PROFESSIONAL
ENGINEERING
INSPECTIONS
713.664.1264
Registered Engineering Firm #1503

January 1, 2026

Mr. John Doe
1234 Some House Ln.
Herein, Texas 12345

Dear Mr. Doe:

Re: 1234 Some House Ln., Herein, Texas

As requested, we are pleased to send you the attached report for the foundation inspection performed on the above property. We understand the reason for the inspection to be pursuant to a prepurchase contract for the property. This property may have many positive qualities, but this report generally includes comments that relate to defects or irregularities.

As pointed out in the stated purpose of the report, all of the comments and observations are strictly my opinions, and they may not necessarily agree with other professionals.

If the building is to be left unoccupied for an extended period of time, provision should be made to have the yard watered frequently during dry periods.

This report concludes all obligations related to inspection work provided for the above property for the fee paid. Thank you for asking PROFESSIONAL ENGINEERING INSPECTIONS, INC. to perform this inspection work. If you have further questions, please feel free to call on us.

Sincerely yours,

Edward Robinson, P.E.
President

EGR/nr
Attachments

PROFESSIONAL ENGINEERING INSPECTIONS, INC.
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FOUNDATION INSPECTION REPORT
Mr. John Doe
1234 Some House Ln.
Herein, Texas
January 1, 2026

The report is divided into three sections: an introductory section, an opinion section, and a recommendations section. The introductory section defines the property inspected, the purpose of the inspection, and the scope. The opinion section is intended to provide an opinion of the foundation performance along with observations and/or considerations related to the foundation's performance, which provide a basis for the stated opinion. The recommendations section is intended to provide recommendations to aid in maintaining the building's foundation.

I. INTRODUCTION

A. Property Description

The property inspected is a house, having wood framing, brick veneer and fiber cement siding, a composition shingle roof, and post-tensioned cable reinforced concrete slab on grade foundation. We understand the age of the structure to be 10 years.

B. Purpose

This inspection was to evaluate the condition of the foundation in order to provide information related to its condition and provide an opinion as to whether or not it is in need of repair. The data obtained and included in this report will provide insight into the overall condition of the foundation and information that will assist in maintaining it in the best possible condition during future years. Some of the comments contained in the observations portion of this report are related to need for preventative maintenance and may not indicate need for immediate repair.

C. Scope

The scope of this inspection included visual observations of only those portions of the foundation and structural components readily visible without moving or removing items causing visual obstruction. Observations were made at the exterior and interior of the structure, and the attic was viewed from the readily accessible interior. Measurements were made to evaluate foundation performance to determine general levelness using a handheld spirit level and elevation measurements at the foundation surface using a ZipLevel with estimated corrections to account for floor coverings. A sketch of the first floor with elevations is included in this report. This information is provided for the use of the person to whom this report is addressed and is in no way intended to be used by a third party, who may have different requirements.

No special testing was performed to determine if leaks existed in the plumbing system below this building's foundation. Below the foundation plumbing leaks

which were not detectable as part of a cursory inspection have been attributed to differential movement in the foundation of some buildings in the past. In some cases, the effects of plumbing leaks below a foundation can result in a need for repair of the foundation. If it is determined by the client that they wish to have the plumbing systems tested, then testing should be performed by a qualified plumber who can provide cost estimates for repair if it is found to be necessary.

II. FOUNDATION DATA

A. FOUNDATION OPINION

There is evidence that the foundation of this building has experienced differential settlement that is considered much more than normal. In accordance with the stated purpose of this inspection, it is my opinion that the foundation is in need of immediate repair at this time. Due to its abnormal condition, I recommend that you consult with qualified foundation repair contractors to determine the extent and cost of repairs required.

Differential movement of building foundations is a common problem in this area because of the highly expansive clay soil and changing weather conditions. As a building resting on the highly expansive soil ages, it is probable the foundation will continue to experience differential movement, regardless of how well it was constructed or its present condition. Most buildings, with average owner foundation maintenance, may require foundation repair in a period of 35 to 40 years. If the building is to be left unoccupied for an extended period of time, provision should be made to have the yard watered frequently during dry periods. Constant care and/or maintenance is necessary to maintain movement to a minimum. See the attached Foundation Care Information for recommendations.

