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Structural & Civil Engineering
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STRUCTURAL ENGINEERING REPORT

MONTAGUE CENTER LIBRARY
17 Center Street
Montague, MA

Prepared for Town of Montague
1 Avenue A, Montague, MA 01376

August 12, 2021

On June 3, 2021, I met with Linda Hickman, the Montague Library Director, at the Montague Center Library to discuss a property condition assessment promulgated by PCA360 on January 15, 2021, and to look at the areas of structural concern for the building. I visited the building again on June 28, 2021, when I could gain access to the attic.

PCA360 provided an extensive description of the building, including photographs, so I will limit my report to the specific structural issues I have found.

EXTERIOR

The Montague Center Library is an unreinforced brick building sitting on a foundation of large dressed granite stones. The building shows little or no sign of significant settlement, and the exterior walls are in good shape for a building of this age. There are signs of some damage to the cornices, but I was unable to examine them at close range. According to Ms. Hickman a tree recently hit the northwest corner of the building, but it appears to have been repaired. Also I noticed evidence of historical damage to the east end of the southernmost truss, so that area of the exterior cornice also needs to be examined. In general cornices are the most vulnerable parts of brick edifices. I recommend that a mason experienced in working with historic buildings be hired to examine and repoint all four walls, with special attention paid to the cornices. This maybe done over a period of years, with one wall being done in a given year.

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There is evidence of significant water intrusion into the basement along the east end of the building. I believe this is caused by poor grading along the east wall between the building and the handicap ramp. I have provided DWG. ST-1 to show how the area should be graded. Essentially, I recommend that a shallow swale be created midway between the building and the ramp, and also that the grade be brought higher on the foundation walls all the way to the southeast corner. I also recommend that the roof over the handicap entrance on be modified by creating crickets to divert the rain runoff away from the building. I believe these two measures should be taken before trying to modify the basement floor or interior foundation wall.

INTERIOR

I examined the attic during my second visit. I determined that the heating unit on the mezzanine is supported by its own frame, and does not affect the roof structure. Nevertheless, at some point it would be a good idea to remove it. I discovered that the east end of the southernmost truss underwent significant water damage at some time in the past. Although some repairs were made, and the leak apparently fixed, the end of the truss does not appear to have been sufficiently repaired. I have provided DWG. ST-2 to show a repair that will ensure that the truss remains structurally viable.

I examined the interior brick piers. Although tall brick piers are often subject to deterioration, these appear to be in acceptable condition. Both floors are level and solid. It is advisable to inspect the building structure periodically to find any sign of deterioration early.

It is my opinion that an interior handicap lift allowing access to the second floor would be structurally feasible, and much less expensive than constructing an exterior elevator. I advise that the library hire an architectural consultant familiar with designing lifts in used buildings to help find a suitable location.

CONCLUSION

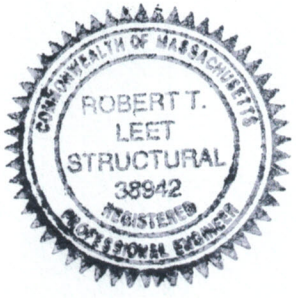
The Montague Center Library building is in decent shape for its age, but, as with all repairs, the longer one waits to repair a building the more expensive the project is likely to be. In the case of this building I recommend that the exterior grading be done quickly, as it will be a relatively inexpensive project and should prevent water intrusion from causing significant harm to the wood structure by rot and insect infestation. If water is still seen in that area after the area is regraded the issue should be revisited.

I believe it would be a good idea to fix the truss as soon as the budget allows as well. Although the truss does not appear to be moving yet, once it begins to deform the repair will be significantly more expensive, as it may require jacking the truss back into place.

I recommend repointing one wall at a time, perhaps one every year. This will be more expensive than the other projects, but if done correctly will give the building a new life.

The cricket over the handicap entrance is not as timely, but this issue should not be ignored forever. I recommend that it be done in conjunction with repointing the east wall, as it will require flashing along the wall interface.

