Collins Consulting Engineers, Inc.

September 17, 2010

Attn: Christopher Regan
Project Manager
DC Housing Enterprises
1133 North Capitol Street, NE, Suite 147
Washington, DC 20002

Ref: Letter of Findings: Structural Inspection of Three Buildings Located at 2228, 2234 and 2238 Martin Luther King Jr. Avenue, S.E., Washington, D.C.

Dear Mr. Regan:

Per your request we have completed an inspection of the three structures referenced above. The purpose of our inspection was to identify and document structural deficiencies found in the existing buildings and to provide you recommendations on how these deficiencies can be corrected. Our inspection was limited to the exposed portions of the existing structures only. No exploratory demolition was performed, no soils analysis was performed, and the design properties of the building construction materials were not investigated. Certain areas of the existing structures were not accessible due to collapsed portions of the existing floor and roof framing.

As a result of our inspection we feel that the structural damage to buildings 2228 and 2234 is so severe that all the structural framing for the first floor, second floor, roof and porch (floor and roof), should be removed completely to make way for new construction. Large sections of the framing, as much as 40%+ (See sketches ES-1, ES-2 and ES-3, Appendix "A" and Photos, Appendix "B") from the first floor level to the roof have totally collapsed and cannot be repaired. We also believe that when all structural members are exposed as much as 50% may have to be repaired or replaced. In addition, a major amount of work will be required to repair and waterproof the existing brick walls so they can be used for the new structural framing if deemed necessary.

Building 2238 does not appear to have the same extent of structural damage as the other two structures. The porch roof and floor framing will have to be removed and replaced and the covered deck with roof at the rear of the building will have to be removed and replaced. Also, there is some fire damage to the roof structure at the rear of the building that must be repaired. The remaining structural members appear to be in fair shape. However, all structural members and connections will still have to be exposed and inspected for damage and then repaired as required. Also, a major amount of work will be required to repair and waterproof the existing brick walls so they can be used for the new structural framing if deemed necessary. Nevertheless, repair of this building may be feasible. However, before a decision is made we recommend the structural members and connections be inspected for damage as noted above to determine the total amount of work that will be required to repair the structure.

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The following discussion may be of interest to you:

The three structures have a basement level, a first floor level, a second floor level and a roof and are of similar type construction. Each structure also has a covered porch at the front entrance. The porch dimensions for each structure varies. The buildings are all ballooned framed wood structures with exterior brick foundation bearing walls. The floor framing at each level is typically 2x8 joists spaced and 16" on center and the roof framing varies for each structure. Building 2238 has interior stud bearing walls supported on beam/post framing at the first floor level. Buildings 2228 and 2234 have also have interior stud bearing walls, however these walls are supported by interior brick bearing walls as well as beam/post framing at the first floor level. Although the framing method used to construct the three structures is similar the floor layout and framing is different for each (See attached sketches ES-1, ES-2 and ES-3, Appendix "A"). The exterior walls are generally framed with wood studs spaced at 16" on center with wood shingles on the exterior face and wood lathing and plaster on the interior face. These studs bear on wood plates over the exterior brick foundation walls. The exterior face of the exterior stud wall of building 2238 is covered with a welded-wire-fabric nailed to the wood siding and then covered with two thin layers of cement.

Buildings 2228 and 2234 both have partial basements with a large crawl space area. Building 2238 has a full basement. See attached sketch ES-1, Appendix "A".

During our inspection we found a large number of structural deficiencies in each structure, some minor and some major. Therefore our approach will be to discuss the common structural deficiencies found within the three structures first and then we will discuss isolated deficiencies found in each individual structure.

Common Structural Deficiencies:

1. The mortar joints in the interior and exterior brick walls have deteriorated. As a result all the walls with little exception must be repointed on both the interior and exterior face to insure the integrity of the brick walls is maintained. Special mortar will be required for this operation due to the age of the structures. Also there are areas where these brick walls have cracked, settled or moved. These areas need to be properly repaired. In addition, the outside perimeter of the existing exterior foundation walls must be excavated to expose the brick walls so they can be properly waterproofed to prevent water infiltration into the basement and crawl space areas. As can be seen from the attached pictures (see Appendix "B") there is severe water damage to the interior face of the brick walls. Also, a new drainage system must be installed at the perimeter of each building to eliminate hydrostatic pressure against the existing brick foundation walls.

