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December 2, 2009
Our Ref. #09048

City of Burlington
Burlington, Ontario

Attn: Alana Mullaly, M.P1, MCIP RPP,
Heritage and Development Planner

Re: Freeman Train Station Burlington, Ontario

Dear Ms Mullaly,

Here is my initial structural report for the Freeman Train Station. We carried out an inspection of the building and the temporary steel beam and wood crib foundation support on November 27th, 2009. The attached photographs and drawings show graphically the general defective areas referred to in the report.

The building itself is in reasonable good structural condition for it's age, with two notable exceptions:—

- The sill plates under the exterior walls have rotted away.
- There are no supports under the floor joists splices.

Regarding the temporary support of the building in it's present location, I recommend the immediate installation of wood cribs in locations shown on the drawings.

The following report sets out the results of our initial inspection, together with recommended immediate repairs and repairs prior to the next move.

OVERVIEW OF BUILDING

The station building is a single storey wood framed structure with a floor area of approximately 1,500 sq. ft. The roof is a steeply pitched roof truss assembly spanning some 20'-0" clear across the floor. There is a flat ceiling about 12'-0" above the floor enclosing the roof attic space.

Cont'd.....

We understand that the building was originally located at grade level, with no basement. At the present time, the building is supported above grade level on a system of structural steel beams. The beams consist of two main beams running along the lengths of the longer walls in the east/west direction connected to a grid of several cross beams running in the north/south direction. The main beams are supported on wood cribs which bear on the ground. Also, there is one set of wheels left in place after the building had been moved from it's previous location. The wheels also provide support under the steel beams.

The grid of steel beams was inserted into the building below the floor level in order to provide a platform to support the station during the move. We understand that the building has been sitting in it's present temporary location for the past three years, pending removal to a permanent site at the lakefront, approximately 1.5 kms. away.

BUILDING STRUCTURE

The load bearing exterior walls are constructed of wood studs with wood boarding nailed to both the inside and outside faces of the studs. Fortunately, the stresses imposed on the building during moving were resisted to a large extent by the stiffness of the exterior walls. The lateral stability of the building, being only 20'-0" wide, is provided mainly by the roof trusses. However, this is somewhat of an unknown factor, since the truss connection on the walls was not visible at the time of the inspection. Again, fortunately, the floor boards consist of some four layers of wood planking and sheathing attached to the floor joists and beams. This had the effect of providing a fairly stiff floor membrane, which increased the overall lateral stiffness of the structure during the moving process.

There is severe wood rot to the bottoms of the walls around the perimeter of the structure. Most of the original wood sill plates have disintegrated and/or rotted completely away. The walls themselves appear to be in reasonably sound condition considering the exposure and neglect of the structure. The wood floor joists are also in reasonable condition, but some rot is present. The major defects related to the floor structure are missing beams to support splices along the lengths of the joists. Presumably, these beams had rotted out and disintegrated as these beams were probably bearing on the ground in the original station location.

With reference to the roof structure, the interior of the attic space was not investigated at this initial survey. However, observations along the ridge line and the slopes of the roof indicated that the ridge appeared to be straight and level and the slopes showed no signs of sagging, bowing or other indications of distress.

Cont'd.....

Apart from undulating floors, the interior of the building was in generally good structural condition. The walls are finished with tongue and grooved vertical boards nailed to the structural wood sheathing attached to the wall studs. The floor is sagging and bowing as a result of floor joist deflections due to missing beams under the joist splices. The ceiling finishes also consist of vertical tongue and grooved boarding nailed to the wood substrate. One area of floor was found to be totally missing at the west end of the building.

STEEL SUPPORT GRID UNDER BUILDING

While the steel support grid structure proved adequate for the move some three years ago, it is certainly inadequate for a future move or to remain as a stable temporary support for the building.

The attached drawings and photographs show typical support points, both the main beams supported on the ground and the cross beams supporting the building. In fact, the west end of the building requires crib foundations to the ground to hold the end of the building up. This recommendation is shown on the drawings.

Generally, the cross beams under the walls do not provide safe support to the building as the pressure points at the beams are not distributed because of the missing sill plates. In addition, wood blockings under the main beams are loose and inadequate.

CONCLUSIONS AND RECOMMENDATIONS

Immediate

- Install wood crib foundations under the unsupported ends of the west wall.
- Install wood crib foundations under ends of cantilevered steel beams at west end.
- Ensure all wood blocking from the steel beams to the building walls and joists are wedged tight. Add new blocking, as required, for secure bearings to the beam grid.

