

PEAK Drainage Assessment



June 19, 2023

Scott Archer - PE LEED AP, BD+C

- **Principal Owner & Engineer at HSA Engineering**
- **Masters in Mechanical Engineering in 1995 from University of Arkansas**
- **25 years experience**

Location



Photo 1 - Infiltration along grade beam and slab

March 24, 2023

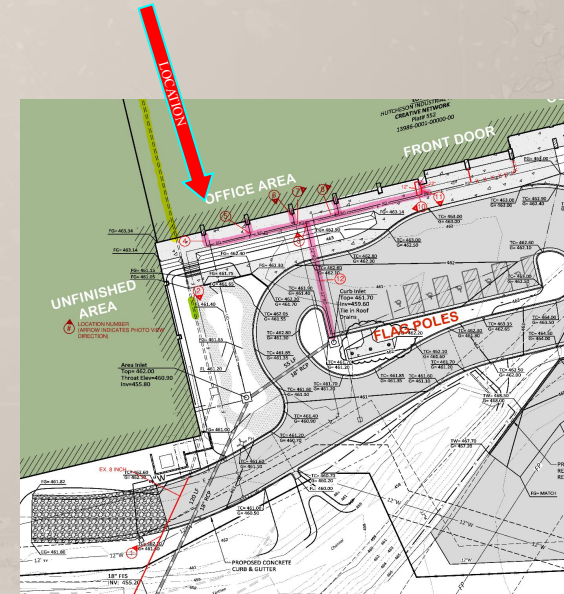


Photo 2 - Drainage Interface at location 2

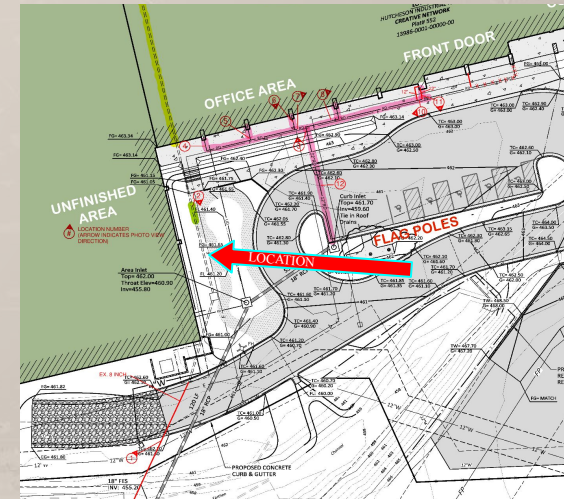
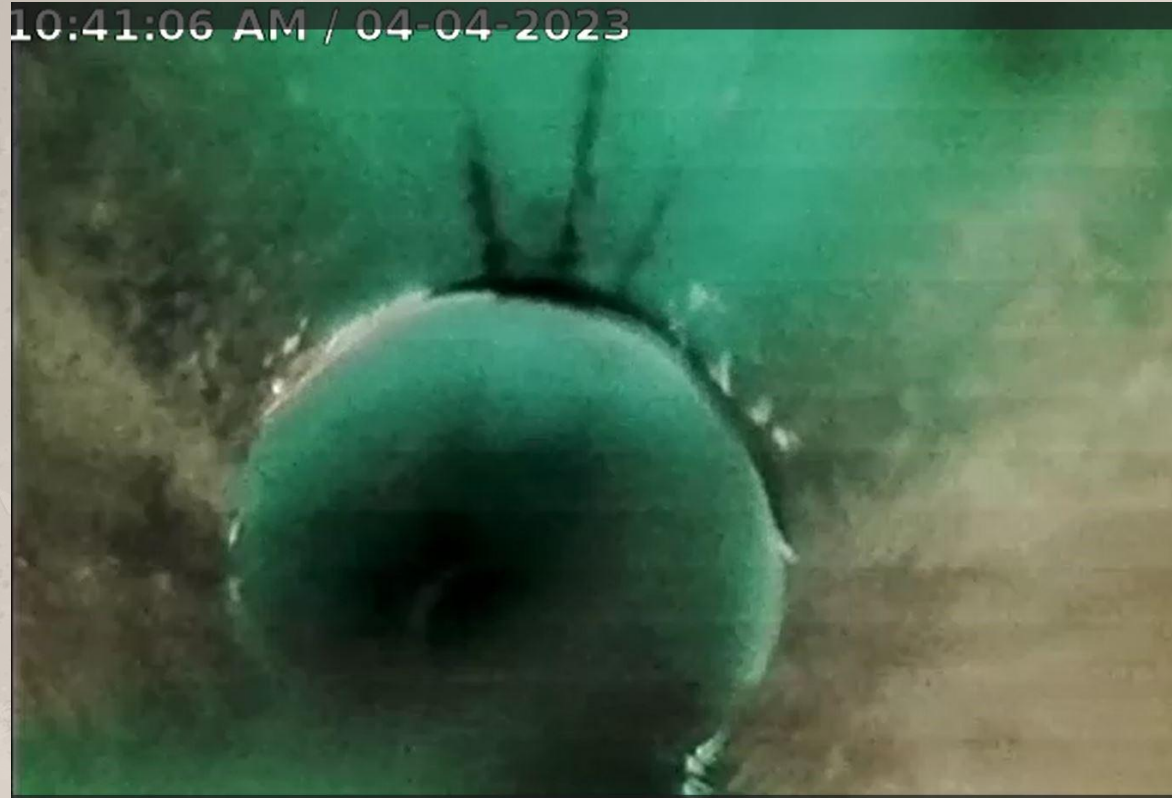


