Underwood Playground

Belmont, Massachusetts

Recreational Feasibility Report and Preliminary Design

Prepared for:

Town of Belmont
Department of Public Works

Prepared by:

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Boston, MA

April 2, 2013

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HISTORY OF THE POOL

Mr. Henry O. Underwood of Underwood Deviled Ham fame purchased the current park site to prevent the construction of a street car station. Mr. Underwood owned the adjacent property. On the other side of Mr. Underwood's property, the Town owned a small lot on School St. that encroached onto the Underwood property and contained the Town's first high school. In order to straighten his property line, Mr. Underwood approached the Town and offered to exchange the small Town parcel for the park site and offered to construct a playground, bathhouse and swimming pool.

In 1911, the Town voted to give the old high school lots to Henry O. Underwood to straighten out his property line on and accept his offer to develop the area as a playground with a swimming pool.

The complex was designed by Mr. Underwood's brother, Loring, a landscape architect. During the design process, Loring Underwood discovered that examples of municipal swimming pools did not exist in the United States. Examples existed in Europe; however the unique condition of the Underwood site required a site specific approach. The idea of a "Swimming Hole" took the form of an oval pool, 100 feet wide by 150 feet long. The cobblestone pool bottom sloped from the adjacent parkland to a depth of 8 feet. The edges of the pond were covered with sand to create a manmade beach effect. A spring on the property provided fresh water to the pool. The spring and the installation of a filtering system provided a clean, sanitary bathing pool for the Town of Belmont.

The complex also contains a simple bathhouse structure designed by Mr. Underwood's nephew H. Thaxter Underwood. The bathhouse contained lockers, showers, and dressing rooms for the public's use. Swings and other park amenities were provided adjacent to the pool. It was envisioned that the pond would provide a skating venue for the Town during winter months.

The pool complex was formally opened on June 17, 1912. The Boston newspapers claimed the Underwood Pool to be the first public outdoor swimming pool in the United States.

The pool has modified and renovated over the years. A concrete bottom was added. The original diving island in the middle of the pool became a concrete structure. A filter structure was placed located on the Cottage Street end of the pool and the pool received a diatomaceous earth filter system.

The timing is not clear, however it appears that many of the improvements were made at the time the Wellington Brook culvert was constructed in between the 1930's and 1960's. This work included construction of a depressed lawn area between the pool and Concord Avenue that could be flooded in the winter for ice skating.

A repair project was undertaken in 1995 that improved site drainage, provided new filtered water return lines, new main drains, and installed the accessible ramps on the south side of the pool.

The above photographs show the following:
Top Left: 1) the site prior to the pool; Top Right 2) The pool in 1913
Bottom Left: 3) the pool in 1932; Bottom Right 4) The pool in 1957.

In order to provide additional history and background information, the Town provided BH+A the following documents for use during the study:

1988	Mace Pool Renovation Study
2005	Library Site Selection Subsurface Data
2007/2012	Underwood Pool Planning Memo
2012	Zoning Memorandum
2012	Underwood Pool & Soccer Relocation Concept
2012	Health Department Memo regarding existing pool
2012	PowerPoint Presentation to Selectmen regarding Park Concept
2012	MA Department of Public Health Facility Inspection Report
2012	Board of Health Orders regarding pool
2012	Pool Corrective Actions
	Belmont Wetlands Map
	Soil Information
	Underwood Park Site Plan 1:40 Scale
	Wellington School Foundation Engineering Report

Process

PROJECT SUMMARY

The Town of Belmont engaged Bargmann Hendrie + Archetype, Inc. to provide architectural design services related to the evaluation of Underwood Playground and development of design options to show the feasibility of renovating and reconstructing a swimming pool in its current location, as well as relocating a similar pool complex in the playground and constructing a multi-use field at the lower portion of the site along Concord Avenue.

The Process and Tasks Included:

1. A Kick-off staff meeting with the Town to review project goals and objectives and establish communications.

2. Obtain existing plans, studies and reports related to the Underwood Playground Site.

3. Prepare a Topographic Survey of the site.

4. Perform field investigations of the bathhouse, pool and site.

5. Perform Staff phone interviews and outreach with; DPW Director, Town Administrator, Board of Selectmen Chair, School Superintendent, School Committee Chair, School Athletic Director, Historic District Commission, DPW Parks Manager, Recreation Commission, Recreation Supervisor, Underwood Pool Manager, Conservation Commission Administrator, and Library representatives.

6. Hold a Public Kick-off Meeting to explain the purpose of the study and obtain preliminary comments from the General public and all interested parties and organizations.

7. Present preliminary findings to Town staff

8. Develop and review three design options and present to Town staff

9. Complete 3 design alternatives and develop cost estimates

10. Public meeting to present 3 design alternatives for comment

11. Prepare Final Report

12. Public Meeting to present to the Board of Selectman and Belmont School Committee

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Executive Summary

Introduction

The Town of Belmont engaged Bargmann Hendrie + Archetype, Inc. (BH+A) to evaluate the Underwood Playground Site to determine the feasibility of renovating the existing pool and constructing a new multi-use athletic field on the site requiring the relocation of the pool complex elsewhere on the site.

The tasks performed by the Design Team Included

A. Reviewing and obtaining copies existing drawings and other documents available from the Town of Belmont.
B. Perform a site topographic survey of the site.
C. Perform on site evaluations of the existing pool, bathhouse, filter building and playground to determine current conditions and identify requirements for renovation or replacement
D Perform site analysis to establish design parameters for renovation and new construction options related to the pool and new multi-purpose field.
E. Programming: Reviewing existing pool complex programming to understand pool usage, activities and programs offered. Interview members of the Parks & Recreation Department staff to obtain a better understanding of the pool use and discuss possible program expansion. Review existing overall playground usage with Town staff and stakeholders to determine current usage of the overall playground.
F. Participate in a public meeting to hear comments and concerns prior to starting design options.
G. Discuss the study in person or by phone with Town officials and stakeholders identified by the Town.
H. Prepare Three Design Options
I. Estimates of Probable Construction Costs & Other Information
    - Develop Estimates of Probable Construction Costs for the Design Options
    - Develop Estimates of Total Project Costs to include fees, permitting, testing, and other soft costs required to design and construct the project.
J. Present the Design Options at a second public meeting.
K. Prepare written report of the study's findings.
L. Participate in a public meeting presenting final report to the Board of Selectmen and Belmont School Committee.

Existing Pool

The pool is a cast-in-place concrete oval that measures 100 by 150 feet. The pool is divided by a wall at a third point. The wall is attached to a concrete platform in the middle of the pool that once contained a diving board. The following are issues with the existing pool:

- No surface skimming provided; water is drawn from the drains only and is not code compliant
- The pool profile is not compliant with the current code standards for depth, slope, and segregation of shallow and deep areas.
- Pool surface is becoming increasingly difficult to maintain
- Diving is no longer allowed because of the pool depth
- Lap swimming is not possible because of the pool profile.
- The filtration equipment has exceeded its normal service life
- Pool operates at code minimum flow rates
- Filter media is outdated and very labor intensive to operate
- Filter building is very constricted and subject to flooding.

Existing Bathhouse

The building provides shower, toilet and changing facilities for the public. The building is organized around a central lobby that contains the lifeguard control desk, lockers, and storage. The changes rooms are roughly open 500 SF spaces with small privacy cubicles for changing. Men's and Women's toilets are located at the rear of the building with two shower/rinse stations located between the lobby and toilets. The following are issues with the existing bathhouse:

- Not compliant with Massachusetts Architectural Access Board or the ADA
- Does not provide code required plumbing fixture count
- No secure staff or first aid area is provided
- Structural repairs are required at the roof and foundation walls
- Mechanical ventilation is required
- Plumbing and electrical systems have exceeded their useful service life

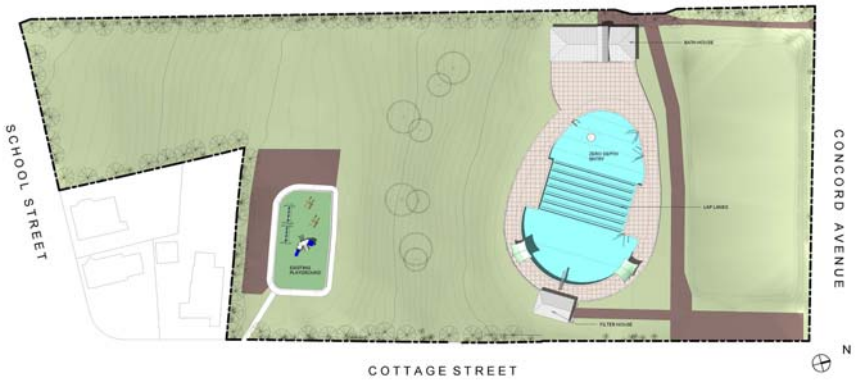
Existing Playground

Underwood Playground is a 3.7 acre hillside park bounded by School Street, Cottage Street, and Concord Avenue. The historic pool and bathhouse are prominently sited along the Concord Avenue portion of the park, separated from the street by a depressed lawn area used for informal field sports and ice skating. The site slopes steeply uphill punctuated by mature oak and white pine trees. A play area sits on the middle terrace of the park at an elevation approximately twenty feet above Concord Avenue. Access to the play area is from Cottage Street. The playground is a popular open space.

Design Option 1 – Rebuild Existing Pool Complex

This option is a renovation/replacement of the existing pool complex and does not include construction of a new multi-use field. This option includes:

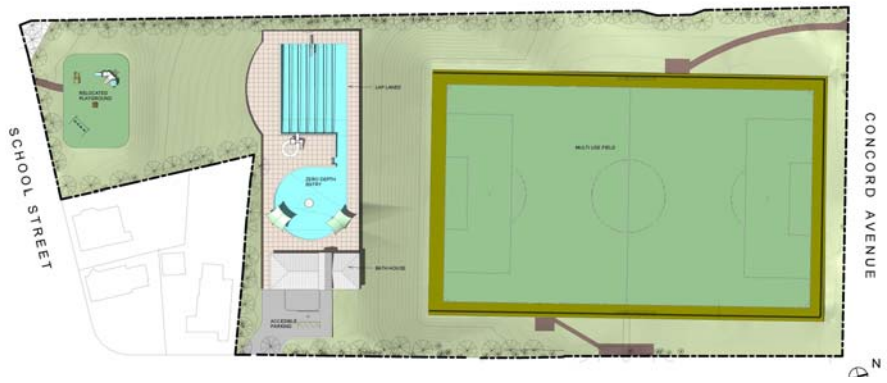
- A new 11,175 square feet swimming pool mimicking the shape of the current pool
- Bathhouse sized for the new bather load of 680 bathers.
- New filter building located above grade
- The entire pool complex is raised to the elevation of the culvert to correct ground water and accessibility issues
- Site development retains features and character of the existing pool complex.



Design Option 2-Athletic Field with Relocated Pool- Cottage Street Access

This option constructs a 300 by 180 ft. filled turf athletic field adjacent to Concord Avenue and relocates a new pool complex up the hill at the location of the current playground. Access to the pool is from Cottage Street. This option includes:

- New 6,500 square feet swimming pool
- A bathhouse sized for 388 bathers including space for the filtration equipment
- Accessible parking at bathhouse with driveway access off of Cottage Street
- Relocated playground to an area adjacent to School Street
- New filled turf field elevated above the existing culvert and Concord Avenue sidewalk by 2 feet
- New fencing and safety netting around field



Design Option 3-Athletic Field with Relocated Pool – School Street Access

This option constructs a 300 by 180 ft. filled turf athletic field adjacent to Concord Avenue and relocates a new pool complex up the hill at the location of the current playground. Access to the pool is from School Street. This option includes:

- New 6,500 square feet swimming pool
- A bathhouse sized for 388 bathers including space for the filtration equipment
- Accessible parking at bathhouse with driveway access off of School Street
- Relocated and consolidated playground to area closer to Cottage Street
- New filled turf field elevated above the existing culvert and Concord Avenue sidewalk by 2 feet
- New fencing and safety netting around field

ESTIMATES OF PROBABLE CONSTRUCTION COSTS

A detailed conceptual estimate has been prepared for the three options. Options 2 & 3 are generally the same. The differences in site work related to vehicle access offset each other; the pools and bathhouses are the same. At this early stage of design, we have used square foot unit costs for certain components of the buildings, swimming pool, and multi-use field.

The following assumptions have been made:

- The project will be competitively bid with at least four General Contractor's submitting bids under M.G.L c149 and c30 public bidding laws.
- Unit Prices are based on current construction costs in metropolitan Boston
- Soft costs included below include architectural and engineering fees, utility back-charges, printing costs, and equipment costs related to pool safety equipment, bathhouse equipment and furnishings, and signage.

Total Project Costs

Total project cost sheets have been included for options. Total project costs include Architectural/Engineering fees, expenses, and testing.

Cost of Option 1- Renovated Pool – No Field	$3,727,417
Cost of Option 1 with Soft Costs:	$4,309,255
Cost of Option 2- Multi-use Field with Relocated Pool Complex (Cottage St. Access)	$5,350,000
Cost of Option 2 with Soft Costs:	$6,159,000
Cost of Option 3- Multi-use Field with Relocated Pool Complex (School Street Access)	$5,350,000
Cost of Option 3 with Soft Costs:	$6,159,000

The conceptual level of the design warrants the inclusion of contingencies in the estimates. A 15% design contingency is included in the Estimate of Probable Construction Cost and a 6% contingency added to the Total Project Cost estimate as a construction contingency.

