ROOF ASSESSMENT REPORT

MILLERS FALLS LIBRARY ROOF
23 BRIDGE STREET
MILLERS FALLS, MA 01349

Prepared For:

Mr. Steven Ellis
Town Administrator
Town of Montague, Massachusetts

Prepared By:

Northeast Roof Consultants, LLC
2 Peggy Drive
Southborough, MA 01772
(508) 277-0284

Date: January 26, 2022
NRC Project No. 22-001

January 26, 2022

Mr. Steven Ellis
Town Administrator
Town of Montague
One Avenue A
Turners Falls, MA 01376
(Email: townadmin@montague-ma.gov)

RE: Roofing Consulting Services
Roof Assessment and Report
Millers falls Library Roof
Millers Falls, MA 01349

I. INTRODUCTION

On Thursday, January 6, 2022, Northeast Roof Consultants (NRC) was on site to perform a visual assessment of the existing steep-slope roofing systems on the Millers Falls Library. The weather on the day of the inspection was mostly clear with temperatures in the 30's. Following are the results of our assessment. As exploratory test cuts were not taken as part of this assessment, the number of shingle layers, the type of underlayment and the type/thickness of the decking material on either roof section could not be verified. The report includes a general overview of the building construction, verified roof sizes and areas, general roof observations, existing issues, conclusions and recommendations with cost estimates for the recommended scope of work. Photo documentation of the assessment and a roof sketch showing the locations of the problem areas is also included.

II. GENERAL DESCRIPTION

The Millers Falls Library is a one story, wood framed structure covered by two separate steep-slope shed roofs which drain to a single roof elevation. As the Library was closed during our assessment the interior ceiling areas could not be inspected for water damage. Discussions with Library personnel concerning roof issues also did not take place. For this report, the roof section closest to Bridge Street, shall be referred to as Area “A” and the rear roof section as Area “B”.

Rooftop penetrations in Area “A” consists of a single chimney located near the highpoint of the roof. Area “B” had a single plumbing vent and what appears to be an old abandoned masonry chimney at the intersection of Area “A”. Neither of the steep-slope roof areas are Ventilation is not present at the main steep-slope roof. NRC noted no eave, ridge or gable venting, nor power ventilated. Drainage occurs over the bottom edge of the roof directly on to the asphalt pavement below. Gutters and down spouts are not present.

The pitch of the two roof areas appears to be 2:12 to 3:12. The minimum slope for most types of roof shingles is 2:12, without the presence of specific types of underlayment.

Roof Measurements

- Roof Height – 10'-13'
- Roof Area – Area "A": 41' x 23'-6" = 964 sq. ft. (+-)
- Roof Area – Area "B": 41'-4" x 28'-9" = 1,188 sq. ft.
- Total all areas: **2,152 sq. ft.**

Existing Roof Components

(Area "A") – Roof Area "A" is covered with a light gray, lightweight three-tab asphalt shingle roof with aluminum drip edge located at all perimeter edges. The shingle exposure is 5". Based on our visual inspection it appears that there is a single layer of shingles covering this section. The type of underlayment and extent of ice and snow shield underlayment along the eave could not be verified.

(Area "B") – Roof Area "B" is covered with a newer light gray, heavier weight, architectural grade shingle roofing system. The shingles appear to be only a few years old, with no additional layers present underneath the exposed shingles. Aluminum drip edge metal is present at the perimeters. Similar to Area "A", the type of underlayment and extent of ice and snow shield underlayment along the eave could not be verified.

The vertical step-up between the two roof areas is covered with painted Texture 1-11 siding, which overlaps metal step-flashing woven into the architectural shingles.

III. ROOFING/FLASHING ISSUES

(Roof Area "A") - Our inspection of Area "A" revealed the following issues and concerns:

- The three-tab shingles have minor horizontal cracking and are slightly discolored.
- The roofing nails in the top row of shingles are exposed and the old sealant covering the nail heads is worn away.
- Flashing around the base of the masonry chimney is suspect as plastic roof cement has been applied around all sides in the past.
- The back side of the chimney has no tapered cricket to divert water around the sides of the penetration.
- Roof ventilation, which removes warm, moist air from the cavity space of the roof is not present. Proper ventilation prevents premature drying of the shingles and extends the useful service life of the roofing system.

