

FINAL REPORT - VOLUME 1

# Town of Newmarket

Facilities Master Plan

09.01.2023



Placework

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(Included Under Separate Cover)

# EXECUTIVE SUMMARY

# Background



MAP OF NEWMARKET SHOWING FACILITIES STUDIED

Placework was retained by the Town of Newmarket, NH (the Town) in February 2023 to develop a Facility Master Plan for municipal facilities and operations. The results of the study will inform future Capital planning and budgeting for improvements to Town facilities.

The facilities studied include:

1. Town Hall
2. Public Works / Fire Department
3. Police Department
4. Newmarket Community Center
5. Sunrise-Sunset Senior Center
6. Public Library
7. Historic Fire House
8. Beech Street Community Building
9. Former Water Treatment Facility

**This report summarizes Placework’s final report for the Facility Master Plan study.** This effort is a continuation of a 2018 Town Facilities Survey conducted by Town Staff. The findings and recommendations presented are intended to inform Town Capital Improvement and Master Planning efforts, and serve as the basis for future implementation of any recommendations herein.

Please note the electronic version of this report is provided with “Bookmarks”; readers are encouraged to utilize these bookmarks to aid in navigating the various sections. Additional relevant project documentation is contained in the Appendix to this report (provided under separate cover).

## Project Scope & Schedule

The goal of the Facilities Master Plan was to focus on the preservation and potential redevelopment of current facilities, as well as the identification of new facilities to establish a framework for the Town’s municipal facilities needs over the next decade and beyond.

Work was conducted according to the schedule below. This report summarizes Placework’s complete findings and recommendations to the Town of Newmarket, including preliminary project budgets. The scope of the study includes detailed Facility Condition Assessment for the Town Hall, Police Station, and Former Water Treatment buildings. The remaining (6) facilities noted above are excluded from detailed review, however Placework has toured the Facilities, and offered a brief summary of each, including any immediate conclusions related to facility condition or ‘red flags’ for redevelopment.

The scope of work also includes Program and Space Needs Assessment for Town Departments as directed by the Town of Newmarket. This includes developing an understanding of current and future space requirements through interviews with Department staff, questionnaires, and facility tours. The space requirements are formatted into a tabular space program to quantify needs.

It is important to note that with the exception of Administrative functions, Newmarket Public Schools are not included in the scope of the study.

	2023																												
	February				March				April				May				June				July				August				
	6	13	20	27	6	13	20	27	3	10	17	24	1	8	15	22	29	5	12	19	26	3	10	17	24	31	7	14	21
Client Meetings				1	2			3	4				5	6							7					8			
<b>PART 1: PROJECT STARTUP</b>																													
Project Kickoff																													
Info Gathering / Existing Conditions																													
<b>PART 2: FACILITY &amp; SPACE NEEDS ASSESSMENT</b>																													
Facility Assessment																													
Program & Space Needs																													
Town Review & Comment																													
<b>PART 3: RECOMMENDATIONS</b>																													
Recommendations																													
Cost Estimating																													
Town Review & Comment																													
<b>PART 4: FINAL REPORT</b>																													
Report Production																													

**Meetings:**

1. Project Kickoff & Visioning Meeting
2. Site Assessment Visits
3. Programming Meetings w/ User Groups
4. Programming Workshop

5. Site Assessment Visit - Water Treatment
6. Preliminary Recommendations Workshop
7. Concept Development Workshop
8. Design Finalization Workshop

**Deliverables:**

- A. Preliminary Facility Assessment Report
- B. Preliminary Program & Space Needs Assessment
- C. Supplement to Facility Assessment (For Water Treatment Plant)
- D. Draft Recommendations
- E. Draft Cost Estimates
- F. Final Report w/ Costs

## Project Team

The project team is led by a “Steering Committee” made up of representatives from the Town of Newmarket. This group met regularly with Placework and members of the design team to review project progress and develop concepts. The Steering Committee consists of:

- Steve Fournier, Town Manager
- Lyndsay Butler, Town Engineer / Project Manager

The Steering Committee is supported by Town Department heads and staff, and a multidisciplinary team of design and planning professionals led by Placework, the lead architect and planning consultant:

### **PLACEWORK (LEAD ARCHITECT & PLANNING CONSULTANT)**

- Alyssa Manypenny Murphy, Principal
- Josh Lacasse, Project Manager
- Alice Carey, Programming Lead
- Ken Ferrer, Designer

### **CONSULTING ENGINEERING SERVICES (CES) (MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION ASSESSMENT)**

- Curtis Chase, Project Manager
- Patrick Crilly, Project Engineer
- Nicholas Fair, Principal

### **EMANUEL ENGINEERING (CIVIL & STRUCTURAL ASSESSMENT)**

- Bruce Scamman, Principal
- Fred Emanuel, Founder/Structural Engineer

### **JOBIN CONSTRUCTION CONSULTING (COST CONSULTANT)**

- Marc Jobin, Principal

## Process



TEAM MEMBERS CONDUCT A FIELD SURVEY AT NEWMARKET FIRE DEPARTMENT

The study began with a Project Kickoff meeting to establish project goals and confirm the proposed schedule. Placework reviewed available existing conditions documentation provided by the Town and generated preliminary existing conditions floor plans for the Town Hall and Police Departments. Team members conducted (3) field survey visits on March 9th, April 10th, and May 18th 2023, to verify and document existing conditions, and as a basis for preliminary Facility Condition Assessments.

To develop the preliminary program and space needs, Placework distributed a questionnaire on current vs. anticipated space usage to Town Departments including the following:

- Police
- DPW / Fire
- Environmental Services
- Recreation
- School Admin
- Welfare
- Finance / Administration
- Community Development
- Town Clerk
- Media Services
- Library

Following receipt of the completed questionnaire responses, Placework conducted interviews during the month of April and May with representatives from each department to verify, expand upon, and document the results. The team then developed preliminary assessments of the existing facility conditions and space needs and presented observations to the Town Manager.

Finally, the findings of the facility and space needs assessments were used to develop recommendations and budgeting for future capital improvements.

# Findings

The assessment phase resulted in a number of findings which are discussed in greater detail within. A high-level summary of key findings follows below:

## **POLICE EXPANSION**

The existing Police building is insufficiently sized for current and future Police Department needs. The space that is available has functional issues which hinder the operations of the Department. Finally there are existing code and accessibility compliance issues pertaining to the upper floor of the building, which require resolution.

## **TOWN HALL USE AND ORGANIZATION**

Currently, the Town Hall houses a number of Departments, including the School Administration which owns a stake of the building in a condominium arrangement. Some Departments contain dedicated spaces such as meeting space which could be re-imagined as 'shared' space to maximize efficiency. Wayfinding and visitor experience to the existing building are challenging. The building could be reorganized to make more efficient use of space and improve public accessibility to Town functions. There is also opportunity to consider a Town Hall expansion by constructing an addition to the rear of the Town Hall.

## **TOWN HALL FACILITY ISSUES**

The existing building exceeds height limitations set forth under NFPA 101 (Life Safety code) as a result of non-separated assembly occupancy at level 1. This condition is permitted to remain as an existing, nonconforming condition, but if proposed work were to trigger a height and area review under the NH State Building Code, the building would be non-compliant in its current configuration. This can be rectified by separating the Assembly space on Level 1 from the remainder of the building with fire resistance rated construction, or by adding an automatic sprinkler system to the building.

## **DEVELOPMENT POTENTIAL**

There is currently development potential at Town Hall, DPW/Fire Department, Beech Street Community Building, and possibly the Old Water Treatment Facility at Packer's Falls Road.

## **UNDERUTILIZED FACILITIES**

Several properties - the Historic Fire House on South Main Street, Beech Street Community Center, and the Old Water Treatment Facility on Packer's Falls Road - appear to be underutilized. There may be opportunities to leverage these facilities in order to meet Town goals. For example, the Water Treatment Facility could be developed to serve an existing space need for the Town, or sold to generate capital for other improvements through sale proceeds and additional tax revenue.

## **ADDITIONAL STUDY**

The Recreation Department and Newmarket Public Library would benefit from additional specialized planning beyond the scope of this report in order to make informed decisions related to future development.

# Recommendations

## Guiding Principles

To inform development of final recommendations, the Team developed a list of Guiding Principles. These are an extension of the Key Findings and focus on goals and priorities to address the most pressing needs. They are:

- Establish a long-term plan for addressing Police needs, including potential expansion strategies.
- Maximize efficient use of current space by employing strategies such as right-sizing, consolidation of storage, digitization of files, and implementing shared spaces.
- Resolve known fire, life safety, and accessibility issues in existing facilities through capital improvements or maintenance efforts.
- Re-envision long-term organization and use of the existing Town Hall to address space needs and functional issues.
- Leverage underutilized properties to support redevelopment of priority facilities and departments.
- Prioritize benefits to residents when evaluating the benefit of recommended improvements.

## Evaluation Criteria

In order to evaluate and prioritize potential projects, the team developed a list of criteria by which to evaluate proposed projects. This criteria is organized in the form of a project evaluation matrix.

Criteria	Project(s)			
Improves service quality / quantity (0-10)				
Required for continued (or expanded) operations (0-5)				
Reduces operation and maintenance costs (0-5)				
Provides measurable benefit to residents (0-5)				
Meets stated environmental goals (0-5)				
Supports Town Master Plan Goals & Vision (0-3)				
Public image and reputation (0-3)				
Urgency of need (0-2)				
Enables other recommended projects (0-2)				
<b>Priority Score</b>				
<b>Project Budget</b>				

# Recommendations

## RENOVATE & EXPAND EXISTING POLICE STATION / DEVELOP BEECH STREET FOR SENIOR CENTER



The primary objective for renovation and expansion of the existing Police Station is to gain additional space required for continued Police operations into the future. Secondary goals are to improve existing issues with the current space, provide additional community space, and enhance the civic presence of the Department. As part of the project, the existing Sunrise-Sunset Center will be relocated to a renovated facility in the Town-owned Beech Street building.

## RENOVATE AND EXPAND EXISTING TOWN HALL



The existing Town Hall is convenient to downtown Newmarket and generally serving its intended purpose; reuse of the existing facility is recommended. However, the building currently lacks clear organization of functions, and is difficult for the public to navigate. By expanding to the rear, it is possible to provide needed interior reorganization, improve wayfinding, and maximize space use. The addition will create a new entry to the lower parking area, connecting two currently disparate portions of the site, and offering a new public-facing “service point” for residents to accomplish municipal business.

## UTILIZE OLD WATER TREATMENT BUILDING FOR REDEVELOPMENT



This structure is currently unused except for storage of Town archive files housed in substandard storage space. As such, the building represents an undue expense to the Town in the form of maintenance, utility costs, and potential lost tax revenue. As the Town does not have a potential use for this property, the team recommend leveraging this property by selling or leasing to provide a needed amenity use and revitalization to the scenic riverfront surrounding the building. Proceeds from the transaction may be able to be used to offset cost of other recommendations either directly or indirectly, however at the time of this report, the Town is reviewing legal/administrative requirements for this.

## UNDERTAKE DETAILED LIBRARY AND RECREATION STUDIES TO GUIDE FUTURE EFFORTS



These programs require specialized study prior to making detailed recommendations, which are outside the scope of the current study. For this additional effort, Placework recommends allocating approximately \$100-150k for each study, although this depends greatly on the scope of the proposed study(ies). The findings of this report present high-level initial observations, which may be used to focus and inform the future solicitation of such services.

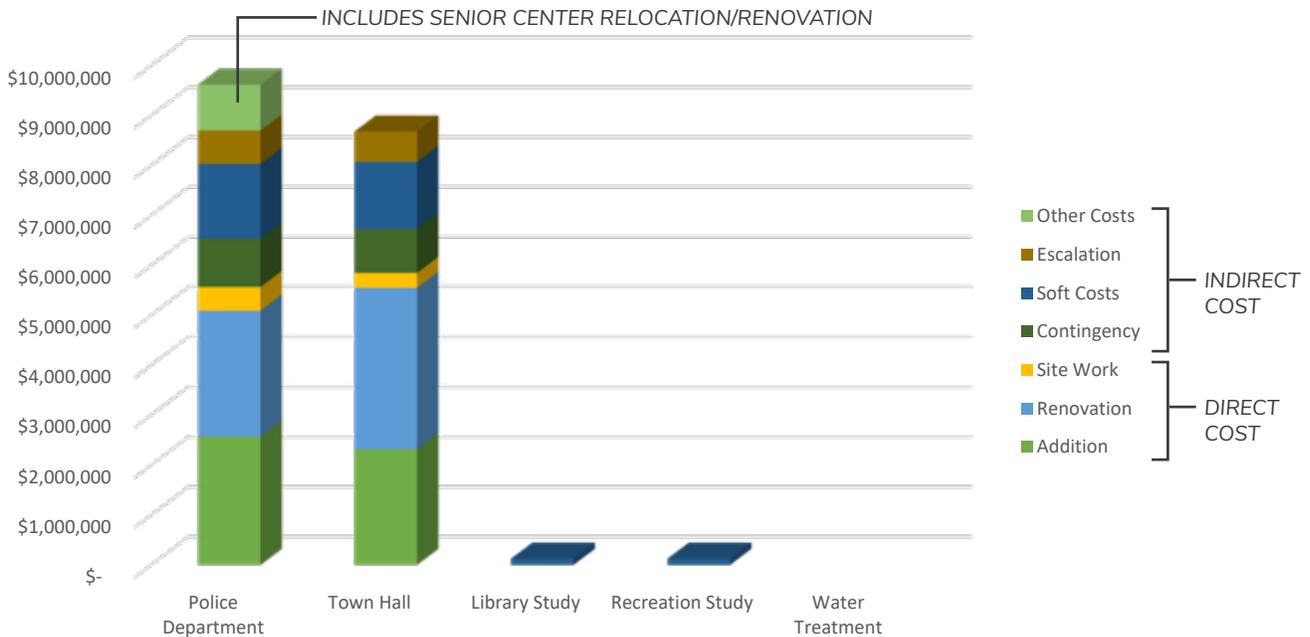
## EVALUATION OF RECOMMENDED PROJECTS

Criteria	Project(s)			
	Police Expansion	Town Hall Renovation / Addition	Detailed Library/Rec Studies	Sell/Lease Old Water Treatment Building
Improves service quality / quantity (0-10)	10	10	3	0
Required for continued (or expanded) operations (0-5)	5	5	5	1
Reduces operation and maintenance costs (0-5)	5	5	3	5
Provides measurable benefit to residents (0-5)	4	4	0	3
Meets stated environmental goals (0-5)	4	4	1	3
Supports Town Master Plan Goals & Vision (0-3)	3	2	3	1
Public image and reputation (0-3)	3	3	1	1
Urgency of need (0-2)	2	1	1	0
Enables other recommended projects (0-2)	0	0	1	2
<b>Priority Score</b>	<b>36</b>	<b>34</b>	<b>18</b>	<b>16</b>
<b>Project Budget</b>				

The recommendations outlined herein have been developed to a conceptual level to enable preliminary cost estimating and enable Capital Improvement Planning. Should any or all of the projects be undertaken by the Town, additional planning and design will be required. The matrix above has been developed to aid in evaluating and prioritizing each potential project, but it should be noted that circumstance, availability of funding, opportunity, convenience, and other intangible criteria may also be considered.

Anticipated project budget - while a critical planning and decision making metric - was not used as a criteria for project prioritization. Preliminary project budgets are presented on the following page.

# Preliminary Budgets



Preliminary project budgets have been developed to enable high level capital planning. The estimated project costs for recommendations contained in this report are:

Police Renovation & Expansion (Includes Senior Center relocation):	<b>\$10,000,000</b>
Town Hall Renovation & Expansion:	<b>\$9,000,000</b>
Library & Recreation Studies (estimated cost per study):	<b>\$100,000 - \$150,000</b>
Sale or Lease of Old Water Treatment Facility:	<b>tbd</b>

For the Town Hall and Police projects, preliminary budgets include estimated “direct” costs of construction, as well as estimated “indirect” costs to arrive at a total project budget. Indirect costs include contingency funds, cost escalation, and ‘soft costs’ for project related expenses including design fees, furniture and equipment, administrative, and similar costs. Approximately \$750,000 was carried in the Police project budget to allow relocation and modest renovation to the Beech Street Community building for the Senior Center (represented as part of “Other Costs” above). Further explanation on the budget methodology is contained in the “Recommendations” section of this report.

For the recommended Library and Recreation studies, Placework recommends allocating approximately \$100,000 - \$150,000 per study, depending upon the eventual scope of each.

The potential revenue from the sale or lease of the former Water Treatment Facility remains unknown at this time. Budgeting for this is outside the scope of the current study, however this topic is discussed in greater detail in the “Recommendations” section of this report.

The preliminary budgets should be considered evolving documents, to be developed along with the project.

# FACILITY CONDITION ASSESSMENTS

# Overview



To conduct the enclosed Facility Condition Assessments, Placework gathered and reviewed record documents provided by the Town of Newmarket, interviewed key Town personnel responsible for maintaining and operating each facility, and toured each to develop an understanding of the existing conditions. The assessments are based on non-destructive field survey; that is, observations are limited to items observed by reasonable means at the time of the visit, without removal of existing finishes, probes, or other destructive testing. Where further inspection is recommended to follow non-destructive field observation, it is described herein.

For two facilities - Town Hall and the Newmarket Police Department - a comprehensive Facility Condition Assessment follows, including technical review from architectural, civil, structural, mechanical, electrical, plumbing, fire protection, life safety, and accessibility disciplines. The remaining seven facilities were limited to a cursory review to develop a basic understanding and a brief summary enclosed for key observations, 'red-flag' issues, or other pertinent information. Please note that at this time, Placework's understanding of the Old Water Treatment Plant on Packer's Falls Road is limited to high level cursory observation from the exterior. However, this building will be formally assessed in detail during May/June 2023, and the results will be incorporated as an amendment to this document.

Written narratives, drawings, meeting documentation, photo indices, and other pertinent documentation are included in the following assessment and appendix to this report.

# TOWN OF NEWMARKET - FACILITY CONDITION MATRIX

## NEWMARKET FACILITIES PLAN

5/12/2023

Key	Property	Building Area (SF)	Property Area (Acreage)	Construction Type	Zoning District	Parcel ID	Allowable Height/Area	Year Built	In Floodplain	Notes:
1	Sunrise – Sunset Senior Center		0.92	Wood-Frame	B1	U4-5	35'		N	Single lot shared w/ Police bldg.
2	Beech Street Community Building	1,856*	2.25	Wood-Frame	R3	U2-106-A U2-106-B	35'	1988	Y: 100yr / BFE	Two lots, portions within area of special flood hazard (FEMA Zone AE)
3	Former Water Treatment Facility	7,628*	0.23	Masonry	R1	U1-46	35'	1910	Y: 100yr / BFE	
4	Newmarket Community Center	<b>9,829**</b>	14.1	Wood-Framed	M3	U4-8	35'	1994	N	Property owned by housing authority
5	Town Hall	<b>16,494**</b>	0.67	Mixed: Wood/Masonry	M2	U3-150-1 U3-149-1	24'MIN.-50'MAX.	1910	Y: 500yr (lot U3-149-1)	Surface parking lot at rear owned by town (U3-149-1)
6	Public Works / Fire Department	<b>56,547**</b>	10.11	Steel	B2	U3-48	35'	1972	N	Gross square footage including upper floor fit-out
7	Public Library	<b>11,705**</b>	0.24/0.35	Mixed: Wood/Masonry	M2A	U2-59/U2-60-B	24'MIN.-35'MAX.	1920	N	Located on two lots.
8	Police Department	<b>6,079**</b>	0.92	Wood-Frame	B1	U4-5	35'	1994	N	Single lot shared w/ Sunrise-Sunset bldg.
9	Historical Fire House	650*	0.23	Wood-Frame	M2	U3-175	24'MIN.-50'MAX.	1900	N	

\*From Tax Card

\*\*Calculated Gross Area from plans

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**FACILITY CONDITION ASSESSMENT**

# Police Department

Background  
Architectural  
Site/Civil  
Structural  
Building Systems  
Code, Life Safety, & Accessibility

# Police Department



## Background

The current Newmarket Police Department Building was completed in 1994, designed by H.L. Turner. It is a 2-story, 6,100 gross square foot (GSF) wood framed building, with no basement. Located along NH Route 108 (Exeter Road) just South of Newmarket Town Center, the building is in an ideal location for the Police operations, due to its high public visibility and proximity to the center of Town.

In general, the current facility meets the needs of the community, but several notable deficiencies are creating operational issues for the Department. The existing upper floor of the facility was not part of the original record documents provided by the Town, and does not meet current standards for code, accessibility, or functional requirements related to training and secure storage of evidence. The building does not meet modern security and operational standards for Police facilities.

During the visit, Placework and representatives from the Town of Newmarket identified a number of key deficiencies of the existing building. They include:

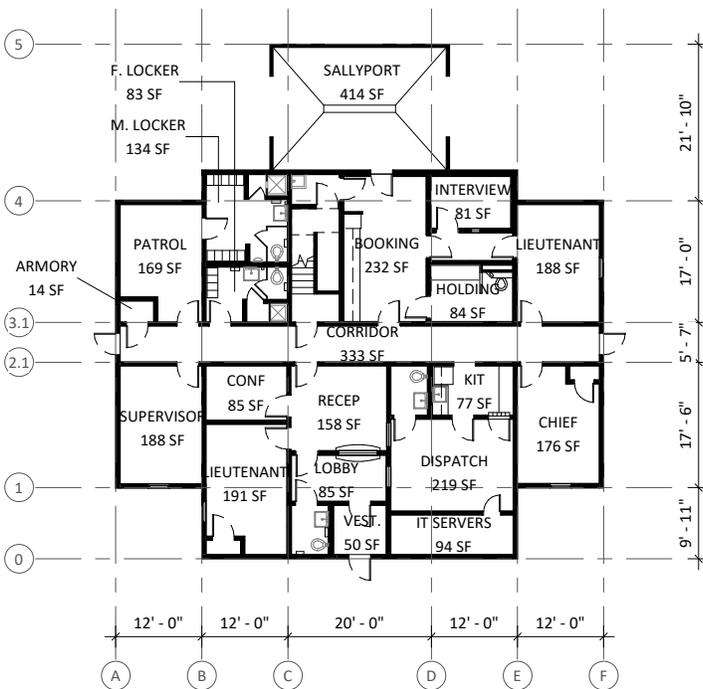
- The entire upper floor of the facility does not meet current standards for accessibility.
- The entire upper floor of the facility is served by a single 3' stair which is open to the rest of the floor - this does not meet current NFPA 101 life safety code requirements.
- There is a general lack of security in operational areas of the facility.
- Evidence storage areas do not meet minimum police standards, including climate control, refrigeration capability, and general configuration.
- Due to a lack of space, witnesses/victims sometimes need to be interviewed in the booking area, which can be traumatic.
- There is currently only one holding cell; current regulations require detention of juveniles separately from adults, so the Department cannot currently house juveniles and adults at the same time.
- Currently the building does not have a fire suppression system. While not required by code, this is recommended for safety of detainees being kept in locked areas.
- The current lobby is undersized, and reception layout is not optimized for supervision of doors, interview rooms and other spaces

# Architecture

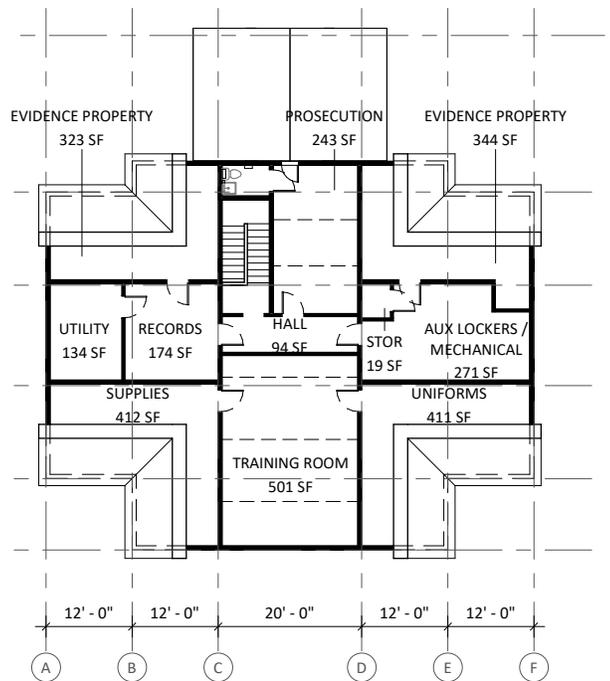
Placework reviewed record drawings provided by the Town of Newmarket and visited the Police Department building in March 2023 to review the existing conditions and interview key staff familiar with the existing facility. The following assessment is based on a non-destructive field survey; observations are limited to items visible at the time of our visit, without removal of existing finishes.

The original design for the Police Station was completed around 1994 by H.L. Turner Group – a multidisciplinary architecture and engineering firm of Concord, NH. The existing building is a 2-story wood framed structure, housing approximately 6,100 GSF of Police Department functions, including offices for patrol and detectives, booking and holding areas, evidence storage, police dispatch facilities, support spaces, and meeting areas including a large training room. The existing construction is similar to the surrounding residential structures, including wood framed structure, vinyl siding, asphalt shingles, and double-hung wood framed windows. Interior finishes include carpet, porcelain/ceramic floor tile, acoustic ceiling tile, and painted drywall, and are in general need of replacement.

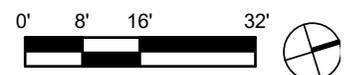
Based on the record documents provided by the Town, the upper floor of the facility appears to have been left unfinished at the completion of the design phase. However, after conducting a field survey, Placework determined that the upper floor had been renovated in the intervening years. No documentation could be located pertaining to this renovation. Based on discussion with some of the officers present at the time of our visit the renovation may have been conducted largely with volunteer labor from the community, however this assertion has not been verified. The upper floor currently houses evidence storage, detective offices, general equipment and records storage, mechanical/electrical spaces, and a medium sized training/conference room. This room is used frequently by the department for training, community functions, and staff meetings. The floor is served by a single 3' wide stair and does not meet current standards for accessibility.



LEVEL 1 FLOOR PLAN



LEVEL 2 FLOOR PLAN

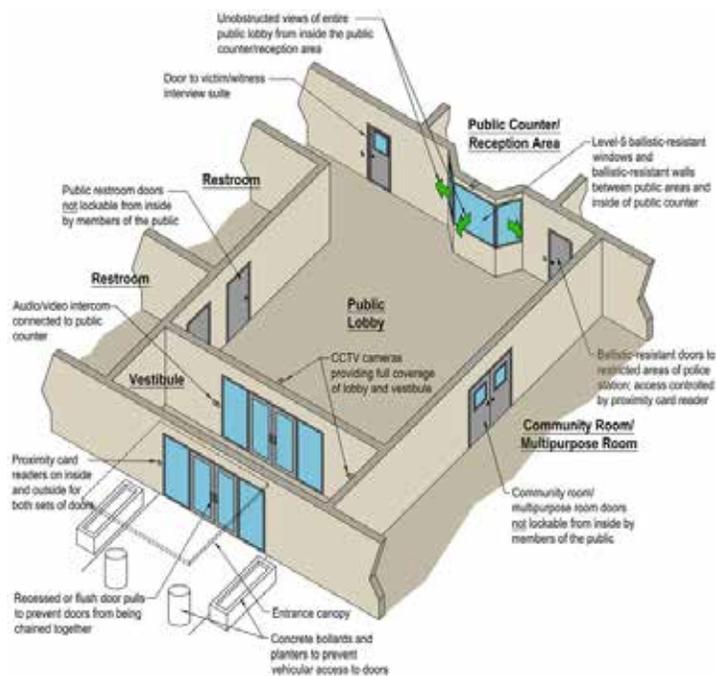


The first floor is located roughly at the level of the surrounding grade. The building is arranged in a cruciform floor plan, with a major circulation corridor running plan East-West. The entry lobby is relatively small (sized for approximately 3-4 waiting guests). Behind the secure door to the operational areas of the building, there are offices, admin/reception, dispatch, followed across the hall by additional offices and the booking / holding area. According to Department representatives, a significant issue with the current configuration of the building involves the periodic need to bring victims or witnesses into the booking area to be interviewed. This can cause stress to the interviewees, and unwanted mixing of this group with those in custody.

There is an existing wood framed Sallyport at the Northwest side of the building adjacent to booking, with garage doors allowing vehicles to enter one side and exit the other.

## Security

The ground floor lobby, reception, and booking area appear to be constructed to provide some level of physical security. Building partitions are constructed from concrete masonry units, and security doors and windows form the public facing side of the reception area. Placework could not confirm the forced entry / ballistic rating of these assemblies in the field. The inside vestibule door, and the door from the lobby to the operational areas of the building are equipped with a buzzer system operated by reception staff. Based on review of the record drawings provided by the Town, the booking area also features a dropped ceiling with 20 GA. nested metal studs and 3/4" tongue and groove plywood and gypsum wallboard, presumably to provide additional forced entry / security for this area. There is currently a janitor/supply closet opening directly into the booking area which falls outside the secure perimeter and is a potential vulnerability.



TYPICAL POLICE LOBBY DIAGRAM<sup>1</sup>

The exterior perimeter wall construction could not be verified in the field; based upon review of the existing drawings, the building perimeter wall resembles a typical 'residential' style wood framed 2x6 wall, with no special ballistic, forced entry, or security related countermeasures. Similarly, window assemblies appear to not appear to contain any special security countermeasure – the assembly is a wood framed double hung window with insulated glazing unit.

The security features noted above provide some level of physical security, but do not meet current best practices for modern police facilities.

1 <https://blog.fentress.com/blog/best-design-practices-for-police-station-lobbies>



## Site

The existing site is bound by streets on two sides: NH Route 108 / Exeter Road to the East and Terrace Drive to the North, and surrounding properties to the South and West. According to public tax assessment data, the site is shared by the Police Building and the 'Sunrise-Sunset' Community Center to the West. This building was originally part of the Public Safety complex on the site as a former ambulance facility.

The topography around the site slopes steeply from West to East. There is an approximately 5' high retaining wall bisecting the property between the Sunrise-Sunset Center to the West and the Police Station to the East. The Police Station itself is surrounded on three sides by parking and drive lanes, with a small area of lawn to the North, and another immediately abutting Exeter Road. There are (7) visitor parking spaces and (20) staff/cruiser parking spaces, with a total of (2) accessible spaces. In discussion with representatives from the Police Department, visitor parking is sufficient, but parking for staff and the police vehicle fleet are undersized.

Following discussion with Town representatives, Placework understands the Town favors the general location of the Police Department site, as it sits in a prominent location along a heavily traveled route through Town. This lends a civic quality to the building, however that quality is not supported by the building's design, which is vernacular / residential in appearance. The prominent location also introduces security considerations, given the vulnerabilities discussed above.

## Structural

The structural system for the Police Station closely resembles a 'typical' residential building found in the surrounding area: wood framed walls and roof rafters are supported on a cast-in-place (CIP) concrete foundation. There is no basement; according to record drawings provided by the Town, the foundation system consists of a 10" concrete perimeter "frost wall" on continuous footings, with an uninsulated slab-on-grade concrete floor.

Elevated floor and roof construction are framed from conventional dimensional lumber.

Generally, the building is in good structural condition. Additional observations and recommendations are contained in the accompanying structural evaluation report.

## Building Systems

Building systems are generally in good condition, however there are several voluntary upgrades which could be made to increase efficiency and possibly lifespan of existing equipment:

- Install a fresh air ventilation connection to unit AHU-1
- The existing fresh intake air to the air handler is not pretreated. Installing an energy recovery ventilator (ERV) would allow recovery of energy from exhaust air, reducing space conditioning requirement.
- Modernization of control systems for HVAC and lighting equipment.
- Replacement of existing fluorescent lighting with LED fixtures at the end of their useful life.

The building does not currently have an automatic sprinkler system. Though not specifically required by Code in the current configuration, this is recommended as best practice when keeping prisoners under lock and key. If such a system were to be installed in the future, a dedicated water service main to the building and water flow and pressure testing would need to be conducted to ensure sufficient water pressure to supply the system. If the municipal water supply cannot supply the required flow and pressure, a dedicated fire pump would be required.

These and other observations are discussed in greater detail in the attached Mechanical, Electrical, Plumbing and Fire Protection Systems Study report.

## Code / Life Safety & Accessibility

A detailed assessment of fire protection, life safety, and accessibility features is appended to this report; a summary of key observations follows below:

- The upper floor does not meet current NFPA 101 (Life Safety Code) standards for number, configuration, and travel distance of the means of egress.
- There is no accessible route to the upper floor.

For a more detailed discussion of these and other items, please refer to the attached report.



May 12, 2023

Mr. Josh Lacasse  
Placework  
96 Penhallow Street  
Portsmouth, NH 03801

Re: Preliminary Civil Assessment of the Newmarket Police Station  
70 Exeter Road, Newmarket, NH 03857

Dear Mr. Lacasse,

At your request, a site visit was made on April 10, 2023, and April 28, 2023, to observe and comment on the civil structures existing conditions of the Police Station.

The scope of services includes identifying noteworthy, deteriorated items that would assist in future restoration & modifications for the site. Photographs are attached illustrating existing conditions found during the site visit. In attendance was Mr. Josh Lacasse of Placework; Ms. Karen Bloom, Town of Newmarket; Fred Emanuel and Bruce Scamman, both of EEI on April 10, 2023, and Bruce Scamman took additional pictures on April 28, 2023. No site plan or any other civil plans have been supplied by the Town for this lot.

A summary of our observations and recommendations follows:

- 1) Two uses are on one lot. The Sunshine Sunset Program Building is on the Police Station lot. The area used for the Sunshine Center is a possible expansion area. This should not cause any different approval processes.
  - a) The Town has said that there are obligations to the Sunshine Center due to Federal money being used to construct the building. More should be inquired prior to the use of this building or the land below the Sunshine Center.
- 2) Safety/Damage Prevention Concerns.

- a) Protect the gas lines from cars and plowing.
  - b) Protect the generator from cars and plowing to prevent damage.
  - c) Protect the air conditioning condensers and mini splits to prevent damage.
- 3) Parking
- a) 26 parking spaces require 2 handicapped parking spaces. It appears that there is only 1 on-site. It does not appear to be marked correctly.
  - b) There are an additional 19 parking spaces at the Sunrise Center where there are 2 handicapped spaces. These handicapped parking spaces are not marked correctly.
- 4) Retaining Walls
- a) Retaining walls are in disrepair. Some of the blocks are deteriorating from water and salt.
  - b) There is no fall protection on the upslope side of the retaining walls.
- 5) Erosion
- a) Along the edges of pavement in several locations there is erosion. It appears that the steep driveways have storm water running off at a speed that causes erosion. There are rills along the edge of pavement.
- 6) Utilities
- a) There is an aboveground propane tank near the grass by the shed.
  - b) There are 2 propane lines that enter the building in an unprotected manner.
  - c) There is an exterior 100kW pad-mounted generator with belly tank on the North side of the building. The generator is currently vulnerable to damage from vehicular traffic.
  - d) Additionally, the generator is not currently provided with any security measures and could be vulnerable to malicious tampering.
  - e) There is a split unit by the sally port that is exposed to traffic. A bollard should be added to protect it from traffic.
  - f) The building is serviced by municipal water and sewer.
- 7) Pavement life
- a) The pavement is at the end of its useful life. The Northwest corner of the lot has many cracks which allow moisture to get below the pavement and further degradation will continue.

- b) There are at least 2 patch jobs on the pavement. The first is around the catch basin at the Southeast corner of the building. It appears that there has been settling around the catch basin.
  - c) The rear of the lot has had a catch basin added because of poor original grading or settling that caused ponding. Under the shed looks like it has been shimmed to get the water to flow into the new catch basin.
- 8) Drainage
- a) There does not appear to be any nutrient removal on-site for stormwater.
  - b) There does not appear to be any detention or retention of stormwater for this site.
  - c) There have been issues with water in the rear of the police parking lot. A catch basin has been added.
  - d) There is an eight-inch pvc pipe that appears to flow water from the Sunshine Center which is just West of the site.

#### Conclusions and Recommendations

- 1) An existing conditions survey should be completed prior to any further design of the Police Station to assure that the site conditions are determined and their proximity to each other.
- 2) Use a pavement reclamation process and grind the parking lot to incorporate the stone of the pavement and install a full depth of pavement (2 layers totaling 4” of pavement).
- 3) Add bollards to protect the gas lines entering the building from cars and plowing.
- 4) Add bollards at each end of the generator to prevent damage.
- 5) Add bollards in front of the air conditioning condensers to prevent damage.
- 6) If a sprinkler system is proposed as part of the building systems recommendations, install a dedicated 6” fire water line to the building from the 8” water main in Terrace Drive adjacent to the Police station.
- 7) Repair retaining wall blocks that are degraded. This should be completed with Sakrete concrete or equal.
- 8) The retaining wall does not appear to have a drain behind it. The block shows remanence of moisture bleeding through from behind the wall. If a building

expansion is made off the rear of the police station, I would recommend replacing the wall or digging behind it to add an underdrain.

- 9) Repairing the erosion rills with either rip rap rock or an erosion control mat that allows grass to grow is an acceptable substitute.
- 10) Add a fall prevention fence that is at least 42-inches tall to prevent people from falling over the retaining walls.

The permitting process is not required for municipalities. The Town should have a public hearing to allow the Town's taxpayers and abutters to have a chance to discuss pros and cons with the Town in reference to the further development of the Police Station. If done in conjunction with the Planning Board it allows for the planning board and Town's people to have buy in with the process.

This draft completes the writer's report. Thank you for the opportunity to provide civil engineering services. This office can complete a full review once a survey and other details are completed.

Very truly yours,

*Bruce Scamman*

Bruce Scamman, P.E.



Attachment:

- Photos
- Tax card U4-5
- Aerial with tax map overlay NH Granit
- Google Earth Aerial
- Tax Map U4



Retaining Wall with No Fall Protection



Generator and Mini Split without Protection



Generator without Protection



Newmarket Police Station



Erosion at the Main Street Driveway



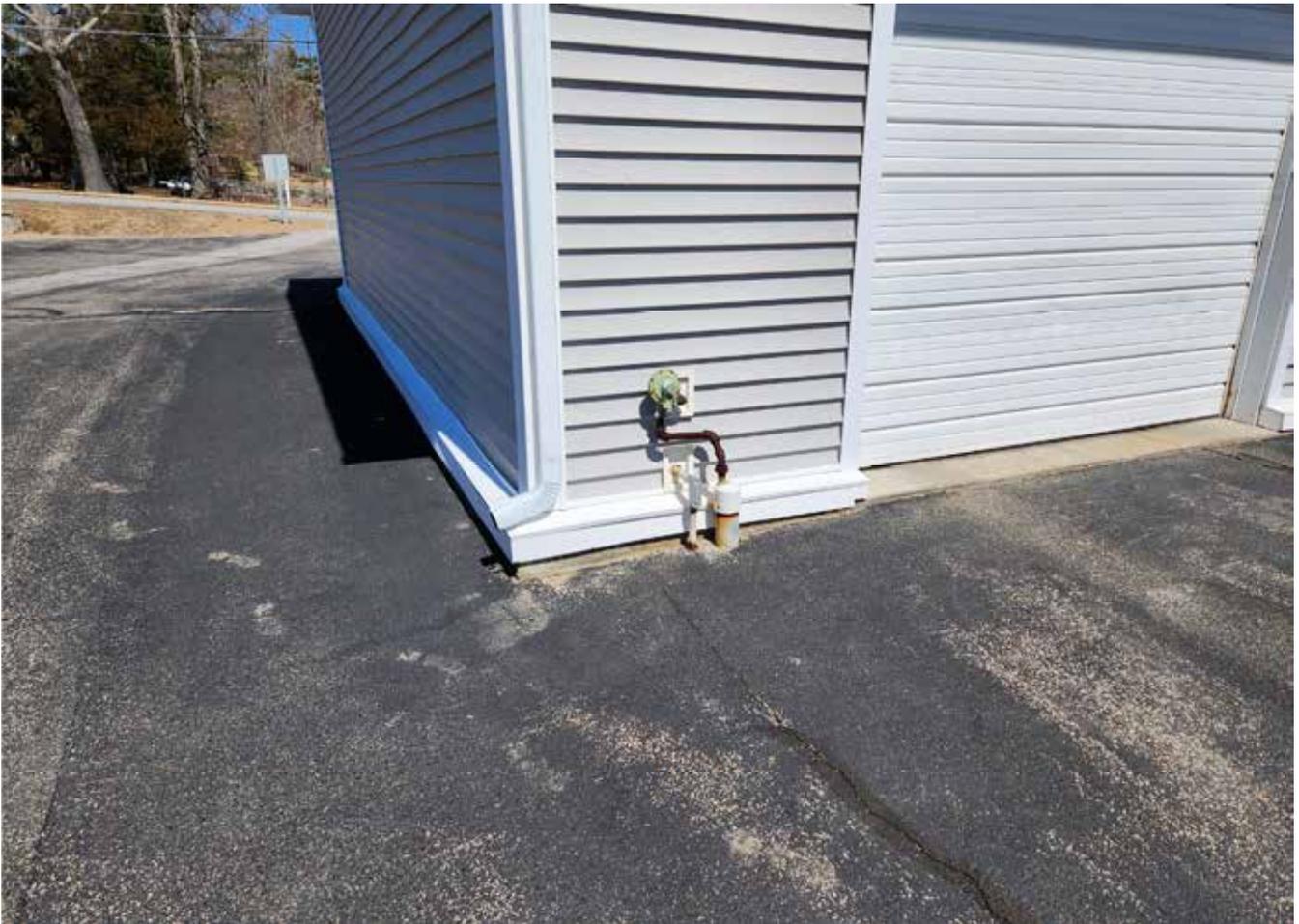
Erosion at the Main Street Driveway and Crack Pavement



Failed Pavement-Pathed Pavement-Retaining Wall



Failed and Patched Pavement



Gas and Utilities Unprotected



Unprotected Compressors



Unprotected Gas Line



Patched Pavement-Failing Pavement-Added Catch Basin



Failed Concrete Retaining Wall Block



8" PVC Drain Line



8" PVC Drain Line Headed Towards Sunshine Center



Propane Tank -Retaining Wall-Regraded Pavement -Catch Basin



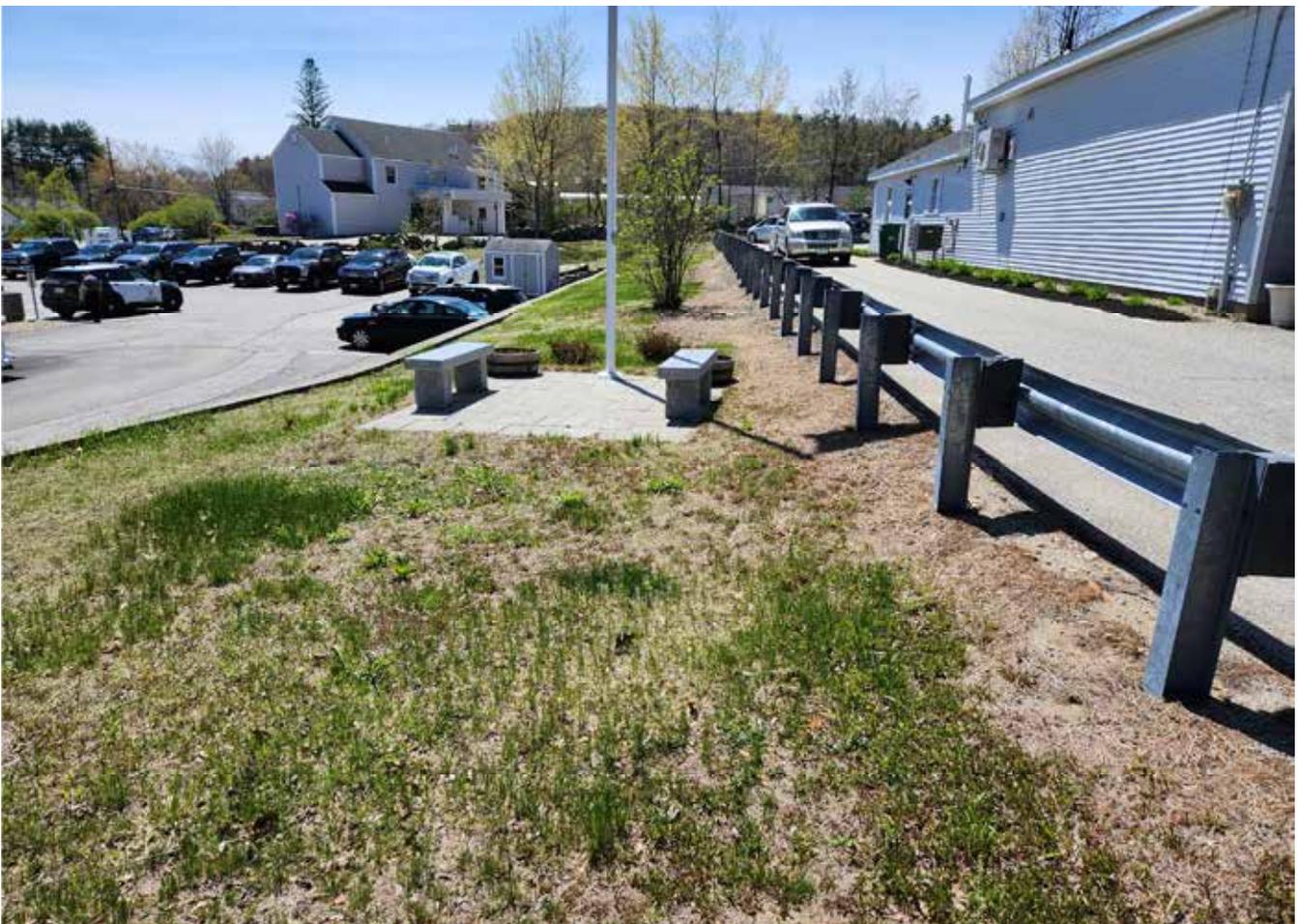
View from above Sunshine Center & Police Station -Erosion at Entrance



Erosion at Entrance



Mini Split without Protection



Guardrail to Protect Vehicles-No Fall Protection at Retaining Wall

# 70 EXETER RD

**Location** 70 EXETER RD

**Mblu** U4/ 5/ / /

**Acct#** 001004

**Owner** TOWN OF NEWMARKET

**Assessment** \$1,566,800

**Appraisal** \$1,566,800

**PID** 975

**Building Count** 2

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$1,226,900	\$339,900	\$1,566,800

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$1,226,900	\$339,900	\$1,566,800

## Owner of Record

**Owner** TOWN OF NEWMARKET

**Sale Price** \$0

**Co-Owner** POLICE

**Certificate**

**Address** 186 MAIN ST

**Book & Page** 0/0

NEWMARKET, NH 03857-1838

**Sale Date** 03/30/2020

## Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
TOWN OF NEWMARKET	\$0		0/0	03/30/2020

## Building Information

### Building 1 : Section 1

**Year Built:** 1995  
**Living Area:** 4,170  
**Replacement Cost:** \$953,664  
**Building Percent Good:** 68  
**Replacement Cost  
Less Depreciation:** \$648,500

**Building Attributes**

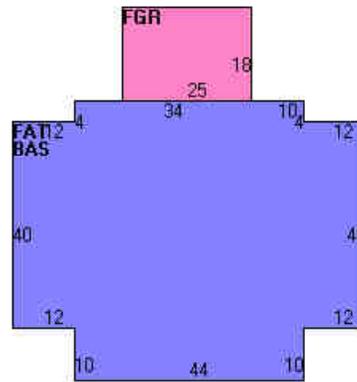
Field	Description
STYLE	Other Municipal
MODEL	Commercial
Grade	Average
Stories:	1.5
Occupancy	1.00
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Vinyl/Asphalt
Interior Floor 2	Carpet
Heating Fuel	Oil
Heating Type	Forced Air-Duc
AC Type	Central
Struct Class	
Bldg Use	TOWN-PROP MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	4
Usrflid 218	
Usrflid 219	
1st Floor Use:	903L
Heat/AC	Heat Only
Frame Type	Wood Frame
Baths/Plumbing	Average
Ceiling/Wall	Sus-Ceil & WI
Rooms/Prtns	Average
Wall Height	12.00
% Comn Wall	10.00

### Building Photo



(<https://images.vgsi.com/photos/NewMarketNHPhotos/\00\00\32\03.jpg>)

### Building Layout



([https://images.vgsi.com/photos/NewMarketNHPhotos//Sketches/975\\_975](https://images.vgsi.com/photos/NewMarketNHPhotos//Sketches/975_975))

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	3,336	3,336
FAT	Attic, Finished	3,336	834
FGR	Garage, Framed	450	0
		7,122	4,170

### Building 2 : Section 1

**Year Built:** 1995  
**Living Area:** 2,664  
**Replacement Cost:** \$713,084  
**Building Percent Good:** 76  
**Replacement Cost Less Depreciation:** \$541,900

Building Attributes : Bldg 2 of 2	
Field	Description

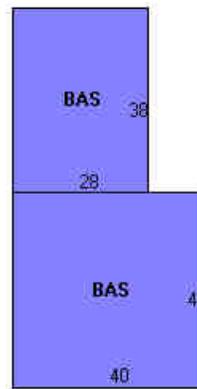
STYLE	Other Municipal
MODEL	Commercial
Grade	Average +10
Stories:	1
Occupancy	1.00
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	Central
Struct Class	
Bldg Use	TOWN-PROP MDL-94
Total Rooms	
Total Bedrms	
Total Baths	
Usrflid 218	
Usrflid 219	
1st Floor Use:	
Heat/AC	Heat/Ac
Frame Type	Wood Frame
Baths/Plumbing	Average
Ceiling/Wall	Ceil & Walls
Rooms/Prtns	Average
Wall Height	8.00
% Comn Wall	

### Building Photo



(<https://images.vgsi.com/photos/NewMarketNHPhotos/default.jpg>)

### Building Layout



([https://images.vgsi.com/photos/NewMarketNHPhotos/Sketches/975\\_102](https://images.vgsi.com/photos/NewMarketNHPhotos/Sketches/975_102))

Building Sub-Areas (sq ft)			<u>Legend</u>
Code	Description	Gross Area	Living Area
BAS	First Floor	2,664	2,664
		2,664	2,664

### Extra Features

Extra Features	<u>Legend</u>
No Data for Extra Features	

### Land

**Land Use**

**Use Code** 903C  
**Description** TOWN-PROP MDL-94  
**Zone** B1  
**Neighborhood** CM-A  
**Alt Land Appr** No  
**Category**

**Land Line Valuation**

**Size (Acres)** 0.92  
**Frontage** 0  
**Depth** 0  
**Assessed Value** \$339,900  
**Appraised Value** \$339,900

**Outbuildings**

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAVA	IMP PER SPACE			26.00 UNITS	\$35,900	1
SHD1	SHED FRAME			80.00 S.F.	\$600	1

**Valuation History**

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$1,226,900	\$339,900	\$1,566,800
2021	\$1,226,900	\$339,900	\$1,566,800
2020	\$1,226,900	\$339,900	\$1,566,800

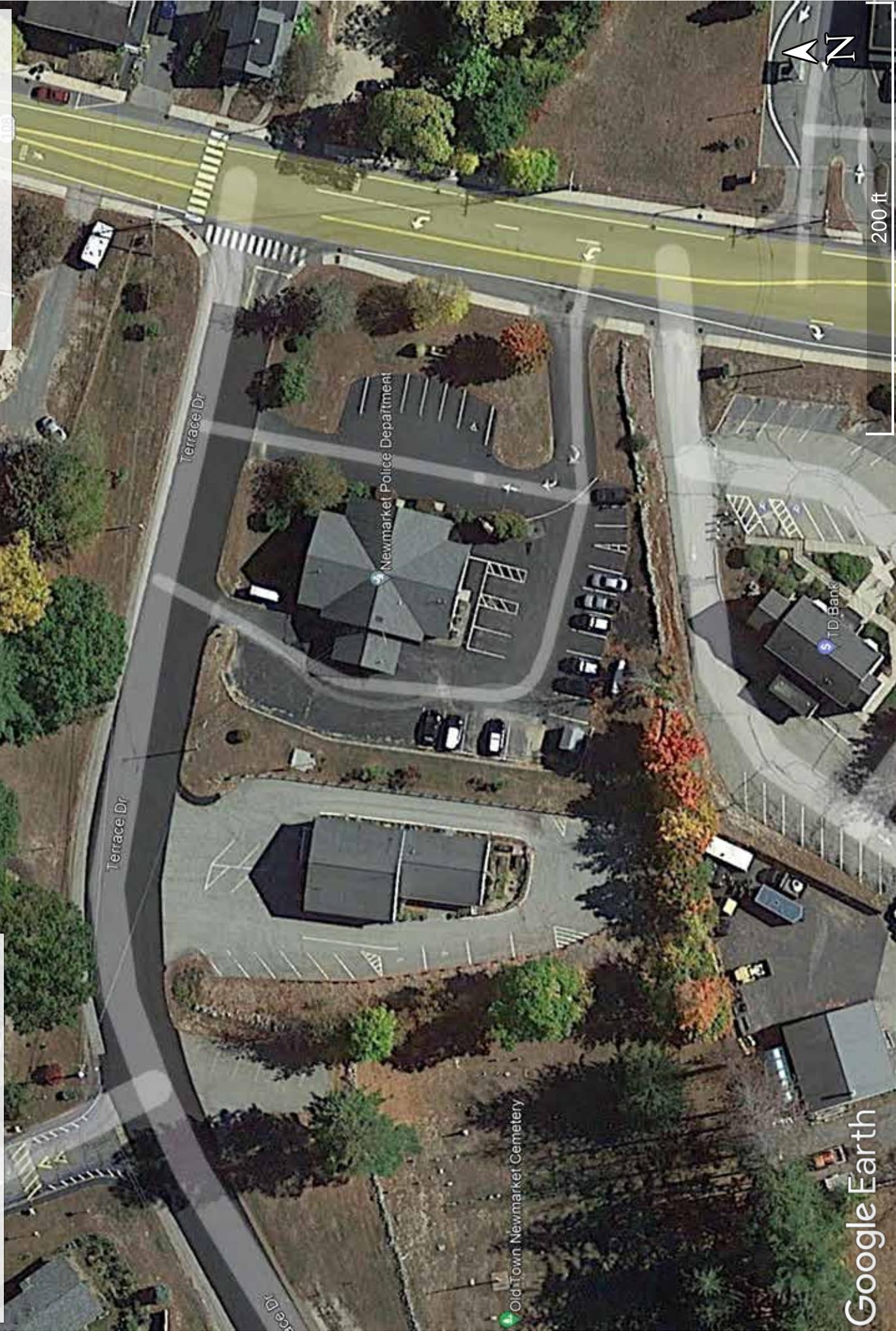
Assessment			
Valuation Year	Improvements	Land	Total
2022	\$1,226,900	\$339,900	\$1,566,800
2021	\$1,226,900	\$339,900	\$1,566,800
2020	\$1,226,900	\$339,900	\$1,566,800

# Newmarket Police Dept.

70 Exeter Street  
Newmarket, NH 03857

## Legend

-  Newmarket Police Department
-  Old Town Newmarket Cemetery



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Map by NH GRANIT  
Newmarket Police Station 04-28-23

Legend

- Parcels
- State
- County
- City/Town



Map Scale

1: 751

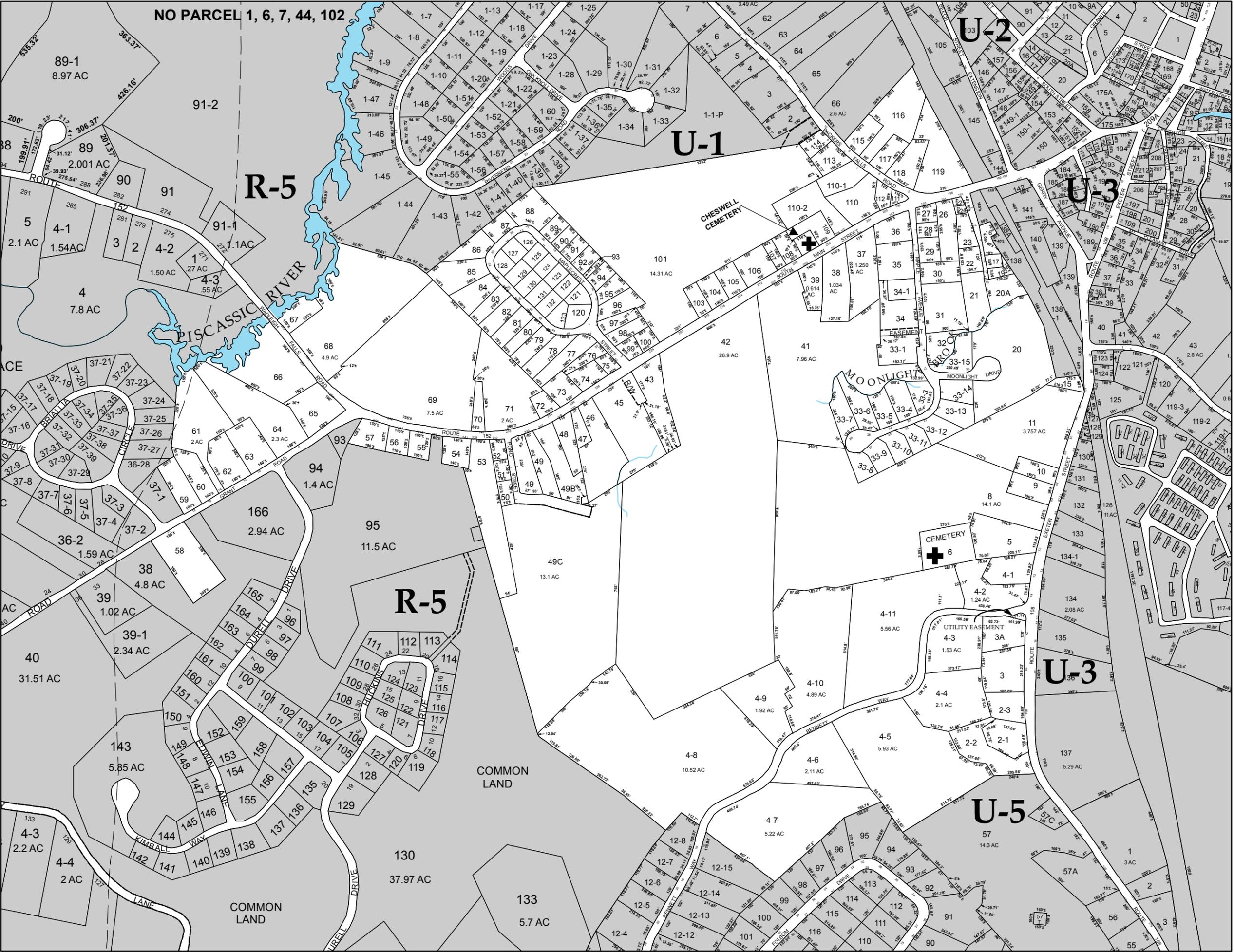
© NH GRANIT, www.granit.unh.edu  
Map Generated: 4/28/2023



Notes



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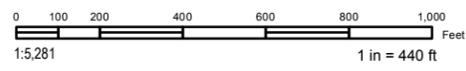


# U-4

## PROPERTY MAP NEWMARKET NEW HAMPSHIRE



GRID NORTH  
NH State Plane  
NAD 1983



- Utility ROWs
- Easements, Access Roads, Gravel Roads
- U-4 Current Map Sheet
- U-5 Adjacent Map Sheet
- Cemetery

This map was produced by the Strafford Regional Planning Commission. Original tax maps were compiled onto 1:4800 and 1:2400 NH GRANIT GIS Digital Orthophoto Quarter Quadrangles (DOQQ) on mylar and digitized to form a digital composite map in October, 2001. Parcel shapes were distorted as part of the compilation process; therefore, map-measured distances and areas may be different than reported distances and areas.

Original source maps:  
John E. O'Donnell & Associates; Auburn, Maine; Revised April 1, 1996.  
Updated and Reprinted by Doucet Survey, Inc.; Newmarket, NH; August 10, 1998.

UPDATES:  
June 2007 with data through 2006 (DA)  
June 2009 with data through 2008 (DC)  
April 2015 with data through March 2015 (CS)  
August 2016 with data through March 2016 (RM)  
July 2017 with data through April 2017 (RM)  
July 2019 with data through April 2019 (GIS Planner)

**THIS MAP IS FOR ASSESSMENT PURPOSES ONLY.  
IT IS NOT INTENDED FOR LEGAL DESCRIPTION OR CONVEYANCE.**



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May 12, 2023

Mr. Josh Lacasse  
Placework  
96 Penhallow Street  
Portsmouth, NH 03801

Re: Facility Assessment  
Police Station  
Newmarket Facility Plan

Dear Mr. Lacasse,

At your request, a site visit was made on April 10, 2023 to observe and comment on the structural existing conditions of the facility noted above, namely the Police Station.

