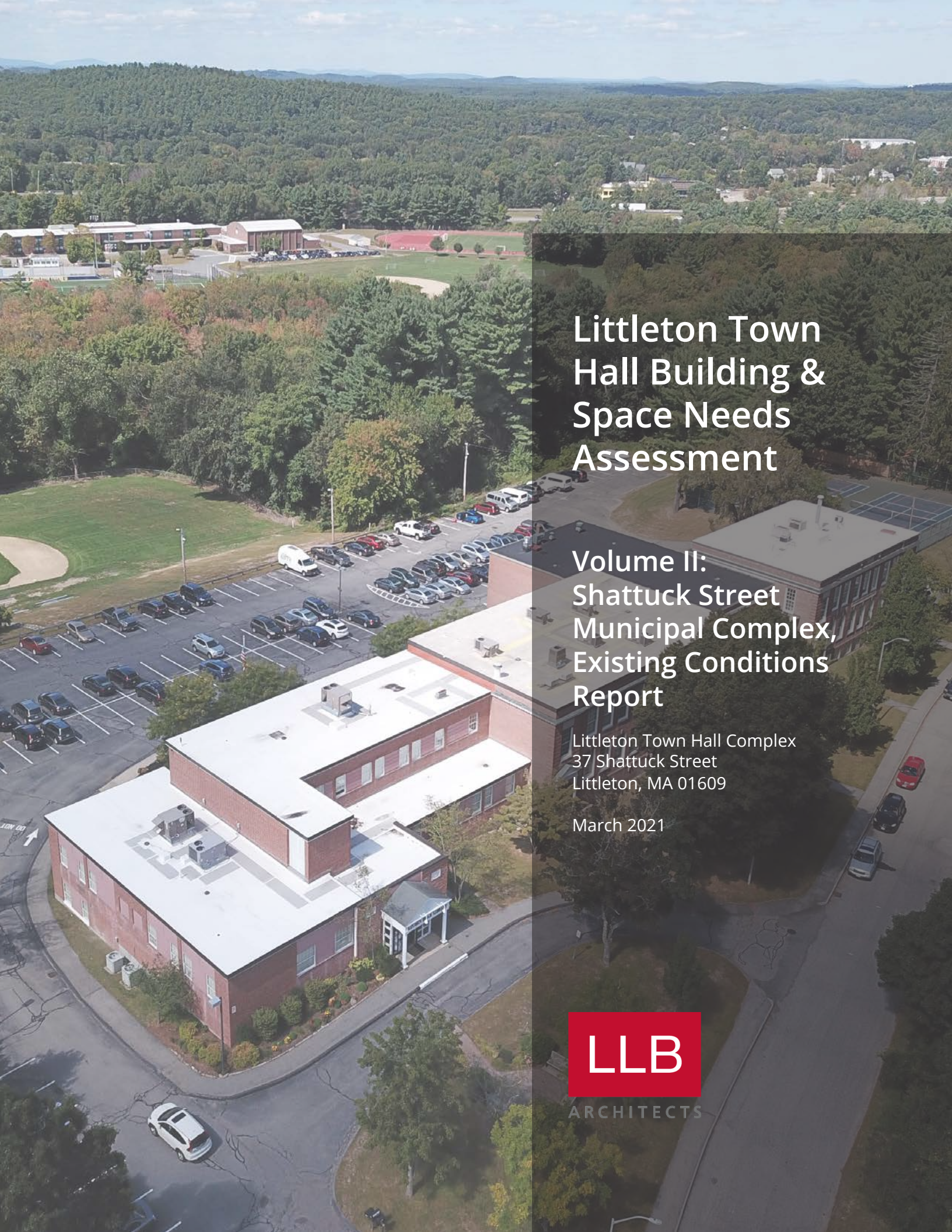

Littleton Town Hall Building & Space Needs Assessment

Volume II: Shattuck Street Municipal Complex, Existing Conditions Report

Littleton Town Hall Complex
37 Shattuck Street
Littleton, MA 01609

March 2021

LLB
ARCHITECTS


37
LITTLETON TOWN OFFICES
-LEGAL NOTICES-
-HEARING POSTINGS-

Project Team

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SUPERINTENDENT OF SCHOOLS
PRCE
COUNCIL ON AGING
THRIFT SHOP

Table of Contents

Introduction

In the Fall of 2019, LLB Architects and their team of architectural, mechanical, electrical, plumbing and fire protection, civil engineering ,and environmental materials consultants conducted an Existing Conditions Assessment of the subject property located at the Littleton Town Complex on Shattuck Street.

This study was developed to inform interested parties of the viability of using this building and the adjacent surface parking lots as a future home for a yet to be determined municipal program. This report is accompanied with numerical and photographic information to support the findings, as well as recommendations where necessary.

The following report is presented in parts beginning with a high level summary and progressing into further detail.

The first part of this report introduces the project, summarizes the findings, and describes the methodology used and assumptions made to aid future analysis and decision making.

The second part of this report assesses the existing building from a zoning, building code, and accessibility standpoint.

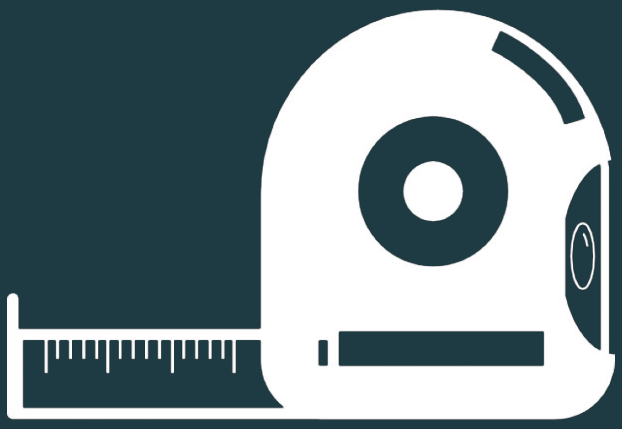
The third part includes assessment findings documented by the project team. This begins with a summary of the state of each of the four connected buildings broken out by major systems for independent consideration. Following this summary is a detailed description of the exterior vertical enclosure, roof, and interior conditions of the complex. Here, this report provides a more focused understanding of current conditions. Included in each of these assessments is our team's professional opinion as to the predicted life expectancy of major components based on the current conditions observed.

Following these, in a fourth part, are the supporting reports from the team's consulting engineers' assessments of the building and its associated parcel. In addition to the mechanical, electrical, plumbing, and fire protection reports completed by BER Engineers, a copy of the civil and hazardous materials report created by CDW Consulting are included.

Finally, copies of the building's documentation have been provided for reference as an exhibit at the end of this document


REUBEN HOAR LIBRARY
41
NOTICE
BOOK DROP

I . Methodology



This assessment includes documentation of the building complex and site components at 37 Shattuck Street Littleton, Massachusetts. The complex consists of a series of connected structures originally built at different times to support the needs of the former school. These structures now house the Town Hall, Senior Center & LCTV, School Department, and Ruben Hoar Library.

The resulting analysis is a distillation of broad-range and detailed observations made by a team of consultants from architectural, civil, mechanical, electrical, plumbing, and fire protection disciplines. In addition, a team of environmental specialists took samples of suspect material from numerous locations and had those samples tested for potential ACM.

The primary objective of the assessment was to identify and observe systems, assemblies, and/or components of the facility and adjacent parking lot and to provide an analysis of the existing conditions. In some cases, short-term recommendations are provided to address deficient items that may impact or influence the development or negotiations of this property. All observations and recommendations made by the team were the result of existing document review, interviews, and field surveys, and drone photography.

The majority of information was collected via the investigation (walkthrough) process in which each team member visually observed aspects of the facility pertinent to their specific trade and expertise. Deficiencies that were visible and readily accessible were collected, noted, and organized by LLB Architects in the form of this consolidated report.

Building components were photographed at interior and exterior locations, highlighting building envelope, roofing, structural systems (where readily accessible), representative interiors, and any unique or unusual spaces.

LLB deployed our drone with a camera on this project. This permitted us to more closely observe and evaluate conditions of the existing façade and roof that would have otherwise been difficult and costly to see without the use of a lift. The drone was also able to capture clear overhead images of the parking lot to support the civil engineer in their efforts.

LLB Architects has developed a process to execute and process the collection and synthesis of assessment information efficiently. All collected information is organized by discipline, and then by building component (i.e. roofing, masonry, etc.). This information is summarized in narrative description and supported by supplemental reports. (Refer to the Existing Conditions Survey, Part III, and Supporting Reports, Part IV, of this report).

Observation Scope

Site and Civil:
A general assessment of the existing site conditions for the project site was conducted by a licensed civil engineer. Record documents aided in the assessment including utility records from the Town of Littleton Public Work and Parks Department, ALTA/NSPS Land Title Survey Plans, Geographic Information System (GIS) data, and existing record plans provided by the client.

Structural Frame and Building Envelope:
Visual identification of primary type of structure (steel/wood frame, etc.), sub-structure including foundation walls, slab-on-grade, basement enclosure, superstructure including floor and roof framing (where readily accessible), building

envelope including facades, curtain wall systems, glazing systems, exterior sealants, balconies, porches and other architectural features of importance or noted as deficient. Observations of the building's exterior are generally viewed from the ground and not by special conveying, unless alternative vantage points from balconies or adjacent buildings were available.

Roofing: Identification of the material of the exposed membrane/material. Observations were made to note any deficiencies in drainage, damage to the membrane system, and signs of potential leaks occurring on the interior ceiling surfaces. Roofing was accessed directly wherever possible and viewed from adjacent vantage points where difficult to access.

Interior Elements: Visual inspection of typical occupied spaces including lobbies, corridors, office spaces, restrooms, and special or unusual areas. Observations and deficiencies are noted for typical floor, wall, and ceiling finishes and the general upkeep and use of space..Analyses of furnishings, fixtures, equipment, space suitability, and user comfort issues were not conducted as a part of this report. Assessments are intended to support a study of program, location, and space needs of each department. It is understood that a major renovation would occur to achieve this and most interior finishes would be removed.

Plumbing:
Identification of the sanitary, storm, and supply piping material, fixtures, domestic hot water, and other special fixtures. Deficiencies are noted for any distribution and fixtures which are damaged or beyond apparent useful life.

Heating, Venting, and Cooling:
Generation and distribution system, observed for components and assemblies past useful life or damaged. Any equipment that is shutdown or not operational is observed as an opinion of its condition or deficiency.

Electrical:
Identification and observation of the service provided, size, visual of the distribution system including panels, transformers, meters, emergency generation, and exit signs.

Fire Protection:
Identification and observation of fire protection systems including sprinklers, standpipes, fire alarms, panels, smoke detectors, and other

equipment.

Life Safety:
Visual identification related to building egress and their relationship to apparent conformance with original design intent. Application of fire protection systems including sprinklers, standpipes, fire alarms, panels, smoke detectors, and other equipment.

Exclusions

The following items have been excluded from the scope of this study:

- Utility infrastructure including but not limited to filtration, transformers, telecommunications and subsurface storm/sewer, fiber optics.
- Structural analysis (loads, calculations, etc.)
- Infrared Scanning
- Energy Modelling

Additional Study and Monitoring

Some observations suggested remedies that require further research, testing, exploratory work, design, engineering, or a combination thereof, all of which are outside the scope of this assessment.
In those cases, the observation was noted as an item to study or monitor.
Opinions of remedies and costs based on these assessments should only be construed as preliminary, order-of-magnitude budgets. Actual costs will most likely vary from the consultant's opinions on matters such as type and design of suggested remedy, quality of materials and installation, manufacturer and type of equipment or system selected, field conditions, phasing of the work, project delivery method, and market conditions.

Field survey processes

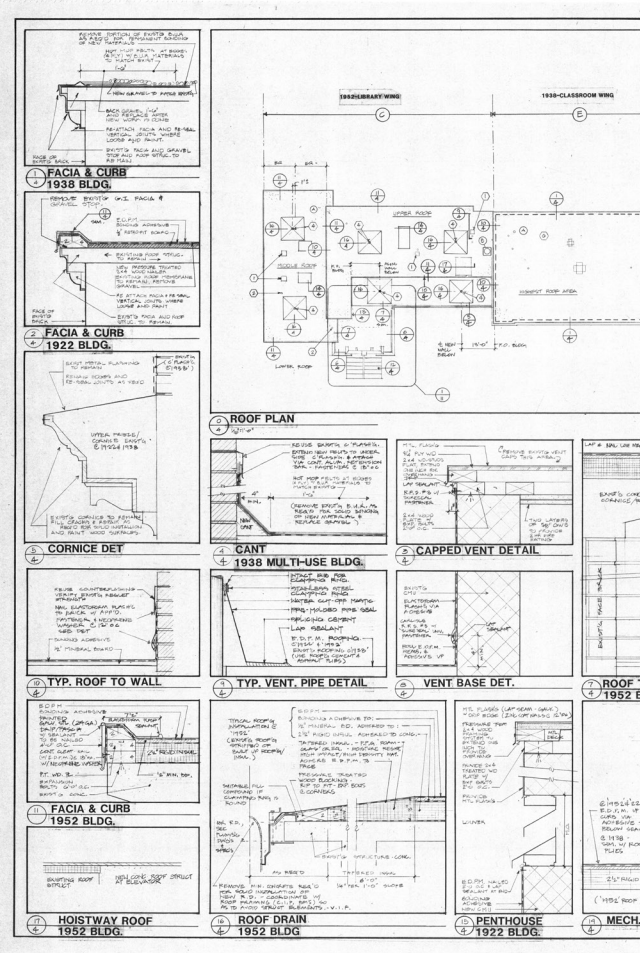
Walk-through surveys were conducted for the collection of facilities and features at the 37 Shattuck Street property and building complex`.

The purpose of each field survey was to visually observe the facility to gather life cycle and short-term deficiency information that were visible and readily accessible through non-destructive testing.

The facility was photographed from the interior, exterior, and above the roof highlighting components, representative conditions, and any unique or unusual areas of interest.

Document review and interview processes

The purpose of including document review and



interviews was to supplement the field survey and to assist the team's understanding of the facility and any pre-existing deficiencies or ongoing maintenance efforts.

A variety of existing documents, such as plans and reports, were obtained in the discovery stage of the project. Information of primary interest to the assessment included records indicating the age of building systems and components, studies, historical data, as-built conditions, and quantitative data.

Interviews with property managers were conducted before and during the field survey to aid in information collection, clarification on an observation, or to obtain access to areas not readily available to general building occupants.

Certificate of Occupancy

From the office of the

Littleton Building Department

ificate is issued to the requirements of Section 119.0 of the Massachusetts State Code certifying that at the time of issuance this structure was in compliance with Town of Littleton Bylaws and State Codes regulating building construction or use.

Following ☒

tion B

ction 3B

ve Load 100 psf

Fire Grading 2 hrs.

Building Permit Number 272-95

Map U19 Parcel 21 Zone R

Occupancy Load 28 persons

MASSACHUSETTS STATE BUILDING CODE 780 CMR, FIFTH EDITION

ription and location

EL OFFICES.....2616.....1/100 = 28 OCCUPANTS. TABLE 806

37 SHATTUCK STREET

Littleton, MA 01460

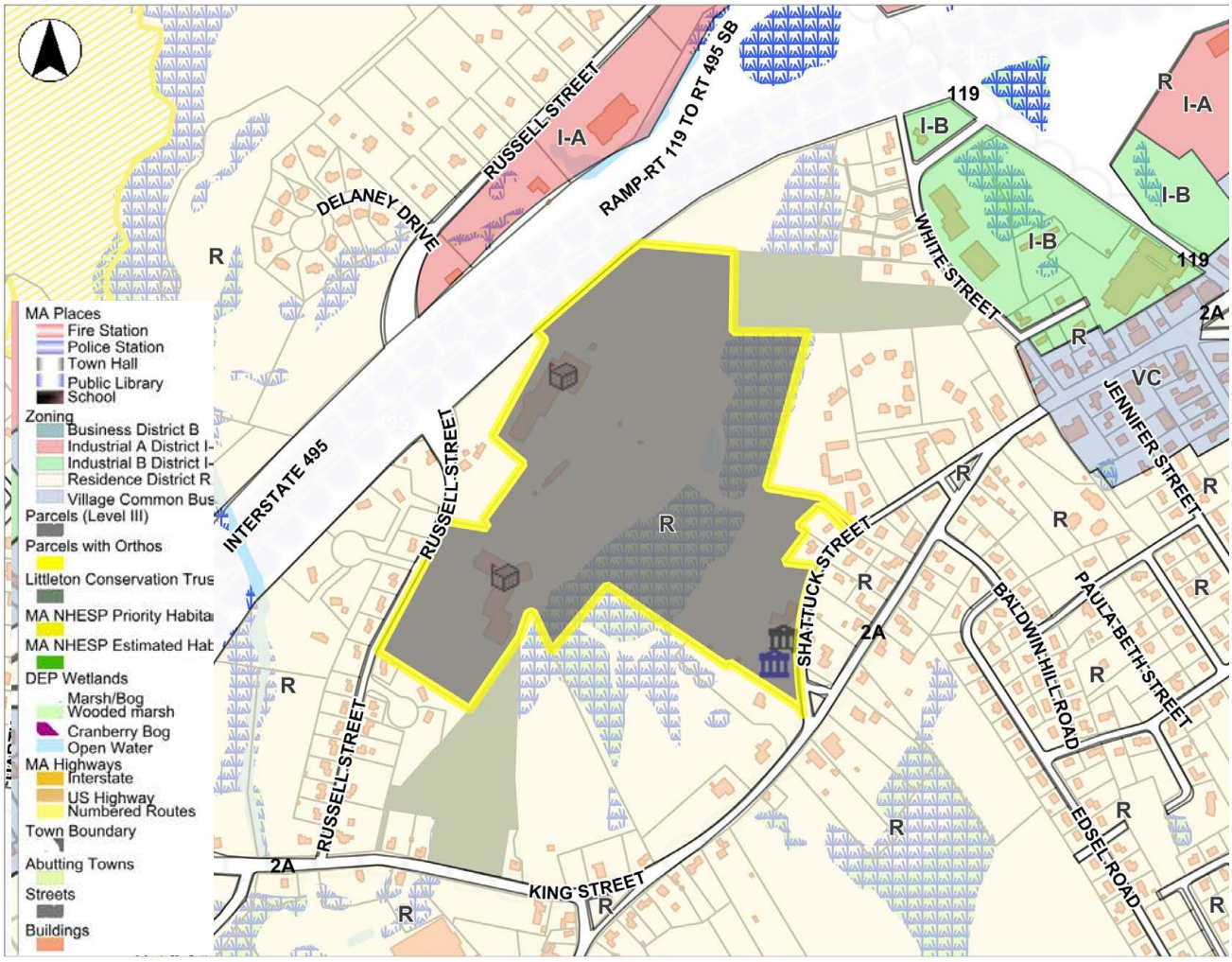
all be posted in a
e on all floors of every
herof where practicable for
M, F, B, A, I, R-1 and R-2.
missioner shall be notified
the above information.

Building Commissioner

Mar 18, 1996

View of certificate of occupancy at second floor of school wing.

II . Existing Code Analysis



Parcel ID	U19 21 0
Owner	LITTLETON TOWN OF
Address	55 RUSSELL ST
GIS ID	U19 21 0
LUC	934
Map	U19
Lot	21
Block	0
Account Number	2672
Map/Lot	
Street Number	55
Steet Number Unit	
Street	RUSSELL ST
Condo Unit	
Co-Owner	SCHOOL DEPARTMENT
Co-Owner 2	

Mailing Address	PO BOX 1305
Mailing Address 2	
Mailing City	LITTLETON
Mailing State	MA
Mailing Zip	01460
Building Value	33219400.00
Yard Value	54200.00
Land Size	54.50000
Land Value	1096900.00
Total Value	34370500.00
Sale Legal Ref	
Sale Date	
Sale Price	
Zone Code	R
Zone Description	RESIDENCE DISTRICT R

Zoning

Overview of Town of Littleton Zoning by Laws

Town Code, Chapter 173
37 Shattuck Street (AKA 55 Russell St.), Parcel: U19 21 0 is a 54.5 acre property owned by the Town of Littleton located within the Residential district (R). This district allows for Municipal uses. The entire lot is identified as part of the Aquifer and Water Resource. Wetlands are identified in areas of the lot.

The property includes several Town buildings including; The Russell Street Middle School, The Russell Street Elementary School, the existing Shattuck Street municipal complex, and the new Reuben Hoar Library, (which was under construction at the time of this report), and various accessory structures.

The portion of this property being considered in this study includes the eastern area accessed from Shattuck Street including the existing Shattuck Street Municipal Complex, the surrounding parking lot, tennis courts, and green-space, including the hill overlooking baseball field. This area is abutted by residential properties also located in the R district.

Currently there appear to be 127 parking spaces serving the complex, 10 of which are universally accessible. The parking Regulations, (previous page), identify parking count requirements based on building use. The required number of parking spaces varies by proposed scheme. Development of the chosen scheme will need to take this requirement into account in the context of the new library.

Article VI, Intensity of Use Schedule Amended 05/08/2020:
- Minimum Lot Area: 40,000 (Compliant)
- Minimum Lot Frontage: 150' (Compliant)
- Minimum Street Setback: 30' (with exceptions)
- Principal Building Setback: 15'
- Accessory Building Setback 10'
- Maximum Building Height: 32'
- Maximum Lot Coverage by Building: N/A
- Maximum Lot Coverage by Buildings plus Paving: 60%
- The Aquifer and Water Resource Districts

Article VIXIV, Aquifer and Water Resource District:
Anticipated applicable excepts from this regulation are included below, see full language of Article and zones for all permitted and prohibited activities. Special Permit is required for the following activities:
- Parking area with more than 100 spaces capacity
- Use (other than single-family dwellings) if having estimated sewage flow or industrial wastewater flow exceeding 6 gallons per day combined flow per 1,000 square feet of lot area or exceeding 15,000 gallons per day combined flow regardless of lot area. Flows regulated by Title 5 shall be based on Title 5
- Other characteristics: for use other than single-family dwellings, retention of less than 30% of lot area in its natural state with no more than minor removal of trees and ground vegetation.
- Rendering impervious more than 15% or 2,500 square feet of any lot or parcel but less than 30%*
- Rendering impervious more than 20% but less than 50% of any lot or parcel *

Wetlands:
All work on this site needs to conform with the requirements of Article XVI Wetlands and Floodplain Regulations and the State of Massachusetts Department of Environmental Protection, Wetlands Protection Act. The work area identified as part of this study takes into account the approximate location of the 100' wetland buffer. The identification of wetlands, floodplains and buffers needs to be further investigated if the project is developed.

Town of Littleton, MA / Division 1: Town Meeting Enactments / Part II: General Legislation / Zoning
Article V **Use Regulations**

§ 173-26 Use regulations schedule.

Uses	Districts				
	R	VC	B	IA	IB
Commercial power generation	N	N	N	N	N
Self-storage facilities	N	N	N	P	P
INSTITUTIONAL USES					
School					
Exempt by statute (MGL C. 40, § 3)	Y	Y	Y	Y	Y
Other	N	Y	Y	Y	Y
Church or other religious use	Y	Y	Y	Y	Y
Fraternal, charitable and nonprofit organization	A	Y	Y	Y	Y
Library, museum, hospital	Y	Y	Y	Y	Y
Conversion of municipal building[6]	P	P	P	P	P
Municipal use not elsewhere more specifically cited	Y	Y	Y	Y	Y
RECREATIONAL USES					

Town of Littleton, MA Zoning Ordinance, Use Regulation Schedule, as amended. Municipal Use Permitted in "R" Residential District.

A. General. Adequate off-street parking must be provided to service all parking demand created by new construction, whether through new structures or additions to old ones, and by change of use of existing structures. Such parking shall be either on the same premises as the activity it services or within 300 feet on a separate parcel, which may be jointly used with other premises for this purpose, provided that the continued joint use of such parcel is ensured through an agreement recorded in the Registry of Deeds.

B. Schedule of parking area requirements. In applying for a building permit or certificate of use and occupancy, the applicant must demonstrate that the following minimums will be met, unless, in performing site plan review (see § **173-16**), the Planning Board determines that special circumstances render a lesser provision adequate for all parking needs. If such lesser provision is allowed, the Planning Board may impose such conditions as it deems necessary. Applicant is encouraged to consider shared parking as a possible means of reducing total parking area, subject to Planning Board approval.
[Amended 5-8-1995 ATM, Art. 32; 5-4-1998 ATM, Art. 34; 5-8-2000 ATM, Art. 27; 11-8-2005 STM, Art. 5]

(1) Dwellings: two spaces per dwelling unit.

(2) Motels, hotels, lodging houses: one space per guest unit, plus one space per employee.

(3) Retail stores: one space per 150 square feet of leasable floor area.

(4) Offices: one space per 250 square feet of gross floor area, or, if the Planning Board determines that the occupancy can adequately be predicted and controlled, one space per 1.25 employees on the largest shift.

(5) Industrial, wholesale: one space per 1.25 employees on the largest shift.

(6) Restaurants: one space per four seats, plus one space per employee on the larger shift.

(7) Places of assembly: one space per four seats.

(8) Hospitals: three spaces per bed.

(9) Nursing homes: one space per four beds.

(10) Bowling alleys: four spaces per lane.

(11) All others: one space per 250 square feet of gross leasable area.

(12) Motor vehicle service stations: one space per pump plus one space per employee, plus three spaces per

Town of Littleton, MA Zoning Ordinance, Parking Requirements, as amended.

Building Code Summary

Existing Building

The existing structures at the Shattuck Street complex are currently determined to be a type “B” Business use inclusive of storage use as incidental use over 100 square feet.

The construction consists of original concrete foundation and slab on grade with masonry exterior walls. The structure floor system varies by building. The 1922 Office Wing is presumed to have a wood combustible floor structure. The other three buildings appear to have a steel reinforced concrete floor structures. This structural system classifies as Type III requiring the fire resistance ratings highlighted in the chart below:

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame[f] (see Section 202)	3[a]	2[a]	1	0	1	0	HT	1	0
Bearing walls Exterior[e, f] Interior	 3 3[a]	 2 2[a]	 1 1	 0 0	 2 1	 2 0	 2 1/HT	 1 1	 0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[d]	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and associated secondary members (see Section 202)	$1^{1}/_{2}$[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

f. Not less than the fire-resistance rating as referenced in Section 704.10.

Through on site observation and review of the construction documentation available it appears as though these fire ratings are met. The requirement for two means of egress from each level and space for more than 50 occupants appears to have been met.

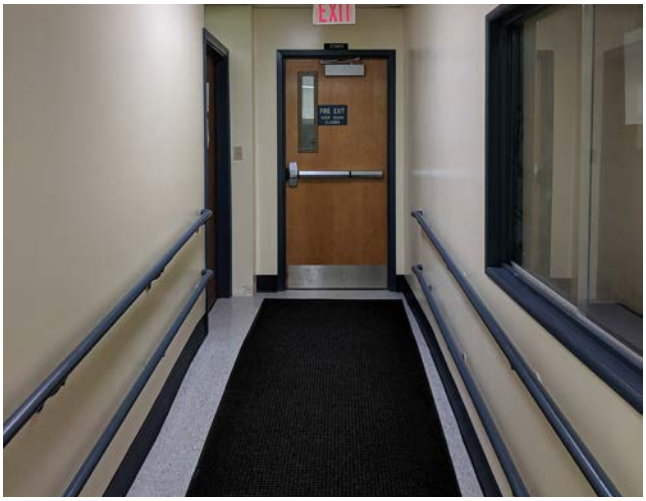
The scope of this assessment does not include full regulatory analyses. It is assumed that rated assembly and egress systems in place were in compliance with regulations at the time of design. Any proposed renovations or new program uses will require full evaluation and design solutions in keeping with regulatory requirements.

Renovations to the building should take into consideration the potential for costly upgrades that may be required to bring the building into conformance with current regulations,including the following:

- PER IEBC 2015 Section 907.1 The need for structural upgrades to bring the complex structures into compliance with current seismic and wind requirements will need to be analyzed in the context of the Level of Work being performed and each of the connected wing’s existing structural conditions. Determination of the extents of these upgrades is beyond the scope of this study. These upgrades may be both costly and invasive, particularly at the 1922 Office Wing the 1938 Office and Multi-Use with multi-wythe masonry walls that may not have reenforcing.
- None of the connected complex structures has a sprinkler system. *Massachusetts General Laws Chapter 148, Section 26G states that: Buildings with an aggregate area of more than 7500 SF that are undergoing additions or major alterations thereto must be sprinklered throughout in accordance with the building code.* This would be applicable regardless of the size of the new or altered space itself. There may be other thresholds that should be reviewed that would require the installation of a sprinkler system in an existing building.

View of existing elevator. Creates a bottle neck in circulation. (Library Wing - First Floor)

View of front entrance to library. Sidewalk slope may pose an accessibility issue. (Library Wing - Shattuck Street Side)



View of ramp leading from Parks & Rec to the stairwell. Its design may pose an accessibility issue. (Office Wing - First Floor)

Accessibility

Previous renovations to the Shattuck Street complex addressed site and interior accessibility, however, further measures are recommended to remove remaining barriers and meet today's standards for universal access.

Renovations to the building should take into consideration the potential for costly upgrades that may be required to bring the building into conformance with current regulations. Full compliance with ADA/ MAAB are required when the value of work exceeds 30% of the full and fair cash value of the building. See also Civil Engineering, Building Summaries, and Conveying assessments for further information.

Existing Exterior Conditions

Accessible parking spaces are present in the main lot at the rear of the building and near the library's second level main entrance. Most building entries can be approached via accessible routes. Egress doors from 2nd level require steps to grade.

Library Wing: The main library entrance, on the second level, front of building, has a sloped walkway that exceeds the 1:20 requirement for landscape a approaches. This 2nd level ,main entrance, +has an accessible automatic entry door. The 1st level, rear entry appears to have an accessible approach. Accessible parking spaces are located at the rear of the building. The rear entrance is also via an automatically accessible door.
Classroom Wing: The main entrance to town complex from the 1st level, rear entry appears to have an accessible approach.
Multi-Use Wing: The main entrance to EHS Department space from the 1st level, rear entry, appears to have an accessible approach, doors are on grade. Accessible parking spaces are in the vicinity.
Office Wing: The main entrance to town complex form the 1st level, rear entry appears to have an accessible approach.

Existing Interior Conditions

Routes to public spaces within the complex generally appear to meet accessibility requirements. At least one men's and one women's restroom appears to fully comply with accessibility requirements, however, many others fall short. The seniors EHS and Parks & Rec Departments do not appear to have reasonable access to fully accessible restrooms. The layout of each level is sufficiently wide to allow for an accessible route to public spaces. Doorways throughout appear to be sufficient accessible in width, push/ pull clearances thresholds and hardware with some exceptions. Most permanent rooms and stairs appear to have accessible signage.

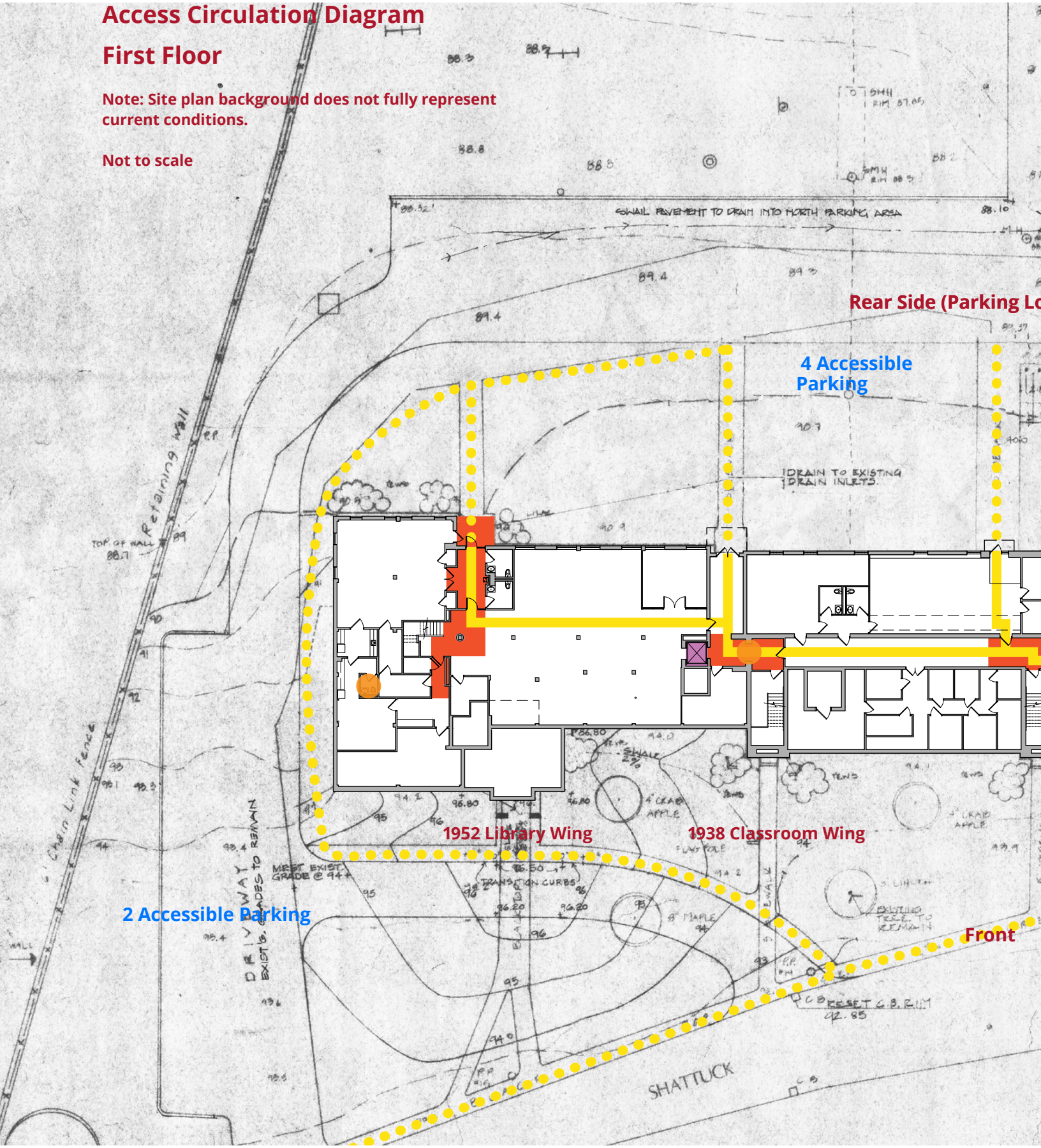
Library Wing: The main entrance to the Library, at the front of the building, can be entered on grade but is several feet lower than the rest of the second level. A lift is present but is not fully operational requiring patrons to use stairs. It is recommended that this lift be repaired or replaced. An alternate accessible route to all levels is available via the dual sided elevator shared with Town Hall.(Classroom Wing).The elevator is operational meets the size requirements for existing buildings. Many of the doors to public rooms do not have accessible handsets. Restrooms on the first floor have accessible features but do not meet all accessibility requirements. They particularly lack lavatory clearances, conforming mirror size and locations, and pipe guards. Dual height water coolers are not present.
Classroom Wing: A two sided passenger elevator located between the 1938 Library Wing and Classroom Wing. It has a clear interior cab space of 52"x 68" meeting the minimum size requirements for an existing accessible elevator, (but not current accessibility or stretcher use requirements.) This elevator serves all levels of all buildings with the exception of the 1922 Office Wing) Restrooms on the first level lack required clearances. Multi-fixture rest rooms on the second and third levels appear to have at least one fully accessible fixture.
Multi-Use Wing: The side entrance to this space has a non conforming interior ramp that lacks a landing and conforming handrails. The interior entrances to EHS Department on the first floor are not accessible due to improperly designed ramps. Restrooms for use by seniors are poorly designed and are not accessible. The upper levels of the Multi-Use Wing are not served by an elevator. Access to the spaces within this building are from the elevator shared by the Library and Classroom Wing. A functioning lift in the TV studio provides access to the spaces on stage level.
Office Wing: The First level entrance to this building, shared by all users, appears to be accessible. An elevator, with a 50"x68" footprint ,conforming with size requirements for existing structures, serves all levels. Restrooms in this wing have some accessible features but lack full compliance.

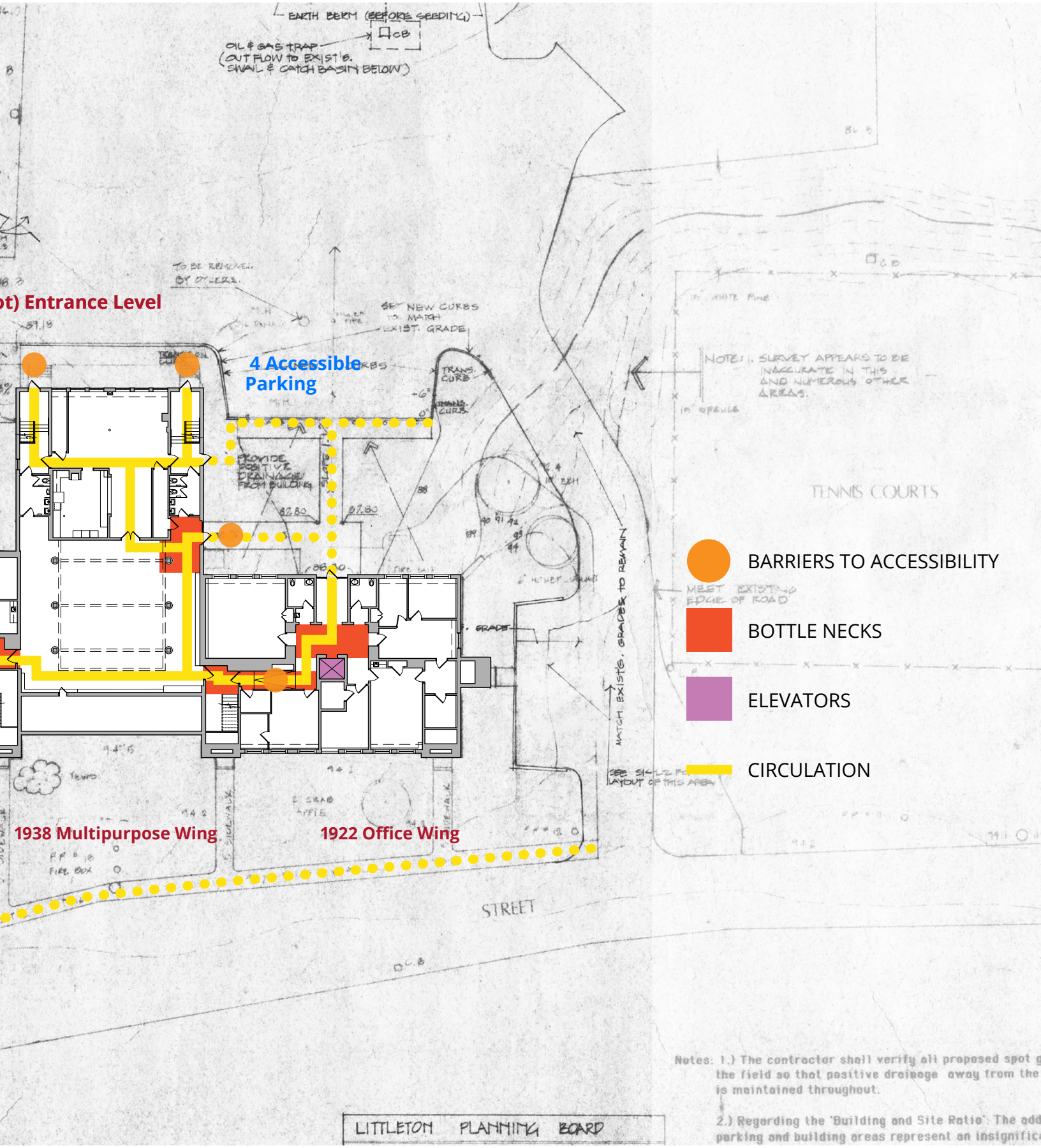
Access Circulation Diagram

First Floor

Note: Site plan background does not fully represent current conditions.

