	space	85.00	3,400		
	SUBTOTAL					99,300	
	Pedestrian Paving						
	Concrete paving	*1,116*	sf				
	gravel base; 6" thick	**21**	cy	38.00	798		
	5" concrete paving	**1,116**	sf	12.00	13,392		
	Site Improvements						
	Misc. Site Improvements	**1**	ls	5,000.00	5,000		
	SUBTOTAL					19,190	
	Landscaping						
	Screen topsoil	**141**	cy	7.50	1,058		
	Export tailings from screening process - assume clean rock	**42.3**	cy	8.50	360		
	Amend/Place for new seeded area & at plantings	**99**	cy	20.00	1,980		
	Planting soil/amendments allowance	**25**	cy	60.00	1,500		

PM&C

Center Pool
Three Pool Options
Walpole, MA

17-May-23

Concept Cost Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SITEWORK PARKING OPTION #2							
	Lawn seed	**7,620**	sf	0.35	2,667		
	Tree allowance	**5**	ea	1,200.00	6,000		
	Shrubs allowance	**5**	ea	75.00	375		
	Lawn irrigation allowance - design build per notes				NIC		
	SUBTOTAL					13,940	
G30	**CIVIL MECHANICAL UTILITIES**						
210000	*FIRE PROTECTION*						
	See Option #3						
331000	*WATER UTILITIES*						
	See Option #3						
312000	*EXCAVATION & BACKFILL*						
	See Option #3						
	SUBTOTAL						
333000	*SANITARY SEWER*						
	See Option #3						
	SUBTOTAL					-	
334000	*STORM DRAINAGE*						
	Storm drain allowance for parking lot #2	**14,388**	sf	5.00	71,940		
	SUBTOTAL					71,940	
334000	*GAS SERVICES*						
	Gas service						
	No work assumed						
	SUBTOTAL						
	ELECTRICAL SERVICES						
	See pool options						
	SUBTOTAL					-	
	SUBTOTAL - SITE DEVELOPMENT PARKING OP#2						***$306,686***

APPENDIX A

NRCS SOIL SURVEYS

CENTER POOL SITE
NRCS Soil Map

Map Scale: 1:3,270 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	9.9	42.2%
73A	Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony	3.3	14.2%
422B	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	3.0	12.8%
602	Urban land, 0 to 15 percent slopes	0.9	3.8%
628C	Canton-Urban land complex, 3 to 15 percent slopes	2.7	11.4%
653	Udorthents, sandy	3.6	15.5%
Totals for Area of Interest		**23.4**	**100.0%**

SOUTH POOL SITE
NRCS Soil Map

Map Scale: 1:1,770 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
71B	Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony	2.4	26.8%
245B	Hinckley loamy sand, 3 to 8 percent slopes	1.5	16.9%
602	Urban land, 0 to 15 percent slopes	5.0	56.2%
Totals for Area of Interest		**9.0**	**100.0%**

APPENDIX B

BATHER LOAD FIXTURE COUNT ANALYSIS BY BH+A

Bather Load Fixture Count Analysis

Sanitary Code 105 CMR 435.00
Pool bather is established by the Massachusetts State Sanitary Code 105 CMR. Plumbing fixture count is established by CMR 435.00 and the Massachusetts State Plumbing Code 248.00 CMR 10.00.

Pool water is defined as non-swimming (less than 5 feet in water depth) and swimming (water deeper than 5 feet)
Bather load is calculated at 1 bather per 15 SF of non-swimming water and 1 bather per 20 SF of swimming water. 1 toilet and 1 shower are required for every 40 bathers. Exterior showers do not count towards this fixture count. Outdoor showers are classed by Massachusetts Plumbing Board as "rinse station"

EXISTING	Bathers	Toilets	Showers	Lavatories
Existing Wading Pool	132			
	66 F	2	2	2
	66 M	2	2	2
Existing Pool	230			
	115 F	3	3	2
	115 M	3	3	2
TOTALS	362			
	181 F	5	5	4
	181 M	5	5	4

OPTION 1	Bathers	Toilets	Showers	Lavatories
Existing Wading Pool	132			
	66 F	2	2	2
	66 M	2	2	2
Pools Combined	266			
	133 F	4	4	2
	133 M	4	4	2
TOTALS	372			
	186 F	6	6	4
	186 M	6	6	4

OPTION 2	Bathers	Toilets	Showers	Lavatories
Existing Wading Pool	132			
	66 F	2	2	2
	66 M	2	2	2
Pools Combined	384			
	192 F	5	5	4
	192 M	5	5	4
TOTALS	516			
	258 F	7	7	6
	258 M	7	7	6