The scope of services include identifying noteworthy deteriorated items that would assist in future restoration & modifications for the building.

Also reviewed for information were the following drawings:

- Newmarket Police Facility, prepared by Turner Group, 9 sheets dated 8/17/94.

Photographs are attached illustrating existing conditions found during the site visit. In attendance was Mr. Josh Lacasse of Placework; Ms. Karen Bloom, Town of Newmarket; Fred Emanuel and Bruce Scamman both of EEI.

#### Police Station

The building is located at 70 Exeter Road and has 4170 square feet of living area according to the town assessment card.

Built in 1992, the Police Station is a 1 ½ story wood framed structure constructed on a poured in place foundation wall and concrete slab on grade. Given the age of the structure, the wood walls are constructed of 2x6 studs. The exterior walls are covered with vinyl siding. There is no basement space.

*civil & structural consultants, land planners*

The half story section is finished and occupied. The floor of the half story and roof rafters are constructed of 2x12 @ 16" o.c. There are no collar ties just below the ridge board. The floor joists have a live load capacity of 50psf plus 15psf for partitions.

There is an attached garage, AKA a sally port measuring approximately 18x25 and has two overhead doors. A masonry wall separates the garage from the main structure. No framing is exposed nor accessible to determine framing conditions. A trench drain is located in the middle floor.

Conclusions and Recommendations

The 30-year-old Police Station structure is in good condition and needs no immediate repairs. The roof is in good condition. It is recommended that collar ties be installed at each of the two ridges.

This completes the writer's brief report. Thank you for the opportunity in providing structural engineering services.

Very truly yours,



Fred Emanuel, P.E.



Attachments:  
Photos (5 pages)



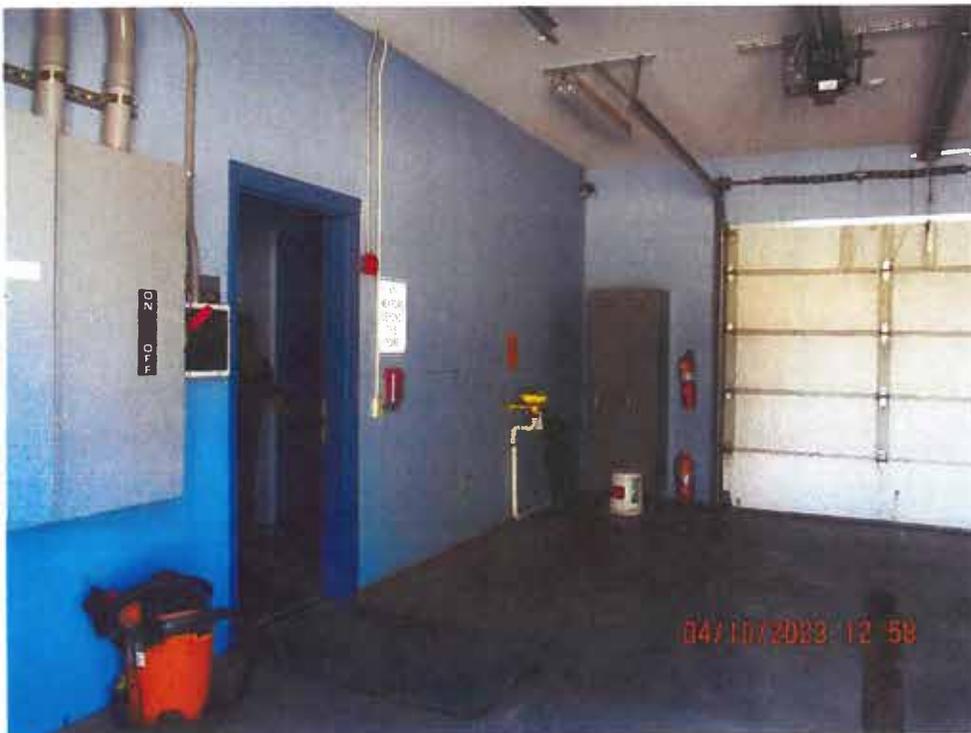
**Police Station – No collar ties at ridge board**



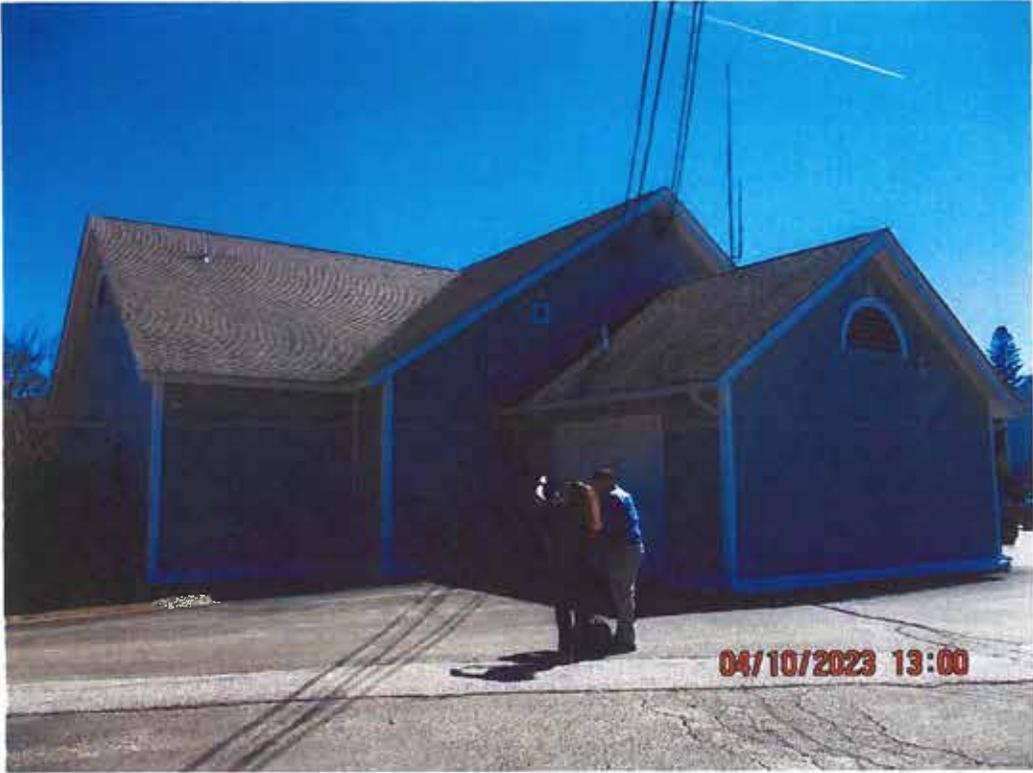
**Police Station – Insulation does not meet energy code**



**Police Station – Sally port**



**Police Station – Masonry wall separating sally port and main entrance**



**Police Station**



**Police Station – south side**



**Police Station – retaining wall exhibit signs of lateral movement**



**Police Station – front view**



Police Station – front view



Police Station – south view

# NEWMARKET POLICE STATION

NEWMARKET, NH

MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION

## SYSTEMS STUDY



Consulting Engineering Services, Inc.  
35 Pleasant Street, 1<sup>st</sup> Flr  
Concord, NH 03301  
CES Project #2023096.00

May 12, 2023

NEWMARKET POLICE STATION

Section 1. Introduction

The purpose of this narrative is to provide an evaluation and assessment of the mechanical, electrical, and plumbing (MEP) systems at the Newmarket Police Station, including recommendations and modifications for improvements, upgrades, and to support a potential expansion.

The report below will focus on three areas:

1. The conditions of the existing equipment and suggestions of remaining life expectancy.
2. Recommendations on improvements to the existing systems.
3. System design approaches and recommendations for a potential addition. At this time, a design of an addition has not been presented. Once the design has been developed, the recommended systems can be revisited with the layout of the building to better understand the best system. Note that the intent of these recommendations is not to define a specific work scope with all details, but rather to provide a general outline of the type of work that will be required.

Section 2. Fire Protection Systems

A. Existing Conditions

The building does not currently have a sprinkler system.

B. System Modifications for Addition

A new NFPA 13 wet sprinkler system should be added to the building. The system would consist of a 6" fire protection line routed to the building from the water main located in the street. The fire protection water service will be provided with a backflow preventer assembly in the fire service entrance room in the building.

Results from a recent flow test shall be provided by the water utility company. At this time we are assuming that the available flow and pressure are adequate for the building without the assistance of a fire pump.

C. System Standards

1. Alarm valves shall be installed to properly zone the sprinkler system.
2. Sprinklers shall be concealed, fully recessed in finished areas with ceilings. Sidewall, exposed, extended coverage sprinklers shall be installed where appropriate. Quick response sprinkler heads shall be used in light hazard locations. Sprinklers, unless noted otherwise, shall have a ½" orifice and a 165°F temperature rating. Intermediate temperature classification sprinklers shall be installed within the mechanical room, skylights and other applicable areas.
3. Piping for the sprinkler system shall be steel pipe, ASTM A 53; Schedule 40 seamless carbon steel. Schedule 10 pipe shall be allowed for pipe sizes larger than 2" diameter when roll grooved mechanical couplings are used. Sprinkler piping shall be installed above ceilings and concealed within chases where applicable.

4. Fittings shall be grooved mechanical fittings: ANSI A21.10 ductile iron; ASTM A47 grade malleable iron. Couplings shall be ASTM A 536 ductile iron or malleable iron housing, EPDM gasket with nuts, bolts, locking pin, locking toggle or lugs to secure roll grooved pipe and fittings.

### Section 3. Plumbing Systems

#### A. Existing Conditions

The building's domestic water consists of a 2" service off a 4" main with a water meter and shutoff valve. The service currently enters the building in the space adjacent to the IT Room. There is also no evidence of a backflow prevention device upon the pipe entering the building. The domestic water serves the bathrooms, locker rooms, and kitchenette fixtures in the building as well as the water heater.

The building hot water demand is supplied from an electric water heater (Bradford Model M280R6DS) located in the mechanical room with approximately 80-gallon capacity. The water heater was installed in 2013 and appears to be in good condition.

The plumbing fixtures throughout the building appear to be in good condition.

#### B. System Modifications for Base Building

##### Low Flow Plumbing Fixtures

The faucets appeared to be in good condition but if a lower consumption of water is an objective, the aerators on the faucets can likely be replaced with a lower flow option.

#### C. System Modifications for Addition

In order to support a potential addition to the Police Station, the following is recommended for the plumbing systems:

1. Connect the existing cold water main to the addition sized for the new fixture demand.
2. Provide a new hot water heater sized for the new fixtures.
3. Provide storm piping and roof drains, as required, and connect to the existing storm main below grade outside the existing building footprint.
4. Provide gas piping throughout the building as required for a new furnace and any other new equipment.

#### D. System Standards

5. Domestic cold water and domestic hot water shall be Type L copper conforming to ASTM B 88 and shall be connected by either press-seal fitting (ProPress) or soldered fittings.
6. Domestic water piping shall be insulated with rigid molded, noncombustible glass fiber insulation conforming to ASTM C335.

7. Domestic water piping throughout the building shall be installed above ceilings and concealed within walls. Jacketing shall be provided on piping exposed in occupied areas (when exposed pipe is located below 10’).
8. Storm, sanitary and vent piping shall be hub-less cast iron with standard torque clamps, conforming to CISPI 301 for above ground piping and hub and spigot cast iron conforming to ASTM A 74 for piping installed below the floor slab.
9. Storm, waste, and vent piping shall be concealed within chases and walls where possible.
10. Gas piping shall be ASTM A53 schedule 40 black steel, painted yellow.

**Section 4. Mechanical Systems**

**E. Existing Conditions – Air Handling Units (AHUs) & Condensing Units**

The building is served by a combination of ducted and ductless air handling units. There are 3 ducted air handling units located in the 2<sup>nd</sup> Level mechanical space. The units consist of a gas-fired heating furnace section, DX cooling coil section, and a blower. The DX cooling coil is connected to an outdoor condensing unit which are ground mounted on a concrete pad. The furnace heating section contains gas piping to it, flue ductwork, and combustion air ductwork connected to it.

The building is divided into 3 zones for the ducted AHUs: 1<sup>st</sup> Level Southside, 1<sup>st</sup> Level Northside, and the 2<sup>nd</sup> Level. The air is distributed to the space via ductwork and diffusers/grilles.

There are 3 ductless AHUs in the building that serve the 2<sup>nd</sup> Level Office, 1<sup>st</sup> Level Dispatch, and the 1<sup>st</sup> Level IT/Server Room.

The air handling units and condensing units observed were in good condition as they were recently installed. See the following two charts for a list of the AHUs and condensing units observed in the building.

Space AHU is Located	AHU Manufacturer & Model #	Cooling Nominal Tons
1 <sup>st</sup> Level – Dispatch Room	Mitsubishi PKA-A24	2.0
1 <sup>st</sup> Level – IT/Server Room	Mitsubishi PKA-A18	1.5
2 <sup>nd</sup> Level - Office	Mitsubishi MSZ-GL12	1.0
2 <sup>nd</sup> Level – Mech Room (Serving 2 <sup>nd</sup> Floor)	York (Model # Not Visible)	2.0
2 <sup>nd</sup> Level – Mech Room (Serving 1 <sup>st</sup> Level Northside)	York (Model # Not Visible)	5.0
2 <sup>nd</sup> Level – Mech Room (Serving 1 <sup>st</sup> Level Southside)	York (Model # Not Visible)	5.0

Condensing Unit Manufacturer & Model #	Cooling Nominal Tons
Mitsubishi PUZ-A24NHA7	2.0
Mitsubishi PUY-A18NKA7	1.5

Mitsubishi MUZ-GL12NA	1.0
Bryant 113ANA024-H	2.0
Bosch BOVA-60HDN1-M18M	5.0
Bosch BOVA-60HDN1-M18M	5.0

**F. Existing Conditions – Ventilation**

The building is provided with outside air via an outside air duct installed to the return duct of the ducted air handling units. This is a means of passive ventilation and relies on the negative pressure in the return ductwork for the outside air to be drawn into the building. It was noticed that ducted AHU serving the 2<sup>nd</sup> Level did not have an outside duct present.

The restrooms are provided with remote in-line exhaust fans mounted in the 2<sup>nd</sup> Level mechanical space. The exhaust fans appear to be in good condition.

**G. Existing Conditions – Controls**

The building has recently undergone a controls upgrade with the implementation of a Building Management System (BMS). The BMS controls and/or monitors the ducted AHUs. The Mitsubishi ductless air handling units are not connected into the BMS and are provided with local thermostat controls.

**A. System Modification for Base Building**

Outdoor/Ventilation Air for AHU-1

There was no visible outside air duct being provided for AHU-1 which serves the 2<sup>nd</sup> Level space. Based on the available floor plans, the 2<sup>nd</sup> Level space was planned to be unfinished which didn't require ventilation air for this space. Currently, the 2<sup>nd</sup> Level contains a conference room and an office with no ventilation being provided. It is recommended that an outside air duct is installed from a fresh air louver to the return main ductwork similar to the installation of the other two ducted AHUs.

Ventilation System Upgrade

The outdoor air is not pretreated which increases the load on the air handlers. In order to increase energy efficiency, it is recommended to install an energy recovery ventilator (ERV). The existing exhaust fans would be removed and the bathroom/locker room exhaust would be provided through the ERV as well. In the winter, an ERV captures the heat that is currently being exhausted directly out of the building and uses that energy to preheat the outdoor/fresh air coming into the building ducted to the return of the air handlers. In the summer, the ERV accomplishes the opposite and cools the air coming in.

An ERV consists of two fans and an energy recovery core mounted within a single housing. Utilizing the ERV will reduce energy consumption and load that the building has to heat or cool.

Connect Ductless AHUs into BMS

The ductless air handling units serving the 2<sup>nd</sup> Level Office, 1<sup>st</sup> Level Dispatch, and IT Room are currently controlled locally. It is recommended that these units be tied into the BMS for monitoring and controlling these remotely.

Remove Obsolete Thermostat

The 2<sup>nd</sup> Level assembly space has an old Honeywell dial thermostat that used to control a damper on the system but is no longer being used. It is recommended that this thermostat be removed in order to avoid confusion of the occupants trying to control the temperature of the space.

**B. System Modifications for Addition**

In order to support the heating and cooling needs of a potential addition to the Police Station, it is recommended that similar systems to the existing building be utilized: new gas-fired furnaces with DX coils for heating and cooling. Ventilation shall be provided with an ERV which would provide fresh air to the return ductwork of the AHUs and exhaust from the new bathrooms.

**C. System Standards**

1. All ductwork and accessories shall meet SMACNA standards. After installation of duct is complete third party shall clean all ductwork.
2. Provide all HVAC equipment with extra set of filters.
3. Seismic restraints shall be designed and installed as required per State Building Codes and Fire Safety Codes, which requires the seal of a licensed professional engineer. Abovementioned professional engineer will be required to verify installation is correct and complete per seismic code. This includes piping, ductwork, equipment, and equipment bases.
4. Provide glass fiber insulation for all hydronic piping and ductwork. Insulation shall be installed to meet the Energy Code.
5. Provide firestopping around mechanical penetrations in accordance with fire stopping requirements. System shall be capable of maintaining against flame and gases. System shall be UL listed and comply with ASTM E814.
6. Provide mechanical identification for mechanical systems. Identification shall comply with ANSI A13.1.
7. All pipe connections shall be installed to allow for freedom of movement of the piping during expansion and contraction without springing. Swing joints, expansion loops and expansion joints with proper anchors and guides shall be provided where shown.
8. Provide vibration isolation for hydronic piping, ductwork, and equipment.
9. Hydronic piping 2 1/2"  $\phi$  and under shall be Type L copper with either soldered or ProPress style fittings. Piping 3" and over shall be ASTM A 53; Schedule 10 black steel pipe with welded, flanged or grooved joints.

10. All equipment served by hydronic piping shall have isolation valves on the supply and return lines. Isolation valves shall also be provided at branch take-offs.

## Section 5. Electrical Systems

### A. Existing Conditions

#### Main Service

The building is served by a 120/240V, 1-phase, 3-wire, 400-amp electric service. The service entrance is located in the impound bay.

In general, the electric service and distribution is in good condition and no major issues were observed during the site visit. It appears that the building previously had a small backup generator with partial building backup but at some point the generator was replaced with a whole-building diesel generator with necessitated reorganization and refeeding of the service.

#### Generator

In the attic electrical room, there is an abandoned (but potentially still live) 120/240V, 1-phase, 3-wire, 60-amp Onan automatic transfer switch from the original partial backup.

In the impound bay, there is an active 120/240V, 1-phase, 3-wire, 400-amp Asco automatic transfer switch that is currently used for full building backup power. The building generator is a diesel-powered 100kW unit with a belly tank, manufactured by Olympian (model D100P1S). It was not possible to determine the fuel supply duration for the tank, however it appears to be most likely a 24 hour tank based on the dimensions.

#### Distribution

Distribution to branch circuits and equipment is provided through multiple distribution panelboards and load centers manufactured by Square D and General Electric. The panels are relatively new and are in good condition. Replacement is not required for these panels or branch breakers.

The distribution consists of a 400-amp main circuit breaker panelboard in the Attic that feeds most loads in the building, a smaller main lug only load center labeled 'Generator' fed from the main panelboard (load center size is likely 100-amp or less but could not be verified in the field).

The second floor Mechanical Room panelboard is a relatively new, 225A, 120/208V, 3-phase, 4-wire panelboard. There are no apparent issues with the condition or installation of this panelboard.

#### Devices/Lighting

The building has a relatively low number of convenience receptacles, which is typical of this type of building.

Lighting is predominantly provided by direct overhead lighting with fluorescent fixtures. Lighting control is accomplished through manual, line voltage switching. Light fixtures appear to be in good condition. LED fixtures offer higher efficacy and would be a worthwhile upgrade to reduce energy usage in the building as the fluorescent fixtures reach their end of life.

#### Fire Alarm

The building has an automatic fire alarm system consisting of a zoned Notifier SFP-5UD fire alarm control panel (FACP). This is a modern fire alarm control panel and replacement is not recommended.

The building does not have an NFPA 13 (complete) sprinkler system; therefore the initiation appliances (pull stations, smoke detectors) comprise the means of initiating an alarm sequence in the building.

An alarm in the building will activate the notification appliances, which consist of audible/visual devices (horn/strobes and strobe only devices). The existing system and devices appear to be in good condition and the system appears to be able to support some level of expansion.

#### Devices/Lighting

As referenced in the Existing Conditions section of this report, lighting is generally in good condition. Lighting control is rudimentary (simple on/off switches) and does not meet current Energy Code requirements for time control, occupancy/vacancy operation, etc. Therefore, the following recommendations are listed with notes regarding intent and importance.

1. Replace existing toggle switches with line voltage occupancy/vacancy sensors in smaller spaces (including, but not limited to spaces such as Offices, Kitchenette, Offices, Bathrooms). This prevents lights from being left on and maximizes energy savings. Note that this recommendation does not apply to locations such as Dispatch where manual lighting control is preferred.

#### Fire Alarm

The recommendations for the fire alarm system are based on the system being capable of supporting additional initiation devices (smoke detectors, pull stations, heat detectors, etc.) and notification appliances (horn/strobes, strobe-only devices).

1. Provide additional notification appliances to complete coverage for new spaces.

#### B. System Standards

The following standards shall be followed for the installation of all electrical equipment referenced within this document:

1. All conductors shall be copper.

2. Circuits shall be installed in EMT conduit.
3. Circuiting shall conform to the following guidelines:
  - a. Provide no more than (5) duplex receptacles on a single branch circuit.
  - b. Provide (1) 20A/1P branch circuit for each office space with (1) quadruplex receptacle and (3) duplex receptacles.
  - c. Provide (1) 20A/1P duplex receptacle mounted above sinks in each bathroom.
4. Provide circuits for all HVAC equipment as required. 120V wiring to control panels, control transformers, etc. shall be provided by the electrician; low voltage control wire shall be provided by the mechanical contractor.
5. Provide circuits for all plumbing equipment.
6. Provide circuits for fire alarm equipment as required.
7. Provide circuits for any security system devices as required.
8. Provide emergency lighting in all egress paths via self-contained wall-mounted battery units (EBU's).
9. Provide self contained, battery-powered, thermoplastic, universal mounting, LED-illuminated, low energy use exit signs.
10. Provide the following illumination levels:
  - a. 15 foot-candles – corridors, bathrooms, storage rooms, stairways, lobby spaces
  - b. 30 foot-candles – offices, kitchenette, interview room, etc.
11. Provide the following fixture types:
  - a. 2'x2' recessed or surface-mount architectural LED fixtures in areas other than lobbies
  - b. Additional architectural fixtures for high-finish areas such as entry hall or as specified in Architectural documentation.
  - c. Exterior LED wall pack at all entrances.
12. Provide the following lighting control functionality/features:
  - a. Dimming control for common spaces and offices.
  - b. Occupancy/vacancy sensors (selectable) shall be provided in all lit areas except in utility rooms, lobby, circulation, corridors, and other rooms exempted by Code.
13. Include the following basic materials and methods of construction:
  - a. Wiring shall be THHN/THWN copper, installed in EMT conduit for general circuits.
  - b. Devices shall be specification-grade, NEMA 5-20R, etc.
  - c. Disconnect switches shall be fusible heavy-duty type, NEMA 1 or 3R as required for installed location.
  - d. Circuit breakers shall be fixed element, thermal magnetic type.
  - e. Panelboards shall have copper bussing with hinged, lockable, door-in-door trims.
  - f. Branch circuit breakers shall be bolt-on type.
  - g. All conduits, circuits, and devices shall be labeled using a label printing machine (no handwritten labeling is allowed).
  - h. Conduits below slabs shall be Schedule 40 PVC with rigid steel conduit sweeps.

Section 6. Photos of Existing Conditions



General photo of assembly space on 2<sup>nd</sup> floor (showing supply grilles, smoke detectors, lighting, etc.)



Return diffuser in assembly space



Thermostat (typical for most zones)

Consulting Engineering Services, Inc.



Thermostat (no longer used)

May 12, 2023



Air handler with gas furnace (typical)



Ductwork associated with air handler in attic space



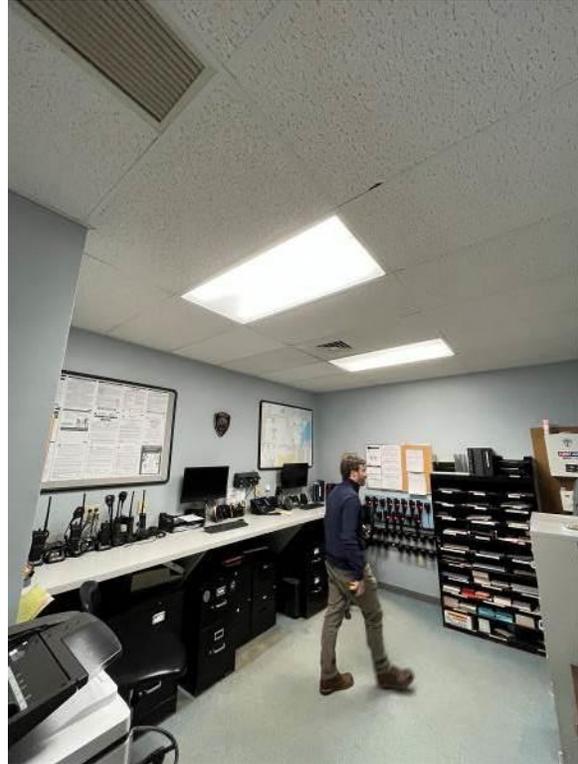
Fan coil for office on 2<sup>nd</sup> floor



Drinking fountain



Emergency lighting (note that entire building is on generator)



General photo for lighting, diffusers, etc.



Bathroom with 4-way diffuser, fluorescent surface-mounted light fixture



Urinal (typical)



Flush-valve wall-mounted water closet (typical)



Lavatory (typical)



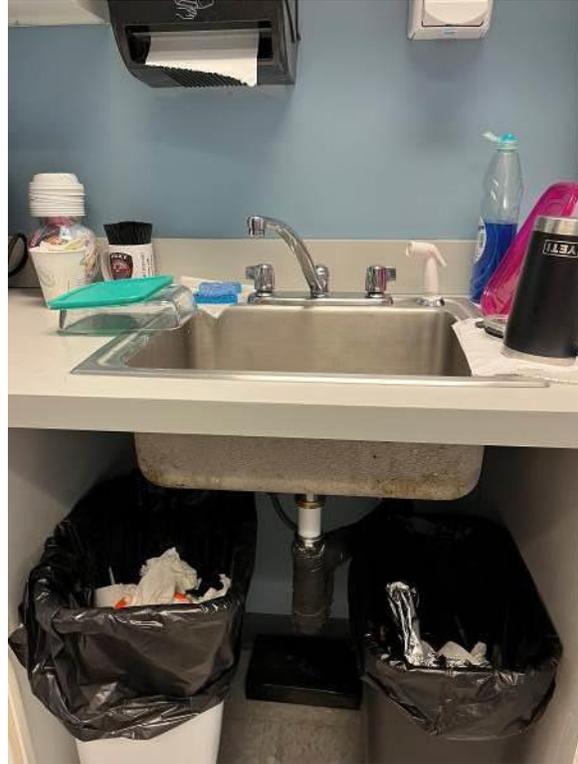
Fire alarm strobe only device (typical)



Diffuser (typical)



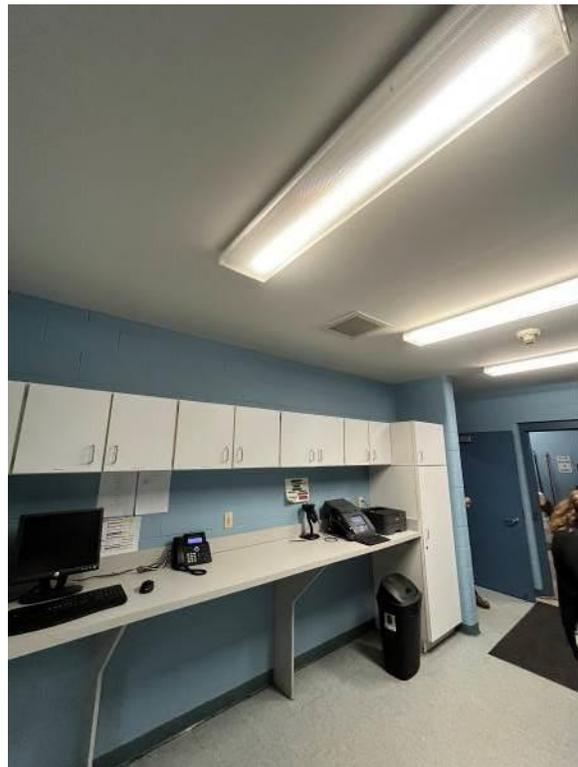
Manual fire alarm pull station



Break room sink



Aftermarket adjustable diffuser due to occupant complaints



General lighting



Electric tank-type water heater with expansion tank above



Gas-fired unit heater in Sallyport



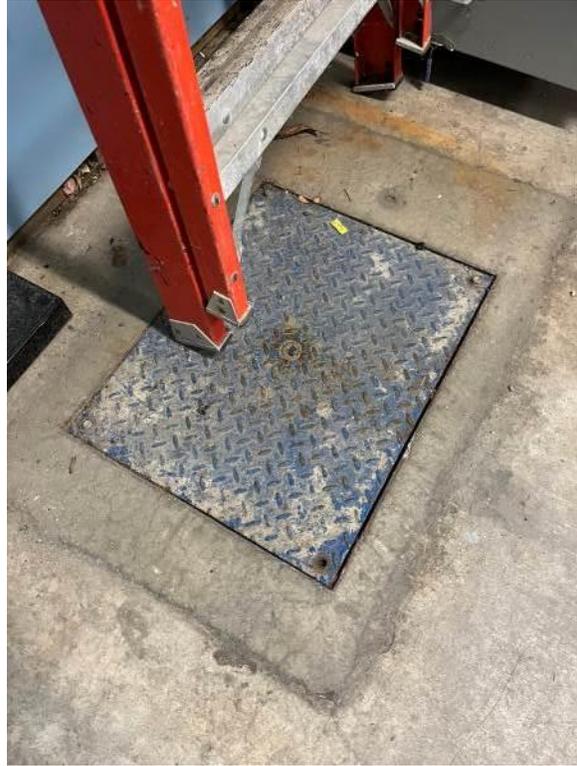
Eyewash station in Sallyport



Trench drain in Sallyport



Exit sign (typical)



Sand/oil interceptor in Sallyport



Exterior condensing units



Exterior heat pump for 2<sup>nd</sup> floor office, refer to narrative for zoning information



Electrical utility meter



Generator



Main Distribution Panelboard on 2<sup>nd</sup> floor and defunct automatic transfer switch from previous, smaller generator



Load center (labeled as Generator, however entire building is now on generator)



Above-ground propane tank



Fire Alarm Control Panel



**EXISTING BUILDING CONDITIONS ASSESSMENT  
FIRE PROTECTION SYSTEMS, LIFE SAFETY & ACCESSIBILITY**

**NEWMARKET POLICE STATION  
70 EXETER STREET, NEWMARKET, NH**

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## 1.0 EXECUTIVE SUMMARY

As part of the Town of Newmarket municipal facilities master plan effort, JS Consulting Engineers, PLLC (JSCE) has performed an existing building conditions assessment and code analysis of the Police Station building located at 70 Exeter Street in Newmarket, New Hampshire. The police station is a two-story building that houses the police operations for the Town of Newmarket.

This analysis will consider three main scenarios: 1) No changes are made to the building, 2) The building floor plan is modified to accommodate the current Police Department needs, but the work is less than 50% of the building area and the occupancy classification remains the same, and 3) The building floor plan is modified to accommodate the current Police Department needs and the Work Area exceeds 50% of the building area (while the occupancy classification remains the same).

If no new renovation work is completed in the building (Scenario 1) the building is still required to be in compliance with the existing occupancy requirements of the Life Safety Code (NFPA 101) and existing building requirements of NFPA 1 under Saf-FMO 300. There is also an obligation under the ADA to address readily removable architectural barriers to allow for incremental improvements to the level of accessibility provided throughout the building.

This Report does not contemplate a future change in use in the building except where specifically noted. It is assumed that any future renovation or reconfiguration of the building would include the continued use of the building as a Police Station.

### 1.1. KEY ISSUES

The most significant fire safety, life safety and accessibility code compliance issues identified are summarized below. Further information on each of these issues can be found in the body of the report. A complete list of the observed issues/deficiencies can be found in Section 9.0.

- There is currently a single compliant means of egress from the Second Floor of the building. This configuration is not permitted by the existing Life Safety Code.
- It is understood that the Town of Newmarket's desired programming includes an 80-occupant training room in the building. This would be considered a change of occupancy from business to assembly. The current building does not support this change of occupancy without either providing additional rated construction in the building or the installation of a sprinkler system.

## 2.0 BUILDING DESCRIPTION

The existing building is two-stories in height and has a footprint of approximately 3,600 square feet. It includes a dispatch room, offices, a booking area with holding cell and interviewing room, a sallyport, locker rooms, small conference rooms, and MEP/storage spaces.

The building is equipped throughout with an automatic fire alarm system. It does not have a fire sprinkler system.

The purpose of this assessment is to visually examine the existing fire protection, life safety, and accessibility features provided in the building in order to determine the general overall condition of the building and to identify observable fire protection, life safety and accessibility code deficiencies. JSCE understands there is no new work currently planned for the building; however, issues identified that could impact future renovations or repurposing of the building are discussed in general terms in this Report. Three (3) scenarios are described in this Report representing a range of different possibilities for the near term and long-term use of the building. These scenarios are described below.

**Table 1 - Report Scenarios**

<b>Scenario 1</b>	No new work is performed in the building.
<b>Scenario 2</b>	The building undergoes renovations in isolated areas of the building affecting less than 50% of the total area (the <i>Work Area</i> is less than 50% of the building area). The renovations do not include any changes in the existing uses of the building. However, areas are permitted to be reprogrammed without triggering a change in use.
<b>Scenario 3</b>	The building undergoes renovations in areas of the building affecting 50% or more of the total area (the <i>Work Area</i> is greater than or equal to 50% of the building area). The renovations do not include any changes in the existing uses of the building. However, areas are permitted to be reprogrammed without triggering a change in use.

A *Work Area* is defined as follows:

*That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents. Work Area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this code.*

The *Work Area* generally applies to architectural reconfigurations, not MEP systems modifications / upgrades. For example, the installation of a new HVAC system would be considered a Level 2 Alteration without the creation of a *Work Area*. The determination of a *Work Area* should be evaluated on a case-by-case basis.

Note that JSCE's scope of work does not include review of existing mechanical, electrical, plumbing, or structural systems or energy performance / efficiency. This Report is based on the site visit performed by Alex M. Browning, P.E. and Jennifer I. Sapochetti, P.E. of JSCE on March 9, 2023, the existing building architectural drawings from 1994, and the requirements of the applicable codes identified below.

The site visit included a visual observation of the general layout of the building. No system testing or destructive or intrusive inspections were conducted by JSCE. As the objective of this review is to determine the general condition of the facility, not all rooms and spaces were inspected. Where specific deficiencies are noted, the list is in no way comprehensive and should be considered cursory in nature.

**2.1. OUTSTANDING JURISDICTION VIOLATIONS**

JSCE assumes there are no outstanding code violations on file with the Newmarket Building or Fire Departments. JSCE also assumes there are no outstanding accessibility complaints filed by occupants with the U.S. Department of Justice (ADA violations).

### 3.0 APPLICABLE CODES

As of March 2023, the state of New Hampshire adopts the following codes and standards as part of the New Hampshire State Building and Fire Codes. This includes the following:

**Accessibility** - 2010 ADA Standards (ADAS)

ICC A117.1 as adopted and scoped by NHBC Chapter 11.

**Building** - New Hampshire State Building Code (NHBC). The NHBC is an amended version of the 2018 International Building Code.

**Electrical** - NFPA 70, National Electrical Code, 2020 Edition (NEC)

**Energy Conservation** - New Hampshire Energy Conservation Code (NHECC). The NHECC is an amended version of the 2018 International Energy Conservation Code.

**Existing Building** - New Hampshire Existing Building Code (NHEBC). The NHEBC is an amended version of the 2018 International Existing Building Code.

**Fire Safety** – Saf-FMO 300 which adopts and amends NFPA 101, The *Life Safety Code*, 2018 Edition (LSC) and NFPA 1, The *National Fire Code* 2018 Edition (NFPA 1)

**Mechanical** - New Hampshire Mechanical Code (NHMC). The NHMC is an amended version of the 2018 International Mechanical Code.

**Plumbing** - New Hampshire Plumbing Code (NHPC). The NHPC is an amended version of the 2018 International Plumbing Code.

An existing building not undergoing any new work is not required to retroactively comply with the new construction requirements of the current applicable building codes and standards. However, any new work proposed is subject to the requirements of the codes and standards listed above as scoped by the NHEBC, Saf-FMO 300 (LSC Chapter 43 and NFPA 1) and the ADAS<sup>1</sup>.

All existing buildings are required to be maintained in compliance with the existing building requirements of Saf-FMO 300 which includes the existing occupancy requirements of LSC and NFPA 1.

Existing public buildings are also subject to the Readily Removable Barriers provisions (RRB) under Title II of the ADA (28 CFR §36.304), regardless of whether new work is performed. The RRB requires public buildings to continually review the level of accessibility provided and to make incremental improvements to a building's accessibility where it is readily achievable<sup>2</sup>.

### 4.0 CONSTRUCTION AND OCCUPANCY CLASSIFICATION

#### 4.1. OCCUPANCY CLASSIFICATION

The occupancy classification of the building is primarily Group B in accordance with the NHBC and Existing Business in accordance with the LSC. Mechanical and storage spaces are classified as Group S-2 in accordance with the NHBC and Low-Hazard Storage in accordance with the LSC.

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<sup>1</sup> Should the applicable codes and standards be updated prior to the start of new work in the building; new work should be designed to those applicable codes and standards.

<sup>2</sup> The term “readily achievable” is a subjective term and is based on the ease in which accessibility upgrades can be made based on technical feasibility, “means and opportunity”, cost, and the building owner’s ability to pay for such improvements. This can vary significantly from building to building; therefore, should be reviewed on a case by case basis.

It should be noted that there is a holding cell within the police station; however, it is for a single occupant only and is only used for short-term detention, not overnight. Therefore, it is not considered a Group I-3 occupancy and can be considered part of the predominant occupancy (Group B).

**Table 2. Occupancy Classifications**

Occupancy Classification	Uses
Group B, Existing Business	Offices, Locker Rooms, Conference Rooms < 50 Occupants, Dispatch, etc.
Group S-2, Low-Hazard Storage	Mechanical/Utility Rooms, Storage Spaces

**If the use of the building or portion thereof were modified to provide a training room having 50 or more occupants, the occupancy classification of that space would be considered Group A-3 Assembly. A change in occupancy classification will require compliance with NHEBC Chapter 10 and LSC Chapter 43.7. Generally, a conversion from Group B to Group A-3 will require the building to comply with current NHBC code requirements for height and area, means of egress, and fire protection systems. Under the LSC, a conversion from business to assembly will require compliance with LSC Chapter 13 for Existing Assembly occupancies.**

#### 4.2. EXISTING BUILDING CONSTRUCTION

The existing building is built of wood-framed construction most closely resembling a construction type of VB in accordance with the NHBC and V(000) in accordance with the LSC.

**Table 3. Allowable Height & Area - Unsprinklered Type VB Construction w/o Frontage Increase**

Use Classification	NHBC <sup>3</sup>	NHEBC	Existing LSC	New LSC
<b>Group B</b>	2-stories / 40-feet 9,000 square feet per floor, 18,000 gross square feet	The height and area of an existing building undergoing a Level 1, Level 2 or Level 3 Alteration without a Change in Use (to a higher hazard category) or Addition does not need to meet the height and area criteria prescribed for New Construction <sup>4</sup> .	Not Restricted	Not Restricted
<b>Group S-2</b>	2-stories / 40-feet 13,500 square feet per floor, 27,000 gross square feet		Not Restricted	Not Restricted

The following summarizes the three major scenarios under consideration: Scenario 1 – No New Work, Scenario 2 – Level 2 Alteration, Scenario 3 – Level 3 / Major Alteration as it relates to construction type and the existing height and area of the building.

**Under Scenario 1, where no new work is performed, the building is compliant from a height and area standpoint as-is, as the LSC does not contain height and area restrictions for existing business or storage occupancies.**

<sup>3</sup> Per NHBC Table 504.3, Table 504.4, Table 506.2, and §506.2.3 - Only applicable for new construction or where there is a Change in Use to a higher hazard category per the NHEBC.

<sup>4</sup> NHEBC Chapters 7, 8, and 9 and Sections 1012.5 and 1102.0. Existing buildings undergoing a change in use to a higher hazard category based on NHEBC Table 1012.5 or undergoing an addition are required to meet the height and area requirements for new construction per NHBC Chapter 5.

**Scenarios 2 and 3 consider building renovations of less than and greater than 50-percent of the building area, respectively. In both scenarios, the existing height and area of the building are considered acceptable under the NHEBC, as there are no requirements to re-evaluate height and area where alterations are performed without an addition or change of occupancy.**

**If the building is converted to Group A-3 occupancy, such occupancy will be limited to the First Floor and will require a 2-hour rated floor assembly to separate the Group A-3 space from the Second Floor. Alternatively, a fire sprinkler system could be installed to permit a 2-story Group A-3 building with Type VB construction. This approach would eliminate the requirement for a 2-hour floor assembly and would allow the Group A-3 area to be located on either the First or Second Floor.**

## **5.0 FIRE PROTECTION SYSTEMS**

### **5.1. FIRE SPRINKLER SYSTEM**

The building is currently not provided with a fire sprinkler system.

**Under Scenario 1, where no new work is performed, the building does not require the installation of a sprinkler system, as the LSC does not have fire sprinkler requirements for existing business or storage occupancies.**

**Scenarios 2 and 3 consider building renovations of less than and greater than 50-percent of the building area, respectively. In both scenarios, installation of sprinkler protection is not required by the NHEBC, as the building would not be required to be sprinkler-protected if built new under the NHBC with this size and occupancy classification.**

**If the building is converted to Group A-3, a fire sprinkler system is not required since the total building area is less than 12,000 square feet, the occupant load of the Assembly Use space is less than 300-people and it is assumed the training space would be located on the First Floor. However, as discussed in Section 4.2, a sprinkler system may be provided in lieu of providing a 2-hour floor/ceiling assembly between a First Floor Group A-3 area and the floor above. Note this assumes that the new training space is provided within the footprint of the existing building. If an addition is constructed, further review of the code implications of an addition is required.**

### **5.2. FIRE EXTINGUISHERS**

The building is equipped with fire extinguishers conspicuously located within the corridors. The fire extinguishers observed appear to be inspected regularly based on the inspection tags provided.

LSC §39.3.5 requires fire extinguishers throughout existing business occupancies. Fire extinguishers should be maintained throughout the building such that an extinguisher can be reached within 75-feet from all locations. This appears to be met based on the extinguisher layout observed.

### **5.3. FIRE ALARM & DETECTION SYSTEM**

The building is equipped with an existing conventional fire alarm system. The fire alarm control unit (FACU) is a Notifier Model SFP-5UD manufactured by Honeywell. The FACU is located in the IT closet accessed from Dispatch Room 110 on the east side of the building. The existing fire alarm system has the following characteristics:

- Manual pull stations at all exit doors
- Smoke detectors throughout building common spaces and at the FACU
- Heat detectors in HVAC and storage rooms on the Second Floor
- Strobes and combination horn/strobes throughout the building
- Remote annunciator at the main building entry lobby

The system should be maintained in accordance with LSC §9.6 and NFPA 72.

**In Scenario 1, the existing system is not required to be modified, as it is assumed to have been designed in accordance with the applicable codes and standards at the time of installation. In Scenarios 2-3, the existing system is required to be modified to accommodate the revised layout of the building.**

Issues observed during the site visit relative to the fire alarm system are summarized in Section 9.0 of this Report.

## **6.0 MEANS OF EGRESS**

The First Floor of the building is equipped with three (3) means of egress – two directly to the exterior from the central corridor running the width of the building and another from the entry lobby. The Second Floor of the building is provided with a single means of egress via a partially-enclosed exit stair which discharges to the interior corridor on the First Floor.

In accordance with LSC §7.4.1.1 each floor of the building is required to be served by a minimum of two (2) exits except where specifically permitted by the appropriate occupancy chapter.

**In Scenario 1, the existing egress arrangement is required to comply with the egress requirements of LSC Chapter 39 and 42 for business and storage occupancies, respectively. LSC §39.2.4 provides multiple exceptions that permit a single means of egress from a given story; however, none of these exceptions apply since the Second Floor exit stair discharges to the interior, the travel distance from the remote portion of the Second Floor to the exit discharge exceeds 100 feet, and the building is not equipped with a fire sprinkler system.**

**As such, the single-exit arrangement from the Second Floor is not currently code-compliant.**

**In Scenarios 2-3, the revised layout of the building is required to comply with the new construction egress requirements of the NHBC as scoped by the NHEBC based on the extent and location of the Work Area.**

Refer to Section 9.0 of this Report which discusses additional issues identified related to building exits and means of egress.

### **6.1. ACCESSIBLE MEANS OF EGRESS**

In accordance with LSC §7.5.4.1 and NHBC §1009.1 Ex. 1 accessible means of egress are not required to be provided in an existing building. This includes existing buildings undergoing a renovation.

No work is required to provide accessible means of egress unless an addition is constructed. If an addition is constructed, the newly constructed areas of the building are required to be served by accessible means of egress in accordance with NHBC §1009.0, LSC §7.5.4 and the ADAS.

## **7.0 LIFE SAFETY SYSTEMS**

Illuminated exit signs with a secondary power source are required at each exit, throughout the corridors, and in all rooms and spaces requiring two (2) or more means of egress so that an exit sign is visible within 100-feet along the egress path in an existing building (LSC §7.10). Similarly, all existing buildings are required to have both normal and emergency means of egress lighting along all means of egress including corridors, exit stair enclosures, points of exit discharge and the exterior path of travel from the exit discharge to the public way (LSC §7.10).

**In Scenario 1, the emergency lighting and exit signage is required to comply with the egress requirements of LSC Chapter 39 and 42 for business and storage occupancies, respectively. Exit signage was observed throughout the building. All means of egress were observed to be illuminated, and it is understood, based on correspondence during the survey, that the entire building is powered from the generator located outside the building.**

**In Scenarios 2-3, the revised layout of the building is required to comply with the new construction emergency lighting and exit signage requirements of the NHBC as scoped by the NHEBC (Sections 805.7, 805.8, 905.2, 905.3).**

## 8.0 ACCESSIBILITY

Per 28 CFR §36.304 under Title II of the ADA, the accessibility features of the building should be on a program to continually improve the level of accessibility in the building to the extent such work is “readily achievable”. JSCE recommends that, at a minimum, the following accessible features should be provided in the building, if not currently provided or not currently fully accessible:

- At least one (1) accessible building entrance connected to an accessible route from the public way (e.g., parking lot, sidewalk, etc.)
- An accessible route through each level of the building. This should include not less than 32-inches of clear width through doorways along the circulation route, accessible room signage, and accessible fire alarm notification appliances.
- At least one (1) accessible bathroom

**The First Floor is served by an accessible entrance; a compliant accessible bathroom is not provided, and there is no accessible route to the Second Floor of the building. Refer to Section 9.0 of this Report for a summary of additional accessibility issues identified.**

## 9.0 FINDINGS

Based on the site visit and information and data provided regarding the building by Placework, the following issues were identified. These represent issues that range from non-compliance with the existing building requirements of the LSC (Saf-FMO 300), which should be addressed as part of on-going building maintenance, to issues that do not comply with the new construction requirements of the LSC, NHBC or NHEBC and would need to be (or are recommended to be) addressed as part of future work in the building.

With regards to accessibility, the issues identified are not in compliance with the requirements of the ADA Standards (ADAS), NHBC Chapter 11, and / or ICC A117.1. Where issues identified are readily achievable to address (without significant cost or renovation); under the ADA Readily Removable Barriers Act (RRB) these issues should be addressed regardless of new work proposed for the building. Where a design solution is not readily achievable, changes to an operational procedure or the use of signage are often deemed acceptable alternatives. These issues should be reviewed case-by-case.

The recommendations provided are based on the objective of providing the minimum levels of required compliance with the State Building and Fire Codes, ICC A117.1 and the ADAS.

The “Applies to Existing” column on the right-hand side of the table is intended to differentiate between deficiencies that are required to be addressed regardless of any work conducted in the building (i.e. required by Saf-FMO 300) and those that are not specifically triggered by the applicable codes unless work is conducted. It should be noted that even if a deficiency is not specifically required to be remedied by the applicable codes in the absence of project work, the local Authority Having Jurisdiction (AHJ) always has the authority to require an issue be addressed if they feel it poses a life safety hazard.

Item	Location	Findings	Code Ref.	Applies to Existing
1.	Stair	<p>There is a single stair serving the Second Floor of the building. The stair is enclosed only on the First Floor while remaining open to the Second Floor. It discharges into the main corridor on the First Floor. A single means of egress is permitted in Existing Business occupancies only under certain conditions as outlined in LSC §39.2.4, none of which are currently met.</p> <p>A second means of escape is provided from the Second Floor through a hatch in the sallyport ceiling; however, this is not a code-compliant means of egress.</p> <p>This issue should be further discussed.</p>	LSC §39.2.4	Yes
2.	Stair	<p>The stair is equipped with a handrail only on one side that is not continuous or compliant with the ADAS. For new stairs, handrails are required on both sides; however, there is an exception permitting existing stairs to be equipped with a handrail only on one side.</p> <p>The existing handrail should be modified or replaced with a new handrail that complies with NHBC, LSC and the ADAS. As part of this work, consideration should be given to installing a compliant handrail on the other side of the stair where one currently is not provided.</p>	LSC §7.2.2.4.1.6	No
3.	Stair	<p>Storage was observed at the top and bottom landing of the stairwell. Exit stairs are required to be maintained free of storage, and anything else that does not specifically serve the stair or has the potential to interfere with its use as a means of egress.</p> <p>Storage at the stair landings should be removed and future storage prohibited that could impede exit stair access.</p>	LSC §7.1.3.2.3, NHBC §1022.1	Yes
4.	Fire Doors	<p>The doors along the First Floor corridor were observed to be 45-minute fire doors. However, many of the rated doors were propped open or held open with kickstands. Fire doors are required to be self or automatic-closing in order to function as intended.</p> <p>If it is desired to keep fire doors open under normal operations, they should be equipped with magnetic hold-opens that are released by the fire alarm system upon general alarm. Additionally, the kickstands mounted to the doors should be removed.</p> <p>Note that a rated corridor with rated doors is not required in a fully sprinklered building.</p>	LSC §8.3.3.3	Yes

Item	Location	Findings	Code Ref.	Applies to Existing
5.	Fire Alarm Visible Notification	<p>Visible notification is generally required in common spaces of the building, such as common restrooms, conference rooms, areas where the public may be present, etc. Visible notification (strobes) were not observed in the following spaces:</p> <ul style="list-style-type: none"> <li>• Conference room accessed off the main reception area (Room 106)</li> <li>• Reception (Room 104)</li> <li>• Kitchenette (Room 109)</li> <li>• Holding cell (Room 123)</li> <li>• Female locker room (Room 119)</li> <li>• Dispatch (Room 110)</li> <li>• Sallyport (Room 128)</li> <li>• Second Floor conference room</li> </ul> <p>These items are not required to be updated if no work is being done in the building; however, they are recommended to be addressed as feasible and/or when the fire alarm system is modified/upgraded.</p>	NHBC §907.5.2.3	No
6.	Fire Alarm Audible Notification	<p>Audible notification is required throughout the building. Audible notification is required to achieve 15 dBA above the ambient sound level. Fire alarm horns were observed in the central corridors only such that audibility levels in the remainder of the building are dependent on a handful of centrally located horns must generate sufficient sound pressure to reach all remote portions of the building.</p> <p>It should be confirmed during testing that minimum audibility levels are achieved throughout all spaces in the building.</p>	NHBC §907.5.2.1	No
7.	Accessibility, Second Floor	<p>There is no accessible route provided to the Second Floor.</p> <p>The Second Floor houses a conference room and the detective's offices. If it is not feasible to install an elevator or lift to serve the Second Floor accommodations should be available to provide an alternate location for meetings in the conference room or with the detective in an accessible location of the First Floor.</p>	ADAS §206	Yes <sup>5</sup>
8.	Accessibility, Door Hardware	<p>Round door knobs are not accessible door hardware, as they require tight grasping and twisting of the wrist to operate. Several doors throughout the building are equipped with twist type door knobs. JSCE recommends all round door knobs be replaced over time (or as part of future work) with accessible door hardware. Priority should be given to doors serving exits and common use spaces.</p>	ADAS §309.4 & §404.2.7 / ICC A117.1 §309.4 & 404.2.6	Yes <sup>5</sup>

<sup>5</sup> Observed accessibility deficiencies are required to be addressed **where readily achievable** per the RRB provisions of ADAS.

Item	Location	Findings	Code Ref.	Applies to Existing
9.	Accessible Bathrooms	<p>None of the bathrooms in the facility were observed to be fully accessible. Modification to at least one (1) unisex bathroom should be made to bring it into compliance with the accessible bathroom requirements of the ADAS and ICC/ANSI A117.1.</p> <p>If there is no other work being performed and full compliance is not feasible without a reconfiguration of space, upgrades should still be made to comply to the extent feasible.</p>	ADAS §604	Yes <sup>5</sup>
10.	Accessible Parking	<p>One accessible parking space was observed, which is sufficient based on the overall quantity of parking spaces provided for the building (less than 25). However, the space was not provided with an access aisle. Accessible parking spaces require a 60-inch wide access aisle to run the length of the space.</p> <p>Additionally, since there is only one accessible space, it is required to be a van accessible space, which requires an 11-foot wide space.</p>	ADAS §502.3	Yes <sup>5</sup>
11.	Accessible Drinking Fountain	<p>The existing drinking fountain is not accessible in accordance with the ADAS or ANSI A117.1. Where this type of fountain is not installed in an alcove or with proper cane detection, it creates an excessive projection into the corridor.</p> <p>If no new work is performed in the building, consideration should still be given to installing at least one (1) combination high/low (double bowl) drinking fountain in the building that fully complies with the ADAS and ANSI A117.1. Non-conforming drinking fountains that remain in place should be equipped with signage directing occupants to the accessible drinking fountain.</p> <p>As part of any future work, the drinking fountain(s) nearest to or within the Work Area should be replaced with accessible combination high/low drinking fountains.</p>	ADAS §211.0, §602.0, ANSI A117.1 §602.0	Yes <sup>5</sup>
12.	Kitchenette	<p>The kitchenette is not provided with accessible facilities complying with ADAS §804.3. Unless part of a future scope of work, renovating the kitchenette to be accessible is not required. However, to the extent feasible improvements to the kitchenette should be made to improve accessibility in the kitchenette area.</p>	ADAS §308.2.1, §306, §804.3	Yes <sup>5</sup>

If there are any questions or concerns, please contact us at 603-327-8650 or via email at [abrowning@jsfirecode.com](mailto:abrowning@jsfirecode.com).

Submitted by: JS Consulting Engineers, PLLC

Prepared by:



Alex Browning, P.E.  
Sr. Consulting Engineer

Reviewed by:



Jennifer Sapochetti, P.E.  
Principal



**FACILITY CONDITION ASSESSMENT**

# Newmarket Town Hall

Background  
Architectural  
Site/Civil  
Structural  
Building Systems  
Code, Life Safety, & Accessibility

# Town Hall

## Background



HISTORIC VIEW OF ST. MARY'S SCHOOL AND CHURCH

Newmarket Town Hall was originally constructed in 1910, as Saint Mary's Catholic School. During its original use, the building housed approximately 300 children and teachers from the Sisters of the Congregation of the Holy Cross. The Catholic school operated until 1972, when it was sold to the Newmarket public school system. In 1987, a fire destroyed the former Newmarket Town Hall, and the Town administrative functions were moved to their current location within the building. The site forms part of the Western boundary of the "Newmarket Industrial and Commercial Historic District", as listed on the National Register of Historic Places.

Currently, the building houses Newmarket Town Administrative functions, including the Town Clerk, Assessing, Finance, Planning and Code Enforcement, and the Executive Offices of the Newmarket Town Manager. Additionally, a portion of the upper level is owned by the School Administrative Unit (SAU) 31 as part of a condominium agreement. The building also contains several meeting spaces, including the Town Council Chambers, and a large auditorium on level 1, which is used to hold public meetings.

Since the building was occupied as the Town Hall, it has undergone periodic renovations over time, including a comprehensive renovation in 1992 to renovate the interior, provide a new elevator, and other improvements. The Town undertook a comprehensive exterior masonry maintenance campaign within the last 15 years, as well as the addition of air conditioning. Around 2019, a Town-wide energy efficiency upgrade resulted in the upgrade of several key heating, ventilation, and air-conditioning systems in the building.



PHOTO FROM 1993 RENOVATION



NEWER VINTAGE EQUIPMENT FROM 2019 ENERGY UPGRADES

Though the property on which the building sits is now owned by the Town of Newmarket, the parking area at the front (South) side of the building is still owned by the adjacent church. According to the Town Manager, there is an agreement in place allowing use of this parking area for the Town as well as the church. This becomes problematic only during special events or overlapping functions, but there is a nearby municipal parking area which can serve as “overflow” parking during these times.

Generally, the building is performing as needed to meet the needs of the Town, though several key operational and programmatic concerns were noted by the users of the building during interviews with user groups. The conditions of the existing facility are generally consistent with older buildings which have undergone periodic renovation over time, including aging finishes, systems, and accessibility issues.

During the building assessment phase, Placework developed a list of key preliminary observations. These follow below, and are discussed in greater detail within:

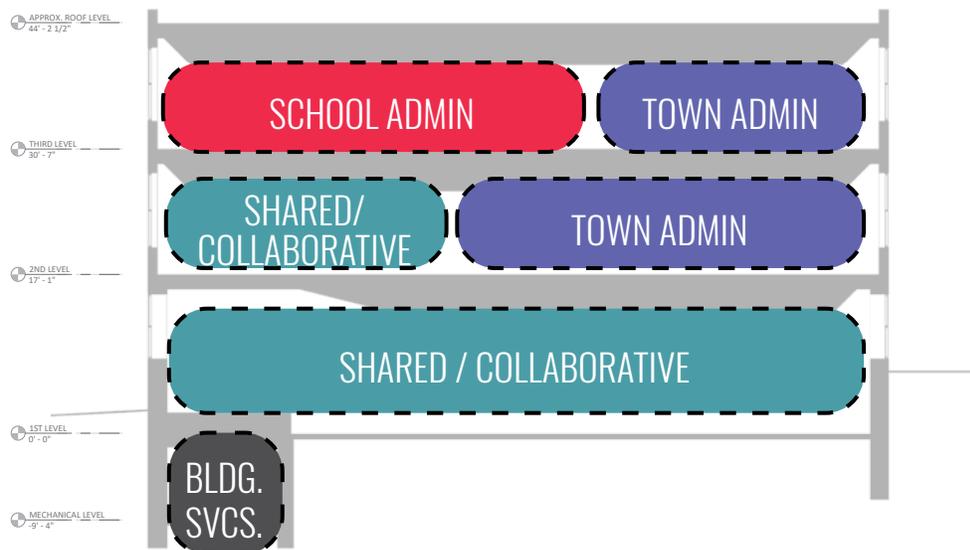
- There is development potential to the rear (North) side of the building. With accompanying interior reconfigurations, this has the potential to resolve existing and future space needs and functional issues discussed elsewhere in this report.
- The existing building structure appears to be primarily wood framed walls with masonry veneer, which is unusual for a building of this vintage and has code implications discussed within.
- The existing building in its current configuration exceeds NFPA height limitations for its use and construction type. This is permitted to remain as an existing, nonconforming condition.
- Existing electrical service requires code upgrades for working clearance and other issues.
- Many of the existing HVAC and lighting systems are recently upgraded and in good condition.
- Existing masonry appears to be in good condition given its age.
- The site lies within a listed historic district, as listed on the National Register of Historic Places and the Town of Newmarket Zoning ordinance ‘Historic Overlay District’.

## Architecture

Placework reviewed record drawings provided by the Town of Newmarket and visited the Town Hall building in March 2023 to review the existing conditions and interview key staff familiar with the existing facility. The following assessment is based on a non-destructive field survey; observations are limited to items visible at the time of our visit, without removal of existing finishes.