Part 1- Existing Conditions

Underwood Pool in 1995

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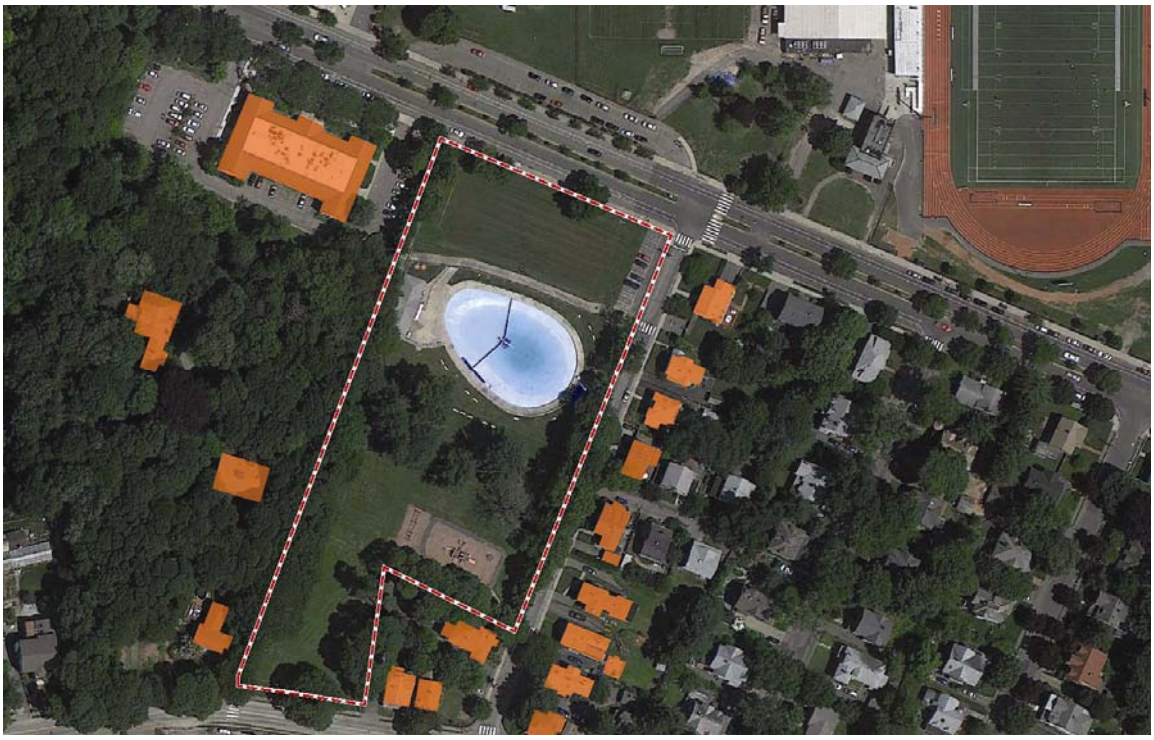
1.1 General Description - Existing

General Description



Site

The pool complex is located along Concord Avenue adjacent to the Belmont Public Library. The eastern edge of the site is defined by Cottage Street; the southern edge by School Street. Three private residences abut the property at the southeast corner. The western edge of the site abuts the Wellington Brook and another private residence.

The site rises from elevation grade 18.00 along Concord Avenue to an elevation of 60.00 at School Street. A depressed area roughly 200 by 100 feet, is approximately 4 feet below the Concord Avenue sidewalk. The area was constructed as an outdoor skating venue and was filled and maintained by the Town in the past.

The site quickly rises at the southern side of the pool enclosure at a 1:5 slope (20% grade) to a 110 ft. wide level area where the existing playground is located. The site between the playground and School Street rises 20 feet with a 1:8 slope (12%).


Depressed Area along Concord Avenue Viewed from Pool

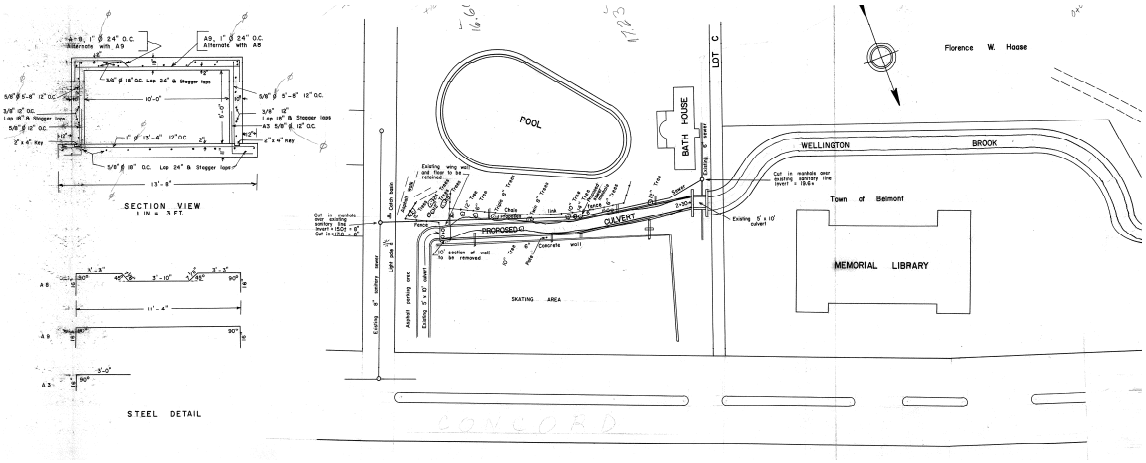

View of Pool and Bathhouse from Cottage Street


The Underwood Playground


The hill up to School Street

Culvert

The Wellington Brook Culvert bisects the site 120 feet from Concord Avenue. The culvert is a cast-in-place concrete structure that is 10 feet wide by 5 feet high. The top of the 10 inch thick reinforced concrete top of the culvert is at elevation 16.00.



1964 Drawings of Culvert Replacement/Construction

Utilities

The electrical service for the pool is located in small structure along Cottage Street. Overhead power lines cross the site adjacent to the culvert and provides power to the Bathhouse and the home on the adjacent property to the west of the site.

Existing Bathhouse Building

The building provides shower, toilet and changing facilities for the public. The building is organized around a central lobby that contains the lifeguard control desk, lockers, and storage. The changes rooms are roughly open 500 SF spaces with small privacy cubicles for changing. Men's and Women's toilets are located at the rear of the building with two shower/rinse stations located between the lobby and toilets.

Lobby Space	430 SF
Women's Changing	520 SF
Men's Changing	520 SF
Women's Toilet	50 SF
Men's Toilet	50 SF
Shower Area	65 SF

Pool User Groups

The pool is operated, staffed, and programmed by the Town's Department of Public. The pool is operated on a seasonal basis. Preparation to open the pool begins in early June, and operates from roughly late-June through late August. Learn to swim lessons are offered weekdays at various times of the day in group or private sessions. Lessons are offered for 2 year old children through Level 7 swimmers. The remainder of the time the pool is open to public swimming.

The Pool

The pool is a cast-in-place concrete oval that measures 100 by 150 feet. The pool is divided by a wall at a third point. The wall is attached to a concrete platform in the middle of the pool that once contained a diving board. The pool is relatively shallow around its entire perimeter and slopes to a maximum depth of about 8.4 feet.

The pool is surrounded by a concrete deck around its entire perimeter. A series of stone blocks ring the north edge of the deck to provide a seating wall while retaining the lawn slope and directing rain run-off away from the pool. The entire pool complex is enclosed by a 10 ft. high chain link fence. The lawn on the sloping hill is within the pool complex and can be used by bathers taking a break from swimming. The Town designates an area between the bathhouse and culvert as the defined picnic eating area. No food is allowed within the pool or on the decks.

The pool filter is located in a partially below grade structure between the pool and Cottage Street.

Underwood Playground

The playground was built in 1999. Direct access to the playground is from Cottage Street. The playground offers, a large climbing structure, smaller individual climbers, and swings. The playground is surrounded by an asphalt path and contains the playground surfacing material. Two slides and swing sets are outside of the playground area. A paved tetherball court is located at the western edge of the park.

1.2 a Description and Condition of Major Building Systems Existing Bathhouse

Foundations

The foundations are visible from the exterior and appear to be constructed of cast-in-place concrete at or below grade and concrete masonry units above grade. The footings are not visible and drawings do not exist of the building.

There is evidence of ground loss and movement at the foundation. Stepped cracks indicate a shifting of the foundation that have caused cracking up through the structure. Significant mortar loss was observed at the lower courses of concrete masonry.

Cracking at West Elevation

Open Masonry Joints at northwest corner.

Structure

The structure consists of perimeter and internal masonry bearing walls with a wood framed roof structure. Observations:

- Walls constructed in this era will have little or no reinforcing.
- The roof structure is consists of 2 by 8 framing at 16 inches on center with wood plank sheathing. The framing is undersized based on current code requirements. Roof loading for unheated structures is higher than heated buildings since snow will accumulate at higher levels on colder surfaces.
- The roof structure is tied to the top of the masonry wall.
- A renovation of the building would not be a change in use; therefore no seismic upgrades would be required. However, the extent of a renovation may trigger significant structural improvements.

Roof Framing at Lobby

Typical Roof Framing at Changing Areas

Masonry

The exterior walls are load bearing single-wythe masonry constructed of standard 8 by 8 by 16 inch concrete masonry units.

- Exterior surface has been parged to provide a smooth stucco like appearance.
- Cracks and weathered joints were observed in the masonry.
- The lower courses of CMU, closer to the ground are stained and show more weathering from splash back and run-off hitting the surface.
- Surface defects, minor chips and cracks are typical around the building.

Wood Trim

The exterior eave framing and trim are painted wood. The wood is in poor condition. Minor splits/cracks are visible at joints and wood ends; scraping, sealing and repainting required. Areas of trim need replacement; repairs required at some framing members.

Walls at southwest corner.

Eave Framing and Trim at southeast corner

Roofing

The roof is covered with single layer light gray architectural asphalt shingles that are in serviceable condition.

- West side of roof has moss growing on it.
- Roof has asphalt ridges and valleys.
- There is no drip edge at the roof eaves.

Louvers

Small wood louvers are provided at the top of the walls in the two changing rooms to provide natural ventilation. The wood is in fair condition and requires scraping and paint. All louvers require additional insect and bird screening.

Doors

The three main entry doors are overhead sectional doors. These doors are set into frames that were most likely standard hinged doors. There are two small wooden doors at the rear of the bathhouse leading from both toilet rooms to the exterior. These doors are typically locked and not used for public access.

- The overhead coiling doors are in serviceable condition.
- The small hinge doors are in fair condition.

Windows
There is one decorative fan window on the main elevation located above the center door. The window is painted wood, is in fair condition and needs scraping, glazing and paint.

Interior Walls
Interior walls are painted concrete masonry units (CMU) or wood framed screen partitions constructed of plywood. Areas of moisture deterioration are evident in the showers and some toilet areas. Wall paint is well maintained.

Bathhouse Floor
The bathhouse floor is cast-in-place concrete. Large drains are located in the changing rooms; it appears that the drains daylight at the exterior face of the building.

A small portion of the floor in toilet room area is framed and has access below the floor for plumbing. It could not be determined if the entire floor is framed with a pipe chase below.

Toilet and Changing Partitions
The toilet and changing area partitions are painted metal. The partitions are in serviceable condition.

Showers
There are two showers located at the back of the entry lobby. The showers are screened from the entry but provide no privacy for users. The showers can be used as a rinse shower by bathers; bathers cannot take a cleansing shower with soap as required by code. The showers are not handicapped accessible. The hide-a-pipe shower units are appropriate for this application; similar units would be used for a new or renovated bathhouse.

Existing showers

Toilets/Urinals/Lavatories
The quantity of toilet room fixtures is inadequate for the number of bathers. The fixtures do not provide provisions of individuals with disabilities.

All units are maintained and in fair condition.


View into Men's Room


Typical Toilet Stall

Water Service & Fire Protection

The building is presently not protected by automatic sprinklers and has no fire protection water service connection from municipal water. The size of this building precludes any requirement for a sprinkler system.

Water Heating

A small water heating unit is located above the shower area to provide hot water to the lavatories and showers. The shower fittings provide anti-scold mixing of hot and cold water.

Hot Water Heater

Mechanical Ventilation

There is not mechanical ventilation provided. A new or renovated building would require mechanical ventilation in addition to any natural ventilation incorporated into the design.

Electrical Service and Equipment

Building service enters the building in the Men's Toilet room. Sub-panels are located in the main lobby that also contains switches and controls for the former skating area and building lighting.

- The panels and conduit are older; corrosion is visible on devices. Older plug fuses are still used on certain panels.
- Light fixtures are caged fluorescent strip fixtures; the fixtures are not lensed which is required by code in a bathhouse building.
- There is no emergency lighting or exit signs that are required by code. The building is not equipped with a fire detection or alarm system.

Sub-panels in lobby

Service Entrance

Bathhouse Recommendation

The existing bathhouse construction and configuration does not meet the needs of the current pool or a potential renovation of the pool. The building is not accessible to individuals with disabilities and does not contain sufficient square footage to house required spaces and sanitary facilities. The extent of a modifications needed to meet current needs will significantly alter the current structure. A new building will need to meet current codes for snow loading, seismic design, egress, and sanitary fixture count.

