CAMPBELL COMEAU ENGINEERING LIMITED
• STRUCTURAL • CIVIL • MARINE •
HALIFAX, NOVA SCOTIA

Project: 301-309 MAIN ST.
Project No: Date: 2017/08/07
By: M.C. Sheet No:

2719 GLADSTONE STREET
HALIFAX. NS. B3K 4W6
August 7, 2017

Mr. Stephen Howatt,
3209691 NS LIMITED
15 Brunswick Street
YARMOUTH. NS.

COPY

RE: 301-309 MAIN ST., YARMOUTH, NS.

Campbell Comeau Engineering Limited has been retained by you to review the structure of the above noted building which is being renovated. In particular our review has focussed on the support of the second floor steel beam and supporting column in the south half of the building and the design of the construction shoring for this area. I have been accompanied by you for this site review.

Campbell Comeau Engineering has designed temporary construction shoring for the main support beam at the second floor of the south half of the building. This shoring has now been installed.

It is our opinion that the building is now safe for you to continue the construction work in the building and that the safety risk to the public at the exterior perimeter of the building has now been addressed.

If you should have any questions regarding the above do not hesitate to contact us at your convenience.

Yours very truly,
Michel Comeau, P. Eng.
Campbell Comeau Engineering Ltd.

REGISTERED PROFESSIONAL ENGINEER
DATE 2017/08/07
M. P. COMEAU
3783
PROVINCE OF NOVA SCOTIA

STRUCTURAL REVIEW
305 MAIN STREET
YARMOUTH, NS

Campbell Comeau Engineering Limited
2719 Gladstone Street, Suite 110
Halifax, Nova Scotia B3K 4W6

Phone: 902-429-5454

MARCH, 2015
11815

CAMPBELL COMEAU ENGINEERING LIMITED

• STRUCTURAL • CIVIL • MARINE •

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March 3, 2015

Mr. Russell Allen
Dangerous & Unsightly Premises Administrator
Town of Yarmouth
400 Main Street
Yarmouth, NS B5A 1G2

Dear Mr. Allen:

RE: ***305 Main Street / Structural Review***
Yarmouth, NS

On January 19, 2015 a site visit was carried out by the writer at 305 Main Street in Yarmouth, Nova Scotia (Photo 1). The purpose of the visit was to view the structure of this building and to prepare a report regarding any observed unsafe conditions and deficiencies in the building structure. The building complex is presently unoccupied. I was accompanied by you and by Ms. Lorelei Atkinson, Town of Yarmouth Building Official, for the site visit.

BUILDING CONSTRUCTION

This building bears a sandstone block on the upper parapet at the front, west elevation, of the building which indicates a construction date of 1893. The building appears to have been constructed in different wings with the front block of the building as one construction and an east block on the north side of the lot as a second projection (Sketch SK-3). The building is three storeys in height and has a basement. The basement walls are mortared stone. The perimeter walls of the superstructure are a clay brick bearing wall construction. The floors and the roof are framed with wood and supported on the exterior brick and interior bearing walls. At the west façade along Main Street there is a steel or iron beam which supports the masonry above the level of the Second Floor (Photo 17).

SITE OBSERVATIONS

During the site visit we were able to observe the exterior and the interior of the building. At locations where the building finishes have been removed, as well as in the basement, the structure of the building can be observed. The west elevation of the building on Main Street displays a bulge

towards the street in the exterior brickwork (Photo 4 and Photo 5). The bulge is most pronounced at the Third Floor and extends for nearly the full width of the building. In 2002 approximately, steel straps and anchors were provided to tie the west façade back into the floor framing at the Second and Third Floors. We have reviewed the anchors during our site visit. We find that the anchor installation appears to be sound. The bolts connecting the anchors to the wall did not move when hand pressure was applied (Photo 18).

The west wall was checked for plumb by measuring it at the Third Floor. The wall was found to be 3 inches out of plumb from the ceiling level to the floor (Sketch SK-1). As noted, the wall leans out to the west at the Third Floor level. This can be directly observed by the separation at the wall in the ceiling of the Second Floor (Photo 16).

There are 17 steel anchor plates tying the west wall into the floor structure at the Third Floor (Sketch SK-2). At the Second Floor the wall is anchored to the floor with 16 steel plates. The west wall is supported vertically at the Second Floor upon a steel or iron beam. The flange of the beam was observed in the gap between the floor and the wall. The Main Floor at the west elevation is essentially an open window wall. Columns which support the beams in the façade can be seen from the Main Street sidewalk.

