10/23/2026

Client: Client Doe
123 Main St, Your City, Your State, 12345

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Executive Summary

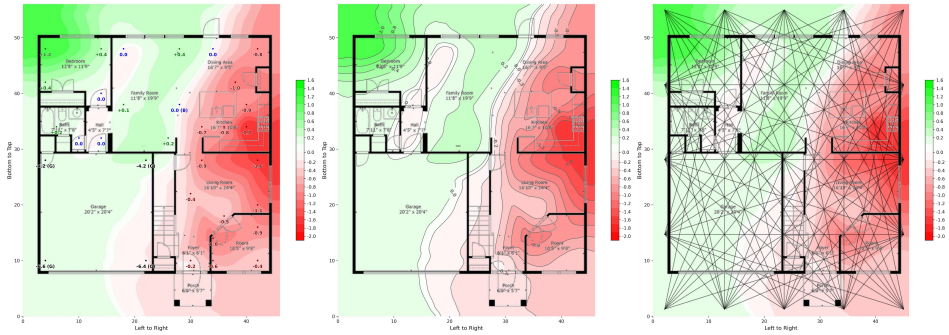
Report V1.0

This executive summary statement provides an abbreviated and shortened overview of the key takeaway from the full report and is not intended to convey all details or complexities. It should not be the sole basis for decision making and is only provided as a courtesy for the purpose of clarity. For complete information and thorough analysis, refer to the full report.

This evaluation indicates clear signs of foundation issues. Calculations were not found to be within industry standard limits. Remedial measures are required to bring the foundation to a more level condition. It is recommended that foundation stabilization be completed as soon as possible, if possible within the next year. In addition, visual deficiencies noted should be resolved after foundation improvements have been completed. We also recommend you perform another house elevation plot after repairs have been completed to memorialize the elevation changes. Due to the nature that foundation work is recommended, it is imperative that you read the entire report in detail for a comprehensive explanation of this conclusion.

It is highly recommended that the client find, review, and comprehend these various colored Figures A, B, C, D, F located throughout the report, as these figures are instrumental in the development of the conclusions derived.

Figure A ***Figure B*** ***Figure C***



Engineer's Foundation Evaluation

123 Main St, Your City, Your State, 12345

0.0 - Background and Purpose

On 3/26/2024 a foundation evaluation was performed at the property located at 123 Main St, Your City, Your State, 12345, which consists of a 3079 square-foot single family attached structure built in 2008 (18 years old) with a slab on grade foundation.

As shown in the attached inspection report (Appendix A dated 3/26/2024), a visual condition assessment and elevation plot of the structure's foundation was performed on-site by inspector Inspector Doe (Level Up Home Inspections) for the purpose of this desktop engineering evaluation completed by Engineer Philip W. Bullock Jr., M.E., M.B.A., P.E. (Noble Engineering Services, LLC). This letter is written to document and memorialize the findings of both the field inspection and desktop evaluation focused on providing a clear performance analysis for the client.

The purpose of this evaluation is to investigate and determine, to the extent possible, the foundation's current condition and any necessary repairs that may be needed immediately and/or in the future (as calculations and predictions allow). This evaluation is considered a Level B evaluation, as defined by the "Guidelines for the Evaluation of Foundation Movement for Residential and Other Low-Rise Buildings" published by the Foundation Performance Association (FPA-SC-13-1). Our evaluation involved collecting data and photographs of the structure to assess its performance and identify any signs of distress. Based on our findings, we will provide recommendations for repairs to ensure the long-term stability and safety of the structure. We understand that foundation issues can be a cause for concern for property owners, and we aim to provide clear and concise information to help you make informed decisions about any repairs needed for your property. The data and photographs presented in this report are intended to provide a representative sample of the types of distress observed throughout the structure, and are not a comprehensive catalog of all the distress present.

Per the #FPA-SC-13-1, Guidelines for the Evaluation of Foundation Movement for Residential and Other Low-Rise Buildings, a Level B Engineering Evaluation includes:

- Section 1: Documenting visual observations made during a physical walkthrough
- Section 2: Observation of factors influencing the performance of the foundation
- Section 3: If possible, an interview of occupants/owners/managers regarding a history of the property and foundation
- Section 4: Review of pertinent info including geotech reports, construction drawings, field reports, and repair docs
- Section 5: Deflection and tilt calculations to assess foundation performance and establish a baseline
- Section 6: Description of factors that affect soil moisture

A Note on Photo Captions: This report, including the inspection report attached, will use photo captions that indicate locations such as right, left, front, and back. These directions refer to how a person standing at the front of the property looking at it would see it. For example, the "front left" would be located on the front left side of the structure, as person would reference if standing at the front of the property looking at the structure.

1.0 - Visual Condition Assessment

This section of the report documents visual observations made during a physical walkthrough for this evaluation. Herein are the discoveries of the visual condition assessment of the foundation aimed at assessing its structural integrity, stability, and performance. The foundation serves as the fundamental support system for any structure, playing a pivotal role in ensuring its longevity and safety. Through industry accepted analysis and examination, this evaluation delves into the key aspects of the foundation's overall condition to provide insights into its current state. By scrutinizing the visual condition assessed factors (such as foundation cracking, unevenness, misaligned doors, windows that won't open, etc.) this portion of the evaluation aims to elucidate any existing visual deficiencies or potential risks that may compromise the stability of the structure. The findings presented herein are crucial for informing decision-making processes regarding necessary repairs, maintenance interventions, or further investigations to uphold the structural reliability and safety of the structure.

The attached inspection report dated 3/26/2024 and completed by Inspector Doe should be reviewed in detail and should stand as the visual condition documentation of the foundation-related deficiencies discovered at the time of the site-visit inspection.

2.0 - Observation Summary

Below is a table that represents a summary of the observed deficiencies at the property discovered in the field that may be considered to be influencing the performance of the foundation. See attached property inspection report for photos, detailed locations, and other information about these visual deficiencies.

Visual Condition Report Summary Table

Home Inspection Deficiency	**Identified?**	**Severity**	***Home Inspection Deficiency***	**Identified?**	**Severity**
Foundation cracks	**Present**	Minor / Cosmetic	*Foundation corner cracks*	Not-Present	
Foundation support deficiencies	Not-Present	---	*Wood rot and framing deficiencies*	Not-Present	---
Exterior wall cracks	Not-Present	---	*Interior sheetrock cracks*	**Present**	Minor / Cosmetic
Areas sloping and uneven	**Present**	Primary Floor	*Cracks patched*	Not-Present	---
Exposed rebar or anchors	Not-Present	---	*Exposed nails on siding*	Not-Present	
Spalling concrete	**Present**	Minor / Cosmetic	*Exposed nails on sheetrock (pop)*	Not-Present	
Trees near structure	Not-Present	---	*Ceiling sheetrock cracks*	**Present**	Minor / Cosmetic
Trim/cabinets/base separating	Not-Present	---	*Flooring cracks*	Not-Present	---
Gutter Deficiencies	**Present**	Partial Structure	*Flooring separation*	**Present**	
Standing water	**Present**	Around Foundation	*Tiles loose / cracked or missing*	**Present**	
Door(s) rubs, sticks, or has gaps	**Present**	One (1)	*Spongy feeling and/or squeaks*	Not-Present	
Window(s) won't open, latch, or sticks	Not-Present	---	*Other non-structural concrete cracks*	**Present**	
Visual discovery of previous foundation work				No	

These engineering statements below provide a general overview of the visual condition assessment findings documented in the home inspection report. The purpose of this section is to acknowledge and generally agree with the inspector's classification of severity for each observed deficiency based on visual indicators. No recommendations are offered here, as this section is limited to contextual confirmation of the reported conditions. A comprehensive recommendation, including consideration of all these observed deficiencies, their severity, patterns of distribution, and any history of prior foundation work, is provided in the conclusion section. That final summary reflects the engineer's overall assessment and any necessary guidance based on the totality of visual evidence.

Foundation cracks: We agree with the findings of the inspection report that the observed foundation cracks should be considered minor. Minor foundation cracks, typically less than 1/8 inch wide and often vertical or hairline in nature, are common in residential structures and usually result from concrete curing shrinkage, minor settlement, or thermal changes. When observed in limited quantity and without signs of displacement or differential movement, these cracks are considered cosmetic in nature and not indicative of significant structural concerns. They should be documented and monitored over time, as changes in width, pattern, or the development of additional cracks could signal evolving structural stress or shifting.

Areas sloping and uneven: The home inspection report notes areas of the home are sloping/uneven. Sloping or unevenness that can be felt on the primary foundation finished floor, especially in open spaces or across several rooms, is often one of the more direct indicators of possible foundation movement or settlement. When the slope exceeds normal construction tolerances (typically 1/2 inch over 10 feet) and cannot be explained by framing irregularities, it can suggest underlying structural deformation. The greater the extent and severity of sloping, the more likely it is to be the result of differential foundation movement, particularly if accompanied by other signs such as wall cracks or sticking doors. In such cases, the condition may warrant further evaluation to determine whether stabilization measures are necessary. In this case, due to the nature of being able to "feel" unevenness, this is considered a sign that further evaluation may be necessary.

Spalling concrete: We agree with the findings of the inspection report that cosmetic concrete spalling is present. Cosmetic spalling, where thin layers of concrete flake or chip off the surface, is typically caused by environmental exposure, freeze-thaw cycles, or surface defects during construction. These shallow surface imperfections are generally not indicative of deeper structural problems, particularly when isolated and not associated with reinforcing steel exposure. Although minor spalling does not affect the load-bearing capacity of the concrete, it should still be addressed through patching or sealing to prevent moisture intrusion and further deterioration.

Non-structural concrete cracks: Based on visual observations, the concrete cracking present appears to be non-structural in nature and does not indicate foundation movement or compromise to the structural integrity of the home. These types of cracks are typically unrelated to the foundation's structural performance, as they often occur in non-monolithic sections that are designed differently, generally thinner and structurally less robust than the main home's foundation elements.