The existing building is a 3-story timber and masonry veneer structure housing approximately 15,500 gross square feet of space, including Town Administrative offices, SAU 31 offices, shared meeting spaces, and support spaces. Generally, most of the top floor is owned by the School Administrative Unit, the second floor houses the majority of Town Administrative Functions, and the lower level houses a large meeting space currently used for public functions. The lower level is partially below grade, and there is a limited basement space at the North side of the building housing incoming/outgoing utilities, and building systems.

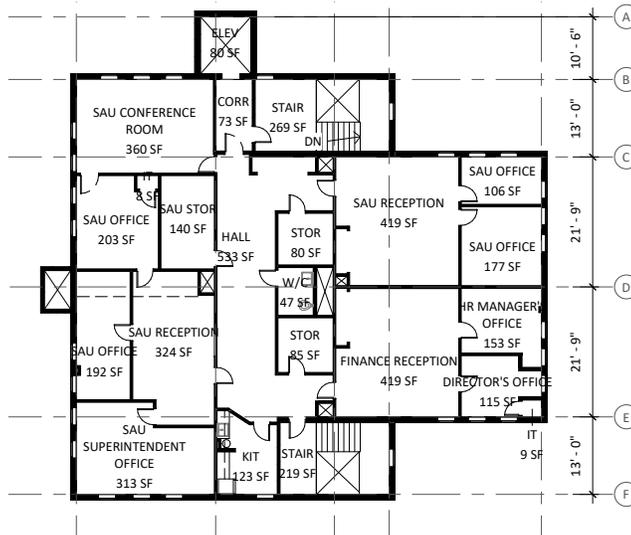
Viewed from the street, the Town Hall building projects a 'civic' presence due to its scale, materiality, and symmetry, however the entry sequence is comparatively un-ceremonial. The entrances to the building are set back from the main façade, and there is no clear hierarchy between the two entrances. Visitors to the building enter directly into an egress stair, and immediately must decide whether to proceed up or down. Visitors requiring an elevator must use a separate entrance directly from the exterior. Should the Town elect to proceed with wholesale renovation of the Town Hall, Placework recommends that wayfinding and entry upgrades be included in that effort.



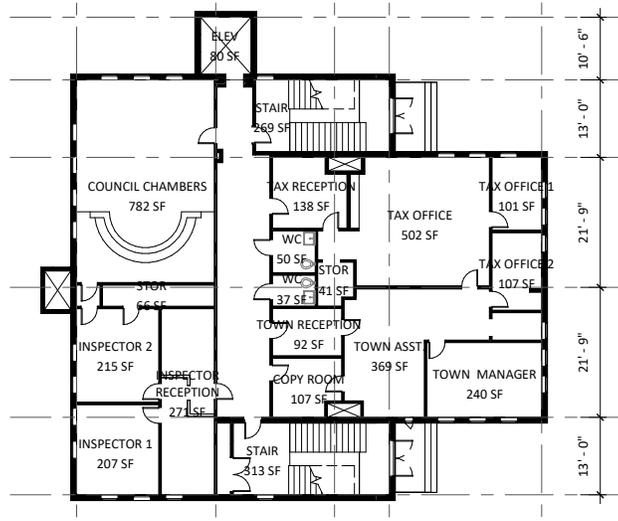
CONCEPTUAL BUILDING SECTION SHOWING DISTRIBUTION OF PROGRAM

At the upper levels 2 and 3, the building is subdivided into suites corresponding to Town and School Administrative Departments. The majority of the ground floor is taken up by the lower level auditorium space. Interior finishes generally consist of carpet, porcelain/ceramic floor tile at restrooms, acoustic ceiling tile, and painted drywall, and are in general need of upgrade. There is some remaining historic wood paneling, trims and detail work, particularly at the stairs, exterior walls, and lower level. There are single user restrooms distributed between the upper floors and larger multi-user restrooms located on the ground floor. Many of the restrooms do not meet current accessibility standards; refer to the code report for additional information.

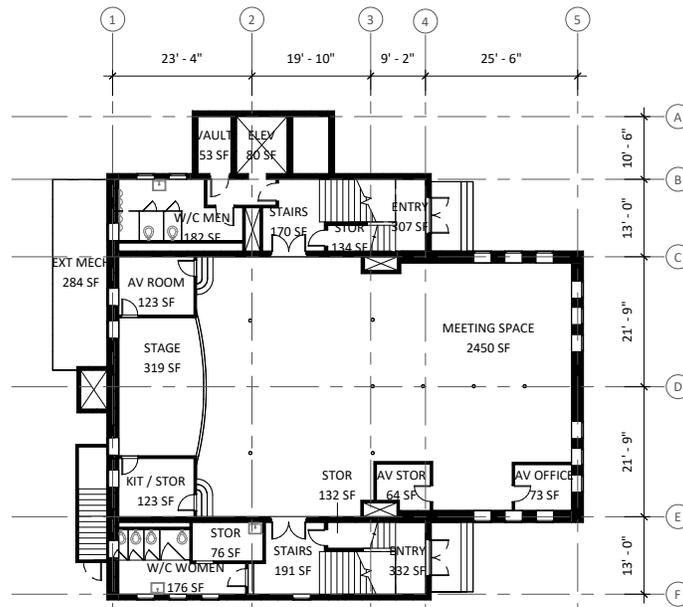
The existing elevator was manufactured by Pine State Elevator, circa 1993. It has a posted capacity of 2,750 lbs and operates at 70 feet per minute (FPM).



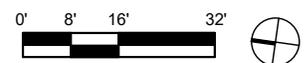
LEVEL 3 PLAN



LEVEL 2 PLAN



LEVEL 1 PLAN



The building façade consists of a granite base and water table, with the upper portion of the façade consisting of red clay brick, punched window openings with granite sills, and a projecting wood cornice. Detailed original drawings of the building could not be located as part of the assessment; Based on our field survey, Placework believes the exterior wall assembly up to the stone base course to be an unreinforced rubble foundation. Above the stone base course, the façade is constructed of red brick veneer on a wood framed back-up wall. This type of construction more closely resembles modern methods of building, and is one of the earlier examples of masonry veneer construction. A wood cornice and parapet run around the perimeter of the building.



EXISTING BUILDING EXTERIOR

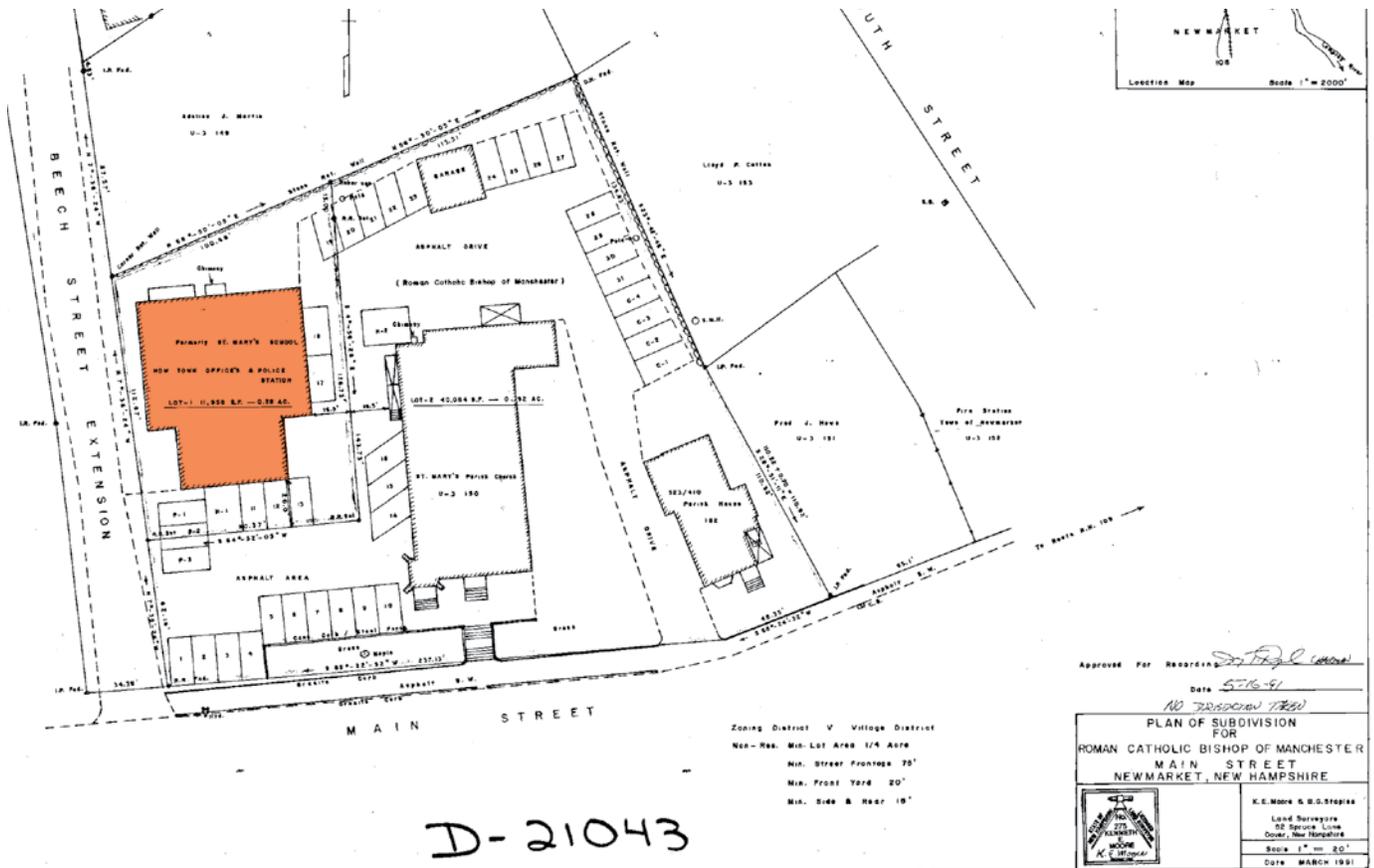
Existing brick masonry appears to be in good condition given its age. In conversation with the Town Buildings and Grounds Supervisor, Placework understands that a comprehensive repointing campaign took place in the last 15 years. There is consistent white staining under each corner of nearly all exterior windows; this may be caused by runoff from the original painted wood windows, however further investigation will be required to confirm. Additionally, there are localized areas of black staining on the clay masonry.

Windows have been replaced with a modern “thermally improved” aluminum double hung window with insulated glazing and simulated muntin dividers replicating the 4/2 pattern originally found on the building. Exterior doors have also been replaced; the date of this replacement is unknown. The new assemblies are bronze in color, this was not likely the original window color. Historic drawings and photographs suggest a ‘two-tone’ appearance, with light colored window surrounds and dark frames.

The building roof is a Carlisle EPDM single-ply membrane. Though the roof was partially snow covered at the time of the visit, it appears to be relatively new and in good condition. Copings, flashings and other roof terminations appeared intact. There are (3) newer existing roof drains visible, however no ‘overflow’ drainage was noted. Recommend monitoring the roof for signs of ponding water and/or replacing the drains with overflow units during the next regular maintenance cycle.

The existing brick chimney is showing signs of deterioration above the roof level, including staining and deterioration of clay masonry units, and excessive weathering of mortar joints. The chimney is screened at the top to prevent animal ingress, but rain and snow freely enter, which may be partially causing deterioration at the top and (likely) the bottom. Recommend masonry repairs above the roof level and capping the chimney with a cap suitable to prevent bulk water from entering.

# Site-Civil



1991 SUBDIVISION MAP SHOWING TOWN HALL AND ST. MARY'S CHURCH

The existing site is bound by streets on two sides: South Main Street to the South and Beech Street Extension to the West, and surrounding properties to the North and East. To the immediate South of the building there is a parking area owned by the adjoining Catholic church; Placework understands there is an agreement in place to allow for shared use between the Town and the church. A vehicular drive lane separates the church from the Town Hall building.

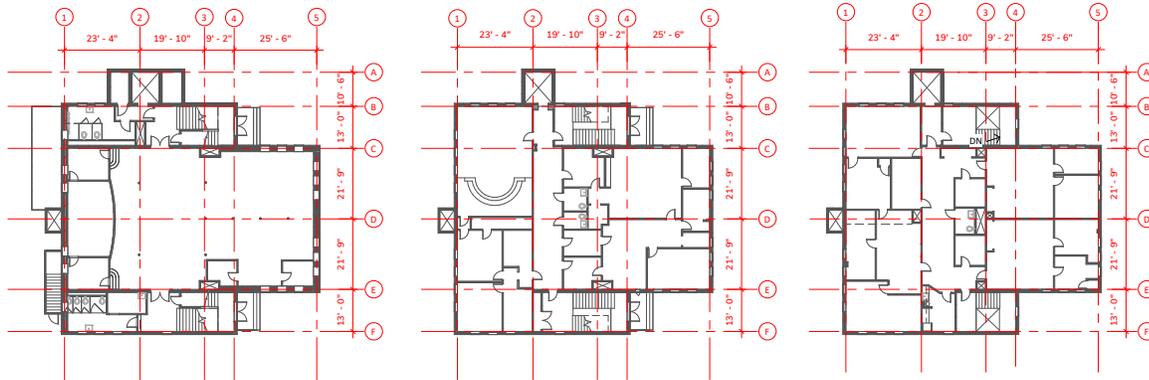
At the rear of the site there is an additional parking lot owned by the Town of Newmarket. Though technically considered to be a separate parcel (149-1) this site is adjacent to and connected to the Town Hall parcel (150-1) via a set of wooden steps. It is assumed that these parcels can essentially be considered together for the purposes of redeveloping the Town Hall site.

The site slopes moderately from roughly Southeast to Northwest; at the North side of the Town Hall the grade is approximately 5' lower than the South side. While the property does not sit within the FEMA 100-year floodplain, it is worth noting that the lower parking lot (parcel 149-1) does sit within the area of .2% annual chance flood hazard (sometimes referred to as 500-year flood hazard).

Primary incoming electric, communications, gas, and water service to the Town Hall are located in the Northwest corner of the building, at the basement level.

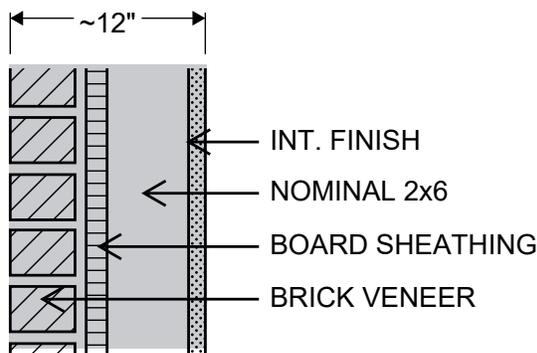
Refer to the attached site/civil engineering assessment for additional information.

# Structural



TOWN HALL PLANS WITH PRIMARY STRUCTURAL GRIDS IDENTIFIED

The building is composed of a granite rubble foundation system and wood framed superstructure. Initially, the team assumed the exterior wall construction of the building to be an unreinforced masonry assembly, however during the field investigation the wall appeared to be a wood frame construction. This is notable and has significant bearing on determination of the building construction type (refer to code narrative for additional information). Placework recommends additional field investigation/probes in multiple locations to confirm this finding.



ASSUMED EXTERIOR WALL ASSEMBLY

Generally, the building is in good structural condition. There have been several notable modifications over time to create new wall openings in existing bearing walls. These should be further investigated as the plan for redeveloping the building progresses.

Additional information can be found in the accompanying structural evaluation report.

## Building Systems

Existing heating, ventilation, and air-conditioning equipment is generally in good condition, as this equipment was recently replaced in 2019 as part of a Town wide energy improvement campaign.

Existing plumbing and electrical systems are generally typical of a building which has undergone renovations over time. There were several notable observations:

- Primary sanitary outlet for the building is rotted and leaking into the basement. This should be replaced.
- The main electric service at the basement level lacks appropriate code-required working clearances and there are water-filled pipes running over this equipment.
- Lighting equipment is generally newer vintage LED and in good condition.

The building does not have a sprinkler system. If such a system were to be installed in the future, a dedicated water service main to the building and water flow and pressure testing would need to be conducted to ensure sufficient water pressure to supply the system. If the municipal water supply cannot supply the required flow and pressure, a dedicated fire pump would be required.

The primary telecommunications equipment is housed in a small closet in the Director of Finance and Administration office on level 3. Per discussion with the Director, Placework understands there is a direct fiber optic connection to the Town's primary servers at Department of Public Works facility.

These and other observations are discussed in greater detail in the attached Mechanical, Electrical, Plumbing and Fire Protection Systems Study report.

## Code / Life Safety & Accessibility

A detailed assessment of fire protection, life safety, and accessibility features is appended to this report; a summary of key observations follows below:

- The existing structure is a wood frame, rather than multiwythe masonry as originally assumed. As a result, the structure most closely resembles construction type VB / V000 as defined by New Hampshire State Building Code and NFPA 101 Life Safety Codes, respectively. This has the overall effect of reducing the allowable building height and area to one story, based upon the most stringent occupancy type (Assembly) found on the lower level of the building. While this condition is permitted to remain as an existing, nonconforming condition under the NH State Building Code, if the proposed work (such as an addition or change of occupancy) were to trigger building height and area review, the building would not comply with height limitations in its current condition. Other measures would be required to address this issue.
- Though not required to be added in the existing condition or in minor renovations less than 50% of the building area per floor, the addition of an automatic sprinkler system would alleviate the height issue noted above and provide increased occupant safety. In major renovations greater than 50% of the building area per floor, an automatic sprinkler system is required. Further investigation will be needed to determine whether the existing municipal water supply network can provide sufficient flow and pressure to eliminate the need for a fire pump.
- The building has been retrofitted to provide general accessibility improvements, but there are a number of accessibility improvements recommended in the attached fire protection, life safety and accessibility assessment.

For a more detailed discussion of these and other items, please refer to the attached report.



May 12, 2023

Mr. Josh Lacasse  
Placework  
96 Penhallow Street  
Portsmouth, NH 03801

Re: Preliminary Civil Assessment of the Newmarket Town Hall  
186 Main Street, Newmarket, NH 03857

Dear Mr. Lacasse,

At your request, a site visit was made on April 10, 2023, and April 28, 2023, to observe and comment on the civil structures existing conditions of the Newmarket Town Hall.

The scope of services includes identifying noteworthy, deteriorated items that would assist in future restoration & modifications for the site. Photographs are attached illustrating existing conditions found during the site visit. In attendance was Mr. Josh Lacasse of Placework; Ms. Karen Bloom, Town of Newmarket; Fred Emanuel and Bruce Scamman, both of EEI on April 10, 2023, and Bruce Scamman took additional pictures on April 28, 2023. No site plan or any other civil plans have been supplied by the Town. We were able to find 3 recorded plans at the registry, they are attached. They do not match the tax maps. No review was completed of the site entrance to the East of the St. Mary's church.

A summary of our observations and recommendations follows:

- 1) 3 lots make up the Town Hall and parking (U3-150, U3-150-1, and U3-149-1).
- 2) The front lot (U3-150) is used for parking for the Town Hall and the church. The majority of the St. Mary's Church building is on the front lot.

*civil & structural consultants, land planners*

- 3) The middle lot (U3-150-1) has the Town Hall, part of the St. Mary's Church building, driveway, and some parking. The middle lot is shown on the tax card as owned 75% by the Town of Newmarket and 25% by the Newmarket School District.
- 4) The rear lot (149-1) is a parking lot.
  - a. The subdivision plan that was recorded at the Rockingham County Registry of Deeds as D-21043 does not match the tax map *lots*.
  - b. Front Parking is only partially owned by the Town. Most of the lot goes with the Church building and some parking. (No use agreements have been supplied, however according to Placework, the Town Manager indicates there is an informal agreement for shared use)
  - c. The middle lot is the Town Hall and the Church with some parking and drives. This is owned by the Town. (No use agreements have been supplied)
  - d. The rear lot is almost all parking. (No use agreements have been supplied)
  - e. The rear lot is also in the FEMA flood Zone. The zone has a 0.2% chance of flooding annually.
- 5) Retaining Walls
  - a. Retaining walls are in disrepair and collapsing.
  - b. There is no fall protection on the upslope side of the retaining walls.
  - c. There is no guardrail on the upslope side of the retaining walls.
- 6) Erosion
  - a. In the rear of the Town Hall near the staircase to the rear lot, there is some erosion. The rip rap that is going over the wall is full of sediment and needs to be removed and replaced with new rock. This rock should extend higher to where the current erosion is taking place. See attached photo.
- 7) Utilities
  - a. A new utility pole was installed adjacent to the light pole in the rear of the middle lot (150-1). Its use is unknown currently.
  - b. There are buried propane tanks along Beech Street below the island at the entrance to the back parking lot. The sizes of these tanks are unknown.

- c. Electricity and overhead utilities come into the building at the Northwest corner of the building along Beech Street Extension. The electric service goes to two electric panels in the basement of the Town Hall. There appears to be 100-amp and 400-amp electric services.
- d. There is a sump pump that runs in the basement on a regular basis. A survey should be completed to see if this could be daylighted into the Town's stormwater system.
- e. The sewer pipe within the building was in disrepair and leaking through rust holes. It exited under the men's room in the Northeast corner of the building.
- f. Water servicing the building comes in the Northwest corner of the building, from the 6-inch water main on Beech Street Extension.
- g. Separate the sump pump flow from the sewer. This adds ground water to the sewer system for the town.

#### 8) Parking

- a. A plan that shows parking on all 3 lots should be made to determine who is allowed to park in the lots. We assume that during church services that the church is allowed to use the parking lot. What happens if there is a large funeral during business hours?
- b. ADA is not met. There are approximately 65 parking spaces on the 3 lots. This equates to 3 handicapped spaces. Only 1 space is provided, and it is not marked correctly.

#### 9) Pavement life

- a. The pavement is at the end of its useful life. Areas of the front parking lot have become delaminated, and plowing is stripping off the topcoat of pavement.
- b. There are many areas in both the upper and lower lot that show areas of degraded pavement.
- c. The connector drive from the front to the rear parking lot has several undulations which is either improper installation of base materials or a lack of correct base materials.

10) Curb

- a. The sidewalk and upper parking area need the curb lifted. It isn't tall enough for useful protection of pedestrians from vehicles.

11) Drainage/Stormwater

- a. There does not appear to be any nutrient removal on-site for stormwater.
- b. There does not appear to be any storm water management on-site to detain and retain water on-site.
- c. The pavement around the catch basin is in failure, see photo.

Recommendations:

- 1) Complete a title review of the 3 subject lots (U3-150, U3-150-1, and U3-149-1) that make up the Town Hall and St Mary's Church. This will determine the rights of the Town and the Church in the use of these 3 lots.
- 2) Complete a boundary and existing conditions survey to determine the location of the Town's property lines.
- 3) Complete a topographic survey that includes the municipal storm water catch basin system, municipal sewer system, and all other utilities within 200 feet of the 3 subject lots (U3-150, U3-150-1, and U3-149-1).
- 4) Complete a Lot Line Revision with the Church to get the Church buildings all on the Church's property.
- 5) Create an easement plan that shows the areas of the subject lots to definitively show the desired shared uses and rights. Execute an easement deed that describes the easements shown on the easement plan. Record the easement and easement plan at the Rockingham County Registry of Deeds. This easement will allow for travel and parking on the 3 lots (U3-150, U3-150-1, and U3-149-1). Currently all the parking along the curb closest to Main Street is Church owned parking. All parking on the rear lot (149-1) is Town owned parking. Address drainage in the easement as well.
- 6) If a sprinkler system is proposed as part of the building systems recommendations, install a dedicated 6" fire water line to the building from the 12-inch water main on Main Street to assure that the water flow is sufficient. A

- fire protection Engineer should be consulted as part of any further development of the Town Hall.
- 7) Use a pavement reclamation process and grind the parking lot to incorporate the stone of the pavement into the base gravel. This reclamation should commence after any construction on the building is complete.
  - 8) Install full depth pavement (2 layers totaling 4” of pavement). This should occur after any construction on the building is complete and the reclamation described above is completed.
  - 9) Rip Rap the erosion area at the rear of the building. An erosion control mat that allows grass to grow is an acceptable substitute.
  - 10) Have new retaining walls installed or create a slope that replaces the walls. Make sure that hydraulic drains are installed behind any new retaining wall and daylight either to the front of the wall or into a catch basin connected to the municipal stormwater system.
  - 11) Add a guard rail at the top of the retaining walls so vehicles do not go over the walls.
  - 12) Add a fall prevention fence that is at least 42-inches tall to prevent people from falling over the retaining walls.
  - 13) Replace the sewer pipes inside the building to prevent leaking.
  - 14) Use field survey to determine a location for the foundation drain to daylight into stormwater system.
  - 15) Hire a scoping service to video the inside of the sewer pipes to see if there are additional leaks outside the building footprint.
  - 16) Install STOP signs and stop bars at all exit points from the Town’s parking lots.

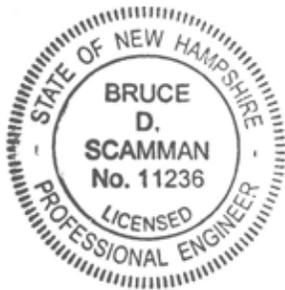
The permitting process is not required for municipalities. The Town should have a public hearing to allow the Town’s taxpayers and abutters to have a chance to discuss pros and cons with the Town in reference to the further development of the Town Hall. If done in conjunction with the Planning Board it allows for the planning board and Town’s people to have buy in with the process.

This draft completes the writer's report. Thank you for the opportunity to provide civil engineering services. This office can complete a full review once a survey and other details are completed.

Very truly yours,

*Bruce Scamman*

Bruce Scamman, P.E.



Attachment:

- Photos
- Tax cards U3-150, U3-150-1, and 149-1
- Aerial with tax map overlay
- Google Earth Aerial
- 3 recorded plans; D-21043, D29556, and-36317



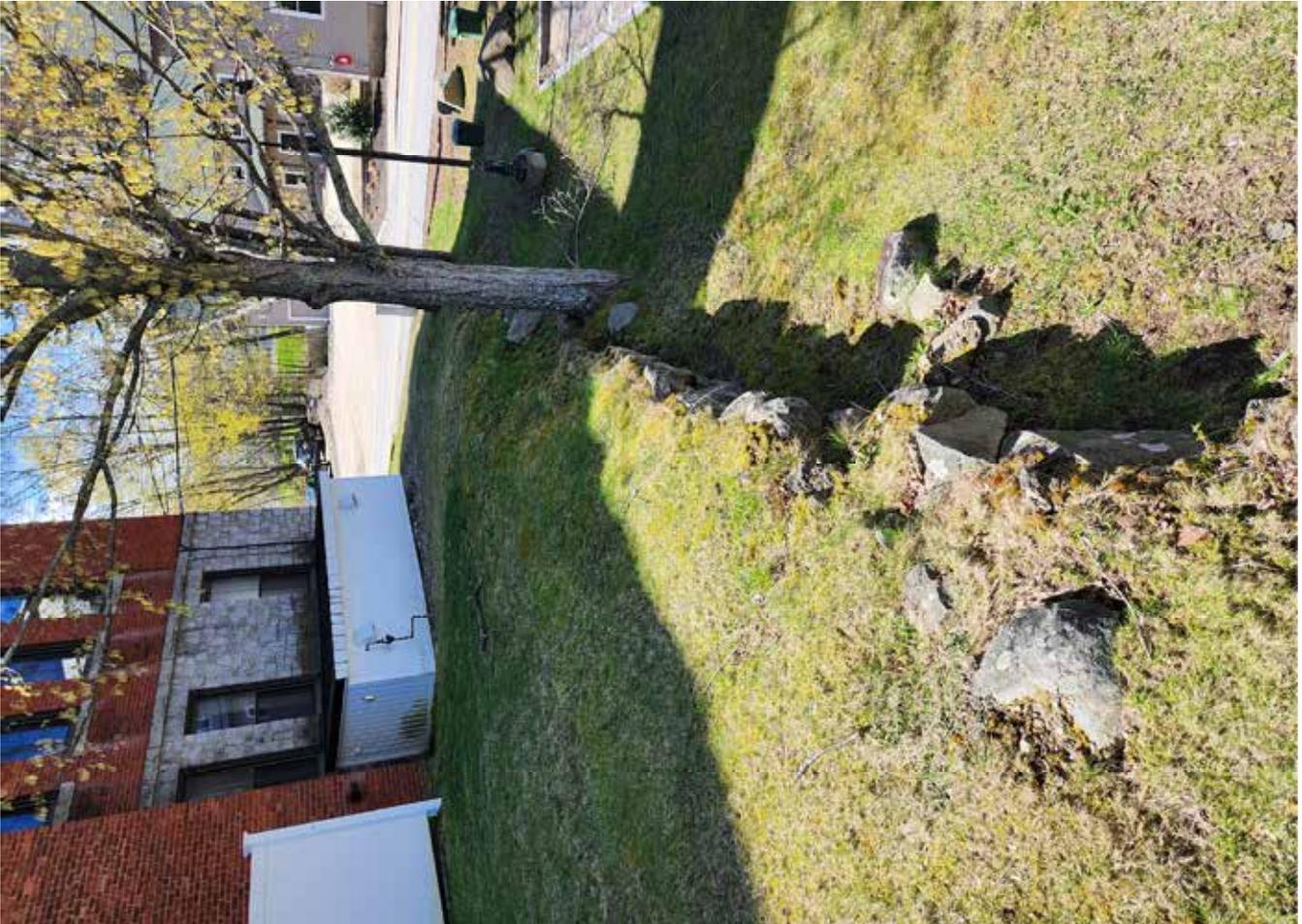
Failed Pavement



Loose Curb-Failed Pavement-Delaminated Pavement



Erosion behind Town Hall



Failed Retaining Wall



Failed Retaining Wall





Sump Pump in Basement



Sewer line exiting basement under the mens room



Rusted Sewer Pipe



Sump Outlet into Sewer Pipe



Catch Basin in Northwest Corner of the Back Parking Lot



Propane and Electric Service Entering the Building



Failed Pavement Behind Church



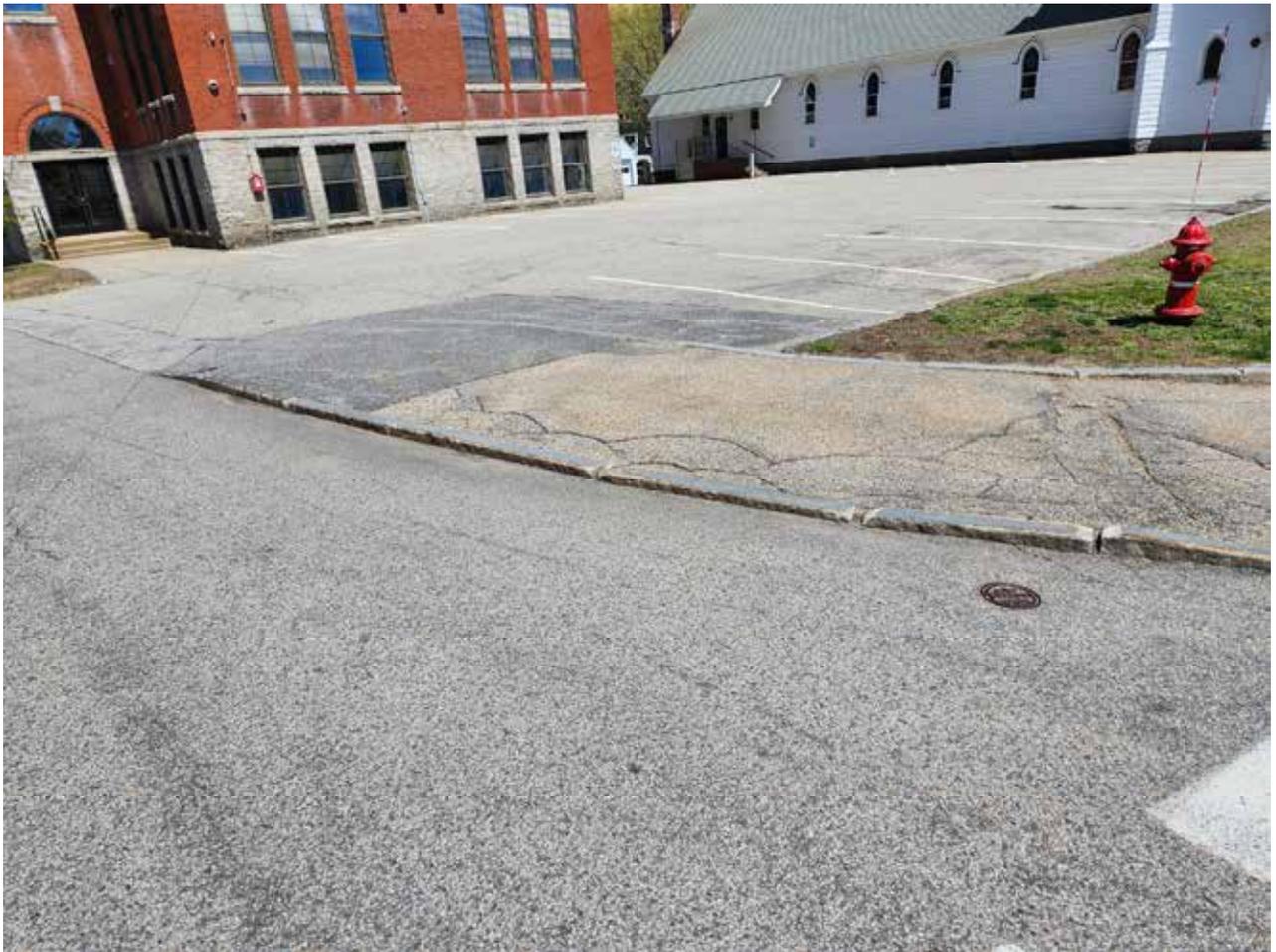
Failed Retaining Wall Behind Town Hall



Failed Pavement



Loose Curb and Failed Pavement



No Curb Protection for Pedestrians





No Curb Protection for Pedestrians



Failed Retaining Wall

# 29 BEECH ST EXT

**Location** 29 BEECH ST EXT

**Mblu** U3/ 149/ 1/ /

**Acct#** 003341

**Owner** TOWN OF NEWMARKET

**Assessment** \$153,000

**Appraisal** \$153,000

**PID** 100328

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$41,400	\$111,600	\$153,000

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$41,400	\$111,600	\$153,000

## Owner of Record

**Owner** TOWN OF NEWMARKET

**Sale Price** \$0

**Co-Owner** PARKING

**Certificate**

**Address** 186 MAIN ST

**Book & Page** 0/0

NEWMARKET, NH 03857-1838

**Sale Date**

## Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
TOWN OF NEWMARKET	\$0		0/0	

## Building Information

### Building 1 : Section 1

**Year Built:**

**Living Area:** 0

**Replacement Cost:** \$0

**Building Percent Good:**

**Replacement Cost**

**Less Depreciation:** \$0

### Building Attributes

Field	Description
Style	Vacant Land
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Cndtn	
Usrflid 103	
Usrflid 104	
Usrflid 105	
Usrflid 106	
Usrflid 107	
MHP	
Fireplaces	
Usrflid 108	
Usrflid 101	
Usrflid 102	
Usrflid 100	
Usrflid 300	
Usrflid 301	

### Building Photo



(<https://images.vgsi.com/photos/NewMarketNHPhotos//default.jpg>)

### Building Layout

([https://images.vgsi.com/photos/NewMarketNHPhotos//Sketches/100328\\_3](https://images.vgsi.com/photos/NewMarketNHPhotos//Sketches/100328_3))

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

## Extra Features

Extra Features		<u>Legend</u>
No Data for Extra Features		

## Land

Land Use		Land Line Valuation	
Use Code	9030	Size (Acres)	0.40
Description	MUNICIPAL MDL-00	Frontage	
Zone	M2	Depth	
Neighborhood	50	Assessed Value	\$111,600
Alt Land Appr	No	Appraised Value	\$111,600
Category			

## Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAVA	IMP PER SPACE			30.00 UNITS	\$41,400	1

## Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$41,400	\$111,600	\$153,000
2021	\$41,400	\$111,600	\$153,000
2020	\$41,400	\$111,600	\$153,000

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$41,400	\$111,600	\$153,000
2021	\$41,400	\$111,600	\$153,000
2020	\$41,400	\$111,600	\$153,000

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# 182 MAIN ST

**Location** 182 MAIN ST

**Mblu** U3/ 150/ / /

**Acct#** 002730

**Owner** ST MARY'S PARISH

**Assessment** \$1,137,000

**Appraisal** \$1,137,000

**PID** 2571

**Building Count** 2

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$864,300	\$272,700	\$1,137,000

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$864,300	\$272,700	\$1,137,000

## Owner of Record

<b>Owner</b>	ST MARY'S PARISH	<b>Sale Price</b>	\$0
<b>Co-Owner</b>	C/O DIOCESE OF MANCHESTER	<b>Certificate</b>	
<b>Address</b>	PO BOX 310 MANCHESTER, NH 03105	<b>Book &amp; Page</b>	0/0
		<b>Sale Date</b>	

## Ownership History

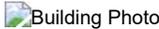
Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
ST MARY'S PARISH	\$0		0/0	

## Building Information

### Building 1 : Section 1

**Year Built:** 1897  
**Living Area:** 4,721  
**Replacement Cost:** \$1,302,869  
**Building Percent Good:** 50  
**Replacement Cost Less Depreciation:** \$651,400

### Building Photo

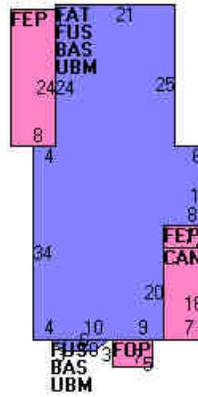
 Building Photo  
 (https://images.vgsi.com/photos/NewMarketNHPhotos///0008/IMG\_1678[1])

**Building Attributes**



Style	Conventional
Model	Residential
Grade:	Average
Stories:	2
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Plastered
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	Inlaid Sht Gds
Heat Fuel	Oil
Heat Type:	Steam
AC Type:	None
Total Bedrooms:	4 Bedrooms
Total Bthrms:	4
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	8
Bath Style:	Average
Kitchen Style:	Average
Num Kitchens	
Cndtn	
Usrflid 103	
Usrflid 104	
Usrflid 105	
Usrflid 106	
Usrflid 107	
MHP	
Fireplaces	
Usrflid 108	
Usrflid 101	
Usrflid 102	
Usrflid 100	
Usrflid 300	
Usrflid 301	

## Building Layout



([https://images.vgsi.com/photos/NewMarketNHPhotos//Sketches/2571\\_288](https://images.vgsi.com/photos/NewMarketNHPhotos//Sketches/2571_288))

Building Sub-Areas (sq ft)		Legend	
Code	Description	Gross Area	Living Area
BAS	First Floor	1,435	1,435
FUS	Upper Story, Finished	1,435	1,435
FAT	Attic, Finished	1,419	284
CAN	Canopy	112	0
FEP	Porch, Enclosed, Finished	220	0
FOP	Porch, Open, Finished	35	0
UBM	Basement, Unfinished	1,435	0
		6,091	3,154

## Extra Features

Extra Features	Legend
No Data for Extra Features	

## Land

Land Use		Land Line Valuation	
Use Code	906I	Size (Acres)	1.12
Description	CHURCH ETC MDL-96	Frontage	0
Zone	M2	Depth	0
Neighborhood	CM-A	Assessed Value	\$272,700
Alt Land Appr	No	Appraised Value	\$272,700
Category			

## Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FGR1	GARAGE-AVE			552.00 S.F.	\$6,600	1
PAV1	PAVING-ASPHALT			2000.00 S.F.	\$2,500	1

## Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$864,300	\$272,700	\$1,137,000
2021	\$859,900	\$272,700	\$1,132,600
2020	\$859,900	\$272,700	\$1,132,600

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$864,300	\$272,700	\$1,137,000
2021	\$859,900	\$272,700	\$1,132,600
2020	\$859,900	\$272,700	\$1,132,600

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# 186 MAIN ST

**Location** 186 MAIN ST

**Mblu** U3/ 150/ 1/ /

**Acct#** 002904

**Owner** TOWN OF NEWMARKET 75%

**Assessment** \$1,491,000

**Appraisal** \$1,491,000

**PID** 2741

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$1,223,300	\$267,700	\$1,491,000

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$1,223,300	\$267,700	\$1,491,000

## Owner of Record

**Owner** TOWN OF NEWMARKET 75%  
**Co-Owner** NEWMARKET SCHOOL DIST 25%  
**Address** 186 MAIN ST  
 NEWMARKET, NH 03857-1838

**Sale Price** \$0  
**Certificate**  
**Book & Page** 3133/0467  
**Sale Date** 12/21/1995  
**Instrument** 17

## Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
TOWN OF NEWMARKET 75%	\$0		3133/0467	17	12/21/1995
TOWN OF NEWMARKET	\$100		2882/1358	22	07/02/1991
CATHOLIC CHURCH	\$0		1354/0167		05/05/1955

## Building Information

### Building 1 : Section 1

**Year Built:** 1910  
**Living Area:** 10,432  
**Replacement Cost:** \$2,217,283  
**Building Percent Good:** 50

Replacement Cost  
Less Depreciation:

\$1,108,600

**Building Attributes**

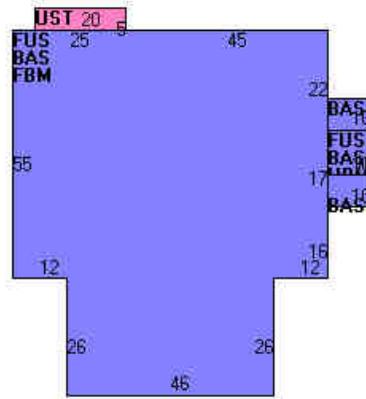
Field	Description
STYLE	City/Town Hall
MODEL	Industrial
Grade	Average
Stories:	2
Occupancy	2.00
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	Inlaid Sht Gds
Heating Fuel	Oil
Heating Type	Hot Water
AC Type	None
Struct Class	
Bldg Use	TOWN-PROP MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
Usrflid 218	
Usrflid 219	
1st Floor Use:	903C
Heat/AC	Heat/Ac
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	Sus-Ceil & WI
Rooms/Prtns	Average
Wall Height	12.00
% Comn Wall	0.00

**Building Photo**



(https://images.vgsi.com/photos/NewMarketNHPhotos/\00\00\26\54.jpg)

**Building Layout**



(https://images.vgsi.com/photos/NewMarketNHPhotos//Sketches/2741\_274

Building Sub-Areas (sq ft)			Legend	
Code	Description	Gross Area	Living Area	
BAS	First Floor	5,286	5,286	
FUS	Upper Story, Finished	5,146	5,146	
FBM	Basement, Finished	5,046	0	
UBM	Basement, Unfinished	100	0	
UST	Utility, Storage, Unfinished	100	0	
		15,678	10,432	

**Extra Features**

Extra Features				Legend
Code	Description	Size	Value	Bldg #
ELV1	ELEVATOR COMM	3.00 STOPS	\$105,000	1

**Land**

**Land Use**

**Use Code** 903C  
**Description** TOWN-PROP MDL-94  
**Zone** M2  
**Neighborhood** CM-A  
**Alt Land Appr** No  
**Category**

**Land Line Valuation**

**Size (Acres)** 0.27  
**Frontage** 0  
**Depth** 0  
**Assessed Value** \$267,700  
**Appraised Value** \$267,700

**Outbuildings**

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAVA	IMP PER SPACE			7.00 UNITS	\$9,700	1

**Valuation History**

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$1,223,300	\$267,700	\$1,491,000
2021	\$1,223,300	\$267,700	\$1,491,000
2020	\$1,223,300	\$267,700	\$1,491,000

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$1,223,300	\$267,700	\$1,491,000
2021	\$1,223,300	\$267,700	\$1,491,000
2020	\$1,223,300	\$267,700	\$1,491,000

# Newmarket Town Hall

186 Main Street  
Newmarket, NH 03857

## Legend

 St. Mary Church

nt Seafood

 Kent Place

 Doucet Survey

 ChildVoice International Offices

 Woodburn & Company Landscape Architecture

 St. Mary Church

 Newmarket Town Office

152

S Main St



Gerry Ave

 Consolidated Commu

Google Earth

200 ft



Map by NH GRANIT  
Newmarket Town Offices 04-28-23

Legend

- Parcels
- State
- County
- City/Town



Map Scale

1: 1,000

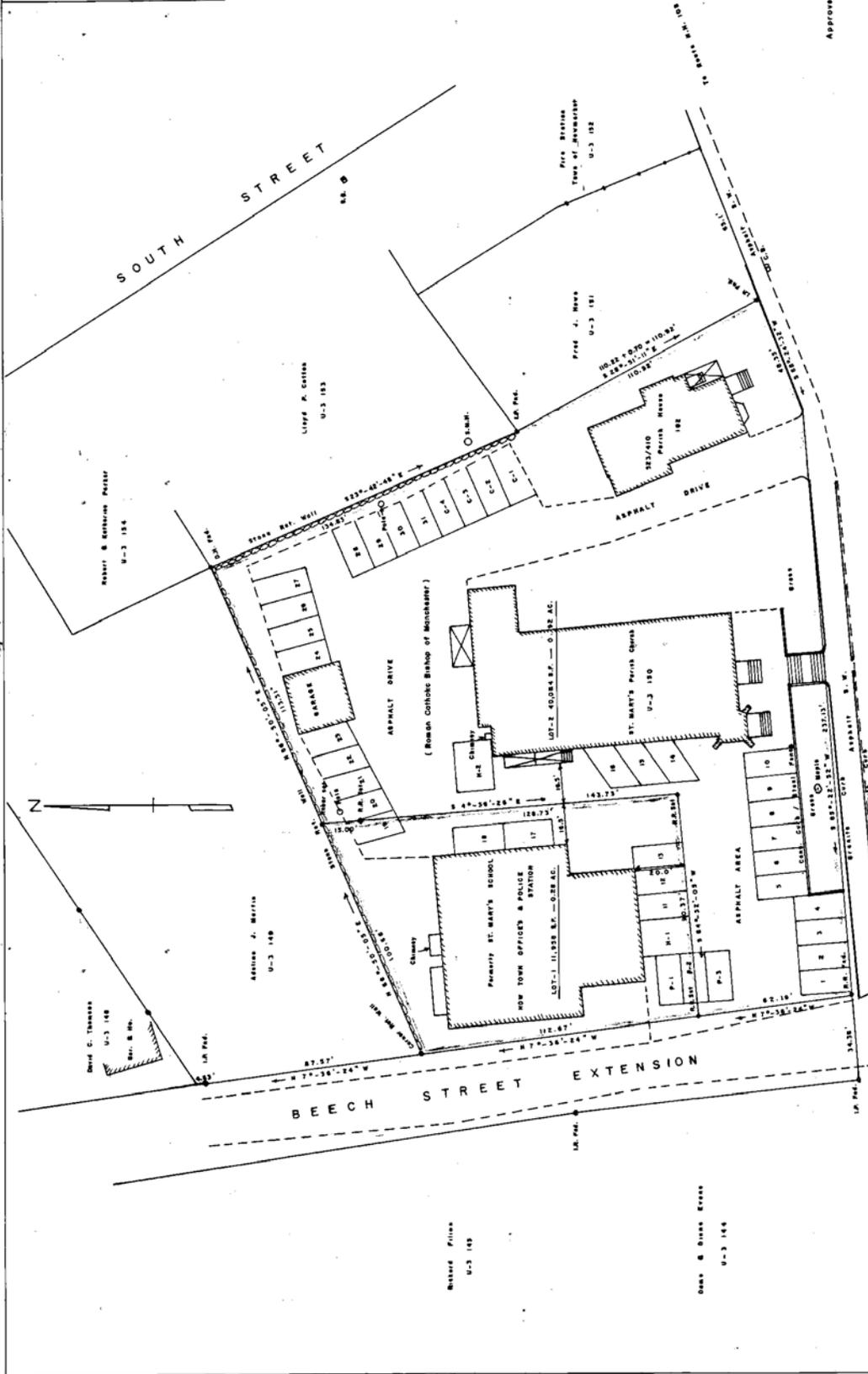
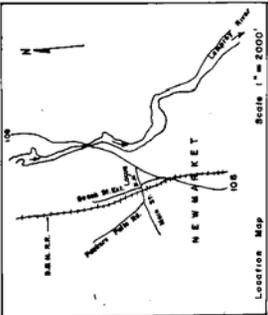
© NH GRANIT, [www.granit.unh.edu](http://www.granit.unh.edu)  
Map Generated: 4/28/2023



Notes



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May 12, 2023

Mr. Josh Lacasse  
Placework  
96 Penhallow Street  
Portsmouth, NH 03801

Re: Facility Assessment  
Town Hall  
Newmarket Facility Plan

Dear Mr. Lacasse,

At your request, a site visit was made on April 10, 2023 to observe and comment on the structural existing conditions of the facility noted above, namely the Town Hall.

The scope of services include identifying noteworthy deteriorated items that would assist in future restoration & modifications for the building.

Also reviewed for information were the following drawings:

- Restroom renovations, prepared by Newmarket Plains, LLC, 3 sheets dated 2/18/16.
- Design – Build Renovations, prepared by Donald M. Sumner, Architect, 3 sheets dated 10/26/92.

Photographs are attached illustrating existing conditions found during the site visit. In attendance was Mr. Josh Lacasse of Placework; Ms. Karen Bloom, Town of Newmarket; Fred Emanuel and Bruce Scamman both of EEI.

### Town Hall

Built in 1897, the former church owned property is a 3 story wood framed, masonry veneer structure with a flat roof. The foundation walls are a combination of cut and random granite stone masonry. There are 4721 square feet of finished area according to the town assessment card.

*civil & structural consultants, land planners*

The first floor exterior walls are constructed of cut granite stone masonry. From the second floor to the roof, the exterior walls are constructed of clay brick veneer. At window openings, the bottom and top of each opening has a granite sill and lintel. The writer would describe the structural system as a braced wood framed structure with a brick veneer perimeter.

All the exterior masonry, granite or brick, exhibits no visible cracks and appear in excellent condition. From conversations with Town maintenance staff, we understand that a comprehensive repointing campaign has occurred in the last 15 years. Given that no visible construction joints are observed, the absence of cracks is remarkable. The writer suspects that visible white wash below each window sill is from the white paint on the former wood windows.

The following are noteworthy items that are being submitted for information, further inspection and/or evaluation.

- The top of the masonry chimney does exhibit masonry deterioration and needs to be closer inspected and a determination made for repairs. The writer recommends capping the chimney to prevent bulk water from entering after repairs are made.
- The roof was not easily accessible and therefore not observed and no opinion is rendered.
- A review of the attic space established 3 wood framed bearing walls that support the rough-cut wood roof rafter framing. The 3 bearing walls in the attic space coincide with the 3 lines of columns found in the first (ground) floor meeting space. The writer assumes with confidence that the bearing walls are stacked one above the other. See attached grid layout.
- At the third floor level, a portion of the bearing wall had been removed between the finance office and SAU office.  
However, a beam had been installed above the opening to support the roof members.
- At the east stair landing at the third floor level, the floor landing slopes downwards from the exterior wall. The writer suspects that the stair framing may

have caused this sag due to absence of a bearing wall, undersized floor members, or excessive spans.

- At the second floor level, the bearing wall between the town assistant and tax office has been compromised where a door had been installed and a portion of bearing wall removed.

### Basement

- Only a portion of the building footprint has a basement. The basement is located along the rear side of the building.
- One area below the kitchen/storage has floor joist in need of joist hangers.
- Two steel beams are supported by adjustable posts. The posts need to be replaced with concrete filled lally columns.

### Conclusions and Recommendations

The 126-year-old Town Hall is in good and stable condition both interior and exterior. It is recommended that the top of chimney be inspected due to deteriorated bricks.

This completes the writer's brief report. Thank you for the opportunity in providing structural engineering services.

Very truly yours,



Fred Emanuel, P.E.

Attachment:  
Photos (12 pages)  
Grid layout plan (1 page)





**Roof Exterior Wall Framing**



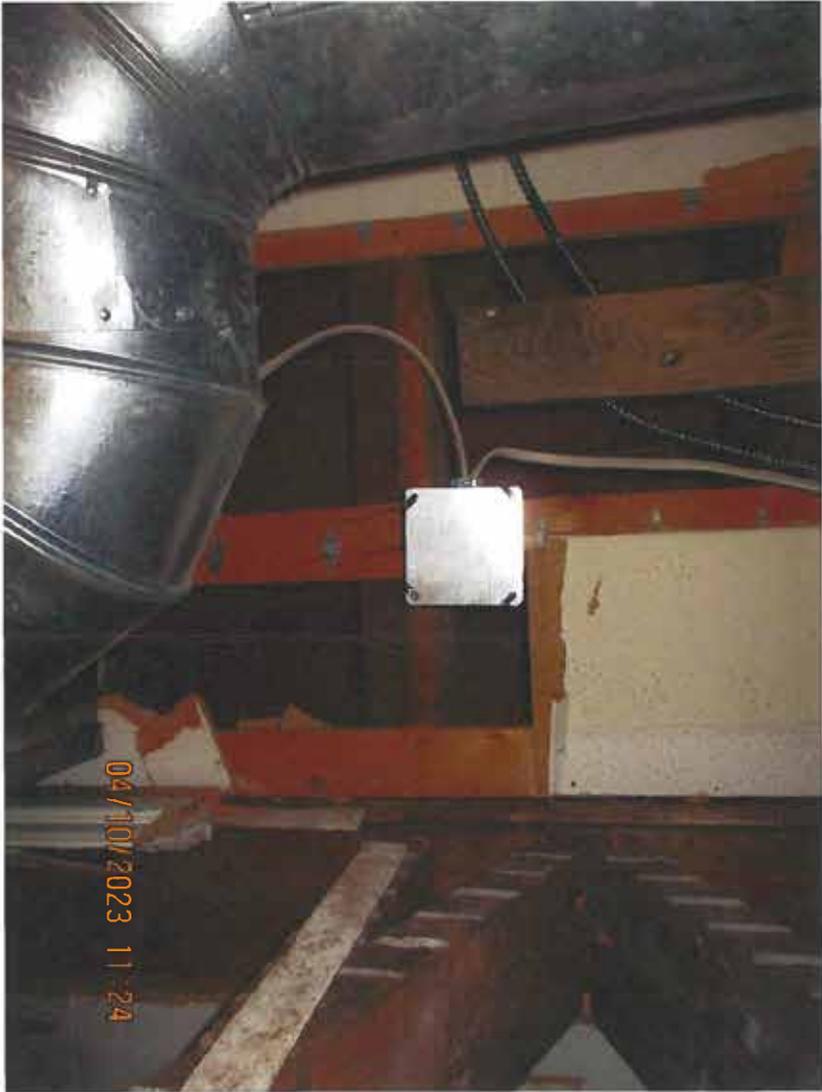
**Bearing Wall Supporting Roof Rafter**



Third floor portion of bearing wall removed. New partition wall terminates at ceiling grid



Tax Office 2 – Third floor reinforcing to allow opening in bearing wall on second floor



Town Asst. Office – above door, looking up at the 3<sup>rd</sup> floor and braced bearing wall in foreground.

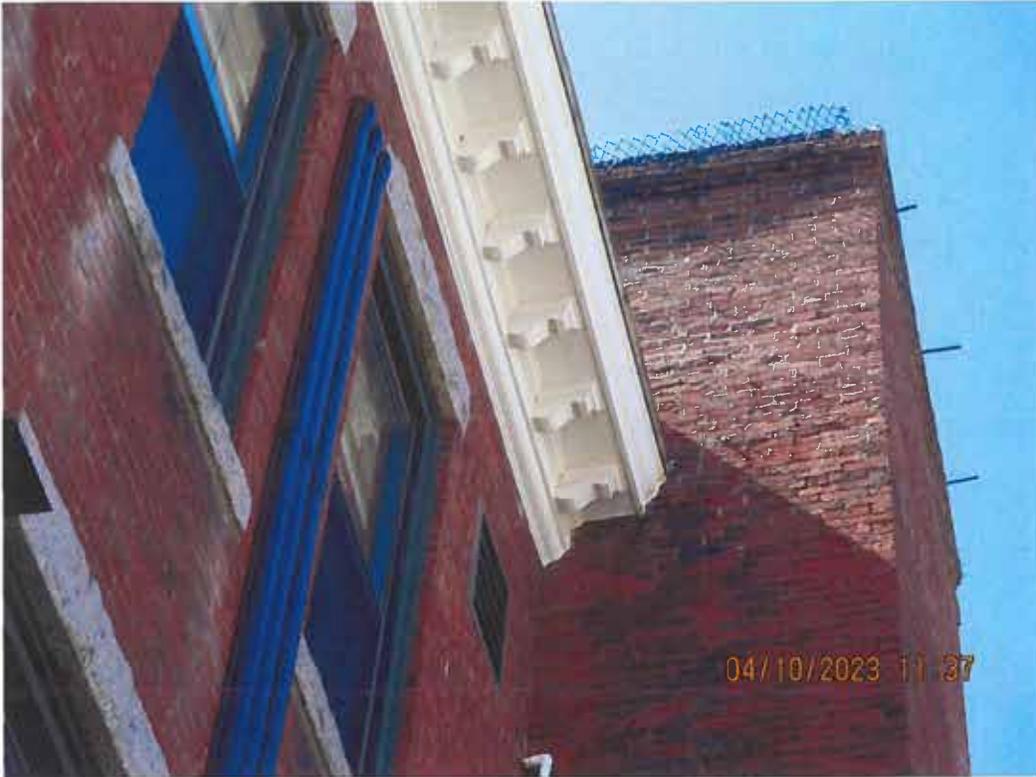


First level – posts align with above bearing walls





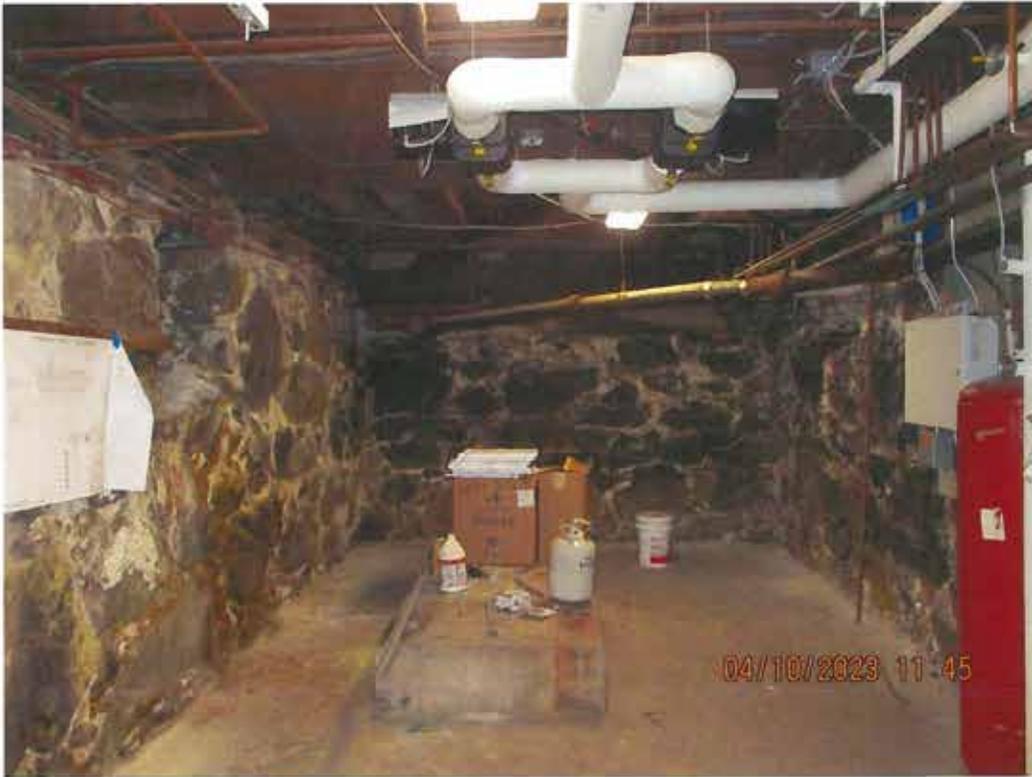
Stone masonry in good condition



**Chimney top suspect to deterioration**



**Chimney base in good condition except where brick was chiseled out for conduit bends**



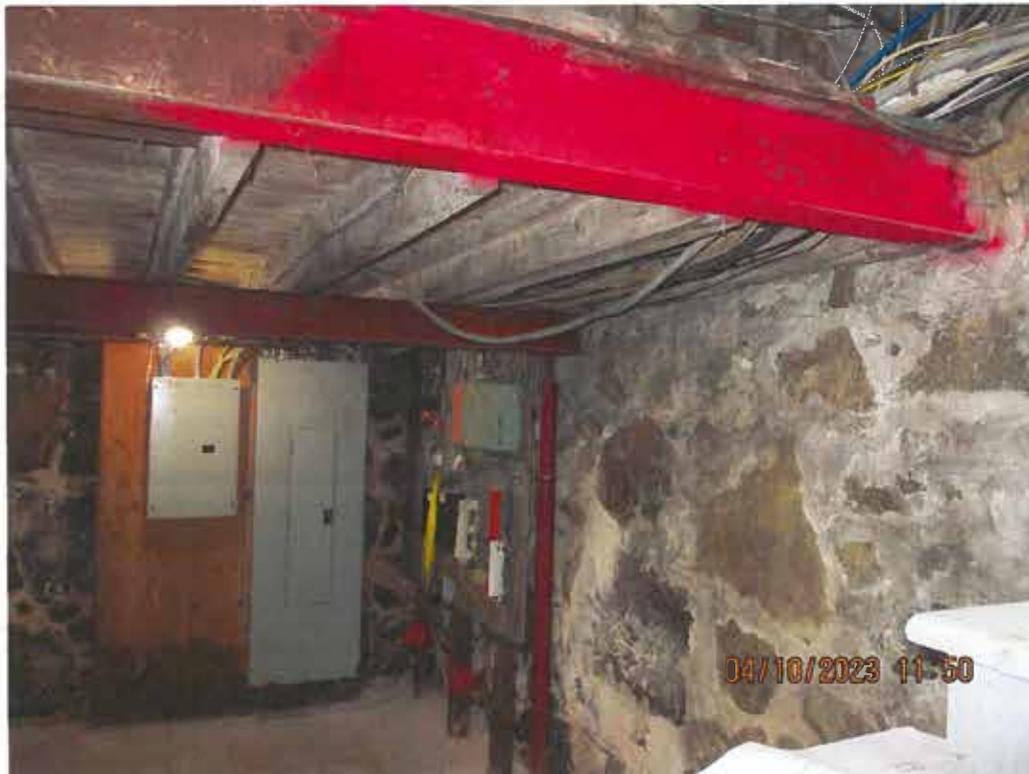
Basement area below stage. Stone foundation walls are sound.