B. OBSERVATIONS

The following observations are indicative of the conditions considered or existing at the time of the inspection and should not be considered a total list of irregularities but a representative list of items considered.

1. Drainage at the perimeter of the foundation, which can have an effect on the rate of differential movement in a building foundation, was generally good around the foundation of this building. The grading of the soil should be maintained so that water does not stand or run alongside the foundation during or immediately after rains. The recommendations contained in the attached Foundation Care Information should be implemented to maintain the rate of differential movement to a minimum.

2. Sheetrock cracks above doors, windows, and in the ceiling, usually associated with differential movement in a building foundation, were slightly more than normal in number and/or degree. The more significant cracks were observed in the following locations: in the foyer at the entry door; in the living room at the north window; in the dining room at the north window; at the northwest bedroom at the entry to the room, at the closet door, and at the window; and at the northeast bedroom at the closet door and window.

3. There was evidence of shearing between wall and ceiling or between adjacent walls, as indicated by rippling of the sheetrock paper along the corner joints, which is caused by relative movement between the adjacent surfaces. The evidence of shearing was observed at the north bedrooms.

4. The floors inside the building were determined to slope at the north at the north bedrooms. This slope is believed to be related to differential movement of the building foundation.

5. Some cracks were observed in the exterior brick veneer. The degree was more than normal for structures in this age group. Locations included: at the east wall of the northeast bedroom, at the windows of the northeast bedroom, at the window of the northwest bedroom, and at the entry porch.

6. Cracks were observed in the foundation concrete. These cracks were hairline in size with little, if any, serious detrimental effect on the function of the foundation at this time. Locations included at the north exterior of the building at the dining room.

7. The corner was chipped off the concrete grade beam of the foundation at the northwest corner of the building and at the northeast corner of the dining room, which is usually caused by differential movement that has caused shearing between the brick veneer and the concrete grade beam. The chipped corner(s) indicate differential movement but do not affect the performance of the foundation.

8. Separations or differential movement of materials were observed. The degree of separation observed was more than normal. The locations included between: the brick veneer and the window frames, the brick veneer and the fiber cement, the ends of the frieze molding at the corners of the building, the expansion joints in the siding, the window frames and the sheetrock casings, the joints at the corners of door and window facings, and the wood door facing and the brick veneer at the overhead garage door.

9. The brick mortar line could be observed to curve down at the north end of the east wall of the building, which is usually an indication of differential movement in the building foundation. Bricks are laid with a tight string or transit to obtain straight horizontal mortar lines.

10. There were cracks in the ceramic tile in the floor at the hall bathroom that are indicative of differential movement in the building foundation.

11. Doors which would not latch due to misalignment of striker plate and locking mechanism were observed, including: at the northwest bedroom closet.

12. Doors with tapered gaps between the door and door casing at the top, indicating differential movement in the foundation of the building, were observed, including at the northeast bedroom closet.

13. The separations between the planks of the hardwood floor are indicative of differential movement in the building foundation. The bending of the concrete slab or wood deck on which the floor rests is causing the floor to be stretched across a larger area than that on which the floor was originally installed.

14. The most significant area of differential settlement was determined to be at the northeast side of the foundation at the north side of the building at the north bedrooms. The evidence and/or consequences of differential movement pointed out in the report lead to this conclusion.

15. Soaker hoses had been placed too close to the building's foundation and should be relocated 1-2 feet away from the foundation. It is desirable for the water to be added such that it soaks through the soil to the foundation causing the soil to expand and support the foundation rather than creating a potential for erosion along the edge of the foundation grade beam, which can result in permanent differential settlement.

16. The small oak tree in the front yard adjacent to the area of the bedrooms may be contributing to drying of the soil under the front portion of the building causing differential settlement. It is understood that one or more trees had also been removed from this area which were large in size, which may also have contributed. Consideration should be given to eliminating the trees or installing root barriers to allow water to be added to hydrate the soil, which can improve foundation performance in some cases.