Gutters Deficiencies: The home inspection report notes gutters, downspouts and/or splashblocks were missing in some areas of the home, indicating that some portions of the structure lack proper roof drainage. While some of the home appears to have an effective drainage system, missing components can still allow water to collect near the foundation in certain areas. This is especially important in regions with clay soils that are susceptible to shrink-swell behavior, where moisture fluctuations can lead to foundation movement. It is recommended that gutters and downspouts be added to these areas, with discharge points extending at least 5 feet away from the foundation. Addressing these gaps will help maintain consistent soil moisture levels and reduce the risk of localized foundation stress.

Standing water: The home inspection report notes standing water was observed around portions of the foundation. While this may result from poor grading or roof drainage, a possible plumbing or irrigation system leak should also be considered. This is especially important in regions with clay soils that are susceptible to shrink-swell behavior, where moisture fluctuations can lead to foundation movement. Persistent moisture near the foundation can contribute to soil movement and increase the risk of foundation damage. Recommend correcting drainage and evaluating for potential leaks.

Interior wall cracks: We agree with the findings of the inspection report that minor hairline cracks were observed in the interior sheetrock. These cracks are generally narrow, limited in extent, and are commonly associated with normal building settlement, seasonal expansion and contraction of materials, or minor movement at drywall joints. The observed condition is consistent with typical cosmetic distress commonly found in residential structures.

Ceiling sheetrock cracks: We agree with the findings of the inspection report that hairline and/or surface-level cracks were observed in the ceiling sheetrock. These cracks are generally narrow and limited in extent and are commonly associated with normal building settlement, thermal expansion and contraction, shrinkage of drywall finishing materials, or minor movement at ceiling joints. The observed condition is consistent with typical cosmetic cracking commonly found in residential structures.

Flooring separation: The home inspection report notes gaps were observed between flooring planks or tiles. This type of separation is usually related to normal expansion and contraction of the flooring materials or installation movement. It is generally considered a flooring or finish issue and is not typically associated with foundation movement unless the problem is widespread and coupled with other foundation-related signs of settlement.

Tiles loose / cracked or missing: The home inspection report notes tiles were found to be loose, cracked, or missing in isolated areas. These conditions are common with aging tile installations and are typically the result of surface-level adhesive failure or impact, and not usually a sign of foundation issues unless the problem is widespread and coupled with other foundation-related signs of concern.

Door(s) rubs, sticks, or has gaps: The home inspection report notes a door that are rubbing, sticking, have a visible gap. A single interior or exterior door with issues such as sticking, dragging, or misalignment can often be attributed to seasonal changes in humidity or installation variance. This alone does not typically indicate foundation distress. However, if the problem worsens or is near other signs of movement, it may become part of a broader pattern worth evaluating.

3.0 - Interviews

No interviews were conducted as part of this evaluation. It is highly recommended that the client contact any builders/owners/occupants/agents to confirm no relevant knowledge of previous defects and/or foundation work was performed at the structure. Historic knowledge of the foundation is important to the overall assessment of the foundation; when none exists the evaluation is limited to existing conditions only.

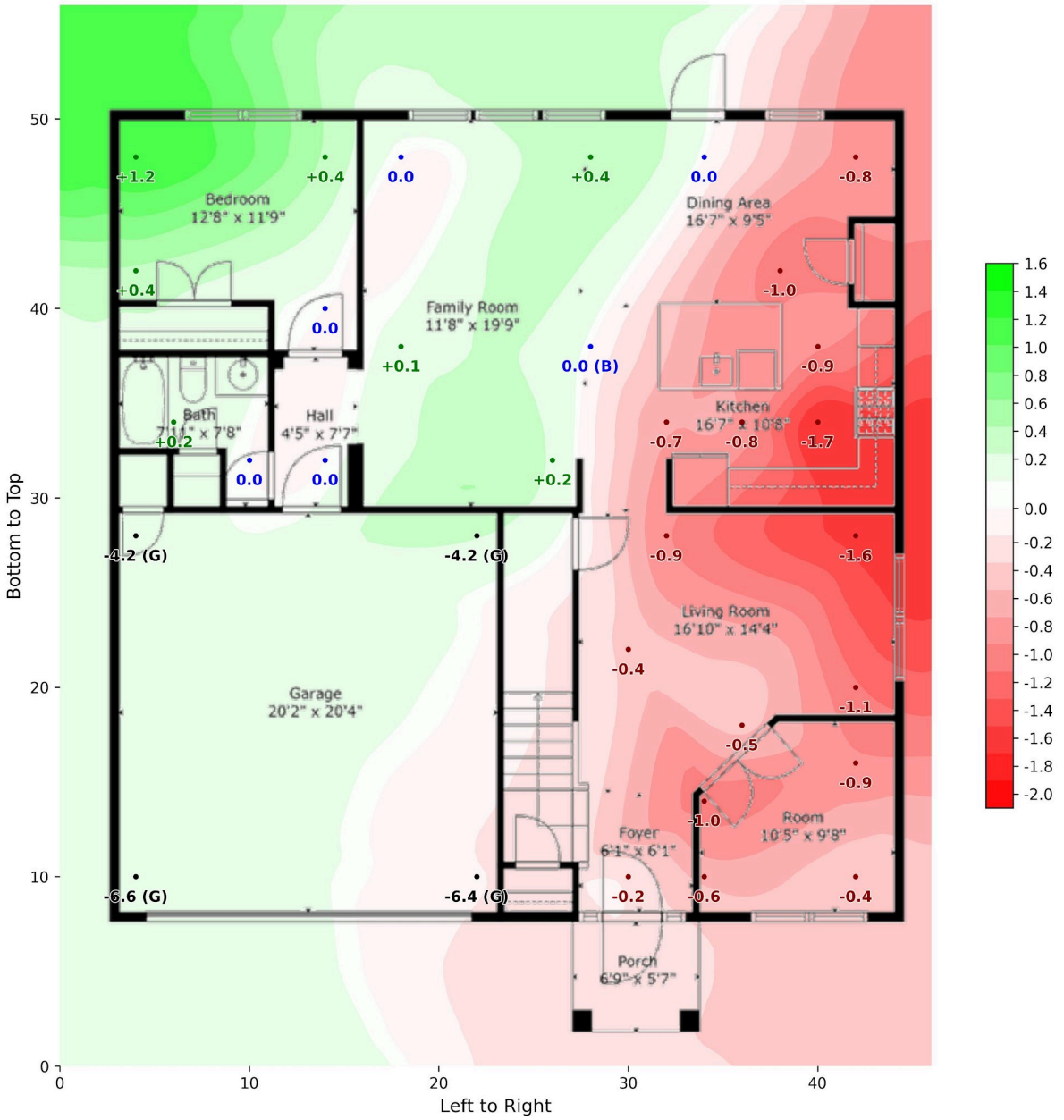
4.0 - Pertinent Documents

No pertinent documents were provided as part of this evaluation; our company has not received any previous foundation reports from the builder, owner, occupant, client and/or agents. It is outside the scope of this evaluation to determine if foundation repairs were permitted/required at a municipal level and to what extent they were documented. It is highly recommended that the client contact any owners/occupants/agents to confirm no relevant documentation of previous defects and/or foundation work that may have been performed on the structure. Obtaining pertinent documentation is important to the overall assessment of the foundation; when none exists the evaluation is limited to existing conditions only.

5.1 - Elevation Plot

To calculate deflection and tilt of the structure, an elevation plot must be performed. An elevation plot determines the relative elevations of the structure comparative to a base elevation of zero (0.0) at a chosen and documented location in the structure. Foundation deficiencies are typically judged based on the following generally accepted criteria:

- The elevation deflection across an entire structure should remain within 0.5 to 1-inch depending on the age of the structure. Generally, newer structure should remain less than 0.5 inches or less of deflection across the entire structure. This is subjective depending on other factors (primarily visual condition and age of the structure).
- The elevation deflections measured as the bending of a straight line do not approach the generally accepted criteria for foundation performance and repair of 1.00/360 (1-inch of bend in 30-feet).
- The elevations measured as tilting of a level line across the foundation to not approach the generally accepted criteria for foundation performance (not repair) of 1.00% (2.4-inches of difference across 20-feet).
- The elevations measured as a slope of floors do not approach 2.00% (1.2-inches of difference across 5-feet).

