



## **Construction Inspection Division**

### **Post-Construction Stormwater Drainage Inspection Report** 2616 Moon Creek Lane Clover, South Carolina 29710

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**Stormwater Drainage Inspection**

A complete inspection was performed at the above property. The structure is a new residential build. Soil composition is mostly clay. Roof is covered with composite shingles. Guttering and downspouts are in place. There are a number of issues around the structure that need to be addressed with respect to stormwater drainage, roofing and gutters.

**Gutters**

The structure has a single downspout on the right side (southwest side) with a gutter span exceeding 30' (See Illustration #1, Page 3). This span continues around the back corner of the structure above the patio area, wraps around the back side of the structure (southeast side), and then continues around to the left side of the structure (northeast side) (See Illustration #2, Page 3). On the back side of the structure, there is a single downspout over the patio area that discharges water from three different roof surfaces (See white arrows). The amount of potential stormwater that will be discharged onto the shingle roof above the patio area will be significant. The surface of the shingles will deteriorate at a rapid pace with the increased amount and flow of stormwater. This will lead to roof damage and higher potential for water intrusion. This stormwater from the main roof, along with the stormwater from the patio roof, is then funneled down into a single downspout for discharge at the base of the structure. This is a tremendous amount of water for a single discharge point. **See Corrective Action Items #1 & 2 on Page 6.**

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Illustration #1



Illustration #2



On the front of the structure (northwest side), on the second story gutter to the left of the front porch, there is a downspout connection with no downspout to direct stormwater into the gutter below (See Illustration #3 below). This gutter collects stormwater from three roof surfaces. This downspout connector sits immediately adjacent to the second story front wall, with no way to direct the stormwater down and into the gutter below. In addition, the amount and speed of the stormwater entering the roof valley below could easily be pushed up under the shingles and cause water intrusion and roof damage over the front porch area. All the above gutters empty into a downspout on the right of the front porch, which is attached to a poorly buried 4" corrugated drainpipe that discharges stormwater out by the property line. It was noted that this pipe was clogged with pine needles and leaves (See Illustration #5, Page 5). This will impair the ability of the gutters and downspouts to discharge stormwater as designed and may cause stormwater to backup and leak out at connection points at the base of the house. **See Corrective Action Item #3, Page 6.**

### Illustration #3



Similarly, on the left side (northeast side) of the structure above the garage, there is a second story gutter with a downspout connection with no downspout to direct stormwater into the gutter over the garage door (See Illustration #4, Page 5). The second story gutter collects stormwater from four roof surfaces. The amount of stormwater collected from these four areas with a single, non-guided discharge point will lead to increased wear of shingles due to the amount of stormwater and increased flow. This will cause roof damage and has a higher potential for water intrusion. **See Corrective Action Item #4, Page 7.**

**Illustration #4**



**Illustration #5**



All but one of the downspouts discharge stormwaters at the base of the foundation without any type of structure perimeter drain system. This allows for water to sit in direct contact with the foundation wall. This is especially noted to the left of the garage area where two downspouts discharge water in a relatively flat area with no drainage next to the foundation wall (See Illustration #6 below). There is also one crawlspace vent that sits at ground level and could easily become flooded, allowing for direct water intrusion into the crawlspace (see white arrow below). **See Corrective Action Item #4, Page 7.**

### Illustration #6



### Corrective Action To Be Taken:

1. **Right Side (southwest side)**- Place another downspout to the left of the patio from the second story gutter down to ground level. Tie new and existing downspouts into buried 4" corrugated drainpipes to discharge stormwater out on the right-side slope of the lot near the property line. (See Green Arrows)
2. **Back (southeast side)**- Place another downspout to the right of the patio from the second story gutter down to ground level (see Red Arrow). Tie this new downspout, and the existing downspout on the left side of the patio into 6" corrugated perimeter drain system to discharge stormwater out on the right-side slope of the lot near the property line.
3. **Front (northwest side)**- Place a downspout from the second story gutter that follows the contour of the roof and diverts water down and around into the roof

valley. Dig up and rebury the existing 4" corrugated drainpipe on the right front porch area (needs to be properly buried).

4. **Left Side (northeast side)**- Place a downspout from the second story gutter that follows the contour of the roof and discharges directly into the gutter over the garage. Place a downspout on the left side of the gutter above the garage down to ground level. Tie new downspout into 6" corrugated perimeter French drain system (left and backside only, see yellow line in Illustration #7 below) to direct stormwater around the side and back of the structure and discharge it on the right-side slope of the lot. These drains should NOT be discharged into the back yard due to the septic drain field. Extend to right side of structure.
5. **All gutters**- Have gutter guards installed to prevent gutters, downspouts and perimeter drains from clogging with leaves and pine needles.

