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Mr. & Mrs. Redacted
5114 Redacted Lane
Austin, Texas 78759

9 November 2003

Ref: Property Condition at 20100 Redacted Court, City Zip.

Mr. & Mrs. Redacted:

At your request we conducted a condition survey at the subject property on 30 October 2003.

PURPOSE AND SCOPE

The purpose of this report is to observe accessible areas of the property and document apparent functional deficiencies as of the date of survey. The scope of this service is limited to superficial facilities inspection via routine visual means, in accordance with our provided Limited Property Condition Survey Contract. This report is not exhaustive. Some systems are not evaluated and some types of obvious damage are not noted. Concealed discrepancies and latent defects cannot be reported.

SITE DESCRIPTION

The sparsely shaded, semi-rural lot gradually slopes from right to left, with the slab sited on a shallow bench pad. Site perimeter drainage (relatively undeveloped land) appears adequate.

The subject property is a single-story residence with an attached (integral) double-width garage. The foundation is a monolithically-poured concrete slab of unknown configuration, bearing depth, reinforcement,¹ fill, etc. Walls are conventional wooden stud framing with metal framed, double-glazed windows. Exterior cladding is white stone veneer all around. The complex, hipped roof structure is conventional wooden stick framing with composition wood panel (radiant barrier OSB) decking and a composition shingle covering. The roofing is partially guttered (front/rear only). The ceiling insulation is about 10" of blown fiberglass. There is a metal, insert-type 'fireplace'² in an interior (framed) chase.

The house has a recessed, integral front porch and an integral (covered) rear porch. There is a portion of paved driveway and access flatwork, although the approach to the house is gravel.

The garage appears partially detailed for a room conversion (there is no curbstop or sloped floor).

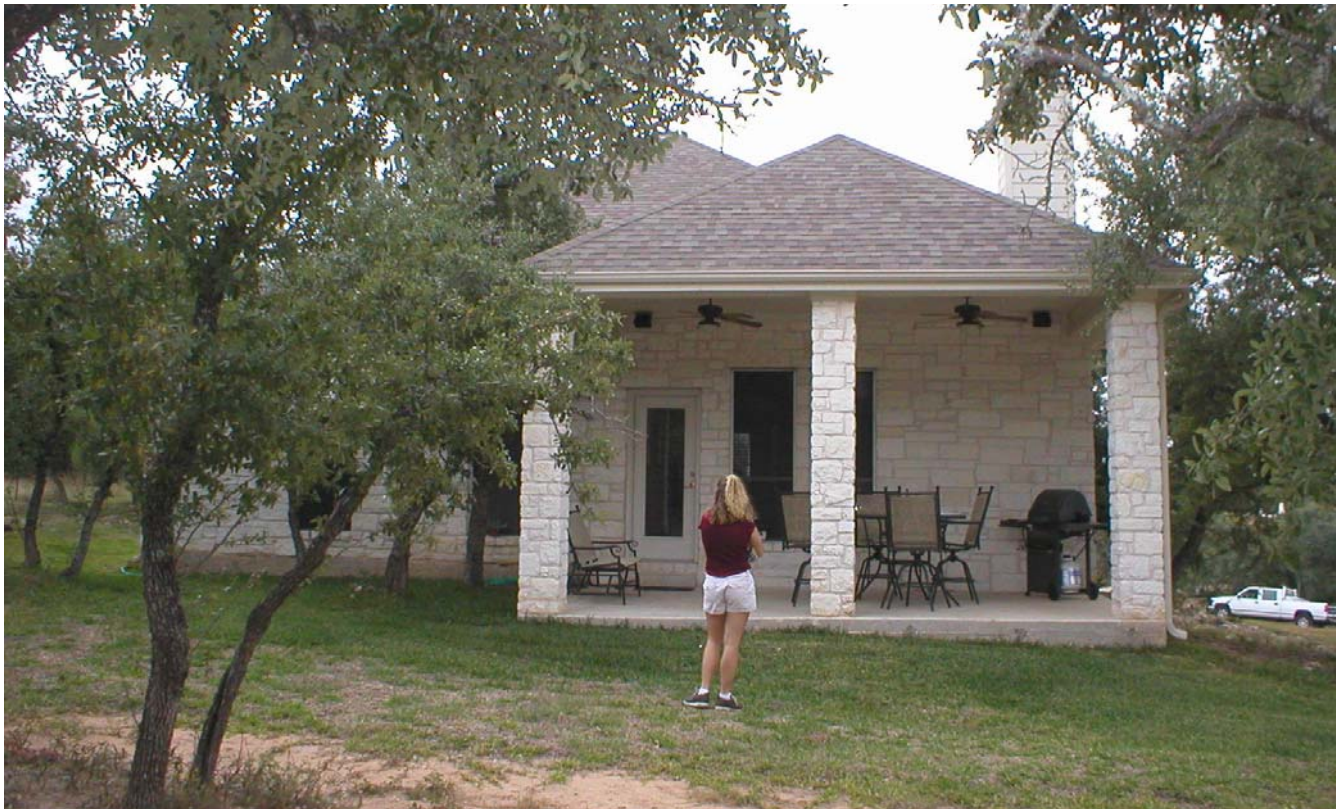
There is an on-site water supply system (well).