The basement area was accessed from the north side retail unit of the Main Floor. The area of the basement is very damp and some standing water was present on the floor. Large areas of mold could be observed between the floor joists on the south side of the basement (Photo 11 and Photo 12). This presents a high potential for rotting of the floor framing and also creates a potential safety hazard for people walking on the Main Level above this area.

There are leaks present in the roof of the building. At the level of the Third Floor a portion of the ceiling has collapsed in the northwest quadrant (Photo 21). The roof framing and the floor in this area was wet. The roof leaks will eventually lead to rotting of the wood in the roof and the floors below. The potential for local collapse and loss of bracing to the perimeter masonry walls exist should the rot in the wood become advanced.

At the center of the Main Floor level, water leaks were observed coming from the area of a beam in the ceiling (Photo 13). The water leaks will lead to deterioration of the beam and could eventually cause a partial collapse of the floor structure.

Within the east extension of the building, leaks were observed in the southeast quadrant of the building (Photo 14). These leaks were running down the exterior wall and could lead to rotting of

the ends of the floor joists where they bear in pockets in the masonry wall. Decay of the ends of the joists could lead to an instability in the masonry wall.

OBSERVATIONS AND RECOMMENDATIONS

This building is presently unoccupied. It is unheated and roof leaks are present in a number of areas. The interior wall finishes have been removed at the upper west floor. Areas of the building are essentially in an abandoned state.

IMMEDIATE PRIORITIES

1. The greatest concern for public safety is the West wall on Main Street. The wall leans out toward the street. Steel plate connections tie the wall into the floor framing at the Second and Third Floors. The steel plate connections have been in place for approximately 12 years.

   The West wall appears to be stable at present. However, the condition of the single bolt connection component inside of the brick wall is not known. We recommend that the connection capacity should be established by a load test. This test should be supervised by an engineer. The capacity of the connection requires evaluation to ensure that NBCC requirements are met. We further recommend that these steel plate connections be reviewed at six month intervals. Consideration can also be given to providing a more secure connection that would bolt through the wall and have bearing plates on the exterior face of the wall.

2. There are roof leaks present in the northwest quadrant of the building. This is an area of sloped roof that will trap snow and rain. The leaks should be addressed to prevent decay of the roof and the floors below so that the structural integrity of the building is maintained. This area of the roof and the floors below provide the bracing for the West masonry wall.

3. Cracks were observed in the sandstone lintel at the south window of the Second Floor on the West elevation. Shoring should be added to support the lintel in the window opening until the lintel can be repaired or replaced.

4. We recommend that the exterior of the building should be closely reviewed for loose brick and sandstone. This operation would be carried out by a boom truck and man bucket or other similar equipment. Loose pieces of brick and mortar would be removed that could be a hazard to the public at the base of the building should they fall without warning.

ADDITIONAL STRUCTURAL ITEMS

5. The basement area is wet. The high moisture levels and the mold that is now present will lead to the decay of the Main Floor framing. Persons entering the building should be made aware of this hazard and the potential for instability in the Main Floor.

6. There are locations on the exterior of the building masonry where cracks are present in the walls. These cracks should be monitored for additional movement which in the long term can lead to instability in the walls. Bracing should be added as required.

7. Leaks are present in the southeast quadrant of the building. The leaks can lead to decay of the floor framing and a potential safety hazard for people walking on the floor. Deterioration of the connection of the framing to the walls can lead to instability of the walls.

We trust this is the information which you require at this time. If you should have any questions or require additional assistance in this matter please do not hesitate to contact us.

Yours very truly,

CAMPBELL COMEAU ENGINEERING LIMITED

Michel P. Comeau, P. Eng.