(Roof Area "B") - Our inspection of Area "B" revealed the following issues and concerns:

- The abandoned penetration (capped chimney?) at the base of the roof step-up is covered with a combination of a metal cap and plastic roof cement. Large gaps are present in the roof cement, which appears to have been applied to prevent moisture infiltration.
- The top row of shingles does not appear to be complete as the metal drip edge is exposed and not covered with architectural shingles. In addition, other areas of the

drip edge under the top row have been covered with a different non-matching roof material. Exposed nail heads have not been sealed.
- Roof ventilation, which removes warm, moist air from the cavity space of the roof is not present. Proper ventilation prevents premature drying of the shingles and extends the useful service life of the roofing system.

IV. CONCLUSIONS/RECOMMENDATIONS

(Roof Area "A") - The existing three-tab asphalt shingle roof appears to be in generally good condition at this time with only minor crazing and cracking visible. The light gray coloration helps to reflect the sun's rays (UV radiation) and prevents the shingles from absorbing heat and drying prematurely. Roof ventilation, which is recommended by all roof shingle manufacturer's, is absent and may offset any gain provided by the lighter colored shingles. Steep-slope roof issues typically arise at or around the penetrations, especially on roofs with less steep pitches. It is important to properly flash the base of these penetrations to prevent water migration that gets trapped behind the back of the chimney. This is where a properly sized cricket can provide an avenue for diverting water around the sides of the chimney. As sealant is a maintenance issue, it is important to periodically reseal the nail heads in the top row of shingles to prevent future water infiltration into the building.

(Recommendations – Roof Repairs - 2022)
(Proposed Scope of Work)
- Remove the existing metal flashings and three tab shingles around the base of the chimney. Install self-adhering ice and snow shield membrane up the vertical surface of the roof (under metal reglet flashing) and on to the roof deck a minimum of 12" on all sides. Install tapered metal cricket to rear of the chimney. Reinstall metal apron, step and counterflashing. Reinstall matching three-tab shingles.
- Reseal all exposed nail heads on the top row of shingles with compatible sealant (short term). Install metal trim over top row of shingles and secured with blind clips at roof level and gasketed fasteners on the outside face (long term).
- Consider installation of eave and ridge venting to prolong the life of the three-tab shingle roof. Ventilation would be reliant on an open cavity space below the wood decking to allow for air movement. Interior inspection or test cuts in the roof to verify an air space would be necessary.
- **Cost Estimate - $1,200.00 (Short Term), $1,700 (Long Term)**

(Based on 2022 Costs). Not including ventilation cost (to be determined).

These repairs should provide an additional ten years of useful service life to Area "A".

(Roof Area "B") – With the exception of the top row of shingles, the abandoned chimney penetration and lack of proper ventilation, Roof Area "B" is in good condition at this time. It appears that the roof installer ran out of matching architectural shingles before the top row could be completed and left it unfinished. The abandoned masonry penetration at the base of the intersection of both roof areas should be properly sealed, or demolished below deck

level to eliminate the possibility of leaks. As referenced in Roof Area "A", roof ventilation is typically recommended to prevent premature deterioration of the shingles. Additional investigation would be required to determine the best way to provide air flow from eave to ridge.

(Recommendations – Roof Repairs - 2022)
(Proposed Scope of Work)

- Complete top row of shingles with shingle of matching type and color blend. Seal all nail heads with compatible sealant (short term). Install metal trim over top row of shingles and secured with blind clips at roof level and gasketed fasteners on the outside face (long term).
- Reseal top and sides of abandoned masonry penetration (short term). Eliminate abandoned masonry penetration below deck, provide decking of matching thickness and install matching underlayment, flashing and shingles.
- Consider installation of eave and ridge venting to prolong the life of the architectural grade shingle roof. Ventilation would be reliant on an open cavity space below the wood decking to allow for air movement. Interior inspection or test cuts in the roof to verify an air space would be necessary.
- **Cost Estimate - $600.00 (Short Term), $1,325.00 (Long Term)**

(Based on 2022 Costs). Not including ventilation cost (to be determined).