Prior to Next Move

- Install continuous 6"x6" or 8"x8" wood plates all around building at bottoms of exterior stud walls.
- Install temporary cross bracings to interior of building to provide lateral stability during the move.

Cont'd.....

- Provide additional steel beam supports under floor joist splices.
- Review design of the existing steel beam grid with the moving contractor, with particular reference to the long cantilever beams at the west end and the support of the complete west end of the structure.

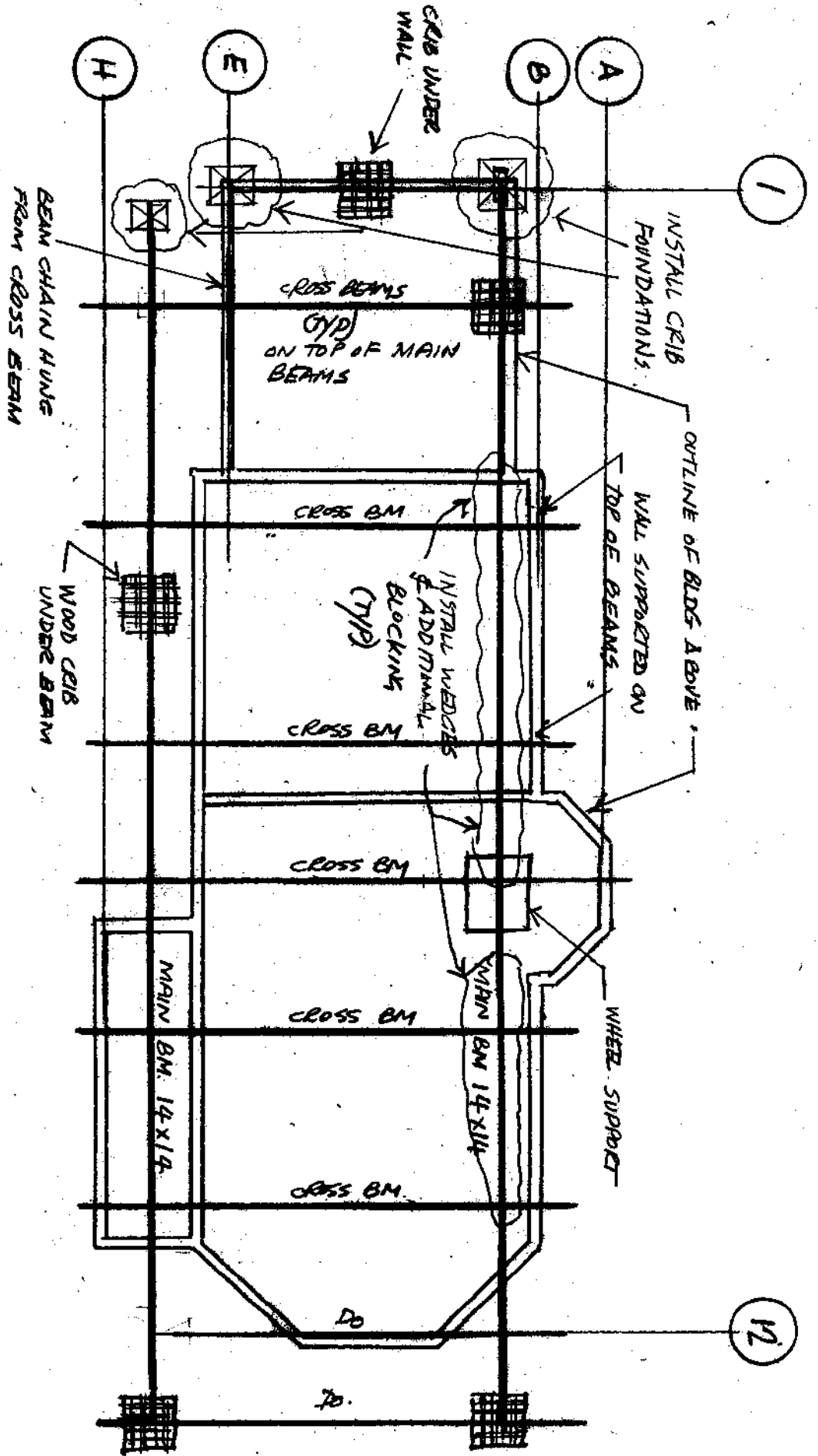
I trust the above is satisfactory. Please do not hesitate to contact me should you require further information or clarification.