2. Due to lack of maintenance and exposure to the elements many of the structural members and their connections have been damaged – wood studs, wood planking, wood joists, wood plates, etc. The amount and severity of the damage is different throughout each structure. To correct this issue all finishes must be removed from the structural members and their connection so they can be inspected by a registered structural engineer and repaired and replaced as required. Special care should be made to inspect all areas where wood joists, wood plates and vertical

studs bear on the brick walls. Based on our observations we feel that as much as 75% of the first floor joists in structures 2228 and 2234 may have to be removed and replaced due to water rot and termite damage. For unknown reasons damage to the first floor joists in building 2238 is not as severe as the other two structures. We feel the protective cement coating attached to the face of the exterior wood siding may be the reason.

Isolated Structural Deficiencies:

A) Building 2238 (See ES-1, ES-2 and ES-3, Appendix "A" and Photos, Appendix "B")

1) The front porch is constructed of a concrete slab supported by concrete and masonry piers. The concrete is spalled due to corrosion of the rebar. To repair this small amount of concrete using industry standards is not feasible. Therefore we recommend removing the porch structure and replacing it.
2) The front porch roof framing and supporting columns are damaged and must be replaced. We feel repair is not feasible.
3) A small section of the roof area at the rear of the structure has fire damage. The structural members in this area have to be replaced.
4) The second floor deck and roof at the rear of the building have severe fire damage as well as water and termite damage. The deck and roof framing must be removed and replaced.

B) Building 2234 (See ES-1, ES-2 and ES-3, Appendix "A" and Photos, Appendix "B")

1) The front porch has collapsed and is not repairable. It must be removed and replaced.
2) The condition of the front porch roof framing is unknown and needs further investigation. However, the supporting columns have failed and must be replaced.
3) The first floor framing over the full basement area (not the crawl space) has completely collapsed and must be replaced. This is about 35% of the first floor framing.
4) The second floor and roof framing at the rear of the structure has collapsed and must be replaced. This will also be about 35% of the second floor and roof framing.

C) Building 2228 (See ES-1, ES-2 and ES-3, Appendix "A" and Photos, Appendix "B")

1) The front porch has collapsed and is not repairable. It must be removed and replaced.
2) The front porch roof framing and supporting wood posts have collapsed and are not repairable. They must be removed and replaced.
3) Over 40% of the first floor framing over the full basement area has collapsed and must be replaced. In addition, the remaining first floor framing over the full basement area is severely damaged and will likely have to be replaced in its entirety also.
4) A large portion of the second floor and roof framing at the rear of the structure has collapsed and must be replaced. This area is about 25% of the total second floor and roof area.

5) There is a small section of roof framing and stud wall framing at the front of the structure that has been severely damaged due to exposure to the elements and termites. This area must be repaired by replacing the structural framing.

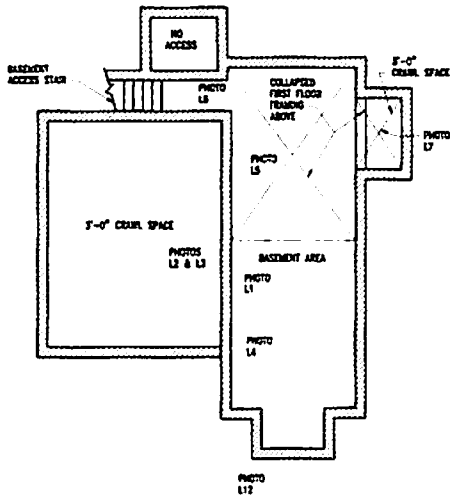
We trust the information provided in this letter of findings will be sufficient for your needs. Should you have any questions or need further assistance, please do not hesitate to contact us. We appreciate the opportunity to work on this project and look forward to working you in the future.

Sincerely,

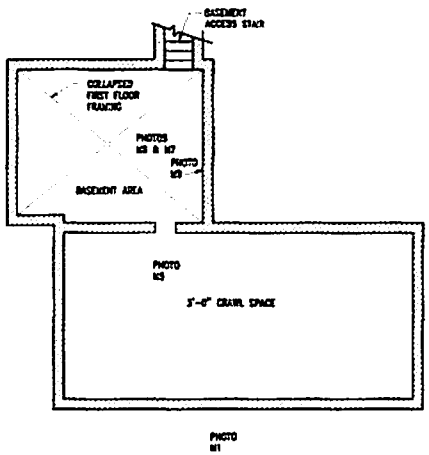
Eugene J. Collins, P.E.