Not to scale



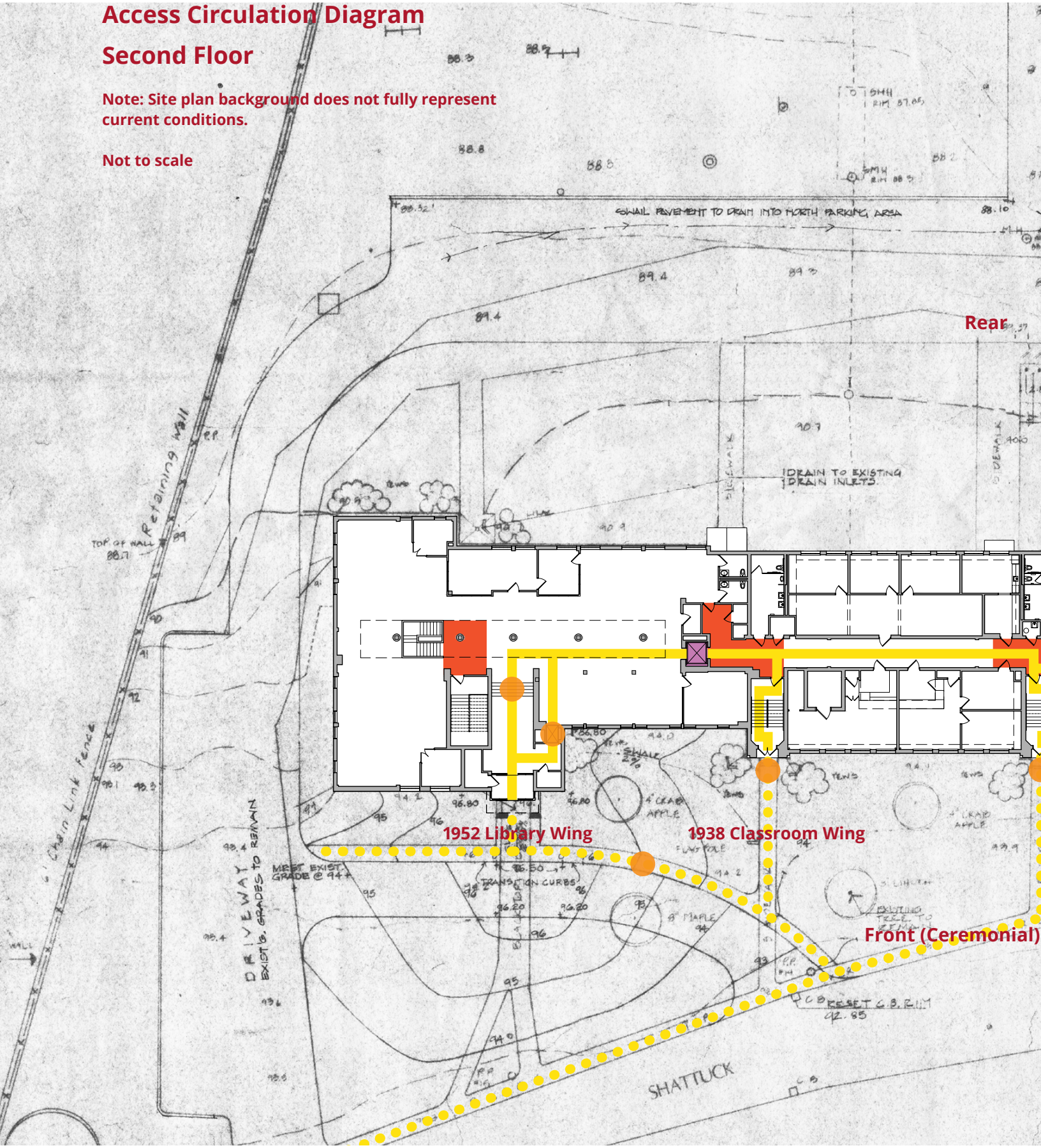

ot) Entrance Level
4 Accessible Parking
1938 Multipurpose Wing
1922 Office Wing
BARRIERS TO ACCESSIBILITY
BOTTLE NECKS
ELEVATORS
CIRCULATION
TENNIS COURTS
STREET
LITTLETON PLANNING BOARD

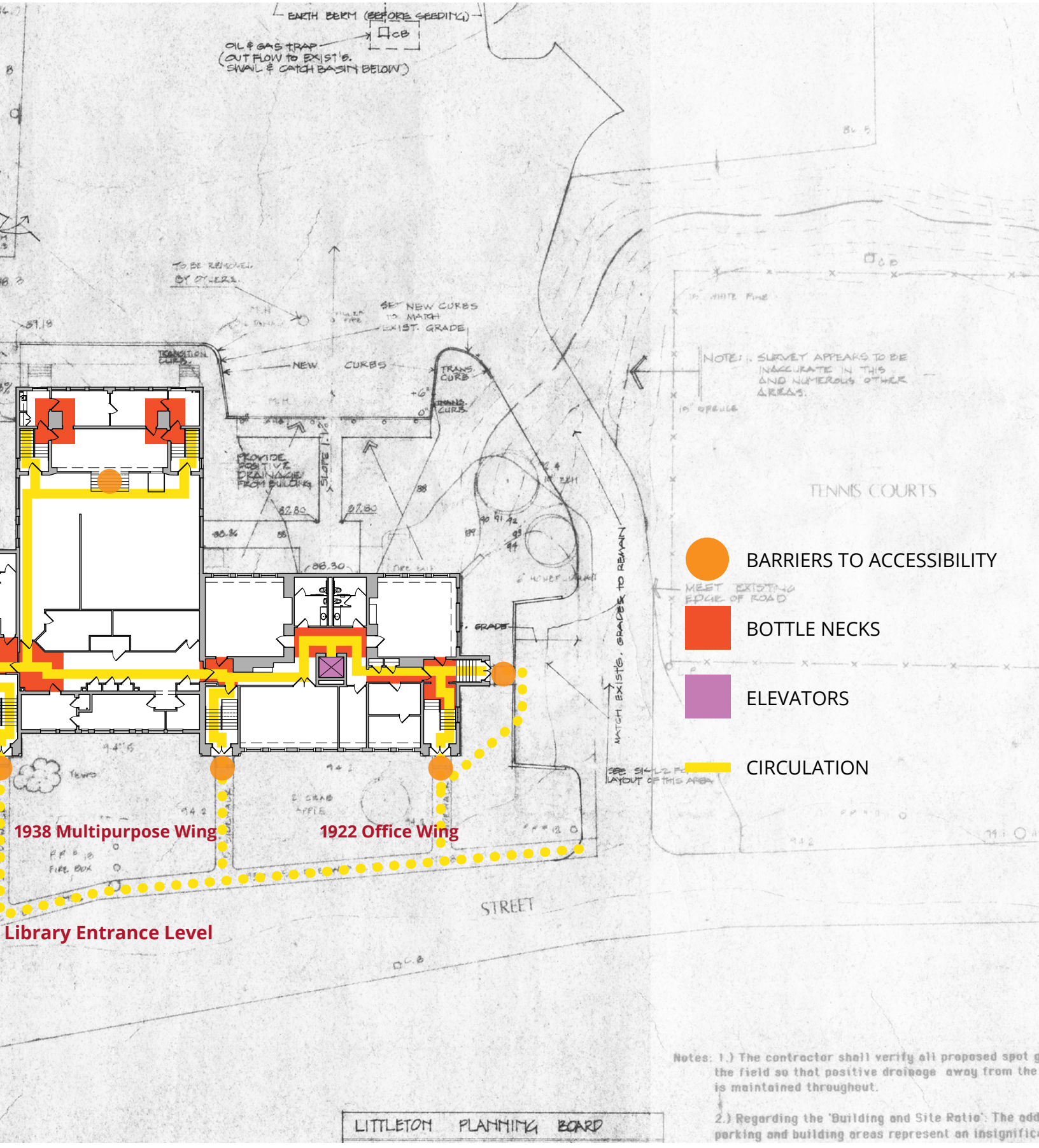
Access Circulation Diagram

Second Floor

Note: Site plan background does not fully represent current conditions.

Not to scale



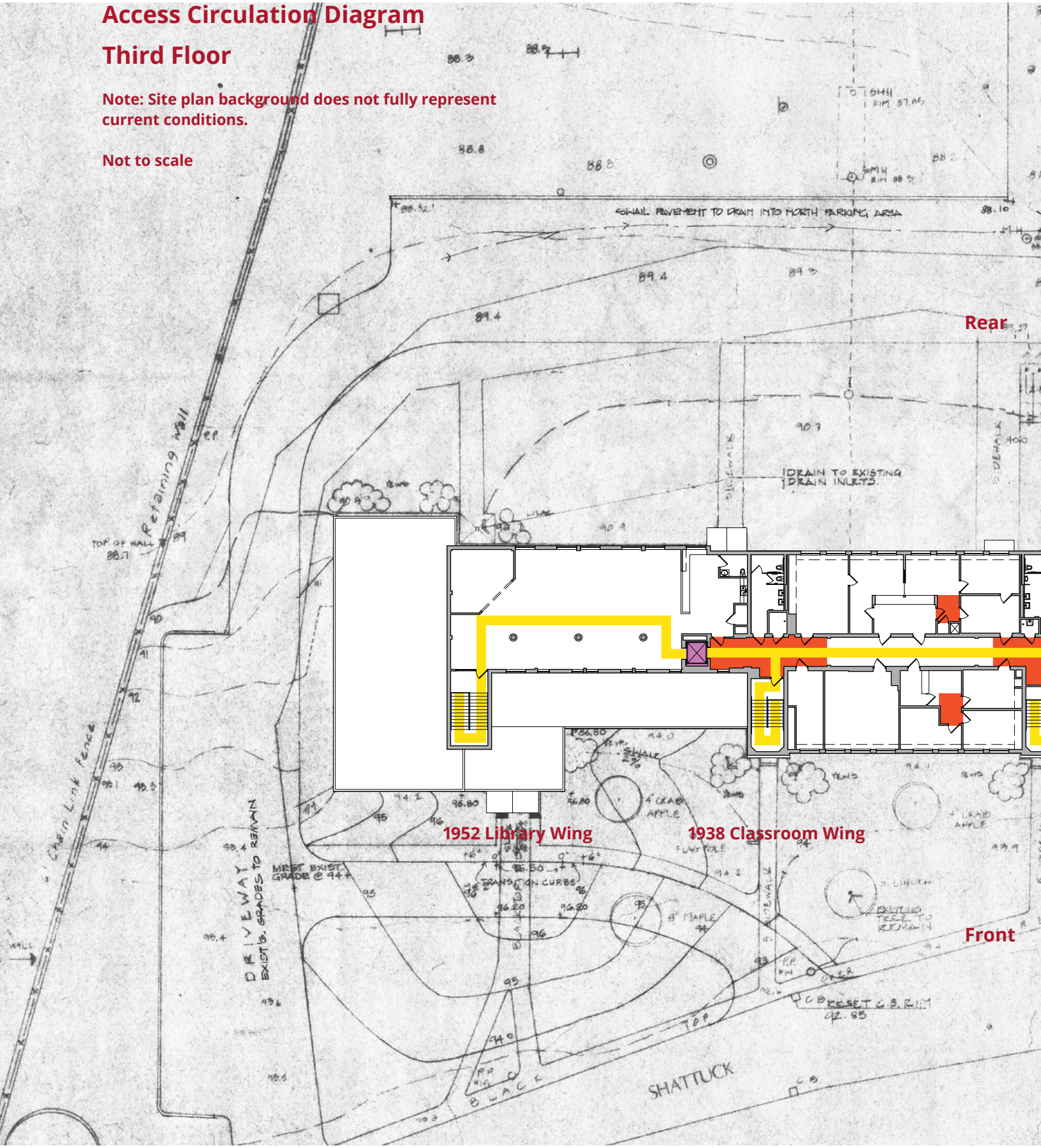

EARTH BERM (BEFORE SEEDING)
OIL & GAS TRAP (OUT FLOW TO EXIST'G. SWALE & CATCH BASIN BELOW)
TO BE REMOVED BY OTHERS
SET NEW CURBS TO MATCH EXIST. GRADE
NEW CURBS
TRANS. CURB
PROVIDE POSITIVE DRAINAGE FROM BUILDING
SLOPE 1:12
NOTE: 1. SURVEY APPEARS TO BE INACCURATE IN THIS AND NUMEROUS OTHER AREAS.
TENNIS COURTS
MEET EXISTING EDGE OF ROAD
MATCH EXISTG. GRADES TO REMAIN
STREET
1938 Multipurpose Wing
1922 Office Wing
Library Entrance Level
BARRIERS TO ACCESSIBILITY
BOTTLE NECKS
ELEVATORS
CIRCULATION
LITTLETON PLANNING BOARD
Notes: 1.) The contractor shall verify all proposed spot g
the field so that positive drainage away from the
is maintained throughout.
2.) Regarding the 'Building and Site Ratio': The add
parking and building areas represent an insignific

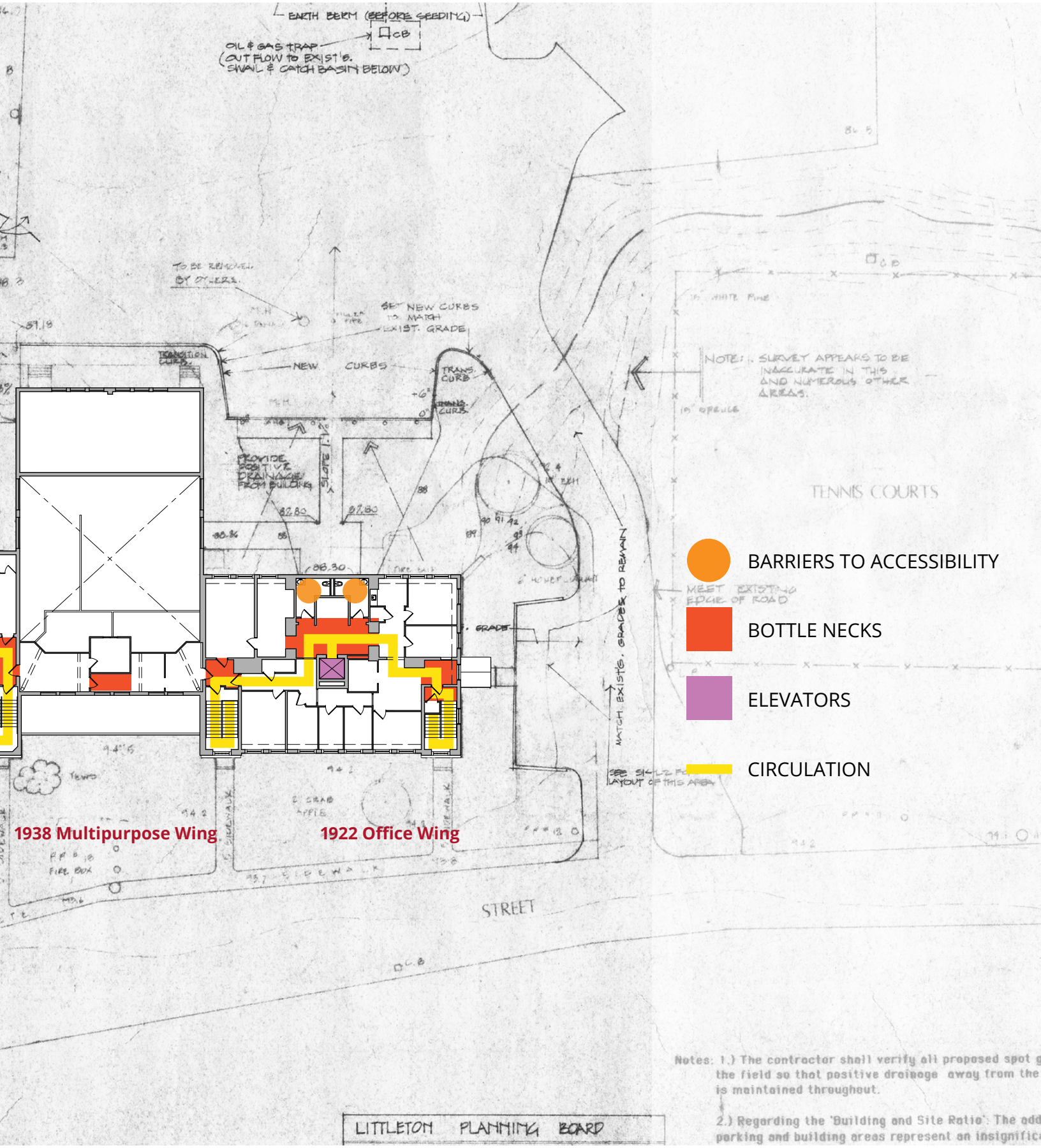
Access Circulation Diagram

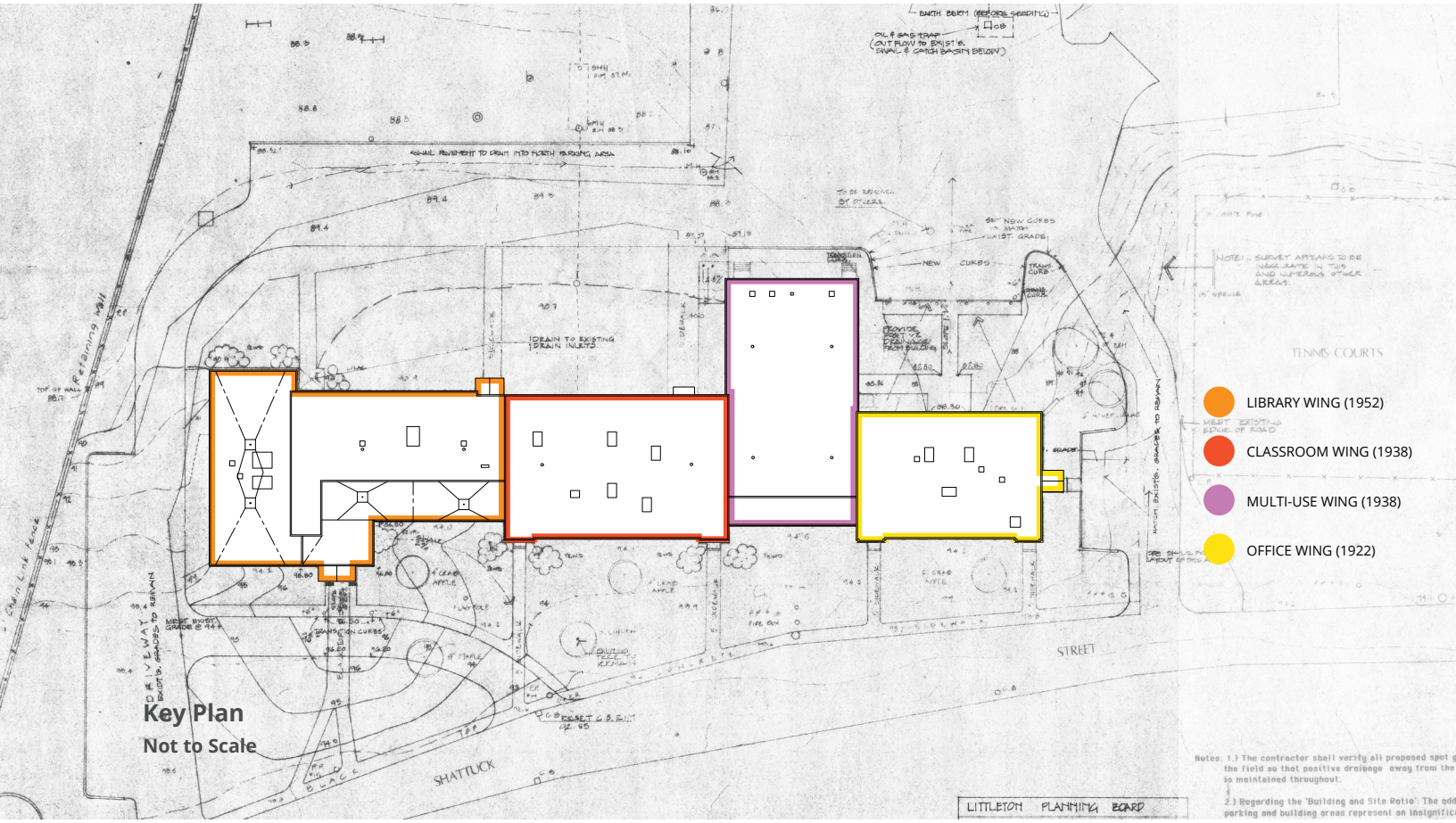
Third Floor

Note: Site plan background does not fully represent current conditions.

Not to scale




EARTH BERM (BEFORE SEEDING)
CB
OIL & GAS TRAP
(OUT FLOW TO EXIST'G.
SWALE & CATCH BASIN BELOW)
TO BE REMOVED BY OTHERS.
SET NEW CURBS TO MATCH EXIST. GRADE
NEW CURBS
TRANS. CURB
PROVIDE POSITIVE DRAINAGE FROM BUILDING
SLOPE 1:12
NOTE: 1. SURVEY APPEARS TO BE INACCURATE IN THIS AND NUMEROUS OTHER AREAS.
TENNIS COURTS
MEET EXISTING EDGE OF ROAD
MATCH EXISTG. GRADE TO REMAIN
BARRIERS TO ACCESSIBILITY
BOTTLE NECKS
ELEVATORS
CIRCULATION
1938 Multipurpose Wing
1922 Office Wing
STREET
LITTLETON PLANNING BOARD
Notes: 1.) The contractor shall verify all proposed spot g
the field so that positive drainage away from the
is maintained throughout.
2.) Regarding the 'Building and Site Ratio': The add
parking and building areas represent an insignific

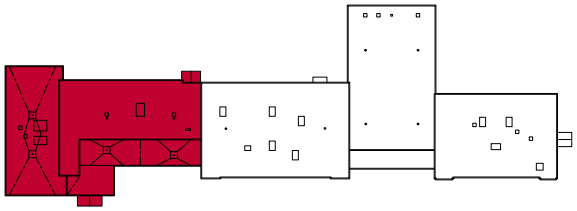


Key Plan

Not to Scale

III. Existing Conditions Assessment

Building Condition Summaries



YEAR BUILT:
1952

USE:
LIBRARY

GROSS FLOOR AREA
LEVEL 1: 7,195
LEVEL 2: 7,195
LEVEL 3: 3,180
TOTAL: 17,570

Library Wing

During the course of this study a new library was constructed and the existing library was vacated.

CONSTRUCTION DESCRIPTION

The Library Wing is the most recently constructed of the Littleton Town Hall complex buildings. The 1951 construction drawings indicate that concrete subgrade walls support 8" cinder concrete block backed, brick faced cavity wall. The ground level is a concrete slab on grade. Upper levels have concrete joist floor structures.

Walls appeared plumb, floors level, no significant wall or floor cracks were observed. Structural analyses will be required to determine the extents of structural upgrades that would be required by the Level of Work if the building is renovated.

EXTERIOR VERTICAL ENCLOSURE

The exterior walls are primarily brick with wood trim. Some original openings have been reduced in size and clad with Dryvit infill panels. Windows are clad, double hung, with insulated glazing. Painted steel exterior steel storefront systems are present at the front and rear entrances. Exterior painted steel doors and frames are also present. The main entrance has a recently installed automatic door system

The brick appears to be performing adequately; however, the cause of white stains under window openings and at various other locations should be further investigated. Miscellaneous penetrations and open joints in brick have been caulked. Light repointing and comprehensive cleaning are recommended.

The wood trim at exterior soffits and walls has flaking paint. This material should be refinished but should also be further investigated to determine if it indicates a wall moisture issue. Soffit vents were not observed.

The Dryvit panels are reported to attract nesting birds. The damage they cause has been reactively filled with spray foam that does not match finish of Dryvit.

The exterior double hung windows appear to be the same age as others on building and to be performing adequately. Users, however, report thermal discomfort and the inability to operate the windows safely. The sealant between frames and openings appears to be degrading. It is recommended that the windows be replaced.

The exterior steel doors and steel storefront systems at the front and rear entrances are rusted and recommended for replacement.

The automatic entrance door appears to be recently installed, to be performing adequately, and to be accessible; however, it does not match the surrounding steel storefront system,

ROOF AND RAINWATER MANAGEMENT

The Library has PVC roofing at the upper and lower low slope roofs with internal drains and walk pads. No fall protection is present. The gabled entrance has asphalt shingle roofing and sheet drains to grade.

The existing PVC roof appears to be new and performing well. Periodic clearing of the internal drains is required. The need for fall protection should be further investigated. The asphalt shingled roofing appears to be performing adequately but to be nearing the end of its useful life.

INTERIOR AND FINISHES

The interior of the Library is fit out with materials and finishes similar to others on the Shattuck Street Campus with special considerations due to its use. The majority of spaces are for public use, well maintained, and with finish materials in good condition. However, in some cases, the finishes appear to be dated.

The needs and demands of the library program have grown over time. The children's level and back of house spaces appear crowded and cluttered. The fluorescent down-lighting is generally poor for library use. The interior would benefit from renovation to improve the layout, operations, lighting and general appearance and to better serve the needs of each space.

Floors finishes include vinyl composition tile and carpet. Both are adequately maintained in most spaces. Loose laid carpet pieces present tripping hazards in back of house spaces

The interior side of exterior walls are painted CMU to wainscoting level and painted GWB above. Interior partition walls are painted gypsum wall board. Resilient base is present at most interior partitions. Floors finishes include vinyl composition tile and carpet. Wall finishes are well maintained. In some cases, resilient base is missing or beginning to fail. A lack of dedicated display space has resulted in a proliferation of notices taped to walls. Further investigation is required to determine if this presents a fire hazard.

Most ceiling finishes are 2x2 or 2x4 ACT with 2x4 fluorescent lighting. Painted gypsum wall board ceilings and soffits are also present. In back of house spaces the exposed concrete structure is painted. The ACT ceilings are in fair condition. Tile fields match and are intact, and lighting is sufficient; however, the effect is dark and appears dated. In many cases, tile shows water damage; the cause should be further investigated.

Doors throughout the library are typically wood veneer, solid core, in painted hollow metal frames. Door handle sets include a mix of lever and knob types. Doors and hardware appear to be performing as originally designed, However, doors to public spaces should have accessible handle-sets.

ACCESSIBILITY & CONVEYING

See Accessibility and Conveying report for campus findings.

WAY FINDING

Way finding to and throughout the library is confusing. Navigation is most straightforward from the front entrance; however, many visitors arrive from the parking lot through the Town Hall entrance. The shared use of the two sided elevator with Town Hall is not intuitive. The children's level on the third floor is isolated from other areas.

Signage, with braille, identifying spaces is inconsistently present. It is located outside many but not all doors to public spaces including; public rooms, restrooms, and utility rooms. Accessible signage should be provided at all public spaces.

SECURITY

The building has limited security cameras currently Additional cameras are suggested to improve upon the security system in place, most importantly at all entrances, around the entire exterior of the building, and throughout the main corridors and meeting spaces inside. Cameras should have the ability to record and be monitored in real time. The building would also benefit from key card access to improve security measures program to program.

SUSTAINABILITY

See Sustainability report for campus findings.

CIVIL

See Civil system report for campus findings.

ELECTRICAL

The electrical distribution equipment is in good condition and may be reused.. The receptacles are in good condition AND may be reused. The existing fluorescent lighting fixtures are in fair condition. The existing site lighting fixtures are in fair condition.

ELECTRICAL EMERGENCY & LIFE SAFETY

The building does not have a generator. The exit signs have battery back-up are in fair condition. The existing remote head emergency lighting fixtures are in fair condition. The existing conventional fire alarm system is in fair condition.

The building does not have a generator. The exit signs have battery back-up and should be replaced with new LED exit signs with battery back-up. The existing remote head emergency lighting fixtures shall be replaced with LED emergency inverters in the new LED lighting fixtures. The existing conventional fire alarm system shall be replaced with a new addressable fire alarm system.

FIRE PROTECTION & PLUMBING

The existing plumbing systems are adequate for the current use of the building. Necessary modifications would be dictated by and architectural modifications or change in program use. This building does not currently have a sprinkler system and will need to have one if renovated.

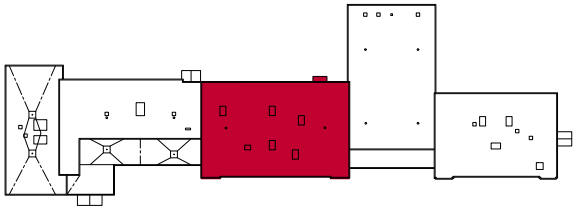
MECHANICAL

Fuel Systems: Natural gas and electric. Heating Systems: Natural gas fired furnaces, natural gas fired boilers, hydronic and electric heating devices. Cooling Systems: Direct Expansion air handling units. HVAC Distribution: Duct work and hydronic hot water piping. Terminal Units: Not applicable.

Major equipment such as air handling units, boilers and appurtenances are nearing or past their expected life and are recommended for replacement. Distribution mains, such as duct work and piping, may remain and should be investigated for integrity and suitability.

ENVIRONMENTAL ASSESSMENT

Some evidence of ACM was discovered in the 1938 Multi-Use Wing, roof and third floor storage area. ACM that will be impacted by renovation or demolition work must be removed before they are disturbed. During the course of renovation or demolition work, it is possible that additional suspect ACM will be encountered. Contractors should be apprised to conduct any such work in a controlled manner. Currently No Lead Based Paint was observed and tested, so Lead abatement is not required. The visual survey for hazardous materials identified mercury-containing light tubes, PCB-containing light ballasts, mercury containing thermostats and switches, lead and tritium batteries, refrigerants and other hazardous materials. Items will need to be recycled or disposed of in accordance with state and federal regulations. No subsurface soil or groundwater sampling and analysis was performed.



Classroom Wing

YEAR BUILT:
1938

USE: TOWN HALL, ADMINISTRATOR & FINANCE OFFICES & MEETING SPACES

GROSS AREA
LEVEL 1: 4,890
LEVEL 2: 4,860
LEVEL 3: 4,875
TOTAL 14,625

CONSTRUCTION DESCRIPTION

The Classroom Wing appears to have been constructed at the same time as the Multi-Use Wing and to be of similar construction. The original drawings were not available for review.

It appears that cast in place concrete sub-grade walls support multi-wythe brick masonry walls. These walls are finished, most likely with plaster, in some areas and are exposed and painted in others, including the original gym/current TV studio. Interior longitudinal corridor walls and other load bearing walls are also multi-wythe brick masonry. The ground level is a concrete slab on grade. Steel K joists floor joist were observed supporting first floor, these appear to support concrete floor systems.

Walls appeared plumb, floors level, no significant wall or floor cracks were observed. It is unknown if steel reinforcing was used in the masonry construction.

Structural analyses will be required to determine the extents of structural upgrades that would be required by the Level of Work if the building is renovated.

EXTERIOR VERTICAL ENCLOSURE

Brick work is in generally good condition with several locations of moss and mildew, a few cracked bricks and minor areas requiring Spot repointing and cleaning. The Dryvit system should be monitored for damage by birds. Wood trim is mostly sound with minor areas of deterioration, all is recommended to be prepared and refinished. All windows and doors are sound but nearing end of useful life and recommended for replacement,

ROOF AND RAINWATER MANAGEMENT

The main low slope roof has a Seaman Corp., FiberTite roof system roof which is still under warranty and appears to have multiple issues that should be brought to the attention of the manufacturer and installer. The roofing membrane at perimeter is loose. There are multiple wrinkles in membrane and evidence of pooling water. The roof has internal drains and walk pads. Drains should be periodically cleaned of debris. The need for fall protection should be further investigated. No fall protection is present

A shed roof at rear entrance is asphalt shingled. This roof sheet drains to grade. The asphalt shingled roofing appears to be performing adequately. Water and snow from this roof may present slip hazard in winter conditions.

INTERIOR AND FINISHES

The interior public Town Hall spaces in the 1938 Classroom Wing are appropriately appointed and generally well maintained and consistent. Many departments have grown over time and would benefit from reorganization. The lower level storage room has poor finishes and would benefit from fit out to support its use.

Floors finishes in this building are typically VCT in corridors and carpet in offices. Resilient base is present at most interior walls. Floors are well maintained.

The interior side of exterior walls is finished in gypsum wall board or plaster. Interior bearing walls are exposed brick. Partition walls are typically gypsum wall board. For the most part, all brick and partition walls are painted and have 4” or 6” resilient base. The wall substrates and finishes are, for the most part, in good condition and appear to be cyclically maintained.

Most ceiling finishes are 2x4 ACT some are painted gypsum wall board. The ACT ceilings with 2x4

fluorescent lighting are in good condition and adequately serve the spaces.

Doors to public spaces are primarily wood veneer in painted hollow metal frames with lever style handle sets and hardware that appears to be suited to its use. Some closets and back of house spaces have older knob style hardware. Doors and hardware appear to be performing as originally designed and to be appropriate to its use.

ACCESSIBILITY & CONVEYING

See Accessibility and Conveying report for campus findings.

WAY FINDING

The arrangement of Town Hall on three levels can be a bit confusing for visitors to navigate. The shared use of the elevator with the library is disorienting.

Signage identifying spaces is present outside most doors to public spaces including; public rooms, restrooms, and utility rooms.

SECURITY

The building has limited security cameras currently Additional cameras are suggested to improve upon the security system in place, most importantly at all entrances, around the entire exterior of the building, and throughout the main corridors and meeting spaces inside. Cameras should have the ability to record and be monitored in real time. The building would also benefit from key card access to improve security measures program to program

SUSTAINABILITY

See Sustainability report for campus findings.

CIVIL

See Civil system report for campus findings.

ELECTRICAL

SYSTEM & STATUS: The electrical distribution equipment is in good condition and may be reused. The receptacles may be reused. The existing fluorescent lighting fixtures are in fair condition and shall be replaced with new LED lighting fixtures. The existing site lighting fixtures are in fair condition and shall be replaced with new LED light fixtures.

ELECTRICAL EMERGENCY & LIFE SAFETY

SYSTEM: The building does not have a generator. The exit signs have battery back-up are in fair condition. The existing remote head emergency lighting fixtures are in fair condition. The existing conventional fire alarm system is in fair condition.

STATUS: The building does not have a generator. The exit signs have battery back-up and should be replaced with new LED exit signs with battery back-up. The existing remote head emergency lighting fixtures shall be replaced with LED emergency inverters in the new LED lighting fixtures. The existing conventional fire alarm system shall be replaced with a new addressable fire alarm system.

FIRE PROTECTION & PLUMBING

The existing plumbing systems are adequate for the current use of the building. Necessary modifications would be dictated by and architectural modifications or change in program use. This building does not currently have a sprinkler system and will need to have one if renovated.

MECHANICAL

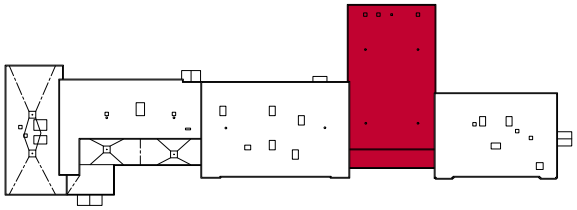
Fuel Systems: Natural gas and electric. Heating Systems: Natural gas fired furnaces, natural gas fired boilers, hydronic and electric heating devices. Cooling Systems: Direct Expansion air handling units. HVAC Distribution: Duct work and hydronic hot water piping. Terminal Units: Not applicable.

Major equipment such as air handling units appear to be operating adequately and are within their expected life. Distribution mains, such as duct work and piping, may remain and should be investigated for integrity and suitability.

ENVIRONMENTAL ASSESSMENT

Some evidence of ACM was discovered in the 1938 Multi-Use Wing, roof and third floor storage area. ACM that will be impacted by renovation or demolition work must be removed before they are disturbed. During the course of renovation or demolition work, it is possible that additional suspect ACM will be encountered. Contractors should be apprised to conduct any such work in a controlled manner. Currently No Lead Based Paint was observed and tested, so Lead abatement is not required. The visual survey for hazardous materials identified mercury-containing light tubes, PCB-containing light ballasts, mercury containing thermostats and switches, lead and tritium batteries, refrigerants and other hazardous materials. Items will need to be recycled or disposed of in accordance with state and federal regulations. No subsurface soil or groundwater sampling and analysis was performed.

