

Austin 11/15/17

To: Gahl Shalev

Re: Existing Residential Foundations and Superstructure Assessment

1414 E 3rd St., Austin, TX 78702 (Units 6A and 6B)

INTRODUCTION

I have inspected the existing structure at the above referenced address on behalf of *Gahl Shalev*. The inspection was part of a Level B investigation of the foundation structure. The investigation was triggered by concerns about ongoing foundation issues and overall framing issues and to determine the extent of structural repairs needed to retrofit the structure to current building codes. According to the Texas Section of the American Society of Civil Engineers (Guidelines for the Evaluation and Repair of Residential Foundations, 2009), a Level B investigation consists of:

- Interview with homeowner/homeowner's representative or developer to inquire about possible distress signs around the building and the history of the property;
- Visual inspections on the Interior and exterior of the property to search for any visible signs of excessive foundation movement.
- Request from the client and review the provided documents regarding the foundation, such as construction drawings, geotechnical reports, previous testing and inspection reports, and previous repair information.
- Floor levelness: Relative floor elevations were taken to assess flatness of floor structure.
- Make visual observations during a physical walk-through
- Observe factors influencing the performance of the foundation.

The property is located in Austin, Travis County (Figure A). At the time of preparation of this report, there are no engineering or architectural plans available for review. Additionally, there is no known history of foundation stabilization or retrofitting (e.g. pier stabilization) for this house. Per developer comments, the intent for this property is to re-use the existing structure as part of a new, two-story, single family residence.

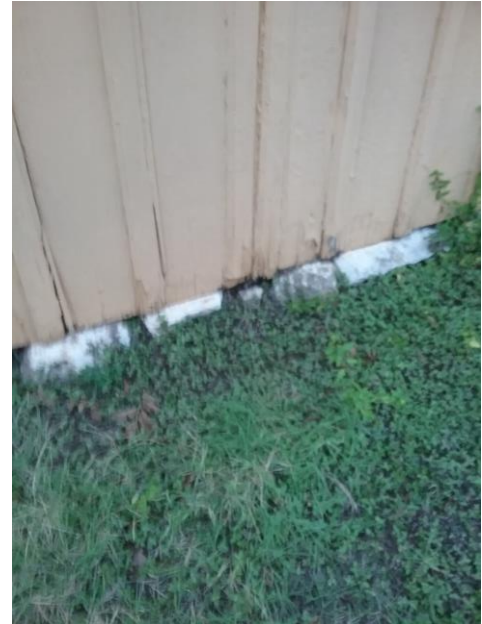
PROPERTY DESCRIPTION: 6A

Available records indicate that both structures inspected (6A and 6B, ref. Figure B) were built in the 1930's. The foundation on the unit 6A is in very poor condition. On the main part of the house it appears to be creosote treated sill plates literally sitting on fragmented rocks. There is clearly *no structural integrity* throughout the entire foundation. At the rear left there is a small addition that was built on a slab on grade foundation. The depth of grade beams is unknown. Pictures 1a through 1c show the portions of the foundation.

Figure 1 shows that the perimeter wall sits (continuously) on rock fragments. There is no proper attachment (anchorage) to a reliable foundation, indicating that this structure is *highly susceptible to collapse due to typical residential loads*. The fact that the structure is still standing after several decades cannot be taken as evidence of proper design & construction.

Apparently all the interior and exterior walls are wood framed. The walls appear in very bad shape, with several cracks all over the house. The subfloor is getting *spongy* and soft throughout, which may indicate insufficient subfloor thickness or termite/water damage.

Roof structure appears to have 2x4 rafters at 24" o.c., with 1x plank roof decking. There is very noticeable deflection in the roof structure (Figure 2).



fragmented rock "footings".



**Figure 1c: Exterior "foundation":
slab on grade.**



**Figure 1b: Exterior "foundation":
fragmented rock "footings" at slab on
grade foundation.**

INSPECTION FINDINGS

During my visual assessment, the following items were observed. Photographic evidence is also presented.