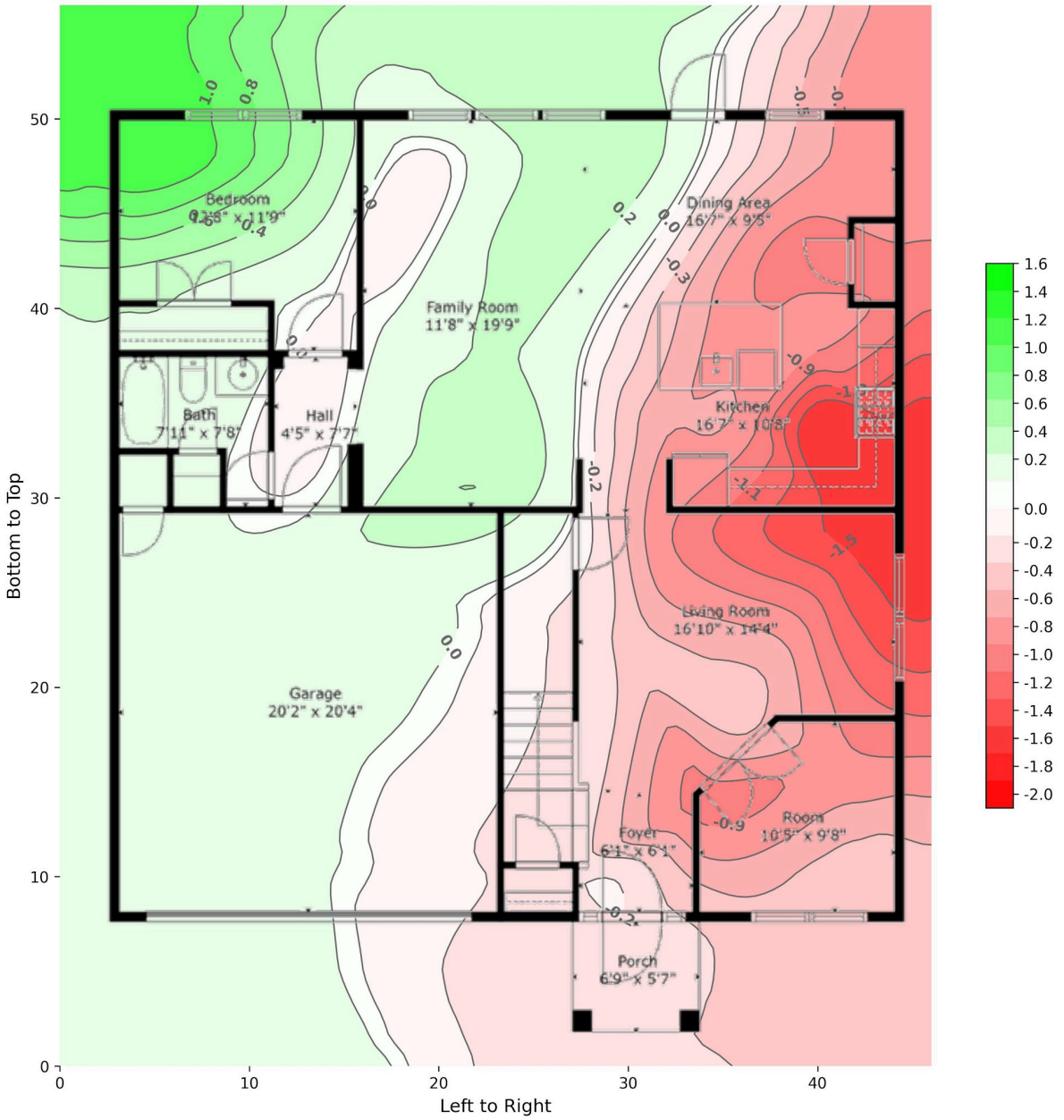


Elevation Plot Graphic (Figure A)

The elevation plot resulted in the graphic as depicted above in Figure A. The red-points and areas are elevation measurements that were lower than the base station elevation (0.0). The green-points and areas are elevation measurements that were higher than the base station elevation (0.0). The blue-points (and white areas) are equal to the base station elevation (0.0). The base station is depicted with a (B) symbol. The elevation plot takes into account differences in flooring thicknesses. The maximum elevation point was determined to be 1.2 inches and the minimum was -1.7 inches, resulting in an elevation difference of 2.9 inches of difference across the structure.

The elevation plot graphic above will show points labeled with a (G) symbol representing Garage. Theses elevation points were measured and plotted so they can be compared year-to-year, however, they are excluded from the foundation analysis. This is because garages can be non-monolithic and/or they are poured to purposefully slope toward the exterior garage door making any conclusions derived difficult to interpret.

A mesh contour is a graphic that is designed to look and feel like a geographic topography map. Some clients find the graphic useful and some find the graphic confusing and difficult to understand. In general, the client should envision walking the foundation where areas of red are lower than the base station elevation (0.0) and areas of green are higher than the base station elevation (0.0). The darker the color (both red and green) the higher/lower the elevation.



Mesh Contour Graphic (Figure B)

The mesh contours graphic depicted above in Figure B is similar to the elevation plot. The red, green, and white areas depict areas that are lower, higher, and equal to the base station elevation (0.0). The lines or contours (similar to map topography) are labeled at specific intervals.

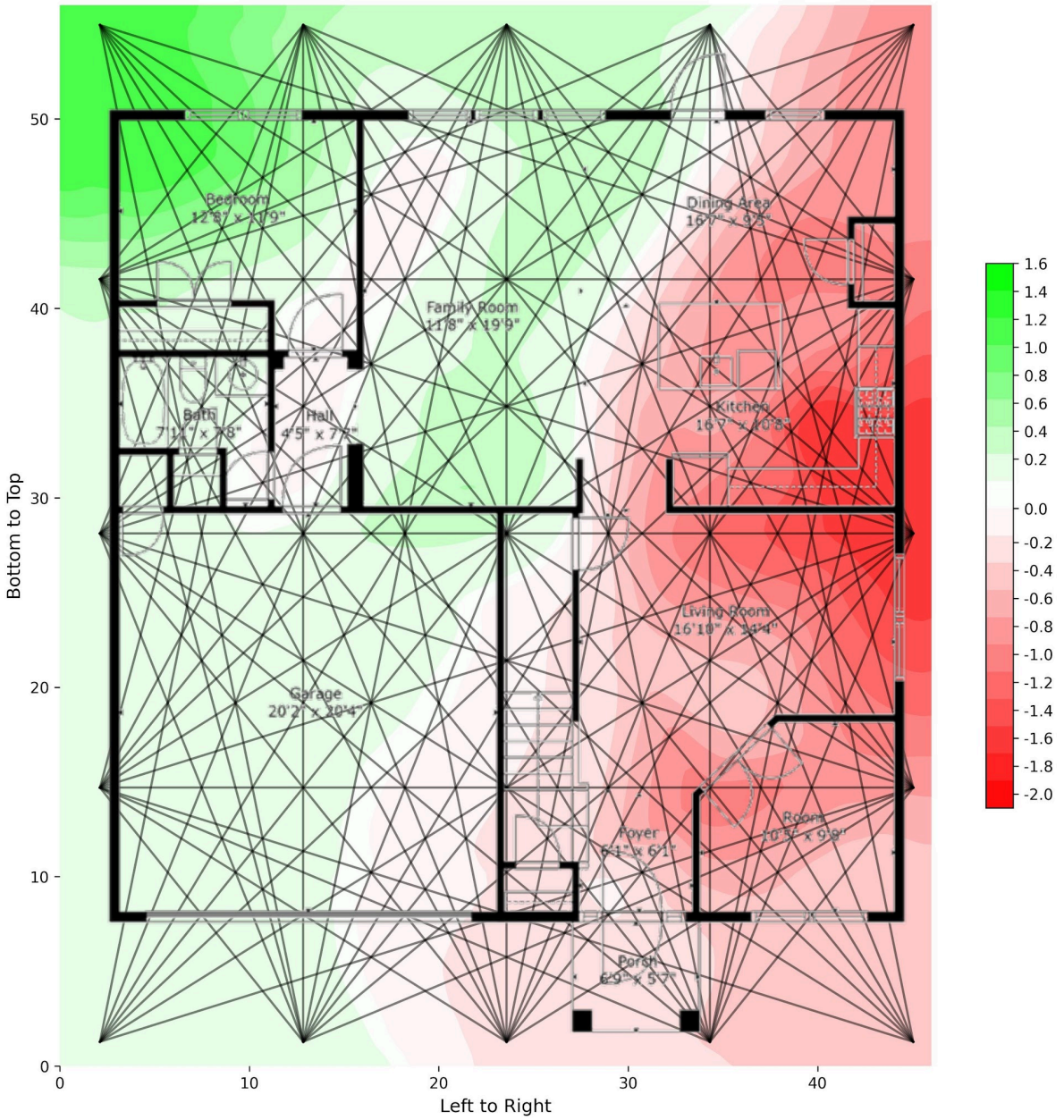
5.2 - Deflection and Tilt Calculations

In a level-B foundation evaluation, deflection and tilt calculations are essential components for assessing the structural integrity and stability of the foundation. Deflection refers to the degree to which a structural element, such as a foundation, bends or deforms under load. It is typically measured as the vertical displacement of a point on the foundation relative to its original position. Calculating deflection involves analyzing individual arc-deflections for each profile across the floorplan. Tilt, on the other hand, refers to the inclination or angular deviation of a structure from its intended level or vertical alignment. In the context of a level-B foundation evaluation, tilt calculations involve measuring the horizontal displacement of points on the foundation relative to a reference plane or datum. Tilt can result from various factors, including uneven settlement of the foundation, soil movement, or structural deficiencies.

Foundation movement calculations have generally been performed according to #FPA-SC-13-1 'Guidelines for the Evaluation of Foundation Movement for Residential and Other Low-Rise Buildings.' The calculations separate foundation movement into foundation 'Deflection' (bending) and foundation 'Tilting' - straight line arithmetic of the elevation readings provided on the Elevation Survey will not yield the same results and should not be incorrectly compared. The standard allowable stabilized deflection is based on 1.0 inch of vertical movement, up or down, over a horizontal distance of 30 feet; expressed as Length (L in inches) / 360. The standard allowable tilt is based on 1% slope over the entire length, width, or diagonal of the foundation. In some cases the calculations are expanded to fit this particular analysis.