¹ Typical residential slab construction uses 4" rib-stiffened slabs, and the exposed tendon wedge anchors (see 'Foundation') indicate a post-tensioned reinforcement design.

² More correctly, a listed, vented solid-fuel burning appliance.



Front and Left Elevations



Rear Elevation

This is urbanized rural land and no site-specific geotechnical data are available, but published reference³ and experience in this area indicate features typical for the eroded uplands of Glen Rose formation characterizing this area of the highland lakes. Natural soil horizons are very shallow and the bedrock is massive limestone and dolomite. It is obvious that local fills were imported to level the site, and bed the slab interior areas.

There is little potential for soil movement (shrink/swell) at this location. The primary settlement problems are usually attributable to shallow beams and/or fill erosion. Interior areas of these slabs are supported by imported fill materials. Fill materials typically exhibit advanced settlement and/or erosion potential, particularly with poor drainage on a natural slope.



Visible perimeter soils range from gravelly, stony caliche, shallow silts (natural soils) and reddish loams (backfill materials). Ground cover was in variable condition (good at the right and rear, bare and eroded at the left).

3 Bureau of Economic Geology, The University of Texas at Austin, "Environmental Geology of the Austin Area," 1976.

BACKGROUND

The survey was conducted from 9:30 am to 1 pm. The weather was mild, overcast and windy, with no recent rains. Floors were covered and the house was furnished (occupied).

No tax or construction records were available but the house is recent construction, about 3 years old.

Mr. & Mrs. Redacted (client) and Ms. Agent (buyer's agent) were present during the survey.

SPECIFIC LIMITATIONS (INCLUDE BUT ARE NOT LIMITED TO)

The roof was not accessed due to pitch. Visual evaluation was from ground level.

The hydrotherapy tub pump was inaccessible, pump motor bonding (electrical grounding) was not verified.

Contractually omitted items include buried utility systems in general, and septic systems and buried conduits in particular.

Clocks, timers, photocells and motion detectors are all infeasible to verify and are also omitted.

The refrigerator and laundry equipment were omitted (not conveyed items).

SUMMARY OF STRUCTURAL SYSTEMS OBSERVATIONS

FOUNDATION & SITE CONDITIONS (SLAB ON GRADE)

- Shrinkage cracks evident at exposed slab surface (garage).
- Post-tension wedge anchors apparently exposed (and backfilled against).
- Persistent ponding and/or erosion at unguttered drip edges (both sides).
- Poor downspout conveyance (notably at upslope areas).



Shrinkage Cracks (at garage floor surface)

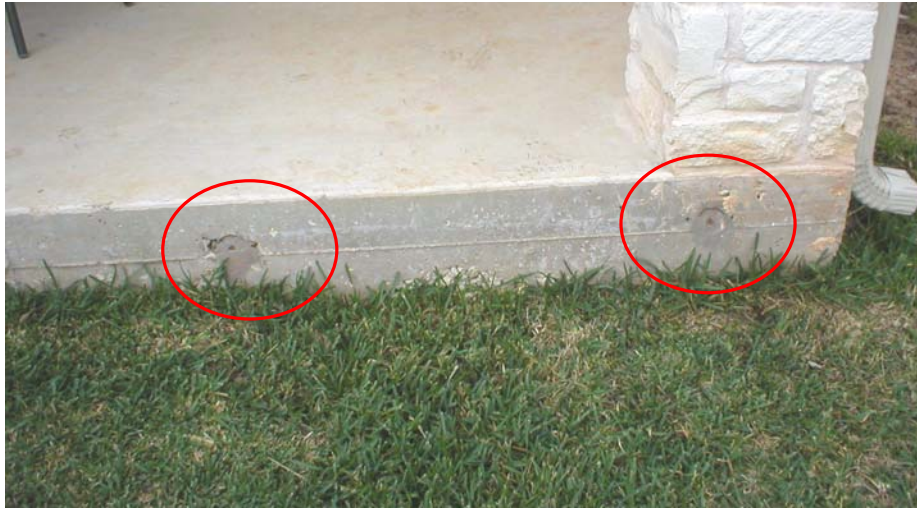
As regards structural integrity, the location and morphology of the visible cracks at the upper slab appear typical for those caused by excessive concrete cure shrinkage.⁴ Indicative of poor installation practice, this type of cracking is very common in rural residential slab-on-grade construction. At this point they do not appear severe enough to affect the slab structural function, although they can affect other slab functions, notably flooring. Ceramic tile installed without a crack barrier membrane may reflect cosmetic cracks. Where some slab movement occurs, shrink cracks can also cause mismatch lines in sheet vinyl flooring. Carpet, wood and laminate flooring all perform acceptably on cracked substrates.