Chimney openings



First floor wood floor framing rests on stone shelf. Wall framing continues to roof along with cut stone brick veneer.



Main entrance panel fed by underground duct



**Abandoned stair**



**Replace all adjustable posts with lally columns**



**Add joist hangers**



**White stain on brick is paint from previous windows**



Masonry in good condition throughout



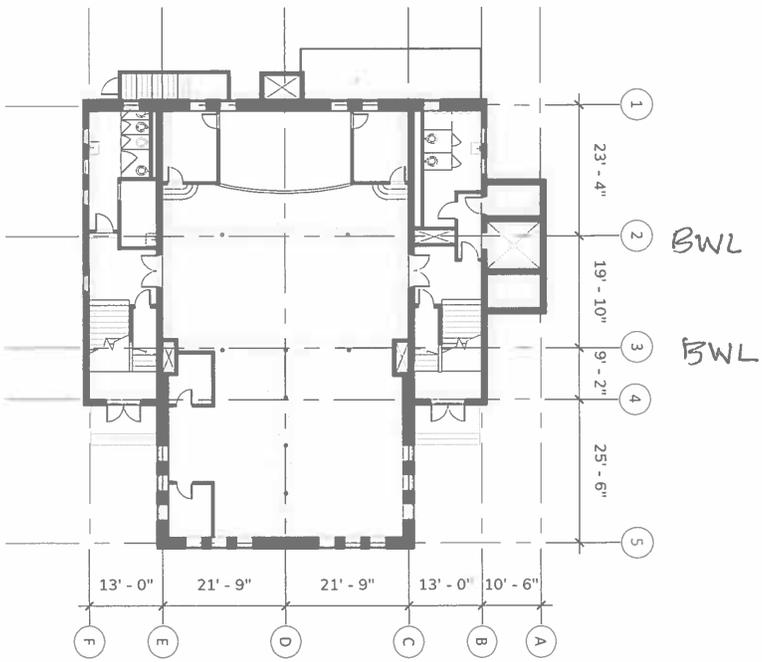
Front



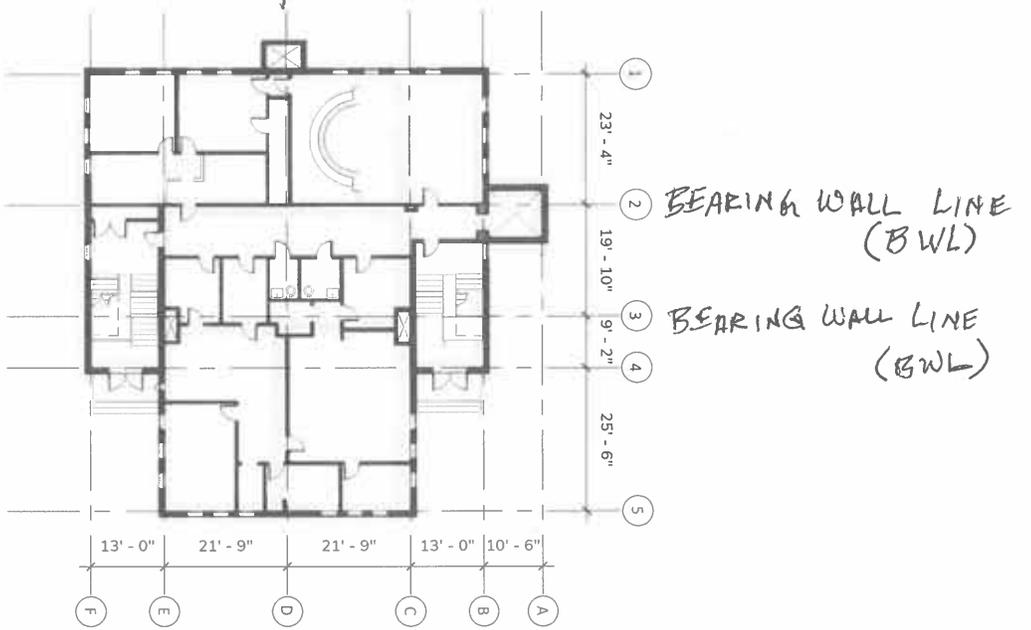
Front



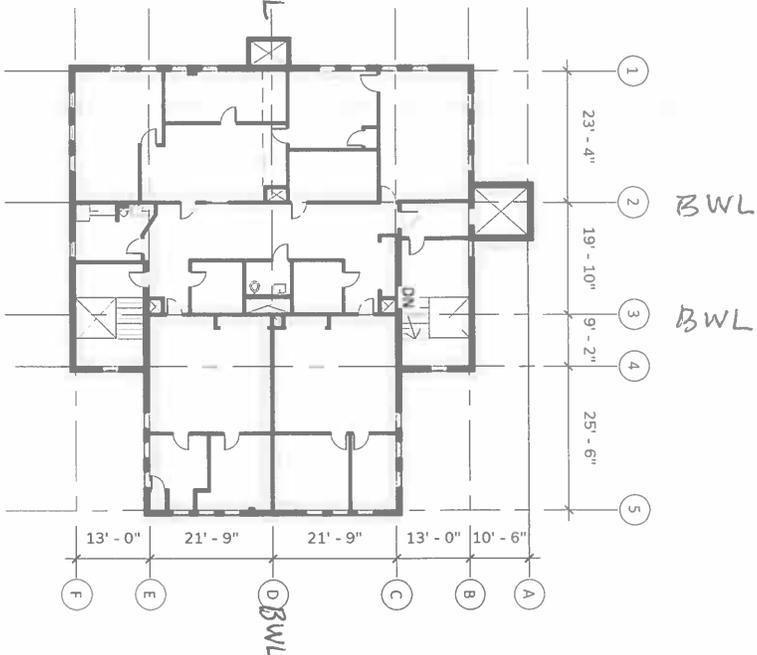
VERTICAL LOAD CARRYING ELEMENTS



1 FIRST LEVEL GRID LAYOUT  
 $\frac{3}{16}'' = 1'-0''$



2 SECOND LEVEL GRID LAYOUT  
 $\frac{3}{16}'' = 1'-0''$



3 THIRD LEVEL GRID LAYOUT  
 $\frac{3}{16}'' = 1'-0''$

# NEWMARKET TOWN HALL

NEWMARKET, NH

MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION

## SYSTEMS STUDY



Consulting Engineering Services, Inc.  
35 Pleasant Street, 1<sup>st</sup> Flr  
Concord, NH 03301  
CES Project #2023096.00

May 12, 2023

NEWMARKET TOWN HALL

Section 1. Introduction

The purpose of this narrative is to provide an evaluation and assessment of the mechanical, electrical, and plumbing (MEP) systems at the Newmarket Town Hall, including recommendations and modifications for improvements, upgrades, and to support the expansion.

The report below will focus on three areas:

1. The conditions of the existing equipment and suggestions of remaining life expectancy.
2. Recommendations on improvements to the existing systems.
3. System design approaches and recommendations for the addition. At this time, a design of an addition has not been presented. Once the design has been developed, the recommended systems can be revisited with the layout of the building to better understand the best system. Note that the intent of these recommendations is not to define a specific work scope with all details, but rather to provide a general outline of the type of work that will be required.

Section 2. Fire Protection Systems

A. Existing Conditions

The building does not currently have a sprinkler system, with the exception of a single head off the domestic water service in the water heater room.

B. System Modifications for Addition

A new NFPA 13 wet sprinkler system should be added to the building if it is determined to be required by Code based on the type of addition. The system would consist of a 6" fire protection line routed to the building from the water main located in the street. The fire protection water service will be provided with a backflow preventer assembly in the fire service entrance room in the building.

Results from a recent flow test shall be provided by the water utility company. At this time we are assuming that the available flow and pressure are adequate for the building without the assistance of a fire pump.

C. System Standards

1. Alarm valves shall be installed to properly zone the sprinkler system.
2. Sprinklers shall be concealed, fully recessed in finished areas with ceilings. Sidewall, exposed, extended coverage sprinklers shall be installed where appropriate. Quick response sprinkler heads shall be used in light hazard locations. Sprinklers, unless noted otherwise, shall have a ½" orifice and a 165°F temperature rating. Intermediate temperature classification sprinklers shall be installed within the mechanical room, skylights and other applicable areas.
3. Piping for the sprinkler system shall be steel pipe, ASTM A 53; Schedule 40 seamless carbon steel. Schedule 10 pipe shall be allowed for pipe sizes larger than 2"

diameter when roll grooved mechanical couplings are used. Sprinkler piping shall be installed above ceilings and concealed within chases where applicable.

4. Fittings shall be grooved mechanical fittings: ANSI A21.10 ductile iron; ASTM A47 grade malleable iron. Couplings shall be ASTM A 536 ductile iron or malleable iron housing, EPDM gasket with nuts, bolts, locking pin, locking toggle or lugs to secure roll grooved pipe and fittings.

### Section 3. Plumbing Systems

#### A. Existing Conditions

The building's domestic water consists of a 2" service off a 6" main with a water meter and shutoff valve. The service currently enters the building in the basement mechanical room. There is also no evidence of a backflow prevention device upon the pipe entering the building. The domestic water serves the plumbing fixtures, water heater, and boiler makeup water.

Hot water is generated from an electric water heater (Manufacturer: Richmond) located in the IT room off of the Meeting Space with approximately 50-gallon capacity. The water heater was installed in 2012 and appears to be in good condition.

The plumbing fixtures throughout the buildings appear to be in good condition. However, the floor drains in the 1<sup>st</sup> Level bathrooms did appear to have significant wear to them.

#### B. System Modifications for Base Building

##### Replacing Cast Iron Sanitary Piping

The cast iron sanitary piping in the lower mechanical room appears to have cracks and visible leakage from the pipe. It is recommended that this piping be replaced with new cast iron or PVC piping.

##### Replace Electric Water Heater with Heat Pump Water Heater

The electric water heater is currently located in the IT Room. IT Rooms generally produce large heat loads that the HVAC system must account for with cooling. The use of a heat pump water heater in this space will inherently cool down the room since it extracts the heat out of the air in order to heat the water in the tank. Heat pump water heaters are also 3 to 4 times more energy efficient than an electric water heater. It is recommended that the electric water heater be replaced with a heat pump water heater, either now or when the electric water heater breaks.

##### Low Flow Plumbing Fixtures

The faucets appeared to be in good condition but if a lower consumption of water is an objective, the aerators on the faucets can likely be replaced with a lower flow option.

#### C. System Modifications for Addition

In order to support an addition to the Town Hall, the following is recommended for the plumbing systems:

1. Connect the existing cold water main to the addition sized for the new fixture demand.
2. Provide a new hot water heater sized for the new fixtures.
3. Provide storm piping and roof drains, as required, and connect to the existing storm main below grade outside the existing building footprint.
4. Provide gas piping throughout the building as required for the new boiler and any other new equipment.

**D. System Standards**

1. Domestic cold water and domestic hot water shall be Type L copper conforming to ASTM B 88 and shall be connected by either press-seal fitting (ProPress) or soldered fittings.
2. Domestic water piping shall be insulated with rigid molded, noncombustible glass fiber insulation conforming to ASTM C335.
3. Domestic water piping throughout the building shall be installed above ceilings and concealed within walls. Jacketing shall be provided on piping exposed in occupied areas (when exposed pipe is located below 10').
4. Storm, sanitary and vent piping shall be hub-less cast iron with standard torque clamps, conforming to CISPI 301 for above ground piping and hub and spigot cast iron conforming to ASTM A 74 for piping installed below the floor slab.
5. Storm, waste, and vent piping shall be concealed within chases and walls where possible.
6. Gas piping shall be ASTM A53 schedule 40 black steel, painted yellow.

**Section 4. Mechanical Systems**

**A. Existing Conditions – Heating Plant and Terminal Units**

The heating plant consists of (2) 399 MBH Viessmann Vitodens 200-W gas-fired condensing water boilers, boiler pumps, low loss header, and a set of hydronic pumps.

The boiler and pumps are in good condition as they were installed in 2019.

The boiler generates hot water that is distributed throughout the building via pumps to the terminal units. The terminal units include the radiators within the spaces and the hydronic coils mounted in the air handling units.

The boiler is a condensing type boiler. Condensing boilers operate at lower water temperatures compared to standard boilers, which allows additional latent heat to be extracted from the flue gases, resulting in higher efficiencies.

The radiators within the spaces are hydronic fin-tube type with wall mounted thermostats. These radiators serve as the primary source of heating for the spaces. The hydronic coils within the air handling units provide a secondary source of heating.

**B. Existing Conditions – Air Handling Units (AHUs) & Condensing Units**

The 1<sup>st</sup> Level (Meeting Space, Stage, etc.) is served by two Mitsubishi wall mounted, ductless air handling units. These units are used for cooling the Meeting Space but they also have the capability to heat as well since the outdoor condensing unit is a heat pump. However, this space has hydronic radiators as the first stage of heating which makes the wall mounted air handling units primarily operate in cooling.

The 2<sup>nd</sup> and 3<sup>rd</sup> Levels are served by First Co. air handling units. The air handling units serving these spaces are split DX cooling with a hydronic hot water heating coil. The DX cooling coil is connected to an outdoor Carrier condensing unit via refrigerant piping. The hydronic heating coil is utilized as a secondary source of heating with the radiators as the primary source. The forced air from the AHUs is distributed to the space with supply and return ductwork to ceiling mounted grilles and diffusers.

The air handling units and condensing units observed were in good condition as they were recently installed in 2019. See the following two charts for a list of the AHUs and condensing units observed in the building. The condensing units are located at grade on the North side of the building.

Space AHU is Located	AHU Manufacturer & Model #	Cooling Nominal Tons
1 <sup>st</sup> Level - Meeting Space (Unit 1 of 2)	Mitsubishi MSZ-GE24NA	2.0
1 <sup>st</sup> Level - Meeting Space (Unit 2 of 2)	Mitsubishi MSZ-GE24NA	2.0
2 <sup>nd</sup> Level - Council Chambers	First Co. 36VHBXB-HW	3.0
2 <sup>nd</sup> Level - Tax Office	First Co. 48VHBXB-HW	4.0
2 <sup>nd</sup> Level - Town Asst.	First Co. 36VHBXB-HW	3.0
2 <sup>nd</sup> Level - Inspector 1 Office	First Co. 36VHBXB-HW	3.0
3 <sup>rd</sup> Level - Finance Office	First Co. 48VHBXB-HW	4.0
3 <sup>rd</sup> Level - S.I. Conference	First Co. 48VHBXB-HW	4.0
3 <sup>rd</sup> Level - Office	First Co. 48VHBXB-HW	4.0
3 <sup>rd</sup> Level - School Reception	First Co. 48VHBXB-HW	4.0

Condensing Unit Manufacturer & Model #	Cooling Nominal Tons
Carrier 24ACC648A300	4.0
Carrier 24ACC636A300	3.0
Carrier 24ACC648A300	4.0
Carrier 24ACC630A300	2.5
Carrier 24ACC636A300	3.0
Carrier 24ACC648A300	4.0
Carrier 24ACC648A300	4.0
Carrier 24ACC648A300	4.0
Mitsubishi MXZ-5C42NA	3.5

**C. Existing Conditions – Ventilation**

The 2<sup>nd</sup> and 3<sup>rd</sup> Levels are ventilated with an outside air duct connected to an exterior wall cap or louver and then ducted to the return duct main of the air handling unit. This is a means of passive ventilation and relies on the negative pressure in the return ductwork for the outside air to be drawn into the building.

The Level 1 Meeting Space is currently ventilated with an energy recovery ventilator (ERV) located in the basement mechanical room. The ERV's manufacturer and model is Renewaire HE1XJINH. The ERV is an enthalpy core type where it will exchange heat and moisture from the exhaust airstream to the outside airstream or vice versa. A duct for fresh air and a duct for exhaust air is ducted to the Meeting Space from the unit. The unit appears to be in good condition as it was recently installed in 2019 along with the boilers and AHUs.

The 2<sup>nd</sup> and 3<sup>rd</sup> Level restrooms and Copy Room are provided with dedicated ceiling mounted exhaust fans. However, the 1<sup>st</sup> Level Men's and Women's bathrooms currently do not have any means of exhaust.

**D. Existing Conditions – Controls**

The building has recently undergone a controls upgrade with the implementation of a Building Management System (BMS). The BMS controls and/or monitors the heating plant, 2<sup>nd</sup> and 3<sup>rd</sup> Level air handling units, and radiators. The Meeting Space Mitsubishi air handling units are not connected into the BMS.

Throughout the spaces, there are room temperature controllers (thermostats) that operate either the radiators or the AHU. It was observed that the radiators have dedicated thermostats along with the AHUs having dedicated thermostats. The AHUs serve multiple rooms but only operate off of one thermostat. This is a typical control scheme for a constant volume AHU but it does sometimes trigger complaints because of the lack of control throughout those spaces.

The Meeting Space ERV operates based on a CO2 controller by Renewaire. The controller is wall mounted in the space and will adjust the amount of fresh air introduced into the space based on the CO2 levels.

**E. System Modification for Base Building**

Add Exhaust Fans in 1<sup>st</sup> Level Bathrooms

Provide exhaust fans for the 1<sup>st</sup> Level Bathrooms to meet current code requirements. The exhaust fans should be sized per the 2018 IMC Ventilation Standards which equates to 50 CFM per water closet and urinal.

Provide Air Balancing

Based on what was visible above the ceiling, there was no evidence of balance dampers on the AHU supply ductwork. Manual diffuser dampers were also noticed in some

rooms in order to try and reduce airflow to those rooms. It is recommended that the AHU ducted systems be air balanced for each room's expected cooling loads in order to improve thermal comfort.

#### Providing Additional Zoning

Currently, the 2<sup>nd</sup> and 3<sup>rd</sup> Levels have 4 HVAC zones (consisting of AHUs) that divide the level into 4 quadrants. Each quadrant contains interior and exterior rooms grouped on the same AHU. Since these spaces have different exposures and heating/cooling loading profiles, it is recommended that the zoning become split up between interior and exterior spaces. This would include adding AHUs and their associated CUs for each interior space and then revising the existing ductwork.

If adding AHUs is not an option based on cost and available space, it would be recommended to add zone damper systems with change-over bypass to each of the AHUs. Although this does not provide true additional zones, it would allow for more thermal comfort control than what is present today.

#### Connect Meeting Space AHU/ERV into BMS

The air handling units and ERV serving the Meeting Space are currently controlled locally. It is recommended that these units be tied into the BMS for monitoring and controlling these remotely.

#### Condensing Unit Snow Stands

The Carrier condensing are currently ground mounted on a concrete pad. It is recommended that these units be raised 18" off the ground with a Quick-Sling stand type product. Snow buildup around the units and blocking the coils can cause the unit to not operate properly or shut down during the winter.

### F. System Modifications for Addition

In order to support the heating and cooling needs of an addition to the Town Hall, it is recommended that similar systems to the existing building be utilized: a new gas-fired boiler for heating, split DX air handling units with condensing units for cooling. Ventilation shall be provided with an ERV which would provide fresh air to the return ductwork of the AHUs and exhaust from the new bathrooms.

### G. System Standards

1. All ductwork and accessories shall meet SMACNA standards. After installation of duct is complete third party shall clean all ductwork.
2. Provide all HVAC equipment with extra set of filters.
3. Seismic restraints shall be designed and installed as required per State Building Codes and Fire Safety Codes, which requires the seal of a licensed professional engineer. Abovementioned professional engineer will be required to verify installation is correct and complete per seismic code. This includes piping, ductwork, equipment, and equipment bases.

4. Provide glass fiber insulation for all hydronic piping and ductwork. Insulation shall be installed to meet the Energy Code.
5. Provide firestopping around mechanical penetrations in accordance with fire stopping requirements. System shall be capable of maintaining against flame and gases. System shall be UL listed and comply with ASTM E814.
6. Provide mechanical identification for mechanical systems. Identification shall comply with ANSI A13.1.
7. All pipe connections shall be installed to allow for freedom of movement of the piping during expansion and contraction without springing. Swing joints, expansion loops and expansion joints with proper anchors and guides shall be provided where shown.
8. Provide vibration isolation for hydronic piping, ductwork, and equipment.
9. Hydronic piping 2 1/2"  $\phi$  and under shall be Type L copper with either soldered or ProPress style fittings. Piping 3" and over shall be ASTM A 53; Schedule 10 black steel pipe with welded, flanged or grooved joints.
10. All equipment served by hydronic piping shall have isolation valves on the supply and return lines. Isolation valves shall also be provided at branch take-offs.

#### Section 5. Electrical Systems

##### A. Existing Conditions

###### Main Service

It appears that the building has (2) electric services, consisting of (1) 120/240V, 1-phase, 3-wire, 100-amp service and (1) 208Y/120, 3-phase, 4-wire, 400-amp service. Both of these services enter the building below grade in the northwest corner of the basement in the main Mechanical/Electrical Room.

The condition and organization of electrical service equipment is typical of a building that has undergone renovations over the years. The panels and circuit breakers appear to be in fair condition, however there are several code violations that are apparent. The following is not intended to be an exhaustive list of code violations as that is not within the scope of this narrative:

1. Foreign systems running over the top of panelboards. A water line runs directly over one of the main distribution panelboards, which is in violation of the National Electrical Code (NEC) which requires dedicated equipment space as follows:

*"The space equal to the width and depth of the equipment and extending from the floor to a height of 6 feet above the equipment [...] shall be dedicated to the electrical installation. No piping, ducts, leak protection apparatus, or other equipment foreign to the electrical installation shall be located in this zone." Article 110.26(E)*

2. Insufficient ceiling height. The NEC requires the work space in front of equipment to be clear and extend from the floor to at least 79" (Article 110.26(A)(3)). The ceiling height at the electrical panels is less than 79".

#### Distribution

Distribution to branch circuits and equipment is provided through multiple distribution panelboards and load centers. The panelboards are a mix of primarily Siemens and General Electric. In general, the panels are modern and in good condition, so replacement is not required. However, there are several code violations in the building.

1. The panel serving the 3<sup>rd</sup> floor SAU space is a Siemens load center. However, some of the branch circuit breakers are manufactured by Square D. Typically, in order for a load center installation to maintain its UL listing, the branch circuit breakers must be listed for use in the load center. It is extremely uncommon for manufacturers to be listed for installation in other manufacturer's panels. These branch circuit breakers should be replaced with Siemens breakers.
2. The panel serving the second floor Administrative area does not maintain adequate dedicated space in front; there is currently a desk/table in front of it and a fire extinguisher under it.
3. The panel serving the third floor kitchenette/break area (B-P1) does not maintain adequate dedicated space in front; it is partially mounted over a kitchen counter.

#### Devices/Lighting

The convenience receptacles in most areas of the building are in good condition and most are labeled with the source panel and circuit. Note that the receptacles do not appear to be tamper-resistant, as would be required for this occupancy group. Article 406.12 requires tamper-resistant receptacles in most areas accessible to the public and/or children.

Lighting is predominantly provided by direct overhead lighting with LED fixtures. The condition of fixtures is generally good and replacement would not be anticipated in the near term. Lighting control is accomplished through manual, line voltage switching with little in the way of auto-off (occupancy/vacancy) sensors which is required by current Energy Conservation codes.

The basement lighting is provided with surface-mounted fluorescent fixtures. The condition of the fixtures appears to be fair and replacement should be considered only as failure rates increase or if energy savings (via LED replacement) is desired.

Exterior lighting is mounted to the building; it consists of LED lighting tied to a time clock system. The fixtures appear to be relatively new and are in good condition.

### Fire Alarm

The building has an automatic fire alarm system consisting of a Mircom Series 1000 zoned fire alarm control panel (FACP) with the following initiation zones:

1. Boiler Room.
2. First Floor pull stations, heat detectors, and smoke detectors.
3. Second Floor pull stations, heat detectors, and smoke detectors.
4. Elevator Shaft.
5. Third Floor pull stations, heat detectors, and smoke detectors.
6. Attic heat detectors.

The building does not have an NFPA 13 (complete) sprinkler system; therefore, these four zones comprise the means of initiating an alarm sequence in the building.

An alarm in the building will activate the notification appliances, which consist of audible/visual devices (horn/strobes and strobe only devices). The existing system and devices appear to be in good condition and the system appears to be able to support some level of expansion.

Note that in several areas, smoke/heat detectors were taped over (tape should be removed) and several areas appear to have non-system type smoke detectors (third floor administrative area).

Additionally, several areas appear to have line voltage, non-system connected smoke detectors. These detectors should be replaced with system-type detectors connected to the main system.

#### **B. System Modification for Base Building**

Due to the relatively small service size for the building, it is anticipated that the building will require a utility service upgrade as part of the renovation. Preliminary load calculations indicate that the 400A, 120/208V, 3-phase electric service does not support much additional square footage, particularly if an expansion were to include electric heating or cooling. Due to the condition of electrical equipment inside the Mechanical/Electrical Room, CES recommends replacement of the service entrance disconnect with a new current transformer (CT) cabinet and 600 A, 3-phase, 4-wire electric service.

### Distribution

The following list is not intended to be exhaustive with respect to scope of work recommended for the Mechanical/Electrical Room. Rather, it is to be used as a general guideline of the work recommended upgrade the electrical service.

1. Provide a new 600A, 120/208V, 3-phase, 4-wire, NEMA 1 distribution panelboard in the Mechanical/Electrical Room in an area with adequate head height and working space. The purpose of this panelboard will be to provide main distribution to

- subpanels and single, large loads (for example, the rooftop units, elevator, and other miscellaneous large loads).
2. Refeed the existing panels in the Mechanical/Electrical Room. Provide GFCI circuit breakers as required.
  3. Extend existing branch circuits to new and existing load centers throughout the building as required.

#### Devices/Lighting

As referenced in the Existing Conditions section of this report, lighting is generally in good condition. Lighting control is rudimentary (simple on/off switches) and does not meet current Energy Code requirements for time control, occupancy/vacancy operation, etc. Therefore, the following recommendations are listed with notes regarding intent and importance.

1. Replace existing toggle switches with line voltage occupancy/vacancy sensors in smaller spaces (including, but not limited to spaces such as Staff Office, Kitchenette, Offices, Bathrooms). This prevents lights from being left on and maximizes energy savings.
2. Replace all existing 15- and 20-amp general purpose receptacles with tamper-resistant receptacles.
3. Replace all existing GFCI receptacles with new GFCI, tamper-resistant receptacles.

#### Fire Alarm

The recommendations for the fire alarm system are based on the system being capable of supporting additional initiation devices (smoke detectors, pull stations, heat detectors, etc.) and notification appliances (horn/strobes, strobe-only devices).

1. Provide additional notification appliances to complete coverage for all spaces.

#### C. System Standards

The following standards shall be followed for the installation of all electrical equipment referenced within this document:

1. All conductors shall be copper.
2. Circuits shall be installed in EMT conduit.
3. Circuiting shall conform to the following guidelines:
  - a. Provide no more than (5) duplex receptacles on a single branch circuit.
  - b. Provide (1) 20A/1P branch circuit for each office space with (1) quadruplex receptacle and (3) duplex receptacles.
  - c. Provide (1) 20A/1P duplex receptacle mounted above sinks in each bathroom.
4. Provide circuits for all HVAC equipment as required. 120V wiring to control panels, control transformers, etc. shall be provided by the electrician; low voltage control wire shall be provided by the mechanical contractor.
5. Provide circuits for all plumbing equipment.
6. Provide circuits for fire alarm equipment as required.

7. Provide circuits for any security system devices as required.
8. Provide emergency lighting in all egress paths via self-contained wall-mounted battery units (EBU's).
9. Provide self contained, battery-powered, thermoplastic, universal mounting, LED-illuminated, low energy use exit signs.
10. Provide the following illumination levels:
  - a. 15 foot-candles – corridors, bathrooms, storage rooms, stairways, lobby spaces
  - b. 30 foot-candles – office, assembly spaces
11. Provide the following fixture types:
  - a. 2'x2' recessed or surface-mount architectural LED fixtures in areas other than lobbies
  - b. Additional architectural fixtures for high-finish areas such as entry hall or as specified in Architectural documentation.
  - c. Exterior LED wall pack at all entrances.
12. Provide the following lighting control functionality/features:
  - a. Dimming control for common spaces and offices.
  - b. Occupancy/vacancy sensors (selectable) shall be provided in all lit areas except in utility rooms, lobby, circulation, corridors, and other rooms exempted by Code.
13. Include the following basic materials and methods of construction:
  - a. Wiring shall be THHN/THWN copper, installed in EMT conduit for general circuits.
  - b. Devices shall be specification-grade, NEMA 5-20R, etc.
  - c. Disconnect switches shall be fusible heavy-duty type, NEMA 1 or 3R as required for installed location.
  - d. Circuit breakers shall be fixed element, thermal magnetic type.
  - e. Panelboards shall have copper bussing with hinged, lockable, door-in-door trims.
  - f. Branch circuit breakers shall be bolt-on type.
  - g. All conduits, circuits, and devices shall be labeled using a label printing machine (no handwritten labeling is allowed).
  - h. Conduits below slabs shall be Schedule 40 PVC with rigid steel conduit sweeps.

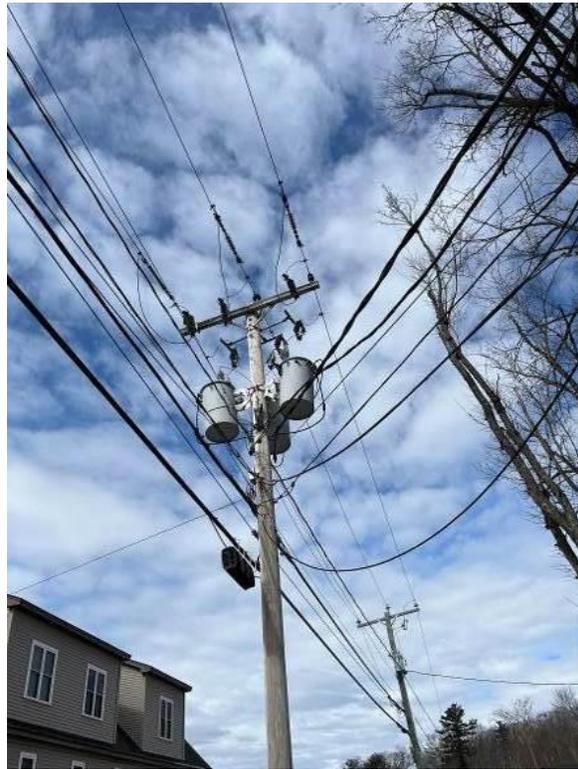
The building fire alarm system will be expanded to accommodate additional proposed devices. Install in accordance with local code requirements.

1. Provide manual pull stations at the egress paths at exterior doors.
2. Provide monitor modules for sprinkler tamper/flow/pressure switches at fire protection system entrance, if a sprinkler system is added.
3. Provide selectable candela (15/30/75) horn/strobes in all occupied spaces.
4. All fire alarm system wiring shall be plenum-rated fire alarm MC cable where concealed and EMT conduit with THHN wire where exposed.

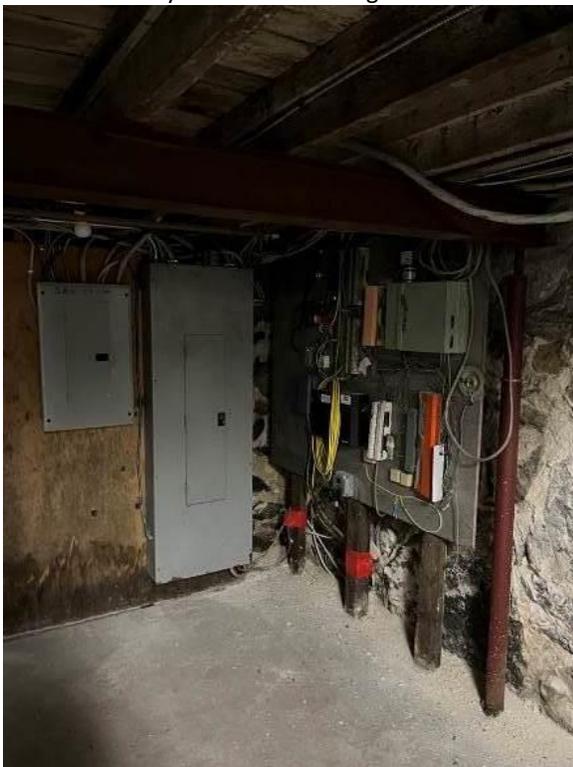
Section 6. Photos of Existing Conditions



Utility meters on building exterior



Pole-mounted transformers serving building



Service entrance panelboards and tele/data entrance  
in basement Mechanical Room



Main building service panel



SAU load center (top floor)



Typical line voltage light switch and thermostat



Line voltage smoke detector (not possible to determine whether these have any interconnection to the system fire alarm)



General illumination (LED fixtures on ACT in most locations)



Lighting control for most spaces(line voltage occupancy sensors)



Fire Alarm Control Panel



Typical subpanel (in kitchenette)



System-type heat detector in ACT ceiling



Baseboard hydronic radiator on exterior wall (typical)



Typical return grille in ACT ceiling



Exposed sanitary piping in basement



VRF fan coil and thermostat in basement Meeting Space



Electric tank-style water heater in IT/Storage Room in basement



Thermostat for Meeting Space controls on right (thermostat on left no longer used)



Condensing boilers in basement Mechanical Room



Expansion tank



EC pump motor for hydronic heating system in basement Mechanical Room



Typical thermostat



Air handler mounted above ceiling (typical)



Gooseneck on roof



Roof drain (typical)



Flush valve water closet with manual flush (typical)



Lavatory (typical)



Emergency lighting (typical)



Surface-mounted fluorescent fixture in basement (typical)



Aftermarket diffuser for ceiling supply grille (complaints with cold air on occupants) (occurs in multiple locations)



Janitor's sink



ERV in basement Mechanical Room



Sanitary line (leaking) in basement Mechanical Room



Condensing units on grade, building exterior (typical)



**EXISTING BUILDING CONDITIONS ASSESSMENT  
FIRE PROTECTION SYSTEMS, LIFE SAFETY & ACCESSIBILITY**

**NEWMARKET TOWN HALL  
186 MAIN STREET, NEWMARKET, NH**

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## 1.0 EXECUTIVE SUMMARY

As part of the Town of Newmarket municipal facilities master plan effort, JS Consulting Engineers (JSCE) has performed an existing building conditions assessment and code analysis of the Town Hall building located at 186 Main Street in Newmarket, New Hampshire. The Town Hall is a three-story building with a partial basement that houses general municipal services for the Town of Newmarket.

This analysis will consider four main scenarios: 1) No changes are made to the building, 2) The building floor plan is modified to accommodate the current Town Hall needs, but the work is less than 50% of the building area and the occupancy classification remains the same, 3) The building floor plan is modified to accommodate the current Town Hall needs and the work area exceeds 50% of the building area (while the occupancy classification remains the same), and 4) an addition is constructed at the rear of the building.

If no new renovation work is completed in the building (Scenario 1) the building is still required to be in compliance with the existing occupancy requirements of the Life Safety Code (NFPA 101) and existing building requirements of NFPA 1 under Saf-FMO 300. There is also an obligation under the ADA to address readily removable architectural barriers to allow for incremental improvements to the level of accessibility provided throughout the building.

This Report does not contemplate a future change in use of the building. It is assumed that any future renovation or reconfiguration of the building would include the continued use of the building as a Town Hall.

### 1.1. KEY ISSUES

The most significant fire safety, life safety and accessibility code compliance issues identified are summarized below. Further information on each of these issues can be found in the body of the report. A complete list of the observed issues/deficiencies can be found in Section 9.0.

- A potential addition would require the entire building to be evaluated against the height and area requirements of the current building code. Since the existing building is not currently compliant with height and area requirements, it is expected that any future addition would need to be separated from the existing building by a fire wall.
- The stage/platform portion of the First Floor assembly area is not accessible. As a public place of assembly where members of the community may speak or be called to the speaker to accept an award (or similar), this is a significant accessibility issue that should be addressed.

## 2.0 BUILDING DESCRIPTION

The existing building is three-stories in height and has a footprint of approximately 5,200 square feet. It includes a large meeting space with stage/platform, smaller meeting spaces for town officials, public service counters, offices, open office areas, and MEP/storage spaces.

The building is equipped throughout with an automatic fire alarm system. It does not have a fire sprinkler system.

The purpose of this assessment is to visually examine the existing fire protection, life safety, and accessibility features provided in the building in order to determine the general overall condition of the building and to identify observable fire protection, life safety and accessibility code deficiencies. JSCE understands there is no new work currently planned for the building; however, issues identified that could impact future renovations or repurposing of the building are discussed in general terms in this Report. Four (4) scenarios are described in this Report representing a range of different possibilities for the near term and long-term use of the building. These scenarios are described below.

**Table 1 - Report Scenarios**

<b>Scenario 1</b>	No new work is performed in the building.
<b>Scenario 2</b>	The building undergoes renovations in isolated areas of the building affecting less than 50% of the total area (the <i>Work Area</i> is less than 50% of the building area). The renovations do not include any changes in the existing uses of the building. However, areas are permitted to be reprogrammed without triggering a change in use.
<b>Scenario 3</b>	The building undergoes renovations in areas of the building affecting 50% or more of the total area (the <i>Work Area</i> is greater than or equal to 50% of the building area). The renovations do not include any changes in the existing uses of the building. However, areas are permitted to be reprogrammed without triggering a change in use.
<b>Scenario 4</b>	An addition is constructed at the rear of the building. It is assumed that the occupancy classification of the addition will match that of the existing building.

A *Work Area* is defined as follows:

*That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents. Work Area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this code.*

The *Work Area* generally applies to architectural reconfigurations, not MEP systems modifications / upgrades. For example, the installation of a new HVAC system would be considered a Level 2 Alteration without the creation of a *Work Area*. The determination of a *Work Area* should be evaluated on a case-by-case basis.

Note that JSCE's scope of work does not include review of existing mechanical, electrical, plumbing, or structural systems or energy performance / efficiency. This Report is based on the site visit performed by Alex M. Browning, P.E. and Jennifer I. Sapochetti, P.E. of JSCE on March 9, 2023, the provided architectural drawings for renovations to the building occurring in 1972, 2016, and 2019, and the requirements of the applicable codes identified below.

The site visit included a visual observation of the general layout of the building. No system testing or destructive or intrusive inspections were conducted by JSCE. As the objective of this review is to determine the general condition of the facility, not all rooms and spaces were inspected. Where specific deficiencies are noted, the list is in no way comprehensive and should be considered cursory in nature.

## **2.1. OUTSTANDING JURISDICTION VIOLATIONS**

JSCE assumes there are no outstanding code violations on file with the Newmarket Building or Fire Departments. JSCE also assumes there are no outstanding accessibility complaints filed by occupants with the U.S. Department of Justice (ADA violations).

### 3.0 APPLICABLE CODES

As of March 2023, the state of New Hampshire adopts the following codes and standards as part of the New Hampshire State Building and Fire Codes. This includes the following:

**Accessibility** - 2010 ADA Standards (ADAS)

ICC A117.1 as adopted and scoped by NHBC Chapter 11.

**Building** - New Hampshire State Building Code (NHBC). The NHBC is an amended version of the 2018 International Building Code.

**Electrical** - NFPA 70, National Electrical Code, 2020 Edition (NEC)

**Energy Conservation** - New Hampshire Energy Conservation Code (NHECC). The NHECC is an amended version of the 2018 International Energy Conservation Code.

**Existing Building** - New Hampshire Existing Building Code (NHEBC). The NHEBC is an amended version of the 2018 International Existing Building Code.

**Fire Safety** – Saf-FMO 300 which adopts and amends NFPA 101, The *Life Safety Code*, 2018 Edition (LSC) and NFPA 1, The *National Fire Code* 2018 Edition (NFPA 1)

**Mechanical** - New Hampshire Mechanical Code (NHMC). The NHMC is an amended version of the 2018 International Mechanical Code.

**Plumbing** - New Hampshire Plumbing Code (NHPC). The NHPC is an amended version of the 2018 International Plumbing Code.

An existing building not undergoing any new work is not required to retroactively comply with the new construction requirements of the current applicable building codes and standards. However, any new work proposed is subject to the requirements of the codes and standards listed above as scoped by the NHEBC, Saf-FMO 300 (LSC Chapter 43 and NFPA 1) and the ADAS<sup>1</sup>.

Under Scenario 4, an addition is required to meet all new construction requirements of the NHBC and LSC. Additionally, improvements may be necessary for the existing building based on the construction of a new addition as required by the NHEBC.

All existing buildings are required to be maintained in compliance with the existing building requirements of Saf-FMO 300 which includes the existing occupancy requirements of LSC and NFPA 1.

Existing public buildings are also subject to the Readily Removable Barriers provisions (RRB) under Title II of the ADA (28 CFR §36.304), regardless of whether new work is performed. This includes buildings owned and operated by a private or public college or university. The RRB requires public buildings to continually review the level of accessibility provided and to make incremental improvements to a building's accessibility where it is readily achievable<sup>2</sup>.

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<sup>1</sup> Should the applicable codes and standards be updated prior to the start of new work in the building; new work should be designed to those applicable codes and standards.

<sup>2</sup> The term “readily achievable” is a subjective term and is based on the ease in which accessibility upgrades can be made based on technical feasibility, “means and opportunity”, cost, and the building owner’s ability to pay for such improvements. This can vary significantly from building to building; therefore, should be reviewed on a case by case basis.

## 4.0 CONSTRUCTION AND OCCUPANCY CLASSIFICATION

### 4.1. OCCUPANCY CLASSIFICATION

The occupancy classification of the building is primarily mixed-use Group A-3 and B in accordance with the NHBC and Existing Assembly and Existing Business in accordance with the LSC.

**Table 2. Occupancy Classifications**

Occupancy Classification	Uses
Group A-3, Existing Assembly	First Floor Meeting Space
Group B, Existing Business	Offices, Open Office Areas, Conference Rooms < 50 Occupants, etc.

### 4.2. EXISTING BUILDING CONSTRUCTION

The interior walls and floor/ceiling assemblies appeared to be built of wood construction. Although the exterior walls appear to be noncombustible, it is understood from correspondence with Placework that the exterior brick is a façade on top of 2x6 wood stud exterior walls. Therefore, the existing building most closely resembles a construction type of VB in accordance with the NHBC and V(000) in accordance with the LSC.

**Table 3. Allowable Height & Area - Unsprinklered Type VB Construction w/o Frontage Increase**

Use Classification	NHBC <sup>3</sup>	NHEBC	Existing LSC <sup>4</sup>	New LSC <sup>4</sup>
<b>Group A-3</b>	1-story / 40-feet 6,000 square feet per floor	The height and area of an existing building undergoing a Level 1, Level 2 or Level 3 Alteration without a Change in Use (to a higher hazard category) or Addition does not need to meet the height and area criteria prescribed for New Construction <sup>5</sup> .	1-story w/ 1,000 max. occupants (2-story with w/ 300 max occupants if sprinklered).	1-story w/ 300 max. occupants
<b>Group B</b>	2-stories / 40-feet 9,000 square feet per floor, 18,000 gross square feet		Not Restricted	Not Restricted

Note: The table above is based on unsprinklered buildings. If a sprinkler system were to be provided throughout the building, the allowable height for each occupancy classification would increase by 1 story and 20 feet. Additionally, the allowable area per floor would triple.

**Although the presence of Group B occupancy on the Third Floor does not comply with the current requirements of the NHBC, the LSC does not limit construction type for existing business occupancies, and the NHEBC**

<sup>3</sup> Per NHBC Table 504.3, Table 504.4, Table 506.2, and §506.2.3 - Only applicable for new construction or where there is a Change in Use to a higher hazard category or an addition per the NHEBC.

<sup>4</sup> LSC defines the height of a building for an occupancy when determining allowable construction type to be measured from the level of exit discharge to the highest story containing that occupancy (LSC §4.6.3). Given that assembly occupancy only exists on the First Floor, the building is considered 1-story assembly building, 3-story business building.

<sup>5</sup> NHEBC Chapters 7, 8, and 9 and Sections 1012.5 and 1102.0. Existing buildings undergoing a change in use to a higher hazard category based on NHEBC Table 1012.5 or undergoing an addition are required to meet the height and area requirements for new construction per NHBC Chapter 5.

permits existing nonconforming buildings to continue to be occupied for alteration work without a change of occupancy classification.

The Group A-3 portion of the building (i.e., the large meeting room) is limited to the First Floor. For purposes of applying NHBC, even when a particular occupancy is limited to a lower floor, the entire height of the building must be included in the analysis unless the more hazardous occupancy (in this case A-3) is separated from the remainder of the building by rated construction, allowing it to be treated as a separated, mixed-use occupancy; however, as noted in footnote 4 above, LSC permits height for each occupancy to be individually evaluated, regardless of presence of rated separations.

As such, under Scenarios 1 through 3, the existence of unseparated Group A-3 assembly occupancy on the First Floor of a 3-story Type VB is compliant with the existing assembly requirements in LSC.

Under Scenario 4, a new height and area analysis would be required. NHEBC §1102 prohibits additions from increasing the height of an existing building beyond that permitted by the NHBC for new construction. Likewise, additions are prohibited from increasing the area of an existing building beyond that permitted by the NHBC for new construction unless fire separation is provided. As such, if the height and area analysis for the combined existing building plus addition cannot comply with the current code requirements of the NHBC, then the addition will need to be separated from the existing building by a fire resistance rated wall, which may be required to be a fire wall, depending on specific project plans.

## 5.0 FIRE PROTECTION SYSTEMS

### 5.1. FIRE SPRINKLER SYSTEM

The building is currently not provided with a fire sprinkler system.

Under Scenario 1 where no new work is performed, the building does not require the installation of a sprinkler system, as the LSC does not contain fire sprinkler requirements for existing assembly occupancies of this particular use (meeting space) or for existing business occupancies.

Scenarios 2 and 3 consider building renovations of less than and greater than 50-percent of the building area, respectively. However, the Work Area per floor must also be considered. Under Scenario 2 if the Work Area is less than 50% of the building area AND the Work Area is less than 50% of the floor area on each floor, sprinkler protection is not required. However, even if the overall Work Area is less than 50% of the building area such that the project is considered a Level 2 alteration, sprinkler protection will be required if the Work Area on a given floor exceeds 50% of that floor's area, as the building is required to meet the new construction sprinkler requirements of NHBC §903.0 and the LSC. Under Scenario 3, likewise, sprinkler protection will be required, as the Work Area per floor will exceed 50% of the floor area.

The NHBC requires sprinkler protection for the existing building based on its height (3 stories) and construction type (assumed to be VB), not its area. If the building were determined to be construction type VA (which is combustible construction with 1-hour bearing walls and floor/ceiling assemblies), and the Group A-3 area on the first floor were separated from the Second and Third Floors with 2-hour construction, sprinkler protection would not be required.

Under Scenario 4, sprinkler protection would be needed if required by the NHBC for the height and area of the addition. For example, if the addition were Type VB construction, Group A-3 occupancy, and 2-stories in height, a sprinkler system would be needed per NHBC Table 504.4.

### 5.2. FIRE EXTINGUISHERS

The building is equipped with fire extinguishers conspicuously located within the corridors. The fire extinguishers observed appear to be inspected regularly based on the inspection tags provided.

LSC §39.3.5 requires fire extinguishers throughout existing business occupancies. Fire extinguishers should be maintained throughout each building such that an extinguisher can be reached within 75-feet from all locations. This appears to be met based on the extinguisher layout observed.

### 5.3. FIRE ALARM & DETECTION SYSTEM

The building is equipped with an existing conventional fire alarm system. The fire alarm control unit (FACU) is a Mircom Series 1000 panel. The FACU is located in the west stairwell on the First Floor directly adjacent to the entry door. The existing fire alarm system has the following characteristics:

- Manual pull stations at all exit doors
- Smoke and heat detectors throughout the building
- Strobes and combination horn/strobes throughout the building

The system should be maintained in accordance with LSC §9.6 and NFPA 72.

**In Scenario 1, the existing system is not required to be modified, as it is assumed to have been designed in accordance with the applicable codes and standards at the time of installation. In Scenarios 2-4, the existing system is required to be modified to accommodate the revised layout of the building.**

Issues observed during the site visit relative to the fire alarm system are summarized in Section 9.0 of this Report.

### 6.0 MEANS OF EGRESS

Each floor of the building is served by two (2) means of egress in the form of enclosed exit stairways. On the Second and Third Floors, the east and west stairs are connected by a central corridor. On the First Floor, the exit stairways are accessed directly from the Group A-3 meeting space.

In accordance with LSC §7.4.1.1, each floor of the building is required to be served by a minimum of two (2) exits except where specifically permitted by the appropriate occupancy chapter.

**The provided exit arrangement is generally compliant with the requirements above, as the exit stairs are remote (i.e. on opposite sides of the building) and appear sufficiently sized to accommodate the occupant load of the most densely occupied portion of the building (the Group A-3 meeting area on the First Floor, assumed to be loaded at 15 sq. ft. per occupant). Based on a 48” stair width, each stair has an egress capacity of 160 occupants for a total allowable occupant load of 320. It should be confirmed that the worst-case program load of the First Floor does not exceed 320.**

**In Scenario 1, the existing egress arrangement is required to comply with the egress requirements of LSC Chapter 13 and 39 for assembly and business occupancies, respectively. In Scenarios 2-4, the revised layout of the building is required to comply with the new construction egress requirements of the NHBC except where specifically permitted otherwise by the NHEBC.**

Refer to Section 9.0 of this Report which discusses additional issues identified related to building exits and means of egress.

#### 6.1. ACCESSIBLE MEANS OF EGRESS

In accordance with LSC §7.5.4.1 and NHBC §1009.1 Ex. 1 accessible means of egress are not required to be provided in an existing building. This includes existing buildings undergoing a renovation.

No work is required to provide accessible means of egress unless an addition is constructed. If an addition is constructed, the newly constructed areas of the building are required to be served by accessible means of egress in accordance with NHBC §1009.0 and LSC §7.5.4.

### 7.0 LIFE SAFETY SYSTEMS

Illuminated exit signs with a secondary power source are required at each exit, throughout the corridors, and in all rooms and spaces requiring two (2) means of egress so that an exit sign is visible within 100-feet along the egress path in an

existing building (LSC §7.10). Similarly, all existing buildings are required to have both normal and emergency means of egress lighting along all means of egress including corridors, exit stair enclosures, points of exit discharge and the exterior path of travel from the exit discharge to the public way (LSC §7.10).

**In Scenario 1, the emergency lighting and exit signage is required to comply with the egress requirements of LSC Chapter 13 and 39 for assembly and business occupancies, respectively. Exit signage was observed throughout the building. All means of egress were observed to be illuminated, and emergency light fixtures were generally provided in the corridors and stairs. However, the Third Floor corridor did not appear to be provided with emergency lighting fixtures.**

**In Scenarios 2-4, the revised layout of the building is required to comply with the new construction emergency lighting and exit signage requirements of the NHBC.**

## 8.0 ACCESSIBILITY

The original construction of the building area pre-dates the ADA Standards (circa 1992). However, any new work or renovations performed since the early 1990's in the building should have complied with the applicable state and federal accessibility standards at the time of design and construction.

Per 28 CFR §36.304 under Title II of the ADA, the accessibility features of the building should be on a program to continually improve the level of accessibility in the building to the extent such work is "readily achievable". JSCE recommends that, at a minimum, the following accessible features should be provided in the building, if not currently provided or not currently fully accessible:

- At least one (1) accessible building entrance connected to an accessible route from the public way (e.g., parking lot, sidewalk, etc.)
- An accessible route through each level of the building. This should include not less than 32-inches of clear width through doorways along the circulation route, accessible room signage, and accessible fire alarm notification appliances.
- At least one (1) accessible bathroom

**There is an accessible entrance to the building which provides elevator access to each floor. However, none of the bathrooms are fully accessible. Refer to Section 9.0 of this Report for a summary of additional accessibility issues identified.**

## 9.0 FINDINGS

Based on the site visit and information and data provided regarding the building by Placework, the following issues were identified. These represent issues that range from non-compliance with the existing building requirements of the LSC (Saf-FMO 300), which should be addressed as part of on-going building maintenance, to issues that do not comply with the new construction requirements of the LSC, NHBC or NHEBC and would need to be (or are recommended to be) addressed as part of future work in the building.

With regards to accessibility, the issues identified are not in compliance with the requirements of the ADA Standards (ADAS), NHBC Chapter 11, and / or ICC A117.1. Where issues identified are readily achievable to address (without significant cost or renovation); under the ADA Readily Removable Barriers Act (RRB) these issues should be addressed regardless of new work proposed for the building. Where a design solution is not readily achievable, changes to an operational procedure or the use of signage are often deemed acceptable alternatives. These issues should be reviewed case-by-case.

The recommendations provided are based on the objective of providing the minimum levels of required compliance with the State Building and Fire Codes, ICC A117.1 and the ADAS.

The "Applies to Existing" column on the right-hand side of the table is intended to differentiate between deficiencies that are required to be addressed regardless of any work conducted in the building (i.e. required by Saf-FMO 300) and those that are not specifically triggered by the applicable codes unless work is conducted. It should be noted that even if a

deficiency is not specifically required to be remedied by the applicable codes in the absence of project work, the local Authority Having Jurisdiction (AHJ) always has the authority to require an issue be addressed if they feel it poses a life safety hazard.

Item	Location	Findings	Code Ref.	Applies to Existing
1.	E and W Stairs, First Floor	There is a storage closet located underneath both stairs on the First Floor. The closet doors are accessed from within the stair and are not self-closing fire doors. Non-normally occupied rooms (such as storage closets) are prohibited from opening directly into an exit enclosure. Additionally, storage rooms/closets underneath stairs are required to be separated from the stair by rated construction.  The storage should be removed, and future storage prohibited.	LSC §7.1.3.2.1(9), §713.2.3, §7.1.10.1	Yes
2.	Fire Doors, General	The East and West Stairs are required to be 1-hour fire-resistance rated. All doors into these stair enclosures are required to be 60-minute rated and self-closing/latching. Some doors into the stairs were observed to be propped open, which is prohibited, or were not properly self-closing and latching. See below: <ul style="list-style-type: none"> <li>• First Floor door from Women’s Restroom into West Stair was propped open</li> <li>• First Floor door from elevator lobby into East Stair was not properly latching upon closure</li> <li>• These doors should be repaired or replaced. Doors that need to be normally held open should be equipped with a magnetic door hold open device tied to the fire alarm system. All door props mounted to a fire door should be removed.</li> </ul>	LSC §8.3.3.3	Yes
3.	Smoke Detection	Fire alarm control units are required to be equipped with smoke detection in the immediate vicinity. No smoke detector was observed above the fire alarm panel at the west stair entry point.  A smoke detector should be installed in this location.	NHBC §907.4.1, NFPA 72 §10.4.4	No

Item	Location	Findings	Code Ref.	Applies to Existing
4.	Fire Alarm Notification, General	<p>Many of the horn/strobes observed are aging and are not ANSI/UL 1971 compliant, meaning that the strobe portion of the appliance does not provide adequate visible notification. The strobes shown in the First Floor restrooms, for example, are newer generation appliances that do comply with ANSI/UL 1971. See below for example of non-compliant strobe.</p>  <p>As part of future fire alarm work in the building, these devices should be replaced.</p>	NHBC §907.5.2.3	No
5.	Fire Alarm Notification, First Floor Meeting Room	The horn/strobe on the west side of the First Floor meeting room does not provide adequate visible notification and was wall-mounted directly under the ceiling (over 10' AFF). Visible notification appliances are required to be mounted 80"-96" AFF. Additionally, as discussed in the previous comment, the appliance is not ANSI/UL 1971 compliant.	NHBC §907.5.2.3, NFPA 72 §18.5.5.1	No
6.	Fire Alarm Initiating, Second Floor	No manual pull stations were observed at the stair doors on the Second Floor. Fire alarm manual initiation should be provided at exit doors.	NHBC §907.4.2	No
7.	Fire Alarm Elevator Recall	<p>Since the fire alarm system is not addressable, it was not clear if elevator recall functionality was provided as required. Smoke detection in an elevator lobby or machine room should be configured to recall the elevator to a designated floor.</p> <p>It should be confirmed if elevator recall functionality is provided – this information should be provided in the annual fire alarm test report and can be confirmed by the testing/maintenance contractor.</p>	NHBC §907.3.3	No

Item	Location	Findings	Code Ref.	Applies to Existing
8.	Fire Alarm Visible Notification	Visible notification is generally required in common spaces of the building, such as common restrooms, conference rooms, areas where the public may be present, etc. Visible notification (strobes) were not observed in the following spaces: <ul style="list-style-type: none"> <li>• Second Floor Council Chambers</li> <li>• Second Floor Tax Reception/Tax Office</li> <li>• Second Floor Inspector Reception Area</li> <li>• Second Floor Restroom</li> <li>• Third Floor Conference Room</li> <li>• Third Floor School Reception Area</li> <li>• Third Floor Superintendent Reception/Conf. Room</li> </ul> Fire alarm notification should be provided in these areas.	NHBC §907.5.2.3	No
9.	Storage Room – Second Floor West Stair	There is a storage closet located within the West Stair enclosure on the Second Floor. Stairs cannot be used for storage, and openings into stairs cannot be from normally unoccupied spaces such as storage closets. This storage should be removed and future storage prohibited.	LSC §7.1.3.1	Yes
10.	Accessible Parking	Three accessible parking spaces were observed, which is sufficient based on the overall quantity of parking spaces provided for the building (observed to be 27). However, the spaces were not provided with an access aisle. Accessible parking spaces require a 60-inch wide access aisle.  Additionally, one of the parking spaces is required to be a van accessible space, which must be 11-feet wide (plus the 60-inch wide access aisle).	ADAS §502.3	Yes <sup>6</sup>
11.	Accessible Entrance	There is no exterior signage directing occupants from the accessible parking spaces to the accessible entrance on the east side of the building (i.e. the ground level elevator lobby). This signage should be provided.	ADAS §216.6	Yes <sup>5</sup>
12.	Elevator	The elevator does not fully comply with accessibility requirements as noted below: <ul style="list-style-type: none"> <li>• The elevator “dings” as it passes the floor, but not on arrival at the floor where it was called</li> <li>• There is no audible distinction for the direction of travel of the elevator (i.e. up or down)</li> <li>• There is no elevator alarm if the elevator door is obstructed</li> <li>• The emergency button in the elevator cab is located in an inaccessible cabinet</li> </ul>	ADAS §407.2	Yes <sup>5</sup>

<sup>6</sup> Observed accessibility deficiencies are required to be addressed **where readily achievable** per the RRB provisions of ADAS.