A replacement building can certainly recreate the architectural character of the building envisioned by H. Thatcher Underwood while providing for today's modern bathhouse needs. In light of the extensive deficiencies with the existing bathhouse, replacement of the bathhouse appears to be the most cost effective approach toward reconstruction of the complex.

Existing Filter Building

General

The filter is located in a cast-in-place concrete structure located between the pool and Cottage Street. The room is accessed through a bulkhead door and stairs. The filter room floor is approximately 5 feet below grade. An additional hatch is located in the cast-in-place concrete roof structure to allow access and removal of large pieces of equipment.

- The filter room is constantly wet from ground water and must be pumped. The room has been flooded in the past.
- The building is considered a confined space and should have two means of egress.
- The lighting and electrical components are showing signs of corrosion. Light fixtures are not guarded.
- Working clearances between equipment and switches are minimal and not ideal for service.

Replacement of the filter system or construction of new pool warrants moving the equipment to an above grade structure that will allow safe access for maintenance personnel and place all equipment out of the groundwater.

Active Leaks

View of space over filter.

Filter Building Recommendation

The filter equipment must be moved above grade to avoid the continual leaks and periodic flooding experienced at the existing structure. Modern filtration equipment can be housed in a simple structure that will provide easy and safe access to Town personnel maintaining the pool.

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1.3 Code Issues: Current Building

Construction Type:
The existing construction system is adequately rated for fire resistance. The construction type designation is combustible/non-combustible. Construction meets current code.

Building is less than 12,000 SF, sprinklers are not required. The building is approximately 1,600 SF.

Energy Code:
The building itself does not utilize mechanical heating or cooling, making thermal performance a non-factor.

Life Safety:
The pool complex is Assembly (A-3) occupancy. The population of the building is less than 50 people. The requirements for a fire alarm would need to be reviewed with the Belmont Fire Department to determine if a fire alarm system in the building is required.

There is no an emergency lighting system or exit signs provided.

Handicapped Access:

- Facility is not accessible.

Plumbing Fixture Count

The number of plumbing fixtures required for pool bathhouses is calculated by the number of bathers allowed in the swimming pool. 105 CMR 435.00 State Sanitary Code establishes the criteria for bather load and fixtures counts. The existing pool has a calculated bather load of 917. This is 459 Men and 459 Women.

For the existing swimming pool size, the bathhouse requires 10 additional toilets for men and women as well as 12 showers for both men and women.

Existing Underwood Pool

Information based on 105 CMR 435.00 State Sanitary Code

Bather Load

	Non Swimmer Area (<5'-0" depth)		Swimmer Area (>5'-0" depth)	
Area Pool (15,000sf)	10,000sqft		5,000sqft	
Area of Splash Pad	sq ft		sq ft	
Total pool surface area	10,000sqft		5,000sqft	
One bather/user per (pool surface area)	15sqft		20sqft	
Number of Bathers/users	667		250	918
Number of Male Bathers/Users	334		125	459
Number of Female Bathers/Users	334		125	459

Plumbing Fixture Quantities Based on Maximum Bather Load

	Men		Women	
One Water Closet Per	40	bathers	40	bathers
One Wash Basin Per	60	bathers	60	bathers
One Shower Per	40	bathers	40	bathers

	Men	Provided	Women	Provided
Number of Water Closet's (Includes Urinal in Men's Room	12	2	12	2
Number of Wash Basin's	8	1	8	1
Number of Shower's	12	0	12	0

1.4 Existing Pool and Filtration

Main Pool

Dimensions:	100 x 150 Ft. Oval
Depth:	1 Foot sloping to approximately 8.4 feet
Surface Area:	15,500 SF
LF Gutter:	No Surface Skimming
Bather Load:	918
Volume:	425,000 Gallons

Pool Observations

1. The pool is a painted concrete structure. The perimeter beam is approximately 12 inches thick; the pool floor is 6 inches.
2. The pool surface requires significant maintenance every year to prepare it for the pool season.
3. The pool is divided by a divider wall located roughly a third of the way from the west end of the pool.
4. A square platform that once contained a diving board is located at the center of the divider wall.
5. The pool slopes from approximately 12 to 18 inches at the entire perimeter to the maximum depth of approximately 8.4 feet.
6. The pool is shaped like a man-made pond.
7. The pool does not mark the transition pool depth at 5 feet. The shape of the pool does allow this marking.
8. Structured lap swimming in the pool is not possible; a consistent depth of at least 3'-6" with end walls cannot be provided.
9. Two ramps were added along the north side of the pool to provide accessible access. The pool does not provide a second means of access that is required under the ADA requirements of 2010.
10. The pool draws water into the filtration system from the main drains only. Filtered water inlets are located around the pool perimeter at the pool beam. In deck access boxes show the locations of the filtered water returns.
11. The pool has two main drains. It was reported that the covers are Virginia Graham Baker Act compliant. They were not visible at the time of field investigations.
12. The pool water table in this area is very high. The main drains contain pressure release valves that allow water to enter the pool when the pool is empty and the water pressure from the ground water is greater than the pool structure.

Filtration Observations

1. The pool is filtered by an open tank diatomaceous earth filter. The tank has fabric covered baffles that become coated with the diatomaceous earth and form the filter elements for the water.
2. The pool is treated with 2% hypochlorite solution (liquid chlorine).
3. pH balance is maintained using CO2.
4. There is no automatic chemical control equipment. All monitoring and adjustments are made manually.
5. The actually flow rate , turnover rate, and effective filter area were not determined. The pool water is checked throughout the pool season; pool chemistry and clarity are maintained.

Installation of Main Drain Lines in 1995

Pool Repairs in 1995

Pool Divider between deep and shallow (1995)

Submersible Pump in Operation to remove ground water

Pool Return Lines Installed in 1995

Deck Replacement and tank repairs 1995

Routine Repairs in 2011

Recommendation

The pool's physical condition, increasingly difficult maintenance, and non-code compliant features warrants the construction of a new swimming pool. The existing pool does not lend itself to renovation. A new pool will allow the Town to provide ample recreational and learn to swim space, structured lap swimming, and diving in a low maintenance, properly filtered pool tank.

Along with a new pool, a new filter system located in an above ground filter building will provide proper filtration and chemical controls that will maintain code required pool chemistry and water clarity, reduce maintenance, simplify operation, and build in operational/safety features to ensure that the pool system is running at its optimal level.

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1.5 Park Conditions and Site Analysis

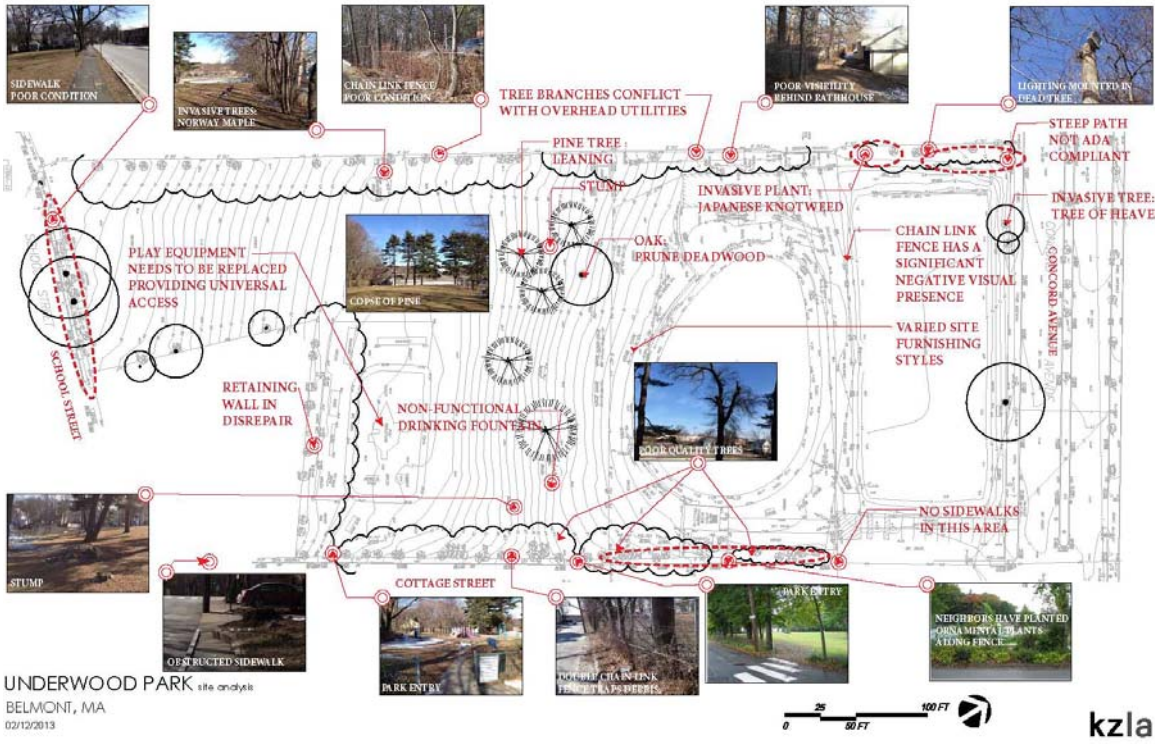
Existing Conditions

Underwood Playground is a 3.7 acre hillside park bounded by School Street, Cottage Street, and Concord Avenue. The historic pool and bathhouse are prominently sited along the Concord Avenue portion of the playground, separated from the street by a depressed lawn panel used for informal field sports and ice skating.

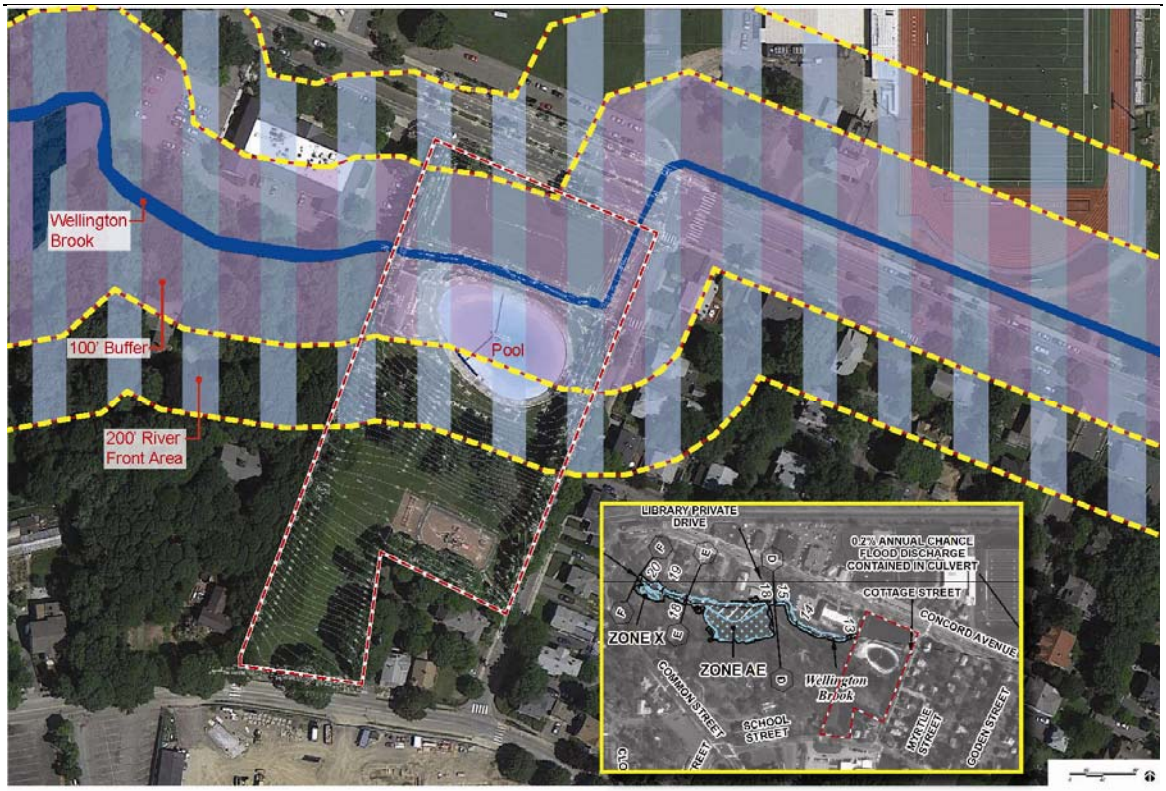
The site slopes steeply uphill punctuated by mature oak and white pine trees. An play area sits on the middle terrace of the park at an elevation approximately twenty feet above Concord Avenue. Access to the play area is from Cottage Street. The play area is not ADA compliant.

School Street defines the southern boundary of the park, approximately forty feet higher than Concord Avenue. Three private residences immediately abut the park within the boundaries of School Street and Cottage Street.

The playground is popular because it serves the community with a variety of recreational opportunities.



General Analysis



Wetlands

The Wellington Brook is classified as a "river-way: The open section of the Brook to the west of the site is a defined wetlands area. The site is subject to the requirements of a 100 feet setback for wetlands and a 200 feet river-way setback.

All conceptual options must conform to the requirements of the Massachusetts Wetland Protection Act, River Protection Act, and will be reviewed and approved by the Town of Belmont Conservation Commission.

Existing Topography

The site rises approximately 50 feet from the Concord Avenue sidewalk to School Street. The site has six discreet sections.