Third Floor - Corridor



Multi-Use Wing

YEAR BUILT
1938

USE:
LCTV, ELDER & HUMAN SERVICES

GROSS FLOOR AREA
LEVEL 1: 4,900
LEVEL 2: 4,900
LEVEL 3: 2,005
TOTAL: 11,805

CONSTRUCTION DESCRIPTION

The Multi-Use Wing appears to have been constructed at the same time as the Classroom Wing and to be of similar construction. The original drawings were not available for review.

It appears that cast in place concrete sub-grade walls support multi-wythe brick masonry walls. These walls are finished, most likely with plaster, in some areas and are exposed in others, including the original gym / current TV studio. Interior longitudinal corridor walls and other load bearing walls are also multi-wythe brick masonry. The ground level is a concrete slab on grade. Steel K joists floor joist were observed, these appear to support concrete floors.

Walls appeared plumb, floors level, no significant wall or floor cracks were observed. It is unknown if steel reinforcing was used in the masonry construction.

Structural analyses will be required to determine the extents of structural upgrades that would be required by the Level of Work if the building is renovated.

EXTERIOR VERTICAL ENCLOSURE

Brick work is in generally good condition with several locations of moss and mildew, a few cracked bricks and minor areas requiring Spot repointing and cleaning. The brick chimney is in need repair and repoinitng. The Dryvit system should be monitored for damage by birds. Wood trim is mostly sound with minor areas of deterioration, all is recommended to be prepared and refinished. All windows and doors are sound but nearing end of useful life and recommended for replacement,

ROOF AND RAINWATER MANAGEMENT

The Multi-Use Wing building has black EPDM roofing at the upper section and TPO roofing at the lower section. Both low slope roofs have internal drains. Hatch access to all connected roofs is located here. No fall protection is present.

The hipped roofed rear entrances sheet drain to grade.

The existing EPDM roof is of unknown age. The area around drains feel hollow under membrane and may not be directing water well to drains. Periodic clearing of the internal drains is required. The coated metal side wall flashing appears to be nearing the end of its useful life. One leak was reported to have been fixed in the last year, other patches are present. A hive of bees is nesting in a roof vent. The need for fall protection should be further investigated.

The lower roof appears to be the same type of Seaman Corp., FiberTite roof system on the 1938 Classroom Wing and in similar condition. It is discolored and shows evidence of ponding at drain and other locations. Drain should be cleared periodically. The membrane appears to be loose at the perimeter. This condition should be further investigated and brought to the attention of manufacturer / installer.

The asphalt shingled roofing appears to be performing adequately. Water and snow from this roof may present slip hazard in winter conditions.

INTERIOR AND FINISHES

The interior spaces of the Multi-Use structure reflects the diversity of uses within the building. The lowest level of the multipurpose wing is somewhat oddly configured. The largest room is

the recreation space use by Elder & Human Services, it is both difficult to get to and windowless. The space would benefit from more natural light. The lack of a corridor between the restrooms, dining room, and stairs saves space but makes for problematic egress and awkward restrooms. The TV studio utilizes the double height space on second level and appears to be well equipped. The small third floor is used for storage by the adjacent School Department.

The interior side of exterior walls and interior bearing walls are exposed brick or concrete (in sub-grade locations). Load bearing partition walls are exposed brick. Other partitions are finished with gypsum wall board. Walls are painted and have resilient base. On the lower level a painted mural adds interest to the walls of the multipurpose room. The wall substrates and finishes are, for the most part, in good condition and appear to be cyclically maintained. Floors are well maintained. The ACT ceilings with 2x4 fluorescent lighting are in good condition and adequately serve the spaces.

Ceiling finishes include 2x4 ACT, painted gypsum wall board and direct glued acoustic ceiling with a painted finish in the TV studio.

As in other building many interior doors are wood veneer with solid cores and hardware that appears to be performing as designed including lever style handles on the doors to most public spaces. Knob handles sets are also present. Doors of other styles have been added as needed. Most doors and hardware appear to be performing as originally designed, and to be appropriate to their use. The handle sets of some doors should be changed to accessible types where serving public spaces.

KITCHEN EQUIPMENT

The existing commercial kitchen appliances appear to be in good condition and performing well. It is expected that if the EHS program is relocated that this equipment will incorporated into the new kitchen. Grease trap, gas connections, sanitary connections and domestic water connections will also be required.

ACCESSIBILITY & CONVEYING

See Accessibility and Conveying report for campus findings.

WAY FINDING

Located between the Town Hall and the 1922 Office Wing, the multipurpose wing can be confusing to navigate. The Senior Dining and TV studio have separate interior entrances and can also be reached by navigating through adjacent buildings. Many spaces in this building do not have accessible signage.

SECURITY

The building has limited security cameras currently Additional cameras are suggested to improve upon the security system in place, most importantly at all entrances, around the entire exterior of the building, and throughout the main corridors and meeting spaces inside. Cameras should have the ability to record and be monitored in real time. The building would also benefit from key card access to improve security measures program to program.

SUSTAINABILITY

See Sustainability report for campus findings.

CIVIL

See Civil Engineering report for campus findings.

ELECTRICAL

The electrical distribution equipment is in good condition and may be reused. The receptacles may be reused. The existing fluorescent lighting fixtures are in fair condition and shall be replaced with new LED lighting fixtures. The existing site lighting fixtures are in fair condition.

ELECTRICAL EMERGENCY & LIFE SAFETY

The building does not have a generator. The exit signs have battery back-up are in fair condition. The existing remote head emergency lighting fixtures are in fair condition. The existing conventional fire alarm system is in fair condition.

The building does not have a generator. The exit signs have battery back-up and should be replaced with new LED exit signs with battery back-up. The existing remote head emergency lighting fixtures shall be replaced with LED emergency inverters in the new LED lighting fixtures. The existing conventional fire alarm system shall be replaced with a new addressable fire alarm system.

FIRE PROTECTION & PLUMBING

The existing plumbing systems are adequate for the current use of the building. Necessary modifications would be dictated by architectural modifications or change in program use. This building does not currently have a sprinkler system and will need to have one if renovated.

MECHANICAL

Fuel Systems: Natural gas and electric. Heating

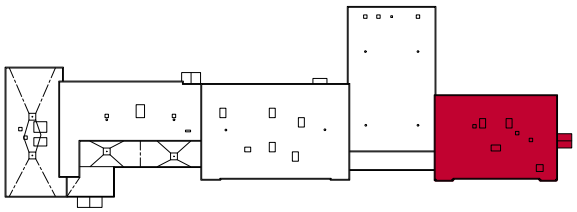
Third Floor - Storage

Systems: Natural gas fired furnaces, natural gas fired boilers, hydronic and electric heating devices. Cooling Systems: Direct Expansion air handling units. HVAC Distribution: Duct work and hydronic hot water piping. Terminal Units: Not applicable.

Major equipment such as air handling units, boilers and appurtenances are nearing or past their expected life and are recommended for replacement. Distribution mains, such as duct work and piping, may remain and should be investigated for integrity and suitability.

ENVIRONMENTAL ASSESSMENT

Some evidence of ACM was discovered in the 1938 Multi-Use Wing, roof and third floor storage area. ACM that will be impacted by renovation or demolition work must be removed before they are disturbed. During the course of renovation or demolition work, it is possible that additional suspect ACM will be encountered. Contractors should be apprised to conduct any such work in a controlled manner. Currently no Lead Based Paint was observed and tested, so Lead abatement is not required. The visual survey for hazardous materials identified mercury-containing light tubes, PCB-containing light ballasts, mercury containing thermostats and switches, lead and tritium batteries, refrigerants and other hazardous materials. Items will need to be recycled or disposed of in accordance with state and federal regulations. No subsurface soil or groundwater sampling and analysis was performed.



Office Wing

YEAR BUILT:
1922

USE:
PARKS & RECREATION, SCHOOL DEPARTMENT OFFICES

GROSS FLOOR AREA
LEVEL 1: 3,610
LEVEL 2: 3,580
LEVEL 3: 3,535
TOTAL: 10,725

HISTORICAL

The 1922 Colonial Revival Style structure, originally constructed as a school, is the oldest of the campus complex buildings. It is described in the 1998 Massachusetts Historical Commission Archives as a *"...9x 4 bay school house distinguished by quoin, water table, and decorative panels with swags...and entries with Roman Doric pilasters supporting entablature and pediment."* The MHC 1998 Opinion was that "*the Shattuck Street School is not eligible for listing on the NRHP (National Register Historic Places) because of the major alterations to the building over time. The size and scale of the 1938 and 1952 additions outweighs the historical and architectural significance of the 1922 building. "*

CONSTRUCTION DESCRIPTION

The structure appears to have a cut granite foundation. The exterior walls and interior bearing walls appear to be un-reinforced multi-wythe brick masonry construction. The floor and roof structural system and materials are unknown but presumed to be wood with the lowest level a concrete slab.

Walls appeared plumb. Floors were observed to have some variation particularly on the 2nd level most likely due to deflection over time, this should be further investigated. No significant wall or floor cracks were observed. It is unknown if steel reinforcing was used in the masonry construction.

Structural analyses will be required to determine the extents of structural upgrades that would be required by the Level of Work if the building is renovated.

EXTERIOR VERTICAL ENCLOSURE

The exterior brick facade is generally in good condition with some with minor areas of moss and mildew , in need of repointing, Dryvit present is currently in fair condition. Wood trim is degrading in some locations and is in need of repair and refinishing. Windows are functional but recommended for replacement.

ROOF AND RAINWATER MANAGEMENT

The Office Wing 1922 has TPO low slope roofing with internal drains and walk pads. No fall protection is present. : The existing TPO roof appears to be performing well. Periodic clearing of the internal drains is required. The need for fall protection should be further investigated. Gable roofs at entrances sheet drain to grade and appear to be performing adequately. The copper roofing is beginning to oxidize but should have many years of useful life remaining.

INTERIOR AND FINISHES

The interior of the 1922 Office Wing is for the most part similar to that of the other buildings on this campus. As the oldest of the buildings, it has some unique interior features. The interior public spaces are modestly appointed and generally well maintained. Back of house spaces tend to have less up-to-date finishes and materials that are not as well maintained. The Parks and Recreation offices on the first level have finishes in the poorest condition, the Council on Aging spaces are in somewhat better condition, and the School Department on the third floor has the most recently updated finishes. It is generally recommended that interior design guidelines be developed for implementation when spaces are refinished to make for cohesive quality of environments.

Floors finishes include vinyl composition tile and carpet. The condition of floor finishes is more mixed than in other buildings. In some cases, they are newer and well maintained. In others, they are due for replacement.

The interior side of exterior walls and interior

bearing walls are exposed brick. Partition walls are typically gypsum wall board. For the most part, all brick and partition walls are painted and have 4" or 6" resilient base. The wall substrates and finishes are, for the most part, in good condition and appear to be cyclically maintained. Some heavily used spaces with higher volumes of storage, like the Thrift Shop and Parks and Recreation, are due for refreshing.

Most ceiling finishes are 2x4 ACT some are painted gypsum wall board. As with the flooring, the condition of the ceilings is mixed. In a few back of house spaces on the ground level ACT was observed to be missing, in poor condition or to have water stains.

Doors to public spaces are wood veneer in painted hollow metal frames with lever style handle sets and hardware that appears to be suited to its use. Some, possibly original painted, wood paneled doors are present with outdated hardware including knob handle sets. These doors are typically in use at closets and utility spaces. The older doors are adequate. Their continued use should be further evaluated in the context of ADA considerations, maintenance, and consistency of interior finishes.

ACCESSIBILITY & CONVEYING

See Accessibility and Conveying report for campus findings.

WAY FINDING

Way finding to the second and third levels is confusing for visitors. The main entrance, on the ground level requires passage through the Parks and Recreation Department. Way finding from the from the complex's main Town Hall entrance, at the lowest level of the library building, presents a maze-like route that requires passage through adjoining spaces on all levels except the second. Signs identifying spaces are present outside most doors to public spaces including; public rooms, restrooms, and utility rooms.

SECURITY

The building has limited security cameras currently Additional cameras are suggested to improve upon the security system in place, most importantly at all entrances, around the entire exterior of the building, and throughout the main corridors and meeting spaces inside. Cameras should have the ability to record and be monitored in real time. The building would also benefit from key card access to improve security measures program to program.

SUSTAINABILITY

See Sustainability report for campus findings.

CIVIL

See Civil Engineer's Report.

ELECTRICAL

The electrical distribution equipment is in good condition and may be reused. The receptacles may be reused. The existing fluorescent lighting fixtures are in fair condition and shall be replaced with new LED lighting fixtures.

ELECTRICAL EMERGENCY & LIFE SAFETY

The building does not have a generator. The exit signs have battery back-up are in fair condition. The existing remote head emergency lighting fixtures are in fair condition. The existing conventional fire alarm system is in fair condition.

The building does not have a generator. The exit signs have battery back-up and should be replaced with new LED exit signs with battery back-up. The existing remote head emergency lighting fixtures shall be replaced with LED emergency inverters in the new LED lighting fixtures. The existing conventional fire alarm system shall be replaced with a new addressable fire alarm system.

FIRE PROTECTION & PLUMBING

The existing plumbing systems are adequate for the current use of the building. Necessary modifications would be dictated by and architectural modifications or change in program use. This building does not currently have a sprinkler system and will need to have one if renovated.

MECHANICAL

Fuel Systems: Natural gas and electric. Heating Systems: Natural gas fired furnaces, natural gas fired boilers, hydronic and electric heating devices. Cooling Systems: Direct Expansion air handling units. HVAC Distribution: Duct work and hydronic hot water piping. Terminal Units: Not applicable

Major equipment such as air handling units appear to be operating adequately and are within their expected life. Distribution mains, such as duct work and piping, may remain and should be investigated for integrity and suitability.

ENVIRONMENTAL ASSESSMENT

Some evidence of ACM was discovered in the 1938 Multi-Use Wing, roof and third floor storage area. ACM that will be impacted by renovation or

Second Floor - Thrift Shop

demolition work must be removed before they are disturbed. During the course of renovation or demolition work, it is possible that additional suspect ACM will be encountered. Contractors should be apprised to conduct any such work in a controlled manner. Currently No Lead Based Paint was observed and tested, so Lead abatement is not required. The visual survey for hazardous materials identified mercury-containing light tubes, PCB-containing light ballasts, mercury containing thermostats and switches, lead and tritium batteries, refrigerants and other hazardous materials. Items will need to be recycled or disposed of in accordance with state and federal regulations. No subsurface soil or groundwater sampling and analysis was performed.

View of existing office wing.

System Assessment Summaries

Exterior Vertical Enclosure

Evidence of staining/soiling, most likely from water damage. (Library Wing - Shattuck Street Side)

Evidence of efflorescence near window opening. (Library Wing - Shattuck Street Side)

Evidence of staining/soiling at window sills. (Library Wing - Shattuck Street Side)

Evidence of staining/soiling at window sills; typical at all window openings on all buildings. (Library Wing - Parking Lot Side)

Evidence of brick spalling, most likely from uneven compression and/or water damage. (Library Wing - Parking Lot Side)

Visible deterioration of concrete, exposing the aggregate. (Library Wing - Parking Lot Side)

Exterior Masonry

Recommendation:
Maintain

Time line:
0-2 years
Most of the exterior masonry is in good condition, requiring no work, in a few instances repair, repointing and cleaning is recommended to prevent further deterioration.

Evidence of staining/soiling at window sills; typical at all window openings on all buildings. (Library Wing - Parking Lot Side)

Existing System Overview

The 1952 Library, 1938 Classroom, and 1938 Multi-Use buildings all have an exterior wall consisting of a single wythe brink veneer backed by CMU structure with an airspace. The 1922 Office building has a multi-wythe brick exterior wall. For the most part, the exterior masonry seems to be in relatively good condition, with a few exceptions. There are instances of cracked brick, eroding mortar at a few window openings, mildew and staining. Minor white discoloration is present below some windows on all facades with some evidence of attempts to clean. The substance does not appear to be efflorescence. It may be stained by paint from the windows or from the aftermath of the installation of the aluminum windows. There should be a further investigation as to the cause of the white stains on the brick.

Observed Conditions

1952 Library: There is general discoloration on the masonry at inconsistent locations, which may be efflorescence. There is also broken brick below steel lintels (between masonry openings). This may indicate internal wall freeze/thaw issues or uneven compression which is causing the brick spalling. Immediate reconstruction is required and a further investigation of the damaged brick must occur.

1938 Classroom: Several locations of moss and mildew are present, particularly on the upper portion of the east façade above the east entrance. A few bricks were observed to be cracked in various locations near the first level, east windows. Spot repointing and cleaning is necessary.

1938 Multi-Use: There are minor instances of moss and mildew present. The brick chimney and its at roof level is in need of repair and repointing. Occasionally, water infiltrates to the interior. The flashing joints also require some repair. The chimney is past its useful life.

1922 Office: There are several instances of moss and mildew present on the north façade. The base of the wall is soiled due to the entrance roof sheet drain splashing it. Spot repointing and cleaning is required. Reconstruction is required at brick masonry in multiple locations: the NE corner at the second level and the brick sills on the west side at the first floor. The chimney needs to be repaired/ reconstructed and repointed at multiple locations.

Visible rust and water damage behind access ladder on roof. (Multi-Use Wing to Classroom Wing)

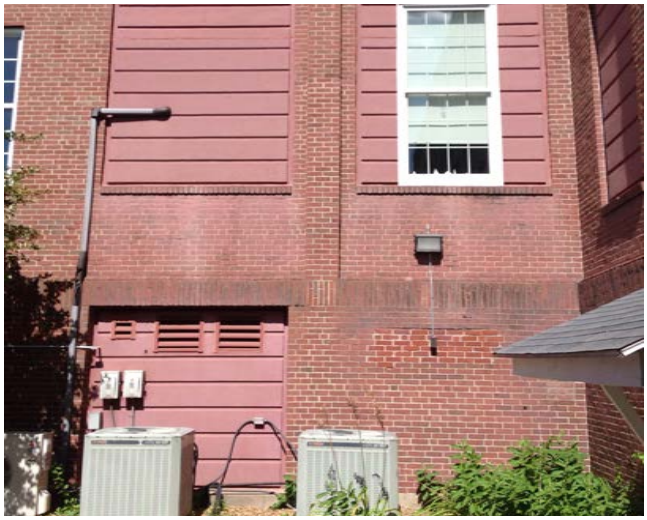
Evidence of staining/soiling near main entrance, most likely from water damage. (Classroom Wing - Parking Lot Side)

Evidence of brick delaminating and eroding mortar at window sill. (Classroom Wing - Parking Lot Side)

Evidence of brick delaminating and eroding mortar at window opening. (Classroom Wing - Parking Lot Side)

Evidence of staining/soiling on third floor, most likely from water damage. (Classroom Wing - Parking Lot Side)

Evidence of staining/soiling, most likely from water damage. (Multi-Use Wing - Shattuck Street Side)



Evidence of staining/soiling, most likely from water damage. (Multi-Use Wing - Parking Lot Side)

Evidence of staining/soiling and areas of missing mortar. (Multi-Use Wing - Parking Lot Side)

Evidence of staining/soiling on either side of door. (Multi-Use Wing - Parking Lot Side)

Evidence of staining/soiling, most likely from water damage. (Multi-Use Wing - Parking Lot Side)

Evidence of staining/soiling, most likely from water damage. (Multi-Use Wing - Parking Lot Side)

Evidence of staining/soiling and mortar erosion, most likely from water damage. (Multi-Use Wing Roof to Office Wing Roof)

Evidence of staining/soiling and mortar erosion at window sill, most likely from water damage. (Office Wing - Parking Lot Side)

Evidence of staining/soiling at window header, most likely from water damage. (Office Wing - Parking Lot Side)

Evidence of staining/soiling, most likely from water damage. (Office Wing - Tennis Court Side)

Evidence of staining/soiling near window opening. (Office Wing - Tennis Court Side)

Evidence of staining/soiling, most likely from water damage or fire. (Office Wing - Tennis Court Side)

Evidence of staining/soiling at window sill. (Office Wing - Tennis Court Side)

Evidence of staining/soiling at window sill.
(Office Wing - Tennis Court Side)

Evidence of attempted patch of corner with mortar and areas of missing mortar. (Office Wing - Shattuck Street Side)

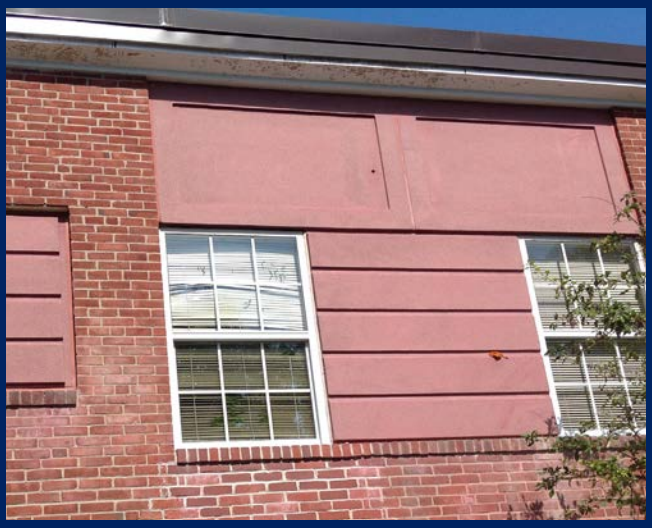
Evidence of attempted patch of corner with mortar and areas of missing mortar. (Office Wing - Shattuck Street Side)

Evidence of eroded mortar joint near window opening. (Office Wing - Shattuck Street Side)

Evidence of efflorescence near window opening.
(Office Wing - Shattuck Street Side)

Evidence of staining/soiling at window sills.
(Office Wing - Shattuck Street Side)

Damage from nesting birds that has been reactively filled with spray foam that does not match finish of Dryvit. (Library Wing - Shattuck Street Side)



Damage from nesting birds that has been reactively filled with spray foam that does not match finish of Dryvit. (Library Wing - Parking Lot Side)

Evidence of eroding sealant between EIFS and window. (Library Wing - Parking Lot Side)

Evidence of mold/fungi growth on EIFS on ground level and damage on second floor. (Library Wing - Parking Lot Side)

Evidence of cracked sealant between EIFS, masonry, and window. (Library Wing - Parking Lot Side)

Evidence of damage to EIFS. (Multi-Use Wing - Parking Lot Side)

Exterior EIFS

Recommendation:
Maintain/ repair as required.

Time line:
Further Evaluation Required

Existing System Overview

The EIFS System is present in all buildings at masonry openings where glazing and doors were reduced in size or infilled. No damage was observed, except at the Library.

Consider the replacement of the EIFS system with a more durable long-term solution.

Observed Conditions

1952 Library:
There are penetrations due to nesting birds and other failures which have been filled with non-matching expanding foam. Patch with material to match existing surrounding and refinish all.

1922 Office Wing, 1938 Multi-purpose Wing, 1938 Classroom Wing
Over time the same nesting bird conditions observed at the Library Wing are expected to become issues on the other three wings. Further investigation is recommended to prevent birds from nesting,

Evidence of damage to EIFS above conference room door. (Library Wing - Parking Lot Side)

Observed peeled paint on trim board. (Library Wing - Shattuck Street Side)

Observed staining/soiling on trim board. (Multi-Use Wing Roof to Office Wing Roof)

Observed vertical wall trim board. (Classroom Wing - Shattuck Street Side)

Observed peeled paint on trim board. (Library Wing - Shattuck Street Side)

Observed peeled paint on trim board. (Library Wing - Shattuck Street Side)

Evidence of cracking/separation of column trim. (Library Wing - Shattuck Street Side)

Exterior Trim

Recommendation:
Cyclical maintenance of substrate and finish.

Time line:
0-2 years
Some trim finishes are failing exposing wood trim to further deterioration.

Observed peeled paint on trim board.
(Library Wing - Shattuck Street Side)

Observed peeled paint on trim board.
(Library Wing - Shattuck Street Side)

Existing System Overview

The painted wood trim substrate on the Shattuck Street Complex is generally in fair condition. In some ;locations the base material is due for repair / restoration. In many case the painted finish is failing. Cyclical maintenance of both the painted finish and wood substrate.

Observed Conditions

Library Wing

The wood eaves at the Library Wing have flaking paint though they appear to have recently been refinished. This indicates a probable moisture issue that should be further investigated.

1922 Office Wing, 1938 Multi-purpose Wing, 1938 Classroom Wing

Wood trim is generally in fair condition and largely appears to be original to the structure. The painted finish is high maintenance, requiring periodic preparation and refinishing.

Wood rot was observed in a few locations, particularly at the 1922 Office Wing. This should be repatched and repaired prior to refinishing.

Observed staining/soiling on trim board.
(Library Wing - Parking Lot Side)

Observed peeled paint on trim board.
(Library Wing - Shattuck Street Side)

Evidence of damage to trim, most likely from an animal. (Library Wing - Shattuck Street Side)

Evidence of cracking/missing wood on column trim. (Library Wing - Parking Lot Side)

Evidence of damage to trim, most likely from an animal. (Library Wing - Shattuck Street Side)

Evidence of water damage on pediment trim.
(Classroom Wing - Shattuck Street Side)

Observed peeled paint on trim board.
(Office Wing - Shattuck Street Side)

Observed peeled paint on trim board.
(Office Wing - Tennis Court Side)

Observed peeled paint on trim board.
(Library Wing - Shattuck Street Side)

Observed peeled paint on trim board.
(Office Wing - Tennis Court Side)

Evidence of cracked caulking at window opening.
(Library Wing - Parking Lot Side)

Evidence of cracked caulking at window opening.
(Library Wing - Parking Lot Side)

Evidence of minor rust and chipped paint on window frame. (Classroom Wing - Parking Lot Side)

Evidence of cracked caulking and discoloration at window opening. (Classroom Wing - Parking Lot Side)

Evidence of cracked caulking and discoloration at window opening. (Multi-Use Wing - Parking Lot Side)

Typical condition of aluminium windows.
(Multi-Use Wing - Parking Lot Side)

Windows

Recommendation:
Replace

Timeline:
0-2 Year Deficiency
Windows are at the end of their useful life and create difficult and uncomfortable conditions for occupants.

Existing System Overview

All complex windows are double hung clad windows, with insulated glazing. They have insufficient insulation value which has been allowing heat gain and drafts. It is assumed that the windows were all installed din the 1988 renovation.

Observed Conditions

Windows units are typically difficult and dangerous to operate. There is also evidence of cracked caulking, rust, and other discoloration at the window openings. It is recommended to remove existing windows and replace with a more efficient option, reflash, and reseal.

Typical condition of aluminium windows.
(Office Wing - Tennis Court Side)

Typical condition of aluminium windows.
(Classroom Wing - Parking Lot Side)

Evidence of damaged & deteriorated paint finish, and rotting (loss) of core material. (Library Wing - Shattuck Street Side)

Evidence of damaged & deteriorated paint finish, and rotting (loss) of core material. (Library Wing - Shattuck Street Side)

Evidence of rust/ deterioration exterior hollow metal door. (Library Wing - Parking Lot Side)

Evidence of damaged & deteriorated paint finish, and rotting (loss) of core material. (Library Wing - Parking Lot Side)

Main accessible entrance. (Library Wing - Parking Lot Side)

Evidence of damaged & deteriorated paint finish, and rotting core material. (Classroom Wing - Parking Lot Side)

Exterior Doors

Recommendation:
It is recommended that most doors be replaced.

Time line:
0-2 years. Many exterior doors are in poor condition and at the end of their useful life. Others require maintenance for continued use.

Overall view of aluminum and glass door at library main entrance. (Library Wing - Shattuck Street Side)

Close-up at of aluminum sidelight sill at library main entrance. (Library Wing - Shattuck Street Side)

Existing System Overview

The complex has exterior egress / entry doors of many types including aluminum storefront with insulated glass, painted insulated steel doors, and wood doors. Each requires a different level of maintenance and has its own replacement time line.

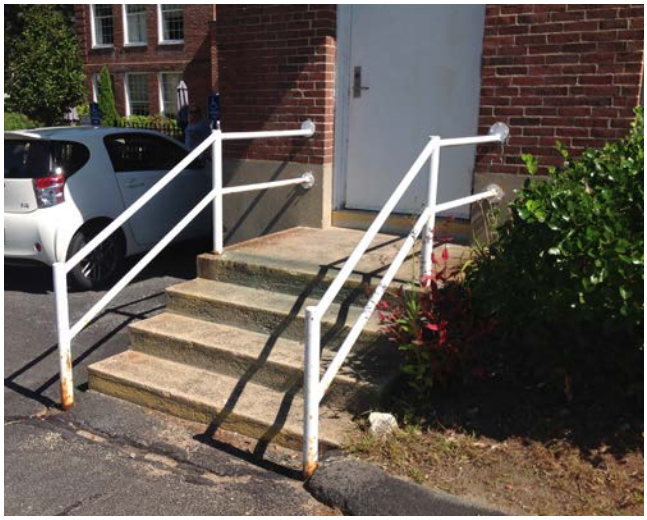
Observed Conditions

All exterior steel doors, side lites, and storefront systems are visibly rusting. Steel frames are especially bad. It is recommended that these be removed and replaced with new ADA compliant storefront door systems including frame, leaf, threshold, and hardware; reflash and reseal in the next two years.. The +/- 30" width and base rail of all pairs of aluminum doors with full glass lites are not ADA compliant. Their operation is adequate; however, the doors appear aged and to provide poor thermal performance. It is recommended that these be removed and replace with single, thermally broken, ADA compliant storefront door system with full lite and sidelight including frame, leaf, threshold, and hardware; in the next two years.

1952 Library: The automatic sliding entrance/ egress door system with accessible push-button appears to be newer than the storefront system and to operate adequately The bottom rail is not ADA compliant. This door is not expected to require replacement in 10+ years, however the storefront it is set in will require work before that time. The exiting steel storefront system is visibly rusting to the point of significant deterioration. This is recommended for replacement in the next two years. Two steel exterior doors and frames, one with a full with wit side lite are recommended for replacement as described in typical conditions.
1938 Classroom Wing &1938 Multi-Use: Two pair of aluminum doors and three sets of single steel exterior doors and frames(one with sidelight) are recommended for replacement as described in typical conditions.
1922 Office: One pair of aluminum doors and one sets of single steel exterior doors and frames with two 30" sidelights sidelight are recommended for replacement as described in typical conditions. One pair of decorative/specialty wood panel doors w/ 8 pane lite and decorative arched transom is not ADA compliant but not in use. It has a single pane glazing with true divided lites. It appears to have been retained for historic purposes. Clean, spot repair, and refinish the ornamental door and replace its hardware.

Exterior doors on the west facade showing signs of rust on the sills. (Multi-Use Wing - Parking Lot Side)

Exterior doors on the west facade showing signs of rust. (Multi-Use Wing - Parking Lot Side)



Exterior doors on the west facade showing signs of rust. (Multi-Use Wing - Parking Lot Side)

Evidence of rusting exterior door. (Multi-Use Wing - Parking Lot Side)

Evidence of damaged exterior door framing. (Multi-Use Wing - Parking Lot Side)

Evidence of damaged & deteriorated paint finish, and rotting (loss) of core material. (Office Wing - Parking Lot Side)

Evidence of damaged & deteriorated paint finish, and rotting (loss) of core material. (Office Wing - Parking Lot Side)

Evidence of damaged & deteriorated paint finish, and rotting (loss) of core material. (Office Wing - Parking Lot Side)

Evidence of damaged & deteriorated paint finish. (Office Wing - Tennis Court Side)

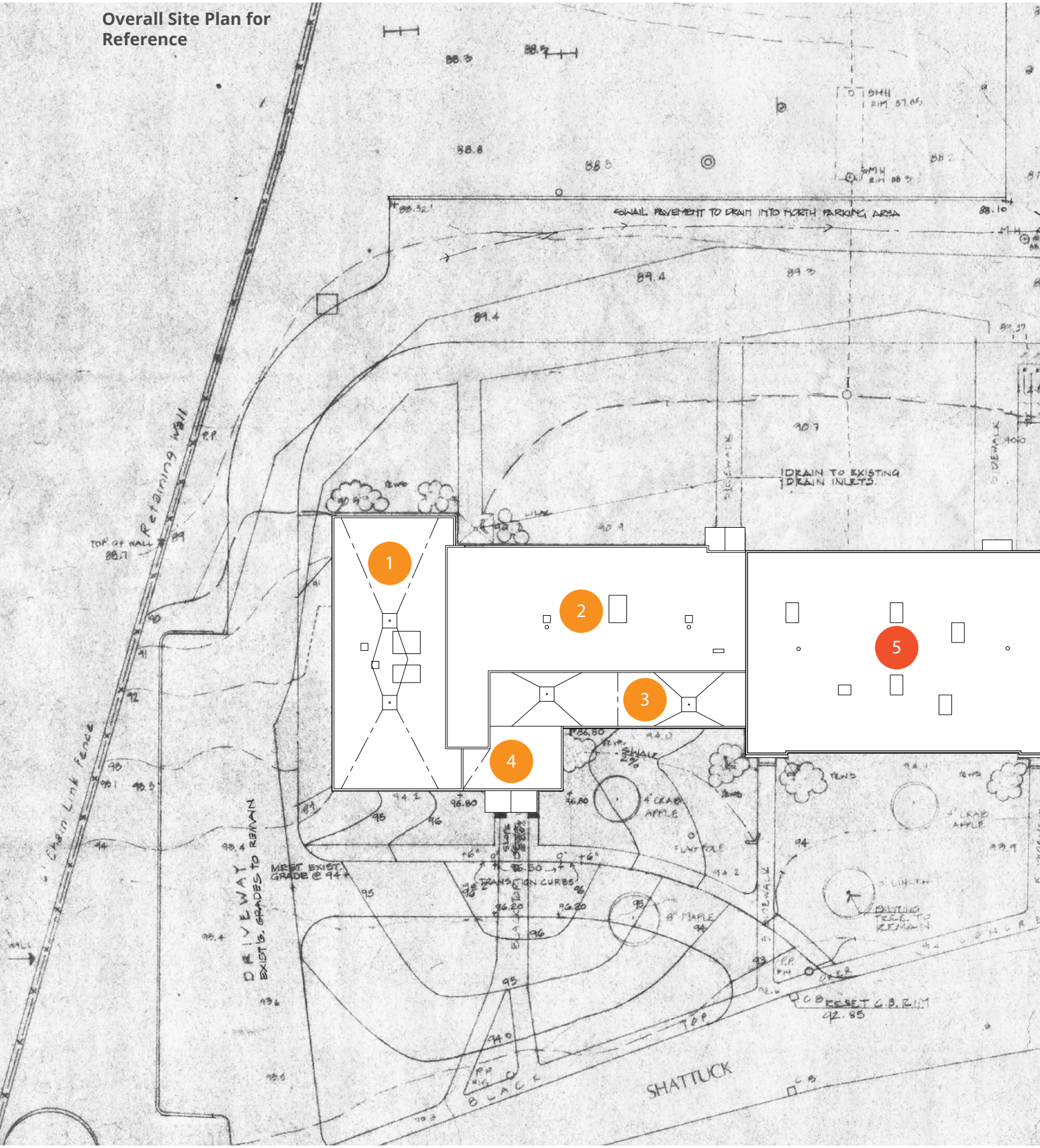
Evidence of damaged & deteriorated paint finish. (Office Wing - Tennis Court Side)

Typical stairwell exterior door. (Office Wing - Shattuck Street Side)

Typical stairwell exterior door. (Classroom Wing - Shattuck Street Side)

Roof & Rainwater Management

Overall Site Plan for Reference




EARTH BERM (BEFORE SEEDING)
CB
OIL & GAS TRAP
(OUT FLOW TO EXIST'G.
SWALE & CATCH BASIN BELOW)
TO BE REMOVED BY OTHERS
SET NEW CURBS TO MATCH EXIST. GRADE
NEW CURBS
TRANS. CURB
TRANSITION CURB
PROVIDE POSITIVE DRAINAGE FROM BUILDING
SLOPE 1:10
NOTE: 1. SURVEY APPEARS TO BE INACCURATE IN THIS AND NUMEROUS OTHER AREAS.
TENNIS COURTS
MEET EXISTING EDGE OF ROAD
MATCH EXISTG. GRADES TO REMAIN
6
7
8
LIBRARY WING (1952)
CLASSROOM WING (1938)
MULTI-USE WING (1938)
OFFICE WING (1922)
STREET
LITTLETON PLANNING BOARD
Notes: 1.) The contractor shall verify all proposed spot g
the field so that positive drainage away from the
is maintained throughout.
2.) Regarding the 'Building and Site Ratio': The add
parking and building areas represent an insignific

Evidence of rippling at roof membrane seams which could be indicative of water leakage. (Library Wing - Roof 1)

Evidence of ponding of water and debris near roof drain. (Library Wing - Roofs 3 & 4)

Evidence of ponding of water and debris near roof drain. (Library Wing - Roof 2)

Evidence of ponding of water and debris near roof drain. (Library Wing - Roof 2)

Evidence of rippling at roof membrane seams which could be indicative of water leakage. (Library Wing - Roof 2)

Gap in base flashing. (Library Wing - Roof 2)

Roofing - PVC

Recommendation:
Report and address failures as required to maintain warranty/ Replace prior to warranty expiration.

Time line:
Replace in 10+ years. Roof integrity is of primary importance to protect property from costly damage.

Drone view of roofs and mechanical equipment.
(Library Wing - Roofs 1, 2, 3 & 4)

Existing System Overview

We have been made aware of a 3,000 sf Sika PVC system installed in 2015 which carries a 20-year warranty (#0000020536-167715.1), which we understand is on the 1952 Library upper roof, +/- 3,000sf.

We have been made aware of a 4,000 sf Sika PVC system installed in 2018 which carries a 20-year warranty (#WAR18-1552324), which we understand is on the 1952 Library lower roofs, +/-4,155 sf.

Observed Conditions

Both the upper and lower roofs appear to be new and in good condition with the exception of some blackened areas indicating pooling water with decomposing organic matter and some wrinkles/ loose membrane material which in some cases traps water. Remove membrane and replace any damaged insulation, substrates, flashing, copings, and system components. Replace with new TPO (white) roofing before end of warranty period/ useful life.

Walk pads are present near all rooftop units. Fall protection is missing. Evaluate needs and priority with Building Code, OSHA requirements, and equipment locations. Provide code complaint fall protection.