APPENDIX "A"

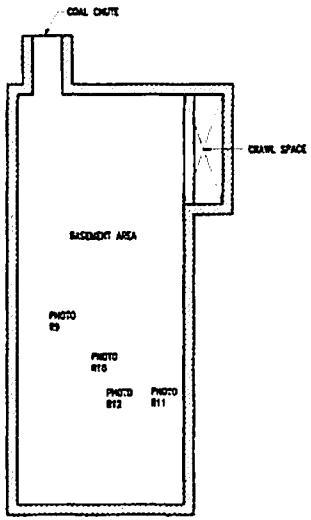
Sketches R1-R3



EXISTING BASEMENT FLOOR PLAN–2228 BUILDING



EXISTING BASEMENT FLOOR PLAN–2234 BUILDING



EXISTING BASEMENT FLOOR PLAN–2238 BUILDING

SCHEMATIC BASEMENT FLOOR LAYOUT FOR BUILDINGS LOCATED AT 2228, 2234 AND 2238 MARTIN LUTHER KING BOULVARD, WASHINGTON, D.C.

TYPICAL STRUCTURAL RECOMMENDATIONS FOR REPAIR WORK IF EXISTING STRUCTURE IS TO REMAIN:

1. ALL BRICKWORK MUST BE REPOINTED ON INTERIOR AND INTERIOR FACE. ALCO WALL WILL HAVE TO BE PATCHED AND REPAIRED WHERE NECESSARY.
2. THE PERIMETER AROUND ALL BASEMENT WALLS SHALL BE EXCAVATED TO INSTALL PROPER WATERPROOFING ON THE EXTERIOR FACE OF THE EXISTING BRICK WALLS TO PREVENT WATER INFILTRATION AND DAMAGE TO THE WALLS. IN ADDITION A NEW DRAINAGE SYSTEM MUST BE INSTALLED TO ELIMINATE HYDROSTATIC PRESSURE ON THE WALLS.
3. REPAIR MORTAR FOR THE EXISTING BRICK WALLS MUST BE COMPATIBLE WITH EXISTING MORTAR AND BRICK.
4. ALL FINISHES MUST BE REMOVED FROM ALL STRUCTURAL MEMBERS AND CONNECTIONS TO EXPOSE EACH FOR INSPECTION. ALL STRUCTURAL MEMBERS AND CONNECTIONS SHALL BE INSPECTED BY A REGISTERED STRUCTURAL ENGINEER FOR DAMAGE AND REPAIRED/REPLACED AS REQUIRED.
5. WE RECOMMEND A SET OF DEMOLITION AND CONSTRUCTION DOCUMENTS BE PREPARED BY A REGISTERED STRUCTURAL ENGINEER FOR THE INSPECTION AND REPAIR.
6. WOOD SIDING SHALL BE REMOVED TO INSTALL NEW WOOD SHEATHING.
7. COLLAPSED AREAS AND OTHER AREAS OF THE STRUCTURE NOT DEEMED FEASIBLE FOR REPAIR SHALL BE COMPLETELY REMOVED FOR NEW CONSTRUCTION.
8. A NEW ROOFING SYSTEM WILL BE REQUIRED FOR ALL BUILDINGS.