1. The flat depressed area developed for skating
2. The pool complex
3. A steep sloped lawn starting at the pool's southern edge extending up to the playground
4. The relatively flat playground plateau
5. A steeply sloped lawn from the playground up the hill toward School Street
6. The sloped section along School Street.

Vegetation

The perimeter of the site is lined with established trees. The center of the site at the steeply sloped lawn contains some significant evergreens. There are few invasive species along Concord Avenue and western boundary near the wetlands. Most trees would be preserved with some after proper pruning. The large trees on the steep slope would need to be removed for Options 2 and 3.

Park Access

The primary access to the existing pool complex is from Concord Avenue. The playground is accessed from Cottage Street. Cottage Street does not have a sidewalk on the Underwood Park side of the street to allow pedestrian access from Concord Avenue to the playground plateau.

The majority of parking for the current pool is along Concord Avenue or in the small parking lot at the corner of Cottage and Concord. Relocation of the pool up the hill assumes that patrons would park at the Wellington School and walk down to the pool. This pool schedule does not conflict with the school's schedule.

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Part 2- Preliminary Design Options

Example of Zero Depth Entry

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2.0 Programming of Playground Elements

PROGRAMMING

During the course of the investigation and analysis, BH+A reviewed the existing programs and activities currently accommodated at the Underwood Playground. BH+A discussed the current playground offerings, deficiencies, and desired improvements with Town staff and project stakeholders. Valuable insight was also provided during the first Public Meeting in January when park users provided their thoughts and suggestions.

Pool Size

The Recreation Department currently sells approximately 600 passes to the pool each season. Peak usage of the pool occurs in late June and weekends in July. Major program elements of the pool that are desired include:

- A generous shallow area similar to the existing to accommodate smaller children and learn-to-swim programs.
- Structured lap swimming with adequate depth and defined end walls. If possible, create regulation lanes of 7 feet wide and 75 feet long. Although the pool does not currently accommodate a swim team, providing regulation lanes could expand the use of the pool in the future.
- Bringing back a 1-meter diving board. Removal of this feature from the current pool was a significant loss.
- Water depth for diving and Red-Cross training.

The current pool is sized to accommodate 918 bathers. The pool size exceeds the current usage of the pool. At a peak time or special event, the amount of bathers within the complex has not exceeded 500 bathers. Based on the typical pool usage a more appropriate pool size is explored in the Design Options 1, 2 and 3.

As a comparison, the Town of Lexington's Worthen Road Pool Complex of 4 swimming pools has a combined bather load of 537 bathers. This public pool serves a community slightly larger than Town of Belmont.

Option 1

This option provides for 680 bathers which is still larger than needed to meet program and usage, however the larger surface area creates and maintains the feeling of the existing pool.

Options 2 & 3

Both of these options provide the major program elements desired by the Town; however the pool is sized for 388 bathers. The 388 bathers are calculated at bathers in the water, not including people on the pool decks or sunbathing. Assuming typical pool usage over the course of a day and week, 388 bathers is sufficient to meet the Town's needs.

Pool Bathhouse

The bathhouse size is a direct function of the pool size. The table is this section show the relationship of pool size, bather load and the number of plumbing fixtures. The bather load dictates the number of plumbing fixtures required in the bathhouse. In addition to adequate shower and toilet facilities, a new bathhouse includes the following:

- Central control point for monitoring, checking passes, and transactions
- Staff areas for changing, breaks, and storage
- First aid treatment space with a cot, sink, cabinets for supplies and a refrigerator
- Storage Space for pool and swim lesson equipment
- Family changing rooms.

Bather Load and Plumbing Fixture Count for Option 1	Non Swimmer Area (<5'-0" depth)	Swimmer Area (>5'-0" depth)	
Area Pool (11,175 sf)	7,275sqft	3,900sqft	
Total pool surface area	7,275sqft	3,900sqft	
One bather/user per (pool surface area)	15sqft	20sqft	
Number of Bathers/users	485	195	680
Number of Male Bathers/Users	243	98	341
Number of Female Bathers/Users	243	98	341

Plumbing Fixture Quantities Based on Maximum Bather Load	Men		Women	
One Water Closet Per	40	bathers	40	bathers
One Wash Basin Per	60	bathers	60	bathers
One Shower Per	40	bathers	40	bathers

	Men	Women
Number of Water Closet's	9	9
Number of Wash Basin's	6	6
Number of Shower's	9	9

Bather Load and Plumbing Fixture Count for Options 2 and 3			
	Non Swimmer Area (<5'-0" depth)	Swimmer Area (>5'-0" depth)	
Area Pool (6,500 sf)	3,750sqft	2,750sqft	
Total pool surface area	3,750sqft	2,750sqft	
One bather/user per (pool surface area)	15sqft	20sqft	
Number of Bathers/users	250	138	388
Number of Male Bathers/Users	125	69	194
Number of Female Bathers/Users	125	69	194

Plumbing Fixture Quantities Based on Maximum Bather Load				
	Men		Women	
One Water Closet Per	40	bathers	40	bathers
One Wash Basin Per	60	bathers	60	bathers
One Shower Per	40	bathers	40	bathers
	Men		Women	
Number of Water Closet's	5		5	
Number of Wash Basin's	4		4	
Number of Shower's	5		5	

Playground Structures

The current playground above the pool provides a variety of climbing structures and swings for use by the general public. Although the Wellington School has two playgrounds, they are not available during school hours, making the existing equipment convenient for the neighborhood. Option 1 does not touch the existing playground. Options 2 and 3 require relocation of the playground equipment. This relocation is an opportunity to provide accessible features, now mandated by Americans with Disabilities Act (ADA).

Multi-Use Field

Options 2 and 3 include the construction of a 300 by 180 feet multi-use field onto the playground site. The 300 by 180 feet replicates the existing multi-use field located across Concord Avenue adjacent to the skating rink. In addition to the artificial turf playing surface, the field includes:

- A 12 feet deep safety zone of artificial turf around the field perimeter
- Space along the west end of the field for spectators
- It assumes that portable bleachers will be brought to the site during the spring and fall seasons
- Accessible paths to both sides of the field from Concord Avenue and Cottage Street
- A 10 feet high vinyl coated chain-fence around the field.
- Safety netting along Concord Avenue and Cottage Street to prevent errant balls from bouncing into the roadway

2.1 Preliminary Design Option 1 New Pool in Existing Location

BH+A prepared design options and reviewed with Town Staff. Based on comments and feedback. Option 1 explores the replacement of the existing pool in the location of the existing swimming pool.

OPTION 1 – PROGRAM

Swimming Pool

A. 11,175 SF Swimming Pool
   a) Reduced footprint that mimics the shape of the existing oval. Bather Load of 680 Swimmers
   b) Zero depth beach style entry on west (bathhouse) side of the pool. Areas slopes from zero to 3'-6" inches deep.
   c) Center lap swimming area measuring 75'-1" by 45 feet. Area slopes from 3'-5" to 5'-0". Area can be programmed for lap swimming, swim lessons, and general recreational purposes.
   d) Deep end of the pool sloping from 5 feet to 13 feet deep end.
   e) Deep end can accommodate a 1-meter diving board. Water depth allows for Red-Crossed approved deep water rescue training and certifications.

B. Pool Calculations

Pool Volume:	300,000 Gallons
Turnover rate:	6 hours
Filtration Rate:	833 gpm
Filter Area:	55 square feet (15 gallons per minute per square foot)
Backwash:	Design rate shall be 833 gpm for 5 minutes (4,265 gallons of backwash). Subject to usage and weather condition, backwashing of the filter will take place every 7 to 10 days. Design of Filter Building would include 4,000 gallon water holding tank to prevent surcharge of sewer lines at peak backwash.

Bathhouse

A. New 3,200 SF Bathhouse
   a) Central Entry and Control Point
   b) Staff area with transaction counter for checking and selling swim tags
   c) First Aid/Treatment area with cot, sink, cabinets, and refrigerator
   d) Staff Break/Meeting Area
   e) Staff Storage
   f) Staff Toilets
   e) Women's Toilet and Showers with 9 toilets, 6 lavatories and 9 showers
   f) Men's Toilet and Showers with 6 toilets, 3 urinals, 6 lavatories and 9 showers
   g) Two Family Changing Rooms. Each room has shower, changing space, toilet and lavatory.
   h) Storage for swim lessons and miscellaneous pool equipment.

GENERAL SCOPE OF WORK

1. Installation of wetland protection mitigation; sediment control etc.

2. Demolition of existing pool tank, decks, fencing, filter building, and bathhouse. Extent of bathhouse and filter building to be determined. Portions of existing may be retained.

3. Clearing and grubbing for new work.

4. Backfill site with gravel borrow to bring grade of new complex up to elevation 16.00 (level with top of culvert.

5. New wood framed bathhouse-building including spaces noted above.

6. 8 -Foot high, vinyl coated chain link security fence at perimeter of pool enclosure.

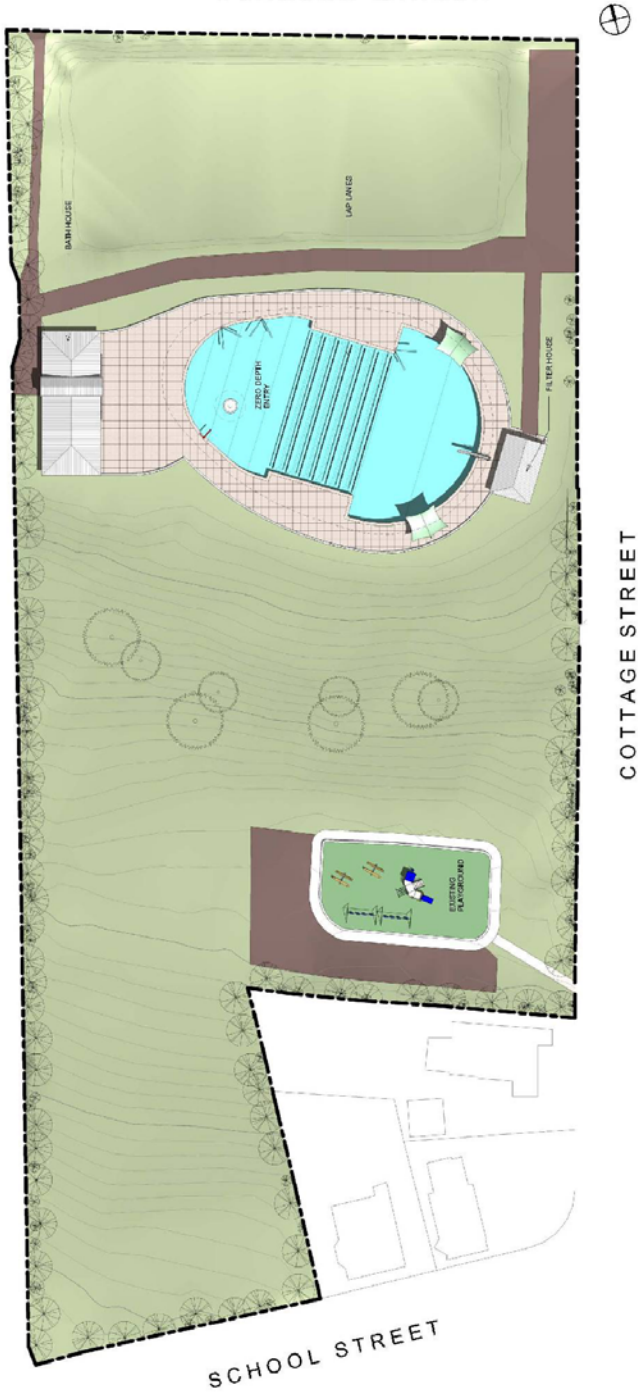
7. New dry-mix shotcrete "Gunite" swimming pool with painted finish. Pool to be built of underdrain/dewatering system comprised of the following:
   a) Filter/geo fabric over excavated area
   b) 12 inches of crushed stone beneath pool footprint and extended in four locations.
   c) Install 24 inch diameter HDPE pipes vertically. End of pipe is wrapped in filter fabric and buried 6 inches into the crushed stone.
   d) Pipe is capped at finish grade and covered with a manhole.

8. Loam and seed sunbathing lawns within the pool enclosure.

9. Required sewer, storm water, domestic water, and electric utilities.

Option 1 Features

- Maintains complex within existing pool complex footprint.
- Depending on final design; general appearance of existing pool complex is maintained
- Maintains depressed skating area along Concord Avenue
- New finish grade reduces extent of pool in ground water; provides fully accessible bathhouse and pool complex with ramps.
- Moves filter equipment above water table.
- Pool is sized to meet current and future public demand.
- Brings diving back to the pool.
- Existing playground is maintained.
- Concession Space can be provided in the new bathhouse or adjacent to the new filter building. The optimal location would be determined during final design.



OPTION 1

Bargmann Hendrie + Archetype, Inc. 300 A Street Boston, MA 02210 Tel: (617) 350-0450 03/14/13


OPTION 1

2.2 Preliminary Design Option 2
Relocated New Pool
New Multi-Purpose Field

BH+A prepared design options and reviewed with Town Staff. Based on comments and feedback, Option 2 explores the relocating a new pool complex to the location of the existing playground and constructs a new 300 by 180 ft. multi-use field.