17. It was observed that some separation is occurring between the soil and the foundation of the building. This would indicate that the soil is becoming dry and shrinking, which can have a detrimental effect on the performance of the building foundation. Because of the indicated dryness of the soil around the building, soaker hoses should be used around the entire perimeter of the building, which will cause the soil to expand. Any delay in applying water to the soil around the perimeter of the building can result in additional sheetrock cracks and other evidence and consequences of foundation movement.

18. An analysis of the elevations made at the foundation at the time of this inspection indicates that deflection in the foundation exceeds the guideline for deflection of L/360 provided in the Guidelines for the Evaluation and Repair of Residential Foundations issued by the American Society of Civil Engineers for evaluating the performance of residential foundations, where L is the span across the foundation in inches. When deflection is found to exceed these criteria, consideration is normally given to implementing repair to improve levelness of the foundation. Elevation profiles are included with elevation data at the end of this report. Elevations were made using a Zip Level.

19. An analysis of the elevations made at the foundation at the time of this inspection indicates that tilt in the foundation does not exceed the guideline for maximum tilt of 1% provided in the Guidelines for the

Evaluation and Repair of Residential Foundations issued by the American Society of Civil Engineers for evaluating the performance of residential foundations. Elevation profiles are included with elevation data at the end of this report. Elevations were made using a Zip Level.

III. RECOMMENDATIONS

The following recommendations are not to be considered a specific design, but guidelines related to releveling and maintaining the foundation. Specific design of a system for foundation releveling and soil grading after repair has been completed should be obtained from companies with professional expertise in their respective fields. These professionals should be familiar with the requirements for re-leveling and drainage requirements of buildings resting on the highly expansive clay soil in this area.

A. As with any foundation, if not properly maintained, the evidence and consequences of differential movement can continue to appear even if repairs have been made to stabilize and return the foundation to a normal condition of levelness. The suggestions and recommendations of the enclosed Foundation Care Information should be implemented as soon as practical after releveling has been completed.

B. If foundation repairs are to be accomplished, the contractor should install drilled footing type piers with bell bottom footings resting on solid clay or press pile type footings to a minimum depth of 12 feet. Drilled footings are preferred but are not used by many repair contractors. Many local municipalities will inspect foundations releveled inside their city limits. If repairs are not designed by an engineering contractor based upon soils data, city code requirements should be followed as a minimum guide.

C. Because of the indicated dryness of the soil around the building, soaker hoses should be used around the entire perimeter of the building so that water can be added to the soil and perhaps soaked to the underside of the building. Any delay in applying water to the soil around the perimeter of the building can result in additional sheetrock cracks and other evidence of foundation movement. A scheduled watering program should be implemented during the dry periods of the year.

D. Cutting and capping the roots between the trees and the building is recommended at this time; if capping is not practical, trees should be removed if they grow closer to the building than their mature height. If the roots are to be cut and capped, then a qualified tree expert should be employed to determine where the roots should be cut, since cutting too much may be hazardous to the health of the tree.

E. Because the building is believed to be resting on highly expansive soil which exists in this area, it is recommended that an automatic watering system be installed to maintain uniform moisture content in the soil.

F. The foundation watering system at the perimeter of the foundation should be relocated 1-2 feet away from the foundation to reduce the potential for it to

have adverse effects on its performance over time if not well maintained and operated uniformly.

IV. SPECIAL NOTICE

Opinions and comments contained in this report are based on observations of apparent performance of the foundation of the building inspected. Performance standards are based on knowledge gained through experience and professional studies of the inspector. Opinions related to compliance with specifications, legal, and/or code requirements are specifically excluded as being a part of our agreement to perform this inspection since the method of foundation fabrication could not be viewed. There is no guarantee or warranty as to future performance, life, and/or need for repair of the building or its foundation, nor should same be assumed as a result of Professional Engineering Inspections, Inc. performing this inspection.