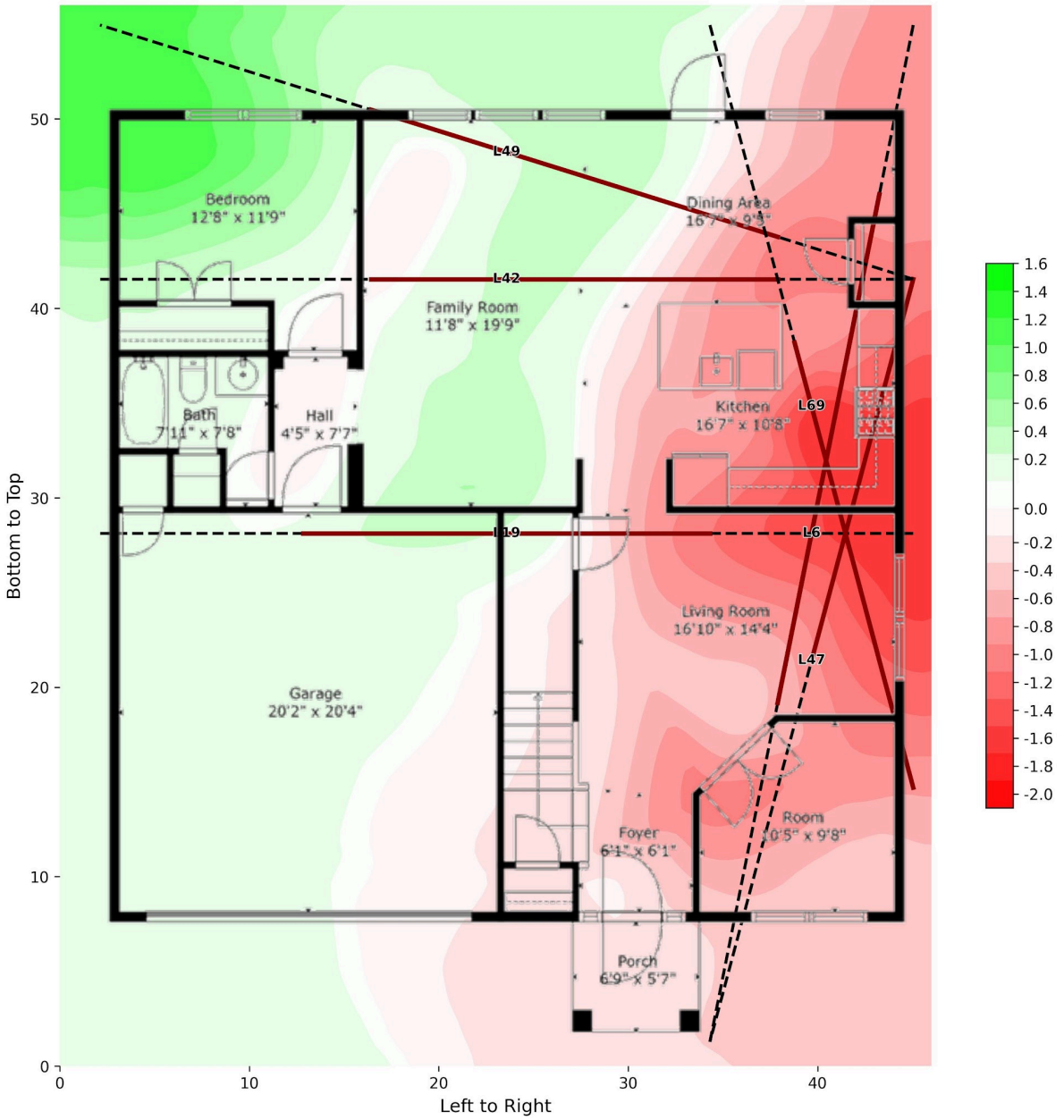
In layman's terms, the deflection calculations represent localized areas of concern where tilt calculations represent entire foundation movement as a singular plane. By accurately quantifying deflection and tilt, this evaluation can assess the overall performance of the foundation, identify potential issues such as excessive settlement or structural misalignment, and recommend appropriate remedial measures to ensure the foundation's stability and longevity. These calculations are crucial for safeguarding the structural integrity of buildings and mitigating the risk of foundation-related failures.

Below is a graphic that shows the locations of deflection and tilt profiles that were calculated. The total profiles calculated was 79 with a total usable profiles (above the effective length threshold) of 75.



All Profiles Graphic (Figure C)

Below is a graphic that indicates the locations of the 6 deflection calculation failures.

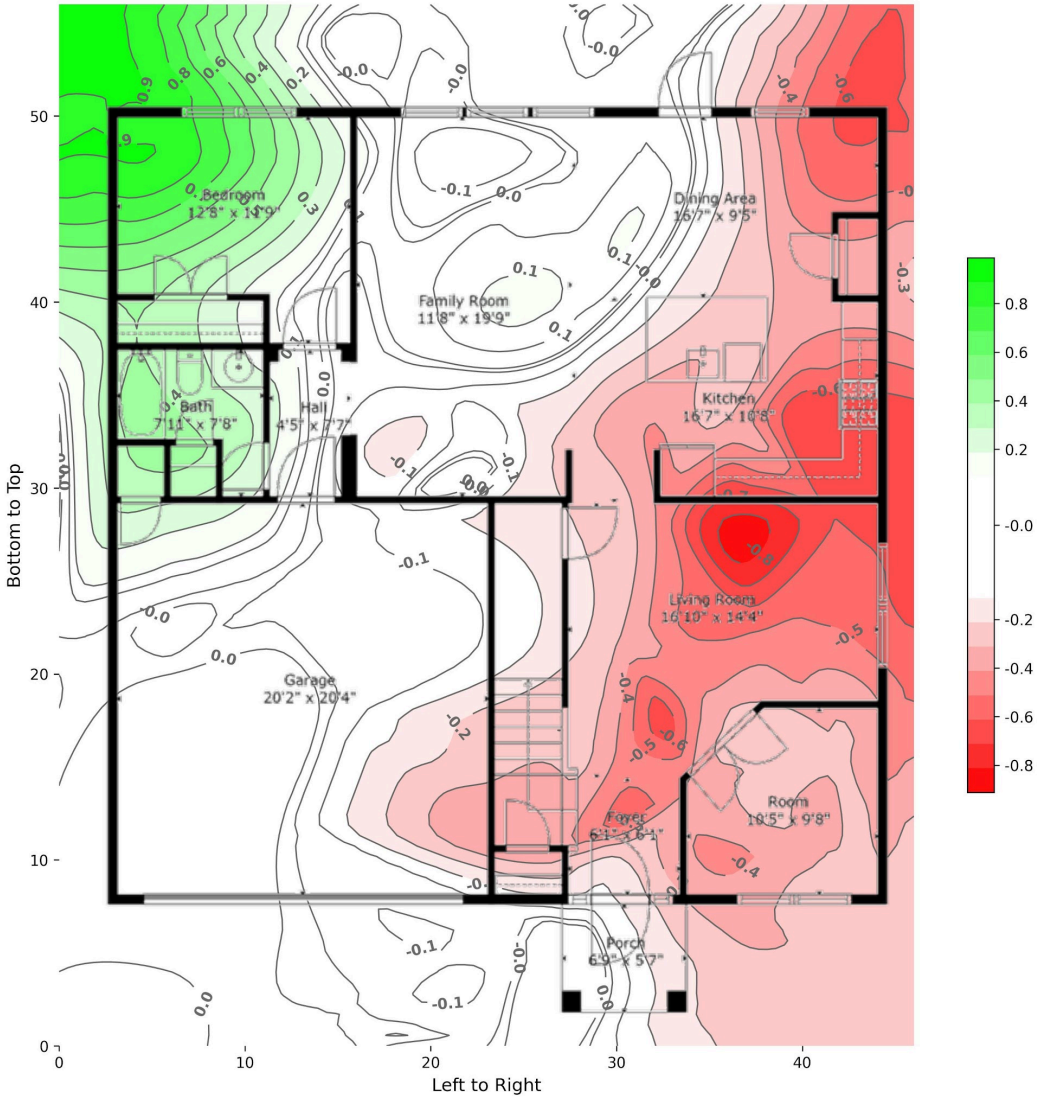


Deflection Failures Graphic (Figure D)

The above Figure D shows deflection failures along the foundation. Deflection failures can be considered localized failures in (sometimes) isolated portions of the foundation. The profile lines that were calculated are represented by a dashed black line and the areas where the deflection failures occur are represented by a dark red line segment. Of the 75 deflection profiles calculated, 6 profile failures were identified.

5.3 - Comparison of Other Elevation Plots

A previous elevation plot completed in 2022 was available to use as a baseline of movement progression. Elevation differences are shown that show us the clear progression of movement from one date to another. As part of this evaluation, a contour mesh showing the elevation differences between the current contour mesh and the baseline was processed and is shown below.



Elevation Plot Difference Graphic (Figure F)

The mesh contour graphic above in Figure F shows areas in red that are lower than the baseline elevation plot and areas of green that are higher than the baseline elevation plot (from the provided drawing completed in 2022). The darker the color (both red and green) the larger/smaller the elevation differences.

6.0 - Soils and Geotechnical

Foundation movement is a prevalent phenomenon in areas where poor soils exist due to expansive clays. Future foundation movement is always possible due to the shrink/swell characteristics of the soil. The foundation is prone to movement due to the moisture variation in the existing soil and total prevention of all future movement is unlikely.

7.1 - Results: Elevation Plot

Elevation differences across the structure are the first indicator that a foundation problem may or may-not exist. As documented above, the maximum elevation point of this structure was determined to be 1.2 inches and the minimum was -1.7 inches, resulting in an elevation difference of 2.9 inches of difference across the structure. The elevation plot takes into account differences in flooring thicknesses. The elevation deflection across an entire structure should, best-case-scenario, remain within 0.5 to 1-inch depending on the age of the structure. Measured differences approaching 2-inches are an initial sign of possible foundation fatigue. The maximum allowable elevation difference is subjective, depending on other factors such as the visual condition, size, and age of the structure (18 year(s) old) along with how the foundation performs when calculating deflection and tilt.

Based on observed elevations of the foundation from the elevation plot, the elevation differences do not fall within industry standards and tolerable limits. These findings indicate that the foundation does not have consistent and uniform elevation measurements. Note: elevation measurements alone are not the only indicator of foundation problems; see the deflection and tilt calculations (and the report's overall conclusion) for a complete understanding of foundation stabilization. If elevations fall outside of industry standard/tolerable limits, it is a first indicator that the foundation will fail in deflection and/or tilt.