**Illustration #7**



## **Roof**

Two areas of concern were noted with the roof. On the right side of the house there are two roof overhangs. One is connected to the front porch roof (See Illustration #8) and the other connected to the back patio roof (See Illustration #9). The shingles on both roofs are not properly connected to the structure. These shingles will flap in the wind and could easily be lifted, broken and torn way from the roof in windy conditions. Further, with driving rain conditions that frequent this geographical area, this could lead

to water intrusion in these two areas. Also, see incorrect installation of the aluminum trim on the soffit return on the left side of the patio roof (See Illustration #10) and patio post wrap miter joints not sealed (See Illustration #11). **See Correction Action Items #6, #7 & #8, Page 11.**

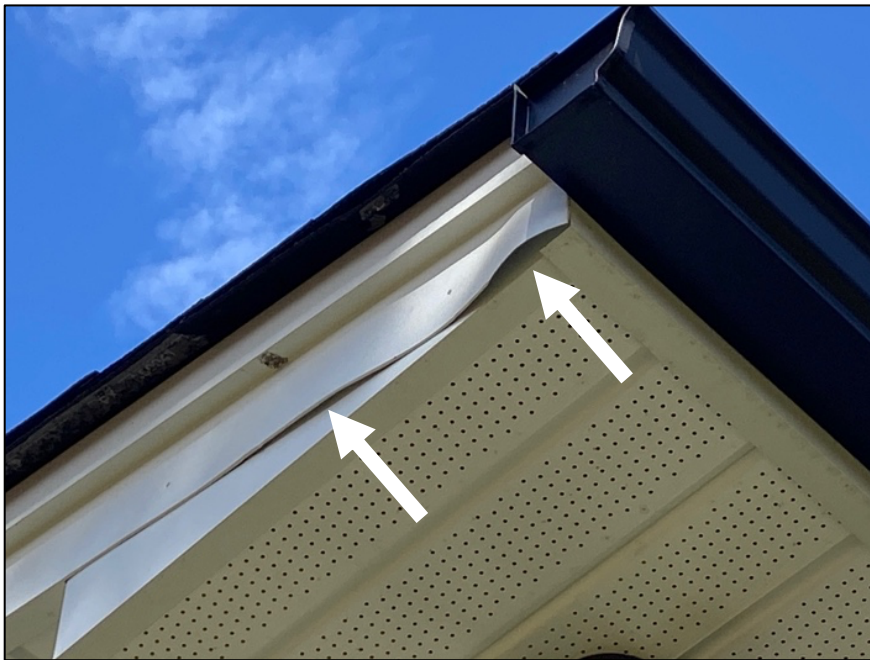
**Illustration #8**



**Illustration #9**

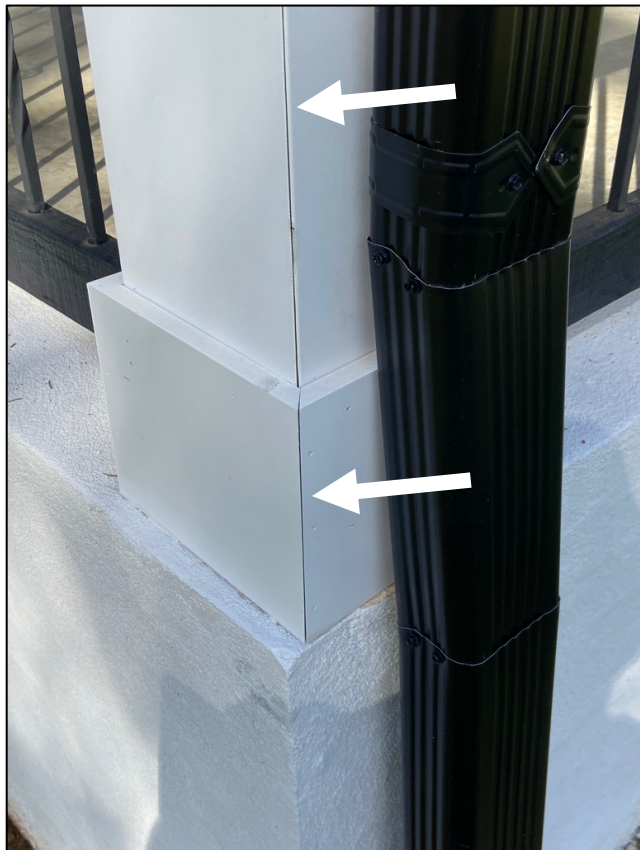


**Illustration #10**





**Illustration #11**



**Corrective Action To Be Taken**

6. Have these two areas properly flashed and capped with a metal (or similar) cap to ensure that wind-driven water is not pushed up under the shingles.
7. Have aluminum trim recut and fitted properly.
8. Have miter joints in the post wrap sealed and painted.

**Additional Areas of Concern**

The following areas of concern are noted in this report for the client.

There is a drainpipe sticking out of the ground on the right front corner of the structure below the side of the porch. As shown in Illustration #12, this pipe will not drain correctly in its current configuration. It is undetermined what this is connected to. **See Corrective Action Item #9, Page 11.**

## Illustration #12



The brick facade on the front, sides and back of structure have been covered over with stucco and painted. The waterproofing sealant/paint does not go all the way down to where it terminates at the base of the structure (See Illustration #13). Absorption of water sitting at the base of the stucco and wicking it upward behind the brick will happen. This could present problems with the stucco cracking and peeling away from the brick facade. **See Corrective Action Item #10, Page 11.**

### Illustration #13



#### **Corrective Action To Be Taken**

9. Determine what the drainpipe goes to and then have it properly sloped and buried so it will drain correctly.
10. Determine the reason the brick was covered over with stucco to begin with. Is there something being hidden or covered up? Next, make sure that all mulch and dirt are extracted from the base of the stucco and anywhere it comes into contact with moisture that it is properly waterproofed below the surface.

**END OF REPORT**