Membrane sidewall flashing at adjacent 1938 Classroom Wing wall is new and in good condition. Aluminum coping at perimeter appears to be in good condition and to be well flashed/ adhered membrane.

Two internal roof drains are present on the upper low slope roof and four are present at the lower low slope roof. The slope to the drains appears to be adequate. Discoloration at all drains suggest organic matter periodically collects and needs be cleared from drains. An extreme amount of decomposing organic matter was seen at the front lower roof due to the proximity of a large tree. (This drain may be in the process of being cleaned out.) The NRCA Roofing Manual: Membrane Roofing Systems states: “The criterion for judging proper slope for drainage is that there be no ponding water on the roof 48 hours after a rain during conditions conductive to drying.” Continue to maintain drains by periodically removing organic matter.

Overall discoloration of roof. (Classroom Wing - Roof 5)

Wrinkled membrane poses a tripping hazard. (Classroom Wing - Roof 5)

Evidence of ponding of water near roof drain. (Classroom Wing - Roof 5)

Separation of an already repaired joint (via applied darker coating) occurring in mansard wall. (Classroom Wing - Roof 5)

Evidence of water ponding, signs of aged flashings can be seen where membranes separate, or "pull back". (Classroom Wing- Roof 5)

Evidence of water ponding, signs of aged flashings can be seen where membranes separate, or "pull back". (Classroom Wing - Roof 5)

Roofing - FiberTite

Recommendation:
Report and address failures as required to maintain warranty/ Replace prior to warranty expiration.

Time line:
0-2 years. Roof integrity is of primary importance to protect property from costly damage.

Drone view of roofs and mechanical equipment. (Classroom Wing - Roof 5)

Existing System Overview

We have been made aware of a 4,800 sf Seaman Corp., FiberTite roof system installed in 2008 which carries a 20-year warranty (#20080952), which we understand is on the 1938 Classroom wing, +/- 4,900sf.

Observed Conditions

The System is not reported to leak but has isolated deficiencies. Walk pads are in place. Roof discoloration, wrinkled membrane, and multiple patches, and loose perimeter flashing make it appear older than install date would suggest. 8 RTUs and multiple penetrations are present. Remove membrane and replace any damaged insulation, substrates, flashing, copings, and system components. Replace with new TPO (white) roofing before end of warranty period/useful life.

Roof membrane and perimeter flashing/ coping is loose/failing in many locations. Some wrinkles in field membrane indicate it may not be well adhered. They appear to show signs of “pulling back” and shrinking. No reported or observed leaks; however, leaks could result if this issue persists. Inform Seaman Corp. of any roof system leaks within 30 days. Inspect entire perimeter to further assess condition, Repair/replace membrane and coping flashing as required.

Roof perimeter coping appears to date to roof installation. The aluminum material appears to be intact and in good condition; however, the roof membrane segments that lap the coping to the membrane field are failing. Address with roof deficiencies.

Two internal roof drains are present. The slope to drains appears to be adequate. Discoloration at drains suggest organic matter may periodically collect and will need to be cleared from drains. Two scuppers have been cut into the perimeter to direct overflow water to adjacent roofs. Continue to periodically clear drains of organic debris.

Fall protection is missing. Evaluate needs and priority with Building Code, OSHA requirements, and equipment locations. Provide code complaint fall protection.

Discoloration of roof shows evidence of ponding on roofing near roof drain. (Multi-Use Wing - Roof 6)

Evidence of damage to roofing where it meets the office wing. (Multi-Use Wing - Roof 6)

Evidence of ponding of water near roof drain. (Multi-Use Wing - Roof 6)

Organic growth around base flashing and gap in flashing near Classroom Wing. (Multi-Use Wing - Roof 6)

Evidence of a lot of patching previously done, making this a weak spot for water leakage in the future. (Multi-Use Wing - Roof 6)

Evidence of water ponding, signs of aged flashings can be seen where membranes separate, or "pull back". (Multi-Use Wing - Roof 6)

Roofing - EPDM

Recommendation:
Report and address failures as required to maintain warranty/ Replace prior to warranty expiration.

Time line:
0-2 years. Roof appears to be past its warranty period. Roof integrity is of primary importance to protect property from costly damage.

Drone view of roofs and mechanical equipment. (Multi-Use Wing - Roof 6)

Existing System Overview

It is not known when the black EPDM roof was installed on the upper low-slope roof on the 1938 Multi-Use building.

Observed Conditions

The upper low-slope roof is a fastened, black EPDM with aluminum flashing, +/- 4300 SF. It appears sound and is assumed to be the oldest roof in the complex based on type. There are some insulation voids at drains, with minor ponding at one drain. Remove membrane and replace any damaged insulation, substrates, flashing, copings, and system components. Replace with new TPO (white) roofing before end of warranty period/useful life.

Coated metal, presumably copper, sidewall flashings are deteriorating. Where EPDM roof meets the 1938 Classroom Building and the 1922 Office Building. Further investigate integrity of flashings and repair replacement options.

Four internal roof drains are present on the upper low slope roof and 1 is present at the lower low-slope roof. The slope to drains appears to be adequate. Discoloration at the lower drain suggests organic matter periodically collects and needs be cleared. The area around the upper drains is soft and may have minimal insulation below allowing for pooling. This needs to be addressed.

The hatch from the TV station attic to this roof serves all complex roofs. It lacks fall protection and is difficult to operate. It should be replaced. Fall protection is missing from the rest of the roof as well. Evaluate needs and priority with Building Code, OSHA requirements, and equipment locations. Provide code complaint fall protection. There are also some bees nesting in a roof vent. Remove the hive immediately for safety purposes.

A bee's nest was noted in roof vent near access hatch. It is recommended that hive be removed for safety.

Ponding on roofing at roof drain. (Office Wing - Roof 8)

Evidence of cracked roofing membrane, due to moisture damage / ponding of water. (Office Wing - Roof 8)

Evidence of ponding of water near mechanical unit. Gap in base flashing. (Office Wing - Roof 8)

Evidence of moisture damage / ponding of water near roof seams. (Office Wing - Roof 8)

Evidence of moisture damage / ponding of water near roof seams. (Office Wing - Roof 8)

Organic growth around base flashing and gap in flashing. (Multi-Use Wing - Roof 7)

Roofing - TPO

Recommendation:
Maintain/ Replace prior to warranty expiration. Report and address failures as required to maintain warranty.

Time line:
Varies by roof. Roof integrity is of primary importance to protect property from costly damage.

Drone view of roofs and mechanical equipment. (Office Wing - Roof 8)

Existing System Overview

It is not known when the white TPO roof was installed on the lower, low-slope roof on the 1938 Multi-Use building or the low-slope roof of the 1922 Office building.

Observed Conditions

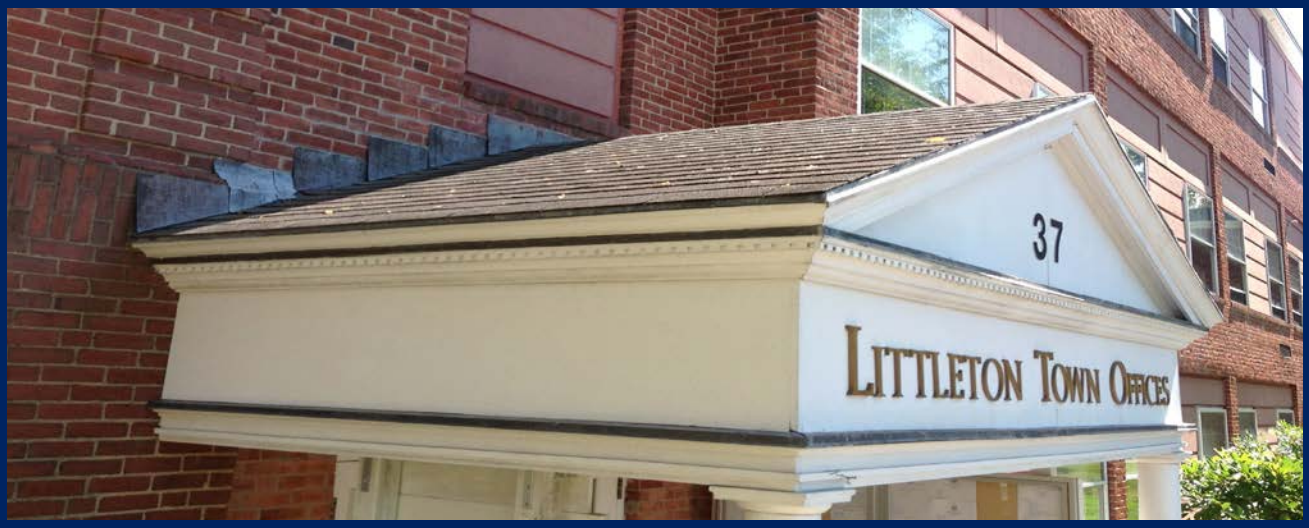
1938 Multi-Use:
The lower, low-slope roof is a white TPO with aluminum copings, +/- 520 SF. Membranes appear discolored but sound. Remove membrane and replace any damaged insulation, substrates, flashing, copings, and system components. Replace with new TPO (white) roofing before end of warranty period/useful life.

No downspouts are present. Existing internal roof drain/s appear to function well but are due for autumn clean out to avoid clogs and back-ups. Proximity of deciduous trees requires seasonal removal of leaves from drains, particularly at lower roofs.

1922 Office:
The Office roof is also white TPO with aluminum copings. Membranes appear sound. There is isolated ponding water near roof drains and RTUs. Remove membrane and replace any damaged insulation, substrates, flashing, copings, and system components. Replace with new TPO (white) roofing before end of warranty period/useful life.

Conduit/water and power lines at RTU are exposed, and in some cases, they appear rusted at roof penetrations. There are also some cracks in the conduit flashings. Multiple patches area noted on the roof; however, no leaks have been reported or observed. Further investigate safety and integrity of roof penetrations and equipment lines.

Fall protection is missing. Evaluate needs and priority with Building Code, OSHA requirements, and equipment locations. Provide code complaint fall protection.



Example asphalt shingle roof. (Classroom Wing)

Example asphalt shingle roof. (Classroom Wing)

Typical view from upper roof looking down at the asphalt shingle roof. (Library Wing)

Example asphalt shingle roof. (Multi-Use Wing)

Roofing - Asphalt Shingle

Recommendation:
Replace

Time line:
5-10 Years
Asphalt shingle roofing system is reaching the end of its life expectancy; consider replacement during building renovations.

Existing System Overview

The Asphalt Shingle roofs above the exterior entrances on the Library and Classroom buildings have an unknown warranty & date of installation but are assumed to have been replaced one time since 1988 renovation.

Observed Conditions

The roofs appear sound, with some lichen growth indicating age. There have been no leaks reported. Remove and replace existing asphalt roofing and under-layment and replace with new architectural asphalt roofing.

Example asphalt shingle roof. (Classroom Wing)

Example copper roof, note abandoned rusted steel frame from removed sign, west facade. (Office Wing)

Solder joint at copper gutter showing signs of repair and age. (Multi-Use Wing)

Roof flashing showing signs of age and damage. (Multi-Use Wing)

Roofing - Copper

Recommendation:
Maintain, Observe, Replace

Time line:
10+ Years
Copper roofs appear in good condition but are nearing he end of their long useful life.

Existing System Overview

Cooper roofs and flashings are present at four entrances to the 1922 Office Wing and in small quantities at front entrance to the adjacent 1938 Multipurpose space and Classroom Wings. The age of the material is unknown it is possible that the original roofing was replaced in the 1988 renovation.

Observed Conditions

Generally, the roofs appear to be performing well. The copper is patina-ed but does not yet show indications of pin holing. The material should be monitored for oxidation degradation and replaced prior to cracking or pin-holing.

Failed copper cleats, observed from second floor window. (Multi-Use Wing)

Interior Conditions

Offices are difficult to locate if you have never been to the building before. No clear way finding. (Library Wing - First Floor)

The EHS use multipurpose space has very poor acoustics, no natural light, lacks storage space, and serves as a connecting corridor between wings (Multi-Use Wing - First Floor)

The complex generally lacks security, there are multiple entrance and no public buffer. Offices, like the school department, require card access. (Office Wing - Third Floor)

Some offices lack access to enough bathrooms for typical use. (Office Wing - Third Floor)

Many offices are uncomfortable cold due, this may be due to both HVAC system and large, drafty windows. (Classroom Wing - Second Floor)

The lack of proper storage has made many offices cluttered and uncomfortable. (Classroom Wing - Third Floor)

Space Use & Comfort

Recommendation:
Reorganize and renovated departments as informed by program needs.

Time line:
The Town shall inform how and when the needs of departments can best be met. Space use studies, conducted as part of this project, may inform decisions.

There is plenty of space and natural light in most private offices. (Classroom Wing - Third Floor)

Some private offices, however, are definitely too small and crowded. (Office Wing - Third Floor)

Existing System Overview

Generally, the building complex is well maintained. The quality of the finishes and fit out of the complex varies by program more than building wing. Some programs, such as the School Department, and Town Hall, appear to have been renovated more recently than others, such as EHS and Parks & Rec. In some cases, only areas within a larger department have been renovated. Use of the complex has evolved organically as program needs changed over time to make use of the spaces available. This has resulted in a culture of haves and have nots. Some departments currently appear to have their program needs better accommodated than others. The programming and space use studies conducted as part of this project explore strategies to meet identified program needs.

Observed Conditions

1952 Library: The Library Wing was in use at the time of this study and the construction of a new library was in progress. It was evident that the library was much in need of expansion. The three levels of the existing library wing are expected to be made available for use by other departments. This will likely require significant renovation to meet the needs of the new program.

1938 Classroom Wing: Town Hall, Financial, storage, and Town Administration occupy this wing. The public entrance is not in keeping with what would be typical for these departments. Way finding is confusing. Offices have been fit into space available and vary in size and amenities. Occupants complain of thermal discomfort. The rest room distribution does not appear to meet needs. Finishes have generally been brought to the same level throughout.

1938 Multi-Use: This former cafeteria and gymnasium is now used by EHS on the first level and LCTV and offices on upper levels. Effort has been made to make the lower level multipurpose space more desirable however it lacks natural light and storage, has poor acoustics, awkward dated bathrooms, and serves as passage to other wings. Finishes on all levels are showing signs of age.

1922 Office: This wing houses the School, EHS, and Parks & Rec. departments. The smallest and oldest of the complex buildings has load bearing, masonry, interior walls which limit the layout options. The third floor Superintendent offices are the most recently updated. EHS and Parks & Rec do not appear to have their needs met programmatically and have dated finishes.

Typical carpet condition in library. (Library Wing - Second Floor)

Typical carpet condition in offices. (Office Wing - Third Floor)

Typical VCT condition in corridors. (Classroom Wing - Third Floor)

Typical VCT condition in corridors. (Office Wing - First Floor)

Worn VCT condition in multi-purpose room.
(Multi-Use Wing - First Floor)

Typical resilient tread condition in stairs.
(Multi-Use Wing - Second Floor)

Floors

Recommendation:
Replace

Timeline:
Varies
Many of the flooring finishes will be reaching the end of their life expectancies in the next few years; consider replacement during building renovations.

Old gym's wood floors are in fair condition & well maintained; partially covered with carpet. (Multi-Use Wing - Second Floor)

Existing System Overview

Many of the wings share similar flooring finishes, like VCT, Carpet, Concrete, etc.
When these materials have reached the end of their useful life, it is recommended that they be removed with resilient base, that the floor be prepared for new work, and replaced in kind.

Observed Conditions

Generally, throughout the complex, VCT is present in staff offices and public areas where it is well maintained and in good condition. VCT is in fair condition in back of house spaces. Carpet is in fair to good condition. Resilient base of varying styles is present at GWB partitions. Concrete slab, unfinished, is an appropriate finish floor for back of house storage or mechanical location.

1952 Library: VCT and carpet finishes are generally in good condition and expected to be replaced in 5-10 years. Ceramic tile, present in bathrooms, is aged but performing adequately. Back of house floors are unfinished concrete.
1938 Classroom Wing: Floor finishes include VCT and carpet. These are generally in good condition and expected to be replaced in 5-10 years. Back of house floors are unfinished concrete.

1938 Multi-Use: Floor finishes include VCT, and hardwood (on the 2nd floor) and carpet. These are somewhat worn and generally in fair condition and expected to be due for replacement or refinishing in 2-5 years. Minor areas of VCT on the 2nd floor show gaps between joints, mismatched tiles, or cracked tiles these are recommended to be replaced. Carpet in about 250 sf of the TV areas loose edges that may pose a trip hazard. This will need immediate attention as it poses a safety risk. In back of house spaces on the 3rd level, floors are unfinished plywood with a loose walk off mat which may pose a trip hazard. It is recommended that the walk-off mat be removed and replaced with VCT and resilient base. Back of house floors on lower levels are unfinished concrete.
1922 Office: Floor finishes include VCT, sheet vinyl, and carpet in variable condition. Finishes on the 3rd floor are in good condition and should last 5-10 more years. Finishes on the 2nd floor are in fair condition and recommended for replacement in the next 2-5 years. Carpet on the first floor is in poor condition, it is worn, stained, has open seams, and is past useful life. 4" resilient base is present at GWB partitions, the base color/style varies. It is recommended that the carpet and base be replaced. Wood-look resilient flooring in public Parks and Recreation room is well maintained and in good condition. It has a 10+ year life cycle.

Typical painted GWB condition in offices.
(Classroom Wing - Third Floor)

Typical painted GWB condition in library.
(Library Wing - Second Floor)

Painted brick wall condition in corridors.
(Classroom Wing - Third Floor)

Painted CMU wall condition in multi-purpose
room. (Multi-Use Wing - First Floor)

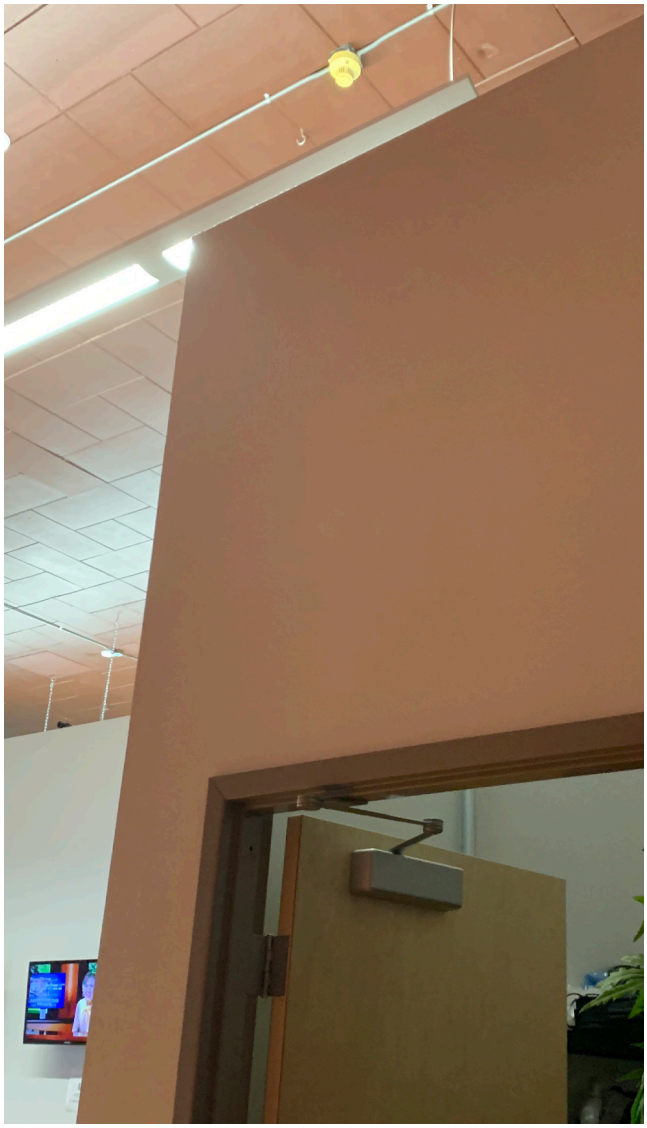
Painted CMU wall condition in corridors.
(Classroom Wing - First Floor)

Typical unfinished CMU wall condition in
mechanical spaces. (Office Wing - First Floor)

Walls

Recommendation:
Maintain

Time line:
2-5 Year Life Cycle
Many of the wall finishes are in good condition and will required cyclical repainted/refinished in the next few years.



Typical painted GWB condition in old gym. TV studio. (Multi-Use Wing - Second Floor)

Existing System Overview

The walls inside the Shattuck Street Complex consist of painted CMU, concrete, brick, and gypsum wallboard in all the public and office spaces. The service spaces consist of unfinished CMU and field stone walls.

Observed Conditions

Typical of complex:
Most of the substrates and finishes are in good condition and well maintained. Periodic refinishing will be required. The unfinished CMU and field stone surfaces are appropriate to back of house spaces which require less upkeep than those for staff and public use. These substrates are in fair condition and no work is required.

1952 Library Wing
Wall finishes include painted GWB and painted CMU. The substrate and finises are generally in good condition throughout.

1938 Classroom Wing
Wall finishes include painted brick, painted GWB, and painted and unpainted CMU. The substrate and finises are generally in good condition throughout.

1938 Multi-Use Wing
Wall finishes include painted brick, painted GWB, and painted CMU. The substrate and finises are generally in good condition throughout.

1922 Office Wing
Wall finishes include painted brick, painted GWB, and in back of house conditions unpainted CMU and fieldstone The substrate and finises are generally in good condition throughout.

Typical office 2x2 ACT ceiling. (Classroom Wing - Second Floor)

Typical painted GWB soffit condition at windows in offices. (Classroom Wing - Third Floor)

Typical 2x4 ACT ceiling condition in corridors. (Office Wing - First Floor)

Old glued acoustical ceiling system,painted finish may compromise performance in LCTV Studio. (Multi-Use Wing - Second Floor)

Typical painted GWB ceiling condition in closets. (Office Wing - First Floor)

Typical painted GWB ceiling condition. (Library Wing - First Floor)

Ceilings

Recommendation:
Maintain

Time line:
10+ Years
Most of the ceilings are in fine to very good condition in all the buildings, except for a few noted issues that can be repaired sooner.

Existing System Overview

The ceilings inside the Shattuck Street Complex consist mainly of 2x2 ACT in offices and public spaces and with 2x4 ACT typical in support and non-public spaces.

Approximately 5-10% of the ceilings are painted gypsum wallboard. The typical useful life span of ceiling tiles varies by product and installation. They can be expected to last at least 10 years before becoming brittle or prone to warping, with proper care they may last 40 or more years. All missing and damaged tiles are recommended to be replaced in kind.

The TV studio ceiling is a glue on acoustical tile. There are also areas of open ceilings and exposed structure such as in the Library building in a back of house areas. Interior painted finish can be expected to last 10- 15 years.

All ceilings that are water stained should be further investigated to determine if caused be a roof or plumbing leak. Condensate dripping form system line, or another issue.

Observed Conditions

ACT ceilings are generally in good or very good condition throughout. Generally the tiles are not expected to need to be replaced in the next 10 years. Painted GWB ceilings and soffits area also, generally, in good condition and should continue to be maintained and repainted as needed.

1952 Library Wing: About 25 ceiling tiles were observed to be water stained on first level , presumably due to dripping condensate lines above, the cause should be further investigated and addressed prior to tile replacement.

1938 Classroom Wing: ACT on the 3rd level appear to be the most recently installed. About 8 individual tiles are missing, damaged, or stained on the first floor and these could be replaced immediately.

1938 Multi-Use Wing: There is glued acoustic tile in the TV Studio/old gym. Its performance may be compromised by painted finish. The finish appears to be in good condition. About 10 tiles on the first level are stained or damaged.

1922 Office Wing: ACT in this wing is in good condition. About 5 tiles are damaged on the first floor.

Miscellaneous

Relatively new kitchen stove in good condition.
(Multi-Use Wing - First Floor)

Kitchen ovens in adequate condition.
(Multi-Use Wing - First Floor)

Relatively new kitchen stove in good condition.
(Multi-Use Wing - First Floor)

Relatively new kitchen refrigerators in good condition. (Multi-Use Wing - First Floor)

Relatively new kitchen sink in good condition.
(Multi-Use Wing - First Floor)

Kitchen Equipment

Recommendation:
Maintain kitchen equipment. Evaluate new kitchen needs, have each existing components evaluated for reuse in new design.

Timeline:
Time frame is contingent on schedule of Elder and Human Services Department renovation or relocation.

Relatively new food service counter in good condition. (Multi-Use Wing - First Floor)

Relatively new food service counter in good condition. (Multi-Use Wing - First Floor)

Existing System Overview

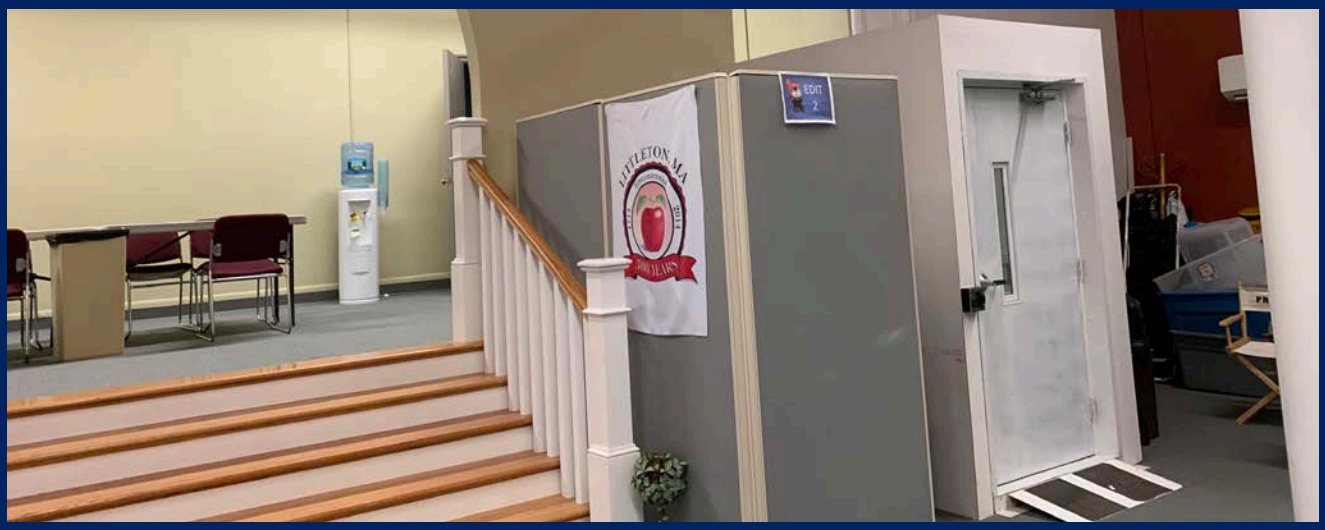
1938 Multi- Purpose Wing. Level 1
The Elderly and Human Services department's kitchen is located on the first level of the Multi-purpose wing.

The equipment generally appears to be functional, in good condition, and to serve the purposes intended. If the kitchen is to continue in use, the equipment should be maintained.

It is recommended that the department be, at minimum, reorganized and optimally relocated to better serve the needs of its patrons. In that event, the existing kitchen equipment should be further investigated to determine how it can best be utilized to serve the redefined needs of the program. It is expected that most of the equipment can be relocated and reused.

View of existing elevator. Creates a bottle neck in circulation. (Library Wing - First Floor)

View of existing elevator. Creates a bottle neck in circulation. (Office Wing - First Floor)



View of existing lift in LCTV Studio. (Multi-Use Wing - Second Floor)

Conveying

Recommendation:
Maintain or replace in future renovations.

Timeline:
0-2 years Repair Library lift if current use is required.
Improvement to conveying system are recommended and should be a consideration in any proposed renovation designs.

View of existing lift near library main entrance. Too small and people have gotten stuck in it. (Library Wing - First Floor)

Existing System Overview

The Shattuck Street complex is served by two elevators and two lifts.

The first elevator is located between the Library and Office Wings and serves both. The elevator is a two sided passenger model with a 52" x 68" footprint, meeting the size requirements for an existing elevator (min. 48"x48") as part of an accessible route. The elevator is operational but dated. Its location blocks the main corridor from connecting the Classroom Wing and the Library Wing. This allows the elevator to be shared but makes for highly confusing and complicating way finding. It is recommended that if the building were renovated, that the elevator be replaced with a new elevator or two elevators off of this path of travel meeting current code requirements for universal access and stretcher use, if required.

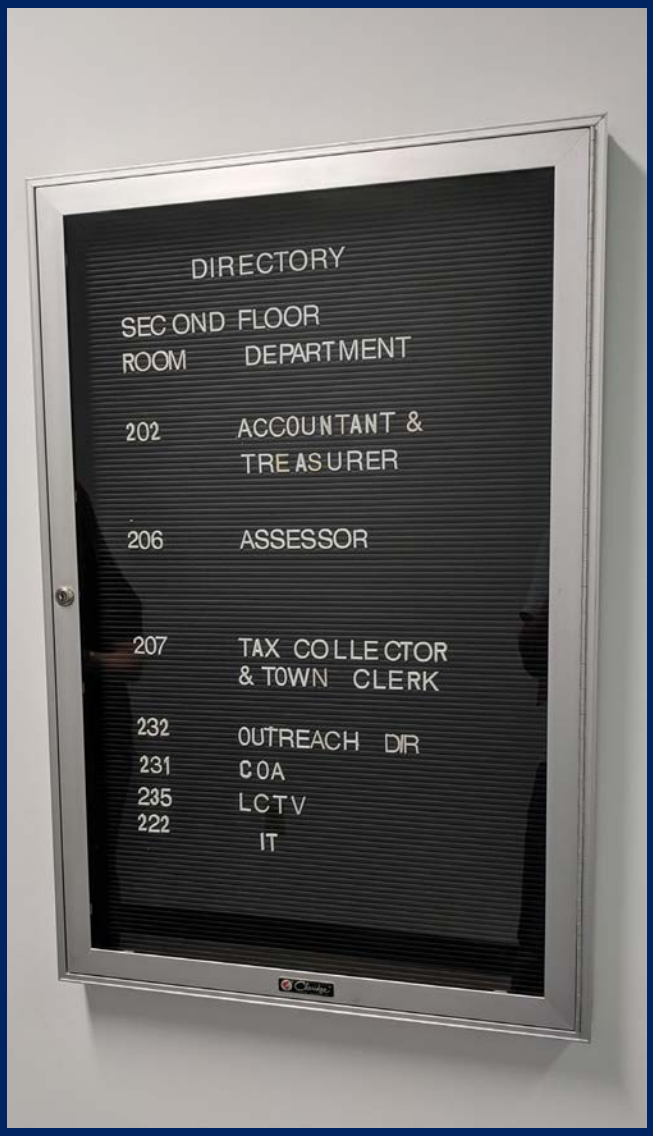
The second existing elevator is located in the center of the 1922 Office Wing. It has a 50" x 68" cab interior, meeting the size requirements for an existing elevator (min. 48"x48") as part of an accessible route. It is operational and appear to be a more recent model. It is important that this structure be served independently due to the lack of a public corridor connecting it to the adjacent Multi-purpose wing on the third floor.

The lift at the Library's second level, main entrance is not in working order. It is recommend that this be further evaluated and repaired. If the building is renovated, the new design should take into consideration design options that would allow this lift to be removed. Access from grade at the front of building to the second level of complex could be achieved with a well situated new elevator.

In the Multi Use Building, TV studio, a lift serving the existing stage will most likely continue to be required if the structure is renovated however it is expected that it would need to be relocated. Renovations may result in the elimination of the stage in which case the lift would not be required.

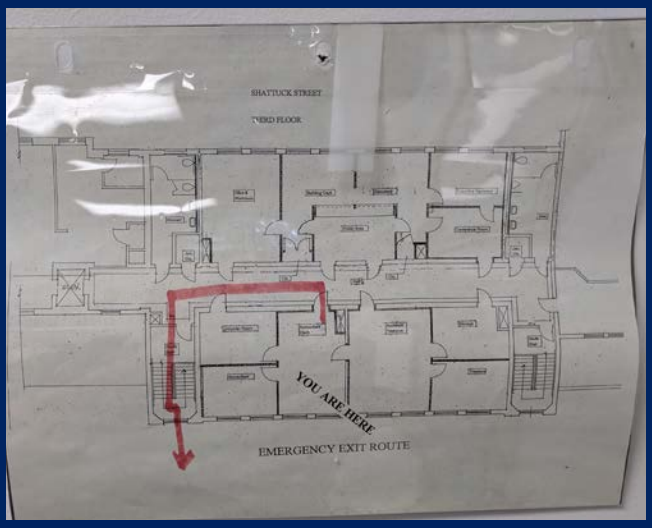
It is recommend that the elevator be further evaluated by a certified elevator maintenance company and improved or maintained based on their recommendations.

In the event that extensive renovations are not pursued, all conveying systems should be further evaluated. The library lift should be repaired or replaced and all conveying systems should be upgraded and maintained for function and code requirements.



Typical directory on each level. (Classroom Wing - Second Floor)

Typical room sign on each level. (Classroom Wing - First Floor)



Typical emergency exit route signage.
(Classroom Wing - Third Floor)

Some rooms lack proper signage and have signs taped to their doors. (Office Wing - First Floor)

Exit routes & stairs have signage indicating proper means of egress. (Office Wing - First Floor)

Way Finding

Recommendation:
Improve way finding through signage and/ or redesign.

Timeline:
Any short term improvements that can be made would be beneficial. More comprehensive design improvements are recommended for consideration in future renovations.

Notice boards at main entrance. (Office Wing- Parking Lot Side)

Existing System Overview

Way finding throughout the Shattuck Street complex is challenging primarily due to the design of circulation between the linked structures.

The complex was originally constructed as a school with second level front entrances oriented to bus drop off. When the structure was renovated to serve its new uses, accessible entrances convenient to parking were required. With the exception of the main Library entrance, the complex is now accessed from several six entrances on the first level, rear of complex.

The architecture of the long complex conveys little to inform a visitor of the significance of each of the multiple entrances. Signage, while present, does little to orient first time visitors.

It is recommended that exterior signage be improved to more clearly convey the location of departments.

Each of these entrances has undersized lobbies which do little to provide visitors with a sense of orientation. Visitors must stop to read signs to understand how to navigate to their destinations. This is particularly true at the primary entrance to Town Hall departments which can only be reached by the two sided elevator shared with the Library.

Generally, way finding directories are present throughout the building and most spaces are identified with braille signage. In some cases signage is missing or inadequate.

It is recommended that interior space signage be supplemented as required for all uses that are to remain and completely removed and replaced if the structure is to undergo a full renovation.

It is also recommended that future renovations be designed for intuitive way finding; providing visitors with lines of sight, landmarks and architectural queues that provide visitors with a sense of orientation.

Security camera in vestibule outside meeting room. (Library Wing - First Floor)

Security camera in corridor near elevator. (Library Wing - First Floor)

Security cameras in meeting room. (Classroom Wing - Third Floor)

Security cameras in meeting room. (Classroom Wing - First Floor)

Security camera in corridor near elevator. (Office Wing - First Floor)

Security camera at end of corridor. (Classroom Wing - Second Floor)

Security

Recommendation:
It is recommended that the recommnedations of the previously conducted securioty report, by others be implemented and that the design of future renovations include the input of security experts.

Timeline:
Any short term improvements that can be made would be beneficial. More comprehensive design improvements are recommended for consideration in future renovations.

Security camera outside the superintendent's office. (Office Wing - Third Floor)

Existing System Overview

Security at the Shattuck Street complex is currently deficient.

A security report, previously conducted by others, should be referenced in full. Generally this report recommends that:

- Proper lighting levels be achieved in stairwells,
- Motion sensor light switches be installed
- Exterior cameras be installed at all:
- Exterior doors in use
- Exterior walls, including niches
- Grounds, including tennis courts fields, parking lots
- Interior cameras be installed at all:
- Hallways
- Corridors
- Niches
- Stairwells (priority)
- Elevators (priority)
- Plantings be trimmed to improve sight lines
- Signage be improved to improve traffic flow

In the course of this assessment it was observed that the structure's multiple entrances and means of egress are difficult to monitor. They have manual locks that are difficult to secure. Key distribution is challenging to control. Replacement of all exterior and interior door locks with a digital access system would greatly improve security.

A centrally located, monitored entrance, creating a buffer between staff and public, would greatly improve security.

Panic buttons are currently in place in some locations. That system should be supplemented in renovations to protect those programs identified as potentially vulnerable.

Additionally, the current security cameras and monitoring system is recommended to be made more robust as indicated in the report by others. Monitoring of these cameras and a system of saving videos should be implemented as recommended by others.

View of existing patio space outside of the office wing.

Sustainability

Recommendation:
It is recommended that during replacement of major equipment, materials, and systems that upgrades are made to improve energy efficiency, reduce water consumption, improve the thermal envelope and indoor air quality, and make use of long lasting environmentally friendly materials.

Timeline:
Improve as short and long term needs and opportunities arise.

Existing System Overview & Recommendations

The four linked structures that form the Shattuck Street complex generally act as a single building from an environmental standpoint and share common sustainability challenges.

The thermal envelope is not well insulated or sealed. The multi-wythe masonry walls of the oldest , 1922, structure have no supplemental insulation however the mass of brick does provide some thermal value. The masonry cavity walls of other structures are expected to have little to no insulation.

The low slope roofs have roofing membrane system that are relatively recent. These systems are typically installed over continuous rigid insulation. Many of the roofing membranes are white, which is expected to reduce heat gain and the energy required to cool the complex in summer months. In this climate further study is required to determine if this results in a net, year round, energy savings since heat gain in winter months would be beneficial.

The large double glazed windows are nearing the end of their useful life, poorly sealed, difficult to operate, and provide little insulation value. These are recommended for replacement.

The existing structure does have inherent value as embodied energy. Its renovation and reuse would save on energy invested in the construction of a new structure.

Public transportation serves the site and bike racks are present for those who arrive there under their own power.

It is recommended that Renovations to the site be made in consideration of retention of site water runoff and reduction in heat island effect of the large paved parking area.