7.2 - Results: Deflection

Deflection failures can be considered localized failures of the foundation in (sometimes) isolated portions of the foundation. Of the 75 deflection profiles calculated, 6 failures were identified.

Deflection failures are above standard acceptable limits; they exceed industry-standard thresholds and the structure should be considered actively moving/settling in areas where deflection failures are occurring. See the report's overall conclusion for a complete understanding of the overall foundation stabilization issue.

7.3 - Results: Tilt

Tilt failures can be considered structure-wide failures of the foundation. Of the 75 tilt profiles calculated, 0 failures were identified. The tilt calculations resulted in a maximum tilt profile of 0.53%.

As no tilt failures are present, these findings indicate foundation settling that is within tolerable limits. Note: tilt failures alone are not the only indicator of foundation problems; see the deflection and elevation calculations (and the report's overall conclusion) for a complete understanding of foundation stabilization.

8.0 - Conclusion

There are many factors that weigh into the Engineer's overall statement of opinion about the existing stability of the foundation. These various factors, as documented in Sections 1-7 above, are all considered when applying overall conclusive statements about the existing condition of the foundation and the future likelihood of foundation fatigue/failure.

Based on field observations of the foundation and analytical calculations, as documented in this report, the structure should be considered habitable and safe for occupancy (from a foundation stability standpoint) at this time.

This evaluation indicates clear signs of foundation issues. Calculations were not found to be within industry standard limits. Remedial measures are required to bring the foundation to a more level condition. It is recommended that foundation stabilization be completed as soon as possible, if possible within the next year. We also recommend you perform another house elevation plot after repairs have been completed to memorialize the elevation changes. In addition, visual deficiencies noted should be resolved after foundation improvements have been completed and may include:

- **Patch and monitor visible foundation cracks**
- **Patch/cover exposed tension anchors**
- **Patch and monitor exterior brick or siding cracking**
- **Patch and monitor interior sheetrock cracking/separation**
- **Repair and monitor door misalignment**
- **Windows that won't open to resolve and monitor**

Client should talk with the previous/current owner about previous foundation repairs and ensure that any foundation work is warranted. If not immediately performed, client should budget for an impending foundation remediation project in the future.

Good foundation maintenance practices are the most effective solution to minimizing soil activity. The primary goal of foundation maintenance methods is to maintain a relatively constant moisture content in the soil around and below the foundation. The movement and drainage of water is a critical maintenance element that interacts with the shrink/swell properties of the expansive soil that the structure is supported upon. The goal of proper drainage is to remove excess water from around the foundation to keep the soil around and under the foundation at a stable moisture content. Gutters and downspouts are an effective method of directing rainwater away from the structure, but must be employed correctly. To better control the rainwater, ensure gutters, downspouts and extensions are present at each down-sloped area of the roof. The downspouts should discharge the water a minimum of 5 feet from the foundation or into a drainage system. To assist in the drainage of free water, the grade surrounding the foundation should be sloped away from the foundation for the first 10 feet around the perimeter where practicable. The slope should drop a minimum of 6 inches in 10 feet - a 5% slope. Swales should have longitudinal slopes of a minimum of 2 inches in 10 feet. If this cannot be done a French Drain may be required. Over-saturated soils can cause foundation heave and/or settlement and contribute to excessive foundation movement. Remediate ponding water immediately.

Beyond conventional pier systems, several methods can improve foundation performance depending on soil conditions and foundation type. These may include subgrade chemical stabilization, high-pressure injection of stabilizing clays, polymer or foam injection systems that increase subgrade density and reduce soil movement, soil grouting to strengthen weak zones, and moisture conditioning or drainage management to regulate soil expansion and contraction. Clients are encouraged to consult with qualified foundation contractors to explore the most suitable stabilization options for their site conditions.

Crack monitors, also called crack gauges, can be installed across existing foundation or structural cracks to measure any changes in width over time. These devices provide a simple, visual way to track movement, helping determine whether cracks are stable or actively widening. Monitoring allows for informed decision-making regarding maintenance, repairs, or the need for additional stabilization measures.

To stabilize and lift the foundation, install and/or adjust perimeter and interior piles/piers as shown in the attached Exhibit A - Proposed Repair Plan. The underpinning may be concrete cylinders, steel pipe, helical screws, or drilled concrete piers – refer to Exhibits D, E, F, and G. Underpinning will not improve the performance of the foundation in non-underpinned areas. Note, any foundation movement, even corrective, can cause additional cosmetic distress. The contractor shall determine the amount of elevation correction needed based on the reaction of the structure during the adjustment in order to minimize stress and additional cosmetic damages.

The repair plan we have provided may have been developed without location information on existing underpinning. If possible, we recommend locating documentation of any existing underpinning prior to implementation of the new underpinning. This documentation may be provided to us to analyze and adjust the repair plan as needed to maximize its effectiveness. Adjustment of the existing piers/piles that are in the same location as our recommended underpinning can be substituted for installation of new underpinning.

Following completion of the foundation underpinning installation, it is recommended that you obtain a final elevation survey to provide a post-repair elevation baseline. Review the performance of the foundation every 6 to 12 months. Compare all future foundation evaluations to the pre-repair and post-repair elevation baselines and to produce a final elevation survey with post-repair baseline and to ensure that the repairs have been performed in general accordance with the FPA-SC-13-1.

The provided repair plan locates piers only along the exterior perimeter of the structure. While this design approach is expected to provide appropriate remediation for the observed foundation concerns, it is important to note that the average effective support diameter of a pier is approximately seven (7) feet in most cases. If the foundation performs as anticipated and the exterior piers adequately support the load distribution of the slab, they may provide sufficient stabilization and long-term remediation. However, there remains the possibility that a second phase of interior piers could be required in the future should performance issues persist or develop.

Interior piers are considerably more invasive and expensive to install, typically requiring removal and replacement of interior flooring as well as saw-cutting through the existing foundation slab. For this reason, interior pier installation is generally not recommended unless foundation performance is substantially deficient and exterior piers alone are unlikely to achieve adequate stabilization. Instead, exterior piers are often recommended as a first remedy. Consultation with a qualified foundation contractor is recommended, as the contractor will be responsible for the warranty coverage related to the repair work performed.

9.0 - Limitations

This report documents a limited engineer's foundation evaluation scope inspection only. Inspector will only report deficiencies of the elements that are within the agreed-upon foundation-related scope, and will not perform an inspection of the entire property.

This report has been assembled by a team, each member bringing specialized expertise to ensure a comprehensive evaluation within the scope of our project. The team comprises a field-inspector, responsible for conducting thorough on-site examinations; a reviewer, who reviews and consolidates the findings; and an engineer, who applies a desktop evaluation and calculations to the field data collected. The structuring of our team and the distribution of roles have been strategically designed to optimize both the quality and cost-efficiency of the provided services. The team may (or may not) be comprised of individuals working for different companies. The Engineer did not perform a site visit.

Verification of permitted construction activities through the correct jurisdictional authority is not part of the scope of this report. Photos here of permit-related documents and stickers are for informational purposes only.

The structure appears to have been recently painted, skim-coated, touched-up, floored, tiled, and/or undergone other “remodeling” activities. This can obscure visual deficiencies such as cracks, mold, stains, and other defects. The inspector always makes a thorough effort to search for defects in accessible areas, but will not find problems hidden by fresh paint, caulk, trim, tile, cabinets, flooring, etc.

10.0 - Liability

The contents of this report supersede any verbal communication regarding the subject foundation during or after the inspection. This report was prepared for the exclusive use of the client listed above. There is no obligation or contractual relationship to any party other than our client and their agents in regards to the subject property. The opinions and recommendations contained in this report are based on the visual observation of the then current conditions of the structure and the knowledge and experience of the inspector/engineer.

The most effective long-term solution to foundation movement is deep foundation underpinning for the entire structure, however these methods may not be economically feasible and often causes unwanted cosmetic damage. As such, this report may present options that consider factors such as viability, timeliness, and cost. This report provides engineering advice intended to correct the observed foundation deficiencies assuming normally expected subsurface conditions and conventional construction methods.

This report is only an engineering statement of opinion and report of findings based on the information available at the time of inspection. It does not provide any guarantee to the current state of the structure's foundation. It does not "guarantee" against future foundation problems nor does it provide any warranty to the foundation itself. The report was based on the information that was available at the time. Should additional information become available, the engineer/inspector reserves the right to determine the impact, if any, the new information may have on the opinions contained herein and revise conclusions and opinions as necessary and warranted. The engineer is not responsible for knowledge of subsurface conditions without geotechnical data provided, including vertical stabilized displacement from clay soils.

Engineer/inspector is not responsible for concealed conditions where a visual observation was not possible or any other areas that are not readily available to the engineer or inspector for evaluation during the site visit. The evaluation was limited to visual observations and areas not visible, accessible, or hidden behind furniture and appliances were not included in the evaluation. The evaluation did not include any soil sampling or testing, nor any assessment of the existing framing, plumbing, or auxiliary structures and no implication is made on the compliance or non-compliance of the structure with old or current building codes. No verification was made of the existing concrete strength, thickness, location of interior grade beams, reinforcement, nor capacity to support any load.

Limits of liability for any claims with respect to this report is limited to the fees paid for services and anyone relying on the content of this report agrees to indemnify the company for all costs exceeding the fee paid.