- *Excessive number of wide stair-stepped cracks in interior and exterior walls. There is no doubt about the inadequacy of this foundation.*



Figure 2: Roof deflection

Figure 3: Cracks in walls and ceiling



- Noticeable deflection of roof elements, possible due to undersized rafters (2x4's @24" o.c), Figure 2.
- Surface drainage appears inadequate in some sections around the property (Figure 4). Proper surface drainage (typically 5% or 6 inches per 10ft of positive drainage) will prevent water accumulation against the foundation structure, aggravating swelling of clays and consequent heaving.
- Proximity of the house to large trees. The presence of trees near the foundation will change moisture content of the clay soils underneath the foundation and may cause damage to the structure.
- Interior Floor elevations indicate that the floor is approximately 5" out of level. This indicates a high degree of foundation shifting/settlement. Most variations in elevation measurements inside particular rooms are equal or over 2", pointing to excessive movement.
- Inadequate floor system. Like stated previously, the main house floor structure consists of threatened sill plates sitting on grade. This guarantees an unlevel floor, moisture and insulation problems (Figure 5).

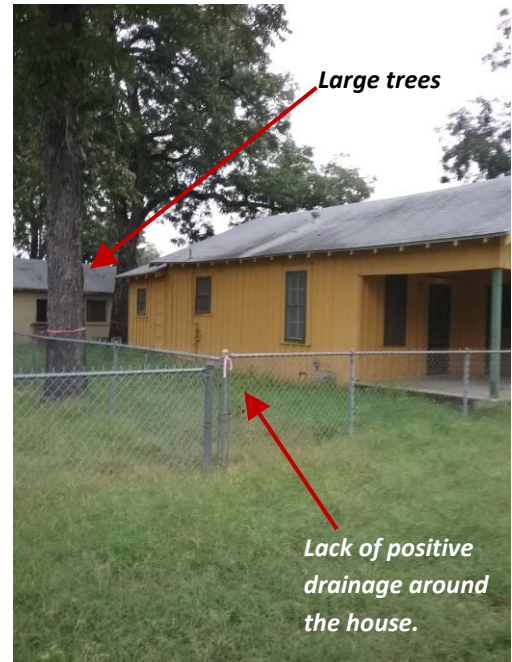


Figure 4: Site Drainage & large trees



Wide separations between floor structure and wall. Very unlevel floor (elevation differences approx. 5")

Figure 5: Floor structure

PROPERTY DESCRIPTION: 6B

The second structure is a single story residential structure. The main house is apparently supported by concrete *flatwork* (*Figure 6*). All interior and exterior walls are made of Concrete masonry units (CMU). These walls are very heavy in comparison to conventionally framed walls. No CMU lintels were used over door or window openings and there is noticeable failure at most openings.

Roof structure appears to have 2x4 rafters at 24" o.c., with 1x plank roof decking. There is very noticeable deflection in the roof structure.

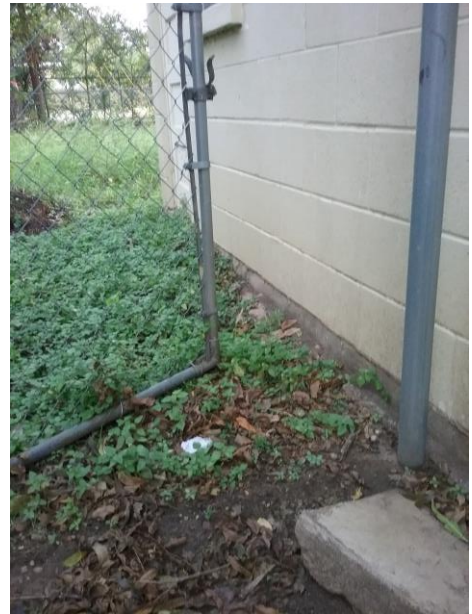


Figure 6: Exterior foundation: flatwork

INSPECTION FINDINGS

During my visual assessment, the following items were observed. Photographic evidence is also presented.

- *Excessive number of wide stair-stepped cracks in interior and exterior walls (Figure 7). These cracks are common and reliable indicators of excessive foundation movement.*



Figure 7. Wide stair stepped cracks at CMU walls

- Noticeable deflection of roof elements, possible due to undersized rafters (2x4's @24" o.c), Figure 2.
- Surface drainage appears inadequate in some sections around the property.
- Proximity of the house to large trees. The presence of trees near the foundation will change moisture content of the clay soils underneath the foundation and may cause damage to the structure.
- Interior Floor elevations indicate that the floor is approximately 2.5" out of level. This indicates a high degree of foundation shifting/settlement. Most variations in elevation measurements inside particular rooms are equal or over 2", pointing to excessive movement.

CONCLUSIONS AND RECOMMENDATIONS

UNIT 6A

In view of all the observations outlined previously, it is my professional opinion that this structure is currently unsafe and shall be demolished. No retrofit strategy can fix the ongoing issues without total tear-down and reconstruction.