In the event any flooring is removed and cracks revealed to be approaching 1/8" across, then these should be evaluated by a licensed Professional Engineer prior to installing the flooring. Further worsening of the visible cracks may eventually require epoxy injection.

We recommend that even tight interior shrinkage cracks be superficially sealed using a suitable polymeric material (e.g., paint the garage floor with polyurethane or epoxy paint). Contact an engineer if the cracks are observed to suddenly splinter or widen.

It appears that this is a post-tensioned slab, with the wedge anchors installed along the rear and right sides. These have exposed cable (tendon) ends and should be sealed prior to backfilling against the slab. The subject underpinnings should be excavated, cleaned and pargetted (with Portland-rich plaster) sufficient to imbed the cable ends at least 1/2" before backfilling.

⁴ Indications include interior, transverse locations, tightened near edges, equiangular convergence, no vertical offset.



Exposed Tendon Wedges (at rear, others appear to be buried)

As regards settlement morphology, this slab is crowned about 1". The appears to be terminal settlement, which is a common scenario on rocky soils in rural areas. Due to difficulty in excavating rocky soils, slab foundations are formed with perimeter beams at grade. Trash, silt and organic material beneath the formed beams then rapidly erodes or decomposes around the edges of the slab, causing relatively rapid perimeter subsidence, then good stability, provided no erosion or undermining is allowed to take place. For this type of foundation (poorly contained fill at interior areas on a natural slope), it is imperative to avoid collecting or conveying water along the upslope (right) foundation perimeter. Recommended improvements include, but are not limited to:

1. Installation of additional rain guttering along both side elevations, with substantial downspout extension (ideally buried drain piping) to downslope areas.
2. Extension of existing upslope (right) downspouts to downslope areas.
3. Installation of splashblocks at the existing downslope (left) downspouts.
4. Backfilling eroded areas beneath the roof drip edges (both sides).
5. Regrading (swaling) to convey surface flow along the right slope to go around the house.

In my opinion rapid perimeter subsidence is the primary contributing cause of the exterior masonry cracks, but no other significant referred damage in the superstructure was noted. No excessive floor slopes were noted.⁵

INTERIOR SURFACES

No discrepancies were noted. In view of the slab cracking, the absence of any visible grout separations or cracked tiles is remarkable.

⁵ A slope criterion of 1:120 is arbitrarily applied for purposes of evaluation. Slope from the middle to the left front was 1:200 or better.



Flexural Cracks above Lintel (esp. at right corner)



Poorly Detailed Sill Masonry

EXTERIOR SURFACES (STONE VENEER)

- Flexural cracks (about 1/8") evident at right front and left rear corners.
- Flexural and thrust (horizontal) cracks (about 1/8") evident above garage opening.
- Garage lintel is visibly bowed / Lintel member is not painted.
- Window sill masonry is not sloped or well-pargetted / Gaps and cracks around fitments.
- Insulated glass panes at master hall shower appear 'fogged'.
- Tight or binding window sashes at master bedroom (rear elevation).

Although most of the masonry damage is attributable to rotation (subsidence) of the foundation edges, the sagging garage lintel is also contributing at the right front. This is likely to progressively worsen and eventually may result in a hazardous condition (as the masonry is thrust outward away from the gable).

Existing masonry cracks should be repointed with ordinary masonry cement. Any recurrence is evidence of progressive movement and should be re-evaluated.

FIREPLACE & CHIMNEY (INSERT)

- Recommend routine cleaning and inspection (NFPA 211, Type II) by a qualified chimney sweep.