MECHANICAL: Heating, cooling and ventilation systems appear to be of adequate energy efficiency to meet energy code minimums. Ventilation air is assumed to be adequate for appropriate indoor air quality. It is recommended that, during replacement of major equipment, that upgrades are made for energy efficiency and better indoor air quality..Modern mechanical systems are more efficient than what is currently in place. Occupants have little control over their comfort due to the mechanical zones, layout of thermostats, and inability to operate windows.

ELECTRICAL: The electrical distribution equipment is in good condition and may be reused. The lighting throughout the complex is typically fluorescent. Energy consumption would be reduced if interior LED lighting and automatic occupancy sensors were installed and if the existing site lighting were replaced with LED fixtures.

PLUMBING: Existing plumbing fixtures generally lack automatic controls or limits on water usage. Replacement with modern fixtures with these features is recommended.

V. Supporting Reports

Drone view of site from beyond parking lot toward rear of complex.

Exterior rear view of complex from northwest corner of site with tennis courts on the left hand side of the image.

Civil

Existing System Overview

Town Hall Complex site project limits

See following report by CDW Engineers,

Drone view of site from Shattuck Street toward ceremonial front of complex.

CDW CONSULTANTS, INC.
CIVIL & ENVIRONMENTAL ENGINEERS

CIVIL/SITE FEASIBILITY STUDY REPORT
Littleton Town Hall Building
Littleton, Massachusetts

Prepared for

LLB Architects
161 Exchange Street Pawtucket, RI 02860

January 17, 2020

CDW Project # 1861.00

EXISTING CONDITIONS

SITE UTILITIES

According to existing conditions plans and observations, the project site is currently served by water, sewer, natural gas, and underground electric services.

The water service to the building connects to an existing 6-inch cast iron main on Shattuck Street. A 4-inch cast iron domestic water line and a 6-inch cast iron fire protection line enter the building on the north side of the building. The fire protection line is not connected to any fire pump or sprinkler system.

A sanitary sewer line exits the west side of the building to a sewer manhole in the parking area. It then extends to another sewer manhole in the parking lot before extending north along the rear parking area then into the grass beyond the last parking spaces. Has a catch basin located adjacent to the Library. According to the Water Dept., the sewer line eventually connects to a pump station which then pumps to an existing treatment plant at the High School.

The underground electric comes from Shattuck Street to a series of electric manholes before connecting to an existing electrical transformer in front of the building.

Gas service extends from Shattuck Street into the building near the entrance for #33.

STORMWATER

There is some stormwater mitigation on the lot. The front entrance on the south side near the library splits into access to the rear of the building and to a semi-circle in front of the library entrance. There is a catch basin at the intersection of the semi-circle with Shattuck Street. This catch basin connects to the existing drainage system in Shattuck Street.

The access road to the west has a catch basin located near the Library. This catch basin is pumped to the west and drains out to the slope behind the retaining wall and fence.

The rear parking area has one leaching catch basin located in the parking aisle behind #33.

PARKING

The current parking count is 127 spaces, not including the parallel parking on Shattuck Street. This includes 13 spaces adjacent to the Library of which 2 are handicap spaces and 2 are designated for electric cars with a charging hookup, 104 spaces in the rear parking lot and 10 spaces facing the rear of the building including 8 handicap spaces and 2 standard spaces.

PAVEMENTS

The site consists of asphalt pavement at the entrance to the Library, as well as the access to the rear parking area and the exit back to Shattuck Street along the north side of the building. The front of the building has four (4) asphalt walkways leading to steps and entrance doors.

SITE ACCESSIBILITY (ADA)

Site accessibility at the front of the building is limited to the Library entrance. A bituminous walkway from the parking area to the west leads to the flush entrance at the Library doorway. The walkway from the east side leads down to a curb cut at Shattuck Street.

The four (4) bituminous walkways in the front that lead to separate entrances have at least one step before the doorway so are not handicapped accessible.

The rear entrances are better equipped for handicap accessibility. The main entrance in the rear consists of concrete pavers that leads to a flush entrance. The concrete walkway to the south leads to the rear library entrance which also has a flush entrance.

There is an asphalt walkway that leads to a flush entrance at Room 103.

INITIAL CONCLUSIONS AND RECOMMENDATIONS

UTILITIES

Based upon the record information, it appears that adequate sewer service exists at the site with the existing sewer connection. As long as the treatment plant located near the High School is fully functional and the pump station is in operation, the sewer line is sufficient.

Water service appears to be adequate for potable needs and fire protection with a separate domestic line and fire protection line entering the building. An MEP Engineer would need to confirm that the existing 6-inch fire service is adequate to service a new sprinkler system for the building. Fire flow tests would also need to be performed on the existing fire hydrant located on Shattuck Street.

The existing drainage system appears in good working order. The existing catch basins on the site appear to be fully functional.

The capacities of natural gas, electric, telephone, and cable/data lines should be investigated by the MEP Engineer to confirm adequate service requirements.

PARKING

The required parking for office space in Littleton is one space per 250 square feet of gross floor area. However, the ADA requirements show that 2 handicap spaces and 1 van accessible space are required.

PAVEMENT

Overall, the pavement is in fair condition. There is evidence of crack sealant along the majority of the parking area. The pavement near the dumpster in the rear parking area shows depressions from the vehicle traffic loading and unloading the dumpster.

CDW recommends removing the existing pavement and re-grading the subbase before applying a new binder and top coat of asphalt.

Most of the bituminous walkways are in good shape except for the walkway under the bridge leading into the west side of the building. This walkway should be replaced along with the handicap ramp leading up to the walkway.

SITE ACCESSIBILITY

Accessibility to the building is limited on the front side. The main Library entrance is handicap accessible but only from both sides of the entrance. A new curb ramp should be constructed near the front door so that handicapped residents could be dropped off closer to the entrance.

The other 4 entrances to the main building in the front are not accessible due to existing steps at the doorways. It might not be feasible to make these walkways accessible

The rear of the building is more accessible with an accessible sidewalk leading to the rear Library entrance. There is also an accessible sidewalk leading to the Town Hall entrance at the rear as well as an accessible sidewalk at door #33.

See also itemized observations and photos on following pages.

G2010 Roadways: Striping, Paving, Grading

- Entrance roadway - bit. concrete. Access to parking areas is relatively flat in front then slopes down to rear parking area, no striping.
- Asphalt pavement has evidence of crack sealing throughout site. Recommend excavating asphalt and replacing with new binder course and top course within two years

G2020 Parking Lots: Striping, Paving, Grading

- Total asphalt parking of 127 spaces including 13 spaces west of Library, 104 spaces in the rear and 10 spaces along rear of building.
- Asphalt paving for parking areas and entrance/exit in fair condition with crack sealing throughout site Recommend excavating asphalt and replacing with new binder course and top course within two years.
- Cape Cod asphalt berm at entrance/exit and rear parking are in fair condition. Recommend replacing within two years.
- Striping in good condition. Re-stripe when asphalt replaced (within two years.)

G2030 Pedestrian Plazas and Walkways: Striping, Paving, Grading

- Asphalt walkways (4) at front of building leading to concrete steps as well as asphalt sidewalk at Library entrance and west side leading to rear parking in fair condition. Recommend excavating asphalt and replacing with new binder course and top course within two years.
- Rear concrete walks leading to building except asphalt at Room 103.
- Brick pavers at Town entrance.

G2060 Site Development: Bollards, Fixtures, Fencing, Signage

- Light Poles on site primarily for parking areas in rear of building are in good condition, maintain in 2-5 year time frame.
- Wood timber guardrail at rear parking area along slope to baseball field in good condition, maintain in 5-10 year time frame.
- Chain link fence in average condition. A small portion of chain link fence surrounding gas meter at front of building in good condition, maintain in 2-5 year time frame.
- Signage primarily for handicap parking signs maintain in 2-5 year time frame.

G3010 Water & Gas Utilities

- 6-inch cast iron main in Shattuck Street with a 4-inch cast iron domestic line into the building and a 6-inch cast iron line into the building for fire protection although there is no sprinkler system in the building.
- Existing water lines for domestic and fire are buried - cannot determine condition
- Gas service from Shattuck Street to building near #3

G3020 Sanitary Sewer Piping

- Sanitary sewer exits rear of building to a series of sewer manholes in rear parking then out to grass area. before entering pump station which then pumps to treatment plant near High School. Sanitary lines are adequate to pump station maintain in 50-10 year time frame.

G3030 Stormwater Drainage Utilities

- Drainage structures including manhole, catch basins and sewer manholes
- Catch basins are present at the library entrance at Shattuck Street. as well as along west side of Library that drains across pavement to retaining wall and slope.
- A leaching catch basin is located in parking aisle at rear of building near Bldg. #33
- Catch basins appear to be working condition and in good condition. Maintain in 5-10 year time frame.

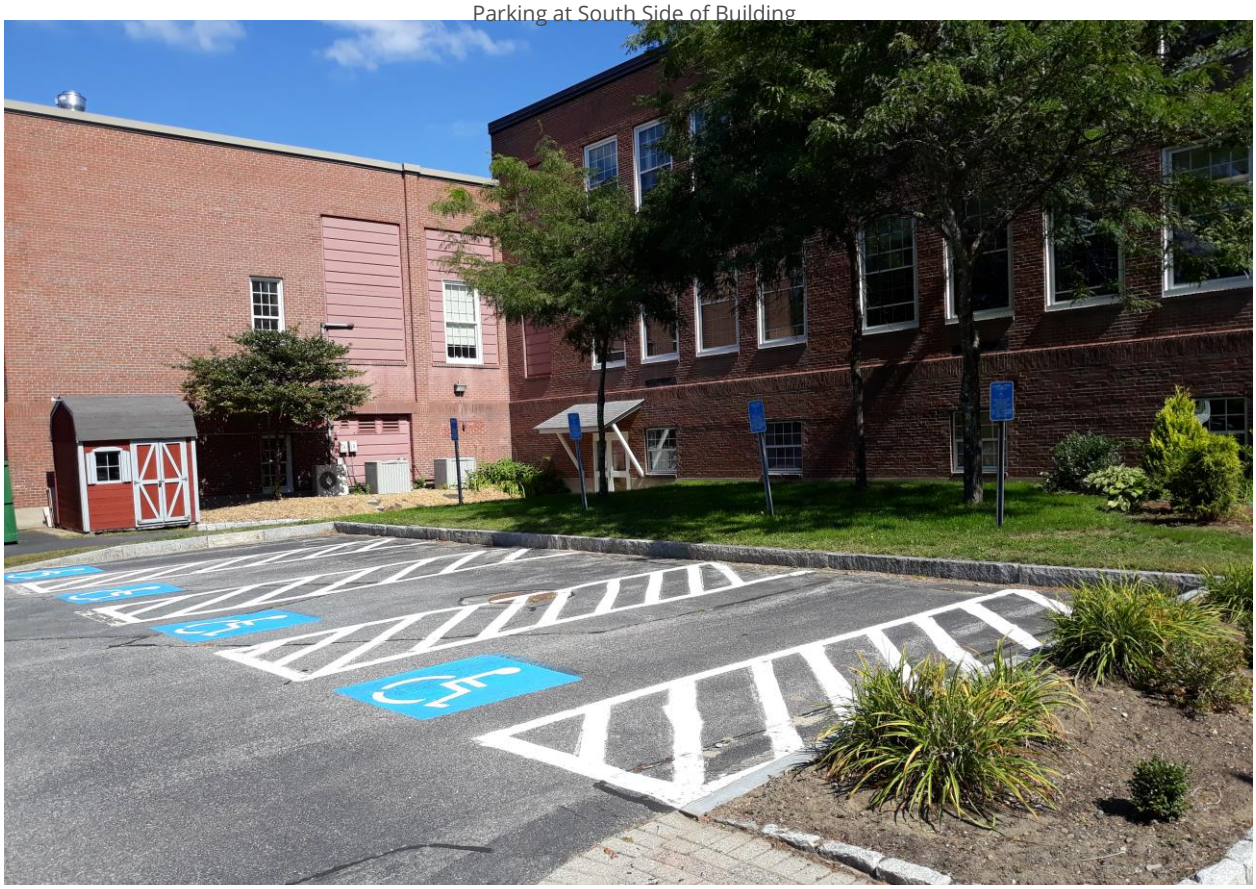
Town Hall Main Vehicular Entrance

Wood Timber Guardrail at Rear Parking

Catch Basin at West Side of Library

Rear Vehicular Exit Between
Building & Tennis Courts

Parking at South Side of Building



Handicap Parking at Rear Entrances

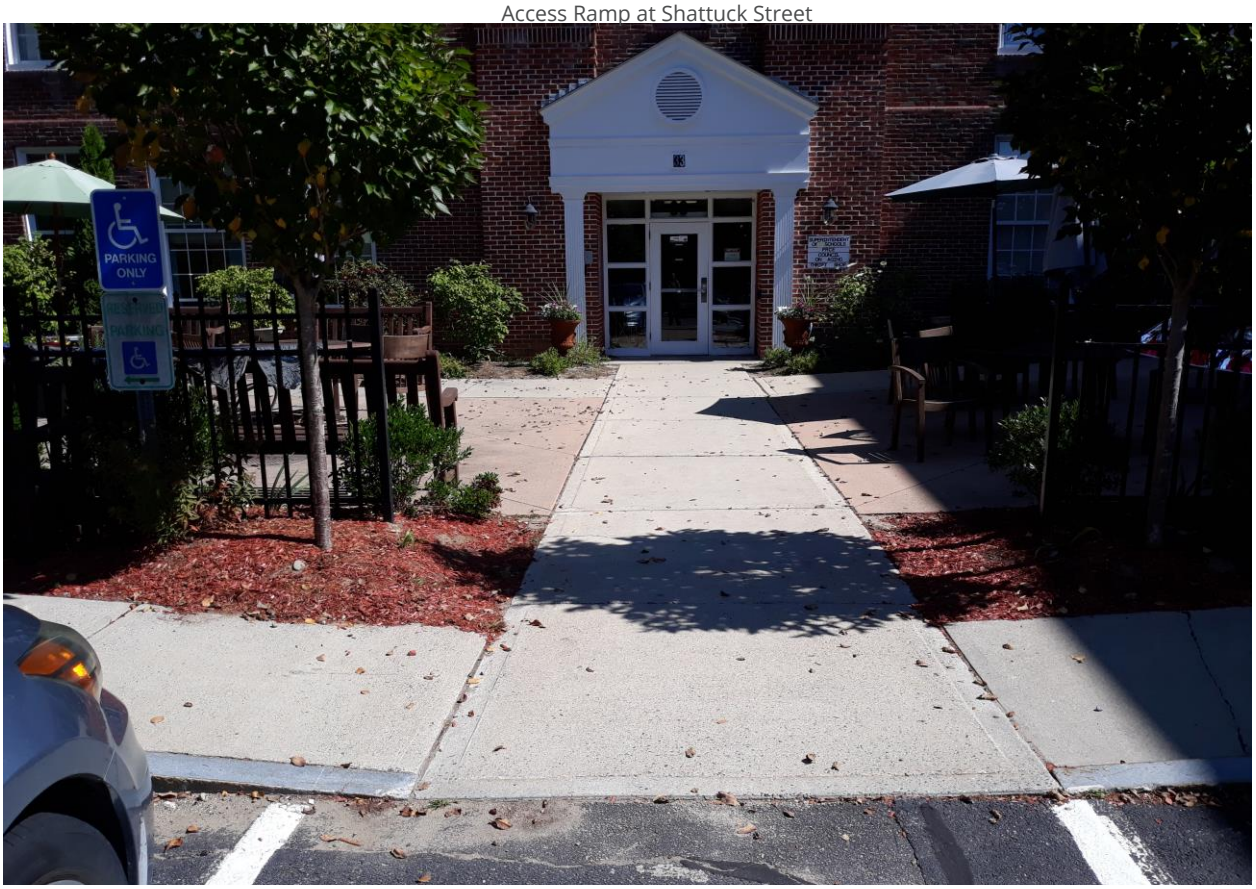
Rear Parking Area

Rear Parking Area

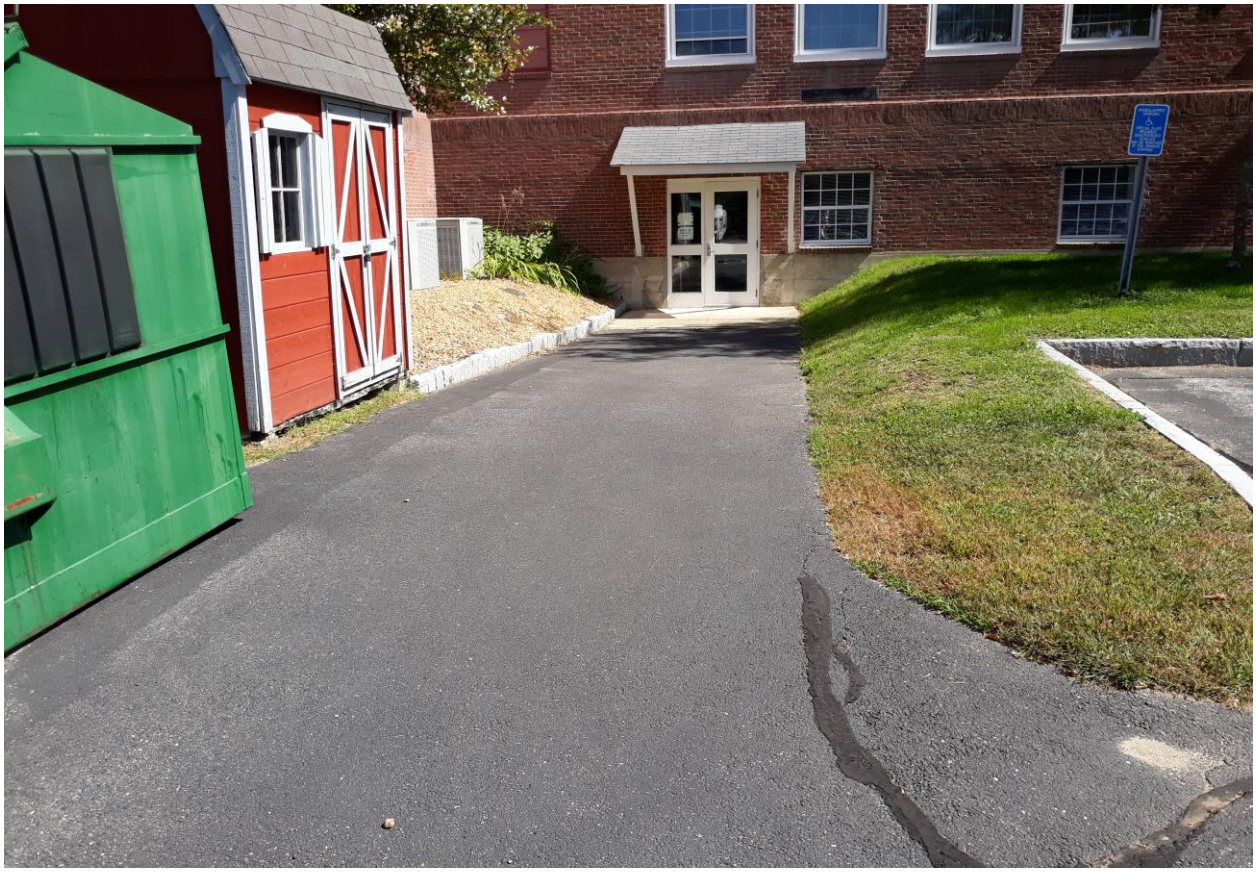
Rear Access to Library & Elevators

Access Walkway to Library

Access Ramp at Shattuck Street



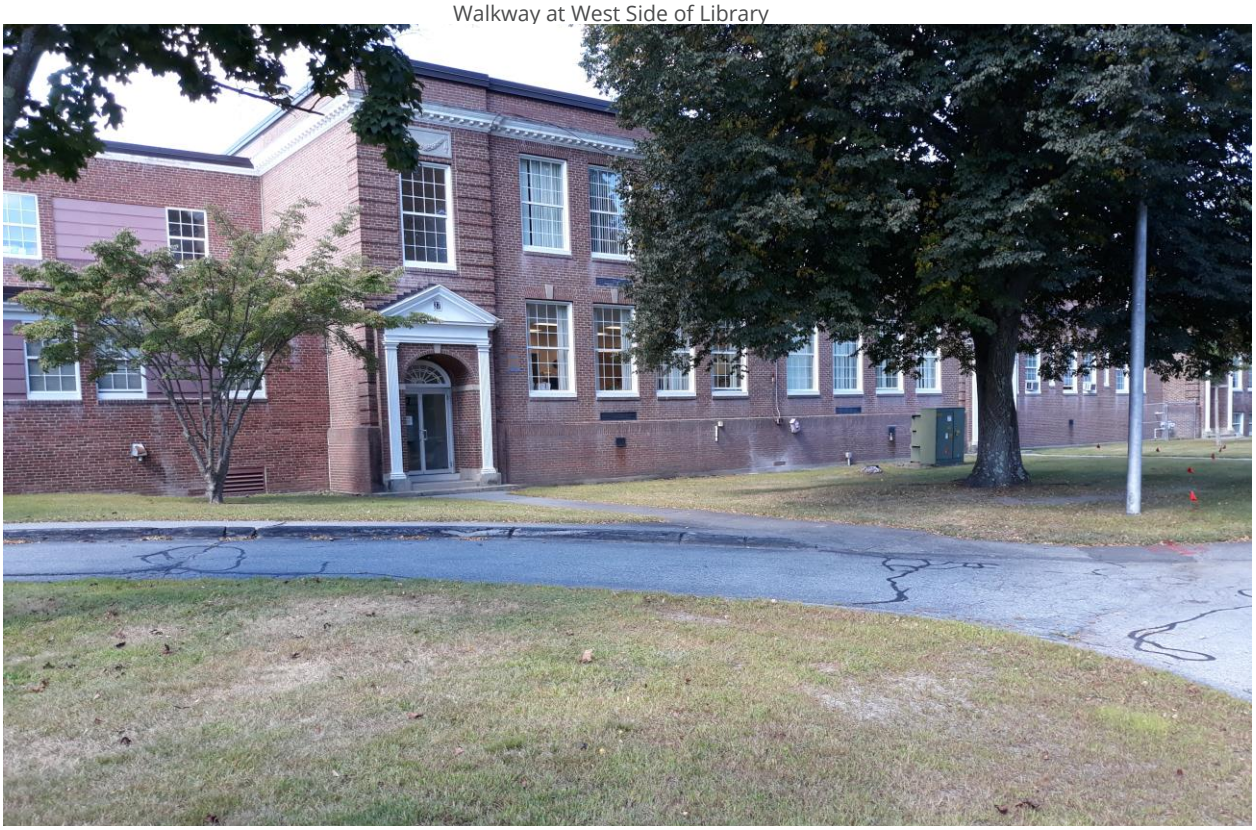
Access Walkway at Door #33



Rear Entrance

Rear Access to Town Hall

Walkway at West Side of Library



Semi-circular Drive at Library

Littleton Cable Entrance

Main Entrance at Library

Town Hall Entrance

Town Hall Entrance

Town Hall Entrance

Town Hall Entrance

Bike Rack at Library

Electric Manholes

Drain Outlet Pipe at West Side

Sewer Manhole in Rear Parking Area
(Sewer Line Extends North)

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Electrical & Fire Alarm
Fire Protection & Plumbing
Mechanical

Building Engineering Resources, Inc.

Assessment Report

Littleton Town Hall and Senior Center
Littleton, MA

PREPARED FOR:
LLB Architects
161 Exchange Street
Pawtucket RI 02860

PREPARED BY:
Building Engineering Resources, Inc.
Krista Iacobucci, PE – Mechanical
Dan Carroll, PE – Electrical

DATE:
November 5, 2019

General

The town of Littleton, Massachusetts has retained the services of this design team to evaluate the two buildings discussed in this report, and comment on the suitability of these facilities for use by the town as administration offices. The town hopes to be able to gain an understanding of the scope of repairs and modifications required to occupy these buildings and use them as intended.

MECHANICAL

Existing Town Hall Building

Heating and Cooling

This building is cooled and heated by a combination of different systems in order to achieve occupant comfort. There are several rooftop air handling units (RTUs), some of which provide cooling only by use of a direct expansion (DX) refrigerant circuit. Other RTUs also contain a natural-gas fired furnace to provide heat to the spaces they serve. There are several split air handling units, with a condensing unit and compressor located on grade and an indoor air handling unit with evaporator. There appears to be a total of 37.5 nominal tons of cooling available.

There are two different boiler rooms that distribute hydronic hot water to miscellaneous heating devices throughout the building, including hot water baseboard radiators, unit heaters, and hot water coils. The control valves installed in one of the two existing boiler plants are not operational and prevent adequate control of heat distribution. Between the two boiler plants, there is a total of approximately 6.5 MMBH of heating available.

Ventilation

Ventilation is provided to the building through the various air handling systems. It is assumed that adequate outdoor air is provided, but this should be confirmed prior to occupation in order to assure adequate indoor air quality for the proposed program use.

A kitchen ventilation system is in operation currently, and shall be removed and relocated into the Existing DCU Building.

Zoning

It was unclear during our investigation how the building is currently divided into HVAC zones. For the purposes of this report, we will assume that areas with similar load profiles are grouped together into HVAC zones, each served by a separate system as described above.

Miscellaneous Heating and Cooling

Some areas throughout the building have required independent heating and/or cooling in order to best serve the proposed purposes. Vestibules, IT rooms, and mechanical rooms are served by smaller dedicated systems as required. IT rooms may need

cooling year-round and have a dedicated split system, while utility spaces are equipped with a dedicated heating device, either hot water or electric.

Controls

There does not appear to be a central Building Automation System (BAS) that can oversee and control all HVAC equipment. Instead, it appears that each system is controlled independently by a dedicated thermostat, including both the miscellaneous air handling systems, and the various hydronic devices.

Conclusion & Recommendation

It appears that some of the larger pieces of equipment, such as air handling units and boilers, are nearing or have exceeded their expected life. It is recommended that both boiler plants be replaced, and combined into a single boiler plant if possible and practical. A new boiler plant would include all appurtenances, such as boilers, primary and secondary pumps, expansion tank(s), air separator, boiler room piping, etc. Hydronic hot water piping distribution would be assumed to be adequate for future use, but should be evaluated for any excessive corrosion or leaks. Branch piping may need to be replaced based on any architectural modifications, proposed program use, and associated heating changes. Any new piping shall be insulated to meet current energy codes and standards, and any existing pipe insulation throughout the building should be investigated and repaired accordingly.

Some of the air handling equipment appears to be past its expected life and will require replacement, including the split air handling systems and several roof top air handlers. Other rooftop air handlers appear to be in operable condition and should be evaluated by a service technician. Air handling systems serving the 1938 Multi-Use Wing and the 1922 Office Wing appear corroded but functional, and may remain in operation while anticipating replacement in the near future. Air handling systems serving the 1938 Classroom Wing and the 1952 Library Wing were reportedly installed 5 years ago and are assumed to be in full operational condition. Any new ductwork shall be insulated to meet current energy codes and standards, and any existing duct insulation should be investigated and repaired accordingly.

A building automation system is recommended. This system should be open protocol and have the inherent capability of monitoring and adjusting the HVAC systems based on schedules, heating and cooling demands, and energy usage.

ELECTRICAL

Existing Town Hall Building

Building Electric Service

The building electric service is a 1200 amp, 120/208 volt, 3 phase, 4 wire switchboard (General Electric) with four (4) 400 amp 3 pole circuit breakers being used as electric service disconnect switches for the following: Library, Meal Site/Auditorium, Town

Offices and COA/PRCE/School Administration. The electrical utility company metering provided by four (4) 400 amp meter sockets “cold sequence”.

Electrical Distribution

The Library electrical distribution consists of 400 amp, 120/208 volt, 3 phase, 4 wire panel (Panel ‘DPL’) and 225 amp, 120/208 volt, 3 phase, 4 wire panel (Panel ‘LPL’). Panel ‘DPL’ is located in 101 Maintenance Room. Panel ‘LPL’ is located in the Second Floor Electrical Room. The Meal Site/Auditorium electrical distribution consists of 400 amp, 120/208 volt, 3 phase, 4 wire panel (Panel ‘DPA’) and 225 amp, 120/208 volt, 3 phase, 4 wire panel (Panel ‘LPK’). Panel ‘DPL’ is located in the Main Electric Room. Panel ‘LPK’ is located in the Kitchen. The Town Offices electrical distribution consists of 400 amp, 120/208 volt, 3 phase, 4 wire panel (Panel ‘DPT’), 225 amp, 120/208 volt, 3 phase, 4 wire panel (Panel ‘LPT/LPTII’) and 225 amp, 120/208 volt, 3 phase, 4 wire panel (Panel ‘MP’) . Panel ‘DPT’ and Panel ‘MP are located in 101 Maintenance Room. Panel ‘LPT/LPTII’ is located in the Second Floor Electrical Room. The COA/PRCE/ School Administration electrical distribution consists of 400 amp, 120/208 volt, 3 phase, 4 wire panel (Panel ‘DPO’), 125 amp, 120/208 volt, 3 phase, 4 wire panel (Panel ‘SLP’) and 225 amp, 120/208 volt, 3 phase, 4 wire panel (Panel ‘HVAC’) . Panel ‘DPO’ is located in the Panel ‘SLP’ is located in the Main Electric Room. Panel ‘HVAC’ is located in the Second Floor Electrical Room.

Lighting

The building lighting consists of 2’ by 4’ recessed fluorescent lighting fixtures in offices and corridors. 2’ by 4’ surface mount fluorescent lighting fixtures in utility rooms and storage rooms.

Emergency Lighting

The building emergency lighting consists of emergency battery units with remote heads in corridors and stairwells. Emergency battery unit with two heads in restrooms. Exit signs are fluorescent with battery back-up.

Lighting Controls

The building lighting controls consist of ceiling occupancy sensors with wall switch overrides in corridors and conference rooms. Offices have wall mounted occupancy sensor switches.

Fire Alarm System

The building fire alarm system is a 12 zone conventional fire alarm control panel (Fire Control Instruments FCI) with manual pull stations at egress doors, smoke detectors, heat detectors, duct smoke detectors and ansul system for the kitchen hood. Transmission of an alarm to the fire department is via a radio master box (AES IntelliNet).

Materials

The lighting branch circuit consists of MC cable above ceilings with conduit and wire for lighting branch circuit homeruns. The receptacle branch circuit consists of MC cable in walls with conduit and wire for receptacle branch circuit homeruns. The HVAC equipment branch circuit wiring consists of conduit and wire. The plumbing equipment branch circuit wiring consists of conduit and wire.

Conclusion & Recommendation

The electrical distribution equipment is in good condition. If individual electrical bills are not required, then electric utility company current transformers may be installed on the secondary side of the electric utility company pad mount transformer with the electric utility company meter installed at the electric utility pad mount transformer. The four (4) electric utility company meters located in the Main Electric Room may be deleted. (Note: The electric utility company has a cost of approximately $25.00 for the electric company utility meter on the electric utility company bill.) The existing fluorescent lighting fixtures shall be replaced with LED lighting fixtures. The existing emergency lighting system shall be replaced with emergency inverters installed in the new LED lighting fixtures as required to provide the Code specified emergency lighting requirements. The existing conventional fire alarm system is old and new replacement parts are being phased out. The existing fire alarm system shall be replaced with a new addressable fire alarm system. The existing fire alarm radio master box may be reused.

PLUMBING

Existing Town Hall Building

Domestic Water Service:

A 4” steel pipe delivers city water to the building, transitioning to 2” at the water meter and check valve, then transitioning to 3” copper piping for distribution throughout the building.

Domestic Water piping:

Copper piping is used to distribute hot and cold domestic water through the building and each of the four “wings”. Plumbing fixtures were checked for operation, and distribution piping is assumed to be adequate.

Gas Service:

There is a 1-1/2” gas service delivering natural gas to the building, feeding gas to several appliances such as boilers, air handling units, kitchen equipment, etc.

Water Heating Plant:

There are several small-capacity electric water heaters scattered throughout the building supplying domestic hot water to various sanitary fixtures.

Fixtures & Accessories:

Fixtures and accessories appeared to be adequate for future use. Existing fixtures should be evaluated based on any modifications for new program use of the building. If fixtures are replaced, low-flow fixtures are recommended.

Sanitary Waste & Vent Systems:

Existing sanitary systems are operating adequately. There is a 4" cast iron sanitary like exiting the building and connecting to the town sewer system in the street. Sanitary mains throughout the building shall be snaked and scoped to evaluate for any internal corrosion.

Roof Drainage:

The existing roof covers multiple elevations, each with a reasonable covering of roof drains. Case iron piping below the roof collects rain water and discharges it into the town's sewer system in the street.

Conclusion & Recommendation

The existing plumbing systems are adequate for the current use of the building. Necessary modifications would be dictated by and architectural modifications or change in program use. The existing commercial kitchen appliances including grease trap, gas connections, sanitary connections and domestic water connections shall be relocated to the existing DCU Building.

FIRE SUPPRESSION

Existing Town Hall Building

This building does not currently have a sprinkler system.

See also photos on following pages.

END OF REPORT

Fire protection system electrical panels.
(Classroom Wing - First Floor)

Main tele/data panel. (Classroom Wing - First Floor)

Typical fire alarm pull located throughout the building. (Library Wing - First Floor)

Typical 2′ x 4′ recessed fluorescent lighting fixtures throughout corridors and offices. (Classroom Wing - First Floor)

Small-capacity electric water heaters.
(Classroom Wing - Second Floor)

3" copper piping for domestic water distribution. (Library Wing)

Existing fixtures appear adequate for fixture use. (Office Wing - First Floor)

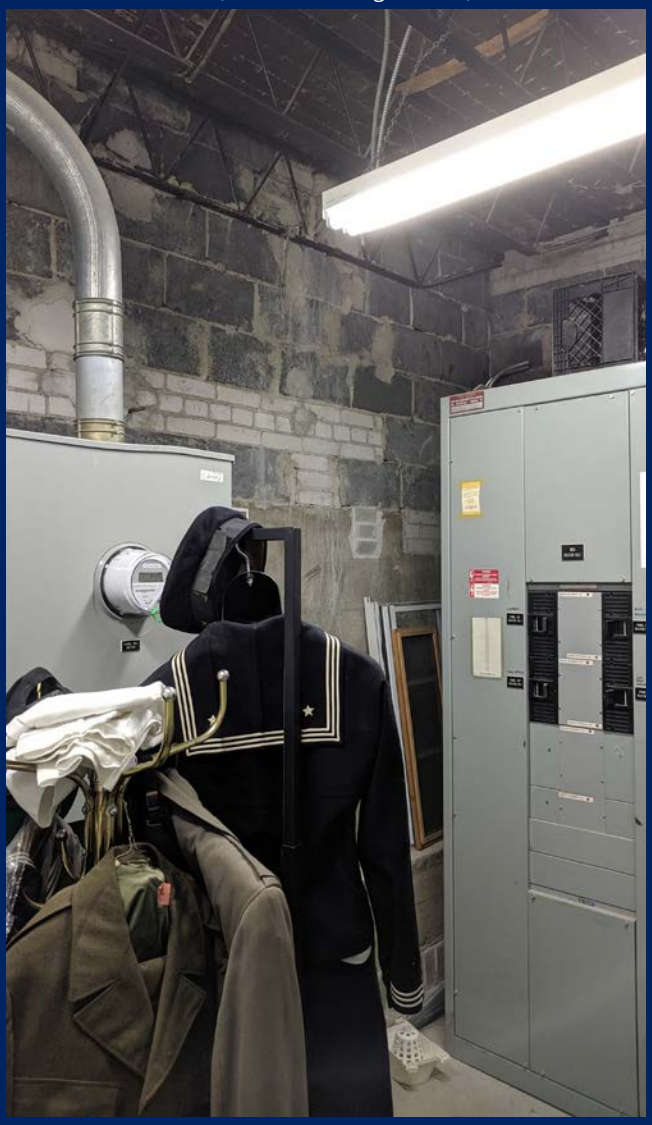
Existing fixtures appear adequate for fixture use. (Classroom Wing - Third Floor)

Existing fixtures appear adequate for fixture use. (Library Wing - Third Floor)

Existing fixtures appear adequate for fixture use. (Library Wing - Third Floor)

Numerous relatively new rooftop air handling unit (RTUs) located on the Classroom roof. (Classroom Wing - Roof 5)

Water meter and check valve. (Multi-Use Wing - Shattuck Street Side)



Electrical main and meters for each building. (Classroom Wing - First Floor)

One of a few relatively new rooftop air handling unit (RTUs) located on the Library roofs. (Library Wing - Roof 2)

One of a few older rooftop air handling unit (RTUs) located on the Multi-Use & Office roofs. (Office Wing - Roof 8)

One of two boiler plants, both in need of replacement. (Office Wing - First Floor)

On grade split air handling units with condensing unit and compressor. (Multi-Use Wing - Parking Lot Side)

Typical hot water baseboards in offices. (Office Wing - Third Floor)

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Pipe TSI - Confirmed ACM (Multi-Use Wing - Third Floor Storage Room)

Cement Fabric - Confirmed ACM (Multi-Use Wing - Third Floor Storage Room)

Cement Fabric - Confirmed ACM (Multi-Use Wing - Third Floor Storage Room)

Environmental

Recommendation:
See full Hazardous Materials Summary report (this chapter.)
Have licensed asbestos abatement designer prepare a project design and have asbestos abatement contractor remove ACM in locations indicated.
Timeline:
Remove prior to disturbance.

Pipe TSI - Confirmed ACM (Multi-Use Wing - Third Floor Storage Room)

Environmental Assessment

Some evidence of ACM was discovered in the 1938 Multi-Use Wing, roof and third floor storage area. ACM that will be impacted by renovation or demolition work must be removed before they are disturbed. This work must be conducted in accordance with a project design as prepared by a licensed Asbestos Abatement Project Designer. This report is not intended for use as an abatement design. Prior to disturbance, the ACM identified must be abated by a Commonwealth of Massachusetts-licensed asbestos abatement contractor following all federal, state & local regulations governing asbestos abatement. A copy of the asbestos Waste Shipment record must be received within 30 days of removal from the Site. Asbestos air quality sampling must be conducted under USEPA regulations following asbestos abatement and prior to re-occupancy of the spaces.