Item	Location	Findings	Code Ref.	Applies to Existing
13.	First Floor Women's Bathroom	<p>The First Floor Women's Bathroom was not observed to be fully accessible as summarized below:</p> <ul style="list-style-type: none"> <li>• There are two steps from the stair into the bathroom. This is not an accessible route, and further, the stairs are uneven in riser height.</li> <li>• No pipe guards are provided on the under-sink piping</li> <li>• The accessible stall is 51" wide by 59" deep (56" x 60" required)</li> <li>• No grab bars were provided adjacent to the accessible toilet</li> <li>• The toilet flushing mechanism is located on the wrong side of the accessible toilet</li> <li>• The accessible stall door is not equipped with a self-closing hinge</li> <li>• Without a major reconfiguration to this bathroom it cannot be made fully compliant. It is recommended that all modifications that can be made to improve accessibility should be provided and signage should be posted at the bathroom directing people to the nearest accessible bathroom.</li> </ul>	ADAS §206, §604, §304, §308, §606.5	Yes <sup>6</sup>
14.	First Floor Men's Bathroom	<p>The First Floor Men's Bathroom was not observed to be fully accessible as summarized below:</p> <ul style="list-style-type: none"> <li>• The paper towel holder is located at 51" AFF (outside the maximum reach range of 48")</li> <li>• No pipe guards are provided on the under-sink piping</li> <li>• The accessible stall is 47" wide by 59" deep (56" x 60" required)</li> <li>• No grab bars were provided adjacent to the accessible toilet</li> <li>• The toilet flushing mechanism is located on the wrong side of the accessible toilet</li> <li>• The urinal flushing mechanism requires a twisting motion, this motion is not permitted by ADAS</li> <li>• Until the bathroom can be fully renovated, it is recommended that all modifications that can be made to improve accessibility should be provided and signage should be posted at the bathroom directing people to the nearest accessible bathroom.</li> </ul>	ADAS §206, §604, §304, §308, §309 §606.5	Yes <sup>5</sup>

Item	Location	Findings	Code Ref.	Applies to Existing
15.	First Floor Stair Doors	The clear width of the double doors from the stairs to the meeting area are 30" per leaf. In a double door at least one (1) door leaf is required to provide a minimum clear width of 32-inches with the second leaf in the closed position. The door should be modified or replaced. Consideration could also be given to installing a door opening device that opens both doors at the same time. However, note that since this door is a stair enclosure door the hardware would need to be capable of maintaining the door in the latched position in the case of fire alarm or loss of power to the door.	ADAS §404.2.3	Yes <sup>5</sup>
16.	First Floor Platform	There is no accessible route to the stage/platform. Additionally, the doors at the platform level are equipped with round doorknobs which are not considered accessible door hardware, and the clear width is 31", less than the required clear width of 32".  Until this area undergoes a renovation to bring it into compliance with the ADAS and ICC/ANSI A117.1, it should not be used or alternate equivalent accommodations should be made for people with disabilities trying to access the stage/platform or the spaces on each wing of the stage.	ADAS §206, §309.4	Yes <sup>5</sup>
17.	Second Floor Corridor	There are multiple wall-mounted items in the corridor that project into the corridor (display case & defibrillator ~7", welfare paperwork box ~10") by more than 4-inches.  Obstructions into the corridor that are more than 4-inches located at a height more than 27-inches AFF and less than 80-inches AFF require cane detection in accordance with ADAS §307.0 and ANSI A117.1 §307.0. These obstructions should be removed or cane detection should be added below these obstructions.	ADAS §307.0, ANSI A117.1 §307.0	Yes <sup>5</sup>
18.	Second Floor Public Bathroom	The Second Floor Public Bathroom was not observed to be fully accessible as summarized below: <ul style="list-style-type: none"> <li>The signage was located on the door, not on the wall, and the signage was not compliant with the ADAS or ICC/ANSI A117.1.</li> <li>The coat hook was above the required maximum height (outside the maximum reach range of 48")</li> <li>No fire alarm strobe was provided</li> <li>The distance from the centerline of the toilet to the sink was 39". This is required to be 42".</li> <li>The signage and coat hook issue should be addressed even if no new work is proposed for this bathroom or the Second Floor.</li> <li>Where a bathroom is not fully upgraded to be accessible, signage should be provided at the bathroom directing occupants to the nearest accessible bathroom.</li> </ul>	ADAS §604, §304, §308	Yes <sup>6</sup>

Item	Location	Findings	Code Ref.	Applies to Existing
19.	Second Floor Staff Bathroom	The Second Floor Staff Bathroom was not observed to be fully accessible as summarized below: <ul style="list-style-type: none"> <li>No accessible signage was provided</li> <li>The coat hook and chain lock were above the required maximum height (outside the maximum reach range of 48")</li> <li>The table in the bathroom obstructs the required toilet clear floor space and 60" turnaround</li> <li>No grab bars were provided adjacent to the toilet</li> <li>The paper towel holder obstructed the clear floor space in front of the sink</li> </ul>	ADAS §604, §308	Yes <sup>5</sup>
20.	Second Floor Council Chambers	The Council Chambers room on the east side of the Second Floor contained a slightly elevated platform on which the council sits. There is no accessible route to the council platform.	ADAS §206	Yes <sup>5</sup>
21.	Second Floor Town Reception Counter	There is a service counter located in the door connecting the town reception room to the town assistant room. The counter opening is 48" AFF. Forward-approach service counters are limited to 36" AFF.	ADAS §904.4.2	Yes <sup>5</sup>
22.	Second Floor	The following doors are not equipped with sufficient latch side clearance on either the push side, pull side or both sides of the door to allow for accessible door maneuvering clearance. Doors require 18-inches of clear space on the latch pull side of a door (forward approach) and where a door is equipped with a closer and latching hardware 12-inches of clear space is required on the latch push side of a door. Where an existing door cannot be modified to provide these clearances and automatic door opening device (equipped with a standby power source) can be installed in lieu of the clearance. <ul style="list-style-type: none"> <li>The pull side clearance (18" min.) from the Copy Room to the corridor was obstructed by a cabinet. This cabinet should be relocated.</li> <li>The push side clearance (12" min.) from the Inspector's Reception area to the corridor was obstructed by a table adjacent to the door. This table should be relocated.</li> </ul>	ADAS §404.2.4, ANSI A117.1 §404.2.4	Yes <sup>5</sup>
23.	Third Floor Kitchenette Accessibility	The Third Floor kitchenette is not accessible. The counters are 36" AFF (max. 34" permitted), the cabinets are located at 4'6" (outside the maximum reach range of 48"), and there is no knee space at the sink.	ADAS §308.2.1, §306, §804.3	Yes <sup>6</sup>
24.	Third Floor Bathroom	Round door knobs are not accessible door hardware, as they require tight grasping and twisting of the wrist to operate. The Third Floor bathroom is equipped with a twist type door knob. JSCE recommends all round door knobs be replaced over time (or as part of future work) with accessible door hardware.	ADAS §309.4 & §404.2.7 / ICC A117.1 §309.4 & 404.2.6	Yes <sup>5</sup>

Item	Location	Findings	Code Ref.	Applies to Existing
25.	Third Floor Bathroom	<p>The Third Floor Bathroom was not observed to be fully accessible as summarized below:</p> <ul style="list-style-type: none"> <li>• There was no accessible signage observed</li> <li>• The coat hook was located at 5'6" AFF (outside the maximum reach range of 48")</li> <li>• The cabinet obstructs the clear floor space in front of the toilet</li> </ul> <p>The cabinet obstructs the 60" clear turning radius required</p> <p>Since these issues can be corrected without minimal cost or effort they should be addressed even if there is no new work in the building.</p>	ADAS §604, §304	Yes <sup>5</sup>
26.	Third Floor Call Button	<p>The call button to access the Third Floor from the stair is located 58" AFF (outside the maximum reach range of 48"). The call button should be relocated or a second call button within reach range should be installed.</p>	ADAS §308	Yes <sup>5</sup>

If there are any questions or concerns, please contact us at 603-327-8650 or via email at [abrowning@jsfirecode.com](mailto:abrowning@jsfirecode.com).

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**FACILITY CONDITION ASSESSMENT**

# Former Water Treatment Facility

Background  
Architectural  
Site/Civil  
Structural  
Building Systems  
Code, Life Safety, & Accessibility

# Old Water Treatment Facility

## Background



VIEW FROM PACKERS FALLS ROAD BRIDGE

The Old Water Treatment Building is situated at the confluence of Packer's Falls Road, Folletts Brook and the Piscassic River, two lesser tributaries of the Lamprey River. As it lies at what is known as the "first falls" of the Piscassic as a source of water power, the site is believed to have been home to various structures dedicated to manufacturing since approximately 1660. However, the current structure is believed to have been built atop the foundations of the prior structure, a nut and bolt factory, which was destroyed by fire in 1885. The oldest portion the current building are believed to date to approximately 1894, when the property was adapted as a water pumping station.

Over the years, the building has experienced multiple significant fires, reconfigurations, and changes in use to reach its current state.<sup>1</sup> The most recent active use of the building was as the Town's primary water treatment facility until the construction of the new facility at Young's Lane in 2005.

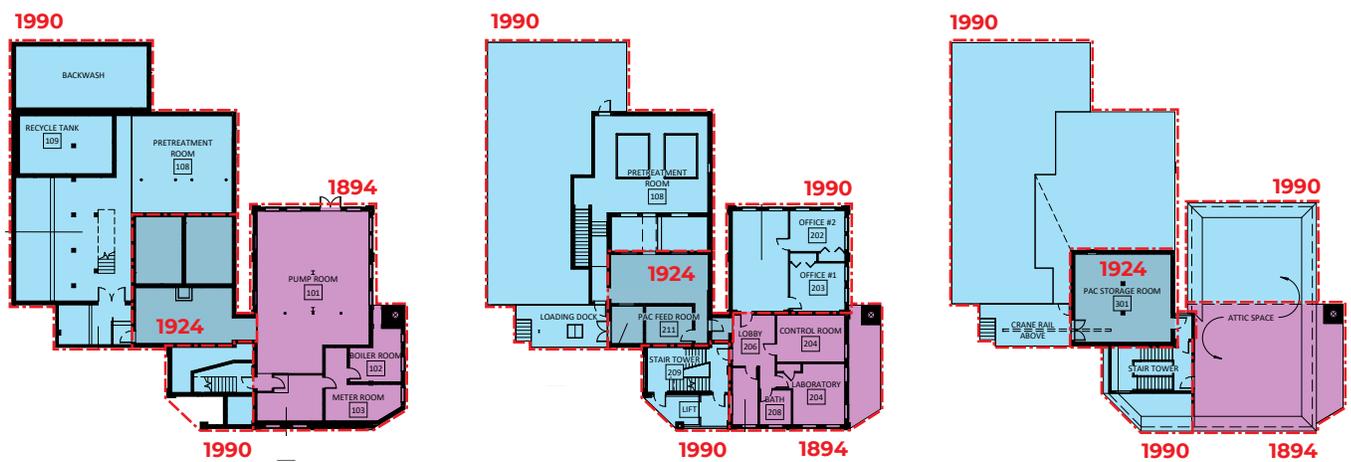
Since being decommissioned, the building has remained largely unused, except for archival storage by Town Administration, and is in various states of disrepair. Due to its varied history and picturesque location, the property is generally considered to be an underutilized resource and a significant opportunity to reestablish historic character and new development in the Town.

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<sup>1</sup> <https://www.newmarketnhhistoricalsociety.org/docs/biographies/lafayette-hall-from-great-wealth-to-greater-despair/>



HISTORIC PHOTO SHOWING CONSTRUCTION OF FILTER ROOM, CIRCA 1924



BUILDING CHRONOLOGY (FROM LEFT TO RIGHT: LOWER LEVEL, LEVEL 1, LEVEL 2)

## Architectural

The existing building houses approximately 12,000 gross square feet in two stories plus a basement, consisting of storage, office, and operational spaces related to water treatment. There is a large amount of process equipment remaining in the building, some of which may have salvage value, though additional evaluation is required to assess this potential value. In the oldest portions of the building, the exterior building envelope appears to be a multiwythe masonry (assumed to be unreinforced) however the existing windows are a more contemporary style aluminum insulated window, assumed to have been replaced during the 1990 conversion to use as a water treatment facility. Newer portions of the building, including the 1924 and 1990 additions, consist of reinforced concrete and exterior insulation and finishing systems (EIFS), as well as portions of dimensional lumber framed with exterior applied brick veneer and stucco.

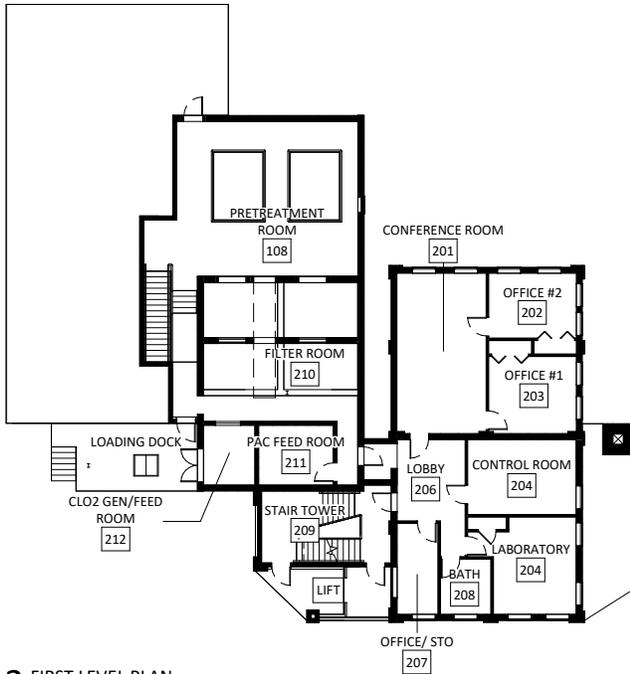


NORTH FACADE SHOWING MEETING OF VARIOUS ENCLOSURE SYSTEMS

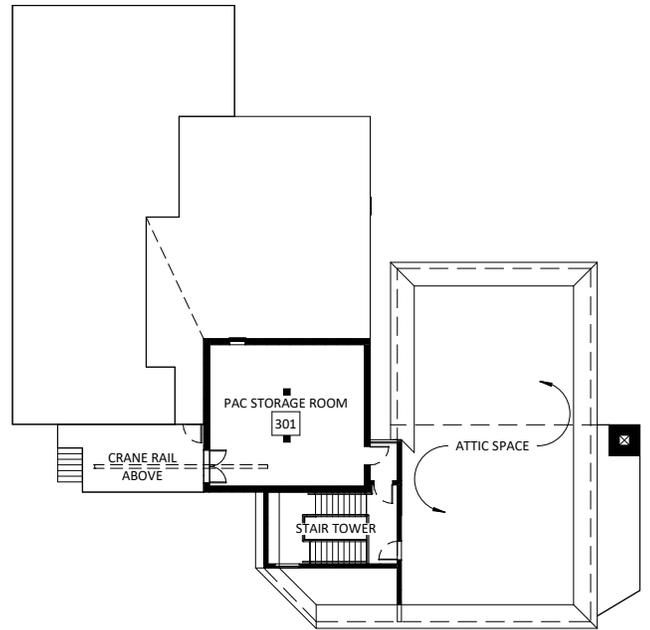
The building interior is mainly unfinished in operational spaces, which include most of the newer areas and lower level of the older building. In office/laboratory areas on the ground level, the building is finished similar to a typical office building – with vinyl composite floor tile, carpet, painted drywall, and suspended acoustic ceiling tiles and recessed fluorescent lighting.



BUILDING INTERIORS AT OFFICE (LEFT) AND OPERATIONAL AREAS (RIGHT)



**2 FIRST LEVEL PLAN**  
1/16" = 1'-0"



**3 SECOND LEVEL PLAN**  
1/16" = 1'-0"

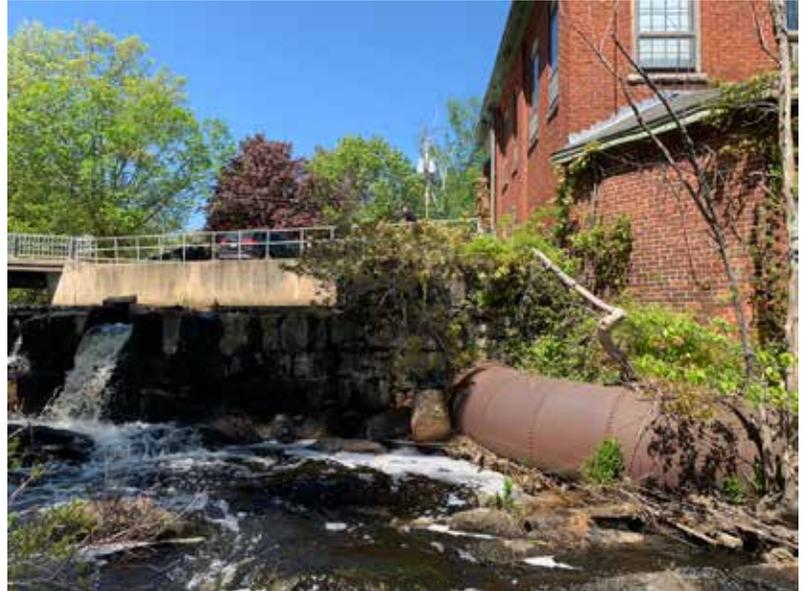


**1 BASEMENT LEVEL PLAN**  
1/16" = 1'-0"



EXISTING CONDITIONS FLOOR PLANS

The existing building is unique in that it sits near the Piscassic River due to its historic use. There is an existing dam immediately adjacent to the building, which appears to be integral to the building's foundation. The Town Environmental Services Director noted during the site visit that despite the extreme proximity to the river, there has been minimal incidental flooding in the building basement during his tenure of over 25 years, which includes several widespread flood events in the Town as a whole. The 1990 upgrade included apparent structural reinforcement of the foundation wall immediately adjacent to the river. Additionally, there appears to be some continuity between the existing dam crossing the Piscassic River to the foundation wall of the existing building. This requires further specialized investigation from a dam specialist to determine any implications for the building foundation, as well as any considerations related to ownership and responsibility for the existing dam.



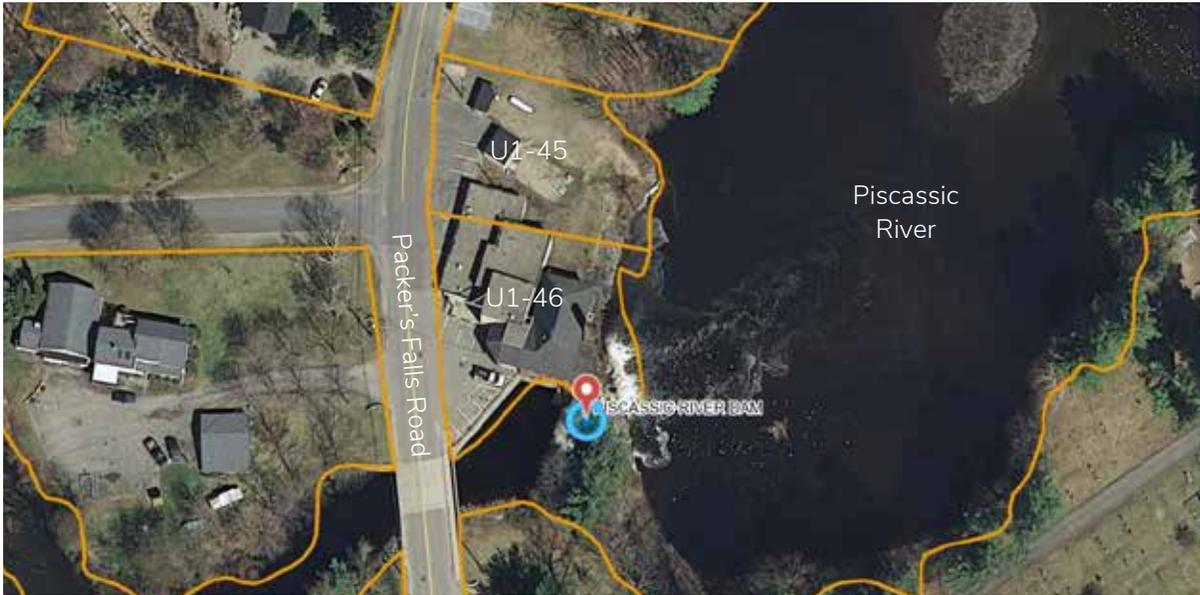
PHOTOS SHOWING DAM - BUILDING INTERFACE

There is no elevator in the existing building and accessibility is limited throughout the facility. However, an existing exterior wheelchair lift provides accessibility to the level 1 office/lab areas – however its functionality could not be verified. Additionally, the upper floors are served by a single fire stair; depending on the proposed future use, a second means of egress from the second floor may be needed.

Placework could not verify the presence or absence of hazardous materials in the building. During discussion with the Town Environmental Services Director, the team understands that the building has not been assessed by a qualified industrial hygienist, environmental scientist, or other hazardous materials professional. Due to the age and prior use of the facility, these could potentially include building and construction materials, as well as materials related to the industrial process (corrosives, chemical compounds related to water treatment).

## Site / Civil

The building site is constrained on two sides by the Piscassic river, to the West by Packer's Falls Road, and to the north by an adjoining lot (U1-45) which is also owned by the Town of Newmarket. This adjoining lot houses a sewerage lift station, storage tank, and backup generator for the municipal Sewer system, which collects sewerage from the surrounding neighborhoods and pumps it across the Packer's Falls Bridge where it rejoins the municipal gravity fed sewerage network. Barring significant alterations to the municipal sewer system, this adjoining infrastructure must remain operational as part of any future redevelopment of the site.



SITE PLAN

Currently there is limited parking at the site, some of which faces an existing retaining wall along the riverfront, without protective barriers to prevent vehicles rolling over the edge. This condition should be corrected in any future use of the facility, and additional parking may be required depending on the intended use.

The existing dam adjacent to the building is currently associated with the lot upon which the existing building sits. Portions of the site lie within a FEMA designated flood zone (FEMA Zones A, AE) and the entire site falls within the New Hampshire Department of Environmental Services (NHDES) shoreland protection zone; these agencies may require additional permitting and regulatory requirements prior to site development.

Despite the challenges noted above, the site presents significant redevelopment potential due to its picturesque riverfront location, proximity to downtown, and opportunity for use as a public amenity. Future use of the site could be considered on a 'district' scale, which reinforce the greater planning goals for the surrounding area. The assessment team recommends engaging a licensed professional land surveyor to survey the existing conditions and verify property lines, dam ownership, and other issues.

Refer to the attached Site / Civil narrative for additional information.

## Structural

The existing building structure consists of a combination of multiwythe masonry, cast-in-place (CIP) concrete and contemporary style dimensional lumber framing at newer portions of the building. The oldest portions of the building appear to be in good condition given their age, and the original foundation nearest the river appears to have been reinforced at the time of the most recent (1990) renovation. There appears to be localized masonry damage and remediation at the base of the existing chimney, as well as deterioration at the top.

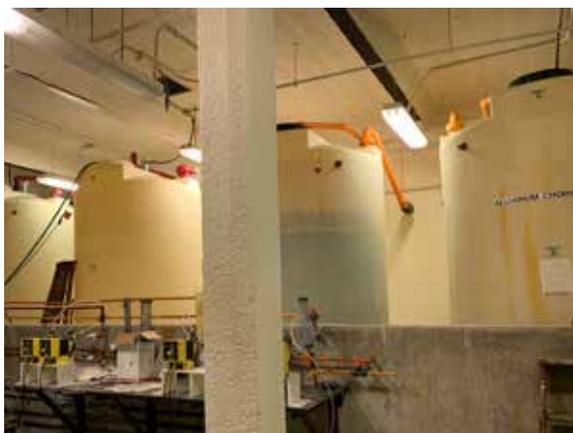


REMEDATION AND GENERAL CONDITIONS AT EXISTING CHIMNEY

In the operational areas, the team noted several concrete encased steel beams with evidence of corrosion at areas where concrete cover had deteriorated.

The team was not able to determine the extent to which the building's foundation is integrated with the adjoining dam structure. This should be further evaluated. Additionally, depending on the scope, future renovations may require review of the existing building's lateral force resisting system (LFRS). Upgrading the LFRS would likely require detailed engineering and structural mitigation and should be considered during future design and planning.

Refer to the attached Structural narrative for additional information.



REINFORCED CONCRETE AND CORRODED COMPOSITE STEEL BEAM STRUCTURE

## Building Systems

Mechanical, plumbing, and fire protection systems in the existing building are limited, and equipment ranges from poor to good condition. There is a new (2019) boiler in the basement, which serves as the primary heating plant for the building. The office spaces are air conditioned with an aging ductless split system.

There is significant process equipment in the building related to water treatment, which is outside the scope of this report. However, during the site walk it was determined that some of this equipment may have salvage value; this should be further assessed by experts familiar with such equipment.

The building is served by a 600 amp overhead main electric service. The existing main distribution equipment is in fair to poor condition and replacement could be considered as part of future renovations. Downstream branch panels and circuits are generally in good condition, with some exceptions. Existing lighting and devices are in fair condition; replacement to modern LED systems and controls should be considered as part of a future renovation. The entire building appears to be served by a 150kW propane fired generator in the existing basement, which is fed from a gas bottle on the adjoining site.



NEWER VINTAGE BOILER



EXISTING PROPANE-FIRED GENERATOR

## Code/Life Safety

Based on discussion with the Town of Newmarket, the assessment team has assumed that any proposed future use of the existing building would be characterized as a change of occupancy classification as defined by the New Hampshire Existing Building Code (NHEBC).

Broadly, this level of work requires projects to meet many current accessibility and building code standards required for new buildings, however the specific requirements are dependent upon the future use. Potential improvements could include, but are not necessarily be limited to: adding an automatic fire suppression system, fire alarm upgrades, wholesale accessibility upgrades and upgrade/reconfiguration of the building means of egress system.

Refer to the attached Code/Life Safety Narrative for additional information.



June 30, 2023

Mr. Josh Lacasse  
Placework  
96 Penhallow Street  
Portsmouth, NH 03801

Re: Preliminary Civil Assessment of the Newmarket former water treatment plant  
54 Packers Falls Road, Newmarket, NH 03857

Dear Mr. Lacasse,

At your request, a site visit was made on May 18, 2023, to observe and comment on the civil structures existing conditions of the former water treatment plant.

The scope of services includes identifying noteworthy, deteriorated items that would assist in future restoration & modifications for the site. Photographs are attached illustrating existing conditions found during the site visit. In attendance was Mr. Josh Lacasse of Placework; Mr. Sean Greig, Town of Newmarket; Fred Emanuel and Bruce Scamman, both of EEI on May 18, 2023. No site plan or any other civil plans have been supplied by the Town for this lot. Correspondence from NHDES Dam Bureau has determined that the Piscassic River Dam is owned by the Town of Newmarket, see attached NHDAM data sheet.

*civil & structural consultants, land planners*

118 PORTSMOUTH AVE. A202, STRATHAM, NH 03885 P: 603-772-4400 F: 603-772-4487 WWW.EMANUELENGINEERING.COM

A summary of our observations and recommendations follows:

- 1) There are 2 lots that the former water treatment plant building is on; Map U1 Lots 45 and 46. These lots house the former water treatment plant, sewer pump station component, and stormwater utilities. The water treatment plant spans both lots. The sewer pump station, sewer holding tank, and generator are in 2 small buildings and a large underground tank that are on lot 45. The stormwater is discharged on lot 45 where it enters the river.
- 2) The dam that is adjacent to the building is integral to the building and to the lot. The southern wall of the oldest building appears to act also as a retaining wall, bridge, and dam abutment.
- 3) The building has raw water intakes from both above and below the dam. It also has an off-site well water source that it is connected to. Lastly, it has a domestic well water source from the current water treatment system. This is all on the Dam side of the building.
- 4) Public sewer is used to deal with domestic waste. The pipe outfall is on the dam side of the building.
- 5) The old water treatment building is serviced by electric services via overhead wires near the front door on the dam side of the building. Both the sewerage pump building and the generator building are serviced by their own utility poles adjacent to them.
- 6) The old water treatment building is served by a 150kW generator that is located in the Pump Room. It is unknown if this gets propane from the large tank on lot 45.
- 7) The emergency generator for the sewer pump station has a large propane tank on the north side of lot 45.
- 8) Parts of the rail along the bridge and dam abutment have been cut away. This is a falling risk into the water just above the dam.
- 9) There is no vehicle guardrail along the bridge abutment, there is a curb.
- 10) There is a mound of silt and rock in the river, that appear to have migrated into the river from the stormwater outflow.

- 11) There appears to be a parking issue with the need to pull out/ back out into the road when exiting the site.
- 12) Parking will limit the development potential. It appears from older aerial photos that there are 12 parking spaces. There did not appear to be a handicapped space. It does not meet ADA requirements.
- 13) There is a water hydrant onsite for fire protection.
- 14) Both stormwater discharge points (12 HDPE pipe and rip rap swale) daylight on the exposed sewage holding tank. Then the water flows to the river. The rip rap swale from the tank to the river is completely silted in. In places there appears to be over a foot of silt and soil. There is invasive plant material growing on top of the silt.

#### Conclusions and Recommendations

- 1) An existing conditions survey should be completed prior to any further design or use of either of these lots. An understanding of the location of the property lines and the ownership of the dam will be needed to fully know what can be done with these parcels and the buildings. The rights to the water need to be determined if they are being kept by the Town or turned over to the new user of the building.
- 2) The survey will also determine if there are any encroachments on the property. It was mentioned that the neighbor's boat storage might be near or over the line. It may also show if the existing buildings are encroaching on the road right-of-way.
- 3) If the Town is turning over the building to a third party, they may want to retain the rights of the water. The use of river water may be needed by the town in the future. If you decide to remove or repair the dam the owner could have rights that may supersede the Town's rights. A long-term lease of the building might be an option, like the US government did with PEASE air force base.
- 4) It is suggested to remove the large volume of chemicals stored in the building. If there is a leak, they could cause sever damage within the building, contamination in the river, and a public relations issue. These also might be able to be pumped out through the existing vent system. They include Aluminum Chloride, Alum,

Caustic, and more. It is estimated that there are still over 1000 gallons of material in the liquid chemical storage containers.

- 5) Repair the pedestrian guardrail at the top of the dam and bridge abutment.
- 6) Add a guardrail or barrier for vehicles.
- 7) Have a stormwater analysis completed to review the stormwater management plan.
- 8) Redesign the erosion control to prevent the migration of materials into the river from the stormwater outfall.
- 9) Permit and excavate the swale leading to the river. Install new rip rap or other designed erosion control materials.
- 10) Regular checking of the sewage holding tank's seals should be in the maintenance plan of the site. If these fail, then stormwater will be introduced to the sewage.
- 11) Pavement is at the end of its useability. Cracking is throughout the paved areas. It is assumed that the next user will redesign and rebuild the parking areas.
- 12) If lot 46 is separated from lot 45 the Town should retain some parking and loading area for maintenance of the sewer generator, sewerage holding tank and pump.
- 13) The generator's fuel source in the old water treatment building should be determined. If the tank on lot 45 is the source, then the line should be cut prior to any sale or lease of the parcel.
- 14) Portions of both lots are within the flood zone. Caution should be used when developing these lots. See the attached FEMA map and Firmette
- 15) Both lots 45 & 46 are within the NHDES Shoreland district and will require additional permitting prior to construction.

The site and structure could be used for several uses in the future and will need re-design. The land on the other side of the bridge might be needed for additional parking depending on the use. The building has several potential uses. Commercial, residential

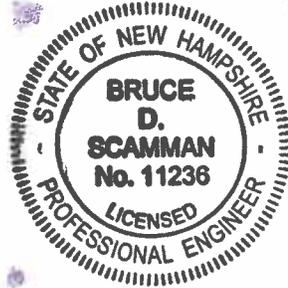
and municipal users could work for this site. A community center or children's museum could be a consideration.

This draft completes the writer's report. Thank you for the opportunity to provide civil engineering services. This office can complete a full review once a survey and other details are completed.

Very truly yours,



Bruce Scamman, P.E.

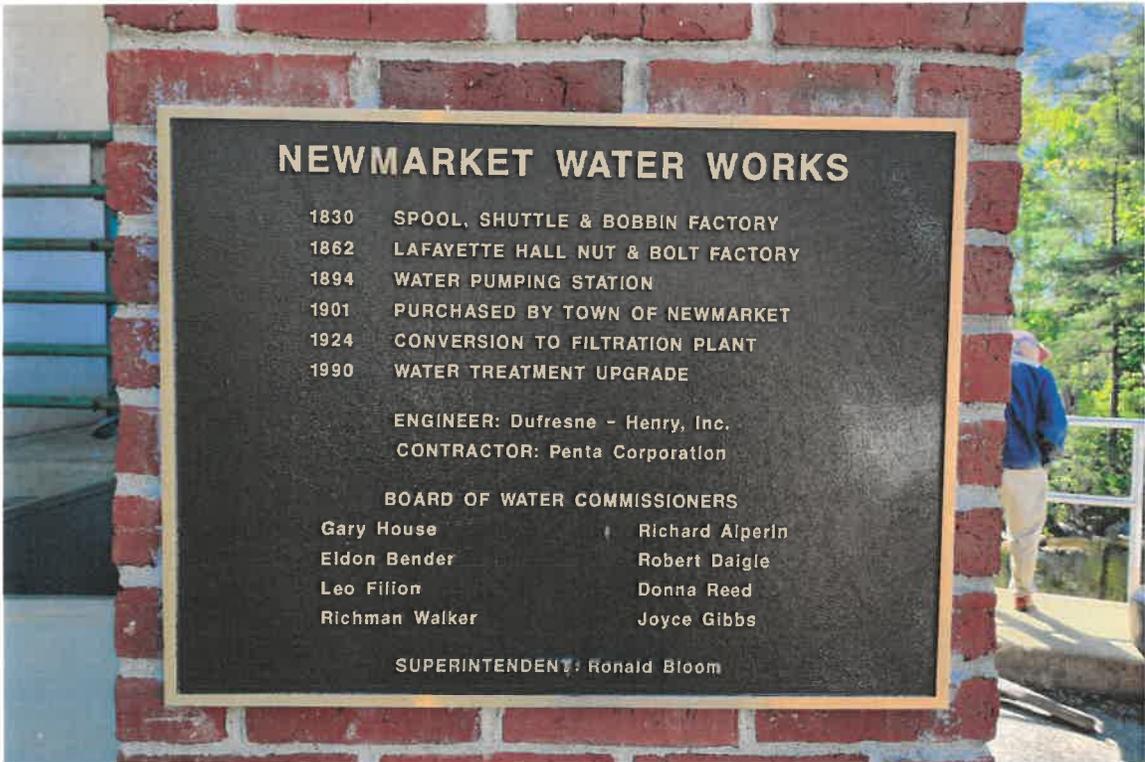


Attachment:

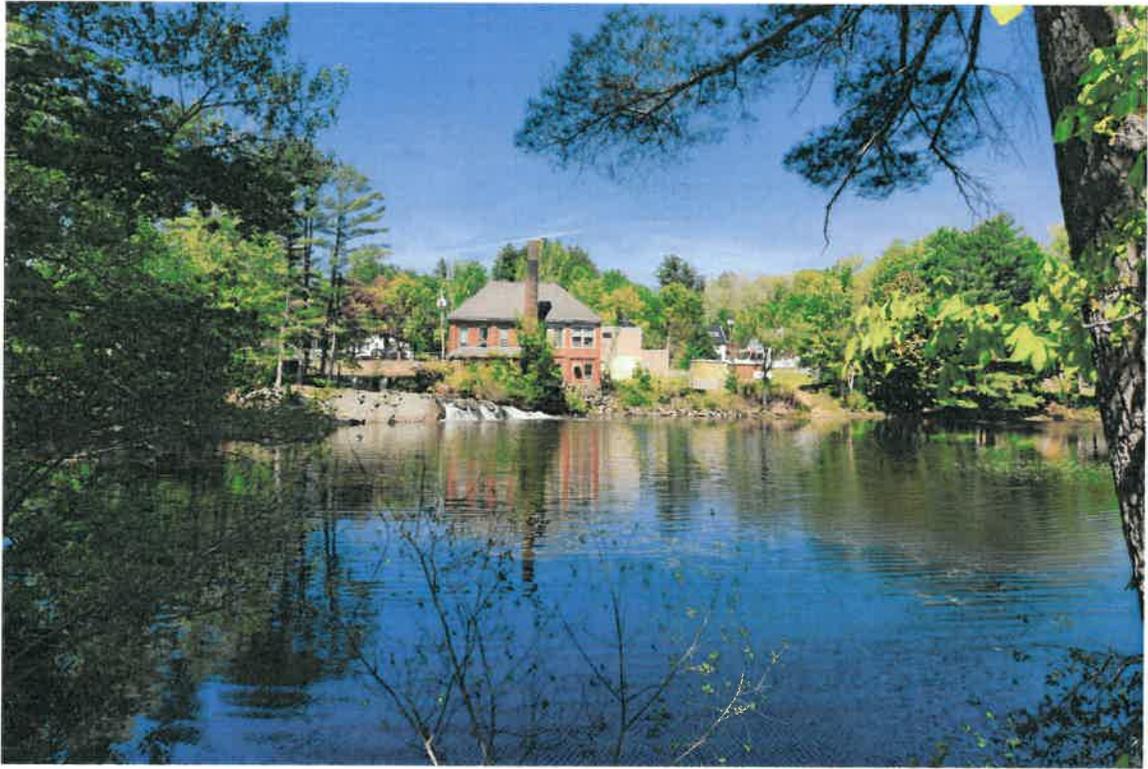
- Photos
- Tax card U1-45 & 46
- Aerial with tax map overlay NH Granit
- Google Earth Aerial
- Google Earth Streetview
  - 52 Packers Falls Road
  - 54 Packers Falls Road
- NHDES NHdam Data Sheet 6/22/23
- Dams of the Lower Lamprey River Watershed 9/25/12
- FEMA Firmette Map
- Shoreland Protection List
- Shoreland Protection Map
- Tax Map U1



Exterior of the former water treatment plant



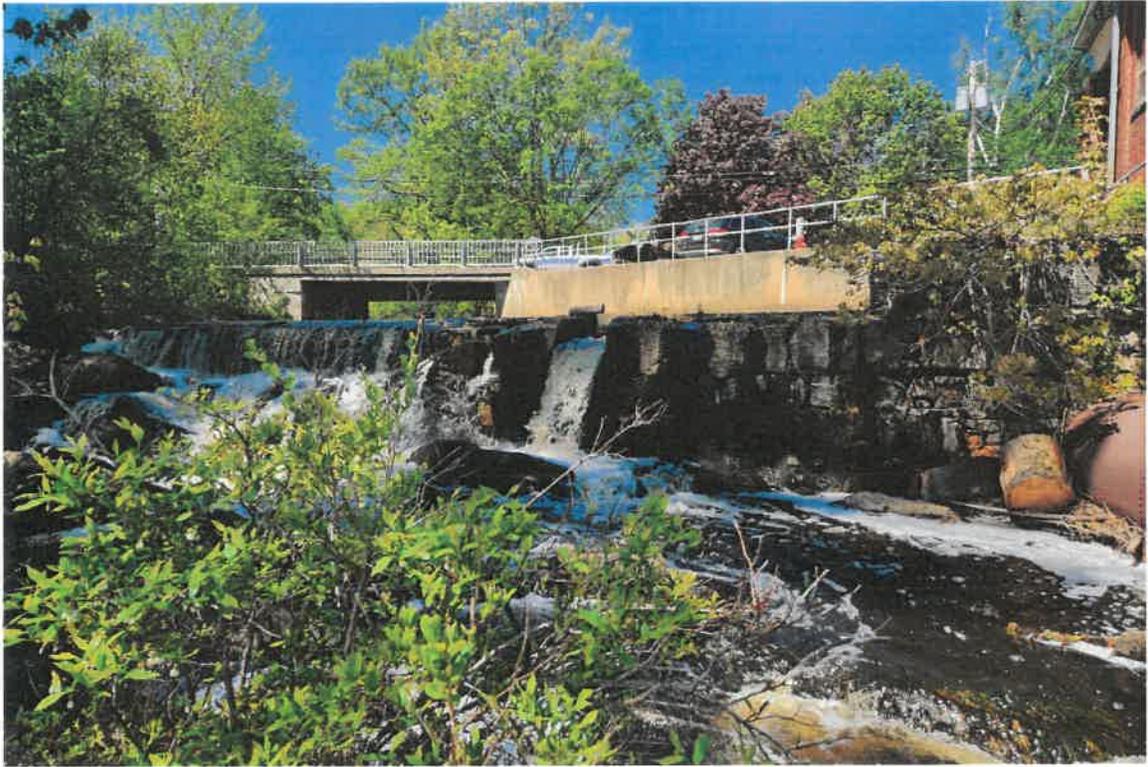
History of the former water treatment plant



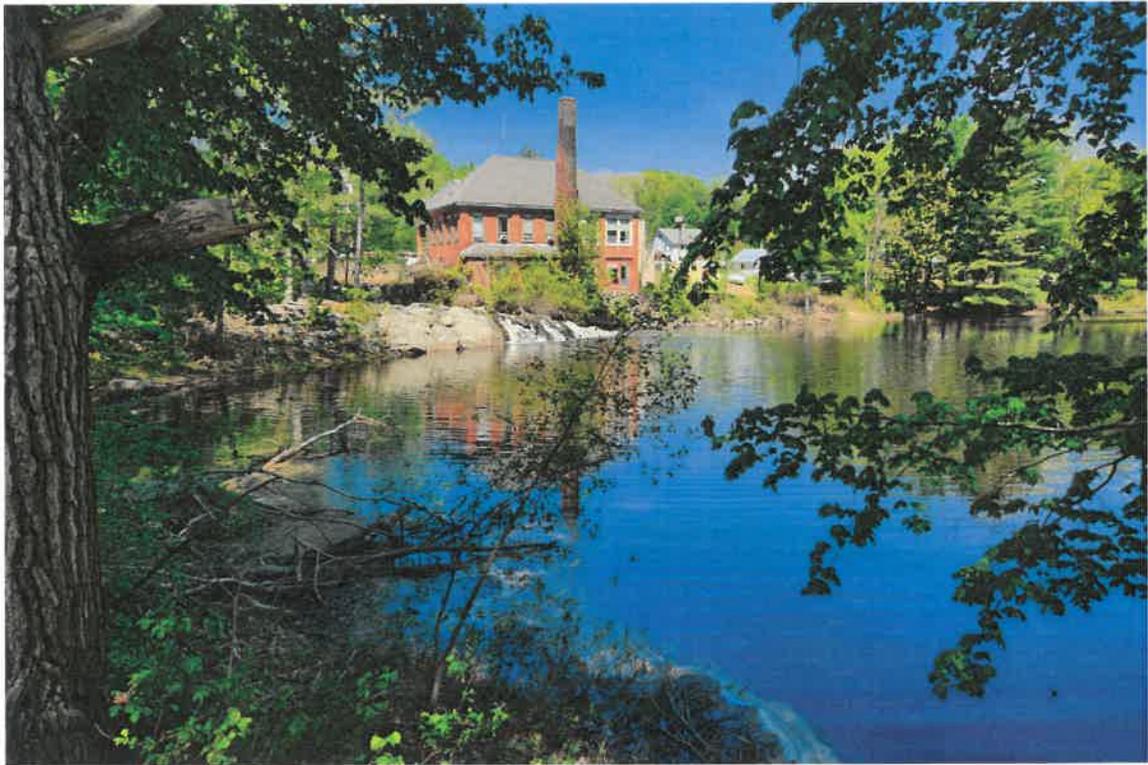
View of structures from the cemetery



View of building from the bridge on Packers Falls Road



View from below the dam



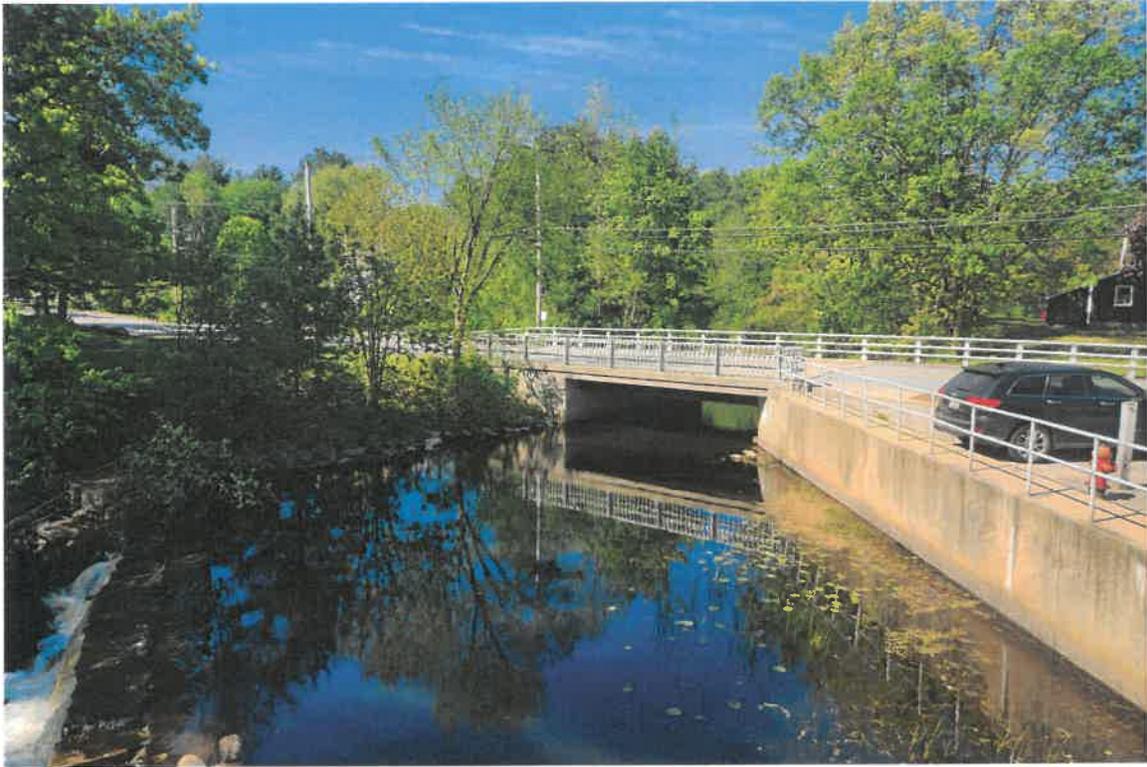
View from cemetery



Looking south over the holding sewer tank with pump building and former Water Treatment Plant



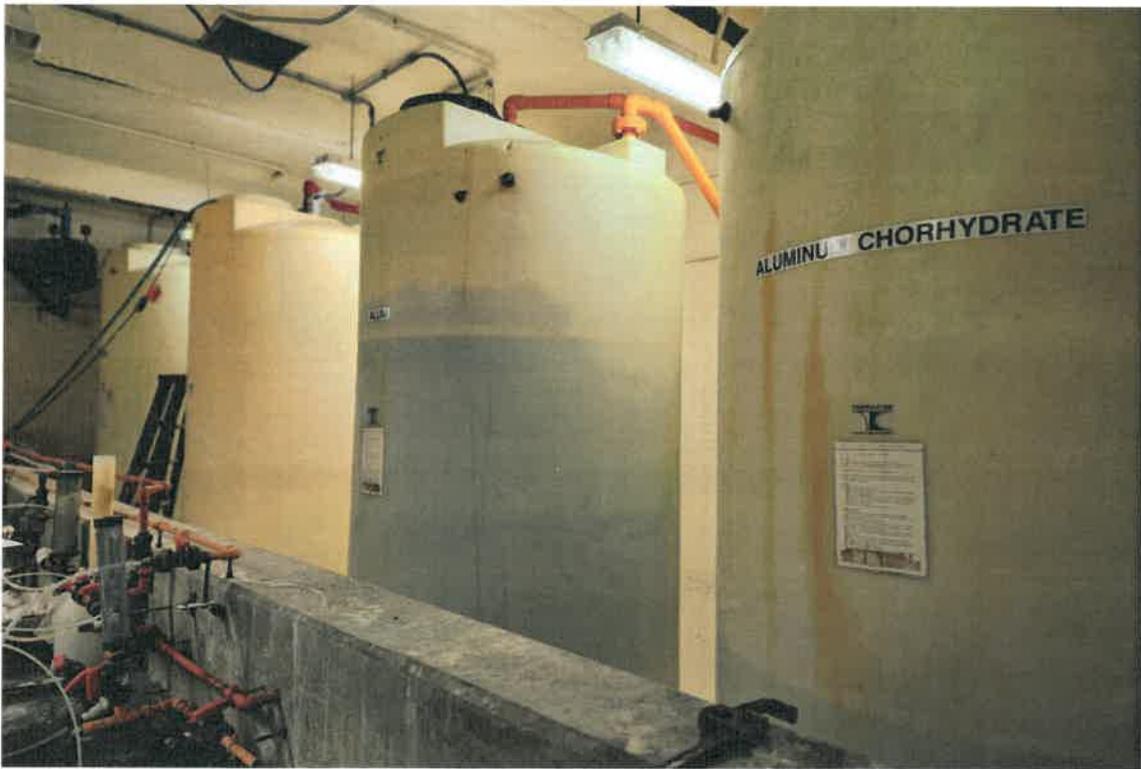
Looking west over the holding tank at the sewerage pump building and the brick generator building



View from second floor of building of the dam, bridge, and retaining wall.



Pump and pipes in the chemical storage area and corrosion from the piping/fittings.



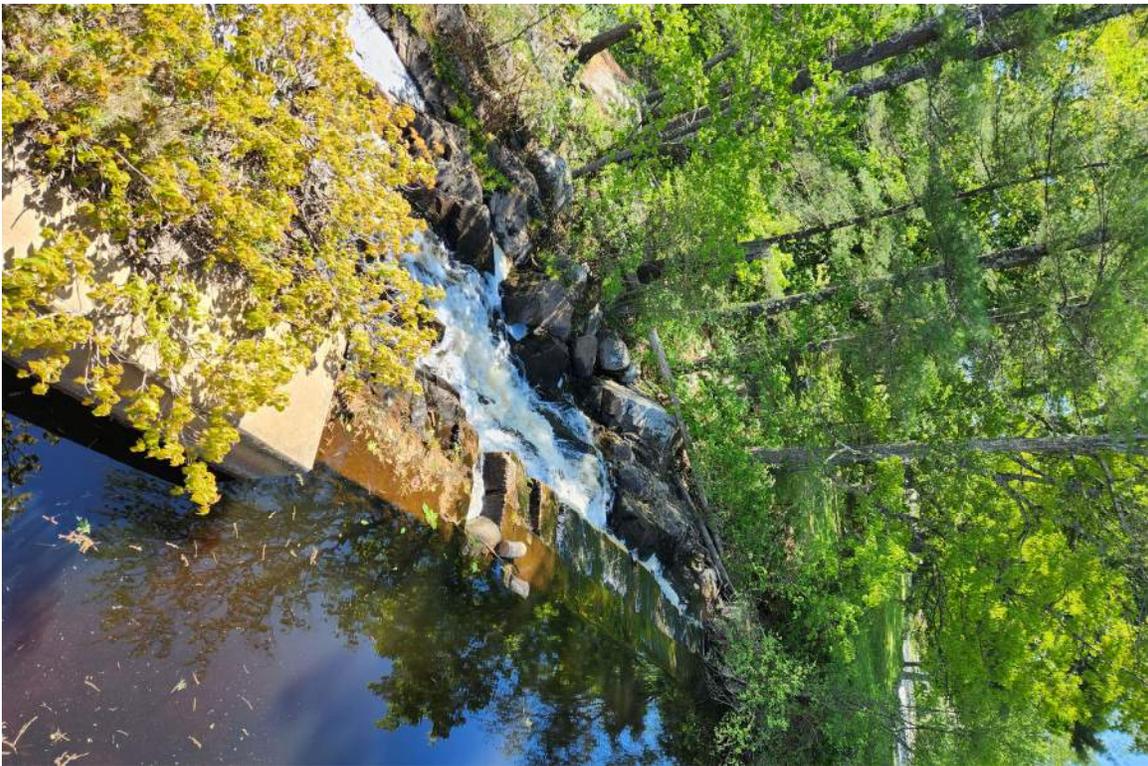
Chemical storage room in the former water treatment plant



Integrated foundation/retaining wall/headwall/bridge abutment



Chemical fill and vent pipes outside the building.



Piscassic River Dam and sleuceway.



Stormwater outfall channel taken from the river. Silted channel with invasive plants.



Sewerage holding tank and the stormwater outfall channel flow into the river.



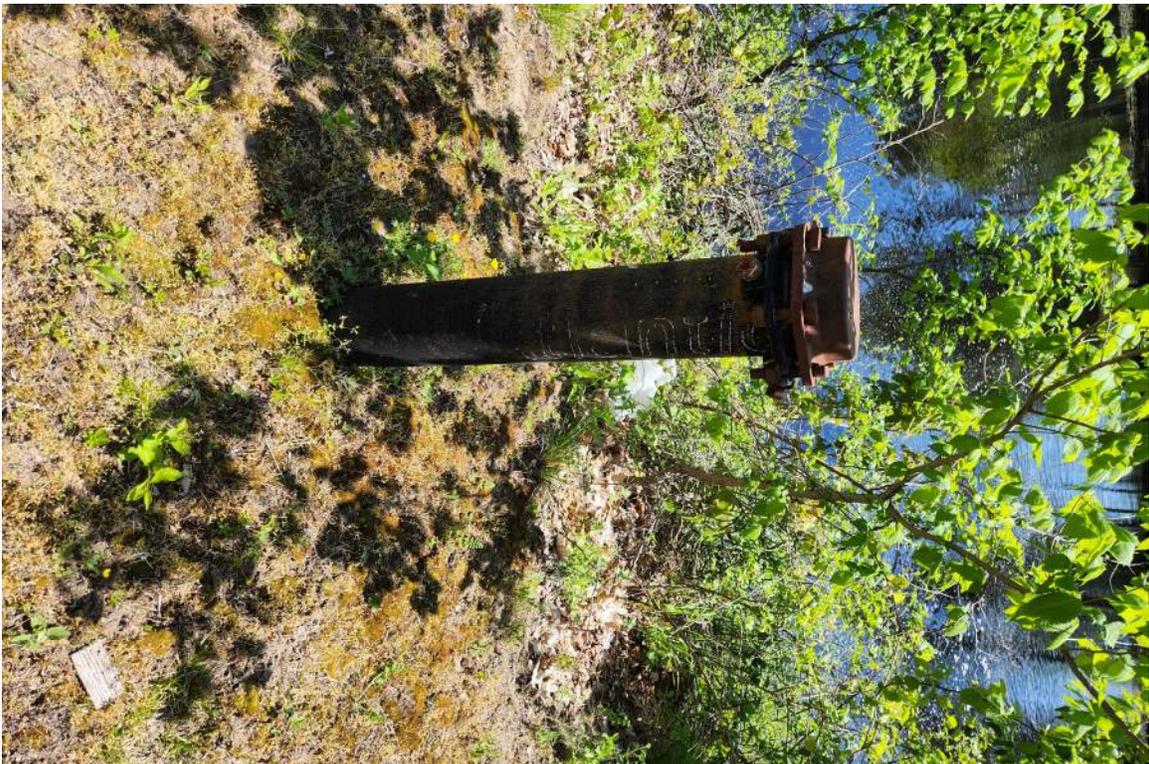
Handrail is missing and there is no car guardrail.



Erosion under slab out the rear of the building.



PVC pipe (possibly foundation drain) with outflow onto the bank of the river.



Possible well casing along the river bank.

# 56 PACKERS FALLS RD

**Location** 56 PACKERS FALLS RD

**Mblu** U1/45///

**Acct#** 002681

**Owner** TOWN OF NEWMARKET

**Assessment** \$115,800

**Appraisal** \$115,800

**PID** 2523

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$6,300	\$109,500	\$115,800

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$6,300	\$109,500	\$115,800

## Owner of Record

**Owner** TOWN OF NEWMARKET

**Sale Price** \$0

**Co-Owner** WATER PLANT

**Certificate**

**Address** 186 MAIN ST

**Book & Page** 0/0

NEWMARKET , NH 03857-1838

**Sale Date**

## Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
TOWN OF NEWMARKET	\$0		0/0	

## Building Information

### Building 1 : Section 1

**Year Built:**

**Living Area:** 0

**Replacement Cost:** \$0

**Building Percent Good:**

**Replacement Cost**

**Less Depreciation:** \$0

**Building Attributes**

Field	Description
Style	Accessory Bldg
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Cndtn	
MHP	
Fireplaces	

### Building Photo



(<https://images.vgsi.com/photos/NewMarketNHPhotos//default.jpg>)

### Building Layout

Building Layout

([https://images.vgsi.com/photos/NewMarketNHPhotos//Sketches/2523\\_2524](https://images.vgsi.com/photos/NewMarketNHPhotos//Sketches/2523_2524))

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

### Extra Features

Extra Features	Legend
No Data for Extra Features	

### Land

#### Land Use

**Use Code** 9035  
**Description** TOWN-PROP MDL-00  
**Zone** R1  
**Neighborhood** PR

#### Land Line Valuation

**Size (Acres)** 0.13  
**Frontage** 0  
**Depth** 0  
**Assessed Value** \$109,500

**Outbuildings**

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PMPH	PUMPHOUSE			192.00 SF	\$3,600	1
PMPH	PUMPHOUSE			144.00 SF	\$2,700	1

**Valuation History**

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$6,300	\$109,500	\$115,800
2021	\$6,300	\$109,500	\$115,800
2020	\$6,300	\$109,500	\$115,800

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$6,300	\$109,500	\$115,800
2021	\$6,300	\$109,500	\$115,800
2020	\$6,300	\$109,500	\$115,800

# 54 PACKERS FALLS RD

**Location** 54 PACKERS FALLS RD

**Mblu** U1/ 46/ / /

**Acct#** 002682

**Owner** TOWN OF NEWMARKET

**Assessment** \$1,193,400

**Appraisal** \$1,193,400

**PID** 2524

**Building Count** 1

## Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$1,079,200	\$114,200	\$1,193,400

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$1,079,200	\$114,200	\$1,193,400

## Owner of Record

**Owner** TOWN OF NEWMARKET

**Sale Price** \$0

**Co-Owner** WATER PLANT

**Certificate**

**Address** 186 MAIN ST  
NEWMARKET , NH 03857-1838

**Book & Page** 0/0

**Sale Date**

## Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
TOWN OF NEWMARKET	\$0		0/0	

## Building Information

### Building 1 : Section 1

**Year Built:** 1910  
**Living Area:** 7,554  
**Replacement Cost:** \$2,151,500  
**Building Percent Good:** 50  
**Replacement Cost  
Less Depreciation:** \$1,075,800

### Building Attributes

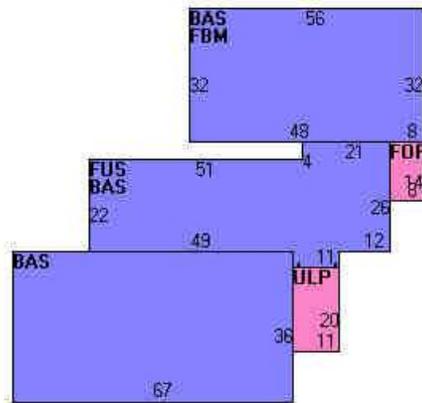
Field	Description
STYLE	Other Municipal
MODEL	Industrial
Grade	Average +10
Stories:	3
Occupancy	2.00
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	Concr/Cinder
Roof Structure	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Drywall/Sheet
Interior Wall 2	Minim/Masonry
Interior Floor 1	Concr-Finished
Interior Floor 2	Pine/Soft Wood
Heating Fuel	Oil
Heating Type	Steam
AC Type	None
Struct Class	
Bldg Use	TOWN-PROP MDL-96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	903L
Heat/AC	Heat Only
Frame Type	Masonry
Baths/Plumbing	Above Average
Ceiling/Wall	Sus-Ceil & WI
Rooms/Prtns	Above Average
Wall Height	12.00
% Comn Wall	0.00

### Building Photo



([https://images.vgsi.com/photos/NewMarketNHPhotos//0008/IMG\\_1735\[1\]](https://images.vgsi.com/photos/NewMarketNHPhotos//0008/IMG_1735[1]))

### Building Layout



([https://images.vgsi.com/photos/NewMarketNHPhotos//Sketches/2524\\_25](https://images.vgsi.com/photos/NewMarketNHPhotos//Sketches/2524_25))

Building Sub-Areas (sq ft)			Legend	
Code	Description	Gross Area	Living Area	
BAS	First Floor	5,879	5,879	
FUS	Upper Story, Finished	1,675	1,675	
FBM	Basement, Finished	1,792	0	
FOP	Porch, Open, Finished	112	0	
ULP	Loading Platform, Unfinished	220	0	
		9,678	7,554	

### Extra Features

Extra Features	Legend
No Data for Extra Features	

### Land

**Land Use**

**Use Code** 903L  
**Description** TOWN-PROP MDL-96  
**Zone** R1  
**Neighborhood** PR  
**Alt Land Appr** No  
**Category**

**Land Line Valuation**

**Size (Acres)** 0.23  
**Frontage** 0  
**Depth** 0  
**Assessed Value** \$114,200  
**Appraised Value** \$114,200

**Outbuildings**

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
TNK5	ELEVATED TANK			2388.00 GALS	\$1,500	1
PAV1	PAVING-ASPHALT			1500.00 S.F.	\$1,900	1

**Valuation History**

Appraisal			
Valuation Year	Improvements	Land	Total
2022	\$1,079,200	\$114,200	\$1,193,400
2021	\$1,108,100	\$114,200	\$1,222,300
2020	\$1,108,100	\$114,200	\$1,222,300

Assessment			
Valuation Year	Improvements	Land	Total
2022	\$1,079,200	\$114,200	\$1,193,400
2021	\$1,108,100	\$114,200	\$1,222,300
2020	\$1,108,100	\$114,200	\$1,222,300

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# Map by NH GRANIT



## Legend

- Dam Inventory
- Parcels
- Additional Lines
- State
- County
- City/Town

Map Scale

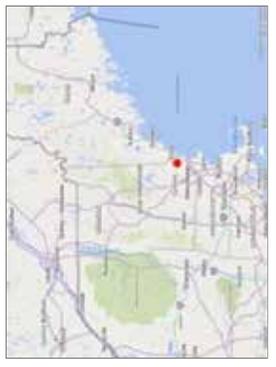
1: 1,000

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Map Generated: 6/18/2023

## Notes

54 PACKERS FALLS ROAD,  
NEWMARKET, NH 03857



# 54 Packers Falls Road, Newmarket, NH

Newmarket, NH Former Water Treatment Facility

## Legend



54 Packers Falls Rd





Newmarket, New Hampshire  
Google Street View  
Sep 2019 See more dates

Image capture: Sep 2019 © 2023 Google



Possible parking area for commercial/municipal uses.