ROOFING (COMPOSITION SHINGLE) NOT ACCESSED

- 'Builder-grade' roofing fitments (vinyl jacks, no metal drip edges, etc.).
- Minor fastener withdrawal (fasteners backing out beneath shingle tabs).
- Minor tree contact (both sides and rear).
- Recommend additional gutters and extension of existing downspouts (see 'Foundation').

The expected life of the plumbing jacks is about half that for these shingles. Upgrade to all-metal jacks within the next five years or so.



Inadequately Supported Rafter Lap (right slope)

ATTIC (STICK FRAMING)

- Extremely inadequate mechanical access and service decking (i.e., none).
- Attic is slightly under-purled (but overall materials and workmanship appear acceptable).
- The folding stair extension is not trimmed square to the floor.

Model codes have long required rated floor decking to attic equipment. Catwalks must be unobstructed and at least 22” wide. Work platforms require 30” of clear space with decking.

PORCHES, FLATWORK & DECKS

- Very narrow treads at rear entry stoop.

Note there is only partial driveway flatwork to the house.

SUMMARY OF MECHANICAL SYSTEMS OBSERVATIONS

ONLY DISCREPANT ITEMS ARE NOTED. SEE PROVIDED CONTRACT OR ATTACHED NOTES FOR SCOPED ITEMS.

DISHWASHER

- Inadequate (visible) backflow prevention / Loop drain line higher (to bottom of countertop).

FOOD WASTE DISPOSER

- Supply cord installed without strain relief clamp.

CEILING FANS

- Fan at living room could not be made to function. (?)
- Inadequate speed controls (need wall controllers or longer pull chains).

BATH HEAT & VENTILATION

- No visible duct extensions for bath exhaust fans (they may be buried beneath insulation).



Water Heater (relief valve seized, torn drain pan, risers not blocked, no disconnect, no service decking, etc.)

HOT WATER HEATER (50 GAL ELEC) IN ATTIC

- Temperature-pressure relief valve would not actuate.
- Improper exterior termination of relief piping (elbow required downward).
- Evidence of past service replacements (elements, thermostats and boiler drain parts).
- The overflow pan is torn (needs replacement) / No drain piping connected.
- No blocking at piping risers.
- No electrical disconnect provision.

HAZARDS

Based on the relative age, but number and severity of observed conditions, this is an immediate service or replacement item.

DOOR BELL & CHIME

- There is no doorbell.

HYDROTHERAPY TUB

- No branch GFCI protection located.
- No mechanical access to tub motor (pump motor bonding NOT verified).
- No electrical disconnect provision located.

HAZARD



Condenser Unit (right side)



Furnace-Fan-Coil (attic)

COOLING SYSTEMS (4 TONS)

- Condenser unit is beneath an unguttered roof drip edge.
- Exterior condensate drain needs to be extended away from house.
- Interior (attic) condensate piping is not insulated.
- Prolonged condensation or leakage into overflow pan / Progressive rust in pan (see photo).

HEATING SYSTEMS (ELECTRIC RESISTANCE)

- No service disconnect located.

Note operation of resistance heating is inherently expensive (versus heat pumps).

DISTRIBUTION SYSTEMS

- The thermostat mode switches were difficult to operate.

VENTS & FLUES

- Dryer vent pipe needs to be cleaned (note this is also proximate the air conditioning condenser).

SUMMARY OF UTILITY SYSTEMS OBSERVATIONS

ONLY DISCREPANT ITEMS ARE NOTED. SEE PROVIDED CONTRACT OR ATTACHED NOTES FOR SCOPED ITEMS.

PLUMBING (PRIVATE WELL)

- No backflow preventers installed at hose bibbs (esp. with a buried water hose at front).
- Main house outfall (sewer drain) clean-out is 3" (4" outfall is conventional).
- Attic vent riser from master bath plumbing needs additional support.
- Missing escutcheon trim at washer hook-up recess.

KITCHEN

- Leakage at spigot swivel control (very typical).

HALL BATHROOM

- Commode recovery (tank fill after flush) was very slow.



Service Entrance (over livestock fencing?)



Service Entrance (on pole)



House Load Center (right wall)



Garage Branch Subpanel

ELECTRICAL SERVICE ENTRANCE (200A 110/220V 1PH)

- Antiquated (pre- 1996 NEC 3-wire) 220V feed wiring (major appliances not grounded).
- Inappropriate conductors, inappropriate insulation, no strain relief, no conduit at well feed.
- Missing barge fasteners (house and entrance panels).
- Gap at service entrance panel (note most of the installed breakers are also unused).
- Branch circuit breakers not adequately labeled.

GROUND FAULT CIRCUIT INTERRUPTION (GFCI)

- No GFCI located for master hydrotherapy tub.
- No remote protection labeling (not a hazard).