MPC/emc
11815

SKETCHES

CAMPBELL COMEAU ENGINEERING LIMITED

• STRUCTURAL • CIVIL • MARINE •

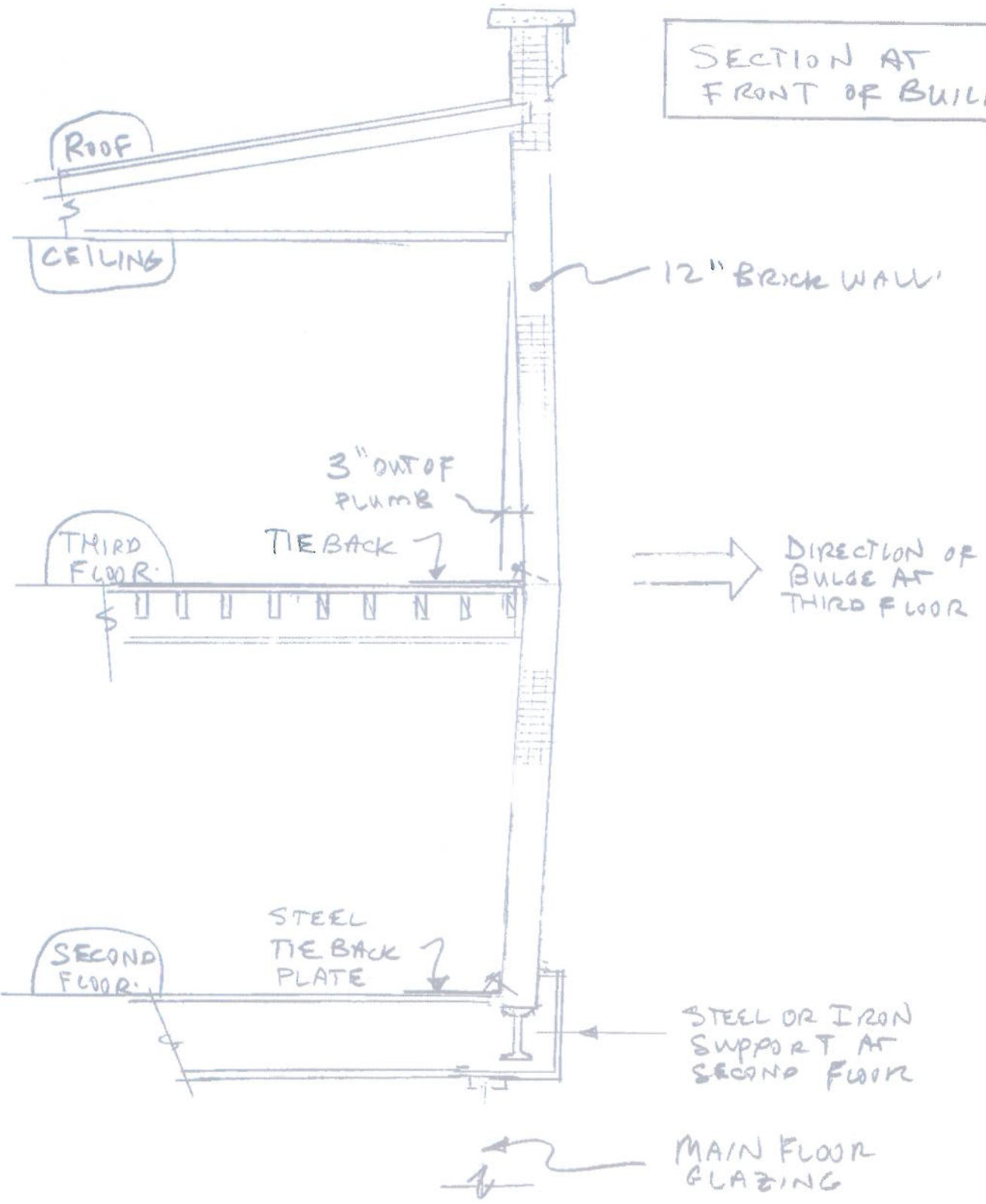
HALIFAX, NOVA SCOTIA

Project: 305 MAIN STREET

Project No: 11815 Date: 2013/02/13