UNIT 6B

Based on visual observation, the numerous signs of structural distress throughout the building are evidence of serious underlying structural problems related to deficient design (or lack thereof) and construction. The extent and nature of the distress will not allow for the strengthening/retrofitting without extensive damage to and/or demolition of portions of the current. The existing foundation type (concrete flatwork with unknown reinforcement) and wall construction (CMU) will not allow a proper retrofitting strategy (e.g., drilled piers) without *permanently compromising* the structural integrity of the entire building.

With respect to the economic feasibility of this project, it is anticipated that the total cost of demolition, retrofit and renovation of the existing structure will exceed the cost of a new, "up to Code", construction. This conclusion is based on my experience with similar buildings and new residential construction.

Limitations

This is exclusively a visual inspection. This report is not intended to offer any warranty on the future performance of this foundation or framing structure. If you have any questions, please contact us at (512) 215-4364 or by e-mail: marcos@sectexas.com.

Sincerely,



Marcos V. Dequeiroga, PE
Principal
SEC Solutions LLC

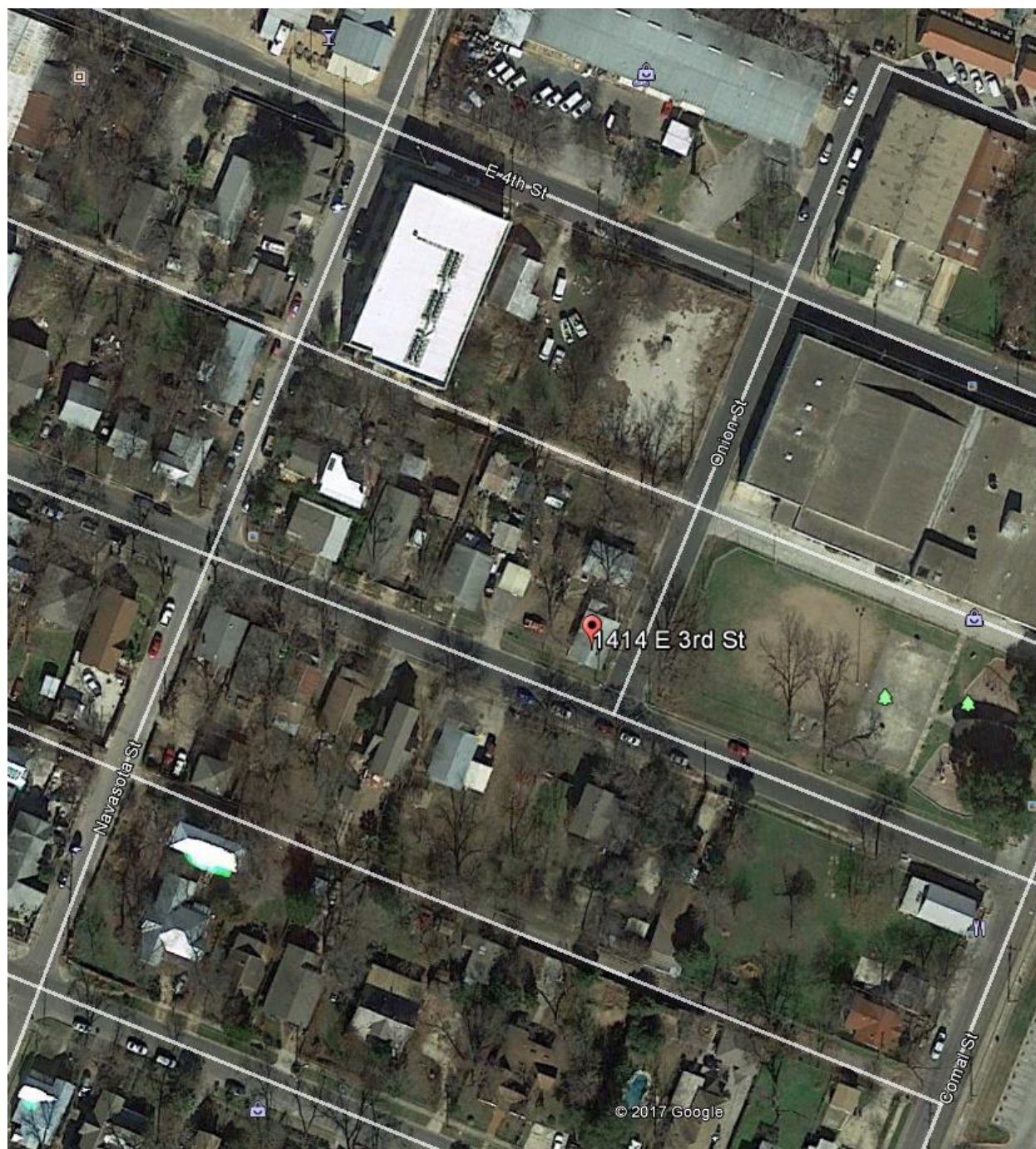


Figure A: Site Location Map.