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Newmarket, New Hampshire  
Google Street View  
Sep 2019 See more dates



Image capture: Sep 2019 © 2023 Google



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# NHDAMS DATA SHEET

Dam# **D177002**      Haz Cl: NM      Name PISCASSIC RIVER DAM  
Status ACTIVE      Town: NEWMARKET  
Haz by Rule: 2018 RSA 482:12I      River: PISCASSIC RIVER  
Condition:      Other Name:  
NATDAM # NH02722      FERC #:      FERC HZCL:

Dam Owner: TOWN OF NEWMARKET      Class Own L  
Represent: WATER DEPT      Tel#:  
Street: 186 MAIN STREET      Cell#:  
Mail Town: NEWMARKET      State: NH      Zip: 03857  
Email:

Emer Cont      EC Cell:  
EC Email      EC Tel:  
Alter Cont:      AC Tel:

Last Field Insp: 11/19/2018      Insp By: JDF      Next Insp YR:

Comment: **Potential bldg impact, C Law**

Physical Loc: PACKERS FALLS RD & MASTIN DR

Height ft: 9	Design Event yr:	Principal spill Type
Length ft: 118	Year last HH:	Princpl spill dimen 53'
Impnd ac: 0.45	Design Event inflow cfs:	Stoplogbay dimen
Free Board 1.5	Design Evnt rtd outflow cf	Gate dimensions
Perm Stor 0.7      acft	Unop Disch w/1' frbrd cfs:	Flashboards Y or N
Max Stor: 1.35      acft	Max Unop Disch cfs:	Outlet pipe type
Drain Area: 14233.6      acres	Total Disch - full op cfs:	Pond drain Y or N
Use: RECREATION	Primary Const: CONCRETE/STONE	Auxilliary Spill dimen

County: ROCKINGHAM      Tax ID: U1-46      Year orig Permit:  
Basin: PISC      Deed BK/PG:      Year orig Const:  
Lat/Lon: 43.08263      -70.947838      Year last Reconst:

OMR Date      Drawdown time:  
Fall Drawdown      Drawdown dept  
Drawdown comment:

# Dams of the Lower Lamprey River Watershed

in the towns of Newmarket, Durham, Lee and Epping



*Macallen Dam, Newmarket, NH*

Small Grant Project Completed by the  
Lamprey River Watershed Association

Funded by the  
Lamprey Rivers Advisory Committee, Wild and Scenic Subcommittee

September 25, 2012

Project: Dams of the Lower Lamprey River Watershed  
Newmarket, Durham, Lee and Epping

Submitted by: Dawn W. Genes  
Lamprey River Watershed Association  
43 North River Road  
Lee, NH 03861  
603-659-9363  
[dawn.genes@lrwa-nh.org](mailto:dawn.genes@lrwa-nh.org)



## **Project Purpose**

The importance of free flowing rivers has been well documented and has been promoted in New Hampshire and nationwide for many years. The State of New Hampshire removed the Bunker Dam in West Epping in 2011 to restore the Lamprey River in that section to a free flowing river and to avoid maintenance and repair costs. In early 2012, the Wiswall Dam in Durham had a newly constructed fish ladder allowing river herring to pass for the first time since a dam was constructed on this site over 250 years ago. What other dams could be removed or modified to allow for fish passage into additional miles of river for extended habitat of fresh water fish and for the migration of diadromous fish?

The State of New Hampshire's Dam Bureau maintains a list of all dams in the state. According to the list that Lamprey River Watershed Association has available from several years ago, approximately 38 dams are located in the four towns of the Wild and Scenic section of the Lamprey River watershed. They range in height from 2 feet to 27 feet. Some are in ruins, some are active, and most are privately owned. Would the owners be receptive to changes in their dams to allow for greater fish migration? What modifications would be required for some of the dams to allow for fish passage? Where are these dams and how does one get to them? All of these are questions were answered by this project conducted by the LRWA.

This project provides additional information about the dams in the four town area beyond what is available from the NH Dam Bureau spreadsheet. The additional information gathered is intended to provide the Lamprey Rivers Advisory Committee and the Lamprey River Watershed Association with a better understanding of the potential for additional miles of fresh water habitat that is or could be available for fish migration in the Lamprey River system.

## **Procedure**

- Obtain a current list of dams as listed by the State of New Hampshire Dams Bureau.
- Develop a field assessment sheet to prepare to gather information about each dam on the NH Dam Bureau list in the towns of Newmarket, Durham, Lee and Epping.
- Use the latitude and longitude data provided by the state, develop maps of each dam to enable a site visit, and assess topographic surroundings.
- Seek permission of dam owners when necessary.
- Visit, photograph, and assess each of the 38 dams on the list were for restoration potential.
- Prepare an information sheet for each of the dams.

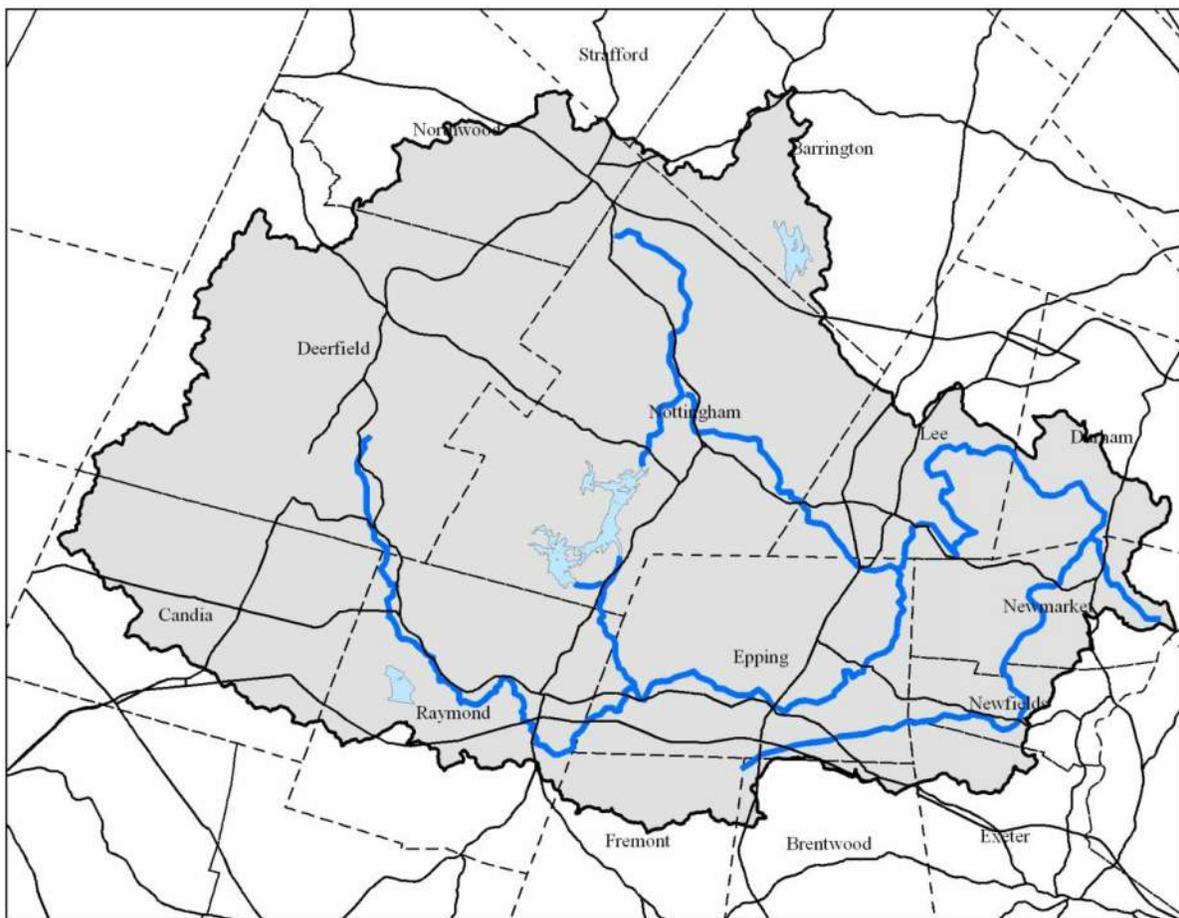
## **Limits of This Project**

The purpose of this project was to identify the potential for one or more dams to be removed or modified to provide wildlife benefits. This project does not speculate on the structural integrity of the dams visited or any recommended changes to the hazard class. This project does recommend some changes to the "Status" of some dams visited. This project did not attempt to verify dam ownership or seek decisions at this time by dam owners whether to remove or alter a dam or not. The potential sites identified will require further investigation. Future projects will engage a wider variety of partners and provide an opportunity for public participation to promote the project and create awareness.

## Restoration Potential for Dams of the Towns of Newmarket, Durham, Lee and Epping

The opening of the fish passage at Wiswall Dam in Durham has sparked greater interest in opening up more of the Lamprey River watershed to fish habitat. The increasing returns of river herring in the Lamprey River while other rivers continue to see decline gives hope that the waters of the Lamprey River are of higher quality and that there is suitable habitat. The year 2012 saw record returns of river herring with over 90,000 passing through the fish ladder at the Macallen Dam in Newmarket. American eel can be found throughout the watershed but their abundance is largely below the Wiswall Dam.

Using the list provided by the State of New Hampshire Dam Bureau, the 38 dams listed would seem to present major barriers to migrating fish in the lower Lamprey River watershed. However, through site visits and studying the river and stream systems where these dams are found, few are actually impeding the migration and habitat extent for most fish species – at least in the lower four towns of the watershed.



This project focused on the dams in Newmarket, Durham, Lee and Epping.

### Lower Lamprey River – Macallen Dam in Newmarket to Wadleigh Falls in Lee

The lower portion of the Lamprey River has long stretches of slow moving waters in wide, deep river habitat and occasional ledge and short rapids. The lower gradient, slower flowing sections tend to support sunfish species, golden shiners, largemouth bass, and other warmwater species that avoid faster flowing water. The higher gradient riffle habitat with cobble and boulder substrate contains species such as longnose dace, fallfish, margined madtom and juvenile white suckers according to NH Fish and Game. Diadromous fish are most abundant in this lower-most section of the river.

According to a recent fish survey report by NH Fish and Game, the sites with the greatest number of fish were found in wide, shallow sections of the Lamprey River and its larger tributaries. Species including common shiner, fallfish, and longnose dace were extremely abundant in the shallow pools and riffles formed by boulders, cobble, and ledges. Three such sites, one below the Bunker Pond Dam in Epping before its removal, one downstream from Lee Hook Road, and one below the Wiswall Dam, accounted for over 30% of all fish counted in the survey. Most of the mainstem river in the middle and lower Lamprey River subwatersheds is too deep for electrofishing. Shallow, rocky sections of river provide important habitat for fish like longnose dace that prefer turbulent water and depend on spaces between rocks and boulders for shelter.

Dams in order from downstream to upstream (Tributary dams are indented.)

- 177.01 Macallen Dam, Newmarket
  - 071.34 Recreation Pond Dam, Durham
  - 071.37 Detention Pond, Durham
  - 071.36 Stagecoach Farm Pond Dam, Durham
- 071.05 Packers Falls Dam, Durham
  - 071.22 Farm Pond Dam, Durham
  - 071.21 Farm Pond Dam, Durham
  - 071.28 Samuels Dam, Durham
- 071.04 Wiswall Dam, Durham
  - 071.18 Wildlife Pond Dam, Durham
- 135.01 Lamprey River I Dam, Lee
  - 135.07 Recreation Pond, Lee
- 135.02 Wadleigh Falls Dam, Lee

Of the above dams, modification of Wadleigh Falls Dam would provide the greatest benefit to increasing fish passage. All of the others are either breached, in ruins, or are in side drainages that offer no or very little habitat above the dam and would, therefore, provide an insignificant benefit if removed.

### Middle Lamprey River – above Wadleigh Falls to former Bunker Pond Dam

This section of the Lamprey is similar to the lower section in that it has slow moving waters interspersed with short rapids or riffles. The river is less wide and contains deep pockets and shallow sand bars and gravel substrate. Undercut banks, fallen trees, and overhanging shrubs provide cover for fish and other aquatic species. Many of the same species found in the lower Lamprey are also found in the middle Lamprey and include sunfish species, golden shiners, largemouth bass, longnose dace, fallfish, margined madtom, and juvenile white suckers.

The most significant tributary in this section of the river is Rum Brook which offers excellent cold water habitat for brook trout. There are no dams on Rum Brook.

Dams of the Middle Lamprey (Tributary dams are indented.)

- 078.03 Farm Pond Dam, Epping
- 078.05 Melling Glen Woodlands Detention Pond
- 078.09 Picard Detention Pond Dam, Epping
- 078.01 Lamprey River Town Dam, Epping
- 078.06 Bytne Dam, Epping
- 078.07 Hoar Pond, Epping
- 078.11 GCF Realty Trust Detention Pond Dam, Epping
- 078.10 GCF Realty Trust Pond Dam, Epping

The only dam on the main stem of the Lamprey is the Lamprey River Town Dam in downtown Epping. The rest are on side streams, many that are intermittent and unnamed. These dams are either in ruins, breached, or offer no additional miles of upstream habitat if removed. Melling Glen Woodlands Detention Pond and Picard Detention Pond are serving a stormwater function.

### North River – Lee, Nottingham, Epping

The North River and some of its small tributaries offer some of the best brook trout habitat in the watershed. This river system offers small streams with multiple wetlands, relatively undisturbed land areas, and intermittent streams. Beaver activity is abundant. Banded sunfish and redbfin pickerel use this habitat.

Dams of the North River – Lee and Epping

- 135.03 North River Dam, Lee
- 078.04 Farm Pond Dam, Epping
- 135.15 Hoey Wildlife Pond Dam, Lee
- 078.08 Thomas Recreation Pond Dam, Epping

The North River Dam is in such ruins that detecting where the structure once existed is difficult. Fish are able to pass this rocky ledge section of the river. The three dams not directly on the North River lead to Rollins Brook which is one of the cold water streams identified by NH Fish and Game as habitat to protect. Farm Pond Dam is in a hayfield with no stream above it. The Hoey Wildlife Pond Dam also serves as the access over a wide wetlands area to the owner's house. The dam will not be removed. The Thomas Recreation Pond Dam creates a small pond used for scenic beauty by the landowner. The small granite spillway area is kept free of beaver activity and the pond has become more shallow and vegetated over time. The rocky approach to the small spillway might be passable by fish as it is. Removal would provide only minimal benefit.

### Little River in Lee

The only dam on this list from the NH Dam Bureau is the Thompson Little River Dam located about ¾ mile upriver from the confluence with the Lamprey River off Tuttle Road in Lee. This dam has already been breached, although the state list still has it as active. Recent floods have caused the dam to give way and the river is once again open, providing free flowing habitat without any impoundment.

The major barrier to fish in the Little River is the Nottingham Dam, outside of the scope of this project. The Nottingham Dam on Mill Road in Nottingham was recently rebuilt as a large concrete structure without fish passage. As this was a major expense incurred by the dam owner, a modification is not likely at this time.

#### Dams of the Little River – in Lee

135.04 Thompson Little River Dam

### Piscassic River in Newmarket

The Piscassic River provides some of the best habitat for fish and other wildlife of any tributary in southeastern New Hampshire. The water quality of the Piscassic River is excellent and considered to be “Class A.” Much of the river is inaccessible to people due to extensive wetlands area and few road crossings in the middle section of the river – the western side of Newfields. There is considerable development pressure on this river in the Rte. 125 corridor in Epping. Fish species in this river are similar to those found in the Lower Lamprey.

Dams in the Piscassic River watershed (Tributary dams are indented.)

177.02 Piscassic River Dam, Newmarket

177.08 Conservation Pond, Newmarket

177.14 Fish Holding Pond Dam, Newmarket

177.18 Filion Enterprise Detention Pond Dam, Newmarket

177.09 Wildlife Pond Dam, Newmarket

177.10 Dug Pond Dam, Newmarket

177.12 Dug Pond Dam, Newmarket

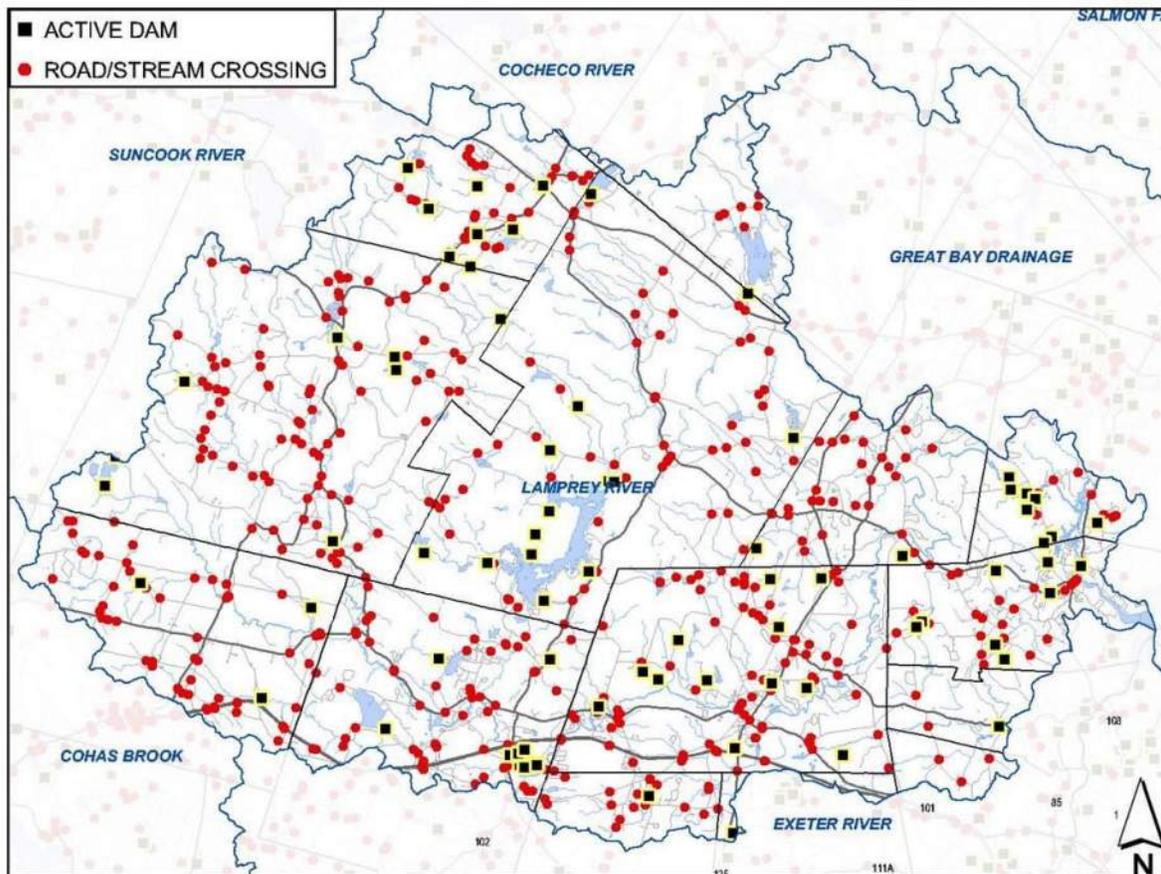
Located at the confluence with the Lamprey River, the Piscassic River Dam in Newmarket poses an immediate barrier for fish to the entire river. Water is held back by this nine foot wall of rock for the Newmarket Public Works and once served as a source of drinking water for the town. A few diadromous fish might be able to pass this dam and continue upstream, but only if the flow conditions are just right.

All of the other dams in Newmarket that lead to the Piscassic River are breached or are dug ponds that are not linked with the tributary network in a manner that is suitable for fish migration. Outlets to road ditches, PVC pipes, and undefined channels are common with these dams.

### Summary and Recommendation

Many of the dams examined in Newmarket, Durham, Lee, and Epping are either already breached, considered ruins, have been removed, have no headwaters above them, already allow fish passage, or have a purpose for which the dam owner will not consider removal. Only Wadleigh Falls in Lee and the Piscassic Dam in Newmarket seem to be worthy of further investigation for modification to improve fish passage and habitat. Several agencies are already studying what modifications might be done at Wadleigh Falls to allow for more fish passage. Because of the rocks below the Piscassic River Dam, it might be possible to modify this dam to allow for greater passage without removal of the dam itself. Until the study of the Macallen Dam in Newmarket is completed, the town is unlikely to address changes necessary at the Piscassic River Dam.

The best next step for increasing fish habitat in the Lamprey River watershed should be to target road crossings that serve as barriers throughout the watershed and pursue land conservation efforts to protect cold water streams.





# National Flood Hazard Layer FIRMette

70°57'12"W 43°5'51"N



## 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

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*

NO SCREEN Area of Minimal Flood Hazard *Zone X*

Effective LOMRMs Area of Undetermined Flood Hazard *Zone D*

Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall

Cross Sections with 1% Annual Chance Water Surface Elevation

Coastal Transect Base Flood Elevation Line (BFE)

Limit of Study Jurisdiction Boundary

Coastal Transect Baseline Profile Baseline

Hydrographic Feature

Digital Data Available No Digital Data Available Unmapped

MAP PANELS

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 6/17/2023 at 6:27 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.



70°56'34"W 43°4'45"N

1:6,000

Basemap Imagery Source: USGS National Map 2023

The Consolidated List of Water Bodies lists the surface elevation that is to serve as the "reference line" for lakes, ponds, and artificial impoundments greater than 10 acres in size (RSA 483-B:4, XVII). The reference line is not the same as the natural mean high waterline, nor is it a property boundary. This list contains surface elevations for those lakes, ponds, and impoundments for which the Department has data. For convenience, it also includes data on jurisdictional rivers and streams. This list is not a complete catalogue of all water-bodies subject to RSA 483-B.

Town	Rivers and Streams	Where River/ Stream becomes jurisdictional under the SWQPA	Lakes and Ponds	a.k.a.	Surface Elevation "Reference Line" (ft above sea level)
Newbury	Andrew Brook	Juncture of Ring Brook	Chalk Pond		1246.6
			Gillingham Pond	Otter Pond	818
			Loch Lyndon Reservoir	Poor Farm Hill Pond	787
			Mountain View Lake	Spectacle Pond	1116
			Recreation Pond		
Newfields	Squamscott River	Juncture of Little and Exeter Rivers in Exeter	Piscassic Ice Pond		95
	Piscassic River	Juncture of Brown Brook and an unnamed 3rd order stream in Fremont	Great Bay		
	Piscataqua River	Juncture of unnamed 3 <sup>rd</sup> order stream in Wear	Peverly Brook Pond	Newington Reservoir	30
Newmarket	Lamprey River	Juncture of Nicholls Brook in Deerfield	MacAllen Dam	On Lamprey Dam	23
	Upper Narrows	Juncture of Lamprey River	Great Bay		
	Piscassic River	Juncture of Brown Brook and an unnamed 3rd order stream in Fremont			
Newport	Sugar River	Outflow of Lake Sunapee	Chapin Pond		1590
	North Branch Sugar River	Juncture of Sawyer Brook and Stocker Brook in Grantham	Lily Pond		866.1
Newton	South Branch Sugar River	Juncture of Giles Brook in Goshen			
	Little River	Juncture of unnamed 3 <sup>rd</sup> order stream in North Hampton	Country Pond		115
North Hampton	Little River	Juncture of unnamed 3 <sup>rd</sup> order stream			
Northfield	Merrimack River - Designated Segment	From the confluence of the Winnepesaukee and Pemigewasset Rivers in Franklin	Knowles Pond		746
	Merrimack River	Juncture of Pemigewasset & Winnepesaukee Rivers in Franklin	Sondogardy Pond	Northfield Pond	397
	Winnepesaukee River	Outflow of Paugus Bay, Lake Winnepesaukee in Lakeport (Laconia)			



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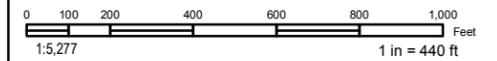


# U-1

## PROPERTY MAP NEWMARKET NEW HAMPSHIRE



GRID NORTH  
NH State Plane  
NAD 1983 (feet)



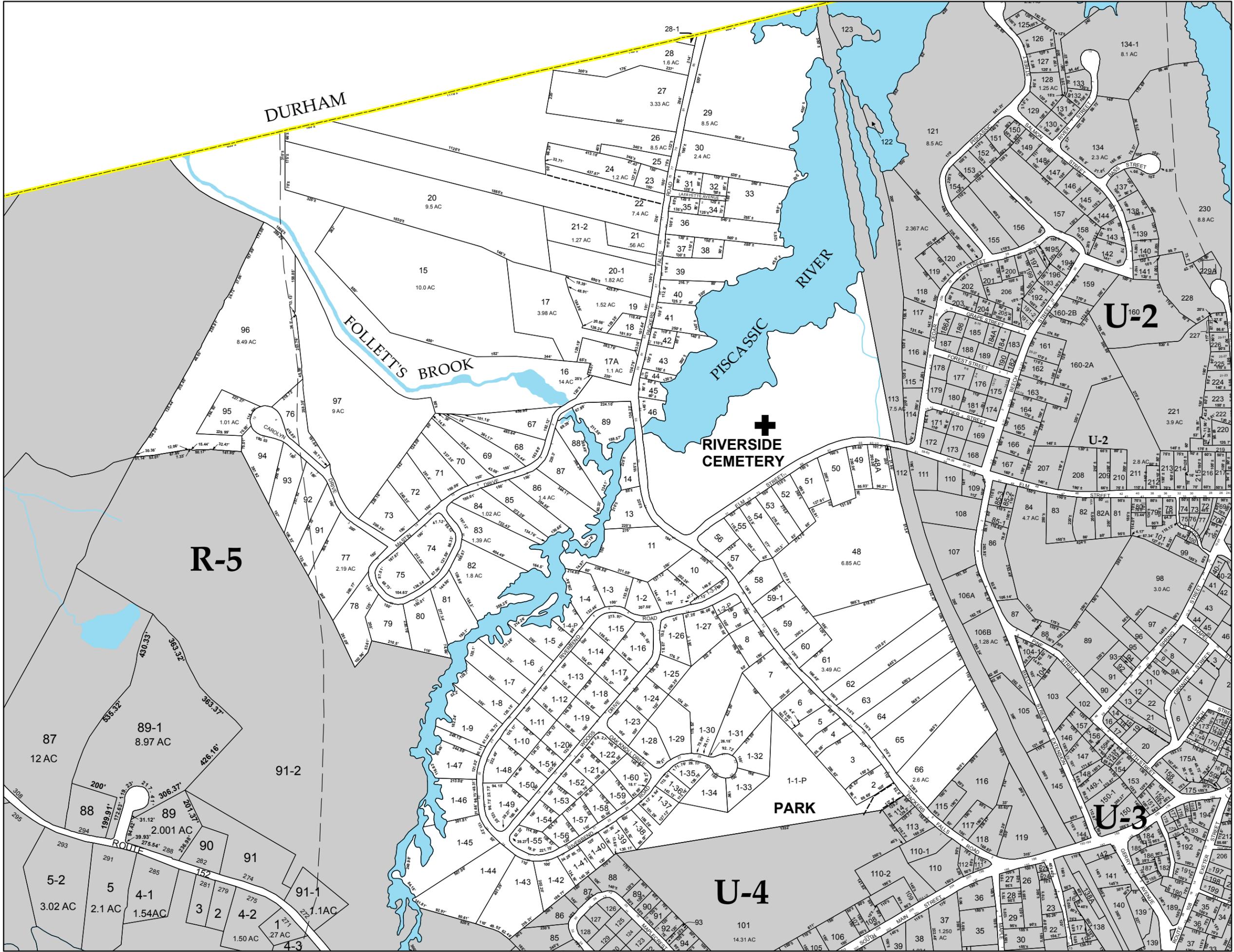
- Utility ROWs
- Easements, Access Roads, Gravel Roads
- Current Map Sheet
- Adjacent Map Sheet
- Cemetery

This map was produced by the Strafford Regional Planning Commission. Original tax maps were recomputed onto 1:4800 and 1:2400 NH GRANIT GIS Digital Orthophoto Quarter Quadrangles (DOQQ) on mylar and digitized to form a digital composite map in October, 2001. Parcel shapes were distorted as part of the compilation process; therefore, map-measured distances and areas may be different than reported distances and areas.

Original source maps:  
John E. O'Donnell & Associates; Auburn, Maine; Revised April 1, 1996.  
Updated and Reprinted by Doucet Survey, Inc.; Newmarket, NH; August 10, 1998.

UPDATES:  
June 2007 with data through 2006 (DA)  
June 2009 with data through 2008 (DC)  
April 2015 with data through March 2015 (CS)  
August 2016 with data through March 2016 (RM)  
July 2017 with data through April 2017 (RM)  
July 2019 with data through April 2019 (GIS Planner)

**THIS MAP IS FOR ASSESSMENT PURPOSES ONLY.  
IT IS NOT INTENDED FOR LEGAL DESCRIPTION OR CONVEYANCE.**



DURHAM

FOLLETT'S BROOK

RIVERSIDE CEMETERY

PARK

R-5

U-2

U-2

U-3

U-4

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June 29, 2023

Mr. Josh Lacasse  
Placework  
96 Penhallow Street  
Portsmouth, NH 03801

Re: Preliminary Structural Assessment  
Former Newmarket Water Treatment Facility  
54 Packers Falls Road  
Newmarket, NH

Dear Mr. Lacasse,

At your request a site visit was made on May 18, 2023 to observe and comment on the structural existing conditions of the facility noted above, namely the former Newmarket Water Treatment Facility.

The scope of services is to identify structural systems and noteworthy deteriorated items that would assist in future restoration and modifications for the structures. This report is based on observable and accessible conditions. No structural analysis has been performed.

Attached are 4 plans prepared by Placework and dated.

Basement level plan EX101 dated 5/17/23

First level plan EX102

Second level plan EC103 dated 5/17/23

Chronologic plan illustrating the time history of construction dated 6/2/23

(2 sheets)

Photographs are also attached illustrating existing conditions found during the site visit. In attendance was Mr. Josh Lacasse of Placework; Mr. Sean Greig, Town of Newmarket; Fred Emanuel and Bruce Scamman both of EEI.

*civil & structural consultants, land planners*

## Introduction

The structures have a 129 year history and entail many structural systems. The oldest includes stone foundation walls, multi wythe brick walls, timber floor beams, gable hip roofs, and a square free standing brick masonry chimney extending upwards an estimated 100 feet. The newer structures utilized reinforced concrete foundation walls, concrete floor slabs, concrete masonry block walls, precast concrete roof panels, and an exterior insulation finish system (EIFS). Shotcrete has been applied over concrete surfaces for added protection in corrosive areas.

The lateral stability of the structure relies on the exterior walls consisting of brick masonry, concrete block walls or reinforced concrete walls. Interior gravity loads are supported by structural steel columns. None of the contiguous building structures exhibit any damage due to high winds. All are in respective good condition.

The square brick chimney is attached to the east side of the original 1894 building structure and exhibits cracks near its base.

The oldest portion of the building structure and adjacent to the dam & river, have been reinforced by encapsulating the original stone/brick foundation wall with an interior cast in place concrete wall that remains in good condition. The dam structure appears to be independent of the building structure.

Engineering drawings of the 1990 expansion of the treatment facility were available but included no structural drawings.

## Discussion

The following are noteworthy observable items that reflect degradation of the structure and or warrant repairs or improvement. The items presented have no particular order.

- The attic space created by the hip roof design lacks adequate ventilation. Good ventilation extends the life of the roof shingles.
- During the 1990 expansion, the original hip roof system was compromised when a rafter was cut without reinforcing the adjacent rafters.
- Water damage was found at the first-floor ceiling near the area connecting the 1894 structure to the 1924 structure.
- The exposed structural steel in the pipe gallery room exhibits heavy mill scale near the column base.
- In the chemical storage room, the structural steel beams supporting the roof exhibit corrosion causing the shotcrete to fail.
- In the boiler room, the base of the chimney exhibits vertical and step cracks. At the junction of the chimney and east boiler room wall, a separation crack occurs. Reinforcing plates have been installed to prevent further movement.

The following items reflect positive attributes of the premises and are presented in no particular order.

- The hip roof structure utilizing brick masonry exterior exhibits sound bricks and mortared joints.
- The 1990 flat roof structure utilizing an exterior insulation finishing system (EIFS) that is sound with few exceptions as noted in the attached photograph.

- The shingled roof of the brick structure is in good condition and can sustain good protection for another 15 years.
- The condition of the flat roof structure utilizing a ballasted membrane roof is unknown. No obvious water damage was visible except where the gable roof meets the flat roof.
- In the attic space, the wood framed hip roof exhibited no sags, no water damage, and no weathering deterioration.  
In the 1990 area, laminated veneer lumber was utilized for the hip rafters.
- In the 1924 PAC storage room, all walls and ceiling exhibited concrete shotcrete surfaces. The writer suspects the repair was performed during the 1990 expansion due to the original concrete wall degradation or as future protection of structural concrete.
- The office area has 11 foot high ceilings with large windows.
- Concrete masonry block walls exhibited sound conditions throughout all areas.
- Precast concrete planks above the pretreatment room exhibited no concrete spalling and are in good condition.
- The multi wythe brick walls and the stone foundation walls within the pump room of the 1894 structure are in sound and stable condition.
- In the meter room along the south foundation a new concrete wall has been casted against the stone foundation wall to withstand the water pressure and prevent water leakage associated with the dam.

## Conclusions

Based on observations and accessible areas, the overall condition of the building structures are in good conditions and extending the life and reuse of the building structures are possible and very positive. The chimney has limited use and may not be worth the expense to repair.

The floors of this type of facility usually have been designed for live loads in excess of those found in residential & commercial facilities making the feasibility attractive for additions and or modifications.

This completes the writers brief review of the water treatment plant. The writers reserve the right to amend these findings and or opinions should additional information become available.

Thank you for the opportunity in providing structural engineering services.

Very truly yours,

*Fred Emanuel*

Fred Emanuel, P.E.



Attachments:

- Basement level plan EX101 dated 5/17/23
- First level plan EX102
- Second level plan EC103 dated 5/17/23
- Chronologic plan illustrating the time history of construction 6/2/23 (2 sheets)
- Photos (23 pages)

NOT FOR CONSTRUCTION

**Placework**  
PLANNING AND DESIGN GROUP, INC.  
100 N. LAUREL AVENUE, SUITE 200  
CHICAGO, IL 60610

PROJECT NO. 18-04  
NEWMARKET OLD WATER TREATMENT  
1100 WEST 111TH STREET, CHICAGO, IL 60642

DATE: 01/11/11  
BASEMENT LEVEL

BY: JF	DATE: JL
CHK: DM/DTJ	
DATE: 01/11/11	

**EX101**



0.1 EXISTING CONDITIONS PLAN - BASEMENT LEVEL

**FLOOR PLAN NOTES**

- 1. GENERAL PLAN NOTES HERE
- 2. GENERAL PLAN NOTES HERE

**KEY NOTES**

- ALIGN NOTE BUBBLE WITH FIRST LINE OF TEXT NOTE
- ALIGN NOTE BUBBLE WITH FIRST LINE OF TEXT NOTE
- ALIGN NOTE BUBBLE WITH FIRST LINE OF TEXT NOTE
- ALIGN NOTE BUBBLE WITH FIRST LINE OF TEXT NOTE

**NOT FOR CONSTRUCTION**

**Placework**  
ARCHITECTURE INTERIORS  
1000 W. WASHINGTON ST. SUITE 100  
CHICAGO, IL 60601

PROJECT NO. 41184  
**NEWMARKET OLD WATER TREATMENT**  
1400 WEST FULLER STREET, CHICAGO, IL

SHEET TITLE  
**FIRST LEVEL**

NO.	REV.	DATE	BY
1	00	06/01/13	JL
2	01	11/11/13	JL

**EX102**



**01 EXISTING CONDITIONS PLAN - FIRST LEVEL**

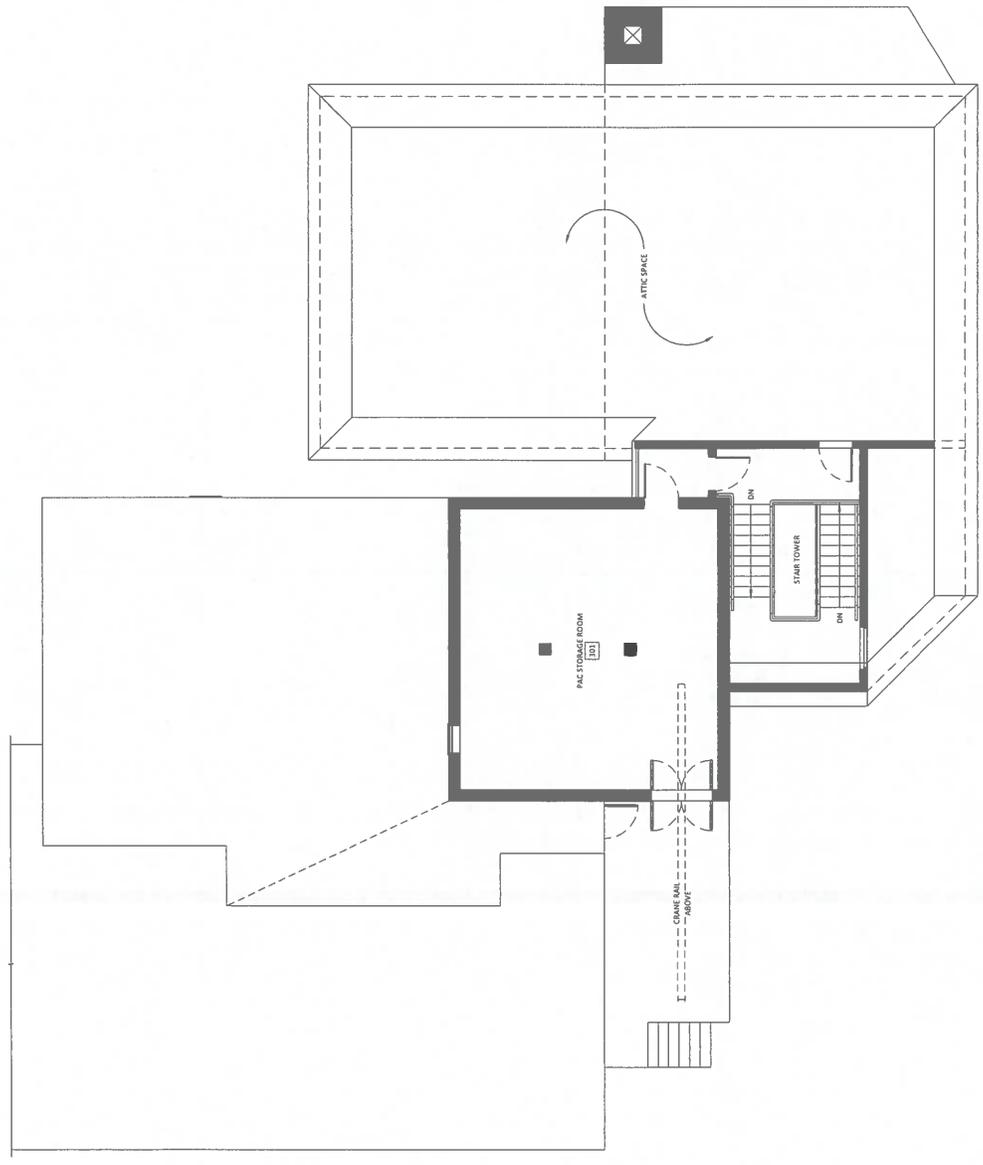
NOT FOR CONSTRUCTION

**Placework**  
ARCHITECTS  
1000 W. WASHINGTON ST., SUITE 200  
CHICAGO, IL 60606  
TEL: 312.467.1100

PROJECT NO. 18-001  
NEWMARKET OLD WATER TREATMENT  
12 NEWPORT AVENUE, NEWARK, IL 60451

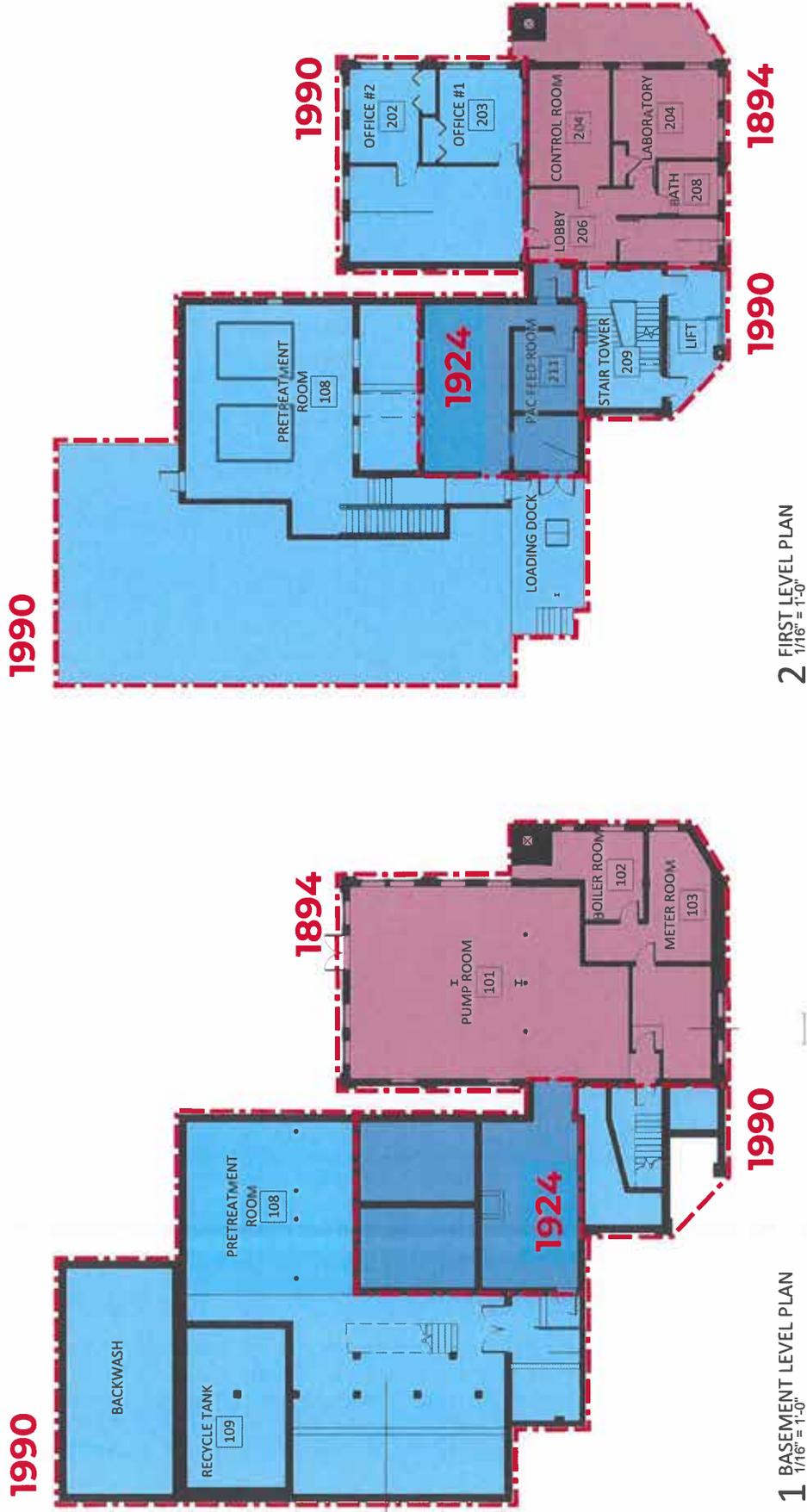
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SCALE: 1/4" = 1'-0"

**EX103**

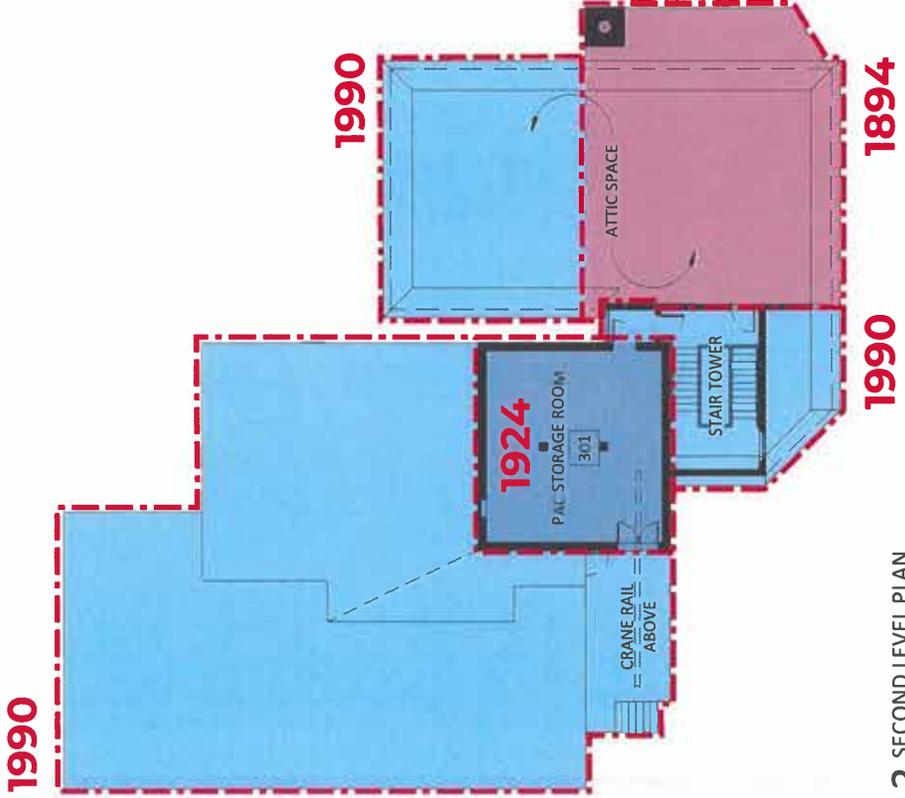


01 EXISTING CONDITIONS PLAN - SECOND LEVEL

**EXISTING PLANS**



**EXISTING PLANS**



**3 SECOND LEVEL PLAN**  
1/16" = 1'-0"



Wood framed attic storage



Attic



Ridge & hip roof utilized engineered lumber



Newer roof adjoining original roof



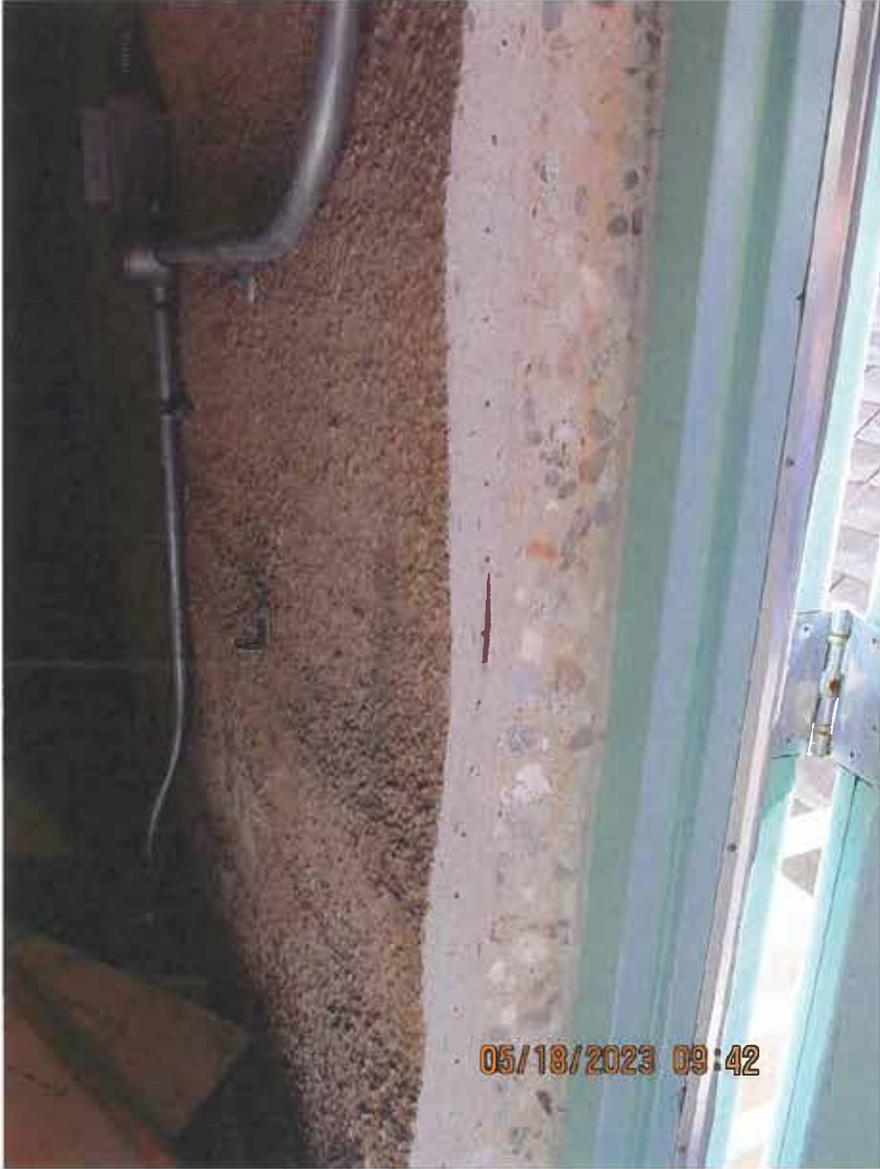
Rafter cut without reinforcing adjacent rafter



PAC Storage room has shotcrete coating throughout



PAC storage room



PAC Storage room wall cross section exhibits shotcrete & concrete wall



Stair tower landing at attic & storage room



Stair tower looking down onto lobby. Brick & concrete masonry



First floor. Office area with 11 Ft ceilings



First floor. 1894 Meets 1990



First floor lobby – water damage, old meet new



First floor – laboratory room



**Photo of original 1894 water treating plant**



**Water damage where 1894 meets 1990**



1990 Masonry block wall & steel framed floor



Membrane roof w/ ballast over chemical storage room



Exterior walls of pretreatment room



Masonry walls throughout pretreatment area



**Masonry block walls on poured in place concrete beam**



**Pretreatment room with precast concrete roof panels**



Pipe gallery – heavy mill scale on structural steel columns





**Chemical storage room, steel corrosion causing coating to fail**



**Pump room – steel framed floor supporting suspected wood floor joists**



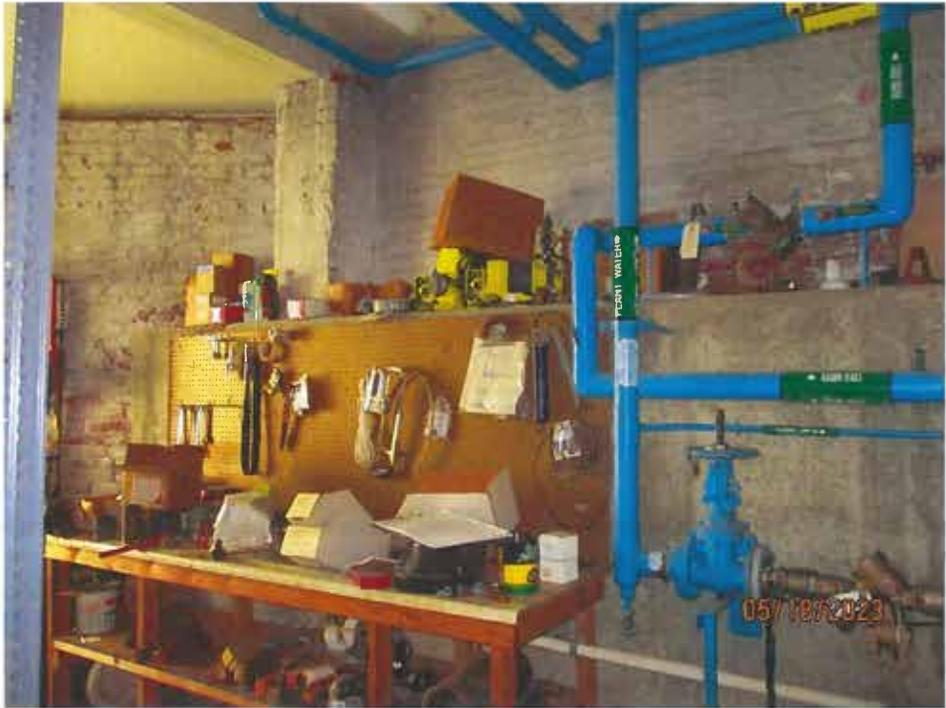
Basement pump room – original stone foundation wall & multi wythe brick wall



1894 Multi – wythe masonry wall in sound condition



1894 Wall exhibits stable and sound conditions



Meter room – encapsulated stone foundation with cast-in place concrete



**Chimney clean out**



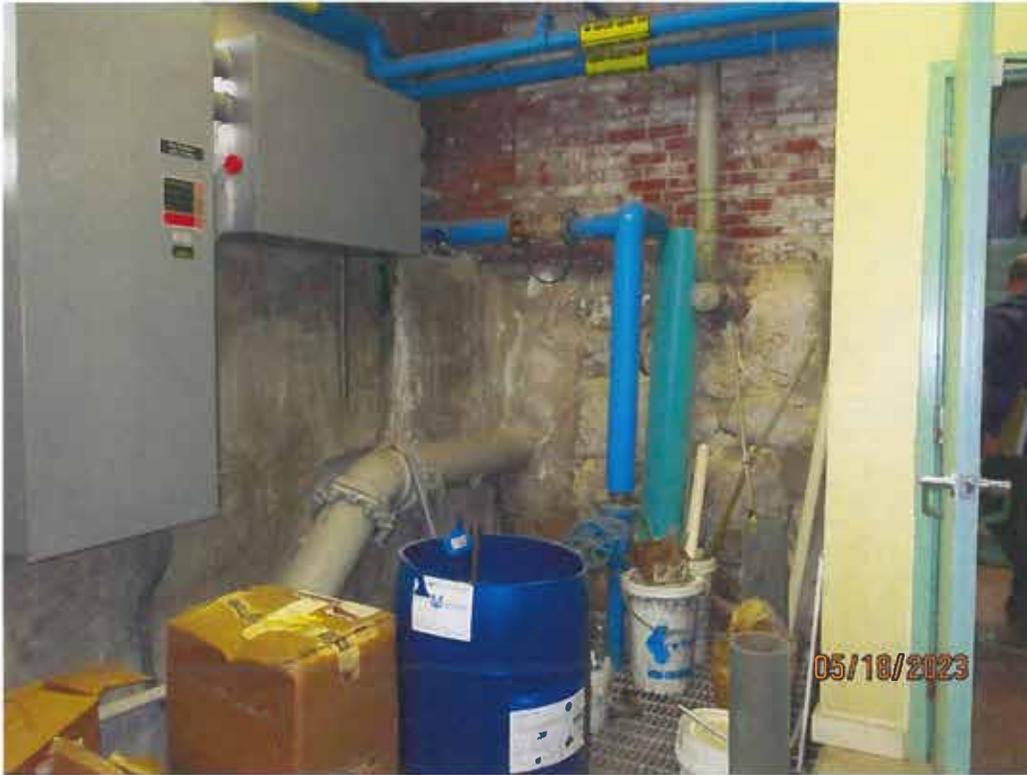
**Masonry cracks near chimney base due to settlement or wind**



Rear wall exhibits crack at junction of chimney. Reinforced with stabilizing plates



Cast-in place concrete wall encapsulates original river side wall



1894 West wall (brick & stone) and encapsulated south wall



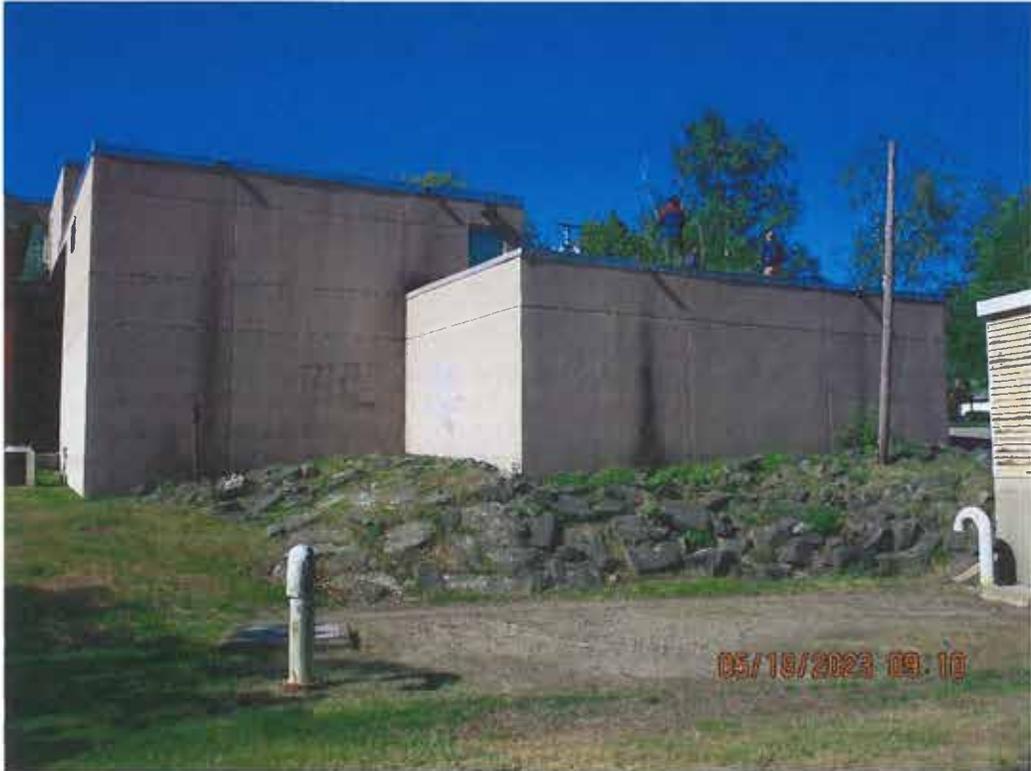
Outside view of last two photos



Looking east



Damage to EIFS in the form of punctures, cracks, wear, & tear



1990 Exterior utilized exterior finish insulation system (EFIS)



Looking South



Waterside

# NEWMARKET WATER WORKS

1830 SPOOL, SHUTTLE & BOBBIN FACTORY  
1862 LAFAYETTE HALL NUT & BOLT FACTORY  
1894 WATER PUMPING STATION  
1901 PURCHASED BY TOWN OF NEWMARKET  
1924 CONVERSION TO FILTRATION PLANT  
1990 WATER TREATMENT UPGRADE

ENGINEER: Dufresne - Henry, Inc.