Engineer's Seal:

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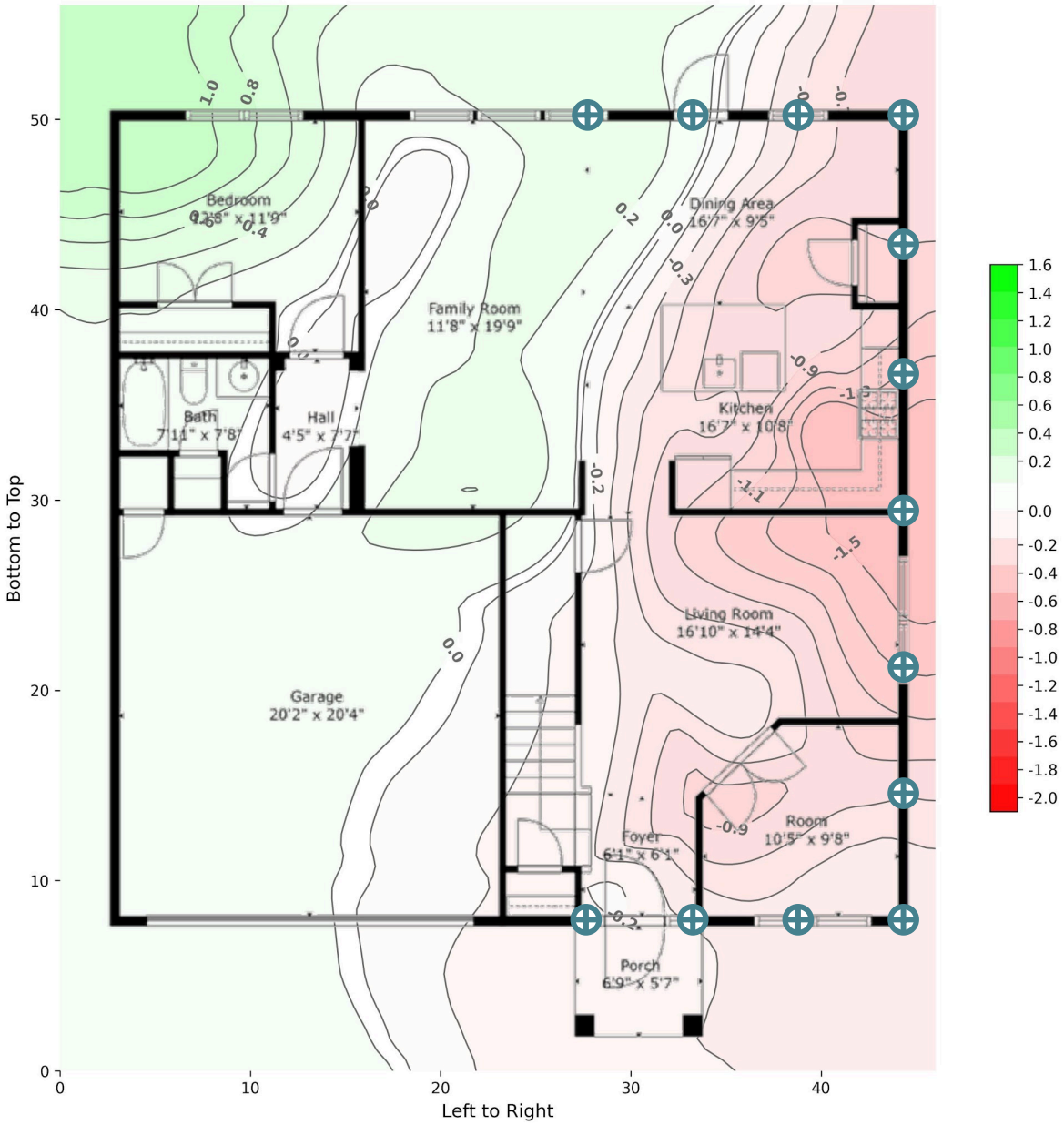
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10/23/2026

Possible Attachments:

√ - Provided	Exhibit A	Proposed Repair Plan
√ - Provided	Exhibit B	Identified Deflection/Tilt Failure
√ - Provided	Exhibit C	Table of Deflection and Tilt Failures
√ - Provided	Exhibits D/E/F/G/H/I/J/K/L	Proposed Repair Details for this Project
√ - Provided	Appendix A	On-Site Inspection Report with Photos Dated 3/26/2024
X - Not Provided	Appendix B	Other Pertinent Documents (repairs, previous plots, etc.)
√ - Provided	Appendix C	Floorplan Scan

Exhibit A - Proposed Repair Plan

123 Main St, Your City, Your State, 12345



Foundation Type: Slab on Grade (2008)

			PROPOSED	
Contour Line and Elevation		Exterior Push Pile or Drilled Pier	**13**	*piers/pilings*
Base Station (0.0)		Interior Slab Pier	**0**	*piers/pilings*
Zero Elevation (0.0)		Existing Pile/Pier to be Adjusted	**0**	*piers/pilings*
Negative Elevation (-)		Existing Support Areas to be Adjusted	**0**	*square-feet*
Positive Elevation (+)		Trees to be Removed	**0**	*trees*

Opinion of Probable Construction Cost (OPCC)

For budgeting and price-comparison purposes only

Estimated Foundation Repair Costs					
Item	Description	Amount	Units	Cost	Total
1	Exterior Push Pile or Drilled Pier(s) *Contractor to install 13 exterior push pile or drilled pier(s). See exhibit(s) D, E, F, and G for details. See foundation repair company notes below.*	13	pier/piling(s)	$675	$8,775.00
2	Interior Slab Pier(s) *Contractor to install 0 interior slab pier(s). See exhibit(s) D, E, F, and G for details. See foundation repair company notes below.*	0	pier/piling(s)	$1,000	$0.00
3	Existing Pile/Pier(s) to be Adjusted *Contractor to adjust 0 slab pile/pier(s). Adjustment may not be possible or rejected by the foundation company not responsible for the installation. Cost highly variable.*	0	pier/piling(s)	$506	$0.00
4	Existing Support Area(s) to be Adjusted *Contractor to adjust approximately 0 square-feet of decked foundation. Metal shims shall be used; replace wooden shims with metal. Use termite shields where possible. Cost assumes adequate accessibility without the need for tunneling*	0	square-feet	$5.50	$0.00
5	Tree(s) to be Removed *Contractor to remove 0 trees located too close to the structure. Installation of a root barrier system may also be possible if the tree(s) are considered a valuable addition to the property.*	0	tree(s)	$1,100	$0.00
Estimated Rehabilitation Costs					
Item	Description	Amount	Units	Cost	Total
1	Patch exterior and interior wall and foundation crack(s) *Contractor to patch exterior and interior wall cracks with concrete, mortar, caulk, mudd/tape/texture/paint, etc. depending on type of patch necessary after foundation work is completed.*	1	lump sum	$1,500	$1,500.00
2	Adjust door(s) and window(s) *Contractor to adjust doors to latch and/or lock after foundation work is completed. Adjust windows to open smoothly.*	1	lump sum	$750	$750.00

GRAND TOTAL: $11,025.00

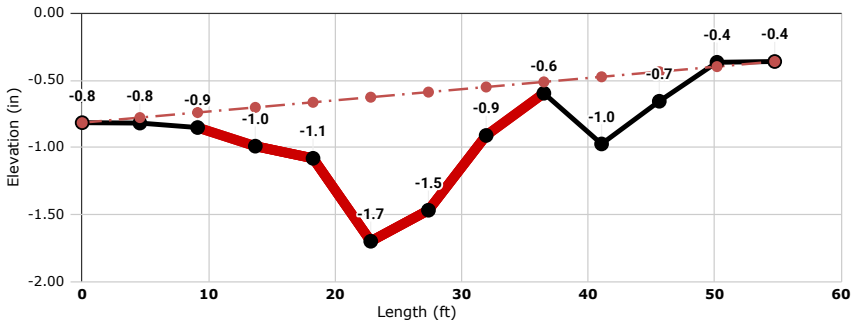
Foundation Repair Company Notes

Diameter and Depth: *The pier diameter and depth should be designed by the contractor based on the load requirements of the structure and the bearing capacity of the soil or rock layer. Piers/pilings must extend to a depth where soil conditions are stable enough to support the structure's loads.*
Material Specifications: *High-strength concrete, reinforced with steel rebar, should be used where applicable. The specification of materials should comply with relevant standards and codes to ensure durability and strength.*
Load Distribution: *The design must consider the distribution of structural loads to the piers/pilings, ensuring that each pier can adequately support its portion of the total load without exceeding the bearing capacity of the underlying soil or rock. Contractor may recommend more or less pier/pilings depending on their means/methods.*
Lateral Stability: *In addition to vertical loads, the design must account for lateral forces due to wind and/or soil pressure. This may require additional reinforcement or specific pier/piling configurations.*
Construction Technique: *The construction process involves drilling, excavation, and concrete pouring techniques that minimize disturbance to surrounding soil and ensure the integrity of each pier/piling*
Water Handling: *If groundwater or water-bearing layers are encountered during drilling, appropriate measures must be taken to manage water inflow and prevent undermining of the pier's foundation.*
Inspection and Quality Control: *Continuous inspection during construction ensures that the piers/pilings conform to the design specifications. Quality control measures are crucial for verifying the integrity of materials and construction practices.*

Limitations to this Cost Estimate

Engineer does not warranty or guarantee the accuracy of the costs provided. The costs estimated in this OPCC are intended to serve as a guideline only and are subject to change based on various factors, including but not limited to, market conditions, the specific contractor's methods, materials, and costs, as well as unforeseen circumstances during the construction process. These costs are not bids or fixed quotes for the construction project. The final choice of contractors, subcontractors, materials, and methods, warranty, and any resulting cost implications, are the sole responsibility of the Client. Engineer shall not be held liable for any claims, disputes, or litigation arising from differences between the estimated costs and the actual costs incurred during the construction project. Rehabilitation costs are highly variable and depend on the fortification technique and other unpredictabilities.