PREPARED BY:

The seal appearing on this document was authorized by Edward Robinson, P.E.87035 on 4/15/2026. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act The digital seal is found on the cover page.

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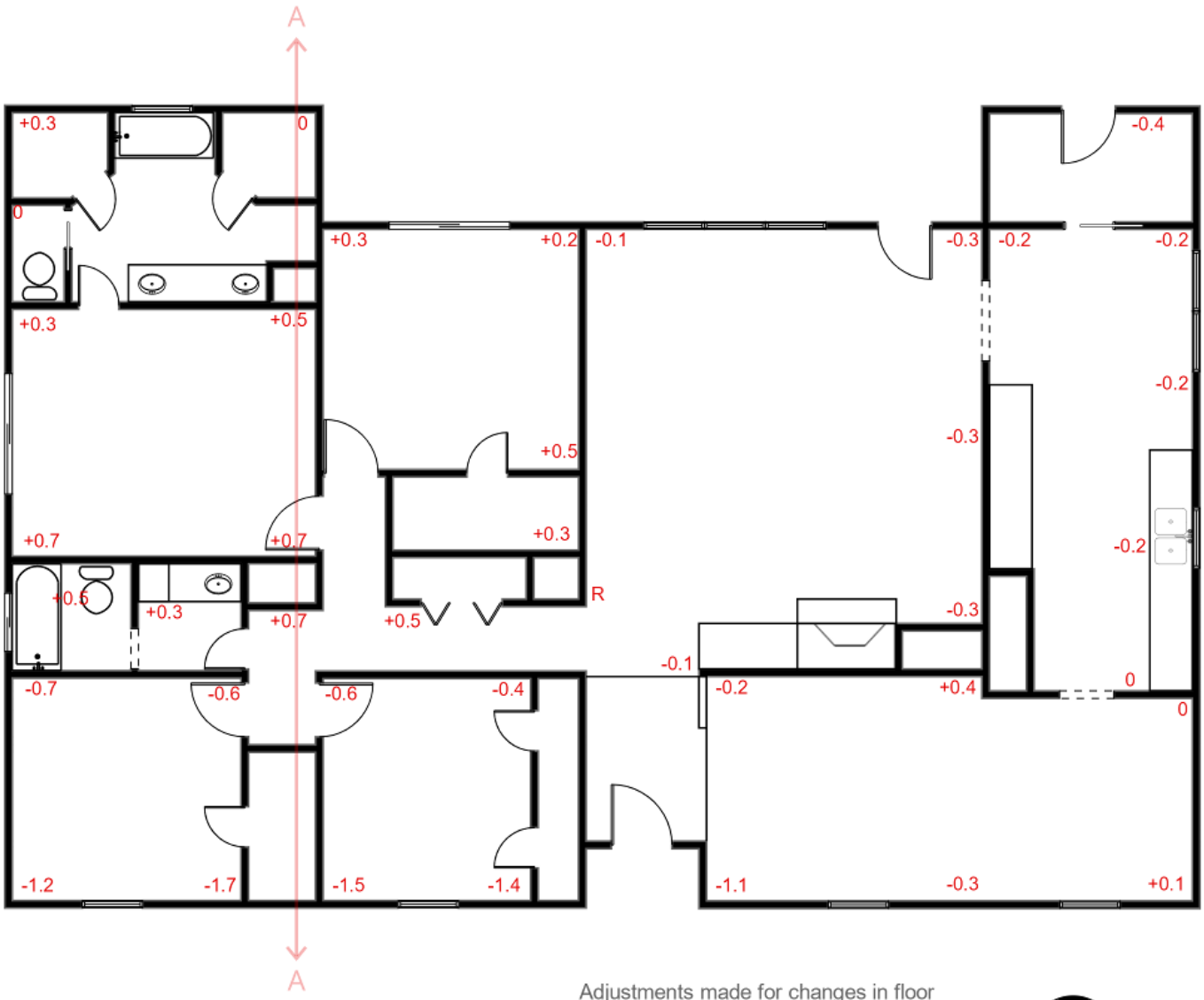
Edward Robinson, P. E.
Registered Professional Engineer, #

ER/nr
Attachment

This document package has been digitally signed. The digital signature is found on the cover page. The signature on this document package can be validated electronically by obtaining a validation certificate from Professional Engineering Inspections, Inc. This signature and subsequently this document is no longer valid if unauthorized modifications are made to it.