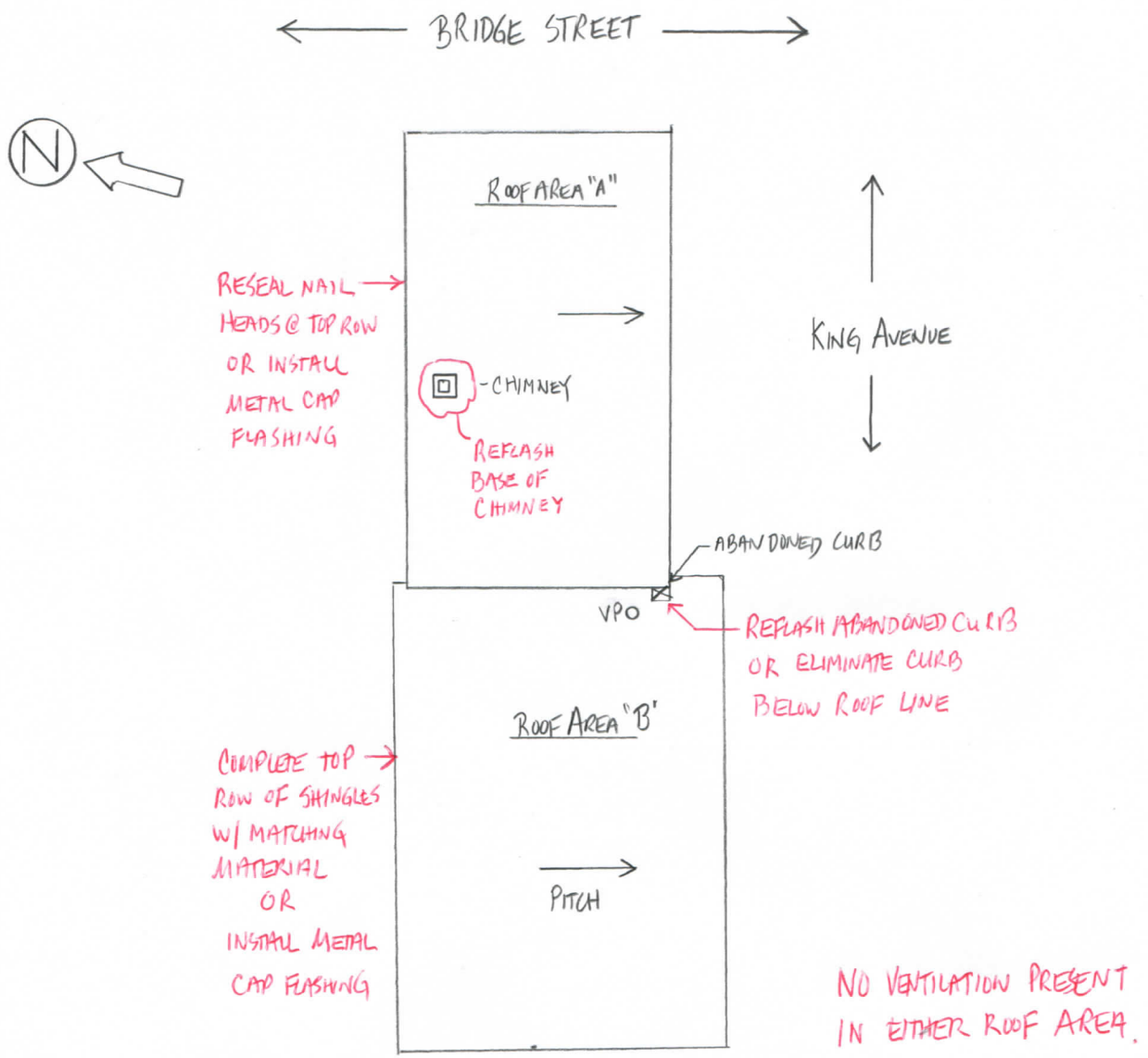
These repairs along with yearly maintenance should allow the roof to reach its' useful service life of 30-40 years.