By: M Sheet No: SK-1

SECTION AT FRONT OF BUILDING



SCHEMATIC SECTION

SK-1

CAMPBELL COMEAU ENGINEERING LIMITED

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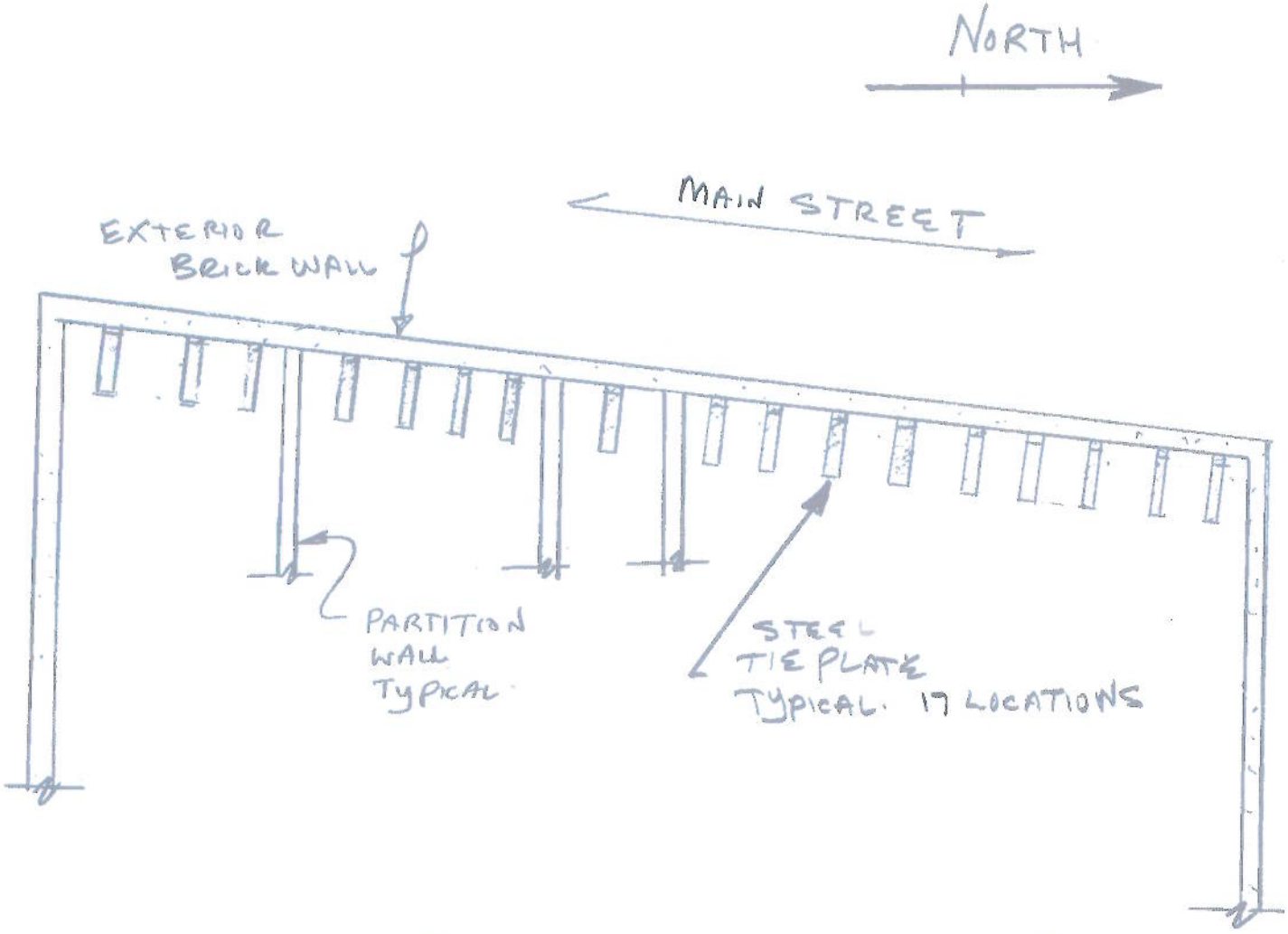
Project: 305 MAIN STREET.