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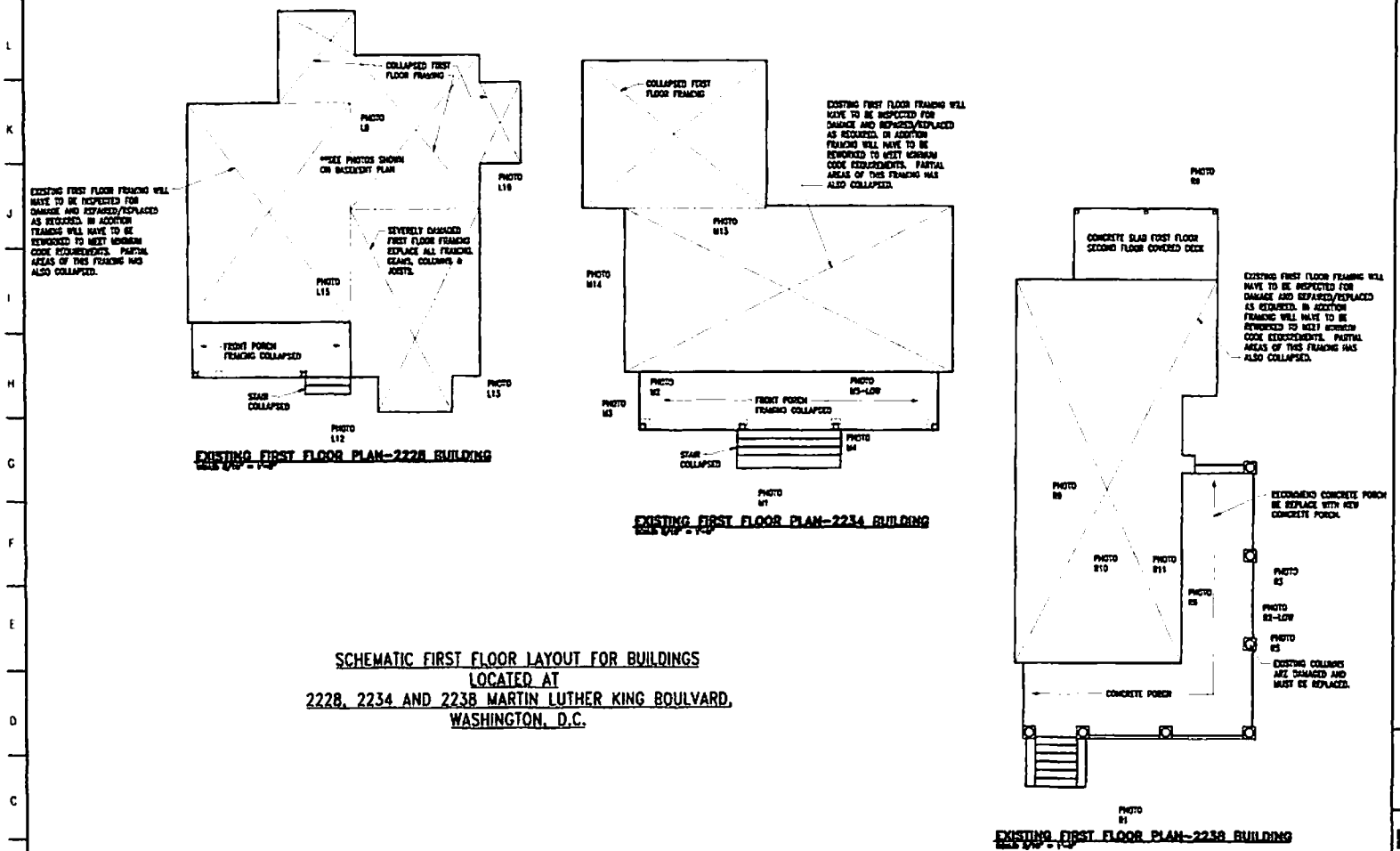
ES-1



SCHEMATIC FIRST FLOOR LAYOUT FOR BUILDINGS
LOCATED AT
2228, 2234 AND 2238 MARTIN LUTHER KING BOULVARD,
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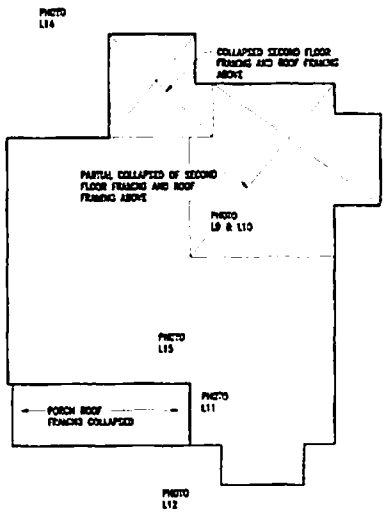
ES-2



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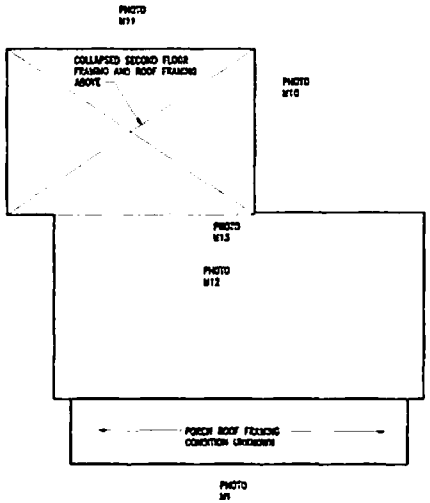
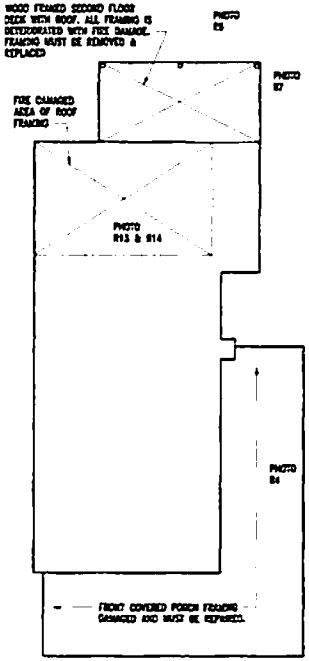