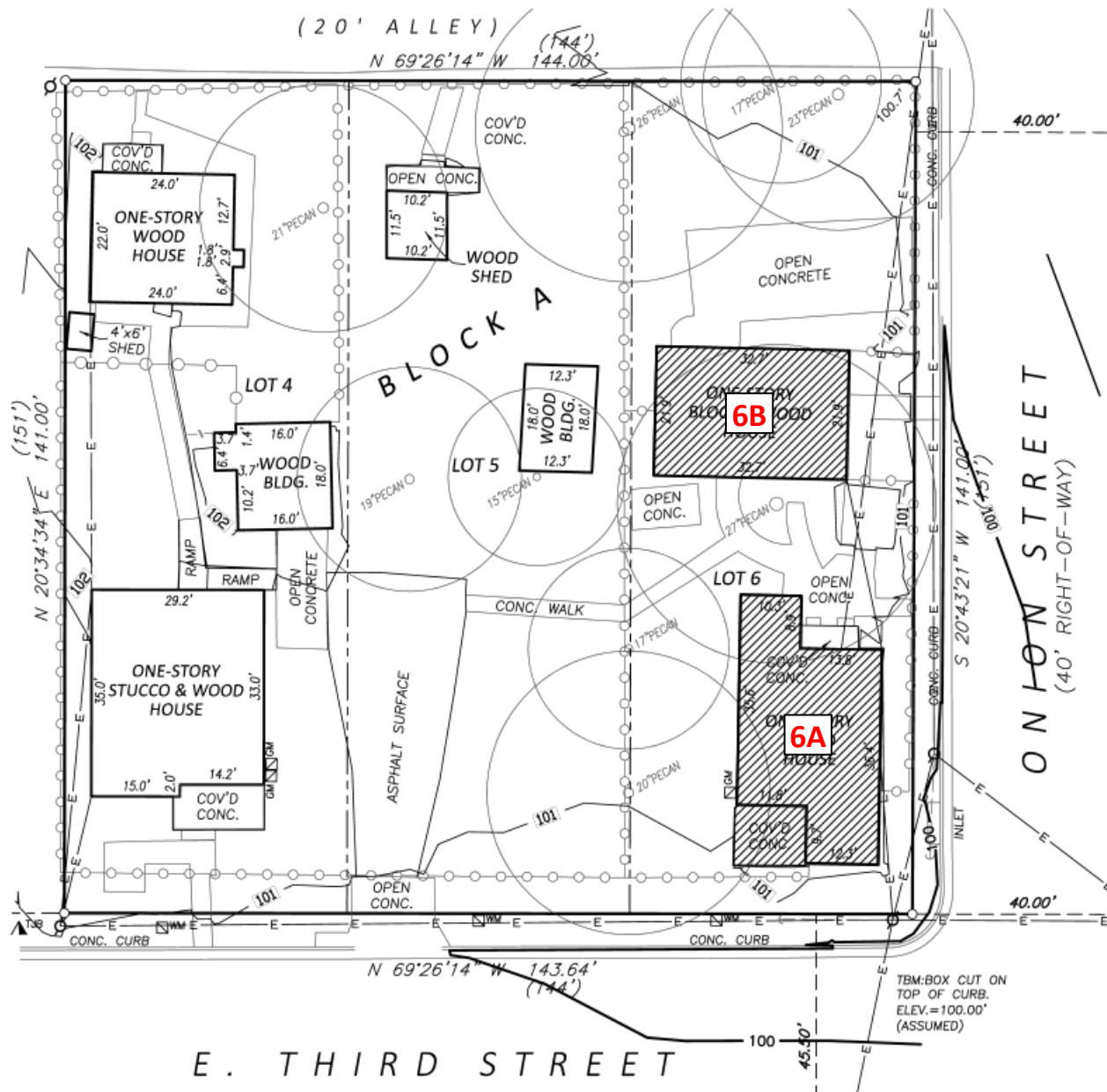


Figure B: Building Location.