OPTION 2 – PROGRAM

Swimming Pool

A. 6,500 SF Swimming Pool
   a) Smaller pool sized to accommodate typical usage of the Underwood Pool. Bather Load of 388 swimmers
   b) Zero depth beach style entry on east (bathhouse) side of the pool. Areas slopes from zero to 3'-6" inches deep.
   c) A center peninsula divides the pool into two defined areas. The peninsula provides the east end of the racing lines and possible location for a slide. The peninsula also features stairs into the water.
   c) Lap swimming area measuring 75'-1" by 45 feet. Area slopes from 3'-6" to 13'-0". Area can be programmed for lap swimming, swim lessons, and general recreational purposes.
   d) Deep end of the lap area is 13 feet deep.
   e) Deep end can accommodate a 1-meter diving board. Water depth allows for Red-Crossed approved deep water rescue training and certifications.

B. Pool Calculations

Pool Volume:	250,000 Gallons
Turnover rate:	4 hours- Faster rate for larger zero depth area and additional water features.
Filtration Rate:	1040 gpm
Filter Area:	69 square feet (15 gallons per minute per square foot)
Backwash:	Design rate shall be 1040 gpm for 5 minutes (5,100 gallons of backwash). Subject to usage and weather condition, backwashing of the filter will take place every 7 to 10 days. Design of Filter Building would include 5,000 gallon water holding tank to prevent surcharge of sewer lines at peak backwash.

Bathhouse

A. New 2,800 SF Bathhouse
   a) Central Entry and Control Point
   b) Staff area with transaction counter for checking and selling swim tags
   c) First Aid/Treatment area with cot, sink, cabinets, and refrigerator
   d) Staff Break/Meeting Area
   e) Staff Storage
   f) Staff Toilets
   e) Women's Toilet and Showers with 9 toilets, 6 lavatories and 9 showers
   f) Men's Toilet and Showers with 6 toilets, 3 urinals, 6 lavatories and 9 showers
   g) Two Family Changing Rooms. Each room has shower, changing space, toilet and lavatory.
   h) Storage for swim lessons and miscellaneous pool equipment.
   i) Filter room

Site

A. Pool complex is built on new platform at roughly elevation 40.

B. Playground is relocated to top of hill and accessed from School Street.

C. Pool Complex access if from Cottage Street.

D. Two accessible parking spaces and service access provided at bathhouse from Cottage Street.

E. Construction of new 300 by 180 ft. multi-use, artificial filled turf field perpendicular to Concord Avenue.
   a) Top of field is 18 inches above existing culvert to allow construction of under-drains and field subgrade.
   b) Two accessible field parking spaces are provided along Cottage Street.
   c) Field includes 12 ft. safety buffer around perimeter
   d) Site is graded to allow portable bleaches and portable toilets on the west side of the field.
   e) Street sides of field will have minimum 10ft. high chain link fence.
   f) 20 feet of additional safety netting will be placed along Concord Avenue and Cottage Street to protect passing vehicles from errant balls.

F. Construction of the field requires cut into the hill. New slope is 1:3 up to the pool complex.

G. East, west and south sides of pool complex are defined by retaining walls. The walls are required to create level pool complex “plateau”.

H. Former depressed skating area will be structured using hollow “water retention chambers or galleys to allow collection of flood water.

GENERAL SCOPE OF WORK

1. Installation of wetland protection mitigation; sediment control etc.

2. Demolition of existing pool tank, decks, fencing, filter building, and bathhouse.

3. Relocation of playground and construction of new accessible surface and retrofit of equipment.

4. Clearing and grubbing for new work.

5. Excavation and cut to create new field and pool plateau (roughly 4,000 cubic yards of earthwork)

4. Backfill site with gravel borrow to bring grade of new field up to elevation 18.00 (18 inches above culvert)

5. New wood framed bathhouse-building including spaces noted above.

6. 8 -Foot high, vinyl coated chain link security fence at perimeter of pool enclosure.

7. New dry-mix shotcrete “Gunite” swimming pool with painted finish. Although located up the hill, it is recommended that the pool still be built with an underdrain/dewatering system comprised of the following:
   a) Filter/geo fabric over excavated area
   b) 12 inches of crushed stone beneath pool footprint and extended in four locations.
   c) Install 24 inch diameter HDPE pipes vertically. End of pipe is wrapped in filter fabric and buried 6 inches into the crushed stone.
   d) Pipe is capped at finish grade and covered with a manhole.

8. Loam and seed sunbathing lawns within the pool enclosure.

9. Required sewer, storm water, domestic water, and electric utilities.

10. New Filled Turf artificial turf field.

11. Reconstruction of sidewalks along the west edge of Cottage Street to allow pedestrian access to pool

Features

- New multi-purpose field along Concord Avenue
- The pool complex utilizes all of the available buildable space above the multi-purpose field.
- Brings diving back to the pool.

OPTION 2

Bargmann Hendrie + Archetype 300 A Street Boston, MA 02210 Tel: (617) 350-0450 03/13/13
C:\Revit Local\3119 UNDERWOOD SITE PLAN OPTION 2_BAllen.rvt

OPTION 2

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2.3 Preliminary Design Option 3
Relocated New Pool
New Multi-Purpose Field

BH+A prepared design options and reviewed with Town Staff. Based on comments and feedback, Option 3 explores the relocating a new pool complex to the location of the existing playground and constructs a new 300 by 180 ft. multi-use field.

OPTION 3 – PROGRAM

Swimming Pool

A. 6,500 SF Swimming Pool
   a) Smaller pool sized to accommodate typical usage of the Underwood Pool. Bather Load of 388 swimmers
   b) Zero depth beach style entry on east (bathhouse) side of the pool. Areas slopes from zero to 3'-6" inches deep.
   c) A center peninsula divides the pool into two defined areas. The peninsula provides the east end of the racing lines and possible location for a slide. The peninsula also features stairs into the water.
   c) Lap swimming area measuring 75'-1" by 45 feet. Area slopes from 3'-6" to 13'-0". Area can be programmed for lap swimming, swim lessons, and general recreational purposes.
   d) Deep end of the lap area is 13 feet deep.
   e) Deep end can accommodate a 1-meter diving board. Water depth allows for Red-Crossed approved deep water rescue training and certifications.

B. Pool Calculations

Pool Volume:	250,000 Gallons
Turnover rate:	4 hours- Faster rate for larger zero depth area and additional water features.
Filtration Rate:	1040 gpm
Filter Area:	69 square feet (15 gallons per minute per square foot)
Backwash:	Design rate shall be 1040 gpm for 5 minutes (5,100 gallons of backwash). Subject to usage and weather condition, backwashing of the filter will take place every 7 to 10 days. Design of Filter Building would include 5,000 gallon water holding tank to prevent surcharge of sewer lines at peak backwash.

Bathhouse

A. New 2,800 SF Bathhouse
   a) Central Entry and Control Point
   b) Staff area with transaction counter for checking and selling swim tags
   c) First Aid/Treatment area with cot, sink, cabinets, and refrigerator
   d) Staff Break/Meeting Area
   e) Staff Storage
   f) Staff Toilets
   e) Women's Toilet and Showers with 9 toilets, 6 lavatories and 9 showers
   f) Men's Toilet and Showers with 6 toilets, 3 urinals, 6 lavatories and 9 showers
   g) Two Family Changing Rooms. Each room has shower, changing space, toilet and lavatory.
   h) Storage for swim lessons and miscellaneous pool equipment.
   i) Filter room

Site

A. Pool complex is built on new platform at roughly elevation 40.

B. Playground is relocated adjacent to the new pool and entered from Cottage Street

C. Pool Complex access if from School Street.

D. Two accessible parking spaces and service access provided at bathhouse from School Street.

E. Construction of new 300 by 180 ft. multi-use, artificial filled turf field perpendicular to Concord Avenue.
   a) Top of field is 18 inches above existing culvert to allow construction of under-drains and field subgrade.
   b) Two accessible field parking spaces are provided along Cottage Street.
   c) Field includes 12 ft. safety buffer around perimeter
   d) Site is graded to allow portable bleaches and portable toilets on the west side of the field.
   e) Street sides of field will have minimum 10ft. high chain link fence.
   f) 20 feet of additional safety netting will be placed along Concord Avenue and Cottage Street to protect passing vehicles from errant balls.

F. Construction of the field requires cut into the hill. New slope is 1:3 up to the pool complex.

G. East, west and south sides of pool complex are defined by retaining walls. The walls are required to create level pool complex "plateau". Pool bathhouse is 2 feet above the pool deck and will require ramps to reach the pool deck.

H. Former depressed skating area will be structured using hollow "water retention chambers or galleys to allow collection of flood water.

GENERAL SCOPE OF WORK

1. Installation of wetland protection mitigation; sediment control etc.

2. Demolition of existing pool tank, decks, fencing, filter building, and bathhouse.

3. Relocation of playground and construction of new accessible surface and retrofit of equipment.

4. Clearing and grubbing for new work.

5. Excavation and cut to create new field and pool plateau (roughly 4,000 cubic yards of earthwork)

4. Backfill site with gravel borrow to bring grade of new field up to elevation 18.00 (18 inches above culvert)

5. New wood framed bathhouse-building including spaces noted above.

6. 8 -Foot high, vinyl coated chain link security fence at perimeter of pool enclosure.

7. New dry-mix shotcrete "Gunite" swimming pool with painted finish. Although located up the hill, it is recommended that the pool still be built with an underdrain/dewatering system comprised of the following:
   a) Filter/geo fabric over excavated area
   b) 12 inches of crushed stone beneath pool footprint and extended in four locations.
   c) Install 24 inch diameter HDPE pipes vertically. End of pipe is wrapped in filter fabric and buried 6 inches into the crushed stone.
   d) Pipe is capped at finish grade and covered with a manhole.

8. Loam and seed sunbathing lawns within the pool enclosure.

9. Required sewer, storm water, domestic water, and electric utilities.

10. New Filled Turf artificial turf field.

11. Reconstruction of sidewalks along the west edge of Cottage Street to allow pedestrian access to pool

Features

- New multi-purpose field along Concord Avenue
- Pool is sized to meet current and future public demands. The pool complex utilizes all of the available buildable space above the multi-purpose field.
- Brings diving back to the pool.


CONCORD AVENUE
N
OPTION 3
MULTI USE FIELD
LAP LANES
ZERO DEPTH ENTRY
RELOCATED PLAYGROUND
BATH HOUSE
ACCESSIBLE PARKING
COTTAGE STREET
SCHOOL STREET


OPTION 3

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2.4 a Basis of Design- Explanation of Design Materials

BATHHOUSE BUILDING SPECIFICATIONS FOR PROPOSED PRELIMINARY DESIGN OPTIONS

The finishes and equipment provided in the toilet, shower, and changing areas are selected for the following qualities:

- Function
- Compliance with Codes
- Ease of maintenance
- Vandal-Resistance
- Durability and service life.

Foundation: Cast-in-place concrete foundations and footings. Assume ordinary spread footings.

Floor Finishes: Acid etched and sealed concrete slabs in service areas; seamless urethane based epoxy in public and toilet locker spaces.

Wall Framing: 2 x4 wood framing with plywood sheathing

Wall Exterior: Moisture barrier, back-primed and stained cedar clapboard or fiber-cement siding. Design may include stucco to mimic existing bathhouse.

Wall Interior: FRP panels. Fiberglass reinforced panels specifically designed for wet, sanitary applications. Work includes panels, fasteners, and trim pieces.

Roof Framing: Pre-engineered wooden roof trusses with plywood sheathing.

Roof Covering: 30 lb. roofing felt covered with 25 year, architectural, textured asphalt/fiberglass shingles

Doors: Gel-coated fiberglass doors and frames.

Security Doors: Push-up, manual, galvanized steel overhead coiling doors and shutters to cover exterior windows

Door Hardware: Stainless Steel, heavy duty. Cylinder locks on interior, mortise locks on exterior.

Ceiling: Exposed to view wood framing in service areas; PVC wood board slat ceiling to provide privacy and ventilation.

Toilet Partitions: Solid plastic partitions with stainless steel hardware.

Toilet Accessories: Stainless steel, heavy duty, vandal resistant accessories. High security type accessories are used when they provide the appropriate level of function and finish.

Shower Partitions: Solid plastic partitions with stainless steel hardware.

Lavatories: Wall mounted units with time metered mixing fixtures.

Toilets: Wall mounted code compliant, low gallons per flush toilets.

Urinals: Wall mounted code compliant, low gallons per flush toilets.

Shower Fittings: Single button, timed delivery operation. Fittings are specifically designed for high traffic; high abuse areas such as high school locker rooms.

Light Fixtures: Vapor-tight, vandal-resistant fluorescent light fixtures. Wall or ceiling mounted to suit location and application.

Light Tubes: Circular Skylights with tube connection to ceiling to provide natural light into bathhouse spaces.

Example of FRP Walls, Epoxy Floor, Solid Plastic Partitions Slat Ceiling and Light /Tube

SITE DEVELOPMENT SPECIFICATIONS FOR PRELIMINARY DESIGN OPTIONS

Pool Decks: 4-inch thick cast-in-place concrete slab on grade. 12-inch thick downturns all perimeters.

Deck Drainage: Sheet drainage to perimeter. Where perimeter drainage is not practical, small deck or trench drains will be provided. Deck drains connect to storm system.

Fencing: 9-gage, vinyl coated chain link fence fabric with 2-inch weave. Top rail, intermediate rail, and bottom rail . Corner and line posts, vertical bracing at corners.