Exhibit B: Identified Deflection/Tilt Failure (L6)





Profile Data for L6					Actual Length (ft)		55			Effective Length (ft)			20
Point (#)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Length (ft)	0	5	9	14	18	23	27	32	36	41	46	50	55
Tilt (in)	-0.8	-0.8	-0.7	-0.7	-0.7	-0.6	-0.6	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4
Z (in)	-0.8	-0.8	-0.9	-1.0	-1.1	-1.7	-1.5	-0.9	-0.6	-1.0	-0.7	-0.4	-0.4
Deflection 1 (Failures)				-1.0	-1.1	-1.7	-1.5	-0.9	-0.6				
Deflection 2 (Failures)			-0.9	-1.0	-1.1	-1.7	-1.5	-0.9	-0.6				
Deflection 3 (Failures)			-0.9	-1.0	-1.1	-1.7	-1.5	-0.9					
Deflection 4 (Failures)													
Deflection 5 (Failures)													

k-factor Calculation							
Start Position (x,y) (ft)	45.04000092	1.039999962	End Position (x,y) (ft)	34.31000137	54.72000122	k-factor (1.00 to 1.41)	1.019781988
Length (ft)	53.68000126		Width (ft)	10.72999954		Limit	L / 353

Performance Output							
Deflection & Tilt	**Pass/Fail**	**Actual**		**Result Description**	**Point 1**	**Point 2**	**Point 3**
Deflection 1 (using k)	FAIL	L /	316	EXCEEDS THE kL/360 (L/353) LIMIT BY 12%	4	6	9
Deflection 2 (using k)	FAIL	L /	336	EXCEEDS THE kL/360 (L/353) LIMIT BY 5%	3	6	9
Deflection 3 (using k)	FAIL	L /	337	EXCEEDS THE kL/360 (L/353) LIMIT BY 5%	3	6	8
Deflection 4 (using k)	PASS	L /	380	USING 93% OF THE ALLOWABLE kL/360 (L/353) LIMIT	2	5	10
Deflection 5 (using k)	PASS	L /	383	USING 92% OF THE ALLOWABLE kL/360 (L/353) LIMIT	4	8	11
Tilt	PASS	0.07	%	USING 7% OF THE ALLOWABLE 1% LIMIT			

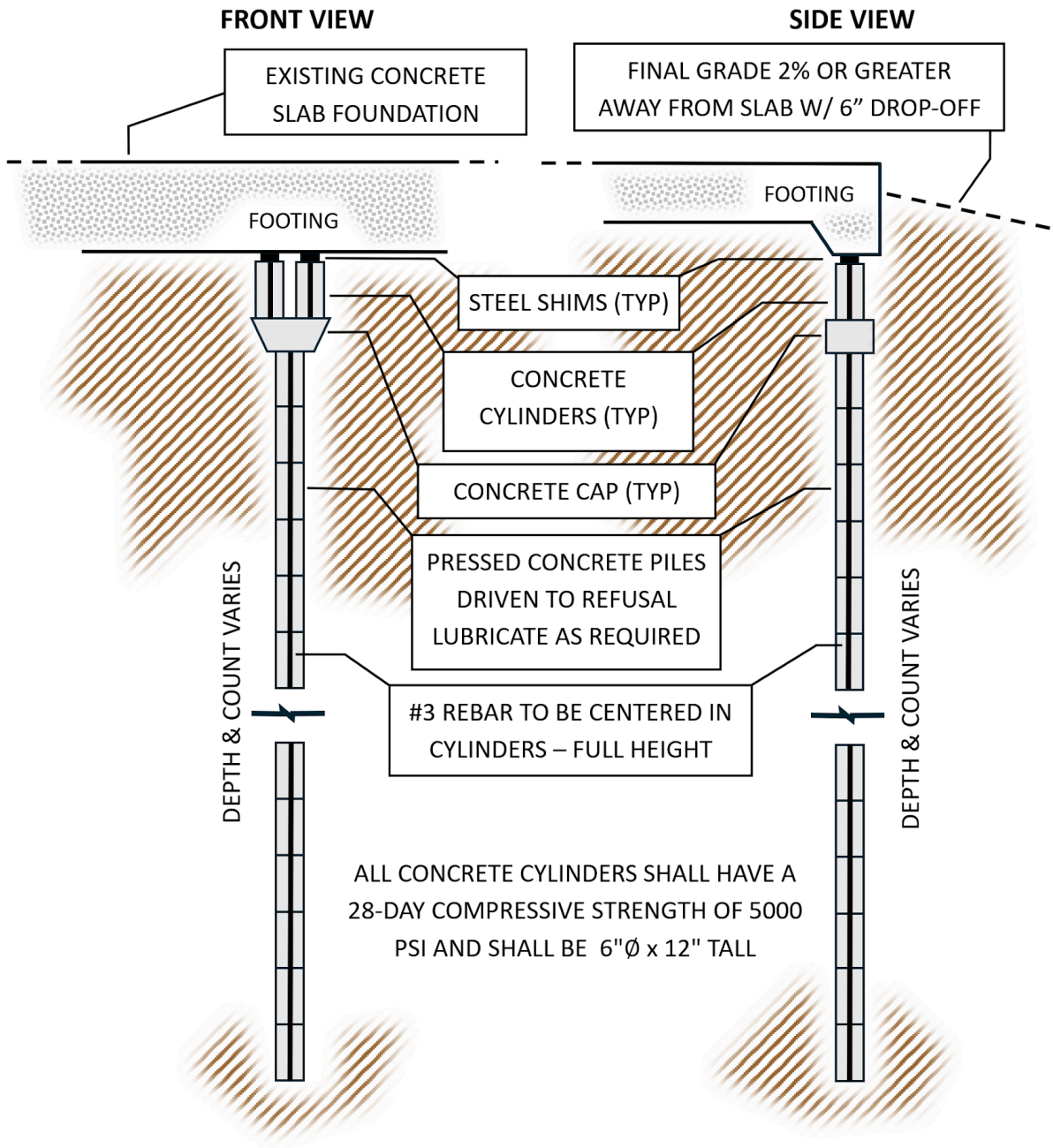
*Calculations developed by FPA for Document # FPA-SC-13-1 - Guidelines for the Evaluation of Foundation Movement for Residential And Other Low-Rise Buildings

Exhibit C - All Deflection and Tilt Failures Table

Profile	Deflection Calculation?	Tilt Calculation?	Lengths		Deflections 1-5										Tilt	
			Actual Length	Effective Length	Deflection 1		Deflection 2		Deflection 3		Deflection 4		Deflection 5			
					%	Exceeds	%	Exceeds	%	Exceeds	%	Exceeds	%	Exceeds	%	Exceeds
L6	FAIL	PASS	55	20	0.12%	YES	0.05%	YES	0.05%	YES	0.93%	NO	0.92%	NO	0.07%	NO
L19	FAIL	PASS	43	20	0.02%	YES	0.98%	NO	0.97%	NO	0.93%	NO	0.91%	NO	0.36%	NO
L42	FAIL	PASS	43	20	0.02%	YES	0.91%	NO	0.90%	NO	0.85%	NO	0.80%	NO	0.27%	NO
L47	FAIL	PASS	42	20	0.06%	YES	0.99%	NO	0.96%	NO	0.91%	NO	0.89%	NO	0.13%	NO
L49	FAIL	PASS	45	20	0.01%	YES	0.97%	NO	0.88%	NO	0.84%	NO	0.81%	NO	0.41%	NO
L69	FAIL	PASS	42	20	0.07%	YES	0.03%	YES	0.99%	NO	0.95%	NO	0.92%	NO	0.18%	NO

Exhibit D - Concrete Cylinder Piles

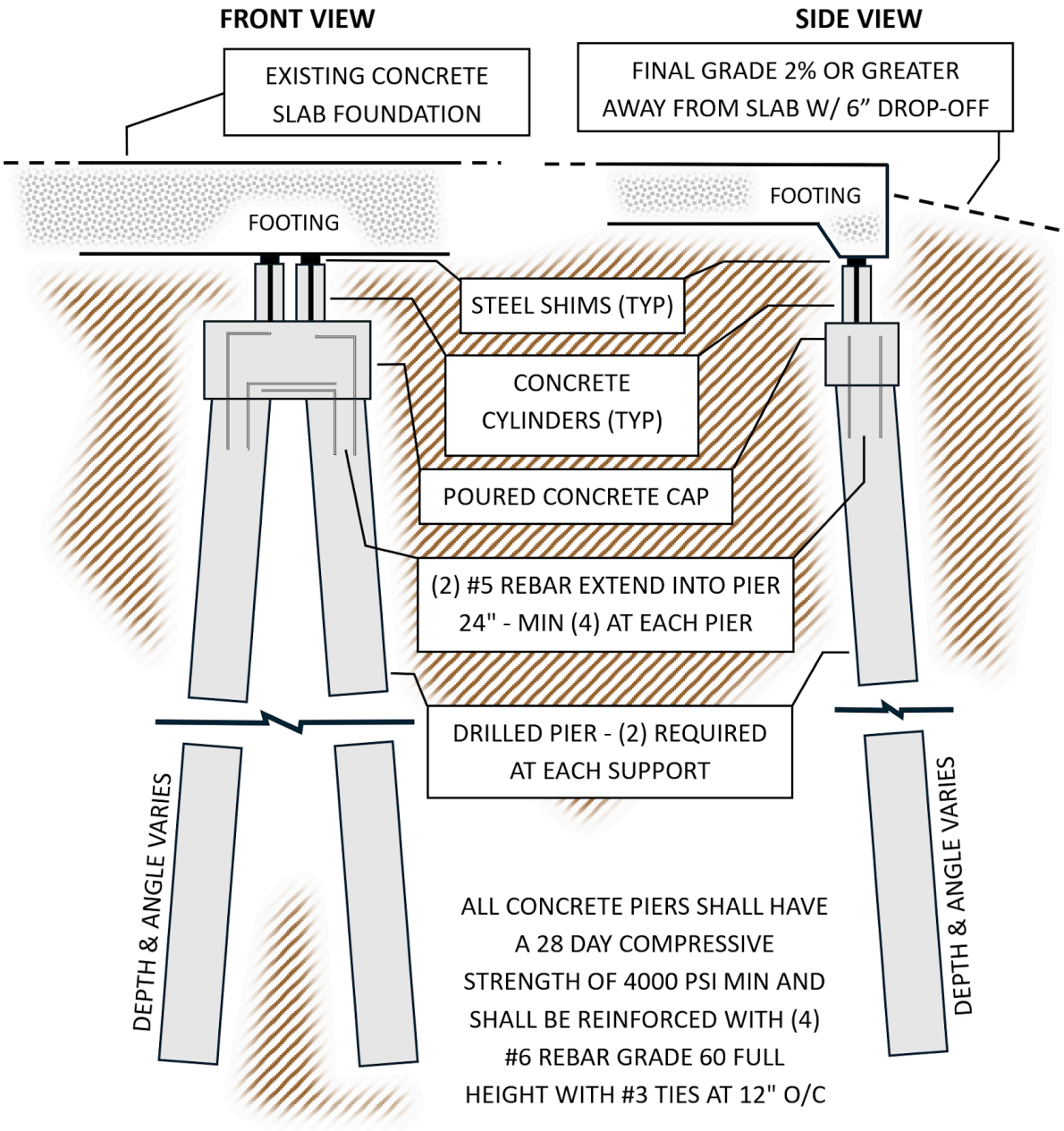
123 Main St, Your City, Your State, 12345