Project No: 11815 Date: 2015/02/13

By: M.C. Sheet No: SK-2



PLAN – THIRD FLOOR TIE PLATES

SK-2

CAMPBELL COMEAU ENGINEERING LIMITED

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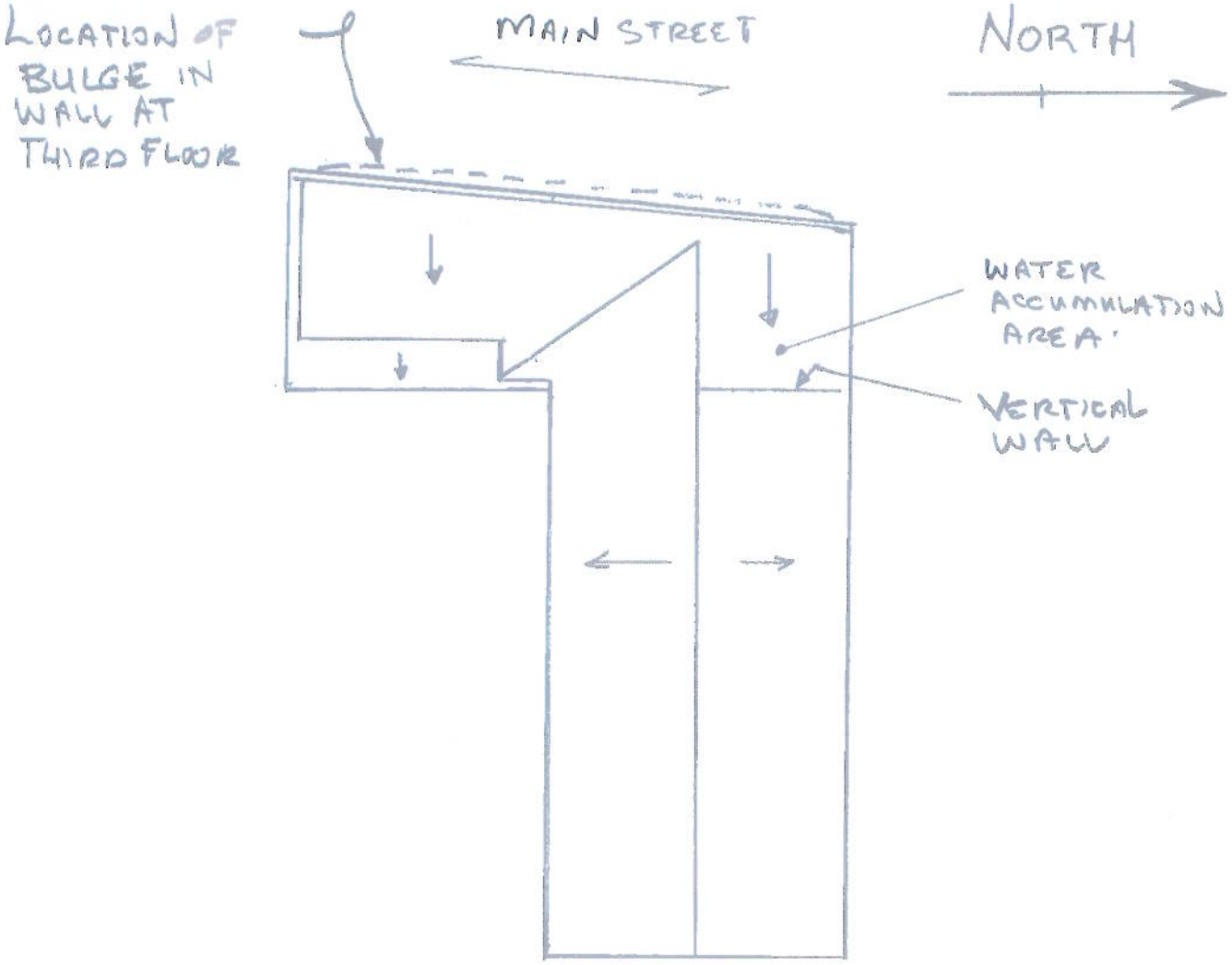
HALIFAX, NOVA SCOTIA

Project: 305 MAIN STREET

Project No: 11815 Date: 2015/02/13

By: m.c. Sheet No: SK-3



ROOF PLAN - SCHEMATIC

SK-3

PHOTOGRAPHS

Photo 1 – West Elevation (Main Street)

Photo 2 – South East Elevation

Photo 3 – North Elevation

Photo 4 – Bulge in West Wall at Level 3

Photo 5 – Bulge in West Wall at Level 3

Photo 6 – Break in Lintel – West Elevation

Photo 7 – East Elevation – Cracks in Masonry

Photo 8 – Masonry Cracks at Northeast Corner

Photo 9 – Deteriorated Brick at North Side in Area of Downspout

Photo 10 - Wet Areas in Basement

Photo 11 – Mold Growth at Underside of Main Floor

Photo 12 – Mold Growth at Underside of Main Floor

Photo 13 – Active Leak – View of Main Floor, North Half

Photo 14 – Active Leak in Southeast Quadrant

Photo 15 – Steel Tie Straps at Second Floor

Photo 16 – Separation at Ceiling of Second Floor

Photo 17 – Brick Wall Supported on Steel Beam Below, West Elevation at Second Floor

Photo 18 – View of Anchor Bolt at West Wall

Photo 19 – Steel Tie Straps at Third Floor

Photo 20 – Photo Area of Leaks at Third Floor Ceiling

Photo 21 – Area of Collapsed Ceiling and Roof Leaks at Third Floor

Photo 22 – Roof joist Bearing at Top of West Wall