EXISTING SECOND FLOOR PLAN–2234 BUILDING



EXISTING SECOND FLOOR PLAN–2238 BUILDING

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ES-3

APPENDIX "B"

Photos

Photo R1 Structure #2238 - Front View of Building #2238

Photo R2 Structure #2238 - Concrete and Masonry Support Piers at Interior Face of Concrete Porch. Brick Needs Repointing in Many Areas

Photo R3 Structure #2238 - Shows Spalled Exterior Edge of Concrete Porch with Corroded Reinforcing Steel

Photo R4 Structure #2238 - Shows Damage Porch Roof Framing

Photo R5 Structure #2238 - Base of Wood Porch Post Deteriorated- In Addition There is No Connection of the Column to the Pier

Photo R6 Structure #2238 - Rear Covered Porch - Corner Post Missing

Photo R7 Structure #2238 - Second Floor Framing of Exteriior Deck. Deteriorated with Fire Damage.

Photo R8 Structure #2238 - Typical Wall Covering - Wire Fabric Nailed to Wood Shingles Then Covered with Two Thin Layers of Cement.

Photo R9 Structure #2238 - First Floor Framing Around Stair Opening - Deflected and Failing.

Photo R10 Structure #2238 - Post, Beam, Joist First Floor Framing

Photo R11 Structure #2238 - End Bearing of Existing First Floor Joists. Shows Deteriorated Wall Studs, Wood Plate and Joists

Photo R12 Structure #2238 - Collapsed Post Between Basement and First Floor Framing - Base of Post Deteriorated - Typical Condition For All Basement Wood Posts

Photo R13 Structure #2238 - Fire Damage At Roof Level at Rear of Building

Photo R14 Structure #2238 - Fire Damage At Roof Level at Rear of Building

Photo M1 Structure #2234 - Front of Building #2234

Photo M2 Structure #2234 - Typical Wall Framing of Building #2234

Photo M3 Structure #2234 - Collapsed Porch

Photo M4 Structure #2234 - Failed Porch Post

Photo M5 Structure #2234 - Deteriorate Exterior Face of Existing Brick Wall Below Porch

Photo M6 Structure #2234 - Collapsed First Floor Framing

Photo M7 Structure #2234 - Collapsed First Floor Framing

Photo M8 Structure #2234 - First Floor Framing Over Crawl Space - Post Used to Help Support Existing First Floor Josits

Photo M9 Structure #2234 - Damaged Wood Plate, Studs, Planking and Joists at Exteior Brick Bearing Wall

Photo M10 Structure #2234 - Collapsed Second Floor and Roof Framing at Rear of Building

Photo M11 Structure #2234 - Exterior Wall of Collapsed Second Floor and Roof Framing at Rear of Building

Photo M12 Structure #2234 - Interior Fire Damage to Ceiling and Roof Framing at Rear of Building

Photo M13 Structure #2234 - Collapsed Second Floor Framing

Photo M14 Structure #2234 - Rusted Nail Connection Wood Shingles to Exterior Stud Walls

Photo L1 Structure #2228 - Access Opening to Crawl Space

Photo L2 Structure #2228 - First Floor Framing Above Crawl Space- Shows Deflected Beams and Deteriorated Brick Piers and Brick Walls Beyond

Photo L3 Structure #2228 - Shows Water Damage to First Floor Planking Above Crawl Space

Photo L4 Structure #2228 - Shows Typical Deteriorate Wood Plates, Joists, Planking and Studs at Exterior Walls in Basement Area

Photo L5 Structure #2228 - Shows Collapsed First Floor Framing

Photo L6 Structure #2228 - Shows Collapsed First Floor Framing at Access Stair in Basement

Photo L7 Structure #2228 - Shows Collapsed First Floor Framing Above Crawl Space

Photo L8 Structure #2228 - Shows Collapsed Second Floor Framing and Collapsed Exterior Bearing Walls

Photo L9 Structure #2228 - Shows Collapse of Second Floor Framing and Roof Framing Above

Photo L10 Structure #2228 - Shows Collapse of Roof Framing Above

Photo L11 Structure #2228 - Shows Collapse and Deteriorated Roof Framing

Photo L12 Structure #2228 - Front of Building #2228

Photo L13 Structure #2228 - Collapsed Exterior Brick Wall

Photo L14 Structure #2228 - Collapsed Portions of Roof and Second Floor Framing at Rear of Building

Photo L15 Structure #2228 - Deterioration of Interior Bearing Stud Wall Between First and Second Floor

Photo L-16 Structure #2228 - Deteriorated Exterior Studs and Wood Shingles, Termite and Water Damage