HAZARD

BRANCH CIRCUITS & FIXTURES

- Omitted fixtures (open workboxes) at garage ceiling.

SUMMARY OF ANCILLARY SYSTEMS OBSERVATIONS



Well Head and Pressure Tank (all that exposed wiring is interior-grade, energized supply cabling)

WATER WELL (WELLHEAD & ACCESSIBLE EQUIPMENT ONLY)

- Equipment is not housed / Exposed wiring, switch housings and piping.
- Extremely inappropriate supply cabling, routing and strain relief provisions.
- Pressure tank support appears inadequate.
- The pressure gauge is not functional.

This is obviously not a workmanlike installation. It's time to build a wellhouse.

RECOMMENDED REPAIR PRIORITY

REPAIRS ARE CLIENT PREROGATIVE AND RESPONSIBILITY. WE RECOMMEND THAT REPAIRS BE PRIORITIZED TO MITIGATE RECOGNIZED AND/OR POTENTIAL HAZARDS FIRST, LOSS PREVENTION SECOND, HEAVY MAINTENANCE THIRD, THEN ADDRESS ITEMS WHICH AFFECT OCCUPANT COMFORT & COSMETICS. INDICATED REPAIRS INCLUDE, BUT ARE NOT LIMITED TO:

1. Recognized Hazards (water heater relief valve, GFCI for tub).
2. Potential Hazards (wiring conditions, esp. well feed conductors).
3. Heavy Maintenance (foundation, site drainage, water heater, HVAC service, etc.).

RECOMMENDATIONS FOR FOUNDATION MAINTENANCE (STANDARD)

The supporting soils at this residence may include components which shrink and swell with changing moisture content. For this reason, a maintenance program should be followed to include keeping the moisture content of soil around the foundation perimeter constant and uniform. We generally recommend guttering roof drip edges over lawn areas. Exterior stormwater and condensate drains should be extended 36-48" from the foundation perimeter, preferably downslope. Any low areas adjacent to the foundation should be filled. Do not operate sprinkler systems in wet weather (most systems do not have rain sensors). During dry weather periods, routine watering to keep healthy grass green (about 1" per week) is ordinarily sufficient to keep the soil uniformly moist.

SUMMARY OF WOOD DESTROYING INSECT REPORT (WDI)

No evidence of infestation or previous treatment was observed. No corrective treatments are recommended. A few high soil conditions, blocked reveals, perimeter mulch and excessive moisture are recognized conducive conditions for subterranean termites. We therefore recommend preventive treatment or mechanical correction (preferred) of these conditions.

Refer to your WDI report for more details, a site diagram and specific scope of inspection.

CERTIFICATION

I hereby certify that I am a Professional Engineer, Professional Real Estate Inspector and Pest Control Applicator licensed in the State of Texas, that I have no personal interest in the inspected property nor anyone involved with the property, and that this inspection was performed in a diligent manner to accurately represent conditions on the date of survey.

Stone Creek Engineering Services, Inc. is a registered engineering service provider in Texas.

Stone Creek Engineering Services, Inc. is a licensed pest control business in Texas.

GENERAL LIMITATIONS

The facilities inspected are not new. Various wall, floor, ceiling coverages and/or household goods prevent observation of many surfaces. Concealed discrepancies and/or latent defects necessarily limit the accuracy and scope of this report. There was no geotechnical soil analysis available for review.

Stone Creek Engineering Services, Inc. and its associates have no control regarding conditions in which these facilities were built and do not accept responsibility for future structural damage as a result of selections made by the builder and/or designer. Stone Creek Engineering Services, Inc. disclaims any control regarding site work practices and does not accept responsibility for future damage or injury as a result of actions taken by other parties. Any recommendations herein are made to improve conditions.

This report makes no determinations or representations regarding the presence or absence of any environmental pathogens. Findings regarding apparent fungal growth are strictly limited to considerations of termite conductivity and/or structural rot.

This report does not represent any warranty, express or implied, and this company is not licensed to insure, warranty, or guaranty against future changing conditions.

Stone Creek Engineering Services, Inc. and its employees and representatives do not have and disclaim any contractual relationship with, or any obligation to, any party other than the addressee of this report.

Please contact us if additional information becomes available for analysis, or if you have any questions.

Witness my signature & seal:

ONLINE REFERENCE ONLY

Russell D. Strahan, P.E.
Consulting Engineer / Inspector
Stone Creek Engineering Services, Inc.

cc: chrono
attachment & enclosures

TPCL 10788