

Scope of Work
Methane Gas Passive Venting System Installation
Pebble Creek Village
[REDACTED]
Summerville, Charleston County, SC
PSI Proposal No. 465-60032
October 15, 2006

Professional Service Industries, Inc. (PSI) is submitting this proposed scope of work to provide consulting services for the single family residence at [REDACTED] in the Pebble Creek Village residential subdivision in Summerville, SC. Presented below is a review of furnished project information, along with our proposed scope of services and work schedule.

PROJECT UNDERSTANDING

During an assessment of the property performed by PSI in September and October, 2006, methane gas was observed to be trapped beneath the slab on grade for the residence. The source of the methane was a broken sewer pipe beneath the slab. The broken pipe has been repaired, however, the methane gas is still leaking through the slab resulting in elevated levels of methane in the interior living space. A Subsurface Exploration Report was prepared for Lennar Homes by PSI in October 2006. Please refer to that report for additional detail.

The results of the exploration from October 2006 indicated that concentrations of methane were present beneath the slab on grade of the home. Temporary gas monitoring points were installed around the perimeter of the home. The methane levels were the highest at the monitoring points located along the south and west sides of the home, with no methane detected at the monitoring points located along the north and east sides of the home. The exploration report recommended that a methane gas vent system be designed and installed beneath the floor.

SCOPE OF SERVICES

PSI proposes the following scope of work to perform design, installation and monitoring for a Methane Gas Passive Venting System at the subject property.

The current conceptual design will require the installation of a network of horizontal vent piping beneath the slab on grade at the home. We estimate that the system will require ten (10) runs of 2-inch diameter perforated PVC pipe connected to a common trunk line (3" diameter PVC). The common pipeline will be connected to an exhaust fan which will operate for one week to actively vent the methane gas from the sub-slab vent lines. After the active venting period is complete, the 3" pipe will serve as a discharge point to the atmosphere for the passive system.

In addition, the scope of work includes excavation along the south and west exterior walls of the home to a depth of 3 inches below the bottom of footing. The existing soil will be removed from the site and excavations backfilled with clean porous stone (ASTM Size # 57). The stone will serve to facilitate venting of the methane from beneath the building.

Monitoring of Methane Gas

PSI proposes to measure the methane gas concentrations in relation to the percent LEL for methane from the air collected at the discharge point. The methane gas readings will be obtained using a calibrated combustible gas indicator. Samples will be collected and analyzed for two minutes with the highest sustained reading recorded. Hydrogen sulfide, methane, carbon monoxide, and oxygen will be measured for each monitoring event. Measurements for methane will also be collected from the venting system exhaust piping and from the interior air space of the home during each monitoring event using an organic vapor analyzer (FID).

The gas monitoring will be generally conducted once per day during the construction phase, and then every other day for the first week after the active venting of the system is complete. Depending on the methane levels observed at the end of that monitoring period, a schedule for future monitoring will be developed. We anticipate the schedule for monitoring will likely involve one monitoring event per week for the first three months. After that, monitoring events typically can be reduced to once or twice per month for the next quarter year, and then to once per quarter for the remainder of the first year. If necessary, monitoring would likely continue on a quarterly basis beyond the first year after the installation of the passive venting system, or until the results can demonstrate that the methane concentrations beneath and within the home have stabilized at or near normal background levels. Once the methane readings have reached satisfactory levels, the sub-slab vent piping system will be removed and the openings back filled with fine grout consisting of 1 part Portland cement, and 3 parts sand by volume.

A report will be completed describing the as-built venting system installed and presenting the air test results collected during the monitoring period.

Schedule

PSI proposes to begin work to install the venting system described above on or about November 2, 2007.