During the course of renovation or demolition work, it is possible that additional suspect ACM will be encountered. Contractors should be apprised to conduct any such work in a controlled manner. If suspect materials that have not been sampled are encountered, they should be assumed to contain asbestos, unless appropriate sampling and analysis indicates otherwise.

Currently No Lead Based Paint was observed and tested greater than one milligram per square centimeter (1.0 mg/cm2) or 0.5% by weight. Lead abatement is not required.

No PCBs in excess of the USEPA Toxic Control Substances Act (TSCA) limit of 50 mg/kg were identified during the sampling program. Prior to removal, light tubes, ballasts, compact florescent bulbs, lead and tritium batteries, thermostats and switches will require proper handling, removal, transportation and off-site recycling/reclamation. Any PCB fluid and oils will also have to be sampled to determine proper disposal requirements.

The visual survey for hazardous materials identified mercury-containing light tubes, PCB-containing light ballasts, mercury containing thermostats and switches, lead and tritium batteries, refrigerants and other hazardous materials. No hazardous materials sampling or analysis was conducted as part of this survey. Items will be recycled or disposed of in accordance with state and federal regulations. (Continued on next page)

The conclusions are limited to the information available at the time of the field survey and the scope of services, as defined. No subsurface soil or groundwater sampling and analysis was performed. Where access to portions of the Site or to structures on the site was unavailable or limited, CDW renders no opinion as to the presence of hazardous material or the presence of indirect evidence related to hazardous material in that portion of the site or structure.

CDW CONSULTANTS, INC.
CIVIL & ENVIRONMENTAL ENGINEERS

HAZARDOUS MATERIALS SUMMARY REPORT

Littleton Town Offices
37 Shattuck Street
Littleton, Massachusetts 01460

Prepared for:

LLB Architects
161 Exchange St.
Pawtucket, RI 02860

September 2019

CDW Project #1861.10

6 Huron Drive, Natick, MA 01760
508-875-2657
www.cdwconsultants.com

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Figures

Appendices

6 Huron Drive, Natick, MA 01760
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1.0 INTRODUCTION

CDW Consultants, Inc. (CDW) is pleased to present this report summarizing the findings of the site inspection for suspect asbestos-containing materials (ACM) and hazardous materials of the Littleton Town Offices building in Littleton, Massachusetts (Site). The scope of work was to conduct a feasibility inspection to identify potential areas of suspect ACM and hazardous materials located in the building. This included a limited site inspection for ACM and other visible hazardous materials and limited sampling for asbestos, lead paint and poly-chlorinated biphenyls (PCBs).

2.0 GENERAL SITE CONDITIONS

The Town Offices Building is located at 37 Shattuck Street in Littleton, Massachusetts. According to property tax records, the existing building is approximately 65,000 sq./ft made up of three (3) floors. There are two (2) elevators connecting the ground floor to the 3rd floor located at each end of the building.

This complex (formerly home to a school) has been renovated in phases over time to from the 1920's to the 1950's. It is a three (3) story building made up of brick with a cement foundation. Roof construction is estimated as flat rubber coated multi-layered roofing material. The windows have been updated newer vintage style aluminum double hung window with vinyl exterior.

This Site is home to multiple entities throughout the building, which have moved and expanded based on past renovations of the space. The Town Meeting area, Council on Aging, Parks and Recreation Department, Maintenance Room and Utility areas (Electrical/Telephone closet) are all located on the ground floor.

The 2nd floor is home to a Thrift shop, the large LCTV area and several town associated offices. The 3rd floor consists of offices for the School Department (Superintendent's Office), Town Clerk, Town Assessor and those of the like, as well as a small area reserved for Storage/Filing.

The Library area is approximately 15,000 sq./ft and stretches to all 3 floors with multiple areas for children, adult and reference materials, these areas are accessible via the elevator located at this end of the building.

The interior of the Town Offices building (ground floor, 2nd and 3rd floors) consists of painted brick and cinder block walls, plastered walls, concrete floors, vinyl floor tiles, suspended ceilings and wooden door entrances with metal frames.

Typical rooms in areas of the Main Building (former school) , Council on Aging and the Parks and Recreation areas consist of a wood door entrance with metal door frames, grouted cement door frames, painted brick or cinderblock or plastered walls 12"x 12" and 9"x 9" vinyl floor tile, carpet over tile floors, suspended ceiling tile, and rubber cove base.

Typical hallways contain painted cinder block or brick walls with suspended ceiling panels, 12"x 12" vinyl floor tiles and rubber cove base.

Stairway areas contain carpeted floors, plastic stair cover and plastic molding. CDW also observed both metal frame and wooden framed staircases with handrails, walls consist of painted brick, plastered walls and ceilings with some containing drop ceiling tiles.

The LCTV area on the 2nd floor contains both carpeted and hardwood floors with plastic molding, brick and plastered walls and areas of drop ceiling tiles. Large common area (high ceiling) contains maroon cork-like ceiling tiles with grey insulation above.

A maintenance room located on the ground floor (former school portion) contains a boiler, main electrical panels, and numerous small diameter pipes with insulation and 90-degree elbows, believed to be fiberglass.

An elevator and associated mechanical room located off the foyer area of the Parks and Recreation section of the building was observed to contain operating equipment with hydraulic oil reservoir.

On the 3rd floor in the Storage are (Room 305) a Mesh/Fabric material was observed to be covering the top part of painted brick wall, this material continued above the drop ceiling line into the attic area and could be assumed to continue throughout other areas.

An electrical transformer is located on a concrete pad along the eastern side of the Town Hall portion of the building in the vicinity of the main library door. It is unknown if PCB oil is contained within the transformer.

3.0 ASBESTOS SURVEY

3.1 Methods

The USEPA and Massachusetts Department of Environmental Protection (MassDEP) are responsible for developing and enforcing regulations necessary to protect the general public from airborne contaminants that are known to be hazardous to human health. They regulate ACM associated with renovation, demolition, and asbestos abatement projects via the National Emissions Standard for Hazardous Air Pollutants (NESHAP) Title 40 CFR Part 61 regulation. These regulations require that buildings be inspected for ACM prior to renovation/demolition projects. They stipulate that all friable ACM as well as non-friable ACM that are in poor condition or will be made friable by renovation or demolition activity be removed or otherwise appropriately abated before they are disturbed.

The investigative work for the asbestos survey included conducting a visual inspection of physically accessible areas of the structure, reviewing plans and observe any vapor barriers, as well as the roof for suspect materials. Once the inspection was completed, the building components were categorized into homogeneous areas. These homogeneous areas included: surfacing materials, thermal system insulation, and miscellaneous materials. CDW collected bulk samples of different homogeneous suspect materials for asbestos analysis. The bulk samples were delivered under chain of custody to Asbestos Identification Laboratory, Inc. (AIL) of Woburn, Massachusetts, fully accredited asbestos analytical laboratories, analyzed the bulk samples utilizing Polarized Light Microscopy (PLM) in accordance with the requirements of 40 CFR Part 763, Subpart F. Samples analyzed to contain greater than 1% asbestos are to be treated as ACM as defined by the USEPA and MassDEP. A positive stop

method was used – if one sample in a homogeneous group is positive then additional samples of the same material are not analyzed. The asbestos analytical reports are provided in Appendix A.

3.2 Findings

Findings of the ACM sampling are presented in the below table:

Interior Findings

Field ID / Laboratory ID	Description	Location	Result
1A, 1B, 1C, 1D, 1E, 1F, 1G 518622, 518623, 518624, 518625, 518626, 518627, 518628	Green Floor Tile	Ground Floor	ND
2A, 2B, 2C, 2D, 2E, 2F, 2G 518629, 518630, 518631, 518632, 518633, 518634, 518635	Green Floor Tile (Mastic)	Ground Floor	ND
3A, 3B, 3C 518636, 518637, 518638	Vinyl Cove Molding	Ground Floor	ND
4A, 4B, 4C, 4D, 4E 518639, 518640, 518641, 518642, 518643	Plaster	Ground Floor	ND
5A, 5B, 5C, 5D, 5E 518644, 518645, 518646, 518647, 518648	Paper	Ground Floor	ND
6A, 6B, 6C, 6D, 6E 518649, 518650, 518651, 518652, 518653	White Floor Tile	Ground Floor	ND
7A, 7B, 7C, 7D, 7E 509915, 509916, 509917	Tan Mastic	Ground Floor	ND
8A, 8B, 8C, 8D, 8E 518659, 518660, 518661, 518662, 518663	Tan Floor Tile	Ground Floor	ND
9A, 9B, 9C, 9D, 9E 518664, 518665, 518666, 518667, 518668	Mastic	Ground Floor	ND
10A, 10B, 10C, 10D, 10E, 10F, 10G 518669, 518670, 518671, 518672, 518673, 518674, 518675	Fissured Drop Ceiling Tile	Throughout	ND
11A, 11B, 11C 518676, 518677, 518678	Tan Molding	Park and Rec	ND
12A 518679	Joint Expansion	Maintenance	ND
13A 518680	Grey Molding	Library	ND
14A 518681	Mastic	Library	ND
15A, 15B, 15C, 15D, 15E 518682, 518683, 518684, 518685, 518686	Drop Ceiling Tile	Library	ND
16A, 16B, 16C, 16D, 16E 518687, 518688, 518689, 518690, 518691	Off-White Floor Tile	Cooper - Library	ND

Field ID / Laboratory ID	Description	Location	Result
17A, 17B, 17C, 17D, 17E 518692, 518693, 518694, 518695, 518696	Black Mastic (Under Off-White Tile)	Cooper - Library	ND
18A, 18B, 18C 518697, 518698, 518699	Molding	1st Floor	ND
19A, 19B, 19C 518700, 518701, 518702	Mastic	1st Floor	ND
20A, 20B, 20C, 20D, 20E 518703, 518704, 518705, 518706, 518707	Plaster	Library	ND
21A, 21B, 21C, 21D, 21E 518708, 518709, 518710, 518711, 518712	Paper	Library	ND
22A, 22B, 22C 518713, 518714, 518715	Exterior Caulking (Grey)	Exterior	ND
23A, 23B, 23C, 23D, 23E 518716, 518717, 518718, 518719, 519720	Blue Floor Tile	2nd Floor	ND
24A, 24B, 24C, 24D, 24E 518721, 518722, 518723, 518724, 518725	Tan Mastic	2nd Floor	ND
25A, 25B, 25C, 26D, 26E 518726, 518836, 518837, 518838, 518839	Pipe TSI	3rd Floor	**Detected Chrysotile 20%**
26A, 26B, 26C 518727, 518728, 518729	Paint	School	ND
27A, 27B, 27C, 27D, 27E 518730, 518731, 518732, 518733, 518734	Blue-Grey Floor Tile	Maintenance	ND
28A, 28B, 28C, 28D, 28E 518735, 518736, 518737, 518738, 518739	Brown Mastic	Maintenance	ND
29A, 29B, 29C 518740, 518741, 518742	Cement Wall Cover (Black)	3rd Floor 305 Storage	**Detected Chrysotile 30%**
30A, 30B, 30C 518743, 518744, 518745	Plaster	2nd Floor	ND
31A, 31B, 31C 518746, 518747, 518748	Grey Insulation	3rd Floor	ND
32A, 32B, 32C 518749, 518750, 518751	White Insulation	3rd Floor Attic	ND
33A, 33B, 33C 518752, 518753, 518754	Cement/Mesh	3rd Floor Attic	ND
34A, 34B, 34C 518755, 518756, 518757	Cement Fabric	Center	**Detected Chrysotile 5%**

Field ID / Laboratory ID	Description	Location	Result
35A, 35B, 35C 518758, 518759, 518760	Brown Tile	Bathroom- COA	ND
36A, 36B, 36C 518761, 518762, 518763	Mastic	Bathroom- COA	ND
37A 518764	Black Mastic (Under Carpet)	Cooper Library	ND
38A, 38B, 38C 518765, 518766, 518767	Maroon Ceiling Tile	LCTV	ND
39A, 39B, 39C 518768, 518769, 518770	Grey Insulation Above Tile	LCTV	ND
40A, 40B, 40C 518771, 518772, 518773	Black Molding	2nd Floor	ND
41A, 41B, 41C 518774, 518775, 518776	Mastic	2nd Floor	ND
42A, 42B, 42C 518777, 517778, 518779	Black Vinyl Cove Molding (Painted)	3rd Floor	ND
43A, 43B, 43C 518780, 518781, 518782	Mastic	3rd Floor	ND
Exterior Findings (ROOF)			
44 518783	Glue	1	ND
45 518784	Top/Bottom Foam	1	ND
46 518785	Top/Bottom 2nd Layer	1	ND
47 518786	Top/Bottom 3rd Layer	1	ND
48 518787	Top of Deck Concrete	1	ND
49 518788	Glue	2	ND
50 518789	Top ½	2	ND

Field ID / Laboratory ID	Description	Location	Result
51 518790	Top/Bottom 2nd Layer	2	ND
52 518791	Top/Bottom 3rd Layer	2	ND
53 518792	Glue	3	ND
54 518793	Top/Bottom Gypsum	3	ND
55 518794	Top/Bottom 1st Layer Foam	3	ND
56 518795	Top/Bottom 2nd Layer Foam	3	ND
57 518796	Top/Bottom 3rd Layer Foam	3	ND
58 518797	Top of Deck	3	ND
59 518798	Glue	4	ND
60 518799	Top/Bottom Gypsum	4	ND
61 5187800	Gypsum	4	ND
62 518801	Top/Bottom 3rd Layer	4	ND
63 518802	Gypsum on Deck	4	ND
64 518803	Glue	5	ND
65 518804	Top/Bottom 1st Layer	5	ND
66 518805	Top of Deck Plywood	5	ND
67 518806	Glue	6	ND
68 518807	Top/Bottom Foam	6	ND
69 518808	Top of Deck	6	ND
70 518809	Glue	7	ND

Field ID / Laboratory ID	Description	Location	Result
71 518810	Top/Bottom 1st Layer	7	ND
72 518811	Top/Bottom 2nd Layer	7	ND
73 518812	Glue	8	ND
74 518813	Top/Bottom 1st Layer	8	ND
75 518814	Top/Bottom 2nd Layer	8	ND
76 518815	Glue	9	ND
77 518816	Top/Bottom 1st Layer	9	ND
78 518817	Top/Bottom 2nd Layer	9	ND
79 518818	Between 1st and 2nd Layers	9	ND
80 518819	Top/Bottom 3rd Layer	9	ND
81 518820	Between 2nd and 3rd Layer	9	ND
82 518821	Top of Deck	9	ND
83 518822	Glue	10	ND
84 518823	Top/Bottom Gypsum	10	ND
85 518824	Top/Bottom Foam	10	ND
86 518825	Top/Bottom 2nd Layer	10	ND
87 518826	Top/Bottom Gypsum 3rd Layer	10	ND
88 518827	Glue	11	ND
89 518828	Top/Bottom 1st Layer	11	ND
90 518829	Top/Bottom 2nd Layer	11	ND

Field ID / Laboratory ID	Description	Location	Result
91 518830	Top/Bottom 3rd Layer	11	ND
92 518831	4th Layer	11	ND
93 518832	Top of Deck	11	ND
94 518833	Curb – Upper	12	ND
95 518834	Curb – Roof + Wall	13	**Detected Chrysotile 20%**
96 518835	Paint-Exterior of Building	26	ND

** Sample 16D/16E Incorrect Sample ID on report (see chain)

Confirmed ACM Materials Sampled During September 2019 Survey			
Material Description	**Sample Location**	**Est. Approximate Quantity**	**Units**
Pipe TSI	3rd Floor	500	LF
Cement Wall Cover/Mastic	3rd Floor (305 Storage)	8,000	SF
Cement Fabric	3rd Floor	3,000	SF
Curb - Roof + Wall	Exterior 13	2,500	SF

SF= square feet, LF=Linear Feet

3.3 Other Observations

Other observations during CDW's survey include:

- Multiple areas within the Storage Electrical/Telephone area were inaccessible (due to locked doors / blocked areas) during the time of inspection.

3.4 Recommendations

ACM that will be impacted by renovation or demolition work must be removed before they are disturbed. This work must be conducted in accordance with a project design as prepared by a licensed

Asbestos Abatement Project Designer. This report is not intended for use as an abatement design. Prior to disturbance, the ACM identified must be abated by a Commonwealth of Massachusetts-licensed asbestos abatement contractor following all federal, state & local regulations governing asbestos abatement. A copy of the asbestos Waste Shipment record must be received within 30 days of removal from the Site. Asbestos air quality sampling must be conducted under USEPA regulations following asbestos abatement and prior to re-occupancy of the spaces.

During the course of renovation or demolition work, it is possible that additional suspect ACM will be encountered. Contractors should be apprised to conduct any such work in a controlled manner. If suspect materials that have not been sampled are encountered, they should be assumed to contain asbestos, unless appropriate sampling and analysis indicates otherwise.

4.0 LEAD-BASED PAINT

4.1 Methods

CDW performed a visual inspection of painted surfaces. CDW collected samples of paints on various types of building component substrates. Samples were submitted to Pro-Science Laboratories in Woburn, Massachusetts for analysis via atomic absorption spectrometry (AAS).

4.2 Findings

The results of the laboratory analysis are provided in the below table:

Field ID / Laboratory ID	Description	Result (% Weight)
LBP-1 C 632313	Paint from School Department Offices	< 0.0085 mg/Kg

The analytical results from the limited survey analyzed did not have detectable concentrations of lead. The USEPA defines LBP as any paint or surface coating that contains lead equal to exceeding one milligram per square centimeter (1.0 mg/cm2) or 0.5% by weight. The OSHA lead-in-construction standard defines lead containing paint (LCP) as a paint or coating containing any detectable level of lead.

The laboratory analytical report is included in Appendix B.

4.3 Recommendations

Based on the conclusions of this testing, the following recommendations are offered:

- Currently No Lead Based Paint was observed and tested greater than one milligram per square centimeter (1.0 mg/cm2) or 0.5% by weight. Lead abatement is not required.

5.0 PCB FINDINGS

CDW performed a visual inspection of painted surfaces. CDW collected samples of caulking from various locations from different building component substrates. Samples were submitted to Con-Test Analytical Laboratories for extraction and analysis via SW-846 8082A (PCB Soxhlet SW-846 3540C).

PCBs in Building Materials

The results for the sampling of suspect PCB-containing materials are presented in the table. The laboratory analytical report for PCB-containing materials at this location is included in Appendix C.

Sample ID	Description	Total PCBs (mg/kg)
PCB-1	Exterior Caulking	ND

No PCBs in excess of the USEPA Toxic Control Substances Act (TSCA) limit of 50 mg/kg were identified during the sampling program. Prior to removal, light tubes, ballasts, compact florescent bulbs, lead and tritium batteries, thermostats and switches will require proper handling, removal, transportation and off-site recycling/reclamation. Any PCB fluid and oils will also have to be sampled to determine proper disposal requirements.

6.0 OTHER HAZARDOUS MATERIALS SURVEY

OHM Visual Inspection

CDW visually inspected the Site building for universal, special and hazardous wastes associated with building materials. These included but were not limited to the following:

- Mercury-containing devices (fluorescent light tubes, thermostats, gauges, etc.);
- Polychlorinated bi-phenyl (PCB)-containing articles, equipment and devices (light ballasts, electrical switches, etc.);
- Chlorofluorocarbon (CFC)-containing equipment (refrigerants, air conditioners/HVAC equipment, water bubblers, etc.)
- Tritium-containing devices (Exit signs); and
- Lead-Acid batteries (emergency lights, etc.).

OHM

The visual survey for hazardous materials identified mercury-containing light tubes, PCB-containing light ballasts, mercury containing thermostats and switches, lead and tritium batteries, refrigerants and other hazardous materials. No hazardous materials sampling or analysis was conducted as part of this survey. A list of OHMs identified are included in the table**.**

Material Description	Location	Est. Quantity	Units
Compact Incandescent	Throughout	24	Each
Fluorescent Bulbs (Mercury) and LED Bulbs (Arsenic and Lead)	Throughout	789	Bulbs
Electronic Light Ballast	Throughout	394	Each
Thermostats and Switches (Mercury)	Throughout, Mechanical and HVAC	31	Each
Emergency Light Batteries (Lead)	Throughout	4	Each
Refrigerants Associated with HVAC	Throughout	ND	Gallons
Fire Extinguishers (Compressed Gas)	Throughout	9	Each
Refrigerants Associated with Water Bubblers	Throughout	ND	Gallons
Exit Signs (Tritium)	Throughout	28	Each
Heat Detectors (mercury)	Throughout	113	Each
Hydraulic Oil Associated with Elevators/Chair Lift	Elevator Mechanical Rooms/Chair Lift LCTV	20	Gallons

Exterior

Electrical Transformer	Exterior east side	~50	Gallons

6.1 Recommendations

Items listed in the OHM table will be recycled or disposed of in accordance with state and federal regulations.

Limitations

The conclusions are limited to the information available at the time of the field survey and the scope of services, as defined. No subsurface soil or groundwater sampling and analysis was performed. Where access to portions of the Site or to structures on the site was unavailable or limited, CDW renders no opinion as to the presence of hazardous material or the presence of indirect evidence related to hazardous material in that portion of the site or structure. This report cannot be solely relied upon for renovation or demolition. The sampling performed forms the basis for conclusions expressed and areas inaccessible for testing limits those conclusions. No other conclusions, interpretations, or

recommendations are contained or implied in this report other than those expressed. While CDW followed industry standards during the inspection, we do not warrant that all suspect hazardous building materials were identified in or on the buildings and shall not be held liable related to future abatement costs related to hazardous materials that are either not discovered or not appropriately characterized. This is due in part to inherent problems with every building inspection, such as, but not limited to:

- Seemingly homogeneous materials that are not in fact homogeneous;
- Seemingly representative locations that are not in fact representative;
- Layered materials that are not uniformly present or are isolated;
- Materials that are present and accessible but were not considered to be hazardous,
- Materials that are present in an isolated and limited quantity; and
- Material that is present in locations that are unsafe or otherwise difficult to access.

Client acknowledges that CDW's inspection is limited and all hazardous materials may only become apparent during future demolition. Additional hazardous materials or materials suspected of being hazardous should be assumed to be hazardous unless appropriate evaluation or sampling and analysis demonstrate otherwise. No other use of this report is warranted without the written consent of CDW Consultants, Inc.

CDW appreciates the opportunity to provide our services to you on this project.

Should you have any questions please do not hesitate to contact us at (508) 875-2657.

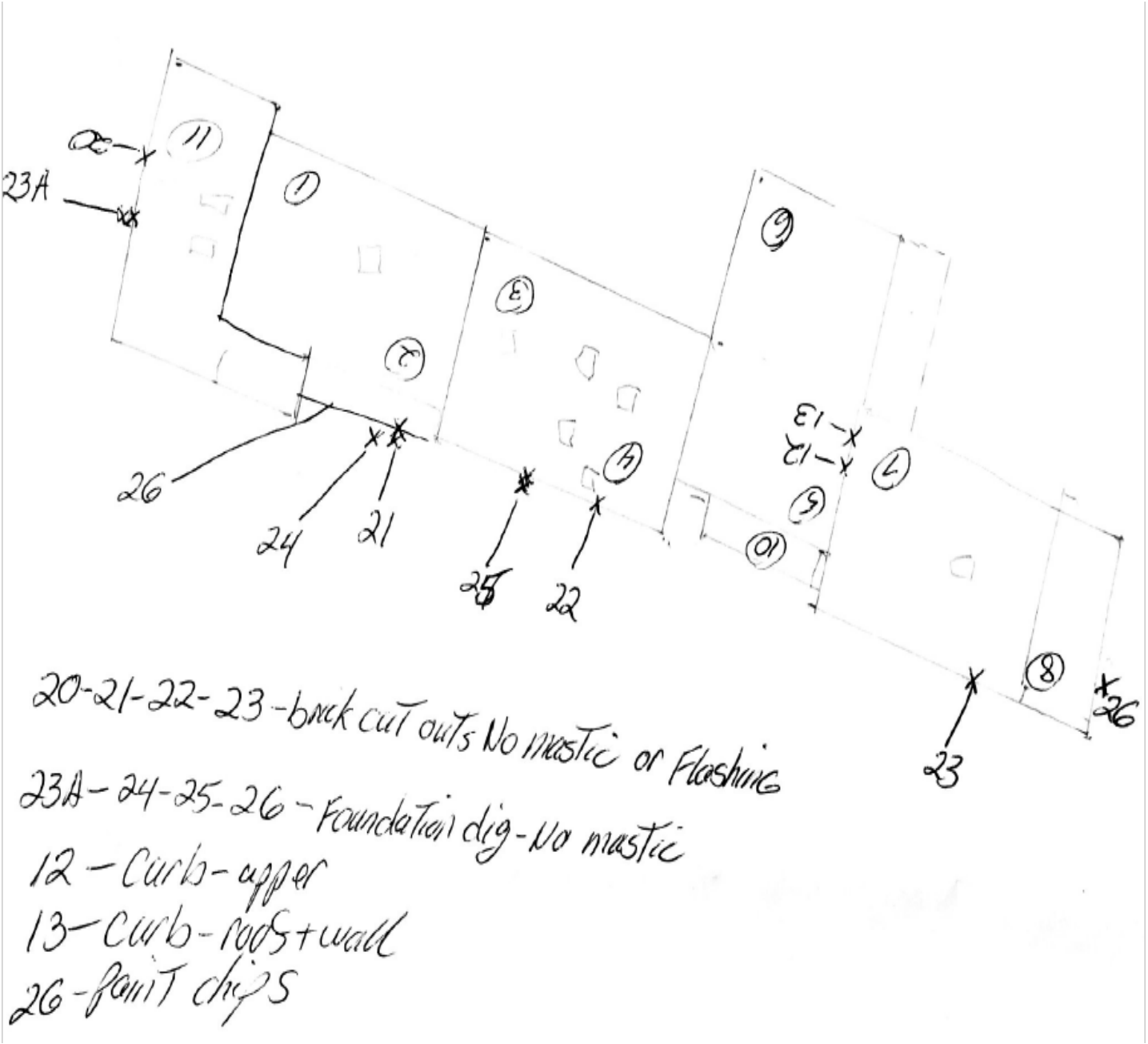
Sincerely,

Alan Sundquist, Geologist
Manager of Field Services

FIGURES

CDW Architects	CDW Consultants Inc. 6 Huron Drive Natick, MA 01760	Site: 37 Shattuck Street Littleton, MA 01460	
		Project #: 1861.10	Figure 1 - Site Map

Exterior Sample Locations



CDW	CDW Consultants Inc. 6 Huron Drive Natick, MA 01760	Site: 37 Shattuck Street Littleton, MA 01460	
		Project #: 1861.10	Figure 2 - Exterior Sample Locations

APPENDIX A

Asbestos Identification Laboratory

165 New Boston St., Ste 227
Woburn, MA 01801
781-932-9600

Web: www.asbestosidentificationlab.com
Email: mikemanning@asbestosidentificationlab.com

Batch: 46670

NVLAP®
Lab Code: 200919-0

September 25, 2019

Alan Sundquist
CDW Consultants, Inc.
6 Huron Drive
Natick, MA 01760

Project Name:	***Littleton Town Offices***
Project Number:	1861.10
Date Sampled:	2019-09-13
Work Received:	2019-09-18
Work Analyzed:	2019-09-24

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

Dear Alan Sundquist,

Asbestos Identification Laboratory has completed the analysis of the samples from your office for the above referenced project. The information and analysis contained in this report have been generated using the EPA /600/R-93/116 Method for the Determination of Asbestos in Bulk Building Materials. Materials or products that contain more than 1% of any kind or combination of asbestos are considered an asbestos containing building material as determined by the EPA. This Polarized Light Microscope (PLM) technique may be performed either by visual estimation or point counting. Point counting provides a determination of the area percentage of asbestos in a sample. If the asbestos is estimated to be less than 10% by visual estimation of friable material, the determination may be repeated using the point counting technique. The results of the point counting supersede visual PLM results. Results in this report only relate to the items tested. This report may not be used by the customer to claim product endorsement by NVLAP or any other U.S. Government Agency.
Laboratory results represent the analysis of samples as submitted by the customer. Information regarding sample location, description, area, volume, etc., was provided by the customer. Asbestos Identification Laboratory is not responsible for sample collection activities or analytical method limitations. Unless notified in writing to return samples, Asbestos Identification Laboratory discards customer samples after 30 days. Samples containing subsamples or layers will be analyzed separately when applicable. Reports are kept at Asbestos Identification Laboratory for three years. This report shall not be reproduced, except in full, without the written consent of Asbestos Identification Laboratory.

- NVLAP Lab Code: 200919-0
- Massachusetts Certification License: AA000208
- State of Connecticut, Department of Public Health Approved Environmental Laboratory Registration Number: PH-0142
- State of Maine, Department of Environmental Protection Asbestos Analytical Laboratory License Number: LB-0078(Bulk) LA-0087(Air)
- State of Rhode Island and Providence Plantations. Department of Health Certification: AAL-121
- State of Vermont, Department of Health Environmental Health License AL934461

Thank you Alan Sundquist for your business.

Michael Manning
Owner/Director

September 25, 2019

Alan Sundquist
CDW Consultants, Inc.
6 Huron Drive
Natick, MA 01760

Project Name: ***Littleton Town Offices***
Project Number: 1861.10
Date Sampled: 2019-09-13
Work Received: 2019-09-18
Work Analyzed: 2019-09-24