Robert Leet, P.E.
Whetstone Engineering



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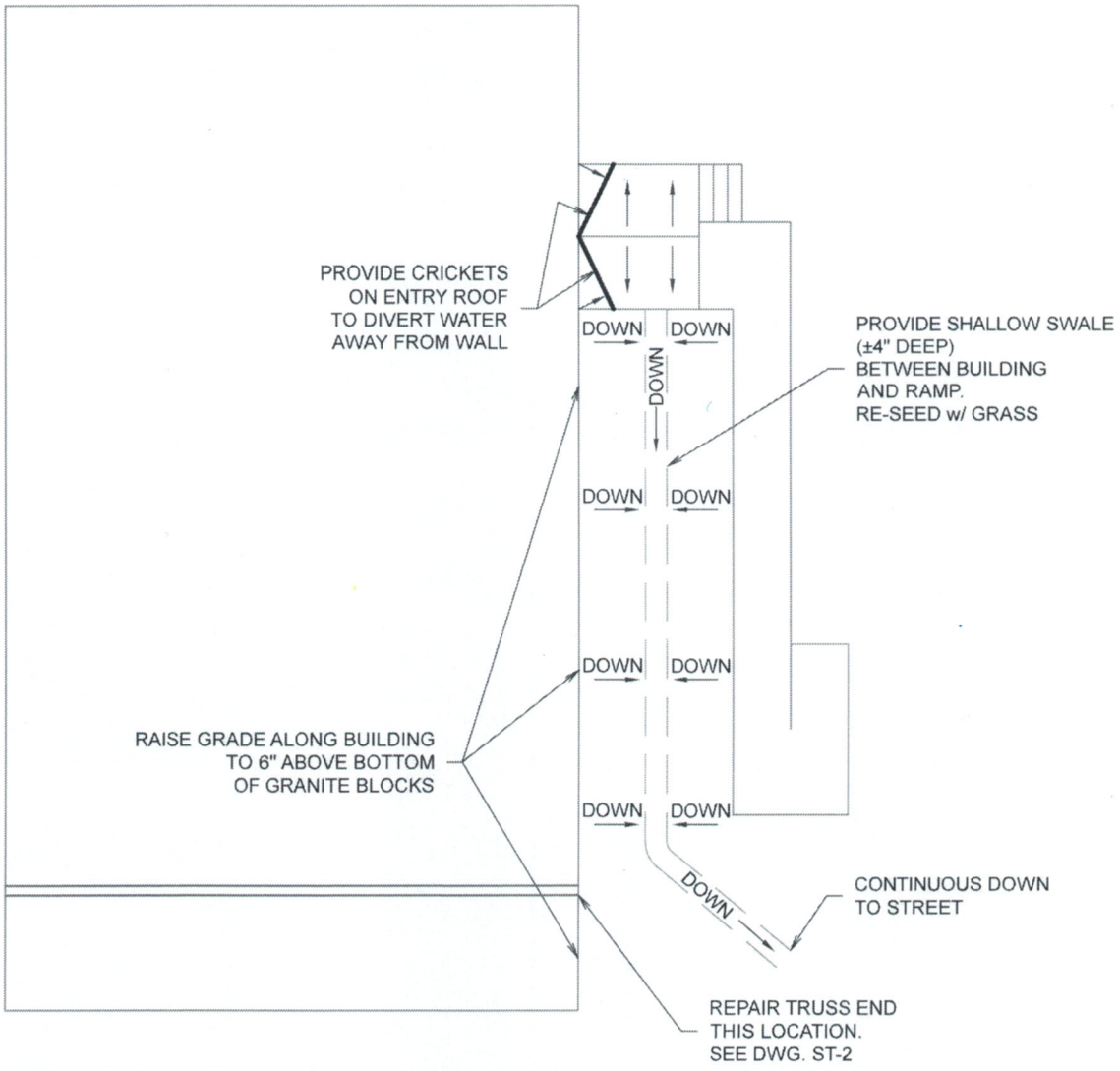

EAST SIDE DRAINAGE PLAN	DES. BY	RTL
	DWN. BY	RTL
BUILDING REPAIR	SCALE	3/32" = 1'-0"
	DATE	8/12/21
	PROJECT NO.	21039
MONTAGUE CENTER LIBRARY MONTAGUE, MA	REV.	
	DWG. NO.	ST-1