Not to Scale | Drawings are provided for conceptual use only and are not considered engineering details

Exhibit E - Drilled Piers

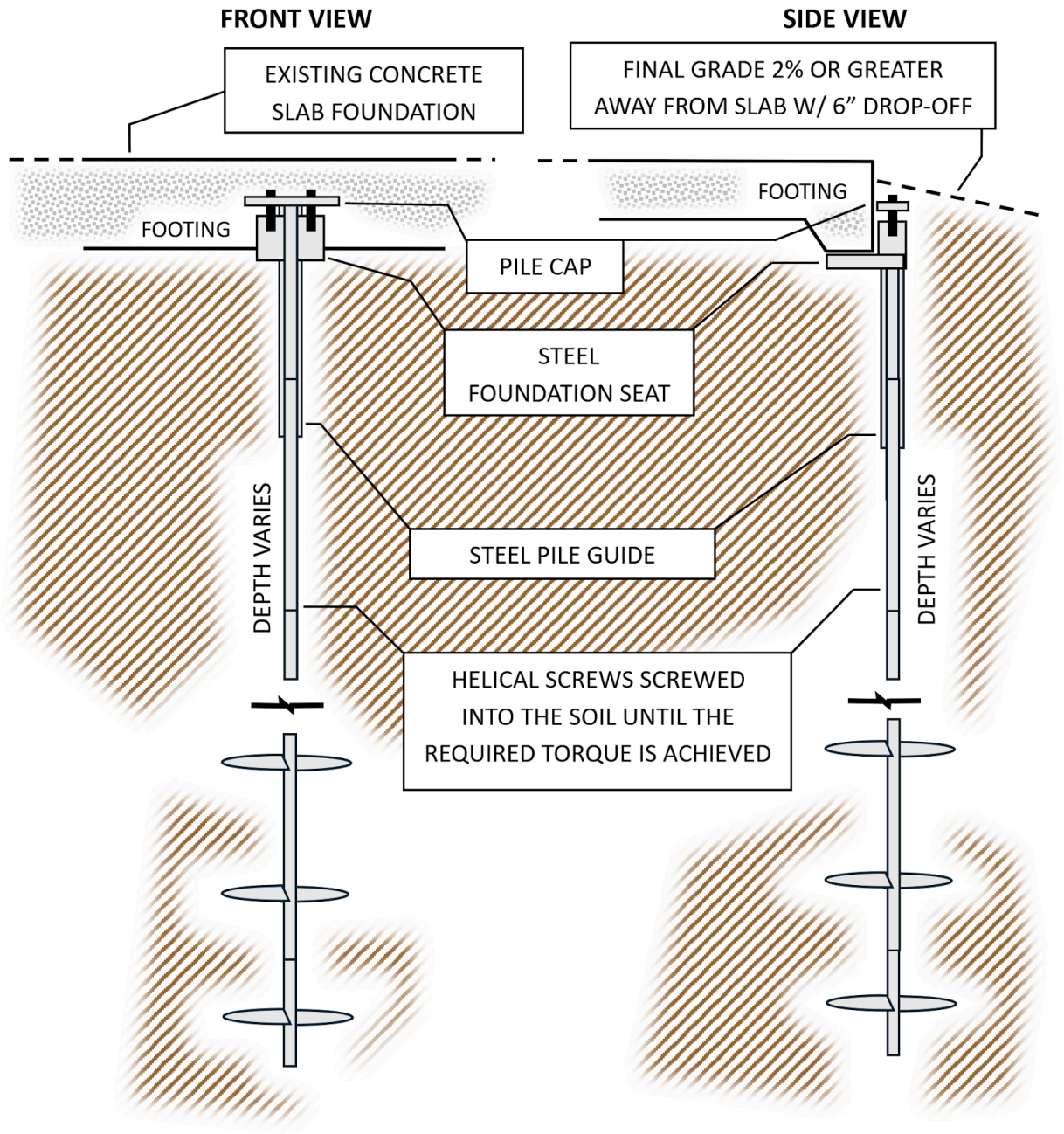
123 Main St, Your City, Your State, 12345



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Exhibit F - Helical Screws

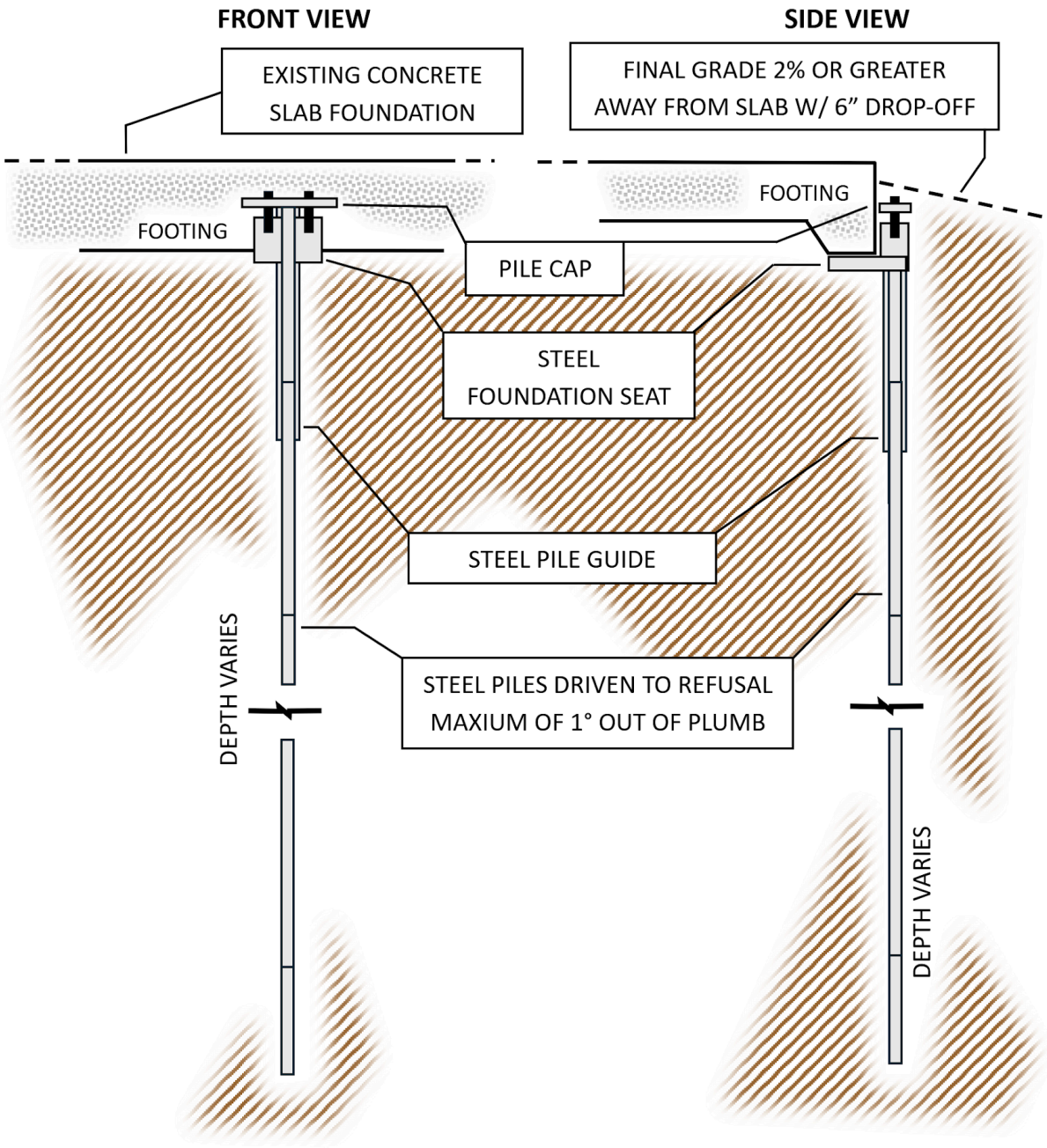
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Exhibit G - Steel Piles

123 Main St, Your City, Your State, 12345



Not to Scale | Drawings are provided for conceptual use only and are not considered engineering details

Appendix A

On-Site Inspection Report with Photos Dated 3/26/2024

123 Main St, Your City, Your State, 12345

The on-site inspection report may be too lengthy to include in the Appendix A herein. This can occur with lengthy reports, particularly if they contain other specialties. If a full copy is not here, we recommend contacting the inspector.

Inspector: Inspector Doe

Level Up Home Inspections

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