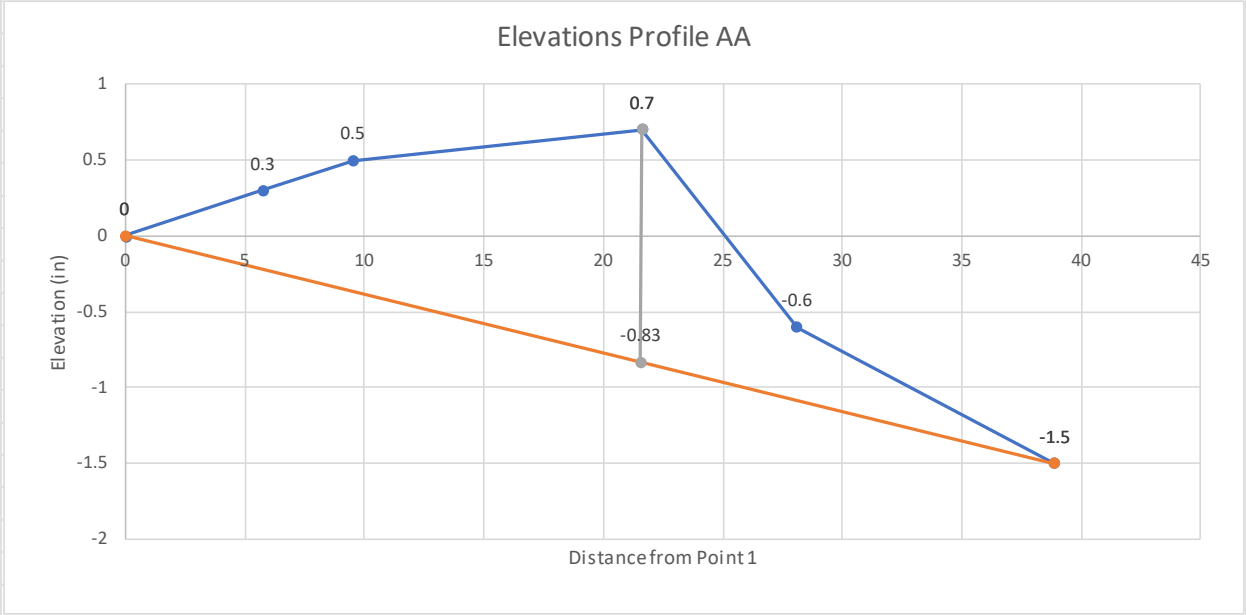


Adjustments made for changes in floor coverings.

Drawing for reference only.

Elevations in inches.

Elevations Profile Line AA											
Point	1	2	3	4	5	6	7	8	9	10	11
L(ft.)	0	5.75	9.52	21.62	28.1	38.89					
Y(in.)	0	0.3	0.5	0.7	-0.6	-1.5					
Deflection	Max Alloweable Deflection (L/360)	% Allowable Deflection	% Tilt								
1.53	1.30	118%	0.32%								



FOUNDATION CARE INFORMATION

Maintenance Recommendations
For Foundations On Expansive Clay Soil

INTRODUCTION

Differential movement of building foundations is a common problem in this area, because of the highly expansive clay soil and changing weather conditions, and costs owners thousands of dollars a year in repair bills. As the building ages, it is probable the foundation will continue to experience differential movement, regardless of how well it was constructed or its present condition. This differential movement does not stop as buildings become older; older structures with a history of minimal differential movement have been known to develop foundation problems in a very short time due to changing conditions at the perimeter of the building foundation.