Yours sincerely,



ALAN S. ZEEGEN

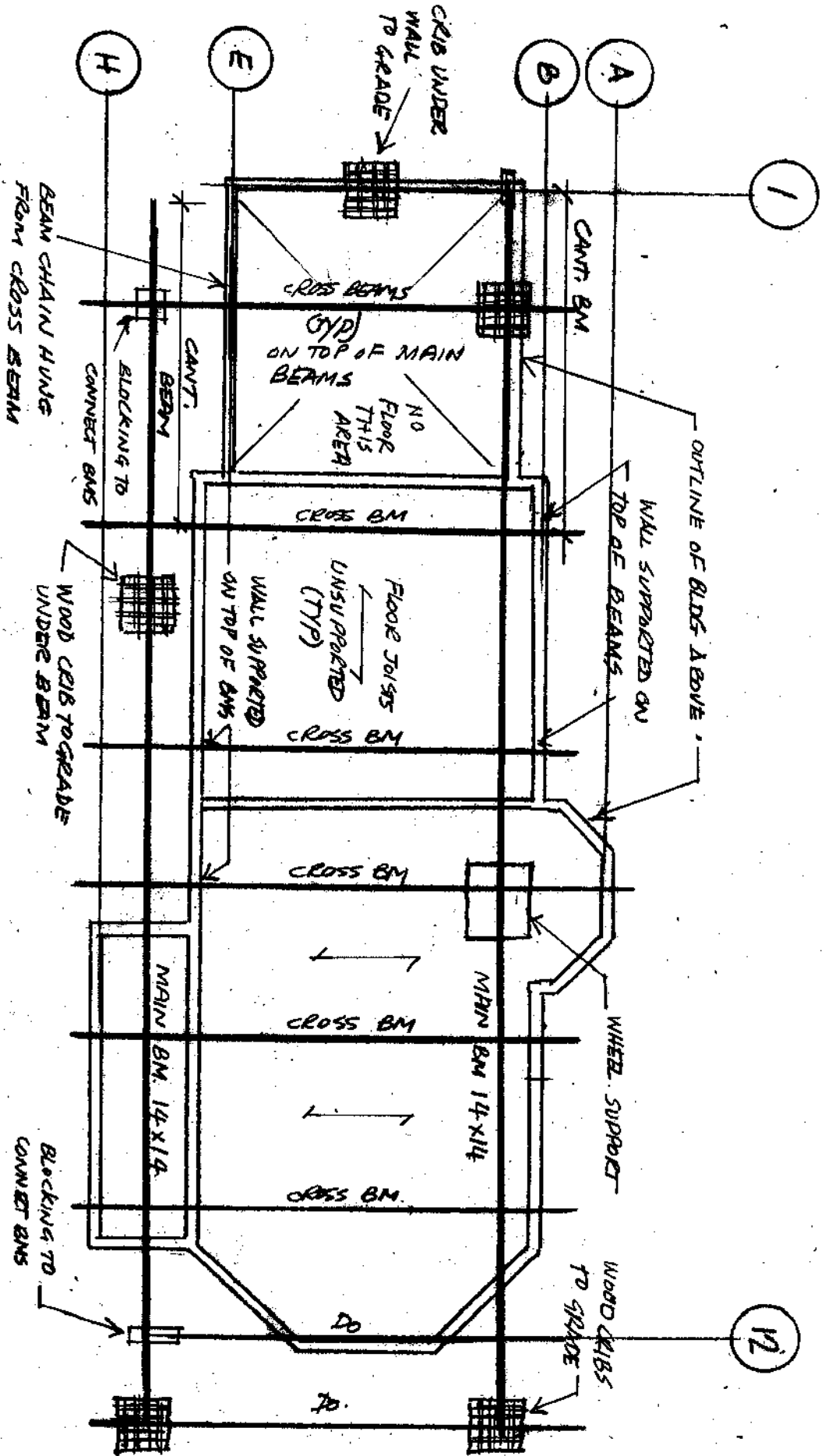




BUILDING FLOOR PLAN
SHOWING TEMP BEAM SUPPORT STRUCTURE
IMMEDIATE REPAIRS

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PREEMAN STATION, BURLINGTON
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BUILDING FLOOR PLAN
 SHOWING TEMP. BEAM SUPPORT STRUCTURE
 N.T.S.
 EXISTING CONDITIONS

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FREEMAN STATION - BURLINGTON

DEC 2 2009

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