Sun bathing Lawn: Loam and seed. Lawn areas will not be irrigated.

Segmental Retaining Wall for Options 2 and 3

Example of Segmental Retaining Wall

Shade Structures for All Options

Fabric Shade Structures on Permanent Steel Frames to provide Sun Shade of Patrons

SWIMMING POOL SPECIFICATIONS FOR PRELIMINARY DESIGN OPTIONS

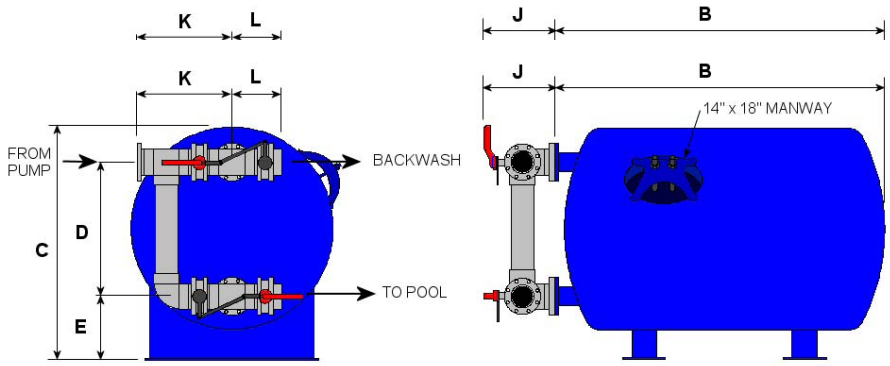
Pool Tank

1. Dry mix shotcrete pool tank including finish and markings.
2. Reinforced pneumatically applied concrete pool structures, including but not limited to:
3. Final hand trimming of excavation.
4. Reinforcing steel.
5. Design and provide pools structure.
6. Painted pool finish
7. Installation of anchorage for deck equipment within the pool tank.

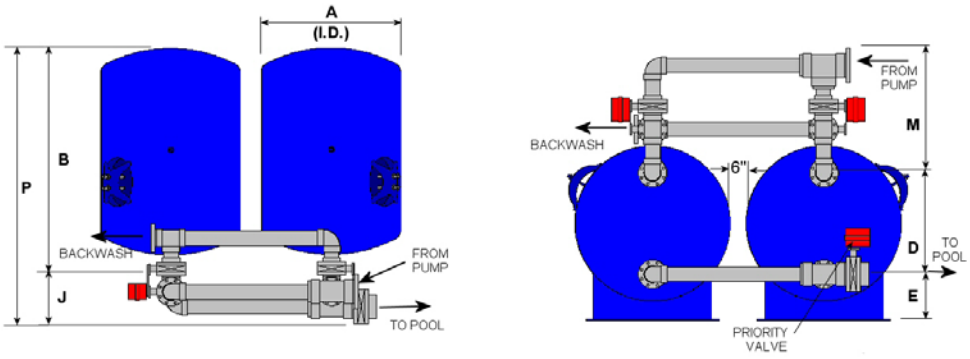
Filtration

1. Complete high rate sand filtration and recirculation systems including, stainless steel perimeter gutter, zero depth trench drain, balance pit, all piping and automatic chemical controls. Complete chemical treatment system that includes, but is not limited to, the following:
    - Automated backwashing control.
    - Strainer baskets
    - Recirculation pumps for pools
    - Flow meters
    - Gages
    - Filters
    - Valves
    - Sight glasses
    - All interconnecting piping for equipment within the filtration room
    - Backwash holding tanks
    - Control Panels
    - Sensors and Probes
2. Automatic water level controls and water fill devices.
3. Operation/Maintenance Manuals of all equipment and systems. Manuals shall include proper start-up and shutdown procedures.
4. Framed and mounted diagram of filter system operation and backwash procedures. Furnish and install numbered, equipment plates, valve tags and pipe labels to correspond to instructions.
5. Startup and Shut Down Service and instruction to the Owner's operating personnel shall be given upon completion of the Project.
6. Shelving and mounting boards required for pool equipment and accessories.
7. Final plumbing connection of fresh water line to pool make-up equipment.

8. Typical Filtration Equipment Manufacturers included to establish the level of quality and performance for the estimates include:
    a) Neptune Benson, Inc. West Warwick, RI
    b) EPD Filter Equipment
    c) Paddock Pool Equipment
    d) Whitten Pool Equipment, ADG

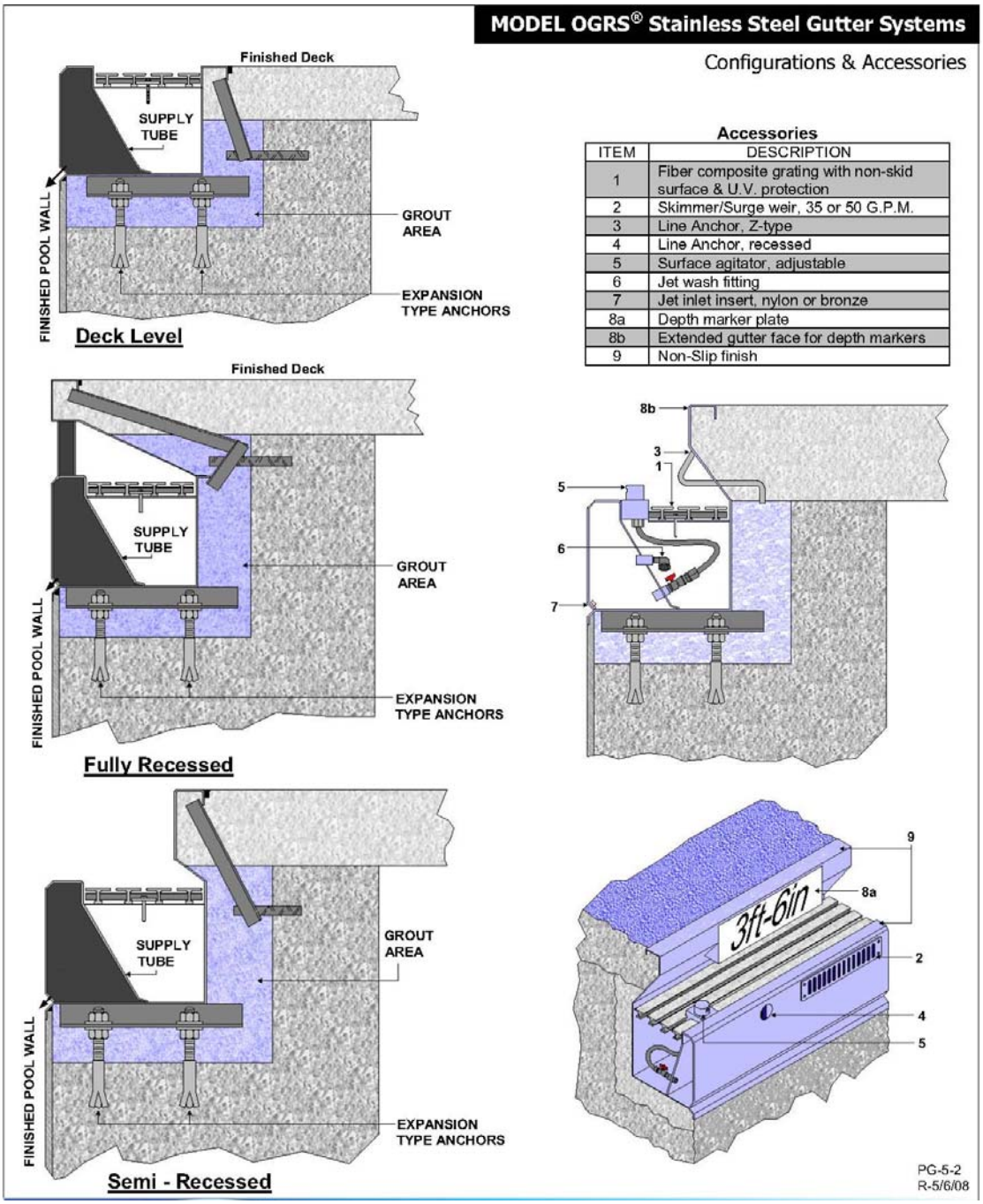


Typical configuration of single tank



Typical configuration of dual tanks

Pool Gutter Options



Pool Deck Equipment

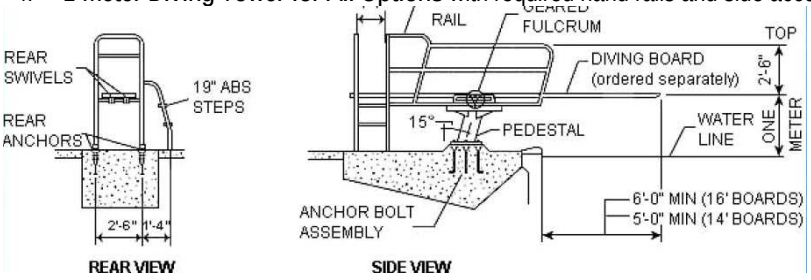
Pool Deck Equipment Includes:

1. Custom Fabricated Ramp Handrails and Guard: Provide Custom fabrication, including anchorage, for the HCP Access Ramp Handrails as indicated. Provide Type 304 polished to Assist Rails: Provide custom fabrication. KDI Paragon 1.5 inch by 0.120-inch wall thickness rails. Anchorage shall be cast bronze No. 28102 with escutcheon plate No.28302.

2. Ladders shall be heavy duty and cross-braced. Provide number of steps as indicated and to accommodate depth at locations shown. Stainless steel pipe shall have a 0.109-inch wall thickness. Ladder Width shall be 24 inches.

3. High Platform Lifeguard Chairs: 6 foot high Paraflyte Lookout Chair by KDI Paragon, Chairs shall include devices for holding a life ring and umbrella. Refer to drawings for quantity and location. Contractor must confirm final location and quantity with the Owner prior to fabrication and installation.

4. 1-meter Diving Tower for All Options with required hand rails and side access stairs).



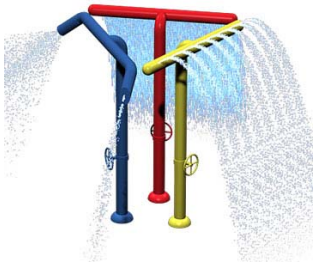
Water Features

General: The water features are based on products by the Rain Drop Fountain manufactured by Sonar International, 2001 S Street N.W., Suite 250, Washington DC 20009

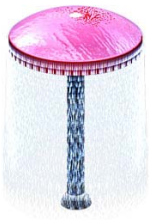
Water feature could include:

1. Pop jets:

2. Spray Bars:



3. Rain Drop



Pool Slide for All Options

- We propose a small single turn slide. Pool water will be drawn through the oversized main drains and pumped through the slide.

Pool Bonding

Furnish all labor, materials, and equipment necessary to complete all work as shown on drawings and specified. This work is to include but not limited to the following: furnish and install common pool bonding grid, wire and bonding to swimming pool and all pool equipment.

References:

1. All work shall conform to the NFPA National Electrical Code and all Federal, State and Local Codes and Utility Company Regulations as applicable.
2. NEC *Article 680 Swimming Pools, Fountains, and Similar Installations* applies to this work.
3. All products shall be UL listed.

Maintenance and Safety Equipment

Loose Deck, maintenance, and safety equipment will be required to license and operate the pool. These items are typically not carried in the base construction contract. Equipment is typically obtained under goods and services procurement methods.

Equipment may include the following:

1. Removable Lane Lines: 4" diameter disks X 75'. Recreonics No. 14-330 Competitive Racing Lane Line or equal. Color to be selected by Architect from full range of colors. Submit sample legends for approval.
2. Lane Line Storage Reels: Spectrum Pro-line Maxi Stor-a-line Product No. 55525, provide storage capacity for quantity of lane lines in Contract.
3. Floats: Spectrum Pool Products Handi-Lock Floats: 5 by 9 inches for ½ inch diameter rope. Color to be determined. Rope for Floats: ½ inch diameter, white, polypropylene rope. Provide length to span pool and prevent slippage of the hook end. Hook End for Rope: Spectrum straight clamp rope hook model 58030. Provide hook at each end of rope.
4. Emergency Eye Wash Stations: Eyesaline® Emergency Eyewash Station Style No. 47243. Wall mounted unit with two (2) 32 oz. Single use bottles. Unit includes two-sided tape and screw mounting. Unit shall be rated for secondary (personal) use. Provide two Eyesaline 32 oz. Refills, Style No. 50347.
5. Signage: Provide signage at entry to pool facility indicating the Rules and Regulations for pool usage. Coordinate location with Architect in the field. Recreonics Public Pool Rules 12-203.
6. Portable Vacuum: Spectrum Standard Vacuum Pump with Stainless Steel Cart. Model No. 11130. 1 hp electric pump, wired for 115 VAC, 13.6 Amp, with a 100' heavy-duty cord and waterproof switch. The pump shall have barbed hose connectors on the intake and discharge. Cart shall be type 304 stainless steel with two semi-pneumatic wheels. Vacuum shall include all required hoses, handles, fittings, and couplings required for a complete installation. Robotic vacuums are also an option that would be explored in final design.

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2.4 b Artificial and Natural Turf Options

Infilled Synthetic Turf System

Synthetic turf will provide the Town of Belmont with the highest level of scheduling flexibility while maintaining a high quality athletic surface. Infilled synthetic turf is an athletic surface that can be used continuously with minimal maintenance. The addition of a synthetic turf field to the Town's available field venues will also help reduce stress on remaining natural grass fields by providing a surface that play can be diverted to during inclement weather or periods of extended use.