REASON FOR FOUNDATION PROBLEMS

The primary reason for foundation problems is the highly expansive nature of the clay soil on which the building rests. The clay expands or contracts as its moisture content changes with the weather. Depending on the area, the amount of contraction or shrinkage ranges from minimal to upwards of 65% of the total wet volume. The average amount of shrinkage that can be expected in this region is approximately 35%, with wide variation depending on the location. For example, a sample of water-saturated clay will shrink up to an average of 35% when dried completely. This shrinkage accounts for the large cracks that form in the soil after an extended dry period. The more expansive the clay, the larger the cracks.

EFFECT OF PLANTS ON FOUNDATION PERFORMANCE

Because of the highly expansive nature of the soil, trees and other large plants can significantly contribute to differential settlement of a foundation. The roots of trees and large plants consume the moisture from the soil, causing the soil to shrink much faster than other soil areas exposed to the weather. The soil where the moisture is lost more rapidly will sink lower than the surrounding soil, causing evidences and consequences of differential settlement in building structures. Research studies indicate that a tree should be at least as far away from a building as the mature height of the tree to minimize the effect of drying caused by the tree.

EFFECT OF WET SPOTS AT THE SIDE OF A FOUNDATION

Wet spots caused by dripping faucets, leaking drains, air conditioning condensate drains, leaking water pipes, etc., can cause differential settlement at the location where the soil has been kept wet. The foundation may sink into the soil at a wet area while the soil dries and shrinks at other locations because the drying soil allows the foundation to move downward and overload the wet area.

EFFECT OF POOR DRAINAGE AT THE PERIMETER OF A FOUNDATION

Water standing or running alongside a foundation after rains may cause differential settlement of a foundation. If soil grading is such that water runs alongside a foundation during rains, the water will run under the edge of the foundation and carry away soil supporting the foundation. The effect is much more pronounced if the soil was very dry prior to the beginning of the rain. In addition, if water is allowed to stand alongside a foundation, it will flow below the foundation and dissolve the clay supporting the foundation, carrying it into the cracks that develop in the yard outside the foundation area during extended dry periods. This problem is more severe if the soil in the general area has been very dry, but it is less severe if the soil has been maintained moist.

FOUNDATION MAINTENANCE RECOMMENDATIONS

An owner can significantly reduce the rate of differential settlement by observing the following recommendations:

1. Try to maintain a constant moisture content in the soil around the foundation. Water the soil evenly and around the entire foundation during extended dry periods. This should prevent a gap from opening between the soil and foundation edge. However, if a gap does appear, water frequently (at least daily) around the entire foundation during extended dry periods (6 to 7 days in the summer). Do not apply water directly into the gap. Instead, water 1 to 2 feet away from the foundation edge. Some homeowners choose to install a fully automated foundation watering system to eliminate the need to remember to water. It is best to add water about three times per day to insure that the applied water has time to soak into the soil.

2. Cut and cap the roots of any large trees growing closer to the foundation than the mature height of the trees. The roots from a large tree or several medium size trees can consume more water from the soil than can be added with a watering system. This will limit the consumption of water from the soil below the foundation and may prevent excessive differential settlement and cracks in the structure. It is recommended that a professional tree expert be used to prevent damage to the trees When a tree grows too close to a building to allow cutting and capping of the roots, it is advisable to remove the tree or make special provision for watering the soil below the foundation.

3. Properly grade the soil by filling in low spots and leveling off high spots adjacent to the foundation so that the surface of the soil slopes gradually away from the building. A recommended slope is 1 inch per foot for a distance of 3 to 4 feet from the foundation.

4. Control roof water runoff and help prevent soil erosion by using a gutter and downspout system. This is especially important if a building has no eaves which overhang the walls or if the eaves are less than 1 foot wide.

5. Water trees and shrubs growing near a building during extended dry periods as they cause shrinking of the soil due to their high water consumption. Keep in mind that moderate to large trees consume 50 to 75 gallons of water from the soil every day.

SUMMARY

Remember: the intent of foundation maintenance is to maintain a constant moisture content in the soil around and below the entire foundation and to prevent soil erosion that can result from water flowing off the roof or other large flat surfaces near the building.

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