CONTRACTOR: Penta Corporation

## BOARD OF WATER COMMISSIONERS

Gary House

Eldon Bender

Leo Fillion

Richman Walker

Richard Alperin

Robert Daigle

Donna Reed

Joyce Gibbs 05/18/2023

SUPERINTENDENT: Ronald Bloom

History

# NEWMARKET OLD WATER TREATMENT PLANT

NEWMARKET, NH

MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION

**SYSTEMS STUDY**



Consulting Engineering Services, Inc.  
35 Pleasant Street, 1<sup>st</sup> Flr  
Concord, NH 03301  
CES Project #2023096.00

June 13, 2023

NEWMARKET OLD WATER TREATMENT PLANT

Section 1. Introduction

The purpose of this narrative is to provide an evaluation and assessment of the mechanical, electrical, and plumbing (MEP) systems at the Newmarket Water Treatment facility, including recommendations and modifications for improvements and upgrades. This report does not include process systems for the water treatment operation.

The report below will focus on three areas:

1. The conditions of the existing equipment and suggestions of remaining life expectancy.
2. Recommendations on improvements to the existing systems.

Section 2. Fire Protection Systems

A. Existing Conditions

The building does not currently have a sprinkler system, with the exception of a single head off the domestic water service in the boiler room.

B. System Modifications for Renovation

A new NFPA 13 wet sprinkler system should be added to the building if it is determined to be required by Code based on a new occupancy group. The system would consist of a 6" fire protection line routed to the building from the water main located in the street. The fire protection water service will be provided with a backflow preventer assembly in a fire service entrance room in the building.

Results from a recent flow test shall be provided by the water utility company. At this time we are assuming that the available flow and pressure are adequate for the building without the assistance of a fire pump.

C. System Standards

The following standards shall be followed for the installation of all fire protection equipment referenced within this document.

1. Alarm valves shall be installed to properly zone the sprinkler system.
2. Sprinklers shall be concealed, fully recessed in finished areas with ceilings. Sidewall, exposed, extended coverage sprinklers shall be installed where appropriate. Quick response sprinkler heads shall be used in light hazard locations. Sprinklers, unless noted otherwise, shall have a ½" orifice and a 165°F temperature rating. Intermediate temperature classification sprinklers shall be installed within the mechanical room, skylights and other applicable areas.
3. Piping for the sprinkler system shall be steel pipe, ASTM A 53; Schedule 40 seamless carbon steel. Schedule 10 pipe shall be allowed for pipe sizes larger than 2" diameter when roll grooved mechanical couplings are used. Sprinkler piping shall be installed above ceilings and concealed within chases where applicable.
4. Fittings shall be grooved mechanical fittings: ANSI A21.10 ductile iron; ASTM A47 grade malleable iron. Couplings shall be ASTM A 536 ductile iron or malleable iron

housing, EPDM gasket with nuts, bolts, locking pin, locking toggle or lugs to secure roll grooved pipe and fittings.

### Section 3. Plumbing Systems

#### A. Existing Conditions

The building's domestic water consists of a 1-1/2" service off a 3" main with a water meter, backflow preventer, and shutoff valve. The service currently enters the building in the basement mechanical room. The domestic water serves the plumbing fixtures, water heater, and boiler makeup water.

Hot water is generated from a water heater located in the Meter Room off of the Boiler Room. The water heater appears to be in good condition.

The plumbing fixtures throughout the buildings appear to be in poor to fair condition.

The building has a 2-1/2" natural gas line entering the building on the North side.

The building has a compressor and air dryer for a compressed air lines. The system appears to be in good condition.

#### B. System Modifications for Base Building

##### Provide Venting for Unvented Fixtures

There were several plumbing fixtures that appeared to be unvented; including the sink in the Laboratory, the mop sink in the Janitor's Closet, and the floor drains. It is recommended that these fixtures are re-plumbed in order to provide the proper venting required by the 2018 International Plumbing Code.

##### Replace Plumbing Fixtures with New Low-Flow Fixtures

The fixtures in the building do not appear to be in good condition. It is recommended that the fixtures be replaced with new low-flow fixtures.

#### C. System Standards

The following standards shall be followed for the installation of all plumbing equipment referenced within this document.

1. Domestic cold water and domestic hot water shall be Type L copper conforming to ASTM B 88 and shall be connected by either press-seal fitting (ProPress) or soldered fittings.
2. Domestic water piping shall be insulated with rigid molded, noncombustible glass fiber insulation conforming to ASTM C335.
3. Domestic water piping throughout the building shall be installed above ceilings and concealed within walls. Jacketing shall be provided on piping exposed in occupied areas (when exposed pipe is located below 10').

4. Storm, sanitary and vent piping shall be hub-less cast iron with standard torque clamps, conforming to CISPI 301 for above ground piping and hub and spigot cast iron conforming to ASTM A 74 for piping installed below the floor slab.
5. Storm, waste, and vent piping shall be concealed within chases and walls where possible.
6. Gas piping shall be ASTM A53 schedule 40 black steel, painted yellow.

#### Section 4. Mechanical Systems

##### A. Existing Conditions – Heating Plant and Terminal Units

The heating plant consists of (1) 299 MBH Weil-McLain Evergreen EVG 299 natural gas-fired condensing water boilers and a set of hydronic pumps.

The boiler and pumps are in good condition as they were installed in 2019.

The boiler generates hot water that is distributed throughout the building via pumps to the terminal units. The terminal units include the radiators within the spaces and unit heaters hung within the spaces.

The boiler is a condensing type boiler. Condensing boilers operate at lower water temperatures compared to standard boilers, which allows additional latent heat to be extracted from the flue gases, resulting in higher efficiencies.

The radiators within the spaces are hydronic fin-tube type with wall mounted thermostats. These radiators serve as the primary source of heating for the spaces.

The unit heaters consist of horizontal and vertical blow manufactured by Modine. The unit heaters serve as the only source of heating for the spaces. The unit heaters appear in fair condition.

##### B. Existing Conditions – Air Handling Unit (AHU) & Condensing Unit

The First Floor office and conference room spaces are served by a wall mounted ductless AHU connected to an outside condensing unit as manufactured by Sanyo.

The air handling unit and condensing unit observed are in poor condition and outdated. The condensing unit is located at grade on the North side of the building.

One of the offices has a window AC unit to cool the room. The unit appears to be in fair condition.

##### C. Existing Conditions – Ventilation

The First Floor offices and conference area are currently ventilated utilizing natural ventilation with the operable windows.

The Pretreatment Room and CLOs Gen/Feed Room are provided with wall mounted exhaust fans as manufactured by Greenheck. Each space also has an intake louver with

a motorized damper which is commanded to open when the exhaust fan is running. The fans appear to be in poor condition.

The Chemical Storage & Feed Room is provided with two roof mounted exhaust fans as manufactured by Greenheck. The fans appear to be in fair condition.

The First Floor restroom is provided with dedicated ceiling mounted exhaust fans. However, the First Floor Janitor's Closet does not have any means of exhaust.

**D. Existing Conditions – Controls**

The building currently contains local controls for each piece of heating, cooling, and exhaust equipment.

**E. System Modification for Base Building**

Replace the AHU and Condensing Unit

Replace the Sanyo AHU and condensing unit with a ductless variable refrigerant flow (VRF) heat pump for heating and cooling the offices. This system will provide a more energy efficient system and provide more comfort to the spaces.

Provide an Energy Recovery Ventilator (ERV) for the Office/Conference Rooms

The ventilation air for the offices and conference room relies on infiltration of air and opening of windows which isn't ideal in the winter time. In order to increase energy efficiency and space comfort, it is recommended to install an ERV which will provide mechanical ventilation vs. natural ventilation for the spaces. The ERV will provide tempered ventilation air into the space which will make the occupants more comfortable instead of warm or cold blasts of ventilation air from the windows.

An ERV consists of two fans and an energy recovery core mounted within a single housing.

Add Exhaust Fans in First Floor Janitor's Closet

Provide a ceiling mounted exhaust fan in the Janitor's Closet ducted directly to the outdoors. Terminate the duct on the exterior with a wall cap or louver.

Provide a BMS and Connect Into Town BMS

Since the building is currently not being used, there may be situations where the heat setpoint is not set back upon each person leaving the building which would result in a waste of energy. In order to monitor and control the equipment in the building remotely, it is recommended that a building management system (BMS) be installed and connected into the other town-wide BMS system.

**F. System Standards**

The following standards shall be followed for the installation of all mechanical equipment referenced within this document:

1. All ductwork and accessories shall meet SMACNA standards. After installation of duct is complete third party shall clean all ductwork.
2. Provide all HVAC equipment with extra set of filters.
3. Seismic restraints shall be designed and installed as required per State Building Codes and Fire Safety Codes, which requires the seal of a licensed professional engineer. Abovementioned professional engineer will be required to verify installation is correct and complete per seismic code. This includes piping, ductwork, equipment, and equipment bases.
4. Provide glass fiber insulation for all hydronic piping and ductwork. Insulation shall be installed to meet the Energy Code.
5. Provide firestopping around mechanical penetrations in accordance with fire stopping requirements. System shall be capable of maintaining against flame and gases. System shall be UL listed and comply with ASTM E814.
6. Provide mechanical identification for mechanical systems. Identification shall comply with ANSI A13.1.
7. All pipe connections shall be installed to allow for freedom of movement of the piping during expansion and contraction without springing. Swing joints, expansion loops and expansion joints with proper anchors and guides shall be provided where shown.
8. Provide vibration isolation for hydronic piping, ductwork, and equipment.
9. Hydronic piping 2 1/2"  $\phi$  and under shall be Type L copper with either soldered or ProPress style fittings. Piping 3" and over shall be ASTM A 53; Schedule 10 black steel pipe with welded, flanged or grooved joints.
10. All equipment served by hydronic piping shall have isolation valves on the supply and return lines. Isolation valves shall also be provided at branch take-offs.

## Section 5. Electrical Systems

### A. Existing Conditions

#### Main Service

The building is served by a 600 amp, 480Y/277V, 3-phase, 4-wire overhead electric service fed from a pole-mounted transformer bank located across the road from the building. The CT enclosure and main service disconnect are located in the basement (identified on plans as "Parts Storage").

The condition of electrical service equipment is fair and replacement would not be necessary. The service is hot-sequence metered and the main disconnect is a heavy-duty fused disconnect switch. Note that for a new installation, Eversource NH would typically require this service to be cold-sequence metered.

#### Distribution

Distribution to branch circuits and equipment is provided through a Cutler-Hammer motor control center (MCC) with integral 600A automatic transfer switch (ATS) located in the Pump Room. The MCC serves as the primary distribution for the building,

including branch circuit panelboards. The primary electrical load in the building are the pumps associated with the water treatment process; therefore they are not discussed in detail as they would not be applicable for other building uses.

The MCC is in fair to poor condition, with heavy corrosion in some areas and missing filler plates on several sections. Additionally, equipment is being stored in close proximity and within the required front clearances.

Branch circuits in the building are served through several 120/208V, 3-phase, 4-wire panelboards. Power for these panelboards comes from a 75kVA dry-type transformer located in the room between the Parts Storage and Boiler Room in the basement.

1. Panel LA. This is a 225 amp Cutler-Hammer main circuit breaker (MCB) panelboard located in the Pump Room. It appears to serve small pumps, lighting, some mechanical equipment, and a hot water heater. It also serves Panel LB (see below). It is in good condition.
2. Panel LB. This is a 42-circuit Cutler-Hammer main-lug only (MLO) panelboard located on the first floor between the Lobby and Filter Room. It appears to serve receptacles, lighting, and equipment in the Filter Room. It is in good condition.
3. Unlabeled panel. This is a 12-circuit Siemens MLO load center located in the Pump Room, adjacent to Panel LA. It appears to serve miscellaneous receptacles and equipment, although the panel schedule was not legible. This panel has exposed bussing, which is a code violation. Blank filler plates should be installed to cover the exposed bussing.

#### Generator

The building is served by a 150kW, 480Y/277V, 3-phase, 4-wire propane generator that is located in the Pump Room. It appears that the generator provides full backup for the entire building, although since bussing information is not available on the MCC it is not possible to verify. The existing electrical riser diagram seems to support that the entire MCC, and therefore the entire building, is served by the generator.

#### Devices/Lighting

The convenience receptacles in most areas of the building are in fair condition for their age. However, the building has a relatively low number of convenience receptacles, which is typical of this type of building but would make adaptation to new use difficult.

Lighting is predominantly provided by direct overhead lighting with fluorescent bulbs. Lighting control is accomplished through manual, line voltage switching. Light fixtures appear to be in fair to poor condition, with missing bulbs, warped or missing reflectors and lenses/covers, etc. Control is accomplished through manual, line voltage switching with little in the way of auto-off (occupancy/vacancy) sensors which is required by current Energy Conservation codes.

Exterior lighting is mounted to the building; it consists of high-intensity discharge (HID) lighting tied to a time clock system. The fixtures appear to be mixed age with some

relatively old and others new and are in accordingly variable condition (good to poor). The time clock does not appear to be operating correctly, as a number of the fixtures were on during the site visit (daytime).

#### Fire Alarm

The building fire alarm system is relatively limited, and it is CES' understanding from speaking on site that the limited number of initiation devices are connected to the building security system and transmitted to the central monitoring station.

The fire alarm initiation devices in the building consist of line voltage smoke detectors (first floor office areas) and system-type heat detectors (attic).

Additionally, several areas appear to have line voltage, non-system connected smoke detectors. At a minimum, these detectors should be replaced with system-type detectors connected to the main system.

#### **B. System Modification for Base Building**

At this time, it is not anticipated that the building would require a utility service upgrade as part of a general renovation/reuse. The service size is designed for a municipal water treatment pump facility; therefore most other (office, mixed use) applications will not likely require additional capacity. However, the utility company may require an adjustment to the service entrance equipment to follow current metering requirements (see above).

#### Distribution

The following list is not intended to be exhaustive with respect to scope of work recommended for the electrical distribution system.

1. Provide filler plates for the existing unlabeled panel to provide personnel protection.
2. If the use will be other than as a water treatment facility, remove the existing MCC and provide a new 600 amp main distribution panel (MDP) and refeed the existing distribution panels.
  - a. If there is a desire to continue usage of the existing generator, provide 600 amp ATS. Otherwise, remove the existing generator and ATS.

#### Devices/Lighting

As referenced in the Existing Conditions section of this report, lighting is generally in poor condition. Lighting control is rudimentary (simple on/off switches) and does not meet current Energy Code requirements for time control, occupancy/vacancy operation, etc. Therefore, the following recommendations are listed with notes regarding intent and importance.

1. Replace fluorescent fixtures with LED fixtures.

2. Replace existing toggle switches with line voltage occupancy/vacancy sensors in smaller spaces (including, but not limited to spaces such as Offices, Lobbies, Bathrooms). This prevents lights from being left on and maximizes energy savings.
3. Replace all existing GFCI receptacles with new GFCI receptacles.

#### Fire Alarm

The recommendations for the fire alarm system are based on the limited existing system and interest of providing a life safety system via automatic fire alarm system.

1. Provide a new Fire Alarm Control Panel and communicator tied to the municipal system.
2. Provide notification appliances (horn/strobes and strobe devices) for complete coverage in all occupied spaces.
3. Provide initiation devices (pull stations) at all egress doors.
4. Provide initiation devices (smoke and/or heat detectors) in all unoccupied spaces (attic, etc.)

#### C. System Standards

The following standards shall be followed for the installation of all electrical equipment referenced within this document:

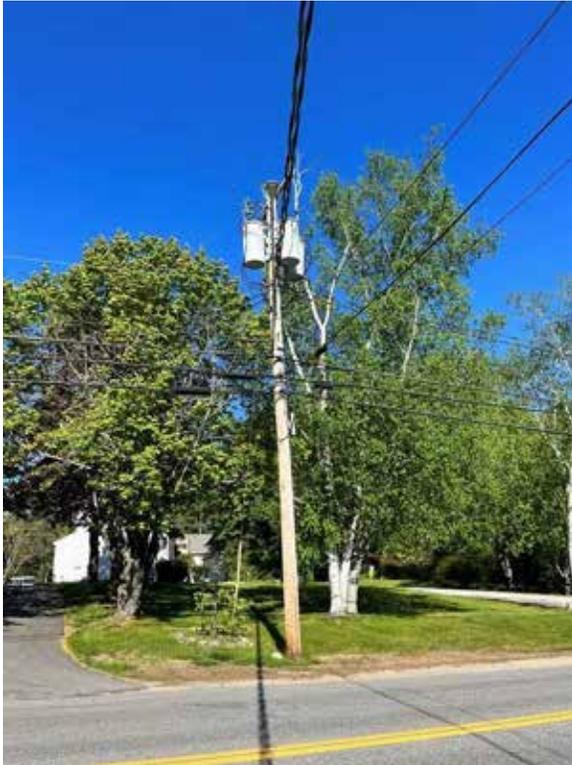
1. All conductors shall be copper.
2. Circuits shall be installed in EMT conduit or MC-cable.
3. Circuiting shall conform to the following guidelines:
  - a. Provide no more than (5) duplex receptacles on a single branch circuit.
  - b. Provide (1) 20A/1P branch circuit for each office space with (1) quadruplex receptacle and (3) duplex receptacles.
  - c. Provide (1) 20A/1P duplex receptacle mounted above sinks in each bathroom.
4. Provide circuits for all HVAC equipment as required. 120V wiring to control panels, control transformers, etc. shall be provided by the electrician; low voltage control wire shall be provided by the mechanical contractor.
5. Provide circuits for all plumbing equipment.
6. Provide circuits for fire alarm equipment as required.
7. Provide circuits for any security system devices as required.
8. Provide emergency lighting in all egress paths via self-contained wall-mounted battery units (EBU's).
9. Provide self contained, battery-powered, thermoplastic, universal mounting, LED-illuminated, low energy use exit signs.
10. Provide the following illumination levels:
  - a. 15 foot-candles – corridors, bathrooms, storage rooms, stairways, lobby spaces
  - b. 30 foot-candles – office, assembly spaces
11. Provide the following fixture types:
  - a. 2'x2' recessed or surface-mount architectural LED fixtures in areas other than lobbies

- b. Additional architectural fixtures for high-finish areas such as entry hall or as specified in Architectural documentation.
  - c. Exterior LED wall pack at all entrances.
12. Provide the following lighting control functionality/features:
- a. Dimming control for common spaces and offices.
  - b. Occupancy/vacancy sensors (selectable) shall be provided in all lit areas except in utility rooms, lobby, circulation, corridors, and other rooms exempted by Code.
13. Include the following basic materials and methods of construction:
- a. Wiring shall be THHN/THWN copper, installed in EMT conduit for general circuits.
  - b. Devices shall be specification-grade, NEMA 5-20R, etc.
  - c. Disconnect switches shall be fusible heavy-duty type, NEMA 1 or 3R as required for installed location.
  - d. Circuit breakers shall be fixed element, thermal magnetic type.
  - e. Panelboards shall have copper bussing with hinged, lockable, door-in-door trims.
  - f. Branch circuit breakers shall be bolt-on type.
  - g. All conduits, circuits, and devices shall be labeled using a label printing machine (no handwritten labeling is allowed).
  - h. Conduits below slabs shall be Schedule 40 PVC with rigid steel conduit sweeps.

The building fire alarm system will be expanded to accommodate additional proposed devices. Install in accordance with local code requirements.

1. Provide manual pull stations at the egress paths at exterior doors.
2. Provide monitor modules for sprinkler tamper/flow/pressure switches at fire protection system entrance, if a sprinkler system is added.
3. Provide selectable candela (15/30/75) horn/strobes in all occupied spaces.
4. All fire alarm system wiring shall be plenum-rated fire alarm MC cable where concealed and EMT conduit with THHN wire where exposed.

Section 6. Photos of Existing Conditions



Utility Pole and Pole Mounted Transformers



Exterior Lighting



Attic Space Lighting and Wiring



Exit Sign



Power Panel LB



Generator



Water Closet



Lavatory and Shower



**Bathroom Exhaust Fan**



**Fire Alarm Device**



**Conference Room Lighting**



**Sidewall Intake Louver and Motorized Damper**



Vertical Blow Unit Heater



Unvented Sink Piping



Mop Sink in Janitor's Closet



Laboratory Emergency Shower



Wall Mounted Thermostat



Window AC Unit



Wall Mounted Ductless Air Handling Unit



Radiator Control Valve



Wall Mounted Exhaust Fan



Gas-Fired Condensing Boiler



Hydronic Pump Piping



Hydronic Hot Water Pump



Domestic Water Backflow Device



Compressed Air Station



Horizontal Blow Unit Heater



Natural Gas Main Entrance



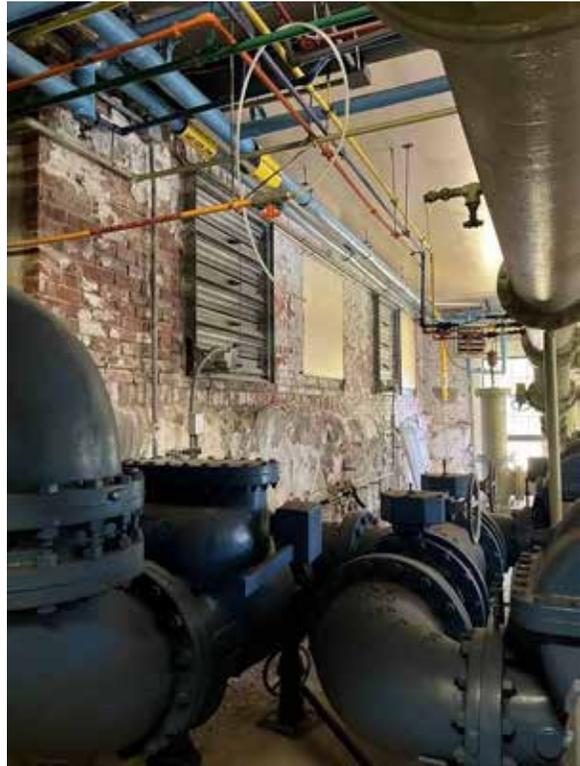
Exterior Condensing Unit



Roof Mounted Exhaust Fan



Roof Mounted Exhaust Fan



Sidewall Intake Louver and Motorized Damper



**EXISTING BUILDING CONDITIONS ASSESSMENT  
FIRE PROTECTION SYSTEMS, LIFE SAFETY & ACCESSIBILITY**

**NEWMARKET OLD WATER TREATMENT PLANT  
54 PACKERS FALL ROAD, NEWMARKET, NH**

**Prepared for:**  
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## 1.0 EXECUTIVE SUMMARY

As part of the Town of Newmarket municipal facilities master plan effort, JS Consulting Engineers (JSCE) has performed an existing building conditions assessment and code analysis of the Old Water Treatment Plant building located at 54 Packers Fall Road in Newmarket, New Hampshire. The Old Water Treatment Plant is a three-story building that is currently vacant, but previously served as a Water Treatment Plant and contains relevant equipment and support spaces.

This analysis considers existing conditions with the assumption that future use will include a change of occupancy classification that has yet to be determined. Newmarket's water treatment needs are currently being adequately handled by a newer Water Treatment Plant; therefore, that functionality is no longer required at the 54 Packers Fall Road building.

### 1.1. KEY ISSUES

The most significant fire safety, life safety and accessibility code compliance issues identified are summarized below. Further information on each of these issues can be found in the body of the report. A complete list of the observed issues/deficiencies can be found in Section 9.0.

- Accessibility is significantly lacking. Understanding that a change of occupancy classification is expected in future use of the building, associated work will require substantial accessibility-related upgrades.
- The building is not fully sprinklered. The height and construction type will likely require fire sprinkler protection to accommodate the expected future change of occupancy classification.

## 2.0 BUILDING DESCRIPTION

The existing building is three (3) stories in height<sup>1</sup> and has a footprint of approximately 5,400 square feet. The building is predominately utilized to house equipment associated with water treatment operations, but does include staff space including offices, meetings spaces, control room and laboratory as well as town storage.

The building is equipped with an automatic fire alarm/security system. It does not have a fire sprinkler system.

The purpose of this assessment is to visually examine the existing fire protection, life safety, and accessibility features provided in the building in order to determine the general overall condition of the building and to identify observable fire protection, life safety and accessibility code deficiencies. JSCE understands that the future use of the currently vacant building has not been determined; however, it is assumed that the future use will be different than water treatment operations.

A *Work Area* is defined as follows:

*That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents. Work Area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this code.*

The *Work Area* generally applies to architectural reconfigurations, not MEP systems modifications / upgrades. For example, the installation of a new HVAC system would be considered a Level 2 Alteration without the creation of a *Work Area*. The determination of a *Work Area* should be evaluated on a case-by-case basis.

Note that JSCE's scope of work does not include review of existing mechanical, electrical, plumbing, or structural systems or energy performance / efficiency. This Report is based on the site visit performed by Ted Dow, P.E. (MA) on May 18, 2023, the provided architectural drawings backgrounds, and the requirements of the applicable codes identified below.

The site visit included a visual observation of the general layout of the building. No system testing or destructive or intrusive inspections were conducted by JSCE. As the objective of this review is to determine the general condition of the

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<sup>1</sup> Three (3) stories based on Basement being considered as a story above grade plane, which is defined as any story having its finished floor surface entirely above grade plane or in which the floor surface of the floor next above is either more than 6-feet above grade plane or more than 12-feet above finished ground at any point (NHBC §202). The report maintains the nomenclature for each level shown in the plans provided (Basement, First, Second).

facility, not all rooms and spaces were inspected. Where specific deficiencies are noted, the list is in no way comprehensive and should be considered cursory in nature.

## 2.1. OUTSTANDING JURISDICTION VIOLATIONS

JSCE assumes there are no outstanding code violations on file with the Newmarket Building or Fire Departments. JSCE also assumes there are no outstanding accessibility complaints filed by occupants with the U.S. Department of Justice (ADA violations).

## 3.0 APPLICABLE CODES

As of March 2023, the state of New Hampshire adopts the following codes and standards as part of the New Hampshire State Building and Fire Codes. This includes the following:

### **Accessibility** - 2010 ADA Standards (ADAS)

ICC A117.1 as adopted and scoped by NHBC Chapter 11.

**Building** - New Hampshire State Building Code (NHBC). The NHBC is an amended version of the 2018 International Building Code.

**Electrical** - NFPA 70, National Electrical Code, 2020 Edition (NEC)

**Energy Conservation** - New Hampshire Energy Conservation Code (NHECC). The NHECC is an amended version of the 2018 International Energy Conservation Code.

**Existing Building** - New Hampshire Existing Building Code (NHEBC). The NHEBC is an amended version of the 2018 International Existing Building Code.

**Fire Safety** – Saf-FMO 300 which adopts and amends NFPA 101, The *Life Safety Code*, 2018 Edition (LSC) and NFPA 1, The *National Fire Code* 2018 Edition (NFPA 1)

**Mechanical** - New Hampshire Mechanical Code (NHMC). The NHMC is an amended version of the 2018 International Mechanical Code.

**Plumbing** - New Hampshire Plumbing Code (NHPC). The NHPC is an amended version of the 2018 International Plumbing Code.

An existing building not undergoing any new work is not required to retroactively comply with the new construction requirements of the current applicable building codes and standards. However, any new work proposed is subject to the requirements of the codes and standards listed above as scoped by the NHEBC, Saf-FMO 300 (LSC Chapter 43 and NFPA 1) and the ADAS<sup>2</sup>.

All existing buildings are required to be maintained in compliance with the existing building requirements of Saf-FMO 300 which includes the existing occupancy requirements of LSC and NFPA 1.

Existing public buildings are also subject to the Readily Removable Barriers provisions (RRB) under Title II of the ADA (28 CFR §36.304), regardless of whether new work is performed. The RRB requires public buildings to continually review the level of accessibility provided and to make incremental improvements to a building's accessibility where it is readily achievable<sup>3</sup>.

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<sup>2</sup> Should the applicable codes and standards be updated prior to the start of new work in the building; new work should be designed to those applicable codes and standards.

<sup>3</sup> The term "readily achievable" is a subjective term and is based on the ease in which accessibility upgrades can be made based on technical feasibility, "means and opportunity", cost, and the building owner's ability to pay for such improvements. This can vary significantly from building to building; therefore, should be reviewed on a case-by-case basis.

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## 4.0 CONSTRUCTION AND OCCUPANCY CLASSIFICATION

### 4.1. OCCUPANCY CLASSIFICATION

The occupancy classification of the building is primarily mixed-use Groups B, Business, Group F-2, Factory/Industrial and Groups S-1/S-2, Storage in accordance with the NHBC and Special Purpose Industrial, Existing Business and Storage occupancies in accordance with the LSC.

**Table 1. Occupancy Classifications**

Occupancy Classification	Uses
Group F-2, Factory/Industrial, Special Purpose Industrial	Water treatment plant operational areas
Group B, Existing Business	Offices, control room, meeting room, laboratory
Group S-1/S-2, Storage	Storage areas on 2 <sup>nd</sup> Floor

### 4.2. EXISTING BUILDING CONSTRUCTION

The interior walls and floor/ceiling assemblies appeared to be built of noncombustible block or wood construction, dependent on building section. The exterior walls are predominately noncombustible; however, it is understood from correspondence with Placework that portions include an exterior brick façade on top on top of wood stud exterior walls. Therefore, the existing building most closely resembles a construction type of VB in accordance with the NHBC and V (000) in accordance with the LSC.

**Table 2. Allowable Height & Area - Unsprinklered Type VB Construction w/o Frontage Increase**

Use Classification	NHBC <sup>4</sup>	NHEBC	Existing LSC <sup>5</sup>	New LSC <sup>4</sup>
<b>Group B</b>	2-stories / 40-feet 9,000 square feet per floor, 27,000 gross square feet total	The height and area of an existing building undergoing a Level 1, Level 2 or Level 3 Alteration without a Change in Use (to a higher hazard category) or Addition does not need to meet the height and area criteria prescribed for New Construction <sup>6</sup> .	Not Restricted	Not Restricted
<b>Group F-2, Special Purpose Industrial</b>	2-stories / 40-feet 13,000 square feet per floor, 39,000 gross square feet total		Not Restricted	Not Restricted
<b>Groups S-1/S-2, Storage</b>	1-story / 40-feet 9,000 square feet per floor, 27,000 gross square feet total		Not Restricted	Not Restricted

<sup>4</sup> Per NHBC Table 504.3, Table 504.4, Table 506.2, and §506.2.3 - Only applicable for new construction or where there is a Change in Use to a higher hazard category or an addition per the NHEBC.

<sup>5</sup> LSC defines the height of a building for an occupancy when determining allowable construction type to be measured from the level of exit discharge to the highest story containing that occupancy (LSC §4.6.3). Given that assembly occupancy only exists on the First Floor, the building is considered 1-story assembly building, 3-story business building.

<sup>6</sup> NHEBC Chapters 7, 8, and 9 and Sections 1012.5 and 1102.0. Existing buildings undergoing a change in use to a higher hazard category based on NHEBC Table 1012.5 or undergoing an addition are required to meet the height and area requirements for new construction per NHBC Chapter 5.

Note: The table above is based on unsprinklered buildings. If a sprinkler system were to be provided throughout the building, the allowable height for each occupancy classification would increase by 1 story and 20 feet. Additionally, the allowable area per floor and total building area would triple.

**Although the presence of Groups S-1/S-2 occupancy on the Second and Third Stories(1<sup>st</sup> and 2<sup>nd</sup> Floor) does not comply with the current requirements of the NHBC, the LSC does not limit construction type for storage occupancies, and the NHEBC permits existing nonconforming buildings to continue to be occupied for alteration work without a change of occupancy classification.**

**Any future use, assuming change of occupancy classification, will require evaluation of the requirements of NHEBC to determine if mitigation of the construction type nonconformance is required. Installation of an automatic sprinkler system will resolve this for most occupancies.**

## 5.0 FIRE PROTECTION SYSTEMS

### 5.1. FIRE SPRINKLER SYSTEM

The building is currently not provided with a fire sprinkler system.

**Future use of the building is expected to include a change of occupancy classification. Depending on specific occupancy and location within the building, fire sprinkler protection may be required.**

### 5.2. FIRE EXTINGUISHERS

The building is equipped with fire extinguishers conspicuously located within the corridors. The fire extinguishers observed appear to be inspected regularly based on the inspection tags provided. Portable fire extinguishers are required in existing business occupancies (LSC §39.3.5). The LSC does not require portable fire extinguishers in industrial or storage occupancies.

**JSCE noted that there were multiple fire extinguisher mounting locations where extinguishers were not provided. Extinguishers should be returned to these areas.**

### 5.3. FIRE ALARM & DETECTION SYSTEM

The building is equipped with an existing security system that includes fire detection devices, including smoke detectors and heat detectors. The security panel includes an annunciator located in Lobby 206 and a panel located in the connector between Filter Room 110 and Lobby 206. No manual pull stations were identified. A single horn/strobe device was identified in Lobby 206, above the annunciator.

The system should be maintained in accordance with LSC §9.6.

**The system does not meet the criteria for a manual fire alarm system per NHBC or LSC. In the event of a change of occupancy classification in the future, a fire alarm system complying with NHBC, LSC §9.6, and NFPA 72 must be installed if required by the intended occupancy.**

## 6.0 MEANS OF EGRESS

The current means of egress from each level is as follows:

- Basement
  - Direct access to exterior at grade (water side) from the Pump Room
  - Access to exterior at grade (street side) via the stair enclosure
  - Exit access to First Level via unenclosed stair in Chemical Storage & Feed Room
- First Level
  - Access to exterior at grade (street side) via the stair enclosure

- Access to exterior at grade (street side) via the Loading Dock
- Second Level
  - Access to exterior at grade (street side) via the stair enclosure

In accordance with LSC §7.4.1.1, each floor of the building is required to be served by a minimum of two (2) exits except where specifically permitted by the appropriate occupancy chapter. Specific to the Storage occupancy on the Second Level, a single means of egress is provided from a story containing ordinary hazard storage, provided the common path of travel (50-feet in unsprinklered storage occupancies) is not exceeded (LSC §42.2.4.1, §42.2.5).

**The provided exit arrangement is generally compliant with the requirements above, as the egress paths from the Basement and First Levels are relatively remote and appear sufficiently sized to accommodate the small occupant load of the building. Based on a 46” stair width at the stair enclosure, each level has an exit capacity for 156 people plus that provided by other egress paths (on First Level and Basement). The maximum expected occupant load on any level is assumed to be at the First Level, calculated to be 45-people.**

**Future use of the building must consider available egress paths and confirm that number, capacity and arrangement are in accordance with the applicable provisions of NHEBC and LSC.**

Refer to Section 9.0 of this Report which discusses additional issues identified related to building exits and means of egress.

#### **6.1. ACCESSIBLE MEANS OF EGRESS**

In accordance with LSC §7.5.4.1 and NHBC §1009.1 Ex. 1 accessible means of egress are not required to be provided in an existing building. This includes existing buildings undergoing a renovation.

No work is required to provide accessible means of egress unless an addition is constructed. If an addition is constructed, the newly constructed areas of the building are required to be served by accessible means of egress in accordance with NHBC §1009.0 and LSC §7.5.4.

#### **7.0 LIFE SAFETY SYSTEMS**

Illuminated exit signs with a secondary power source are required at each exit, throughout the corridors, and in all rooms and spaces requiring two (2) means of egress so that an exit sign is visible within 100-feet along the egress path in an existing building (LSC §7.10). Similarly, all existing buildings are required to have both normal and emergency means of egress lighting along all means of egress including corridors, exit stair enclosures, points of exit discharge and the exterior path of travel from the exit discharge to the public way (LSC §7.10).

**Exit signs are located in several areas throughout the building; however, the signs were not lit at the time of survey. Standalone emergency lighting units were not identified. The building is equipped with a propane fueled generator, which is assumed to pick up normal lighting loads to provide emergency lighting.**

**Any projects that alter the layout and/or occupancy classification of the building are required to comply with the new construction emergency lighting and exit signage requirements of the NHBC.**

#### **8.0 ACCESSIBILITY**

The original construction of the building area pre-dates the ADA Standards (circa 1992). However, any new work or renovations performed since the early 1990's in the building should have complied with the applicable state and federal accessibility standards at the time of design and construction. The facility, as previously occupied, is interpreted to be comprised of employee work areas. All spaces outside of the office/conference/laboratory areas on the First Floor are considered as machinery and/or limited access spaces, not required to be located on an accessible route.

Per 28 CFR §36.304 under Title II of the ADA, the accessibility features of the building should be on a program to continually improve the level of accessibility in the building to the extent such work is “readily achievable”. As the building is

not currently occupied, JSCE recommends that future building plans be developed and a comprehensive accessibility assessment of the building be conducted to inform upgrades required to be included in the rehabilitation project.

**There is a small parking lot at the building, which does not contain any accessible parking spaces. An exterior lift is provided from the parking lot level to the First Level landing of the stair enclosure. Accessible routes are not provided to the Basement or Second Level. Refer to Section 9.0 of this Report for a summary of additional accessibility issues identified.**

## 9.0 FINDINGS

Based on the site visit and information and data provided regarding the building by Placework, the following issues were identified. These represent issues that range from non-compliance with the existing building requirements of the LSC (Saf-FMO 300), which should be addressed as part of on-going building maintenance, to issues that do not comply with the new construction requirements of the LSC, NHBC or NHEBC and would need to be (or are recommended to be) addressed as part of future work in the building.

With regards to accessibility, the issues identified are not in compliance with the requirements of the ADA Standards (ADAS), NHBC Chapter 11, and / or ICC A117.1. Where issues identified are readily achievable to address (without significant cost or renovation); under the ADA Readily Removable Barriers Act (RRB) these issues should be addressed regardless of new work proposed for the building. Where a design solution is not readily achievable, changes to an operational procedure or the use of signage are often deemed acceptable alternatives. These issues should be reviewed case-by-case.

The recommendations provided are based on the objective of providing the minimum levels of required compliance with the State Building and Fire Codes, ICC A117.1 and the ADAS.

The “Applies to Existing” column on the right-hand side of the table is intended to differentiate between deficiencies that are required to be addressed regardless of any work conducted in the building (i.e., required by Saf-FMO 300) and those that are not specifically triggered by the applicable codes unless work is conducted. It should be noted that even if a deficiency is not specifically required to be remedied by the applicable codes in the absence of project work, the local Authority Having Jurisdiction (AHJ) always has the authority to require an issue be addressed if they feel it poses a life safety hazard.

Item	Location	Findings	Code Ref.	Applies to Existing
•	Stair Tower	There is storage located within the stair enclosure. The storage should be relocated and the stair enclosure should be maintained clear, utilized only for ingress/egress from the building.	LSC §7.1.3.2.3,	Yes
•	Stair Tower	Handrails are provided on the outside only and are not equipped with extensions at the end points.	ADAS §505.10	Yes <sup>8</sup>
•	Multiple Locations	Exit signage was not lit at the time of the survey. Exit signage must be lit and signs should be repaired/replaced as necessary to provide	LSC §7.10.5.2.1	Yes
•	Multiple Locations	Several areas (Pretreatment Room, Pipe Gallery, Chemical Storage and Feed Room, Attic Storage, etc.) have changes in elevation greater than permitted without a stair or ramp. Most are specific to accommodating equipment and assumed to not be normally occupied. Future change of occupancy will require consideration of how these spaces will be accessed if they are to be occupied.	NHBC §1003.5	No

Item	Location	Findings	Code Ref.	Applies to Existing
•	All Levels	The current arrangement of the space results in all three (3) stories being connected via unprotected openings. The First and Second Levels are connected via a chute between the PAC Feed Room (First) and PAC Storage Room (Second). The Basement and First Floor are connected via the Pretreatment Room and Chemical Storage & Feed space. The building is not equipped with a smoke control system nor fire sprinklers. The vertical opening should be addressed to limit the number of stories connected to two. Protection of the penetration of the PAC equipment is likely the most feasible option.	LSC §40.3.1, §39.3.1.	Yes
•	Basement Level Chemical Storage & Feed Room and adjacent areas	This portion of the Basement is served by a single means of egress via an unenclosed exit access stair. The path of travel exceeds the maximum allowable common path of travel distance of 50-feet permitted in unsprinklered industrial facilities. Upon reestablishing occupancy of the building, the egress from this area will need to be addressed.	LSC §8.6.5, §40.3.1.	Yes
•	Level 2 Attic	Storage is located in the attic space above the office/laboratory portion of the First Level. The door to access this area has a 12-inch sill and the opening was 58-inches tall. Doors must have level landings on both sides that vary by not more than ½-inch with thresholds limited to ½-inch maximum. Door headroom must be not less than 80-inches. If the attic is continued to be utilized for storage, the door should be replaced.	LSC §7.2.1.1.1, §7.2.13	Yes
•	Basement, First Level industrial areas, Second Level	The facility is no longer serving as an active water treatment plant; however, chemical storage and related equipment remain at the facility. It is suggested that hazardous materials no longer required to maintain the building in its vacant condition be removed or the materials be inventoried and confirmed to be managed as applicable, based on the hazard.	NFPA 1 §4.1.4.2.4	Yes

Item	Location	Findings	Code Ref.	Applies to Existing
•	Fire Alarm - Throughout	<p>The building is equipped with smoke detection in various locations and heat detection in the attic space on the Second Level. A single horn/strobe is located in the Lobby of the First Level. It appears that the fire alarm devices are connected to the security system that includes a Bosch annunciator and Radionics Digital Alarm Communicator Transmitter panel.</p> <p>The current fire alarm related equipment appears to be a combination security &amp; fire detection panel and does not provide complete coverage of the building, particularly with respect to notification (only a single notification appliance was observed). Depending on the future occupancy, a fire alarm system will likely be required.</p> <p>It is not clear if the existing system panel is appropriately listed for future use as a fire alarm panel and/or if it is expandable to allow for additional devices needed to accomplish full fire alarm coverage throughout. It is recommended that a new fire alarm system be assumed necessary in planning for future change of occupancy classification.</p>	NHBC §907.1.	No
•	Accessible Route – Throughout	<p>There are no interior accessible routes between levels. Additionally, there are several level changes within levels that do not include ramps. Depending on future occupancy and location of primary function areas, accessible routes throughout the building may be required.</p>	ADAS §202.4, §206.2.3	Yes <sup>8</sup>
•	Accessible Parking	<p>There are no accessible parking spaces provided. Accessible parking must be provided upon the building being reoccupied.</p>	ADAS §502.3	Yes <sup>7</sup>
•	Exterior Lift	<p>An exterior lift is provided adjacent to the entry door to the Stair Tower accessed from the parking lot. It is unclear if the lift is provided for accessibility or operational reasons. The lift was blocked and not able to be operated. If the lift is provided as part of an accessible entrance and route it must be conformed to comply with ASME A18.1 and meet the provisions of ADAS §410</p>	ADAS §410.1	Yes <sup>5</sup>

<sup>7</sup> Observed accessibility deficiencies are required to be addressed **where readily achievable** per the RRB provisions of ADAS.

Item	Location	Findings	Code Ref.	Applies to Existing
•	First Level Bathroom	<p>The bathroom provided on the First Level was not observed to be fully accessible as summarized below:</p> <ul style="list-style-type: none"> <li>• The modular shower is not accessible and in the clear floor space of the sink and door maneuvering clearance.</li> <li>• No pipe guards are provided on the under-sink piping</li> <li>• The clear floor space between the centerline of the toilet and the sink was less than 42-inches, encroaching upon the toilet 60-inch clear width.</li> <li>• The rear grab bar was 42-inches in length and the side grab bar 36-inches in length. The side grab bar must be a minimum of 42-inches in length.</li> <li>• The mirror was mounted such that the bottom edge is greater than 40-inches above finished floor.</li> <li>• No visible notification is provided.</li> <li>• Without a major reconfiguration to this bathroom it cannot be made fully compliant with a shower. It is recommended that all modifications that can be made to improve accessibility should be provided and future modifications include fully accessible toilet rooms.</li> </ul>	ADAS §603.3, §604.3, §604.5	Yes <sup>5</sup>

If there are any questions or concerns, please contact us at 603-327-8650 or via email at [tdow@jsfirecode.com](mailto:tdow@jsfirecode.com).

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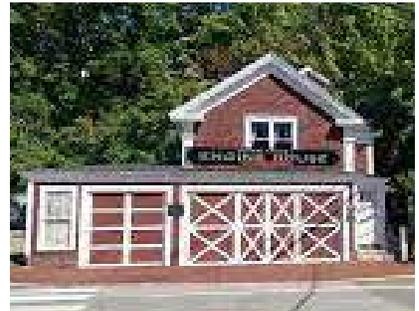


## FACILITY CONDITION ASSESSMENT

# Other Facilities

Newmarket Community Center  
Sunrise-Sunset Center  
Beech Street Community Center  
Public Library  
Historic Fire House  
Department of Public Works / Fire  
Department

# Other Facilities



The following represent the results of a brief summary assessment of the following sites:

- Newmarket Community Center
- Sunrise-Sunset Center
- Beech Street Community Center
- Public Library
- Historic Fire House
- Department of Public Works / Fire Department

This summary is the result of a brief site visit to each property by Placework and CES Engineering, to develop a basic understanding of each, and identify any high-level observations or 'red-flag' issues observed. To enable future redevelopment of each property a more detailed assessment should be undertaken, to include technical disciplines including structural, civil, life-safety, mechanical, electrical, plumbing, and fire protection.

Additional photographs for each facility can be found in the Appendix to this report.



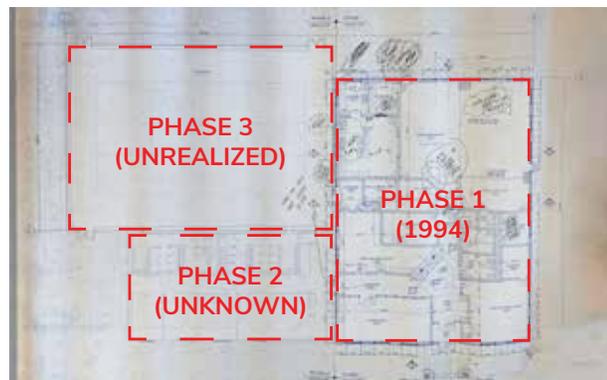
## Community Center

The Newmarket Community Center is a 1-story, ~10,000 GSF building completed around 1994 by H.L. Turner Group architecture and engineering. The facility closely resembles the Police Station in character and appearance, as the two facilities were completed by the same architect at approximately the same time. The Community Center was originally designed as a three-phase project; the first two phases were completed and are still in existence, while the third phase - an indoor gym - was never realized. An outdoor basketball court has since been constructed in the area of the proposed gym.

The Community Center is the primary indoor public recreation facility for the Town, including a multi-purpose room, children's playroom, dance room, flexible classroom spaces, staff/administrative offices, kitchen, and support spaces. Currently, recreation staff use the attic areas of the building for storage – this area is accessed by a narrow/steep stairway and is not conducive to staff access. Placework understands the land upon which the building sits is currently owned by the Newmarket Housing Authority, which could restrict development potential. In conversation with the Town Manager and Recreation Director, there may be opportunity to negotiate an agreement for future development, but the details of such an agreement are unclear. Parking is another consideration – at peak times, the parking lot is full and visitors must park along Terrace Drive.

Generally, the Community Center Facility appears to be serving the function for which it was designed. Similar to the Police Department, finishes, lighting, and furnishings are largely original and dated, however generally functional. There are issues with water intrusion along the foundation perimeter; during the site assessment it appeared that roof drainage may be collecting at the base of the wall and backflowing toward the building. Recommend diverting roof drainage to drain away from the building.

In conversation with the Recreation Director, there are a number of programmatic issues that must be addressed in order to adequately plan for future use. These are further discussed in the Program section of this report, however in general Placework recommends that a comprehensive Recreation needs study be undertaken to guide the evolution of the department.



PLAN SHOWING ORIGINAL PROPOSED PROJECT PHASING



## Sunrise-Sunset Center

The Sunrise-Sunset Center is a 1-story wood framed building, similar in character and appearance to the Community Center and Police Department. The building was initially an ambulance facility for the Town, and has since been reconfigured and expanded to its current use as a Senior Activity Center.

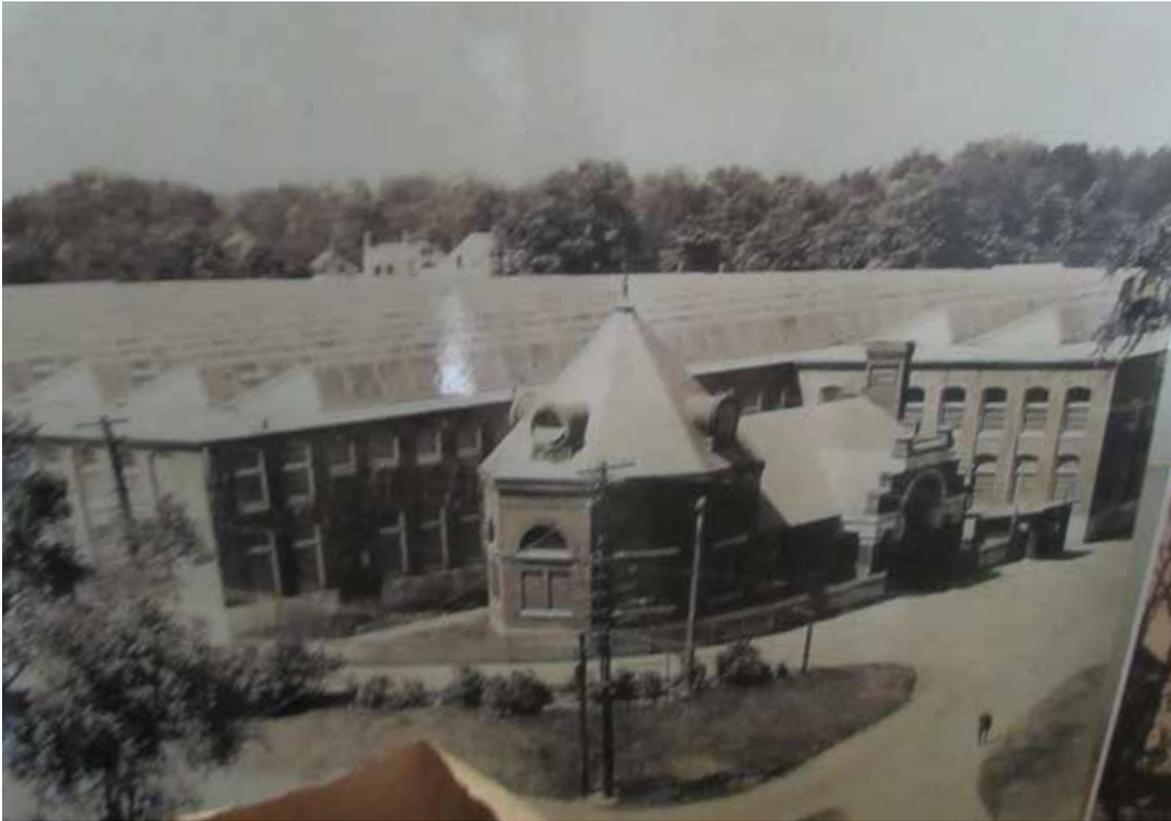
The building sits on the same parcel as the Police Station, located along the uphill side of the site. An approximately 5' high retaining wall separates the two buildings.



## Beech Street Community Center

Located on a 1.25 acre site along Beech Street Extension, this building houses approximately 1,900 square feet of space currently used by the Recreation Department for dance/wellness activities as well as private functions on a rental basis. The building includes a kitchen area, large function room, and support spaces.

Generally, the site for Beech Street Community Center contains a great deal of potential for redevelopment, given its proximity to Town Hall, downtown Newmarket, and picturesque location overlooking a train line and wetland area. However, low lying portions of the site (outside the building area) lie within a designated FEMA flood hazard area.



## Public Library

The Newmarket Library is a historic brick structure housing approximately 11,700 square feet and featuring a unique octagonal tower structure as a focal point. The building is prominently located along Main / Elm Streets in downtown Newmarket and was a part of the former mill complex in town. The existing Library underwent an addition and renovation project circa 1992, roughly doubling its size.

In its current condition and based on discussion with Library staff, the existing building is running out of collections storage space. In most of the adult collections areas, existing shelving is approximately 7'-6" high, limiting accessibility to visitors with mobility challenges. Shelving is largely full and there is limited floor area available for expansion in the existing footprint.

The Library has two large spaces with potential to be creatively repurposed:

- The addition basement offers approximately 3,000 gross square feet of space with generous ceiling height and clear floor spans. The space has been used for public events (book sales) in the past, but this practice has since been prohibited by local building authorities because there is only one means of egress. The space is served by a lift, however this is intended for moving storage items only - not for passenger use.
- The octagonal tower area features an unfinished attic space which offers approximately 950 gross square feet of space. The space is currently served by one means of egress which is not compliant with modern codes, and is not accessible; as a result the space is currently not in use. It is volumetrically appealing, and could have a potential use, though extensive code, structural, and architectural review and likely significant alterations would be required to enable compliant use of this space.

As the description above is based on a cursory walk through and interview with Library staff, Placework recommends undertaking a targeted and comprehensive Library Planning Study prior to undertaking any significant Library renovation.



## Historic Fire House

The historic fire house was originally built in 1853 to house the new 'hand-tub' fire engine know as "Tiger No. 1". The building continued to serve as an active fire house until the late

Today, the building still houses the antique fire engine and is used as a representational historic space. In the early 21st century (circa 2001 - 2005) the building underwent a significant historic restoration, including the reconstruction of the original hose tower in the rear of the building. This effort was partially funded through the NH Land Community Heritage Investment Program (L-CHIP) grant, among other sources.

In its current state, the building is a contributing resource to the historic character of downtown Newmarket. It lies within the "Newmarket Industrial and Commercial Historic District" as listed on the National Register of Historic Places. Placework recommends the property be maintained as a historic resource. The National Park Service provides guidance on the treatment of Historic Properties, and the Town may consider several steps to document the history of this building, including voluntary under the Historic American Buildings Survey (HABS) or the development of a Historic Structures Report (HSR) to formally document the history of the building.

Outside the items noted above, the existing building appears to be underutilized, and has potential to be used as a vehicle for teaching / public engagement on the history of the building and the Town as a whole.



## **Department of Public Works / Fire Department**

The current Department of Public Works / Fire Department building is located on Young's Lane and hosts both Department in two sides of the same building. The original building was constructed in 1972 with a substantial addition built in 2004 to construct the new Fire Department. The facility is a metal framed building housing approximately 56,000 square feet of space, including a space on Level 2 of the Fire Department building which is currently being fit-out to house full time firefighters as part of an ongoing transition to a full-time fire department.

According to the Director of Public Works, Rick Malasky, the existing building is performing well for its intended function. Like many other Town facilities, DPW/Fire underwent an energy improvement campaign in 2019 to upgrade building systems. There appears to be a large solar array on the roof of the building. It is notable that the site is approximately 10 acres, and there appears to be development potential for future expansion, however there is an existing cell tower owned by AT&T on the property. Further study to determine what easements (if any) exist which may hamper site development.

As noted elsewhere in this report, the site is in close proximity to the Town Water Treatment Facility, and Placework recommends any site development to be planned jointly between the two Departments.

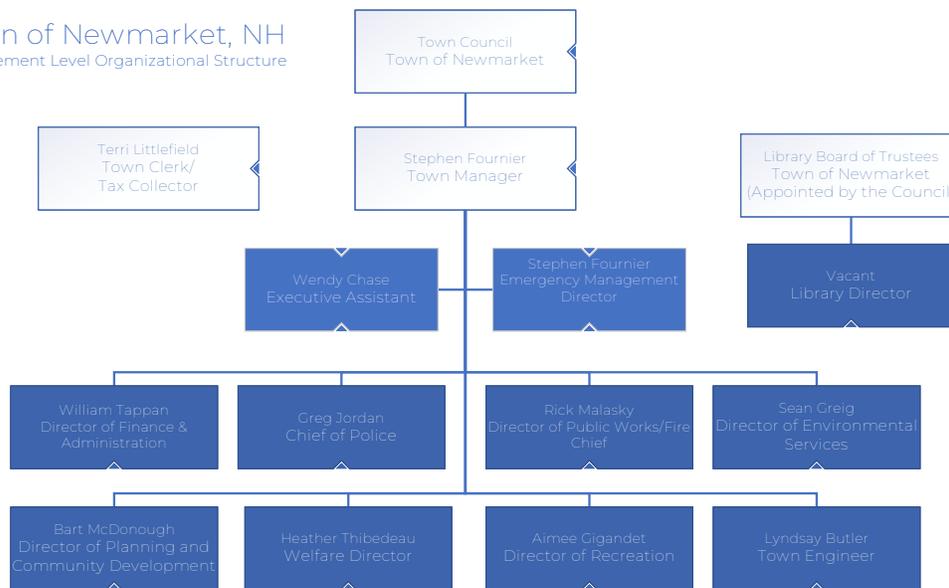


# PROGRAM & SPACE NEEDS ASSESSMENT

# Program & Space Needs Assessment

The following is a summary of the current and projected future program and departmental space needs for the Town of Newmarket. For the purposes of this study, future needs consider space needs to approximately 2040, and are estimated based upon discussion with Departmental Representatives. The result of the Programming and Space Needs Assessment is a tabular space program identifying current and projected space needs. Additionally, Placework developed a number of qualitative observations through discussion with representatives from Town Departments. Together, these findings will inform recommendations related to space allocation, facility renovation/expansion, and other long-range planning goals.

Town of Newmarket, NH  
Management Level Organizational Structure



TOWN ORGANIZATIONAL CHART

To begin the programming effort, the team distributed a questionnaire to each Town Department, collected responses, and developed an initial tabular Departmental space program based upon the information received. The team then conducted interviews in April 2023 with representatives from each department to review, confirm, and expand on items noted in the questionnaire response. These documents can be found appended to this report. Departments interviewed:

- Police Department
- Department of Public Works
- Fire Department
- Environmental Services
- Recreation
- School Administration
- Finance & Administration
- Planning & Community Development
- Town Clerk
- Media Services
- Library
- Town Manager

The Welfare Department was not able to meet, however that group is included based on Placework’s understanding from discussion with the Town Manager. Meeting notes, final tabular programs by Department, and other supporting documentation have been appended to this report.

After the meeting with each Department, the working tabular space program was updated and Departmental programs combined to produce a comprehensive Program Summary. Departments were grouped according to those related to Town Hall vs. other departments. The current and projected need for each department was also compared to the existing available space for each.

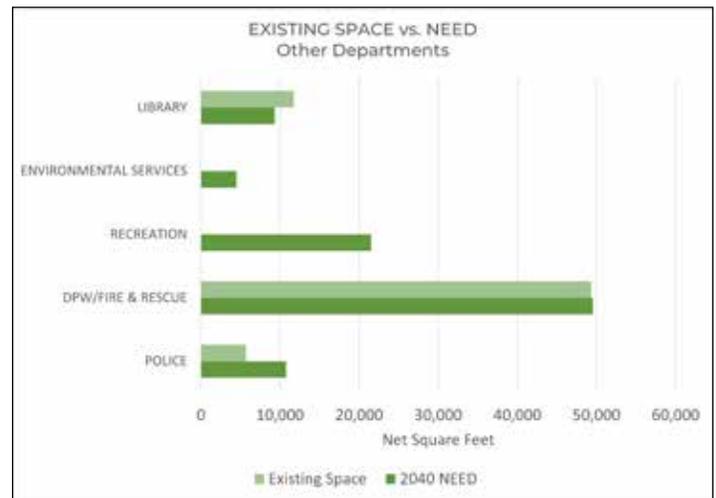
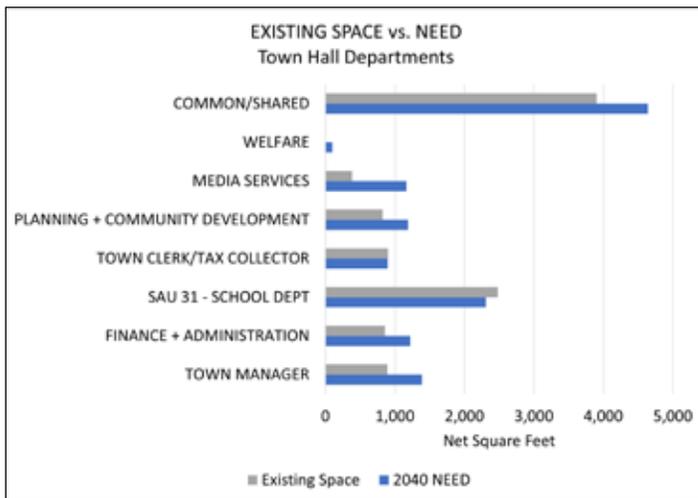
The results of the analysis found that several Town Departments are expecting either a current or projected shortage of space. Notable examples include Police, Town Manager, and Media Services.