A synthetic turf field would include the following scope of work and could be installed within a three month period once other demolition work and earthwork at the Underwood Park is completed.

- Installation of a concrete turf anchor at the field edge
- Compaction of subgrade to 95%
- Installation of a non-woven geotextile on top of the graded and compacted subgrade
- Installation of free draining stone and drainage pipe
- Connection of perimeter collector piping to the storm water system
- Laser grading of stone to 1/8 inch in 10 ft. tolerance with a 0.5 percent crowned pitch
- Installation of synthetic turf and resilient underlayment pad
- Install various site and athletic improvements (fence, netting, walkways, etc.)

-

Natural Grass Field

A natural grass field is another option for a new multi-use field. Natural grass fields require fertilization, irrigation and limited play to keep the field surface in a good safe condition for athletic play. Due to the demand for fields in Belmont and the need for constant use in both the fall and the spring leaves no time for the field to "rest". If the field cannot rest for a season, it will require additional fertilization to keep it in playable condition. A well maintained natural grass field typically requires three (3) applications of approximately 3 lbs. of nitrogen fertilizer per 1000 sf. This means that the field would need approximately 450 lbs. of fertilizer per year. A properly irrigated natural grass field requires 1.0 to 1.5 inches of precipitation per week. This translates into 32,000 to 45,000 gallons of water per week.

A natural turf field would include the following scope of work and could be installed within a three month period once other demolition work and earthwork at the Underwood Park is completed. Although the field may be constructed over 1 summer, it not recommended that it be used immediately. This is discussed in more detail below.

- Strip and stockpile existing on-site loam
- Install galley chambers at former skating depression
- Backfill and compact subgrade with drainable material to ensure vertical infiltration and groundwater recharge
- Install perimeter drainage structures connected to storm system of galley chambers
- Screen existing topsoil and dispose of tailings
- Install irrigation mains and laterals; depth of piping should be 18 inches or deeper to allow for deep line aeration programs in the future
- Amend existing and new topsoil based on laboratory recommendations performed during construction
- Spread and laser grade topsoil at a 2 percent crowned pitch to perimeter to perimeter drainage structures
- Sod the prepared soil with a 100 percent Kentucky bluegrass sod
- Install various site and athletic improvements (fence, netting, walkways, etc.)
- Aerate the sod to promote knitting and vertical infiltration during the sod establishment phase

A sodded field should typically be allowed a month to establish before use. If the field is seeded, the new field would require two (2) full growing seasons before it could be used for any athletic practice, completion or other function. Seed is the preferred method of establishing turf for a natural grass athletic field; however most municipalities cannot afford to miss two growing seasons and decide the extra costs associated with the sod are worth the time savings.

Field Costs

Based on a 67,000 SF athletic field, construction of a new filled turf field is approximately $1,000,000 and a natural grass field would be approximately $400,000.

When considering costs associated with each type of field it is also critical for Belmont to consider life cycle replacement costs as well. Turf professionals typically assume that an Infilled synthetic field will require a carpet replacement once every twelve (12) years and a natural grass athletic field will require a full renovation once every six (6) years. For Infilled synthetic turf, the carpet replacement costs associated with Infilled synthetic turf are usually 50 percent of the original installation cost. This would be $500,000 for the proposed field in Options 2 and 3. For a natural grass field, the Town should assume complete renovation and therefore, the entire cost less the irrigation infrastructure. Budgeting $400,000 six years after the initial installation is recommended.

2.4 c Solar Water Heating

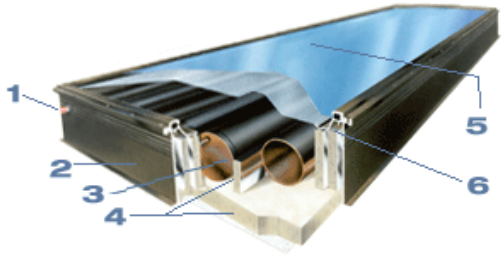
Solar Water Heating for Domestic Water

A few questions were raised during the second public meeting regarding the potential of solar heating at the Underwood Pool. A logical location for mounting solar collectors is the roof of the bathhouse. The roof structure would be designed to support the additional weight of collector panels. Depending on the final orientation of the building, secondary supports may be required in order to have panels facing directly south to achieve the maximum solar exposure.

In the northeast, solar heated hot water can be used to supplement heating of domestic water. Maximum solar gain for heating during the summer occurs between 11AM and 3PM during June and early July. A conventional heating system is still required to provide the code mandated water volume and temperatures for the lavatories or showers.

A typical installation would be as follows:

1. Flat plate solar collectors would be installed on the roof of the bathhouse. The collectors are a direct system, meaning domestic water is pumped directly through the solar collectors. Collectors would be installed on the roof of the bathhouse..



Typical Flat Plate Solar Collector

2. A small storage tank would be located within the bathhouse.

3. An electric pump would continually circulate water through the collectors to maintain water temperature. The pump would operate on a time clock from 9AM to 5PM.

   The use of a storage tank and pump is necessary to maintain a volume of solar heated hot water. The time needed to raise the water temperature in the collector would not keep up with typical demand for hot water.

Typical Small Commercial Solar Water Heater

4. As hot water is called for in either the lavatories or showers, water from the storage tank and within the system would be used. If the stored volume of water is too low for the demand, conventionally heated hot water will be supplied to the system.

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Part 3 – Estimates of Probable Construction Costs

View of the Underwood Pool from the Hill

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3.0 Estimates of Probable Project Costs

Estimate of Probable Construction Costs

A detailed conceptual estimate has been prepared for the Conceptual Design Options. Options 2 & 3 are generally the same. The differences in site work related to vehicle access offset each other; the pools and bathhouses are the same. At this early stage of design, we have used square foot unit costs for certain components of the building and swimming pool.

The following assumptions have been made:

- The project will be competitively bid under M.G.L. c. 149 with at least four General Contractor's submitting bids, at least 4 sub-contractors submitting filed sub-bids. Typically filed sub-bid categories for a swimming pool complex include Miscellaneous Metals, Roofing and Flashing, Waterproofing Damp-proofing and Caulking, Painting, HVAC, Plumbing, and Electrical.
- Unit Prices are based on current construction costs in the Metro Boston Area

Total Project Costs

Total project cost sheets have been included for both options. Total project costs include Architectural/Engineering fees, expenses, and testing. The following items are not included in the total project cost sheets.

- Escalation costs past 2013
- Removal of any Hazardous Materials or contaminated soils.
- Owner's project administration.
- Building permit.
- Advertising.
- Independent structural evaluation (not required for a project of this size)

Contingency

The conceptual level of the design warrants the inclusion of contingencies in the estimates. A 15% design contingency is included in the Estimate of Probable Construction Cost and a 6% contingency added to the Total Project Cost estimate as a construction contingency.

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3.1a Preliminary Design Options No. 01
Estimates of Total Project Costs

1	CONSTRUCTION COSTS		
	Total Construction Costs		$3,727,417
	Refer to Budget of Probable Construction Costs		
2	OTHER PROJECT COSTS		
a	Architectural/Engineering @ 8%		$298,193
	Line Item Includes:		
	Design Fees for the following Phases:		
	Schematic Design		
	Design Development		
	Construction Documents		
	Bidding		
	Construction Contract Administration		
	Reimbursable Expenses		$5,000
	Printing		
	Travel		
	Mail/Delivery		
b	Utility Backcharges		$10,000
c	Bid Document Printing		$5,000
d	FF&E		
		Pool Safety Equipment	$25,000
		Bathhouse Equipment	$10,000
		Signage	$5,000
e	Construction Contingency		$223,645
	Total Project Costs		$581,838
	TOTAL PROJECT COSTS		$4,309,255

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3.1b Preliminary Design Option No. 01
Estimate of Probable Construction Costs

Selective Demolition					
Pool	1	allow	$35,000.00	$35,000	
Buildings	1	allow	$30,000.00	$30,000	
Site Development	1	allow	$25,000.00	$25,000	
					$90,000
Site Development/Landscape					
Prep Subgrade Raise Rough Elevation	3,300	cy	$55.00	$181,500	
Restore Lawn Areas	1	allowance	$15,000.00	$15,000	
New Pool Deck	6,800	sf	$15.00	$102,000	
Perimeter fence	800	lf	$50.00	$40,000	
Sidewalk Improvements Along Cottage	1	allowance	$40,000.00	$40,000	
					$378,500
Pool					
Shop Drawings, Submittals	1	ls	$25,000.00	$25,000	
Pool Structure and Finish	11,175	sf	$80.00	$894,000	
Perimeter Gutter	435	lf	$250.00	$108,750	
Piping/Mechanical	1	ls	$45,000.00	$45,000	
pool filtration system	1	system	$80,000.00	$80,000	
Start-up/Balance	1	allow	$8,000.00	$8,000	
					$1,160,750
Water Features					
Mushroom	1	ea	$20,000.00	$20,000	
Pop Jets	6	ea	$400.00	$2,400	
Water Feature Pump System	1	ea	$25,000.00	$25,000	
Water Feature Install	1	allow	$10,000.00	$10,000	
					$57,400
Deck/Safety Equipment					
Lifeguard Chairs	6	ea	$2,500.00	$15,000	
Assist Rails	2	allowance	$10,000.00	$20,000	
Ladders	4	ea	$1,900.00	$7,600	
Diving Board	1	ea	$15,000.00	$15,000	
					$57,600

Building Modifications/New Building					
New Wood Framed Construction	3,200	sf	$250.00	$800,000	
New Filter Building	600	sf	$150.00	$90,000	
					$890,000
Miscellaneous Utility Work					
Service Upgrades	1	allowance	$50,000.00	$50,000	
					$50,000
Subtotal					$2,684,250
General Conditions @15%					$402,638
Overhead & Profit @ 5%					$154,344
Design Contingency @ 15%					$486,185
ESTIMATE TOTAL					$3,727,417

3.2a Preliminary Design Options No. 02 and 03
Estimates of Total Project Costs

1	CONSTRUCTION COSTS		
	Total Construction Costs		$5,350,000
	Refer to Budget of Probable Construction Costs		
2	OTHER PROJECT COSTS		
a	Architectural/Engineering @ 8%		$428,000
	Line Item Includes:		
	Design Fees for the following Phases:		
	Schematic Design		
	Design Development		
	Construction Documents		
	Bidding		
	Construction Contract Administration		
	Reimbursable Expenses		$5,000
	Printing		
	Travel		
	Mail/Delivery		
b	Utility Backcharges		$10,000
c	Bid Document Printing		$5,000
d	FF&E		
		Pool Safety Equipment	$25,000
		Bathhouse Equipment	$10,000
		Signage	$5,000
e	Construction Contingency		$321,000
	Total Project Costs		$809,000
	TOTAL PROJECT COSTS		$6,159,000

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3.2b Preliminary Design Option No. 02 and 03
Estimate of Probable Construction Costs

Selective Demolition					
Pool	1	allow	$35,000.00	$35,000	
Buildings	1	allow	$30,000.00	$30,000	
Site Development	1	allow	$25,000.00	$25,000	
Site Development/Landscape					
Cut/Fill	4,700	cy	$65.00	$305,500	
Galley System at Existing Depression	22,000	sf	$23.00	$506,000	
Retaining Walls	380	lf	$155.00	$58,900	
Landscaping Allowance	1	allow	$25,000.00	$25,000	
Parking Pavement Allowance	1	allow	$75,000.00	$75,000	
Relocate Playground	1	allow	$50,000.00	$50,000	
Fencing at Pool Complex	480	lf	$50.00	$24,000	
Sidewalk improvements along Cottage St.	1	allow	$80,000.00	$80,000	
					$1,214,400
New Turf Field					
Filled Turf field including: Fencing with Nets Miscellaneous Site	67,000	sf	$15.00	$1,005,000	
					$1,005,000
Pool					
Shop Drawings, Submittals	1	ls	$25,000.00	$25,000	
Pool Structure and Finish	6,500	sf	$80.00	$520,000	
Perimeter Gutter	400	lf	$250.00	$100,000	
Piping/Mechanical	1	ls	$45,000.00	$45,000	
pool filtration system	1	system	$80,000.00	$80,000	
Start-up/Balance	1	allow	$8,000.00	$8,000	
					$778,000
Water Features					
Mushroom	1	ea	$20,000.00	$20,000	
Pop Jets	6	ea	$400.00	$2,400	
Water Feature Pump System	1	ea	$25,000.00	$25,000	
Water Feature Install	1	allow	$10,000.00	$10,000	
Slide	1	allow	$25,000.00	$25,000	
Slide Mechanicals and Install	1	allow	$10,000.00	$10,000	
					$92,400

Deck/Safety Equipment					
Lifeguard Chairs	6	ea	$2,500.00	$15,000	
Assist Rails	2	allowance	$10,000.00	$20,000	
Ladders	4	ea	$1,900.00	$7,600	
Diving Board	1	ea	$15,000.00	$15,000	
					$57,600
Building Modifications/New Building					
New Wood Framed Construction	2,800	sf	$225.00	$630,000	
					$630,000
Miscellaneous Utility Work					
New Utility Connections	1	allowance	$75,000.00	$75,000	
					$75,000
Subtotal					$3,852,400
General Conditions @15%					$577,860
Overhead & Profit @ 5%					$221,513
Design Contingency @ 15%					$697,766
ESTIMATE TOTAL					$5,349,539

Appendix

January 31, 2013 Public Meeting Presentation
March 14, 2013 Public Meeting Presentation

Existing Play Structures at the Underwood Playground

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Public Meeting
January 31, 2013

Underwood Park & Pool

Bargmann Hendrie + Archetype, Inc.