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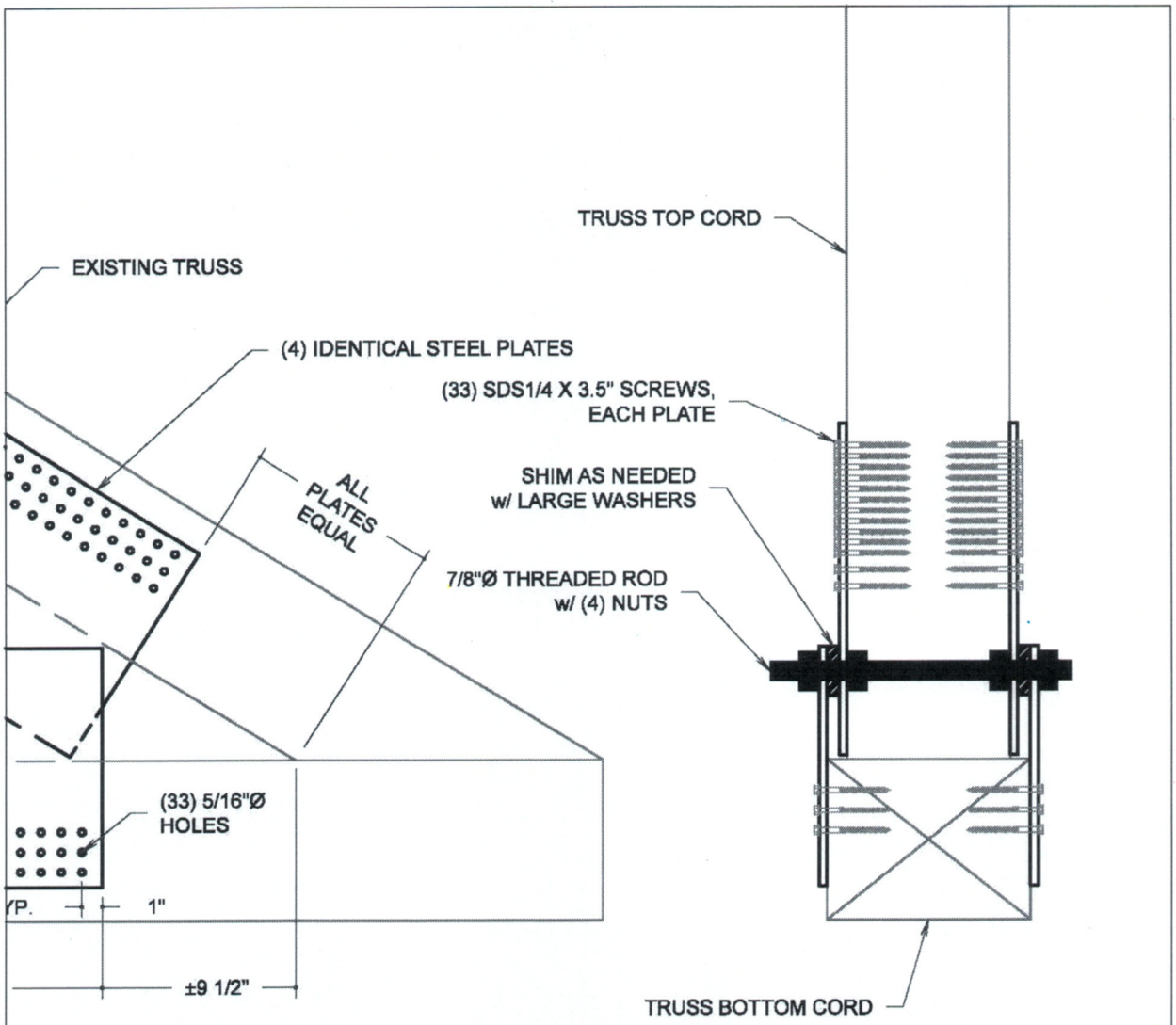

CONSTRUCTION NOTE:
1) LOOSELY CONNECT PLATES w/ THREADED ROD BEFORE ATTACHING TO TRUSS CORDS
2) WHEN ALL SCREWS ARE INSTALLED, TIGHTEN NUTS

TRUSS END REPAIR	DES. BY	RTL
	DWN. BY	RTL
BUILDING REPAIR	SCALE	3/32" = 1'-0"
	DATE	8/12/21
	PROJECT NO.	21039
MONTAGUE CENTER LIBRARY	REV.	
MONTAGUE, MA	DWG. NO.	ST-2

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