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

FieldID / LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
1A / 518622	Green Floor Tile	Ground Floor	blue	Non-Fibrous 100	None Detected
1B / 518623	Green Floor Tile	Ground Floor	blue	Non-Fibrous 100	None Detected
1C / 518624	Green Floor Tile	Ground Floor	blue	Non-Fibrous 100	None Detected
1D / 518625	Green Floor Tile	Ground Floor	blue	Non-Fibrous 100	None Detected
1E / 518626	Green Floor Tile	Ground Floor	blue	Non-Fibrous 100	None Detected
1F / 518627	Green Floor Tile	Ground Floor	blue	Non-Fibrous 100	None Detected
1G / 518628	Green Floor Tile	Ground Floor	blue	Non-Fibrous 100	None Detected
2A / 518629	Mastic	Ground Floor	multi	Non-Fibrous 100	None Detected
2B / 518630	Mastic	Ground Floor	multi	Non-Fibrous 100	None Detected
2C / 518631	Mastic	Ground Floor	multi	Non-Fibrous 100	None Detected
2D / 518632	Mastic	Ground Floor	multi	Non-Fibrous 100	None Detected
2E / 518633	Mastic	Ground Floor	multi	Non-Fibrous 100	None Detected
2F / 518634	Mastic	Ground Floor	multi	Non-Fibrous 100	None Detected
2G / 518635	Mastic	Ground Floor	multi	Non-Fibrous 100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
3A 518636	Cove Molding	Ground Floor	black	Non-Fibrous 100	None Detected
3B 518637	Cove Molding	Ground Floor	black	Non-Fibrous 100	None Detected
3C 518638	Cove Molding	Ground Floor	black	Non-Fibrous 100	None Detected
4A 518639	Plaster	Ground Floor	white	Non-Fibrous 100	None Detected
4B 518640	Plaster	Ground Floor	white	Non-Fibrous 100	None Detected
4C 518641	Plaster	Ground Floor	white	Non-Fibrous 100	None Detected
4D 518642	Plaster	Ground Floor	white	Non-Fibrous 100	None Detected
4E 518643	Plaster	Ground Floor	white	Non-Fibrous 100	None Detected
5A 518644	NO SAMPLE	NO SAMPLE			Not Analyzed
5B 518645	Paper	Ground Floor	brown	Cellulose 85 Non-Fibrous 15	None Detected
5C 518646	Paper	Ground Floor	brown	Cellulose 85 Non-Fibrous 15	None Detected
5D 518647	Paper	Ground Floor	brown	Cellulose 85 Non-Fibrous 15	None Detected
5E 518648	Paper	Ground Floor	brown	Cellulose 85 Non-Fibrous 15	None Detected
6A 518649	White Tile	Ground Floor	white	Non-Fibrous 100	None Detected
6B 518650	White Tile	Ground Floor	white	Non-Fibrous 100	None Detected
6C 518651	White Tile	Ground Floor	white	Non-Fibrous 100	None Detected
6D 518652	White Tile	Ground Floor	white	Non-Fibrous 100	None Detected
6E 518653	White Tile	Ground Floor	white	Non-Fibrous 100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
7A 518654	Tan Mastic	Ground Floor	tan	Non-Fibrous 100	None Detected
7B 518655	Tan Mastic	Ground Floor	yellow	Non-Fibrous 100	None Detected
7C 518656	Tan Mastic	Ground Floor	yellow	Non-Fibrous 100	None Detected
7D 518657	Tan Mastic	Ground Floor	yellow	Non-Fibrous 100	None Detected
7E 518658	Tan Mastic	Ground Floor	multi	Cellulose 2 Non-Fibrous 98	None Detected
8A 518659	Tan Tile	Ground Floor	tan	Non-Fibrous 100	None Detected
8B 518660	Tan Tile	Ground Floor	tan	Non-Fibrous 100	None Detected
8C 518661	Tan Tile	Ground Floor	tan	Non-Fibrous 100	None Detected
8D 518662	Tan Tile	Ground Floor	tan	Non-Fibrous 100	None Detected
8E 518663	Tan Tile	Ground Floor	tan	Non-Fibrous 100	None Detected
9A 518664	Mastic	Ground Floor	yellow	Non-Fibrous 100	None Detected
9B 518665	Mastic	Ground Floor	yellow	Non-Fibrous 100	None Detected
9C 518666	Mastic	Ground Floor	yellow	Non-Fibrous 100	None Detected
9D 518667	Mastic	Ground Floor	yellow	Non-Fibrous 100	None Detected
9E 518668	Mastic	Ground Floor	yellow	Non-Fibrous 100	None Detected
10A 518669	Drop Ceiling Tile	Throughout	gray	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
10B 518670	Drop Ceiling Tile	Throughout	gray	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
10C 518671	Drop Ceiling Tile	Throughout	gray	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
10D 518672	Drop Ceiling Tile	Throughout	gray	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
10E 518673	Drop Ceiling Tile	Throughout	gray	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
10F 518674	Drop Ceiling Tile	Throughout	gray	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
10G 518675	Drop Ceiling Tile	Throughout	gray	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
11A 518676	Tan Molding	Park + Rec	tan	Non-Fibrous 100	None Detected
11B 518677	Tan Molding	Park + Rec	tan	Non-Fibrous 100	None Detected
11C 518678	Tan Molding	Park + Rec	tan	Non-Fibrous 100	None Detected
12A 518679	Expansion Joint	Maintenance	gray	Non-Fibrous 100	None Detected
13A 518680	Grey Molding	Library	gray	Non-Fibrous 100	None Detected
14A 518681	Mastic	Library	tan	Non-Fibrous 100	None Detected
15A 518682	Drop Ceiling Tile	Library	gray	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
15B 518683	Drop Ceiling Tile	Library	gray	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
15C 518684	Drop Ceiling Tile	Library	gray	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
15D 518685	Drop Ceiling Tile	Library	gray	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
15E 518686	Drop Ceiling Tile	Library	gray	Mineral Wool 40 Cellulose 40 Non-Fibrous 20	None Detected
16A 518687	Off White Tile	Cooper Library	white	Non-Fibrous 100	None Detected
16B 518688	Off White Tile	Cooper Library	white	Non-Fibrous 100	None Detected
16C 518689	Off White Tile	Cooper Library	white	Non-Fibrous 100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
16A 518690	Off White Tile	Cooper Library	white	Non-Fibrous 100	None Detected
16D 518691	Off White Tile	Cooper Library	white	Non-Fibrous 100	None Detected
17A 518692	Black Mastic	Cooper Library	multi	Cellulose 5 Non-Fibrous 95	None Detected
17B 518693	Black Mastic	Cooper Library	multi	Cellulose 5 Non-Fibrous 95	None Detected
17C 518694	Black Mastic	Cooper Library	multi	Cellulose 3 Non-Fibrous 97	None Detected
17D 518695	Black Mastic	Cooper Library	multi	Cellulose 2 Non-Fibrous 98	None Detected
17E 518696	Black Mastic	Cooper Library	multi	Non-Fibrous 100	None Detected
18A 518697	Molding	1st Floor	tan	Non-Fibrous 100	None Detected
18B 518698	Molding	1st Floor	tan	Non-Fibrous 100	None Detected
18C 518699	Molding	1st Floor	tan	Non-Fibrous 100	None Detected
19A 518700	Mastic	1st Floor	yellow	Non-Fibrous 100	None Detected
19B 518701	Mastic	1st Floor	yellow	Non-Fibrous 100	None Detected
19C 518702	Mastic	1st Floor	yellow	Non-Fibrous 100	None Detected
20A 518703	Plaster	Library	gray	Non-Fibrous 100	None Detected
20B 518704	Plaster	Library	gray	Non-Fibrous 100	None Detected
20C 518705	Plaster	Library	gray	Cellulose 2 Non-Fibrous 98	None Detected
20D 518706	Plaster	Library	gray	Non-Fibrous 100	None Detected
20E 518707	Plaster	Library	gray	Cellulose 2 Non-Fibrous 98	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
21A 518708	Paper	Library	brown	Cellulose 85 Non-Fibrous 15	None Detected
21B 518709	Paper	Library	brown	Cellulose 85 Non-Fibrous 15	None Detected
21C 518710	Paper	Library	brown	Cellulose 85 Non-Fibrous 15	None Detected
21D 518711	Paper	Library	brown	Cellulose 85 Non-Fibrous 15	None Detected
21E 518712	Paper	Library	brown	Cellulose 85 Non-Fibrous 15	None Detected
22A 518713	Caulking	Exterior	white	Non-Fibrous 100	None Detected
22B 518714	Caulking	Exterior	white	Non-Fibrous 100	None Detected
22C 518715	Caulking	Exterior	white	Non-Fibrous 100	None Detected
23A 518716	Blue Tile	2nd Floor	blue	Non-Fibrous 100	None Detected
23B 518717	Blue Tile	2nd Floor	blue	Non-Fibrous 100	None Detected
23C 518718	Blue Tile	2nd Floor	blue	Non-Fibrous 100	None Detected
23D 518719	Blue Tile	2nd Floor	blue	Non-Fibrous 100	None Detected
23E 518720	Blue Tile	2nd Floor	blue	Non-Fibrous 100	None Detected
24A 518721	Tan Mastic	2nd Floor	tan	Non-Fibrous 100	None Detected
24B 518722	Tan Mastic	2nd Floor	tan	Non-Fibrous 100	None Detected
24C 518723	Tan Mastic	2nd Floor	tan	Non-Fibrous 100	None Detected
24D 518724	Tan Mastic	2nd Floor	tan	Non-Fibrous 100	None Detected
24E 518725	Tan Mastic	2nd Floor	tan	Non-Fibrous 100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
25A 518726	Pipe TSI	3rd Floor	multi	Cellulose 30 Non-Fibrous 50	**Detected** **Chrysotile 20**
26A 518727	Paint	School	white	Non-Fibrous 100	None Detected
26B 518728	Paint	School	white	Non-Fibrous 100	None Detected
26C 518729	Paint	School	white	Non-Fibrous 100	None Detected
27A 518730	Blue/Gray Tile	Maintenance	blue	Non-Fibrous 100	None Detected
27B 518731	Blue/Gray Tile	Maintenance	blue	Non-Fibrous 100	None Detected
27C 518732	Blue/Gray Tile	Maintenance	blue	Non-Fibrous 100	None Detected
27D 518733	Blue/Gray Tile	Maintenance	blue	Non-Fibrous 100	None Detected
27E 518734	Blue/Gray Tile	Maintenance	blue	Non-Fibrous 100	None Detected
28A 518735	Brown Mastic		tan	Non-Fibrous 100	None Detected
28B 518736	Brown Mastic		tan	Non-Fibrous 100	None Detected
28C 518737	Brown Mastic		tan	Cellulose 3 Non-Fibrous 97	None Detected
28D 518738	Brown Mastic		tan	Cellulose 3 Non-Fibrous 97	None Detected
28E 518739	Brown Mastic		tan	Non-Fibrous 100	None Detected
29A 518740	Cement Wall Cover/Mastic	3rd Floor 305 Storage	black	Non-Fibrous 70	**Detected** **Chrysotile 30**
29B 518741	Cement Wall Cover/Mastic	3rd Floor 305 Storage			Not Analyzed
29C 518742	Cement Wall Cover/Mastic	3rd Floor 305 Storage			Not Analyzed
30A 518743	Plaster	2nd Floor	multi	Non-Fibrous 100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
30B 518744	Plaster	2nd Floor	multi	Cellulose 3 Non-Fibrous 97	None Detected
30C 518745	Plaster	2nd Floor	multi	Cellulose 2 Non-Fibrous 98	None Detected
31A 518746	Grey Insulation	3rd Floor	black	Mineral Wool 95 Non-Fibrous 5	None Detected
31B 518747	Grey Insulation	3rd Floor	black	Mineral Wool 95 Non-Fibrous 5	None Detected
31C 518748	Grey Insulation	3rd Floor	black	Mineral Wool 95 Non-Fibrous 5	None Detected
32A 518749	White Insulation	3rd Floor Attic	white	Mineral Wool 98 Non-Fibrous 2	None Detected
32B 518750	White Insulation	3rd Floor Attic	white	Mineral Wool 98 Non-Fibrous 2	None Detected
32C 518751	White Insulation	3rd Floor Attic	white	Mineral Wool 98 Non-Fibrous 2	None Detected
33A 518752	Cement Mesh	3rd Floor Attic	gray	Non-Fibrous 100	None Detected
33B 518753	Cement Mesh	3rd Floor Attic	gray	Non-Fibrous 100	None Detected
33C 518754	Cement Mesh	3rd Floor Attic	gray	Non-Fibrous 100	None Detected
34A 518755	Cement Fabric	3rd Floor	black	Non-Fibrous 95	**Detected** **Chrysotile 5**
34B 518756	Cement Fabric	3rd Floor			Not Analyzed
34C 518757	Cement Fabric	3rd Floor			Not Analyzed
35A 518758	Brown Tile	Bathroom COA	brown	Non-Fibrous 100	None Detected
35B 518759	Brown Tile	Bathroom COA	brown	Non-Fibrous 100	None Detected
35C 518760	Brown Tile	Bathroom COA	brown	Non-Fibrous 100	None Detected
36A 518761	Mastic	Bathroom COA	black	Cellulose 10 Non-Fibrous 90	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
36B 518762	Mastic	Bathroom COA	black	Cellulose 10 Non-Fibrous 90	None Detected
36C 518763	Mastic	Bathroom COA	black	Cellulose 10 Non-Fibrous 90	None Detected
37A 518764	Black Mastic Under Carpet	Cooper Library	black	Cellulose 3 Non-Fibrous 97	None Detected
38A 518765	Maroon Ceiling Tile	LCTV	brown	Cellulose 90 Non-Fibrous 10	None Detected
38B 518766	Maroon Ceiling Tile	LCTV	brown	Cellulose 90 Non-Fibrous 10	None Detected
38C 518767	Maroon Ceiling Tile	LCTV	brown	Cellulose 90 Non-Fibrous 10	None Detected
39A 518768	Grey Insulation Above Tile	LCTV	black	Mineral Wool 95 Non-Fibrous 5	None Detected
39B 518769	Grey Insulation Above Tile	LCTV	black	Mineral Wool 95 Non-Fibrous 5	None Detected
39C 518770	Grey Insulation Above Tile	LCTV	black	Mineral Wool 95 Non-Fibrous 5	None Detected
40A 518771	Black Molding	2nd Floor	blue	Non-Fibrous 100	None Detected
40B 518772	Black Molding	2nd Floor	blue	Non-Fibrous 100	None Detected
40C 518773	Black Molding	2nd Floor	blue	Non-Fibrous 100	None Detected
41A 518774	Mastic	2nd Floor	white	Non-Fibrous 100	None Detected
41B 518775	Mastic	2nd Floor	white	Non-Fibrous 100	None Detected
41C 518776	Mastic	2nd Floor	white	Non-Fibrous 100	None Detected
42A 518777	Black Painted Molding	3rd Floor	blue	Non-Fibrous 100	None Detected
42B 518778	Black Painted Molding	3rd Floor	blue	Non-Fibrous 100	None Detected
42C 518779	Black Painted Molding	3rd Floor	blue	Non-Fibrous 100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
43A 518780	Mastic	3rd Floor	white	Non-Fibrous 100	None Detected
43B 518781	Mastic	3rd Floor	white	Non-Fibrous 100	None Detected
43C 518782	Mastic	3rd Floor	white	Non-Fibrous 100	None Detected
44 518783	Glue	1	gray	Non-Fibrous 100	None Detected
45 518784	Top Bottom Foam	1	yellow	Non-Fibrous 100	None Detected
46 518785	Top Bottom 2nd Layer	1	multi	Non-Fibrous 100	None Detected
47 518786	Top/Bottom 3rd Layer	1	multi	Cellulose 50 Non-Fibrous 50	None Detected
48 518787	Top of Deck-Concrete	1	black	Non-Fibrous 100	None Detected
49 518788	Glue	2	gray	Non-Fibrous 100	None Detected
50 518789	Top 1/2	2	multi	Fiberglass 20 Cellulose 20 Non-Fibrous 60	None Detected
51 518790	Top/Bottom 2nd Layer	2	multi	Cellulose 50 Non-Fibrous 50	None Detected
52 518791	Top/Bottom 3rd Layer	2	multi	Cellulose 50 Non-Fibrous 50	None Detected
53 518792	Glue	3	green	Non-Fibrous 100	None Detected
54 518793	Top/Bottom Gypsum	3	multi	Fiberglass 50 Non-Fibrous 50	None Detected
55 518794	Top/Bottom 1st Layer	3	multi	Cellulose 50 Non-Fibrous 50	None Detected
56 518795	Top/Bottom 2nd Layer	3	multi	Cellulose 50 Non-Fibrous 50	None Detected
57 518796	Top/Bottom 3rd Layer-Foam	3	multi	Cellulose 50 Non-Fibrous 50	None Detected
58 518797	Top of Deck	3	black	Non-Fibrous 100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
59 518798	Glue	4	yellow	Non-Fibrous 100	None Detected
60 518799	Top/Bottom Gypsum	4	multi	Fiberglass 50 Non-Fibrous 50	None Detected
61 518800	Gypsum	4	gray	Fiberglass 2 Cellulose 2 Non-Fibrous 96	None Detected
62 518801	Top/Bottom 3rd Layer	4	multi	Cellulose 50 Non-Fibrous 50	None Detected
63 518802	Gypsum on Deck	4	multi	Cellulose 10 Non-Fibrous 90	None Detected
64 518803	Glue	5	gray	Cellulose 70 Non-Fibrous 30	None Detected
65 518804	Top/Bottom 1st Layer	5	multi	Cellulose 50 Non-Fibrous 50	None Detected
66 518805	Top of Deck Plywood	5	multi	Cellulose 10 Non-Fibrous 90	None Detected
67 518806	Glue	6	black	Non-Fibrous 100	None Detected
68 518807	Top/Bottom Foam	6	multi	Cellulose 50 Non-Fibrous 50	None Detected
69 518808	Top of Deck	6	multi	Cellulose 10 Non-Fibrous 90	None Detected
70 518809	Glue	7	yellow	Non-Fibrous 100	None Detected
71 518810	Top/Bottom 1st Layer	7	multi	Cellulose 50 Non-Fibrous 50	None Detected
72 518811	Top/Bottom 2nd Layer	7	multi	Cellulose 50 Non-Fibrous 50	None Detected
73 518812	Glue	8	clear	Non-Fibrous 100	None Detected
74 518813	Top/Bottom 1st Layer	8	multi	Cellulose 50 Non-Fibrous 50	None Detected
75 518814	Top/Bottom 2nd Layer	8	multi	Cellulose 50 Non-Fibrous 50	None Detected
76 518815	Glue	9	gray	Non-Fibrous 100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
77 518816	Top/Bottom 1st Layer	9	multi	Fiberglass 20 Non-Fibrous 80	None Detected
78 518817	Top/Bottom 2nd Layer	9	multi	Cellulose 50 Non-Fibrous 50	None Detected
79 518818	Between 1st + 2nd Layer	9	pink	Non-Fibrous 100	None Detected
80 518819	Top/Bottom 3rd Layer	9	multi	Cellulose 50 Non-Fibrous 50	None Detected
81 518820	Between 2nd+ 3rd Layer	9	pink	Non-Fibrous 100	None Detected
82 518821	Top of Deck	9	black	Non-Fibrous 100	None Detected
83 518822	Glue	10	yellow	Non-Fibrous 100	None Detected
84 518823	Top/Bottom Gypsum	10	multi	Fiberglass 10 Cellulose 20 Non-Fibrous 70	None Detected
85 518824	Top/Bottom Foam	10	multi	Cellulose 50 Non-Fibrous 50	None Detected
86 518825	Top/Bottom 2nd Layer	10	multi	Cellulose 50 Non-Fibrous 50	None Detected
87 518826	Top/Bottom Gypsum- 3rd Layer	10	multi	Cellulose 10 Non-Fibrous 90	None Detected
88 518827	Glue	11	gray	Non-Fibrous 100	None Detected
89 518828	Top/Bottom 1st Layer	11	multi	Fiberglass 30 Non-Fibrous 70	None Detected
90 518829	Top/Bottom 2nd Layer	11	multi	Cellulose 50 Non-Fibrous 50	None Detected
91 518830	Top/Bottom 3rd Layer	11	multi	Cellulose 50 Non-Fibrous 50	None Detected
92 518831	4th Layer	11	black	Non-Fibrous 100	None Detected
93 518832	Top of Deck	11	multi	Non-Fibrous 100	None Detected
94 518833	Curb-Upper	12	multi	Non-Fibrous 100	None Detected

FieldID LabID	Material	Location	Color	Non-Asbestos %	Asbestos %
95 518834	Curb Roof- Wall	13	black	Cellulose 20 Non-Fibrous 60	**Detected** **Chrysotile 20**
96 518835	Paint Exterior	26	multi	Non-Fibrous 100	None Detected
25B 518836	Pipe TSI	3rd Floor			Not Analyzed
25C 518837	Pipe TSI	3rd Floor			Not Analyzed
25D 518838	Pipe TSI	3rd Floor			Not Analyzed
25E 518839	Pipe TSI	3rd Floor			Not Analyzed

Wednesday 25

Analyzed by: Elena Blatus

End of Report

Batch: 46670

DUE WED 9/25/19

CHAIN OF CUSTODY

EPA/600/R-93/116

Asbestos Identification Lab
165 New Boston St.
Suite 227
Woburn, MA 01801
(781)932-9600
www.asbestosidentificationlab.com

Page 1 of 45

Client: CowConsultants Inc
Address: 6 Huron Drive Natick MA
Project Site & #: Littleton Town Offices 1861.10
Phone / email address: 508-875-2657 ASundquist@cowconsultants.com
Contact: Alan Sundquist
Relinquish by/date:
Received by/date: 9/18/19
# of Samples Received: 28

Date Sampled: 09-13-19

BATCH# 46070 Rev 06/16

Turnaround Time: Less 3 Hrs; Same Day; Next Day; Two Day Friday
Sample Method: [X] Bulk; Soil; Wipe; Point Count
Stop on 1st Positive? (Yes) No
Notify Method: Mail/E-Mail/Verbal
Anayzed By: Elena Blatsis
Date: 9/24/19

Temp in Celsius = 25C

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
518022	1A	Material: GREEN FLOOR TILE Location: GROUND FLOOR	O	Bl	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophyllite															
								Actinolite															
23	1B	Material: 〃 Location	O	Bl	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophyllite															
								Actinolite															
24	1C	Material: 〃 Location	O	Bl	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophyllite															
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope					Asbestos Minerals	Optical Properties						RI		Non-Asbestos Percentage (%)						
			% of Asbestos	Color	Homogeneity	Texture	Friable		Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	=	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
25	1D	Material " Location	0	Bi	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
26	1E	Material " Location	0	Bi	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
27	1F	Material " Location	0	Bi	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
28	1G	Material " Location	0	Bi	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
29	2A	Material MASTIC Location GROUND FLOOR	0	M	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope					Asbestos Minerals	Optical Properties						RI		Non-Asbestos Percentage (%)						
			% of Asbestos	Color	Homogeneity	Texture	Friable		Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	=	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
30	2B	Material 11						Chrysotile															
								Amosite															
								Crocidolite															
		Location	O	MC	N	Gr	N	Tremolite															
								Anthophyllite															
								Actinolite															100
31	2C	Material 11						Chrysotile															
								Amosite															
								Crocidolite															
		Location	O	MC	N	Gr	N	Tremolite															
								Anthophyllite															
								Actinolite															100
32	2D	Material 11						Chrysotile															
								Amosite															
								Crocidolite															
		Location	O	MC	N	Gr	N	Tremolite															
								Anthophyllite															
								Actinolite															100
33	2E	Material 11						Chrysotile															
								Amosite															
								Crocidolite															
		Location	O	MC	N	Gr	N	Tremolite															
								Anthophyllite															
								Actinolite															100
34	2F	Material 11						Chrysotile															
								Amosite															
								Crocidolite															
		Location	O	MC	N	Gr	N	Tremolite															
								Anthophyllite															
								Actinolite															100

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
35	2G	Material 4 Location	O	MC	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
36	3A	Material COVE MOLDING Location GROUND FLOOR	O	BK	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
37	3B	Material 4 Location	O	BK	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
38	3C	Material 4 Location	O	BK	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
39	4A	Material PLASTER Location GROUND FLOOR	O	W	N	Gr	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
40	4B	Material " / Location	O	W	N	Gr	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
41	4C	Material " / Location	O	W	N	Gr	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
42	4D	Material " / Location	O	W	N	Gr	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
43	4E	Material " / Location	O	W	N	Gr	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
NA	5A	Material PAPER / Location GROUND FLOOR						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															

No sample

No Sample

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
45	5B	Material 4						Chrysotile															
		Location	C	Br	N	Gr/F	Y	Amosite											R				
								Crocidolite															
								Tremolite															
								Anthophyllite											85				15
								Actinolite															
46	5C	Material 4						Chrysotile															
		Location	O	Br	N	Gr/F	Y	Amosite											R				
								Crocidolite															
								Tremolite															
								Anthophyllite											85				15
								Actinolite															
47	5D	Material 4						Chrysotile															
		Location	O	Br	N	Gr/F	Y	Amosite											R				
								Crocidolite															
								Tremolite															
								Anthophyllite											85				15
								Actinolite															
48	5E	Material 4						Chrysotile															
		Location	O	Br	N	Gr/F	Y	Amosite											R				
								Crocidolite															
								Tremolite															
								Anthophyllite											85				15
								Actinolite															
49	6A	Material WHITE TILE						Chrysotile															
		Location GROUND FLOOR	O	W	N	Gr	N	Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
50	6B	Material LI Location	O	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
51	6C	Material LI Location	O	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
52	6D	Material LI Location	O	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
53	6E	Material LI Location	O	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
54	7A	Material TAN MASTIC Location GROUND FLOOR	O	Y	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
55	7B	Material U Location	0	Y	N	Gr	N	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite															100
56	7C	Material U Location	0	Y	N	Gr	N	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite															100
57	7D	Material U Location	0	Y	N	Gr	N	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite															100
58	7E	Material U Location	0	mc	N	Gr	N	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite												R 2			98
59	8A	Material TAN TILE Location GROUND FLOOR	0	t	N	Gr	N	Chrysotile Amosite Crocidolite Tremolite Anthophyllite Actinolite															100

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
60	8B	Material 11						Chrysotile															
								Amosite															
		Location	O	t	N	Gr	N	Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
61	8C	Material 4						Chrysotile															
								Amosite															
		Location	O	t	N	Gr	N	Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
62	8D	Material 11						Chrysotile															
								Amosite															
		Location	O	t	N	Gr	N	Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
63	8E	Material 4						Chrysotile															
								Amosite															
		Location	O	t	N	Gr	N	Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
64	9A	Material MASTIC						Chrysotile															
								Amosite															
		Location GROUND FLOOR	O	Y	N	Gr	N	Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
05	9B	Material II						Chrysotile															
								Amosite															
								Crocidolite															
		Location	0	Y	N	Gr	N	Tremolite															
								Anthophyllite															
								Actinolite															100
06	9C	Material II						Chrysotile															
								Amosite															
								Crocidolite															
		Location	0	Y	N	Gr	N	Tremolite															
								Anthophyllite															
								Actinolite															100
07	9D	Material II						Chrysotile															
								Amosite															
								Crocidolite															
		Location	0	Y	N	Gr	N	Tremolite															
								Anthophyllite															
								Actinolite															100
08	9E	Material II						Chrysotile															
								Amosite															
								Crocidolite															
		Location	0	Y	N	Gr	N	Tremolite															
								Anthophyllite															
								Actinolite															100
09	10A	Material DROP CEILING TILE						Chrysotile															
								Amosite															
								Crocidolite										I	R				
		Location THROUGHOUT	0	Gy	N	Gr/F	Y	Tremolite															
								Anthophyllite										40	40				
								Actinolite															20

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
70	10B	Material 11						Chrysotile															
								Amosite										I	R				
		Location	0	Gy	N	Gr/F	Y	Crocidolite															
								Tremolite															
								Anthophyllite										40	40				20
								Actinolite															
71	10C	Material 11						Chrysotile															
								Amosite										I	R				
		Location	0	Gy	N	Gr/F	Y	Crocidolite															
								Tremolite															
								Anthophyllite										40	40				20
								Actinolite															
72	10D	Material 11						Chrysotile															
								Amosite										I	R				
		Location	0	Gy	N	Gr/F	Y	Crocidolite															
								Tremolite															
								Anthophyllite										40	40				20
								Actinolite															
73	10E	Material 11						Chrysotile															
								Amosite										I	R				
		Location	0	Gy	N	Gr/F	Y	Crocidolite															
								Tremolite															
								Anthophyllite										40	40				20
								Actinolite															
74	10F	Material 11						Chrysotile															
								Amosite										I	R				
		Location	0	Gy	N	Gr/F	Y	Crocidolite															
								Tremolite															
								Anthophyllite										40	40				20
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
75	10G	Material U						Chrysotile															
								Amosite										I	R				
		Location	O	Gy	N	Gr/F	Y	Crocidolite															
								Tremolite															
								Anthophyllite										40	40				20
								Actinolite															
76	11A	Material TAN MOLDING						Chrysotile															
								Amosite															
		Location PARK + REC	O	t	N	Gr	N	Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
77	11B	Material 11						Chrysotile															
								Amosite															
		Location	O	t	N	Gr	N	Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
78	11C	Material 11						Chrysotile															
								Amosite															
		Location	O	t	N	Gr	N	Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
79	12A	Material EXPANSION JOINT						Chrysotile															
								Amosite															
		Location MAINTENANCE	O	Gy	N	Gr	N	Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
80	13A	Material GREY MOLDING Location LIBRARY	0	Gy	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
81	14A	Material MASTIC Location LIBRARY	0	t	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
82	15A	Material DROP CEILING TILE Location LIBRARY	0	Gy	N	Gr/F	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite										I	R				
								Anthophyllite										40	40				20
								Actinolite															
83	15B	Material 4 Location	0	Gy	N	Gr/F	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite										I	R				
								Anthophyllite										40	40				20
								Actinolite															
84	15C	Material 4 Location	0	Gy	N	Gr/F	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite										I	R				
								Anthophyllite										40	40				20
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
85	15D	Material 4						Chrysotile															
		Location	0	Gy	N	Gr/F	Y	Amosite										I	R				
								Crocidolite															
								Tremolite															
								Anthophyllite										40	40				20
								Actinolite															
86	15E	Material 4						Chrysotile															
		Location	0	Gy	N	Gr/F	Y	Amosite										I	R				
								Crocidolite															
								Tremolite															
								Anthophyllite										40	40				20
								Actinolite															
87	16A	Material OFF WHITE TILE						Chrysotile															
		Location COOPER LIBRARY	0	W	N	Gr	N	Amosite															
								Crocidolite															
								Tremolite											-				
								Anthophyllite															100
								Actinolite															
88	16B	Material 4						Chrysotile															
		Location	0	W	N	Gr	N	Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
89	16C	Material 4						Chrysotile															
		Location	0	W	N	Gr	N	Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope					Asbestos Minerals	Optical Properties						RI		Non-Asbestos Percentage (%)						
			% of Asbestos	Color	Homogeneity	Texture	Friable		Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	II	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
90	16D	Material 4						Chrysotile															
		Location	0	W	N	Gr	N	Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
91	16E	Material 4						Chrysotile															
		Location	0	W	N	Gr	N	Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
92	17A	Material BLACK MASTIC						Chrysotile															
		Location COOPER LIBRARY	0	M	N	Gr	N	Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite											5				95
								Actinolite															
93	17B	Material 4						Chrysotile															
		Location	0	M	N	Gr	N	Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite											5				95
								Actinolite															
94	17C	Material 4						Chrysotile															
		Location	0	M	N	Gr	N	Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite											3				97
								Actinolite															

Temp in Celcius = ____

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
95	17D	Material 11 Location	O	MC	N	Gr	N	Chrysotile															
								Amosite											R				
								Crocidolite															
								Tremolite															
								Anthophyllite											2				98
								Actinolite															
96	17E	Material 11 Location	O	MC	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
97	18A	Material ~~TSET~~ MOLDING Location 1ST FLOOR	O	t	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
98	18B	Material 11 Location	O	t	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
99	18C	Material 11 Location	O	t	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
700	19A	Material MASTIC Location 1ST FLOOR	0	Y	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
01	19B	Material " Location	0	Y	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
02	19C	Material " Location	0	Y	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
03	20A	Material PLASTER Location LIBRARY	0	Gy	N	Gr	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
04	20B	Material " Location	0	Gy	N	Gr	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100

Temp in Celcius = ____

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
05	20C	Material 4	O	Gy	N	Gr	Y	Chrysotile															
								Amosite															
		Location						Crocidolite											R				
								Tremolite															
								Anthophyllite											2				98
								Actinolite															
06	20D	Material 4	O	Gy	N	Gr	Y	Chrysotile															
								Amosite															
		Location						Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
07	20E	Material 4	O	Gy	N	Gr	Y	Chrysotile															
								Amosite															
		Location						Crocidolite											R				
								Tremolite															
								Anthophyllite											2				98
								Actinolite															
08	21A	Material PAPER	O	Br	N	Gr/F	Y	Chrysotile															
								Amosite															
		Location LIBRARY						Crocidolite											R				
								Tremolite															
								Anthophyllite											85				15
								Actinolite															
09	21B	Material 4	O	Br	N	Gr/F	Y	Chrysotile															
								Amosite															
		Location						Crocidolite											R				
								Tremolite															
								Anthophyllite											85				15
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
10	21C	Material 1 / Location	O	Br	N	Gr/F	Y	Chrysotile												R				
								Amosite																
								Crocidolite																
								Tremolite																
								Anthophyllite												85				15
								Actinolite																
11	21D	Material 1 / Location	O	Br	N	Gr/F	Y	Chrysotile												R				
								Amosite																
								Crocidolite																
								Tremolite																
								Anthophyllite												85				15
								Actinolite																
12	21E	Material 1 / Location	O	Br	N	Gr/F	Y	Chrysotile												R				
								Amosite																
								Crocidolite																
								Tremolite																
								Anthophyllite												85				15
								Actinolite																
13	22A	Material CAULKING / Location EXTERIOR	O	W	N	Gr	N	Chrysotile																
								Amosite																
								Crocidolite																
								Tremolite																
								Anthophyllite																100
								Actinolite																
14	22B	Material 1 / Location	O	W	N	Gr	N	Chrysotile																
								Amosite																
								Crocidolite																
								Tremolite																
								Anthophyllite																100
								Actinolite																

Temp in Celcius = ____

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
15	22C	Material U Location	O	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
16	23A	Material BLUE TILE Location 2ND FLOOR	O	B	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
17	23B	Material U Location	O	B	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
18	23C	Material U Location	O	B	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
19	23D	Material U Location	O	B	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: II	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
20	23E	Material U Location	O	BI	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
21	24A	Material TAN MASTIC Location 2ND FLOOR	O	t	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
22	24B	Material U Location	O	t	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
23	24C	Material U Location	O	t	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
24	24D	Material U Location	O	t	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope					Asbestos Minerals	Optical Properties						RI		Non-Asbestos Percentage (%)						
			% of Asbestos	Color	Homogeneity	Texture	Friable		Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	II	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
25	24E	Material " Location	0	t	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
26	25A	Material PIPE TSI Location 3RD FLOOR	20	MC	N	Gr/F	Y	Chrysotile	20	W	ii	+	L	NC	1555	1550			R				
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite											30				50
								Actinolite															
27	26A	Material PAINT Location SCHOOL	0	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
28	26B	Material " Location	0	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
29	26C	Material " Location	0	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
30	27A	Material BLUE/GREY TILE Location MAITENANCE	0	BI	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
31	27B	Material " Location	0	BI	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
32	27C	Material " Location	0	B	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
33	27D	Material " Location	0	BI	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
34	27E	Material " Location	0	BI	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
35	28A	Material BROWN MASTIC						Chrysotile															
								Amosite															
								Crocidolite															
		Location	0	t	N	Gr	N	Tremolite															
								Anthophyllite															
								Actinolite															100
36	28B	Material "						Chrysotile															
								Amosite															
								Crocidolite															
		Location	0	t	N	Gr	N	Tremolite															
								Anthophyllite															
								Actinolite															100
37	28C	Material "						Chrysotile															
								Amosite															
								Crocidolite											R				
		Location	0	t	N	Gr	N	Tremolite															
								Anthophyllite											3				97
								Actinolite															
38	28D	Material "						Chrysotile															
								Amosite															
								Crocidolite											R				
		Location	0	t	N	Gr	N	Tremolite															
								Anthophyllite											3				97
								Actinolite															
39	28E	Material "						Chrysotile															
								Amosite															
								Crocidolite															
		Location	0	t	N	Gr	N	Tremolite															
								Anthophyllite															
								Actinolite															100

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: II	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
40	29A	Material CEMENT WALL COVER/MASTIC Location 3RD FLOOR 305 STORAGE	0	BF	N	Gr	N	Chrysotile	30	W	II	+	L	NC	1.555	1.550							
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															70
								Actinolite															
41	29B	Material U Location						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															
42	29C	Material U Location						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															
43	30A	Material PLASTER Location 2ND FLOOR	0	M	N	Gr	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
44	30B	Material U Location	0	M	N	Gr	Y	Chrysotile															
								Amosite											R				
								Crocidolite															
								Tremolite															
								Anthophyllite											3				97
								Actinolite															

DNA

DNA

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ‖	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
45	30c	Material 11	0	mc	N	Gr	Y	Chrysotile											R				
								Amosite															
		Location						Crocidolite															
								Tremolite											2				98
								Anthophyllite															
								Actinolite															
		Material						Chrysotile															
								Amosite															
		Location						Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															
		Material						Chrysotile															
								Amosite															
		Location						Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															
		Material						Chrysotile															
								Amosite															
		Location						Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															
		Material						Chrysotile															
								Amosite															
		Location						Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
46	31A	Material GREY INSULATION Location 3RD FLOOR	0	BK	N	GR/F	Y	Chrysotile															
								Amosite										I					
								Crocidolite															
								Tremolite															
								Anthophyllite										95					5
								Actinolite															
47	31B	Material 11 Location	0	BK	N	GR/F	Y	Chrysotile															
								Amosite										I					
								Crocidolite															
								Tremolite															
								Anthophyllite										95					5
								Actinolite															
48	31C	Material 11 Location	0	BK	N	GR/F	Y	Chrysotile															
								Amosite										I					
								Crocidolite															
								Tremolite															
								Anthophyllite										95					5
								Actinolite															
49	32A	Material WHITE INSULATION Location 3RD FLOOR ATTIC	0	W	N	GR/F	Y	Chrysotile															
								Amosite										I					
								Crocidolite															
								Tremolite															
								Anthophyllite										98					2
								Actinolite															
50	32B	Material 11 Location	0	W	N	GR/F	Y	Chrysotile															
								Amosite										I					
								Crocidolite															
								Tremolite															
								Anthophyllite										98					2
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: II	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
S1	32c	Material II Location	O	W	N	Gr/F	Y	Chrysotile															
								Amosite															
								Crocidolite										I					
								Tremolite															
								Anthophyllite										98					2
								Actinolite															
S2	33A	Material CEMENT MESH Location 3RD FLOOR ATTIC	O	Gy	N	Gr	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
S3	33B	Material II Location	O	Gy	N	Gr	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
S4	33C	Material II Location	O	Gy	N	Gr	Y	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
S5	34A	Material CEMENT FABRIC Location 3RD FLOOR	O	BK	N	Gr	N	Chrysotile	5	W	II	+	L	NC	1.55	1.50							
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															95
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
56	34B	Material 11 Location						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															
57	34C	Material 11 Location						Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															
58	35A	Material BROWN TILE Location BATHROOM CDA	O	Br	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
59	35B	Material 11 Location	O	Br	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
60	35C	Material 11 Location	O	Br	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															

DNA

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Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
61	36A	Material MASTIC Location BATHROOM COA	0	BK	N	Gr	N	Chrysotile																
								Amosite											R					
								Crocidolite																
								Tremolite																
								Anthophyllite											10					90
								Actinolite																
62	36B	Material 4 Location	0	BK	N	Gr	N	Chrysotile																
								Amosite											R					
								Crocidolite																
								Tremolite																
								Anthophyllite											10					90
								Actinolite																
63	36C	Material 11 Location	0	BK	N	Gr	N	Chrysotile																
								Amosite											R					
								Crocidolite																
								Tremolite																
								Anthophyllite											10					90
								Actinolite																
64	37A	Material BLACK MASTIC UNDERCARPET Location COOPER LIBRARY	0	BK	N	Gr	N	Chrysotile																
								Amosite											R					
								Crocidolite																
								Tremolite																
								Anthophyllite											3					97
								Actinolite																
65	38A	Material MAROON CEILING TILE Location LCTV	0	Br	N	Gr/F	Y	Chrysotile																
								Amosite											R					
								Crocidolite																
								Tremolite																
								Anthophyllite											90					10
								Actinolite																

Temp in Celcius = ____

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	Stereo Scope					Asbestos Minerals	Optical Properties						RI		Non-Asbestos Percentage (%)						
			% of Asbestos	Color	Homogeneity	Texture	Friable		Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	=	⊥	Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
66	38B	Material 11						Chrysotile															
								Amosite															
		Location	O	Br	N	Gr/F	Y	Crocidolite											R				
								Tremolite															
								Anthophyllite											90				10
								Actinolite															
67	38C	Material 11						Chrysotile															
								Amosite															
		Location	O	Br	N	Gr/F	Y	Crocidolite											R				
								Tremolite															
								Anthophyllite											90				10
								Actinolite															
68	39A	Material GREY INSULATION ABOVE TILE						Chrysotile															
								Amosite															
		Location LCTV	O	BK	N	Gr/F	Y	Crocidolite										I					
								Tremolite															
								Anthophyllite										95					5
								Actinolite															
69	39B	Material 11						Chrysotile															
								Amosite															
		Location	O	BK	N	Gr/F	Y	Crocidolite										I					
								Tremolite															
								Anthophyllite										95					5
								Actinolite															
70	39C	Material 11						Chrysotile															
								Amosite															
		Location	O	BK	N	Gr/F	Y	Crocidolite										I					
								Tremolite															
								Anthophyllite										95					5
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
71	40A	Material BLACK MOLDING Location 2ND FLOOR	0	Bl	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophyllite															
								Actinolite															
72	40B	Material " Location	0	Bl	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophyllite															
								Actinolite															
73	40C	Material " Location	0	Bl	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophyllite															
								Actinolite															
74	41A	Material MASTIC Location 2ND FLOOR	0	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophyllite															
								Actinolite															
75	41B	Material " Location	0	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															100
								Anthophyllite															
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
76	41c	Material 4 Location	0	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
77	42A	Material BLACK PAINTED MOLDING Location 3RD FLOOR	0	Bl	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
78	42B	Material 4 Location	0	Bl	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
79	42c	Material 4 Location	0	Bl	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
80	43A	Material MASTIC Location 3RD FLOOR	0	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
81	43B	Material U Location	0	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
82	43C	Material U Location	0	W	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
83	44	Material GLUE Location 1	0	Gy	Y	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
84	45	Material TOP BOTTOM FOAM Location 1	0	Y	Y	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
85	46	Material TOP BOTTOM 2ND LAYER Location 1	0	MC	N	F/Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															50

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86	47	Material TOP/BOTTOM 3RD LAYER Location 1	0	mc	N	F/Gr	N	Chrysotile															
								Amosite															
								Crocidolite											R				
								Tremolite															
								Anthophyllite											50				50
								Actinolite															
87	48	Material TOP OF DECK-CONCRETE Location 1	0	Blk	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
88	49	Material GLUE Location 2	0	Gy	Y	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
89	50	Material TOP 1/2 Location 2	0	mc	N	F/Gr	N	Chrysotile															
								Amosite															
								Crocidolite											R				
								Tremolite															
								Anthophyllite											20				60
								Actinolite															
90	51	Material TOP/BOTTOM 2ND LAYER Location 2	0	mc	N	F/Gr	N	Chrysotile															
								Amosite															
								Crocidolite											R				
								Tremolite															
								Anthophyllite											50				50
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
91	52	Material TOP/BOTTOM 3RD LAYER Location 2	0	MC	N	F/Gr	N	Chrysotile																
								Amosite																
								Crocidolite											R					
								Tremolite																
								Anthophyllite											50					50
								Actinolite																
92	53	Material GLUE Location 3	0	Gr	Y	Gr	N	Chrysotile																
								Amosite																
								Crocidolite																
								Tremolite																
								Anthophyllite																
								Actinolite																100
93	54	Material TOP/BOTTOM GYPSUM Location 3	0	MC	N	F/Gr	N	Chrysotile																
								Amosite																
								Crocidolite																
								Tremolite										1						
								Anthophyllite																
								Actinolite										50		-				50
94	55	Material TOP/BOTTOM ~~1ST~~ LAYER Location 3	0	MC	N	F/Gr	N	Chrysotile																
								Amosite												R				
								Crocidolite																
								Tremolite																
								Anthophyllite												50				50
								Actinolite																
95	56	Material ~~TOP~~/BOTTOM 2ND LAYER Location 3	0	MC	N	F/Gr	N	Chrysotile																
								Amosite																
								Crocidolite												R				
								Tremolite																
								Anthophyllite												50				50
								Actinolite																

Temp in Celcius = ____

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
96	57	Material TOP/BOTTOM 3RD LAYER-FOAM Location 3	~~0~~	MC	N	F/Gr	N	Chrysotile															
								Amosite															
								Crocidolite											R				
								Tremolite															
								Anthophyllite											50				50
								Actinolite															
97	58	Material TOP OF DECK Location 3	0	BK	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															10
98	59	Material GLUE Location ~~0~~ 4	0	Y	Y	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
99	60	Material TOP/BOTTOM GYPSUM Location 4	~~0~~	MC	N	F/Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite											1				
								Anthophyllite															
								Actinolite											50				50
800	61	Material GYPSUM Location 4	0	GY	N	F/Gr	Y	Chrysotile															
								Amosite															
								Crocidolite											1		R		
								Tremolite															
								Anthophyllite											2		2		
								Actinolite															96