These above referenced cost estimates do not include the cost for design fees, permitting, hazardous material testing, ventilation costs or hidden conditions. We hope this provides you with the information you require. After your review of this report, feel free to call with any questions, comments or concerns. Please see the following photo pages to view the existing conditions and areas of concern at each location.

Sincerely,

John R. Skypeck, RRC
President
Northeast Roof Consultants, LLC

Reliance: This report is for exclusive use and may be relied upon by the Town of Montague officials. No parties or persons other than those identified as authorized users may use or rely on the information or opinions in this report without the express written consent of Town of Montague officials and Northeast Roof Consultants, LLC.



ROOF AREA "A" - THREE-TAB SHINGLES
ROOF AREA "B" - ARCHITECTURAL SHINGLES

VP = VENT PIPE

ROOF PITCH - 2:12 - 3:12

ROOF PLAN

NORTHEAST ROOF CONSULTANTS, LLC **2 PEGGY DRIVE** **SOUTHBOROUGH, MA 01772** **508-277-0284**	**2022 ROOF ASSESSMENT** MILLERS FALLS LIBRARY 23 BRIDGE STREET MILLERS FALLS, MA 01349 MAIN ROOF	DRAWN BY: JRS	SCALE: 1/16"=1'	DRAWING NUMBER: **SK-1**
		DATE: 1/6/2022	REV. DATE:	
		DESCRIPTION: ROOF AREA PLAN		

Photo R1
01/06/22

Photo Location:
Front Roof – Area "A"

Description:
View of three-tab shingle roof with single chimney penetration at the top.

Photo R2
01/06/22

Photo Location:
Front Roof – Area "A"

Description:
View of roof eave at King Avenue elevation. Note: water drains over the edge, no gutter present.

Photo R3
01/06/22

Photo Location:
Front Roof – Area "A"

Description:
Close-up of three tab shingle. Note: slight horizontal split in the shingle.

Photo R4
01/06/22

Photo Location:
Front Roof – Area "A"

Description:
Base of existing brick masonry chimney with plastic roof cement repairs at the roof intersection.

Photo R5
01/06/22

Photo Location:
Front Roof – Area "A"

Description:
View of rear side of chimney. No cricket to divert water around the sides of the chimney. Plastic roof cement repairs continue around the chimney base.

Photo R6
01/06/22

Photo Location:
Front Roof – Area "A"

Description:
Exposed roofing nail heads along the top row of shingles are no longer sealed properly and may be an avenue for water infiltration.

Photo R7
01/06/22

Photo Location:
Rear Roof – Area "B"

Description:
View of new architectural grade shingle roof system on the back section of the library.

Photo R8
01/06/22

Photo Location:
Rear Roof – Area "B"

Description:
View of roof eave with no gutter to drain water away from the base of the building.

Photo R9
01/06/22

Photo Location:
Rear Roof – Area "B"

Description:
View of intersection of Areas "A" and "B". Note: covered masonry structure under overhang. Possible old abandoned chimney.

Photo R10
01/06/22

Photo Location:
Rear Roof – Area "B"

Description:
Close-up of capped structure with metal and asphalt cover badly split.

Photo R11
01/06/22

Photo Location:
Rear Roof – Area "B"

Description:
View of top course of shingles. Metal drip edge has been partially covered with roll roofing.

Photo R12
01/06/22

Photo Location:
Rear Roof – Area "B"

Description:
Top row of shingles missing over exposed metal drip edge with roof nails unsealed and exposed to the weather.

Photo R13
01/06/22

Photo Location:
Rear Roof – Area "B"

Description:
View of unfinished top course of shingles. With metal drip edge exposed to the weather.

Photo R14
01/06/22

Photo Location:
Rear Roof – Area "B"

Description:
Top row of shingles with exposed nail heads and missing sealant.