Space Designation		Space Need		Existing Space
ID	Department	2023 NEED	2040 NEED	
<b>OTHER DEPARTMENTS (Not at Town Hall)</b>				
1	POLICE	8,653	10,767	5,669
2	DPW/FIRE & RESCUE	49,339	49,563	49,321
	<b>SUBTOTAL DPW/PUBLIC SAFETY</b>	<b>57,992</b>	<b>60,330</b>	<b>54,990</b>
3	RECREATION	21,512	21,512	UNKNOWN
4	ENVIRONMENTAL SERVICES	4,319	4,504	UNKNOWN
5	LIBRARY	8,665	9,297	11,705
<b>TOWN HALL</b>				
DEPARTMENTAL SPACE				
6	TOWN MANAGER	810	1,391	893
7	FINANCE + ADMINISTRATION	1,220	1,220	856
8	SAU 31 - SCHOOL DEPT	2,244	2,310	2,481
9	TOWN CLERK/TAX COLLECTOR	894	894	899
10	PLANNING + COMMUNITY DEVELOPMENT	924	1,188	821
11	MEDIA SERVICES	621	1,166	382
12	WELFARE	0	100	0
	<b>SUBTOTAL Departmental</b>	<b>6,713</b>	<b>8,269</b>	<b>6,332</b>
NON-DEPARTMENTAL SPACE				
13	COMMON/SHARED	4,640	4,640	3,904
	<b>SUBTOTAL Non-Departmental</b>	<b>4,640</b>	<b>4,640</b>	<b>3,904</b>
<b>TOWN HALL - SUBTOTAL NET ASSIGNABLE</b>		<b>11,353</b>	<b>12,909</b>	<b>10,236</b>
Building Grossing Factor		30%	30%	62%
<b>TOWN HALL - TOTAL GROSS SQUARE FOOTAGE</b>		<b>14,759</b>	<b>16,782</b>	<b>16,494</b>

TABULAR PROGRAM - EXECUTIVE SUMMARY

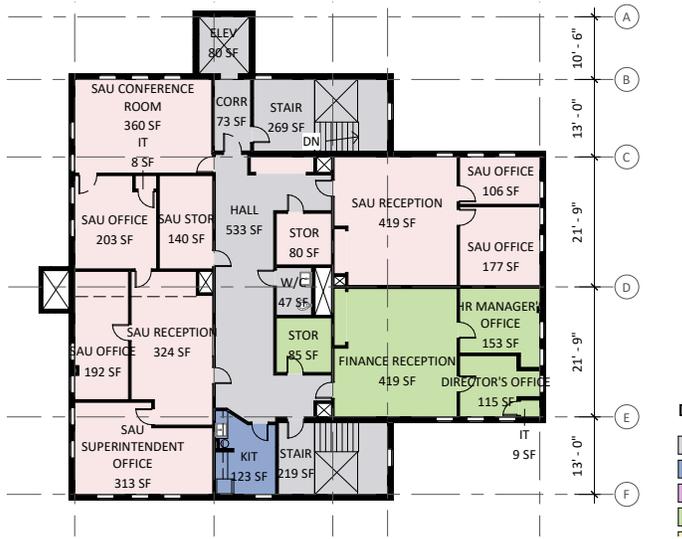
Existing space comparisons for the Recreation and Environmental Services were not able to be made due to lack of available existing conditions documentation.

Placework also evaluated program needs for current Town Hall Departments in comparison to the existing space available in the building. The result is that while the total space available at Town Hall is sufficient, there is a shortfall of usable (net assignable) space at present and in the future. This points to the fact that the existing building is relatively inefficient as a suited office building, and suggests opportunity for reorganization / expansion.

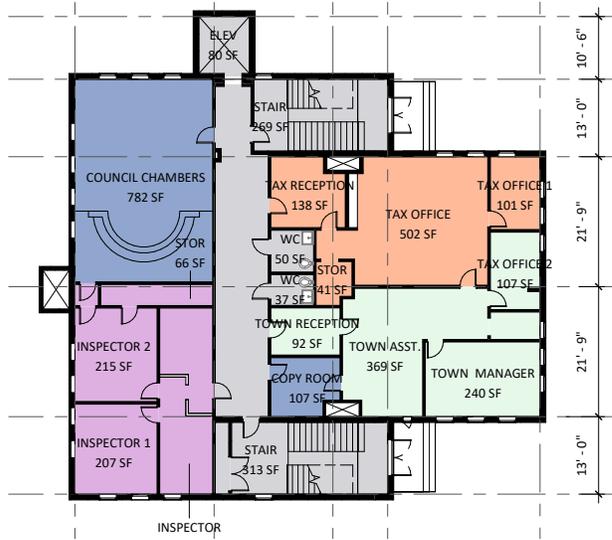


In addition to the tabular program development, Placework developed a number of key observations related to program and space use, many of which correlate to areas of potential opportunity or potential efficiencies. These findings are qualitative in nature, and include:

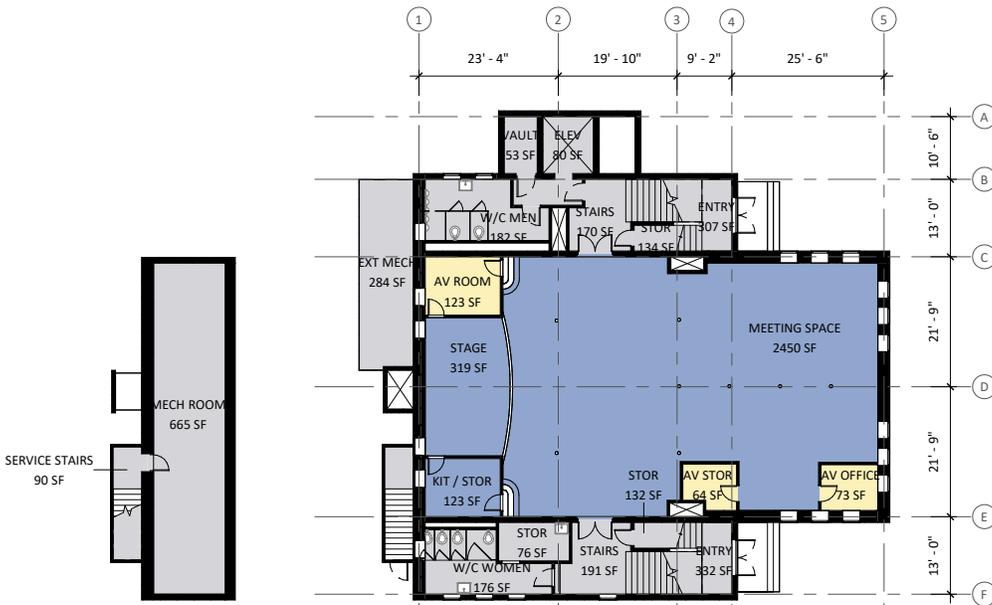
- Police require additional space, some existing space is not functional
- The existing Police Station has several constraints due to its site and construction
- Public Works and Fire Department building are slightly overbuilt, with room to expand
- Recreation is currently spread between three facilities. Portions could be consolidated, while other functions seem to require expansion. Consolidation of storage is a priority.
- Storage was a common issue for many departments (lack of space, lack of quality space, lack of proximity)
- A number of Town Hall departments requested dedicated support space (i.e. meeting rooms, storage) while this could be considered 'shared' space for efficiency. This is reflected in the enclosed tabular program.
- Several departments do not require space in Town Hall and could potentially be relocated:
  - Media Services
  - Community Development
- There is redundancy between Town Hall Council Chambers and Lower Level Auditorium
- Several Departments including Library and Recreation are candidates for additional specialized study.



LEVEL 3 PLAN



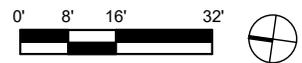
LEVEL 2 PLAN



LEVEL 1 PLAN

**DEPARTMENT LEGEND**

- CIRCULATION / SERVICES
- COMMON / SHARED
- COMMUNITY DEVELOPMENT
- FINANCE / ADMINISTRATION
- INFORMATION TECHNOLOGY
- SCHOOL ADMINISTRATION
- TOWN CLERK
- TOWN MANAGER
- WELFARE



## Departmental Summaries

### *POLICE DEPARTMENT*

Newmarket Police Department is led by Police Chief Gregory Jordan. The Department includes dispatch, patrol, administrative, and investigative functions. Chief Jordan cited several key issues, including:

- Training room: the current training room is undersized for the current Department and larger Public gatherings. When necessary, these functions must be held in the Fire Department multi-purpose room. Additionally, the current training room does not meet fire code or accessibility requirements (discussed in the Facility Condition Assessment portion of this report).
- Evidence Storage spaces do not meet current Police industry standards. Evidence is stored under the eaves of the existing building, without facilities like refrigeration, freezers which are required to maintain legal viability of evidence.
- The existing space is not optimized for interviewing victims and witnesses: currently, these interviews sometimes happen in the booking area, where victim/witness groups can mix with detainees. This can place undue stress on these groups.

Additionally, the results of the space needs assessment shows that the department requires more space than available in the current Police Station.

### *DEPARTMENT OF PUBLIC WORKS / FIRE DEPARTMENT*

These Departments share two sides of the same facility, and are both led by Rick Malasky. Generally, both have adequate space in both current and future conditions. Additionally, the existing facility has potential for expansion as it is on a large lot with ample surrounding land.

The Fire Department is currently undergoing a transition from primarily volunteer / per diem staff to increased full-time presence. This change is currently underway, with the upper level of the existing Fire Station currently being fit-out to provide additional living space for full-time crew. The enclosed space program reflects the increased full-time staff.

### *ENVIRONMENTAL SERVICES*

This Department is located in multiple newer buildings along Young's Lane, near the Fire/DPW facility. Generally, these buildings are relatively new and the Department is not anticipated to require significant additional space, however there are issues related to storage. A new facility is in design to alleviate storage issues and allow space for staff to work.

Placework could not draw a program comparison of stated space needs vs. existing square footage as the existing conditions plans were not available for review. However generally speaking, Director Sean Greig noted that the Department is not in need of significant additional space, especially after the new storage facility is completed.

Due to the close relationship of the Environmental Services and DPW property, Placework recommends evaluating development of this property holistically to ensure that any development to the property is undertaken in a considered manner. It appears that the Departments may be able to share resources to make efficient use of available space.

## RECREATION

The Recreation Department is a popular public-facing Town Department with a wide array of program offerings for all ages. The department is physically housed in three separate Town Facilities: Newmarket Community Center, Sunrise-Sunset Center, and Beech Street Community Center. The bulk of activity occurs at the Community Center, senior oriented programming takes place at Sunrise-Sunset, and the Beech Street facility is used as needed as a flex space, as well as rented out to residents for private functions. During programming interviews, Recreation Director Aimee Gigandet and staff explained key programming challenges:

Generally, storage is a significant issue for the department, since many activities require large pieces of equipment, and events require space for prop material to be stored and 'staged' leading up to each event. As a result, spaces which were originally dedicated for staff or collaborative purposes tend to be used as storage/staging overflow areas, which results in insufficient space for staff functions. Long term storage happens in several locations, including on-site sheds/outbuildings, a portable storage container, building attics, dedicated storage rooms, as well as spaces not dedicated to storage as described above.

Flexibility in programming is sometimes a challenge when a single space needs to be set up for disparate activities. Aimee noted that having multiple dedicated spaces for several different activity types is important. Sometimes, programming from the Senior Center needs to occur at the Community Center due to room changeover limitations. According to Recreation staff, this is not ideal, as senior and youth/adult activities generally separate functions. Mixing of these groups is generally considered undesirable.

## SCHOOL ADMINISTRATION

The School Administrative Unit 31 (SAU 31) offices are housed on the top floor of Town Hall, with the Department owning a 25% stake in the building as part of a condominium agreement with the Town. Generally, the quantity of space available to the Department is adequate; there are several generous offices and a medium sized conference room dedicated to the SAU. However there are a number of concerns with the quality of space which could be addressed during planning phases:

- Security is a concern for many Department staff. The ability to have multiple points of escape in an active intruder situation is desired, but not currently provided. The existing space is high in the building, with a single primary suite entry.
- Privacy is another concern: Department staff frequently work with confidential student/personnel records, and the current space does not lend itself to acoustic privacy.

In speaking with the Town Manager, it was noted that the Town and SAU have been in ongoing discussions about the future of the Department. Collocation in the Town Hall is not a requirement for the SAU, and other locations closer to the schools have been discussed in the past. Relocation can be considered, however ownership issues related to the condominium arrangement would need to be resolved.

## FINANCE AND ADMINISTRATION

The role of Finance and Administration is to support other Town Departments for purchasing, accounting, human resources, and other administrative tasks. The current Director also serves as the IT Administrator for the Town. This Department would benefit from proximity to the Town Manager.

In the future, the Department expects the need for additional private offices and additional storage space due to the sensitive nature of information. Digitization of records may be an avenue for reducing space requirements for storage.

## COMMUNITY DEVELOPMENT

Planning and Community Development is responsible for the implementation of Town Planning and Building/Code enforcement. This includes some level of Public engagement related to issuing permits and other functions. The Department is currently staffed by a Director, Code Enforcement Officer, and one administrative staff member, however the staff is expected to roughly double in the coming years. This results in a need of approximately double the space when compared to the existing suite. Additionally, meeting and workspace were requested, but these could potentially be shared with other departments.

Staff noted that this while Planning and Community Development is currently located in the Town Hall, relocation could be considered if needed; for example, the Department could benefit from greater proximity to DPW/Fire/Engineering staff.

#### *TOWN CLERK*

One of the more public facing departments in the Town Hall, this Department hosts considerable visitor traffic from members of the public. According to the Town Manager, the access to this department sometimes have difficulty with wayfinding and access. Reorganization of Departments within Town Hall, along with general improvements to wayfinding in the building could help to improve this issue.

Internally, the Department requires significant storage capacity (including a secure vault), as well as space for layout and copy functions. The latter could be shared with other departments.

#### *MEDIA SERVICES*

Media Services provides support related to the Town's audiovisual and technology needs. These include Public Access Channel 13, and technology support for regular Town Meetings. Currently housed in the Town Hall lower level auditorium, the Department is generally outgrown it's existing location. With the anticipated upgrade to pan/tilt/zoom (PTZ) camera technology, it is conceivable that Media Services could be located off-site and still provide support through remote connectivity.

The function of the Department is also changing; Department staff anticipate more content creation/processing in the future, and the Town Manager noted that expanding into some capacity for Marketing/Public Outreach may be anticipated in the coming years.

#### *LIBRARY*

According to Library staff, the current facility hosts 200-300 visitors daily. For a community of this size, the American Planning Association recommends .7-.8 square feet of public library space per capita, and a collection size of 3 1/2 - 5 volumes per resident. Assuming approximately 9,000 residents, this equates to a target building of approximately 6,300 - 7,200 square feet and a target collection size of approximately 31,500 - 45,000 volumes. Both figures are in line with the existing Library, however Library staff report that the current space is insufficient. The discrepancy could be explained by the efficiency of existing space plan, changing Library needs preferencing larger "community" oriented spaces rather than collections, and anticipated population growth.

Current collections storage areas feature shelving up to 7'-6", most of which is fully utilized. This limits accessible use of the collections by persons with mobility challenges, and does not meet industry standards for Library shelving utilization. Staff do report that the Children's section is popular and successful, with a mix of low collections storage and activity space, although there is a need for a Children's Librarian Office.

There are two spaces with significant reuse potential: the Library addition basement, and the octagonal 'tower' attic space. In order to be considered for use by visitors or staff, both require further technical study to resolve life safety, structural, and other issues described elsewhere in this report.

Given the specialized nature of Library Planning and the limited scope of the current study, Placework recommends additional focused planning prior to making decisions related to the future of the Library.

#### TOWN MANAGER

The Town Manager explained that his office may expand in the coming years to incorporate in-house legal counsel, a potential Assistant Town Manager, and flex positions for interns. The in-house Counsel should be suited in close proximity to the Town Manager suite. Consideration must be paid to the visitor experience for guests coming in for private meetings. The result of the above considerations is an increase in required space for the Town Manager.



# RECOMMENDATIONS

# Overview



MATRIX HIGHLIGHTING FACILITIES WITH FURTHER RECOMMENDATIONS

## Guiding Principles

Following the assessment phase of the project, the team worked with representatives from the Town of Newmarket to identify and prioritize focus areas for the study. To do this, the team generated a list of “guiding principles” by which to evaluate proposed projects. They are:

- Establish a long-term plan for addressing Police needs, including potential expansion strategies.
- Maximize efficient use of current space by employing strategies such as right-sizing, consolidation of storage, digitization of files, and implementing shared spaces.
- Resolve known fire, life safety, and accessibility issues in existing facilities through capital improvements or maintenance efforts.
- Re-envision long-term organization and use of the existing Town Hall to address space needs and functional issues.
- Leverage underutilized properties to support redevelopment of priority facilities and departments.
- Prioritize benefits to residents when evaluating the benefit of recommended improvements

## Recommendations Summary

The team worked with the Town to formalize (4) distinct recommendations for consideration. These follow below and are described in greater detail on the following pages:

- 1. Renovate and expand existing Police Station & Develop Beech Street Site for Senior Center**
- 2. Renovate and expand existing Town Hall Building**
- 3. Utilize Old Water Treatment Building for Redevelopment**
- 4. Undertake Detailed Library and Recreation Studies to Guide Future Efforts**

The key priorities for physical reorganization/renovation are Town Hall and Police Facilities. Placework has developed concept-level planning to inform preliminary budget planning and demonstrate general feasibility. However, it should be noted that significant additional design and technical study is required in order to execute these projects. Information presented herein should be considered as the first step in a capital improvement process. Several facilities - including the Beech Street Community Building and Sunrise-Sunset Center - are impacted by the proposed Police Department project; therefore, anticipated budgets for the work at these facilities is included within the Police project budget.

The former Water Treatment Facility on Packer's Falls Road was found during the study to be underutilized, and would better serve resident needs if sold or leased for redevelopment. The potential use of the building is to be determined, however any agreement with a private developer could include provisions stipulating use or partial use as "amenity" space to the Town. Ideally, proceeds from such a transaction could be used to directly support other recommendations listed here; the Town of Newmarket is studying the legal/procedural feasibility of this.

The Library and Recreation facilities require further specialized study in order to recommend improvements which support the mission of each group. Particularly for the Recreation Department, the result of such additional study could be used to inform development at Beech Street Community building as discussed above.

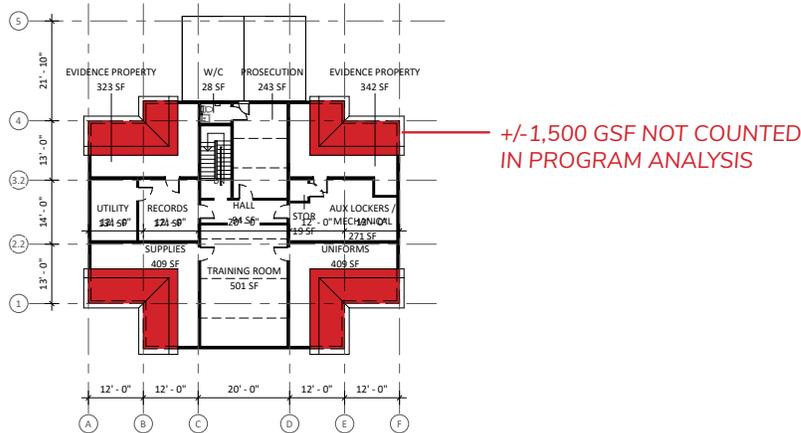
The Fire and Public Works Departments reported no significant facility or space needs - and in the case of the Fire Department - are currently undergoing additional fit-out to add usable space within the existing facility. Placework does not recommend significant capital upgrades, rather continued incremental improvements to meet evolving needs. For example, DPW staff reported that a vehicle wash bay would improve operations. This and similar improvements could be addressed in small-scale projects as part of an ongoing maintenance cycle. A comprehensive plan may be advisable in the future if the Town considers significant changes to the use of the property or facilities.

The Historic Fire House along South Main Street, having undergone fairly comprehensive preservation and restoration in the early 2000's, requires little attention at this time except ongoing 'regular' maintenance to maintain the building as a historic resource to the Town.

When undertaking any large Capital Project, the Town should consider the way in which such projects are managed internally. Developing large projects requires budgeting time and effort for internal management, in addition to specialized knowledge and experience which may or may not be available within the Town's in house staff. It may be more cost effective to engage a 3rd party "owner's rep" skilled in construction project delivery to manage the project on the Town's behalf.

# Police Department

Key planning goals for the addressing future needs of the Newmarket Police Department include providing needed additional space, and addressing existing code compliance, accessibility, and functional issues related to the second floor of the building. Other issues include strengthening the visibility and civic image of the department, and ensuring uninterrupted service during any proposed modifications. Though the building has a total footprint of approximately 3,750 SF per floor, approximately 1,500 SF of this space is rendered largely unusable on level 2 due to the configuration of the roof eaves and resulting ceiling height.



LEVEL 2 PLAN SHOWING UNUSABLE FLOOR AREA

Currently, the program and space needs assessment shows the department lacks approximately 4,600 sf of space when projecting for future growth. The group reviewed several strategies for providing the needed additional space, including annexation of the adjacent Sunrise-Sunset Community Center Building, Addition both upward and outward, and relocation of the department to a new facility.



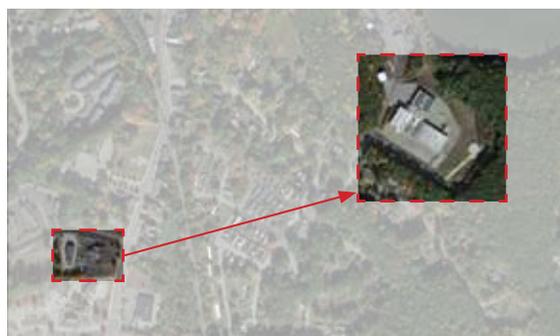
EXPANSION STRATEGY: ANNEX



EXPANSION STRATEGY: ADDITION



EXPANSION STRATEGY: ADDITION



EXPANSION STRATEGY: RELOCATION & NEW FACILITY

After discussion with NPD, the option of relocating the Department on a permanent basis was eliminated; the Town favors the current location of the Police Station due to its public visibility and opportunities for community engagement. Ultimately, the preferred planning approach was a combined upward and outward addition to the existing building, in addition to a full renovation of the existing footprint. By leveraging the site's natural topography, the building can be configured with two points of entry, one geared toward operations, and one geared toward community and administrative Police functions. Additionally, reconfiguring the roof line of the existing building will reclaim currently underutilized eave space, as well as enhance the civic image of the building by eliminating the existing "gable" forms most often associated with residential construction.



EXPANSION STRATEGY: ADDITION & EXPANSION

The proposed concept requires demolition of the existing Sunrise-Sunset Community Center. From information gathered during the assessment phase, **Placework clearly understands that the Senior Center is a well-used and valued amenity for resident seniors.** Therefore, it is important to stress that the removal of the Sunrise-Sunset facility is proposed as a relocation - rather than the loss - of the Senior program. The concept proposes renovation of the Beech Street Community Center for this purpose, described in greater detail on the following pages.

Generally, Placework favors reuse of existing buildings over demolition as a central tenet of sustainable practice. However in this case, several factors justify removal & relocation, including:

- The existing facility does not fully meet the needs of staff. A renovated facility in a new location offers the opportunity to better address these needs.
- The existing facility is located on the same lot as the Police Department, despite little relationship between the functions. Alternate uses for the existing building are limited.
- The existing facility exhibits limited architectural character. Originally designed as an ambulance bay, it is surrounded on all sides by paved drive lanes, restricting pedestrian connectivity. There is limited natural light inside, and no opportunity for outdoor activity.
- The removal of the existing facility will enable the Police building expansion to continue serving the needs of the community, enhance Community engagement by providing a new "Training/Community" space, and provide additional parking supporting these functions.

A preliminary budget for the Senior Center relocation is included in the Police renovation and expansion budget. While this approach ensures that funding is allocated as part of the Police project, it is strongly recommended that the relocation of the Sunrise-Sunset Community Center be coordinated with long range Recreation Department planning, as alternative approaches may be preferred.



POLICE: PROPOSED LEVEL 1 PLAN  
 Addition: 2,450 gsf  
 Renovation: 3,150 gsf

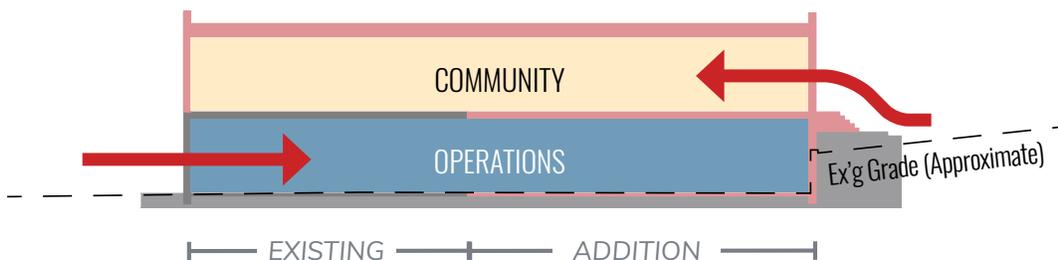
POLICE: PROPOSED LEVEL 2 PLAN  
 Addition: 2,450 gsf  
 Renovation: 3,150 gsf

## Concept Narrative

The new addition and expansion of the existing second floor will provide approximately 6,000 additional square feet of space for the department use. Due to the sloping topography of the existing site, the concept proposes a building with multiple entrances: on the lower level, the existing entrance will be maintained and a reconfigured lower level will house “operational” Police functions, including a reconfigured lobby, dispatch center, IT functions, booking/holding, evidence storage, and lockers, as well as a drive through sally port. The reconfigured upper floor of the building will house the more public-facing programs, which including administrative offices, interview rooms, patrol offices, and a large training/community room sized for approximately 50-75 people.

A new entry to the addition from the upper parking area provides access to the building from two sides. In addition to resolving existing code and accessibility issues, these wholesale reconfigurations result in a building which is roughly organized by floor according to “operational” and “community” facing program, as shown in the cross sectional diagram below.

For the purposes of pricing, Placework has made various assumptions regarding the architectural and other features of the building. These assumptions are detailed on the following page, however it should be noted that these require elaboration and development in a future design phase.

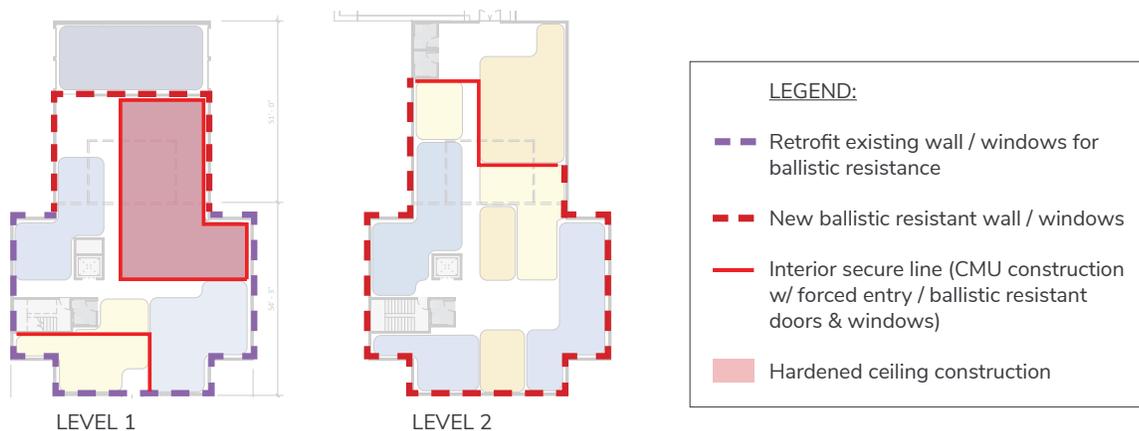


DIAGRAMMATIC CROSS SECTION, SHOWING CONCEPTUAL BUILDING ORGANIZATION

The substructure of the addition is assumed to be a continuous concrete footing, stem wall, and slab-on-grade system. The building superstructure (above grade structure) shall be a combination of wood framed walls and elevated floor assemblies, with fully grouted CMU at operational areas (booking, intake, holding, etc.). Roof construction is assumed to be a wood truss or steel bar joist with wood or metal deck.

Exterior enclosure assumes fiber cement wall cladding with cavity plus continuous insulation/air barrier, and single ply thermoplastic roof assemblies. Assume 25% window/wall ratio at addition areas with opaque walls and glazing systems to provide UL level 5 ballistic protection.

At rehabilitated areas of the existing building, assume retrofit to existing walls with a composite ballistic resistant panel product (Armorcore or similar) providing UL Level 5 ballistic resistance. Existing windows to be provided with interior side applied ballistic resistance film.



PROPOSED PHYSICAL SECURITY IMPROVEMENTS

Interior finishes at administrative and office are assumed to be typical of those found in a commercial office building, including, painted gypsum wall board, acoustic ceiling tiles, carpet/resilient flooring and LED lighting. At “operational” areas such as intake, booking, holding, evidence, etc. assume durable finishes such as painted CMU walls, drywall ceilings, ceramic/porcelain tile, and liquid applied traffic coatings at floors. Assume some reuse of existing furniture, storage, and specialty police equipment, however some allowance for new equipment should be included.

A new hydraulic elevator will provide an accessible route between the two floors. The project scope also assumes new technical security systems including electronic access control at main entry and “operational” areas, door monitoring/control system, CCTV coverage and central monitoring.

MEP systems at the existing building are generally in good condition. The concept design assumes additional MEP systems to support the addition, as well as the following targeted upgrades to the existing system:

- Install a fresh air ventilation connection to unit AHU-1
- Install a new energy recovery ventilator (ERV) to allow recovery of energy from exhaust air, reducing space conditioning requirement.
- Upgrade control systems for HVAC and lighting equipment.
- Replace existing fluorescent lighting with LED fixtures.
- Install a new fire suppression system including dedicated site fire line to the building from existing utility network. Assume sufficient municipal flow and pressure to supply the new system.
- Existing generator to remain; reconfigure existing circuits to coordinate with new work.

## Site Approach

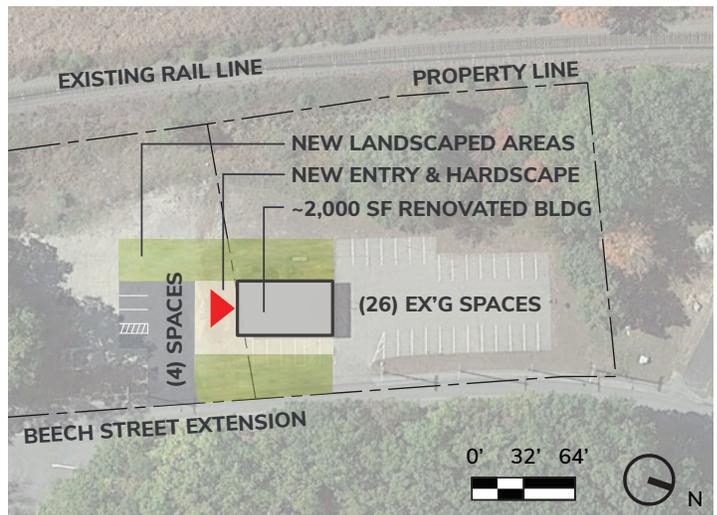
The existing site plan includes both the Police Department and current “Sunrise-Sunset” Center. The site slopes moderately from a high point at the rear down toward Exeter Road, with an approximately 5' high retaining wall dividing the site.

For the proposed project, site work includes removal of the existing Senior Center, rough grading and new bituminous parking/stripping, and allowances for hardscapes, site lighting, and minimal landscape improvements. Repair and reconstruction of the existing retaining wall dividing the upper lot from the police building is also included. The proposed upper level parking area is assumed to be a bituminous paving with modest allowances for exterior paving at the building entries, site lighting, and planting. There is an existing generator on the Northwest corner of the existing building which is anticipated to remain.

## Senior Center Relocation



EXISTING BEECH STREET SITE



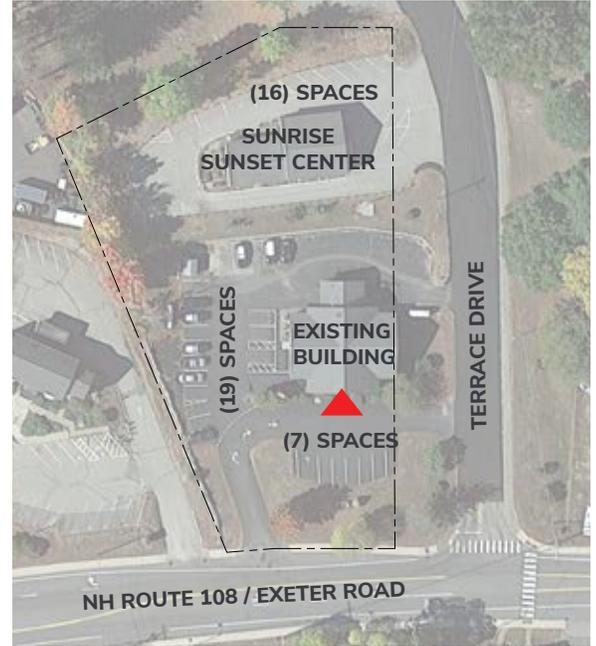
PROPOSED IMPROVEMENTS AT BEECH STREET

The existing Senior Center will be relocated to what is known as the ‘Beech Street Community Building’. This site offers increased parking, opportunity for outdoor activities, a pastoral natural setting, and opportunity to resolve existing functional issues present in the existing Sunrise-Sunset building; the relocation will result in an overall improvement for the Senior Center facility.

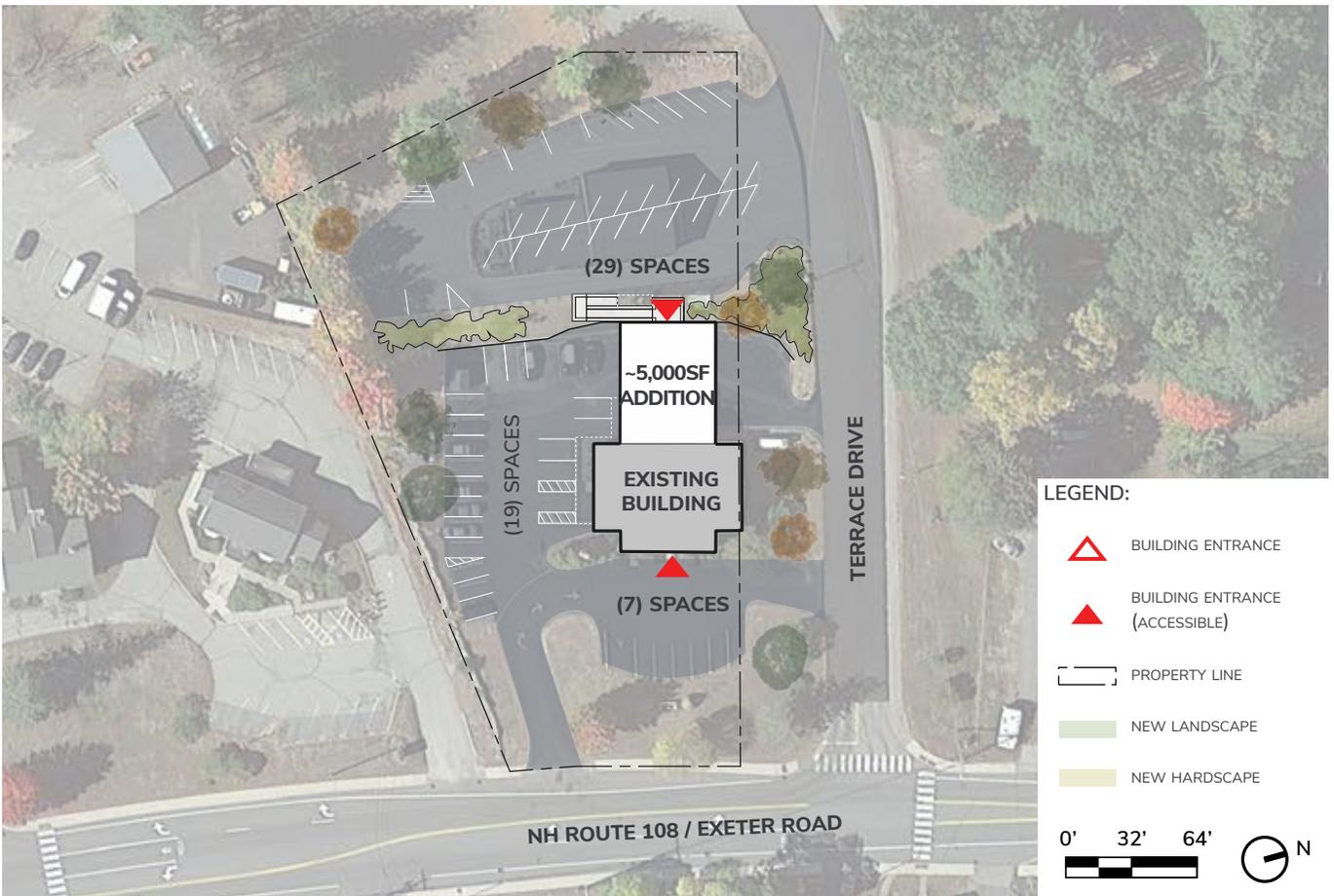
The cost for renovating this facility into the new Senior Center is included within the Police Department budget. The budget assumes interior renovation to the existing building (including the salvage and relocation of an existing commercial kitchen) as well as modest upgrades to systems and lighting to support the new Senior Center. It also assumes site work including new bituminous paving, hardscapes, and landscaping to the areas around the existing building. These assumptions require further development and verification during future project development, however at this time they do offer a baseline for budget evaluation.



EXISTING RETAINING WALL



EXISTING SITE PLAN



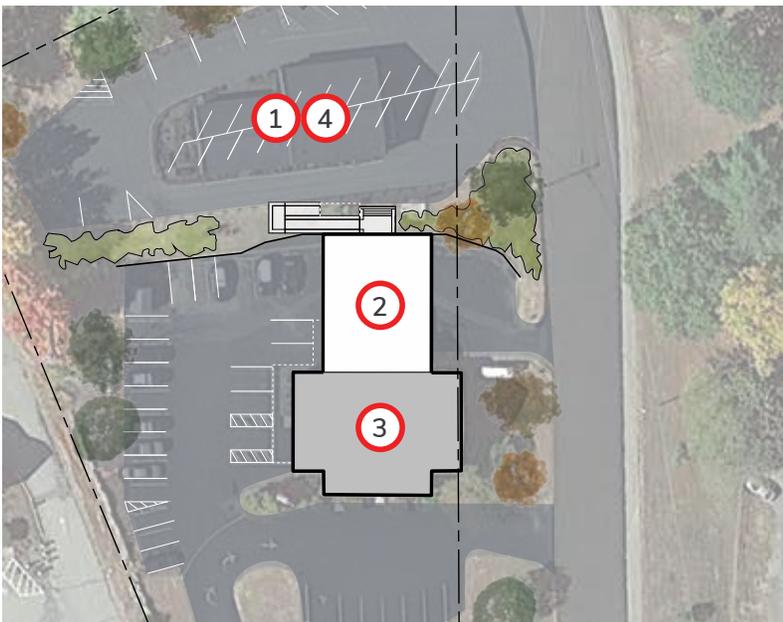
PROPOSED SITE PLAN

## Phasing & Logistics

For the purposes of establishing a preliminary project budget, Placework assumes an approximately 9-month, phased construction process, including relocation of the existing “Sunrise-Sunset Senior Center”, and beginning in mid-2025. In future phases of project development, detailed construction schedule and logistics plans should be created to validate the assumptions in this report.

As the Town will require continuous Police operations during the entire construction period, the project will be phased to allow Department functions to be relocated during the construction while still providing uninterrupted services. Additionally, the plan assumes the existing Dispatch center will remain operational during the entire construction period. This will require additional study to develop a detailed construction logistics plan which will allow for this. The project team may evaluate the potential for temporary relocation of the dispatch center as a potential cost-saving alternative, and coordination will be required with Department vendors for communications, IT, and State Emergency Management agencies to develop a detailed plan.

Placework recommends that the Town solicit pre-construction services from a qualified construction manager (CM) as the project develops. A simplified construction phasing and sequencing strategy is described below, and used in this report as the basis for preliminary cost estimating:



### PRELIMINARY CONSTRUCTION PHASING/SEQUENCING

1. Relocate senior center and temporarily fit-out building for police use.
2. Construct new addition.
3. Renovate existing police building, existing dispatch area to remain operational for duration of renovation.
4. Occupy new building and remove existing sunrise-sunset center.  
Complete upper level parking site improvements.

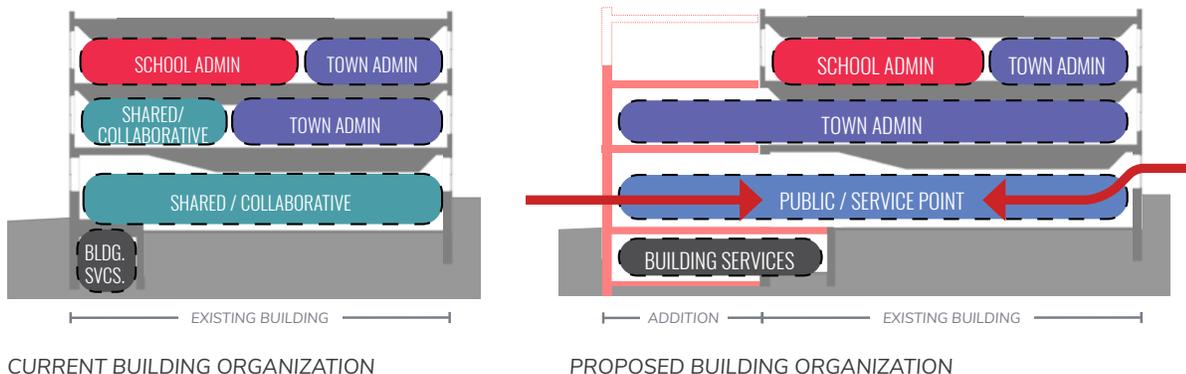
# Town Hall



REAR OF EXISTING TOWN HALL SHOWING LOCATION OF PROPOSED ADDITION

In developing recommendations for the Newmarket Town Hall, Placework studied the organization of the existing building along with feedback from building occupants. The current facility mixes private administrative program with public service activities; this, combined with general wayfinding and organization issues, suggest review of the general building organization.

In contrast to the Police Department, the recommendation to build an addition was not developed primarily to add significant additional space, but rather to enable needed building scale reorganization and improve the overall quality of space. After review and discussion of several relevant precedent projects, including Boston and Dover, NH City Halls, the Team proposed relocating all public-service related program to the ground floor to create a 'Service Point' for residents. A new addition and public entrance at the rear of the building will enable the Town to more effectively use the lower level parking area. In turn, space left on the upper floors of the building could be reconfigured to allow more rational distribution of functions throughout the building.



CURRENT BUILDING ORGANIZATION

PROPOSED BUILDING ORGANIZATION

## Concept Narrative

The proposed Town Hall addition will add approximately 5,800 square feet on two floors plus a basement for new mechanical systems. A new lower-level entry improves building wayfinding and accessibility and allows for reorganization of the ground and second floors of the existing building to provide a new public-facing “service point” at ground level and a consolidated Town Administrative hub on Level 2. The existing level 3 is primarily owned by the School Administrative district, and renovation is excluded in School-owned areas.

For the purposes of pricing, Placework has made various assumptions regarding the architectural and other features of the building. These assumptions are detailed below, however it should be noted that these require elaboration and development in a future design phase.

The addition structure is assumed to consist of a cast-in place concrete foundation on continuous footings with concrete slab on grade. The bottom elevation of the existing stone foundation is not currently known, however the depth of the new addition will be coordinated to avoid widespread undermining of the existing rubble stone foundation wall (underpinning is not anticipated). Scope includes removal of the existing brick chimney, which is currently not utilized. The addition superstructure is anticipated to be a steel framed structure with composite floor and roof assemblies. Note that while the proposed addition is two stories above grade, it is intended to be designed to accept a third story addition in the future. The addition will be designed to be structurally independent from the existing building.

Exterior enclosure assumes a non-structural cold formed metal wall assembly with masonry veneer, cavity plus continuous insulation/air barrier, and single-ply thermoplastic roof assemblies. Assume 35% window/wall ratio at addition areas and new insulated aluminum window wall systems (Kawneer/Efco or similar). The scope includes minimal upgrade to the existing building envelope; miscellaneous repair of existing windows and a small allowance for exterior masonry cleaning restoration should be included. Wholesale masonry repair is required above level 2 at areas of removed brick chimney.

Interior finishes at administrative and office areas assumed to be typical of those found in a commercial office building, including, painted gypsum wall board, acoustic ceiling tiles, carpet/resilient flooring and LED lighting. At public facing areas on Level 1, durable finishes such as wood paneling and ceilings, custom millwork, and porcelain floor tile are assumed. Renovations to meeting rooms include allowance for A/V systems capable of supporting voice reinforcement and video capture/teleconference.

Mechanical systems at the existing building are new and generally in good condition. Assume new MEP systems to support the addition, as well as the following upgrades to the existing systems:

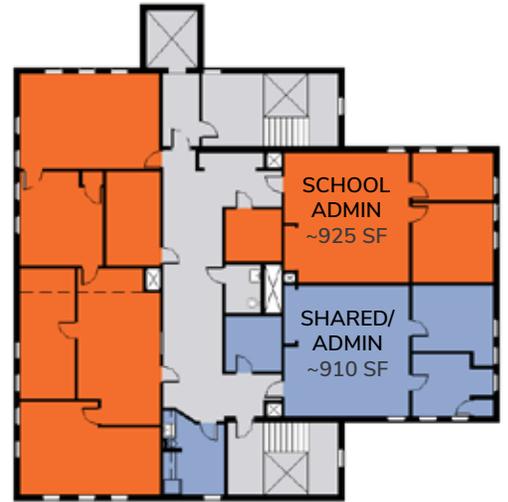
- Repair/reconfigure the existing deteriorated primary sanitary outlet for the building.
- Reconfigure/expand main electric service at basement level.
- Relocate existing exterior condensing units currently located at the rear of the building and re-feed interior equipment from the new location.
- Install a new fire suppression system including dedicated site fire line to the building from existing utility network. Assume sufficient municipal flow and pressure to supply the new system.

**PROGRAM LEGEND**

- CIRCULATION / SERVICES
- COMMON / SHARED
- COMMUNITY DEVELOPMENT
- FINANCE / ADMINISTRATION
- INFORMATION TECNOLOGY
- SCHOOL ADMINISTRATION
- TOWN CLERK
- TOWN MANAGER
- WELFARE



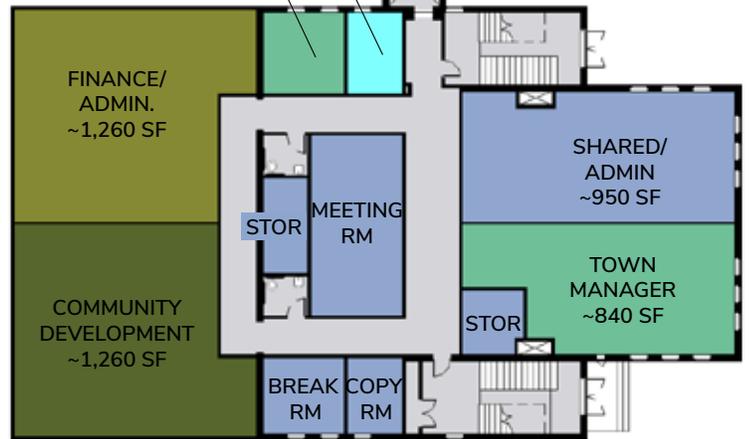
SCHOOL  
ADMIN  
~1,590 SF



**LEVEL 3 PLAN**

Addition: 0 gsf  
Renovation: 2,472 gsf (School admin excluded)

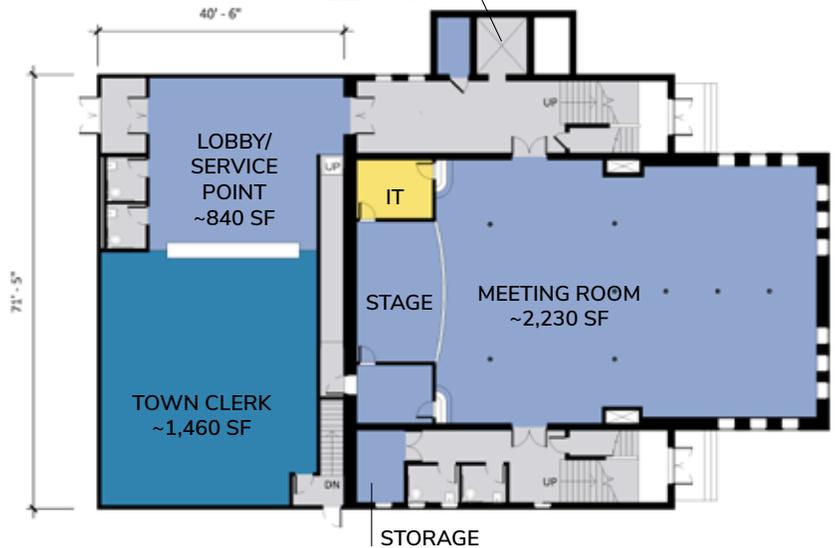
WELFARE  
ASSESSOR



**LEVEL 2 PLAN**

Addition: 2,895 gsf  
Renovation: 5154 gsf

EXISTING  
ELEVATOR



**LEVEL 1 PLAN**

Addition: 2,895 gsf  
Renovation: 5293 gsf

## Site Approach

The existing Town Hall site is comprised of 3 separate lots, with the lot fronting South Main Street owned by others. The site slopes moderately from the front of the building to the rear parking lot along Beech Street Extension, divided near the rear of the existing building by an existing retaining wall/slope in poor condition.

The proposed site plan eliminates the drive aisle between the upper and lower level parking lots in order to provide additional parking spaces in the lower level lot. An existing retaining wall will be reconstructed between the parking areas to allow for new pedestrian walkways and exterior entry improvements at the lower level. A new accessible entry, exterior paving/hardscape and landscape improvements, site lighting and wayfinding upgrades are also assumed.

At the upper level parking areas, existing building entrances shall remain, with new exterior hardscape and limited planting upgrades. The facade will be protected from vehicular contact by a new curb and walkway extending around the front and sides of the existing building. Both the existing and proposed site configurations feature an equal number of parking spaces, with some repair/reconfigurations to existing paving and striping assumed.



EXISTING FRONT ENTRY AND PARKING AREA



EXISTING LOWER LEVEL PARKING

## Construction Logistics

For the purposes of establishing a preliminary project budget, Placework assumes an approximately 12-month construction process, with sequenced construction to allow for swing space within the building. Generally, it is anticipated that the addition and lower-level renovation will occur prior to renovation of the second floor to allow for temporary relocation of the second floor occupants. A mid-2025 construction start is assumed. Placework recommends that the Town solicit preconstruction services from a qualified construction manager (CM) as the project develops.

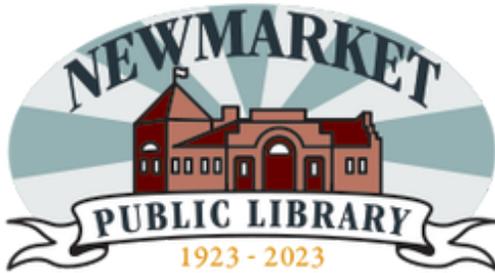


EXISTING SITE PLAN



PROPOSED SITE PLAN SHOWING SITE IMPROVEMENTS

# Library & Recreation Studies



During the study, Placework evaluated the Newmarket Public Library and Recreation Departments. These departments both represent complex programs which require specialized planning.

The Library has recently undergone a period of transition, with the new Library Director, Candace Cousins, arriving during the Facility Master Plan Study. The Library goals are evolving with new leadership, and in discussion with Director Cousins and staff, additional space may be required to satisfy changing needs and resolve existing challenges related to accessibility and function. The scope of the Facility Master Plan study did not include detailed Facility Condition Assessment of the existing library, which is recommended for the development of any future planning recommendations. For these reasons, Placework recommends further additional study.

The Recreation Department is currently spread over three distinct facilities in Newmarket, two of which may be impacted by the recommendations for the Newmarket Police Department. The scope of the Facility Master Plan study did not include detailed assessment of the existing Community Center or any of outdoor facilities, a vital part of the Recreation program. For these reasons, Placework recommends further additional study.

The scope of any additional study must be carefully considered to ensure that it provides the intended result. The findings of the Facility Master Plan may be seen as a jumping off point to further inquiry; Placework is more than willing and able to assist the Town in developing an appropriate scope(s) of work as needed. Nonetheless, Placework has included in the Preliminary Budget section of this report a placeholder budget for such studies to inform capital planning. Depending on the implementation schedule of recommendations for the Police Department, and the related impacts to Recreation Facilities, it is recommended that any future Recreation studies be coordinated with the planning related to the Police. Depending on the result of the study, the approach to the Senior Center relocation discussed in the Police recommendations section of this report may be adjusted.

# Former Water Treatment Building



VIEW FROM PACKERS FALLS ROAD BRIDGE

The former Water Treatment Facility at 54/56 Packers Falls Road was evaluated during the course of the Facility Master Plan study, with the primary conclusion being that the existing facility is underutilized and represents undue financial and operational burden to the Town, in addition to potential lost tax revenue were the property to be privately owned. The existing facility is currently only partially used for storage of Town Archives in substandard space. It is also situated on the shore of the Piscassic River, a highly picturesque setting with tremendous development potential. For these reasons, the team concluded that the building may better serve the needs of the Town in the hands of a private developer.

As the Town is currently completing an update to its Master Plan, Placework recommends reviewing the overall goals for the surrounding area to determine ideal uses for the property. Zoning updates and/or legal stipulations with any potential buyer or lessee may be necessary to encourage private uses that are mutually beneficial to developer(s) and the Town. Other potential conditions of sale may include developing easements related to maintenance/ownership of the adjacent dam and sewer infrastructure, as well as due diligence activities related to shoreline, environmental conditions, hazardous materials, and other issues.

The market value of the existing structure is not currently known. Placework recommends engaging a qualified real estate professional to conduct an assessment prior to proceeding with any sale or lease. Additionally, during walk through of the existing structure as part of the current study, the Team observed that the building contains chemicals and equipment from the building's use as an active water treatment facility. While the condition assessment did not specifically include process equipment, the team speculated that some of this material may have salvage value, and it is recommended that it be removed and possible environmental remediation conducted prior to any transaction.

Finally, the proceed funds from any transaction related to the Old Water Treatment Facility could ideally contribute directly to the implementation of other recommendations in this report. However, the legal and procedural grounds for this are unclear at this time; the Town is currently reviewing with Counsel. However as a general concept, any large contribution to the Town's balance sheet can be seen as enabling other capital expenses, whether directly or indirectly.

# Preliminary Budgets

Placework, along with cost estimating consultant Jobin Construction Consulting, have developed the preliminary project budgets at right for the proposed Police Station and Town Hall projects. The preliminary budgets should be considered evolving documents, to be developed along with the project. The direct costs are listed in the 'subtotal' line, and include estimated direct cost of the work proposed, plus contractor's overhead and profit, bonds and insurance.

A detailed cost estimating narrative was developed and appended to this report, however key assumptions include:

- Assumed both projects will be completed with a construction manager (CM) delivery method.
- Assumed both projects will begin in mid 2025 (for estimating purposes only) with a year over year cost escalation factor of 7.5%. This is a conservative value, and depending on the project schedule and actual cost escalation rates in the coming years, the effect on the overall project cost may vary.
- Police budget assumes a 9-month phased construction with on-site swing.
- Police budget includes relocation of existing Senior Center / renovation of existing Beech Street Facility as new senior center.
- Town Hall budget assumes 12-month floor-by-floor renovation with internal swing.

The budgets further estimate total project cost, to include estimated direct costs, contingencies, and additional 'soft costs.' Total project budget is a combination of estimated direct construction costs, and additional 'soft' costs. Soft costs for these projects are estimated at a rate of 20% of the construction cost, to include:

- Design and engineering fees
- Fixtures, furnishings, and equipment (FF&E)
- Specialty equipment (partial reuse of existing equipment is assumed)
- Surveys, testing, and geotechnical investigation
- Owner's project management and administrative costs
- Permits and fees
- Builder's Risk Insurance
- Interior and exterior signage
- Moving expenses
- Security, IT, and phone systems

Not included in the preliminary cost model are allowances for owner's contingency, hazardous material remediation, legal/administrative fees, costs associated with lending/financing.

For the purposes of allocating funds for the recommended Library and Recreation studies, **Placework recommends allocating between \$100,000 and \$150,000 per study.** This is a conservative value for preliminary budget only; the final cost will be highly dependent upon the scope, duration, and deliverables for each study.

**POLICE STATION ADDITION/RENOVATION:****Addition 4,900 s.f.****Renovation 6,300 s.f.**

	UNIT		UNIT/COST		
Relocate Sunrise Sunset Senior Center to new location	1	LS	15,000	\$	15,000
Added parking and Site improvements at senior center new location	1	LS	100,000	\$	100,000
Interior renovation of 2,000 s.f. senior center	2,000	SF	250	\$	500,000
Commercial kitchen equipment	1	LS	75,000	\$	75,000
Temporary Police Station set up at former senior center	1	LS	100,000	\$	100,000
Site improvements, parking, retaining walls, landscaping	1	LS	300,000	\$	300,000
Police station addition	4,900	SF	525	\$	2,572,500
Police station renovation	6,300	SF	400	\$	2,520,000
Security and PD equipment	1	LS	125,000	\$	125,000
Demolish former senior center and create parking	1	LS	175,000	\$	175,000
			<b>SUBTOTAL:</b>	<b>\$</b>	<b>6,482,500</b>
Design and construction contingency	15	%		\$	972,375
Soft costs	20	%		\$	1,490,975
Escalation to 2025	7.5	%		\$	670,939
			<b>TOTAL PROJECT COST:</b>	<b>\$</b>	<b>9,616,789</b>

**TOWN OFFICE ADDITION/RENOVATION:****Addition 5,800 s.f.****Renovation 12,919 s.f.**

	UNIT		UNIT/COST		
Town office addition	5,800	SF	400	\$	2,320,000
Town office renovation	12,919	SF	250	\$	3,229,750
Site improvements	1	LS	300,000	\$	300,000
			<b>SUBTOTAL:</b>	<b>\$</b>	<b>5,849,750</b>
Design and construction contingency	15	%		\$	877,463
Soft costs	20	%		\$	1,345,443
Escalation to 2025	7.5	%		\$	605,449
			<b>TOTAL PROJECT COST:</b>	<b>\$</b>	<b>8,678,104</b>



NEXT STEPS

Based on discussion with Town representatives, Placework understands that the recommendations outlined in this report must be evaluated, prioritized and budgeted as part of a larger Capital Improvement Plan (CIP). To that end, the Master Plan team collaborated to develop the following evaluation matrix, identifying and measuring proposed projects against key evaluation criteria, in keeping with the project guiding principles. The matrix is an objective measure for evaluating the project, however additional subjective measures must also be considered. These may include circumstance, opportunity, public opinion, or other 'intangible' factors.

Criteria	Project(s)			
	Police Expansion	Town Hall Renovation / Addition	Detailed Library/Rec Studies	Sell/Lease Old Water Treatment Building
Improves service quality / quantity (0-10)	10	10	3	0
Required for continued (or expanded) operations (0-5)	5	5	5	1
Reduces operation and maintenance costs (0-5)	5	5	3	5
Provides measurable benefit to residents (0-5)	4	4	0	3
Meets stated environmental goals (0-5)	4	4	1	3
Supports Town Master Plan Goals & Vision (0-3)	3	2	3	1
Public image and reputation (0-3)	3	3	1	1
Urgency of need (0-2)	2	1	1	0
Enables other recommended projects (0-2)	0	0	1	2
<b>Priority Score</b>	<b>36</b>	<b>34</b>	<b>18</b>	<b>16</b>

As discussed elsewhere in this report, Placework recommends conducting a Recreation study prior to (or in conjunction with) further development of the Police project, as the latter will impact key Recreation Department facilities. Should either the Town Hall or Police projects move into a future phase of project development, there are a number of additional efforts to consider, including:

- Boundary, Topographic, and Utility Surveys by licensed land surveyor
- Geotechnical Investigation by licensed geotechnical engineer
- Hazardous Materials Investigation
- Municipal Water Flow and Pressure Testing to confirm assumptions regarding fire suppression
- Solicit “preconstruction services” from a Construction Manager (CM)

Placework thanks the Town of Newmarket for the opportunity to collaborate on this exciting project, and is happy to engage further as the Town evaluates findings and recommendations contained in this report.

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