Agenda

Introduction

The Study

Park Design

Pool Design Options

Public Comment and Questions

Town's Concept Plan

- Evaluate Existing Pool
- Replicate the Multi-purpose Field Along Concord Avenue
- Incorporate New Pool & Bathhouse
- Relocate Tot Lot

The Study

Topographic Survey

Initial Public Meeting

Site Evaluation

Programming

Pool Evaluation

Develop Three Concept Plans

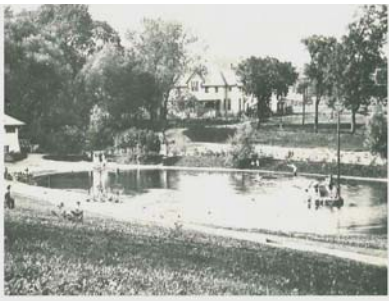
Conceptual Cost Estimates and Total Project Costs

Public Meeting for Comment – Early March

Final Report and Presentation to Board of Selectman

Historic Images

1911 Before the pool



1913 Underwood pool

1932 Underwood pool

1957 Underwood pool

The Project Site

Existing Topography

Existing Vegetation

Park Access

Programming

Site

Pool

Bathhouse

Playing Field

Existing Conditions




Pool Options to Study









Bathhouse

Evaluate Existing

Provide new traditional Bathhouse

Family Changing Stations

Restroom by field users



Comments & Questions

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Public Meeting
March 14, 2013

Underwood Park & Pool

Bargmann Hendrie + Archetype, Inc.

Agenda

Our Findings

The Existing Pool

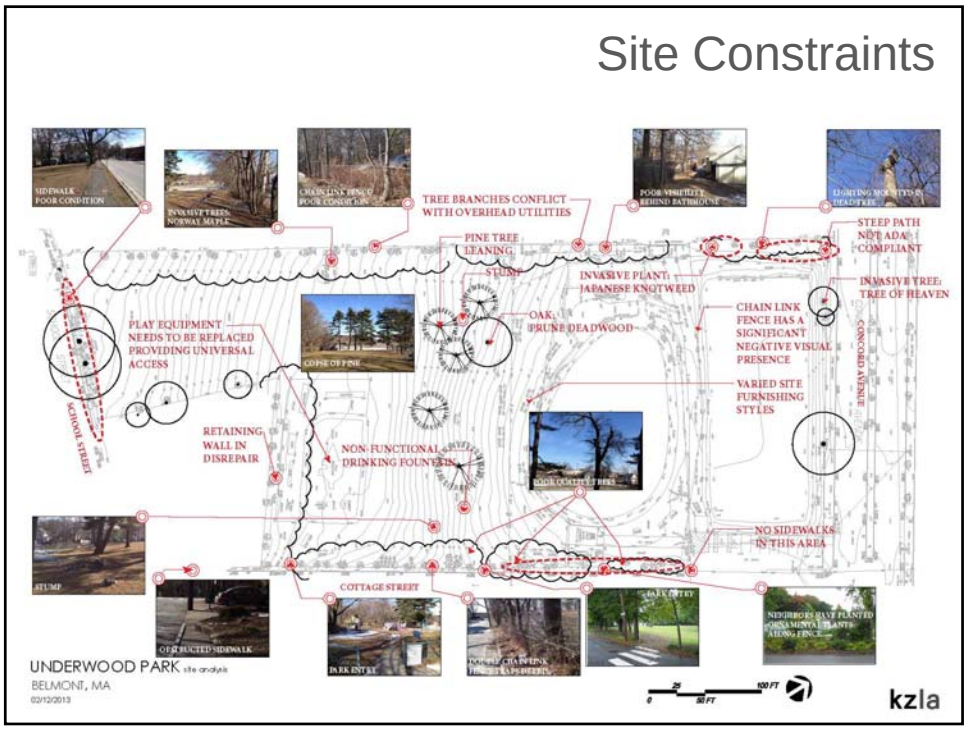
Option 1- Rebuilding the Existing Pool

Option 2- Pool and Field

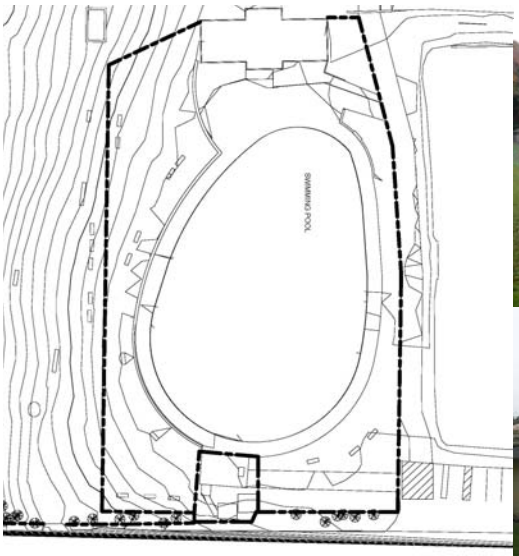
Option 3- Pool and Field

Public Comment and Questions


The Project Site


Site Constraints
SIDEWALK POOR CONDITION
INVASIVE TREES NORWAY MAPLE
CHAIN LINK FENCE POOR CONDITION
TREE BRANCHES CONFLICT WITH OVERHEAD UTILITIES
POOR VISIBILITY BEHIND PATHMOUNT
LIGHTING MOUNTED ON DEAD TREE
PINE TREE LEANING
STUMP
INVASIVE PLANT: JAPANESE KNOTWEED
STEEP PATH NOT ADA COMPLIANT
INVASIVE TREE: TREE OF HEAVEN
OAK: PRUNE DEADWOOD
CHAIN LINK FENCE HAS A SIGNIFICANT NEGATIVE VISUAL PRESENCE
PLAY EQUIPMENT NEEDS TO BE REPLACED PROVIDING UNIVERSAL ACCESS
COPSE OF PINE
SCHOOL STREET
CONCORD AVENUE
VARIED SITE FURNISHING STYLES
RETAINING WALL IN DISREPAIR
NON-FUNCTIONAL DRINKING FOUNTAIN
OAK COURTESY TREES
NO SIDEWALKS IN THIS AREA
STUMP
OBSTRUCTED SIDEWALK
COTTAGE STREET
PARK ENTRY
DOUBLE CHAIN LINK FENCE WITH GAPS BELOW
PARK ENTRY
NEIGHBORS HAVE PLANTED INVASIVE PLANTS ALONG FENCE
UNDERWOOD PARK site analysis
BELMONT, MA
02/12/2013
0
25
50 FT
100 FT
kzla

Existing Pool Complex



Pool

- 15,500 SF of Surface Area
- 425,000 Gallons
- Calculated Bather Load: 900 Bathers
- No Existing Surface Skimming
- Pool Profile Not Compliant with Pool
- Standards for Depth, Slope, and Segregation of Shallow and Deep Areas
- Pool Surface Is Difficult to Maintain

Filtration System

- Equipment Has Exceeded its Useful Service Life
- Operates at Code Minimum Flow Rates
- Outdated Filter Media
- Filter Building is Confined Space
- Arrangement Difficult to Service
- Filter Building is Subject to Flooding

Bathhouse

- Not Compliant with MAAB/ADA
- Does Not Provide Code Required Plumbing Fixture Count
- No Secure Staff/First Aid Areas
- Structural Repairs Required at Roof Walls and Foundations
- Mechanical Ventilation Required
- Plumbing and Electrical Systems Have Exceeded Useful Service Life

Building with High Ground Water



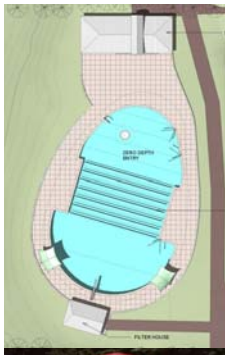



Option1- Rebuild Existing Complex

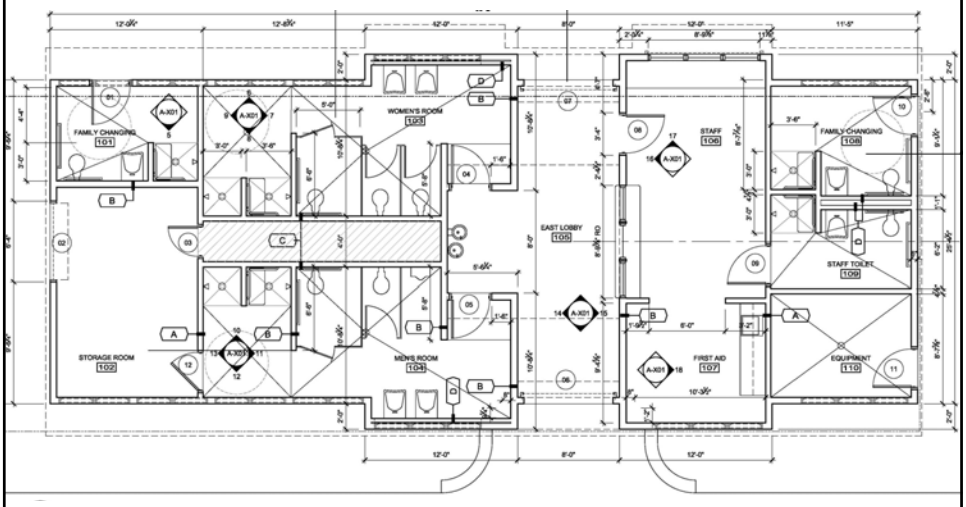
Option1- Rebuild Existing Complex

Option1- Rebuild Existing Complex

- New 11,000 SF Swimming Pool
- Bather Load of 680
- Zero Depth Beach Entry
- Water Features
- Defined Lap Swimming
- Regulation Depth for Diving & Red Cross Training
- Above Ground Filter Building.
- Pool Elevation Raised
- Renovated/Rebuilt or New Bathhouse at 3,200 SF
- Site Development Similar to Existing

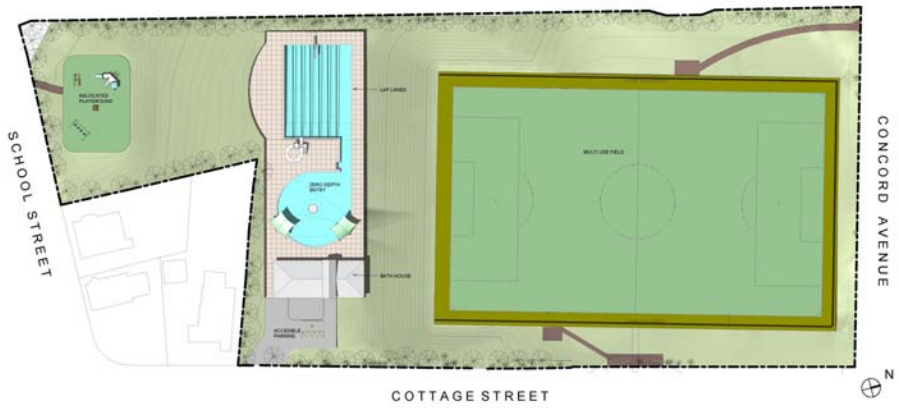


Bathhouse Concept



Filled Turf Artificial Field

Option 2- Athletic Field Relocated Pool



Option 2- Athletic Field Relocated Pool

Option 2- Athletic Field Relocated Pool

- New 6,500 SF Swimming Pool
- Bather Load of 388
- New 2,800 SF Bathhouse
- Beach Entry, Diving, Lap Swimming
- Water Features
- Relocated Playground Adjacent To School Street
- Accessible Parking At Building
- Public Access from Cottage St. Only
- 300 x 180 Multi-Use Field
- Field is 2 feet above Culvert
- Accessible Parking Along Cottage Street for Field
- 10 Ft. High Fence on Concord Ave. End of Field
- Safety Netting Along Concord Ave
- 3:1 Slope Cut into Hill
- Site Trees are Removed

Option 3- Athletic Field Relocated Pool

Option 3- Athletic Field Relocated Pool

Option 3- Athletic Field Relocated Pool

- New 6,500 SF Swimming Pool
- Bather Load of 388
- New 2,800 SF Bathhouse
- Beach Entry, Diving, Lap Swimming
- Water Features
- Relocated Playground Access from Cottage
- Accessible Parking At Building
- Public Access from School Street.
- 300 x 180 Multi-Use Field
- Field is 2 feet above Culvert
- Accessible Parking Along Cottage Street for Field
- 10 Ft. High Fence on Concord Ave. End of Field
- Safety Netting Along Concord Ave.
- 3:1 Slope Cut into Hill.
- Site Trees are Removed

Project Budgets

Option 1:

New Pool In Current Location
Estimated Total Project Cost $4.3 Million

Option 2:

New Pool and Multi-Use Field
Relocated Pool- Access from Cottage St.
Estimated Total Project Cost $6.1 Million

Option 3:

New Pool and Multi-Use Field
Relocated Pool- Access from School St.
Estimated Total Project Cost $6.1 Million

Comments & Questions

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