STRUCTURAL INTEGRITY
Engineering Group, Inc.

March 16, 2015

Mr. Phillip Rosenfield
Fieldcom Realty Trust
11 Wheeling Ave.
Woburn, MA 01801

Regarding: 654 Mystic Ave., Somerville

Dear Mr. Rosenfield:

I am writing to report to you the findings of my review of the existing concrete retaining wall at the above-referenced address. On March 11, 2015 I personally visited the site; however at the time of my visit the ground was covered with snow.

The property in question is situated on a long narrow lot (187 ft. by 50 ft.) that occurs on a street corner at the bottom of Winter Hill. The 9500 square foot lot is bounded by Mystic Avenue to the North; Moreland Street to the West; 640 Mystic Avenue to the East; and by 113 Moreland Street and 48-50 Ash Avenue to the South. A building and paved parking are located on the lot, as well as a narrow landscaped area. Signifcant changes of grade and retaining walls occur at the South and West boundaries of the property.

At the South boundary of the property, an old cast-in-place concrete retaining wall exists. Which side of the property line the wall occurs on is not entirely clear. Grade is about 8 ft. higher on the neighboring property than at the Fieldcom Realty Trust property. At about 2/3 of the South side of the lot, an earthen berm has been constructed against the old retaining wall. The berm is restrained by a short segmental block wall at its bottom. This creates a narrow landscaped area .

Nearer to Moreland St., the concrete wall is exposed. Cracks are noticeable at the face of the concrete. The wall appears to have tilted slightly out of plumb. A residential dwelling occurs within 4 ft. of this wall at 113 Moreland St. Along the full length of the concrete wall there are trees growing on neighboring property immediately next to the concrete. The larger trees exceed 4" caliper and several are at least 8" caliper. A large number of 1-2" caliper trees is growing along the top of the wall., just inside the fence. In one instance, trees are growing between the nearest house and the back of the retaining wall.

The details of construction of the concrete retaining wall are not known. No plans or specifications from the original construction are available. Therefore the size and depth of foundations, as well as the amount and arrangement of steel reinforcing bars (if any), cannot be completely ascertained without excavation on neighboring property and exploratory testing of the concrete. Recent weather conditions and snow accumulation on the ground have made this a difficult task.

Documentation of recent repairs to the wall was provided to this office. In 2004, Coneco Engineeers and Scientists developed a short 2'-6" high segmental block retaining wall 13'-6" away from the original concrete wall. The purpose of this wall was to facilitate an embankment of soil against the face of the concrete wall. The embanked soil has the effect of counteracting much of the soil pressure against the original retaining wall. In addition to this, cored holes in the original wall were specified to relieve buildup of water behind it. Where this work was done, East of the building, the wall would appear to be no hazard to public safety.

In my professional experience, trees and retaining walls do not lend themselves to an easy side-by-side coexistence. The root balls of trees will tend to grow, hold moisture, and increase pressure against the wall. I regard the growth of trees behind the wall as a plausible explanation for incremental movement and cracking that has been seen by neighbors. Therefore it would be wise to cut down all the trees growing behind the original

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retaining wall as a necessary first step that will facilitate further investigation and potential repairs.

Winter Hill is known to be a drumlin, a geological feature that includes dense granular soils and sometimes bedrock. There are many such land forms in the Boston area, and most of them are heavily built up with houses. Information from the U. S. Geological Survey Boston North Quadrangle Map indicates that Winter Hill rises about 100 ft. over about a half mile from Mystic Ave. to Broadway.

Surface soil on sloping land can be subject to small creeping downhill movements over a period of time. Most retaining walls move somewhat from the plumb vertical position after a few years. For this reason, some retaining walls are designed to be "battered" or constructed at a mild slope in order to minimize the visual evidence of such movement.

Please accept my sincere thanks for choosing Structural Integrity Engineering Group, Inc. to assist you in this matter. Should you have any questions or comments about this letter, do not hesitate to contact me directly at 781-391-3022.

Very truly yours,

STRUCTURAL INTEGRITY
ENGINEERING GROUP, INC.

David P. Brosnan

David P. Brosnan, P.E.
President