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01	62	Material TOP/BOTTOM 3RD LAYER Location 4	Ø	NC	N	F/Gr	N	Chrysotile											R				
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite											50				50
								Actinolite															
02	63	Material GYPSUM ON DECK Location 4	Ø	NC	N	F/Gr	Y	Chrysotile											R				
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite											10				90
								Actinolite															
03	64	Material GLUE Location 5	Ø	Gy	N	F/Gr	N	Chrysotile											R				
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite											70				30
								Actinolite															
04	65	Material TOP/BOTTOM 1ST LAYER Location 5	Ø	NC	N	F/Gr	N	Chrysotile											R				
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite											50				50
								Actinolite															
05	66	Material TOP OF DECK PLYWOOD Location 5	Ø	NC	N	F/Gr	N	Chrysotile											R				
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite											10				90
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
06	67	Material GLUE Location 6	Ø	B/K	Y	G/n	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
07	68	Material TOP/BOTTOM FOAM Location 6	Ø	MC	N	F/G/n	N	Chrysotile															
								Amosite															
								Crocidolite											R				
								Tremolite															
								Anthophyllite											50				50
								Actinolite															
08	69	Material TOP OF DECK Location 6	Ø	MC	N	F/G/n	N	Chrysotile															
								Amosite															
								Crocidolite											R				
								Tremolite															
								Anthophyllite											10				90
								Actinolite															
09	70	Material GLUE Location 7	Ø	Y	Y	G/n	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
10	71	Material TOP/BOTTOM 1ST LAYER Location 7	Ø	MC	N	F/G/n	N	Chrysotile															
								Amosite															
								Crocidolite											R				
								Tremolite															
								Anthophyllite											50				50
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
11	72	Material TOP/BOTTOM 2ND LAYER Location 7	Ø	ML	N	F/Gr	N	Chrysotile																
								Amosite																
								Crocidolite											R					
								Tremolite																
								Anthophyllite											50					50
								Actinolite																
12	73	Material GLUE Location 8	Ø	cl	Y	Gr	N	Chrysotile																
								Amosite																
								Crocidolite																
								Tremolite																
								Anthophyllite																
								Actinolite																100
13	74	Material TOP/BOTTOM 1ST LAYER Location 8	Ø	MC	N	F/Gr	N	Chrysotile																
								Amosite																
								Crocidolite											R					
								Tremolite																
								Anthophyllite																
								Actinolite											50					50
14	75	Material TOP/BOTTOM 2ND LAYER Location 8	Ø	MC	N	F/Gr	N	Chrysotile																
								Amosite																
								Crocidolite											R					
								Tremolite																
								Anthophyllite																
								Actinolite											50					50
15	76	Material GLUE Location 9	Ø	GY	Y	Gr	N	Chrysotile																
								Amosite																
								Crocidolite																
								Tremolite																
								Anthophyllite																
								Actinolite																100

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
16	77	Material TOP/BOTTOM 1ST LAYER Location 9	Ø	MC	N	F/Gn	N	Chrysotile															
								Amosite															
								Crocidolite									1						
								Tremolite															
								Anthophyllite									20						80
								Actinolite															
17	78	Material TOP/BOTTOM 2ND LAYER Location 9	Ø	MC	N	F/Gn	N	Chrysotile															
								Amosite															
								Crocidolite											R				
								Tremolite															
								Anthophyllite											50				50
								Actinolite															
18	79	Material BETWEEN 1ST + 2ND LAYER Location 9	Ø	PK	Y	Gn	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
19	80	Material TOP/BOTTOM 3RD LAYER Location 9	Ø	MC	N	F/Gn	N	Chrysotile															
								Amosite															
								Crocidolite											R				
								Tremolite															
								Anthophyllite											50				50
								Actinolite															
20	81	Material BETWEEN 2ND + 3RD LAYERS Location 9	Ø	PK	Y	Gn	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ___ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: II	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
21	82	Material TOP OF DECK Location 9	Ø	BK	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
22	83	Material GLUE Location 10	Ø	Y	Y	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
23	84	Material TOP/BOTTOM GYPSUM Location 10	Ø	MC	N	F/Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite									1		R				
								Anthophyllite									10		20				70
								Actinolite															
24	85	Material TOP/BOTTOM FOAM Location 10	Ø	MC	N	F/Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite											R				
								Anthophyllite															50
								Actinolite											50				
25	86	Material TOP/BOTTOM 2ND LAYER Location 10	Ø	ML	N	F/Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite											R				
								Anthophyllite															50
								Actinolite											50				

Temp in Celcius = ____

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: =	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
26	87	Material TOP/BOTTOM GYPSUM - 3RD LAYER Location 10	0	MC	N	F/Gr	Y	Chrysotile															
								Amosite															
								Crocidolite											R				
								Tremolite															
								Anthophyllite											10				90
								Actinolite															
27	88	Material GLUE Location 11	0	LY	Y	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															100
								Actinolite															
28	89	Material TOP/BOTTOM 1ST LAYER Location 11	0	MC	N	F/Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite										I					
								Anthophyllite										30		-			70
								Actinolite															
29	90	Material TOP/BOTTOM 2ND LAYER Location 11	0	MC	N	F/Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite												50			50
								Actinolite															
30	91	Material TOP/BOTTOM 3RD LAYER Location 11	0	MC	N	F/Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite												50			50
								Actinolite															

Temp in Celcius = ____

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: II	RI: ⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
31	92	Material 4TH LAYER Location 11	Ø	Bk	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
32	93	Material TOP OF DECK Location 11	Ø	MC	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
33	94	Material CURB - UPPER Location 12	Ø	MC	N	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100
34	95	Material CURB ROOF — WALL Location 13	Ø	Bk	N	Fr/Gr	N	Chrysotile	20	W	II	+	Double	NC	1.555	1.550							
								Amosite															
								Crocidolite															
								Tremolite											R				
								Anthophyllite															
								Actinolite											20				60
35	96	Material PAINT EXTERIOR Location 26	Ø	MC	Y	Gr	N	Chrysotile															
								Amosite															
								Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															100

Lab ID# (Lab Use Only)	Field ID/ (Client Reference)	Temp in Celcius = ____ / Material / Location	Stereo Scope: % of Asbestos	Color	Homogeneity	Texture	Friable	Asbestos Minerals	Optical Properties: Asbestos %	Morphology	Extinction	Sign of Elongation	Birefringence	Pleochroism	RI: ∥	⊥	Non-Asbestos Percentage (%): Fiberglass	Mineral Wool	Cellulose	Hair	Synthetic	Other	Non-Fibrous
36	25B	Material						Chrysotile															
								Amosite															
		Location						Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															
37	25C	Material						Chrysotile															
								Amosite															
		Location						Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															
38	25D	Material						Chrysotile															
								Amosite															
		Location						Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															
5188 34	25E	Material						Chrysotile															
								Amosite															
		Location						Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															
		Material						Chrysotile															
								Amosite															
		Location						Crocidolite															
								Tremolite															
								Anthophyllite															
								Actinolite															

DNA

DNA

DNA

DNA

APPENDIX B

ProScience Analytical Services, Inc.
22 Cummings Park, Woburn, MA 01801

Telephone: 781-935-3212
Facsimile: 781-932-4857
Email: chemistry@proscience.net

Laboratory Report

Contact: Alan Sundquist
Client: CDW Consultants, Inc.
Address: 6 Huron Drive
Natick, MA 01760

Batch #: C 300574
Date received: 9/18/2019
Date analyzed: 9/18/2019
Date of report: 9/18/2019

Project # N/A
P.O.# N/A
Project Site: Littleton Town Hall
Shattuck St.,Littleton

AIHA-LAP, LLC Lab ID 102754

Lead Analysis In Paint Using SOP Based on SW846-7420/3051
Results in weight percent on an "as received" weight basis

Lab ID	Client ID	Sample date	Description	Result	Reporting Limit	Comments
C 632313	LBP-1	9/13/19	Paint Sample School Dept. Office	<RL	0.0085	

Simona Peavey, Tech. Manager Chemistry
Aimee Cormier, Lab Director

Unless otherwise indicated, all samples were received in acceptable condition.
All results apply only to the samples tested and as received and are accurate to no more than three significant figures.
Unless otherwise indicated, all the quality control criteria for the method above have been met.
RL-Reporting Limit(%by weight) Note on units: mg/Kg is the same as ppm by weight.

ProScience Analytical Services, Inc.
Chemistry Chain of Custody Record

LABORATORY/HEADQUARTERS
280 Cummings Park, Woburn, MA 01801
T:781-935-3212 F:781-932-4857

www.proscience.net
general@proscience.net

X Rush/<6 Hours 3 — **Turn Around Time Requested**

Same Day	Next Day	2 Day	3 Day	5 Days

Client: CDM CONSULTANTS, INC.
Address Street: 6 HURON DR, NATICK MA
Town: LITTLETON TOWN HALL — State/Zip:
Project Site Line 1: SHATTUCK ST, LITTLETON — Project Number:
Line 2: — PO:
Contact: ALAN SUNDQUIST — Phone:
FAX:
Alt/Pager:

L.B. Architects

☐ NELAC analysis

TYPE OF ANALYSIS (circle)

DUST WIPES	PAINT (0.1 g)	SOIL (1 g)
AIR	TSP	TCLP (100g)
(min)	PM10	Other

Please use a separate form for each matrix.

Element — gravimetric
Pb Cd Cr As Fe
Se Ag Ba Hg
For Laboratory Use
Other (please specify under Comments)

☐ QC

BATCH NUMBER: C 300574

☐ ASTM E1792

FOR LABORATORY USE ONLY

Date and Time Sampled	Field I.D.	Sample Description/Location	Air Sampling Information: Start Time	End Time	Start Flowrate	End Flowrate	Volume (liters)	Wiped area: length (inch)	width (inch)	Area (sq in)	ANALYSIS: Weight (grams)	Dil'n	AA/ ICP Reading	RESULT	Lab I.D.
9/13/19	LBP-1	POINT SAMPLE SCHOOL DEPT OFFICE	14[or]												1032313

Relinquished By: [signature] Date: 9/18/19 Time: 9:42
Received By: Rebecca Gramith-Cole Date: 9/18/19 Time: 9:42

Comments: 978 - 877 - 1542

ver 5.5

PAGE 1 OF 1

Field blanks are required for air and wipe samples per the sampling method and should be from the same source lot as was used for the collected field samples.
Proscience Analytical Services reserves the right to subcontract samples to an appropriately accredited laboratory when we are unable to perform the analysis in house.

APPENDIX C

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

September 30, 2019

Alan Sundquist
CDW Consultants, Inc.
6 Huron Drive
Natick, MA 01760

Project Location: Littleton, MA
Client Job Number:
Project Number: 1861.10
Laboratory Work Order Number: 19I1118

Enclosed are results of analyses for samples received by the laboratory on September 23, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Michelle M. Koch
Project Manager

Table of Contents

con-test® ANALYTICAL LABORATORY
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CDW Consultants, Inc.
6 Huron Drive
Natick, MA 01760
ATTN: Alan Sundquist

REPORT DATE: 9/30/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 1861.10

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19I1118

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Littleton, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PCB Caulking-1	19I1118-01	Caulk		SW-846 8082A	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A

Qualifications:

O-32

A dilution was performed as part of the standard analytical procedure.

Analyte & Samples(s) Qualified:

19I1118-01[PCB Caulking-1]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Littleton, MA | Sample Description: | Work Order: 19I1118

Date Received: 9/23/2019

Field Sample #: PCB Caulking-1 | Sampled: 9/13/2019 00:00

Sample ID: 19I1118-01

Sample Matrix: Caulk

Sample Flags: O-32

Polychlorinated Biphenyls with 3540 Soxhlet Extraction

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aroclor-1016 [1]	ND	0.69	mg/Kg	4		SW-846 8082A	9/24/19	9/27/19 11:42	TG
Aroclor-1221 [1]	ND	0.69	mg/Kg	4		SW-846 8082A	9/24/19	9/27/19 11:42	TG
Aroclor-1232 [1]	ND	0.69	mg/Kg	4		SW-846 8082A	9/24/19	9/27/19 11:42	TG
Aroclor-1242 [1]	ND	0.69	mg/Kg	4		SW-846 8082A	9/24/19	9/27/19 11:42	TG
Aroclor-1248 [1]	ND	0.69	mg/Kg	4		SW-846 8082A	9/24/19	9/27/19 11:42	TG
Aroclor-1254 [1]	ND	0.69	mg/Kg	4		SW-846 8082A	9/24/19	9/27/19 11:42	TG
Aroclor-1260 [1]	ND	0.69	mg/Kg	4		SW-846 8082A	9/24/19	9/27/19 11:42	TG
Aroclor-1262 [1]	ND	0.69	mg/Kg	4		SW-846 8082A	9/24/19	9/27/19 11:42	TG
Aroclor-1268 [1]	ND	0.69	mg/Kg	4		SW-846 8082A	9/24/19	9/27/19 11:42	TG

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Decachlorobiphenyl [1]	96.4	30-150		9/27/19 11:42
Decachlorobiphenyl [2]	94.9	30-150		9/27/19 11:42
Tetrachloro-m-xylene [1]	86.0	30-150		9/27/19 11:42
Tetrachloro-m-xylene [2]	86.7	30-150		9/27/19 11:42

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Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
19I1118-01 [PCB Caulking-1]	B241373	0.577	10.0	09/24/19

con-test® ANALYTICAL LABORATORY
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QUALITY CONTROL

Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B241373 - SW-846 3540C										
Blank (B241373-BLK1)				Prepared: 09/24/19 Analyzed: 09/27/19						
Aroclor-1016	ND	0.17	mg/Kg							
Aroclor-1016 [2C]	ND	0.17	mg/Kg							
Aroclor-1221	ND	0.17	mg/Kg							
Aroclor-1221 [2C]	ND	0.17	mg/Kg							
Aroclor-1232	ND	0.17	mg/Kg							
Aroclor-1232 [2C]	ND	0.17	mg/Kg							
Aroclor-1242	ND	0.17	mg/Kg							
Aroclor-1242 [2C]	ND	0.17	mg/Kg							
Aroclor-1248	ND	0.17	mg/Kg							
Aroclor-1248 [2C]	ND	0.17	mg/Kg							
Aroclor-1254	ND	0.17	mg/Kg							
Aroclor-1254 [2C]	ND	0.17	mg/Kg							
Aroclor-1260	ND	0.17	mg/Kg							
Aroclor-1260 [2C]	ND	0.17	mg/Kg							
Aroclor-1262	ND	0.17	mg/Kg							
Aroclor-1262 [2C]	ND	0.17	mg/Kg							
Aroclor-1268	ND	0.17	mg/Kg							
Aroclor-1268 [2C]	ND	0.17	mg/Kg							
Surrogate: Decachlorobiphenyl	*3.40*		mg/Kg	3.47		98.0	30-150			
Surrogate: Decachlorobiphenyl [2C]	*3.41*		mg/Kg	3.47		98.2	30-150			
Surrogate: Tetrachloro-m-xylene	*3.34*		mg/Kg	3.47		96.3	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*3.38*		mg/Kg	3.47		97.3	30-150			
LCS (B241373-BS1)				Prepared: 09/24/19 Analyzed: 09/27/19						
Aroclor-1016	2.8	0.17	mg/Kg	3.37		82.8	40-140			
Aroclor-1016 [2C]	2.8	0.17	mg/Kg	3.37		84.2	40-140			
Aroclor-1260	2.5	0.17	mg/Kg	3.37		73.9	40-140			
Aroclor-1260 [2C]	2.6	0.17	mg/Kg	3.37		77.3	40-140			
Surrogate: Decachlorobiphenyl	*3.08*		mg/Kg	3.37		91.4	30-150			
Surrogate: Decachlorobiphenyl [2C]	*3.10*		mg/Kg	3.37		91.9	30-150			
Surrogate: Tetrachloro-m-xylene	*3.12*		mg/Kg	3.37		92.6	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*3.16*		mg/Kg	3.37		93.8	30-150			
LCS Dup (B241373-BSD1)				Prepared: 09/24/19 Analyzed: 09/27/19						
Aroclor-1016	2.9	0.17	mg/Kg	3.42		83.8	40-140	2.80	30	
Aroclor-1016 [2C]	2.9	0.17	mg/Kg	3.42		85.7	40-140	3.21	30	
Aroclor-1260	2.6	0.17	mg/Kg	3.42		76.5	40-140	4.97	30	
Aroclor-1260 [2C]	2.8	0.17	mg/Kg	3.42		80.4	40-140	5.49	30	
Surrogate: Decachlorobiphenyl	*3.24*		mg/Kg	3.42		94.5	30-150			
Surrogate: Decachlorobiphenyl [2C]	*3.27*		mg/Kg	3.42		95.5	30-150			
Surrogate: Tetrachloro-m-xylene	*3.20*		mg/Kg	3.42		93.4	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	*3.22*		mg/Kg	3.42		94.1	30-150			

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS

Lab Sample ID: B241373-BS1 Date(s) Analyzed: 09/27/2019 09/27/2019

Instrument ID (1): ECD 9 Instrument ID (2): ECD 9

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	2.8	
	2	0.000	0.000	0.000	2.8	0.0
Aroclor-1260	1	0.000	0.000	0.000	2.5	
	2	0.000	0.000	0.000	2.6	3.9

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IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B241373-BSD1 Date(s) Analyzed: 09/27/2019 09/27/2019

Instrument ID (1): ECD 9 Instrument ID (2): ECD 9

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

ANALYTE	COL	RT	RT WINDOW		CONCENTRATION	%RPD
			FROM	TO		
Aroclor-1016	1	0.000	0.000	0.000	2.9	
	2	0.000	0.000	0.000	2.9	0.0
Aroclor-1260	1	0.000	0.000	0.000	2.6	
	2	0.000	0.000	0.000	2.8	7.4

con-test® ANALYTICAL LABORATORY

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
O-32	A dilution was performed as part of the standard analytical procedure.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2017	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2020
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2021
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2020
FL	Florida Department of Health	E871027 NELAP	06/30/2020
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2020
ME	State of Maine	2011028	06/9/2021
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2020
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2020
NC-DW	North Carolina Department of Health	25703	07/31/2020
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2020

P91118

con-test ANALYTICAL LABORATORY

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com Doc # 381 Rev 1_03242017

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: CDW CONSULTANTS INC
Address: 6 HURON DRIVE NATICK MA
Phone: 508 875 2657
Project Name: LITTLETON TOWN OFFICES
Project Location: LITTLETON MA
Project Number: 1861.10
Project Manager: ALAN SUNDQUIST
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: ALAN SUNDQUIST

Requested Turnaround Time
7-Day [X] 10-Day [ ]
Due Date: 5 DAY

Rush Approval Required
1-Day [ ] 3-Day [ ]
2-Day [ ] 4-Day [ ]

Data Delivery
Format: PDF [X] EXCEL [X]
Other:
CLP Like Data Pkg Required: [ ]
Email To: ASUNDQUIST@
Fax To #: CDWCONSULTANTS.COM

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code	PCB (BUILDING MATERIALS)	# of Containers	Preservation Code	Container Code
1	PCB CAULKING -1	9/13/19	—		✓			X	1		

[2] Preservation Codes
[3] Container Codes

Dissolved Metals Samples
O Field Filtered
O Lab to Filter

Orthophosphate Samples
O Field Filtered
O Lab to Filter

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time:
	9/20/19
Received by: (signature)	Date/Time:
	9/23/19 1135
Relinquished by: (signature)	Date/Time:
	9/23/19 530
Received by: (signature)	Date/Time:
	9/23/19 1736
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Detection Limit Requirements
MA
CT
Other

Special Requirements
[ ] MA MCP Required
[ ] MCP Certification Form Required
[ ] CT RCP Required
[ ] RCP Certification Form Required
[ ] MA State DW Required
PWSID #

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NELAC and AIHA-LAP, LLC Accredited

Project Entity
[ ] Government [✓] Municipality [ ] MWRA [ ] WRTA
[ ] Federal [ ] 21 J [ ] School
[ ] City [ ] Brownfield [ ] MBTA

Other
[ ] Chromatogram
[ ] AIHA-LAP,LLC

PCB ONLY
[✓] Soxhlet
[ ] Non Soxhlet

37 Shattuck Street Solutions Report

Page 12 of 13

Table of Contents

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client CDW

Received By RAP Date 9/22/19 Time 1730

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____ Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 5 Actual Temp - 29 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Project T Analysis T ID's T Sampler Name T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag	1	Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

APPENDIX D

CDW CONSULTANTS, INC.
CIVIL & ENVIRONMENTAL ENGINEERS

PHOTOGRAPH LOG

LITTLETON TOWN OFFICES

HAZARDOUS MATERIALS SURVEY | **Address: 37 SHATTUCK STREET, LITTLETON MA**

Photo No. 1	**Date:** 9/13/19

Photo Location:

3rd Floor

Description:

Pipe TSI

Confirmed ACM

Photo No. 2	**Date:** 9/13/19

Photo Location:

3rd Floor

Description:

Cement Fabric

Confirmed ACM

CDW CONSULTANTS, INC.
CIVIL & ENVIRONMENTAL ENGINEERS

PHOTOGRAPH LOG

LITTLETON TOWN OFFICES

HAZARDOUS MATERIALS SURVEY | **Address: 37 SHATTUCK STREET, LITTLETON MA**

Photo No. 3	**Date:** 9/13/19

Photo Location:

3rd Floor
Room 305 Storage

Description:

Cement Wall
Cover/Mastic

Confirmed ACM

Photo No. 4	**Date:** 9/13/19

Photo Location:

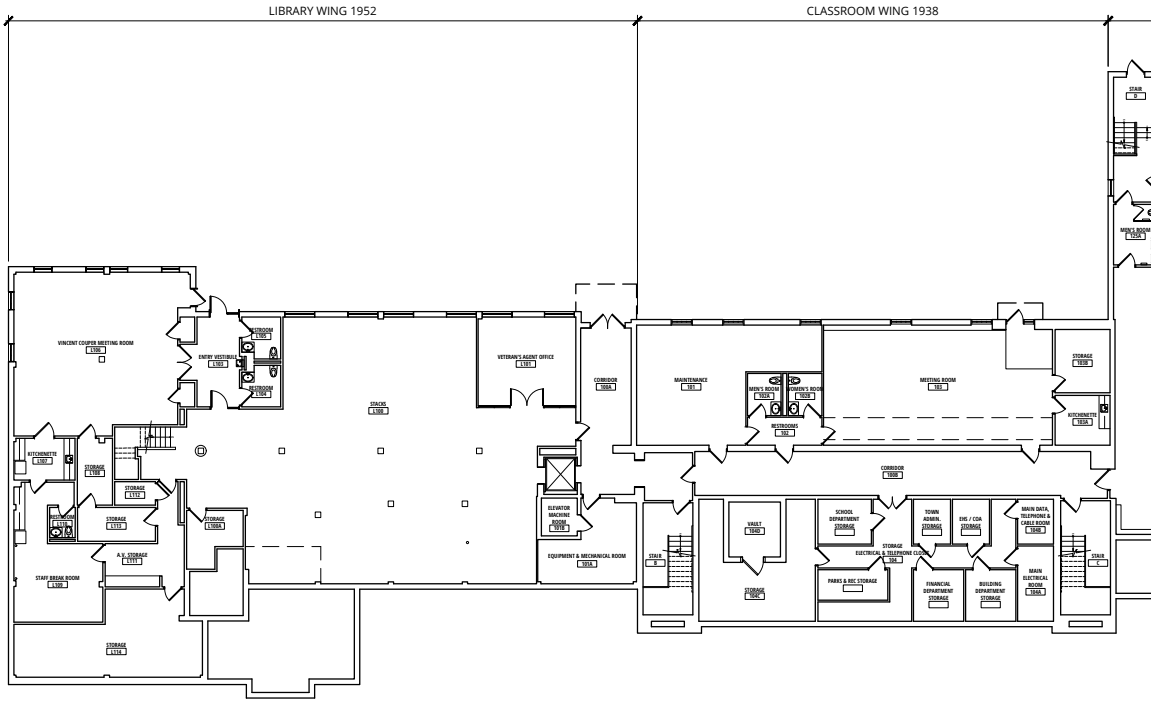
Exterior Roof

Description:

Approximate Location of
Exterior Sample 13

Confirmed ACM

V. Exhibits



A5 / EX1.01 **EXISTINIG GROUND / FIRST FLOOR PLAN**
1/16" = 1'-0"

LLB ARCHITECTS
Lamour Ladds Bartels
161 Exchange St.
Pawtucket, RI 02860
401.421.7715
www.LLBarch.com

NEEDS ASSESSMENT FOR

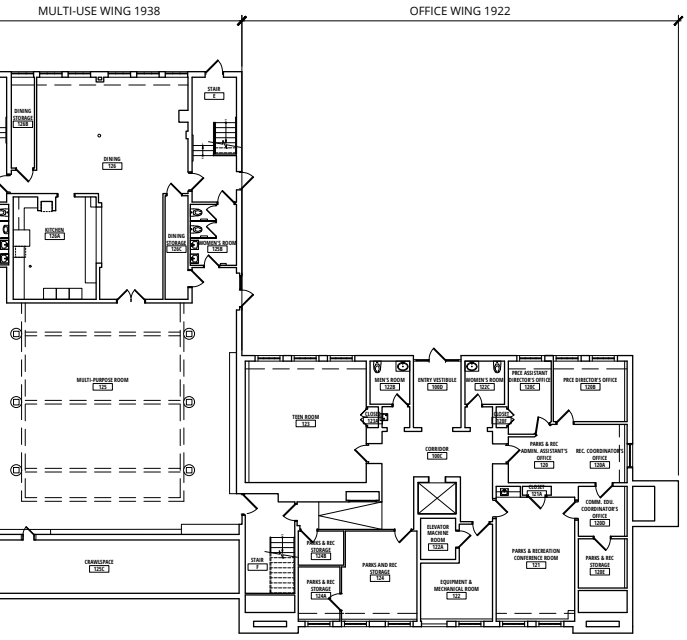
LITTLETON TOWN HALL

37 SHATTUCK STREET
LITTLETON, MA 01460

NOT FOR CONSTRUCTION

Revisions

EXISTING GROUND / FIRST FLOOR PLAN



EX1.01

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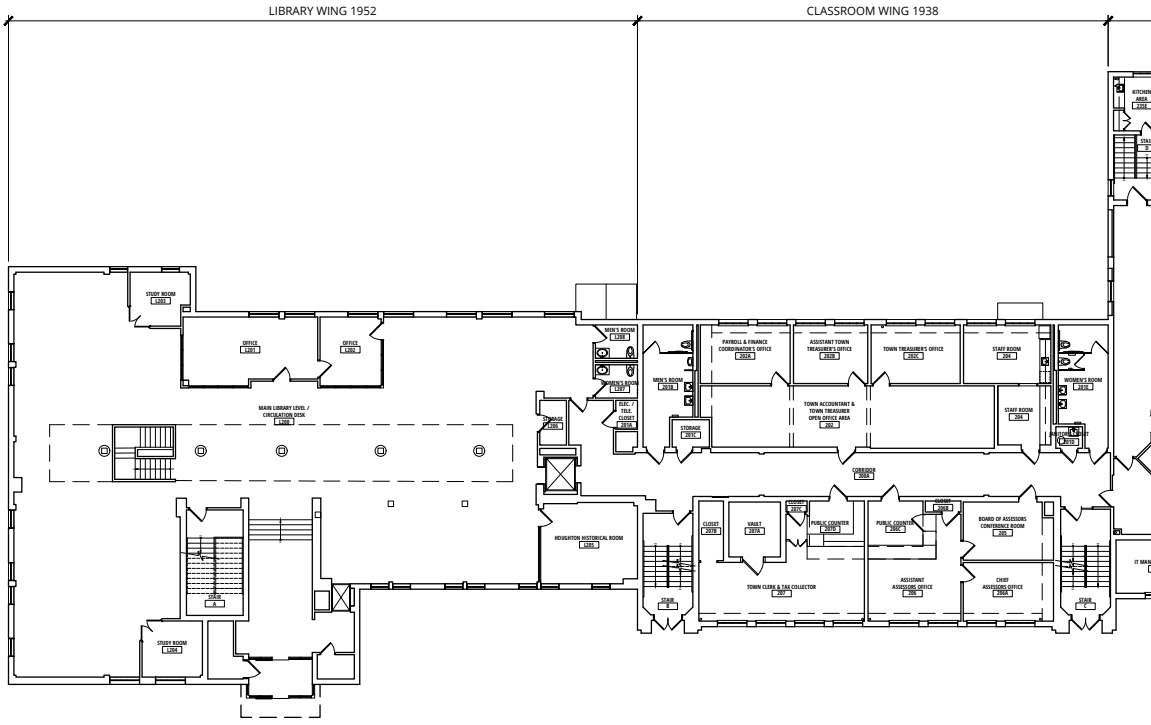

A5
EX1.02
EXISTINIG SECOND FLOOR PLAN
1/16" = 1'-0"

LLB ARCHITECTS
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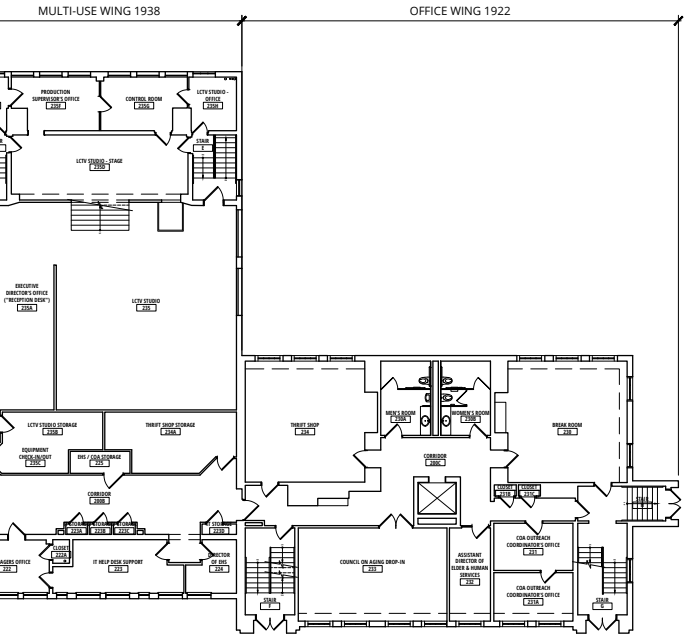
401.421.7715
www.LLBarch.com

NEEDS ASSESSMENT FOR

LITTLETON TOWN HALL

37 SHATTUCK STREET
LITTLETON, MA 01460



NOT FOR CONSTRUCTION

Revisions

EXISTING SECOND FLOOR PLAN

EX1.02

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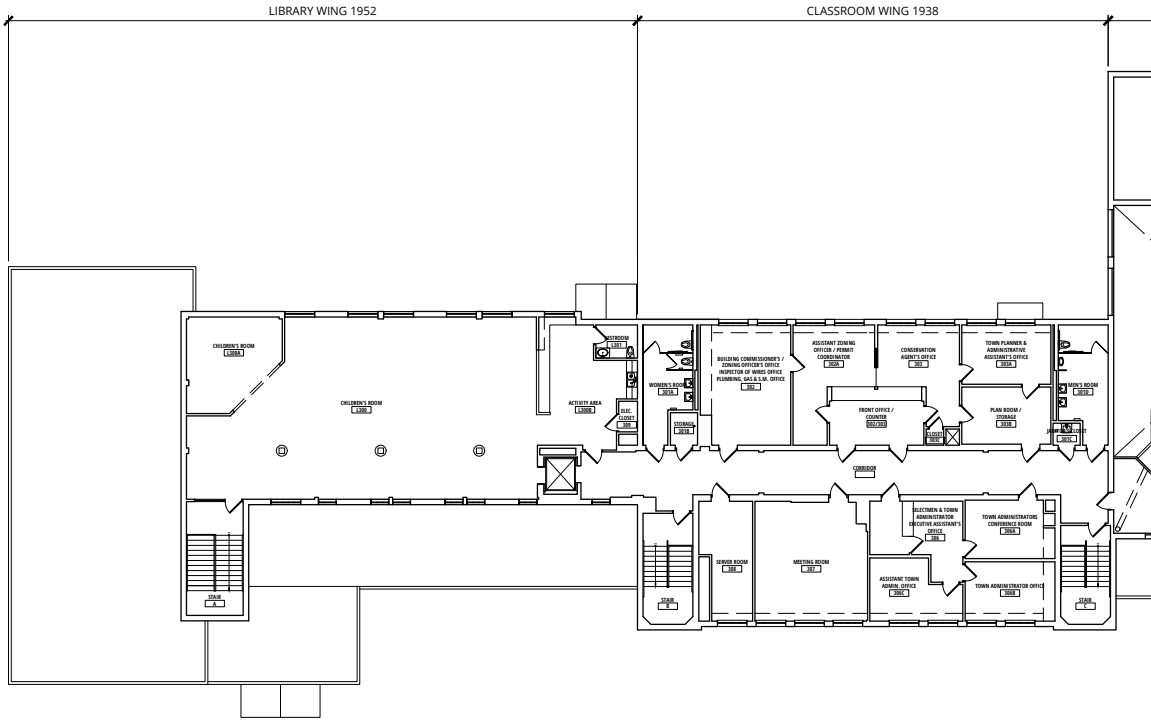

A5
EX1.03
EXISTINIG THIRD FLOOR PLAN
1/16" = 1'-0"

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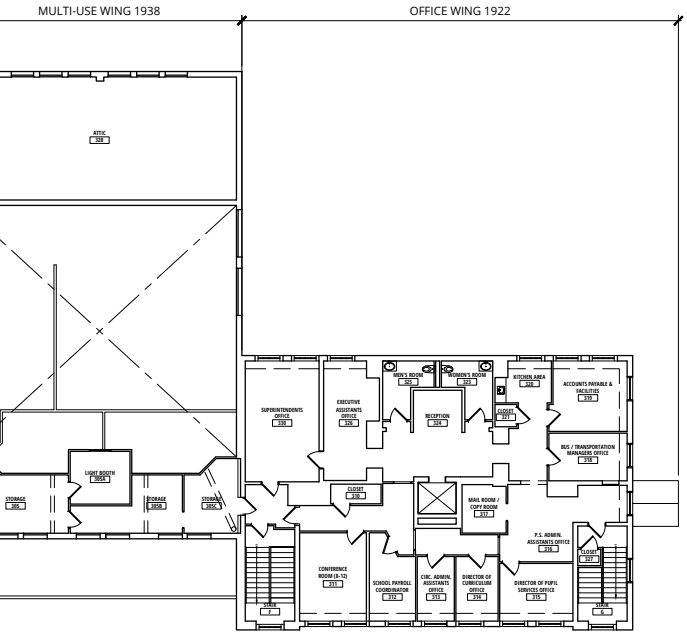

NEEDS ASSESSMENT FOR

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LITTLETON, MA 01460

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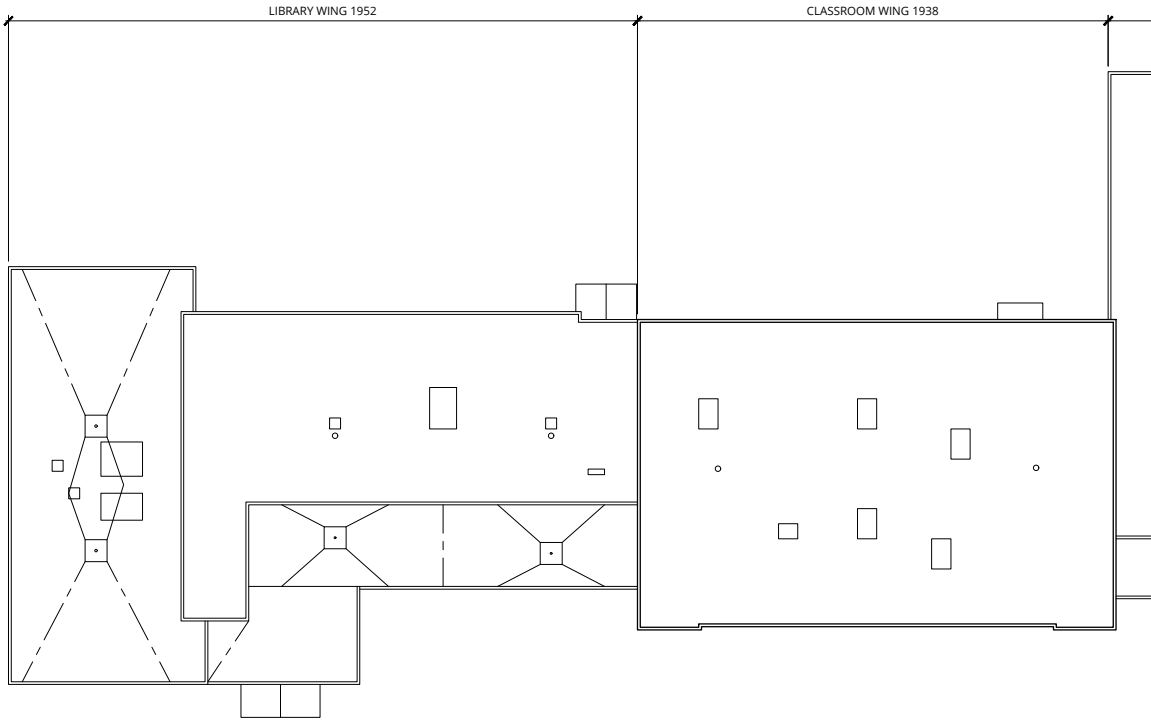
EXISTING THIRD FLOOR PLAN

EX1.03

Drawings not to scale. Refer to original drawing set.



A5
EX1.04
EXISTINIG ROOF PLAN
1/16" = 1'-0"

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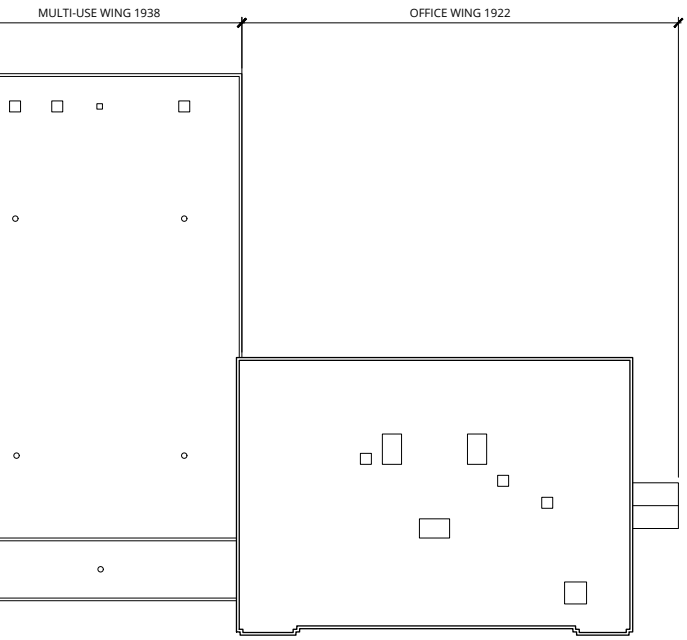

NOT FOR CONSTRUCTION

Revisions

EXISTING ROOF PLAN

EX1.04

Drawings not to scale. Refer to original drawing set.

ARCHITECTS

Lerner Ladds Bartels

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