Photo 3 - Piping connection at location 1

09:05:40 AM / 04-04-2023

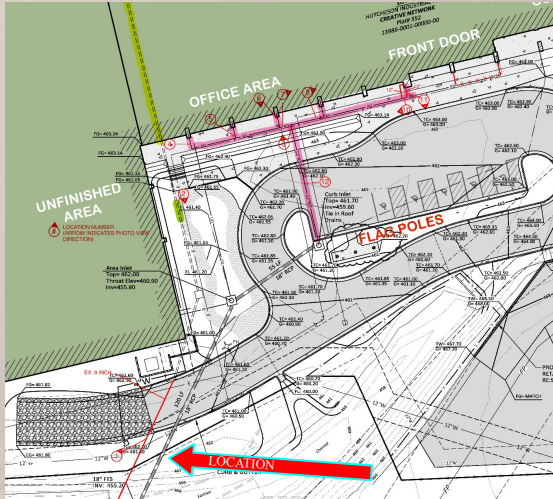


Photo 4 - Sheet flow on wall

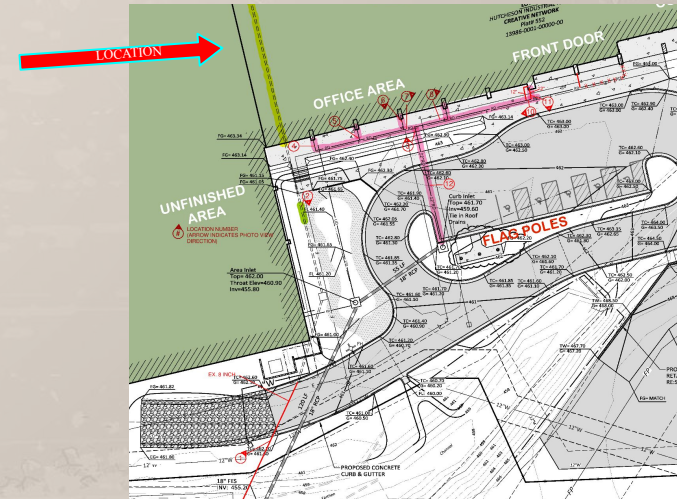
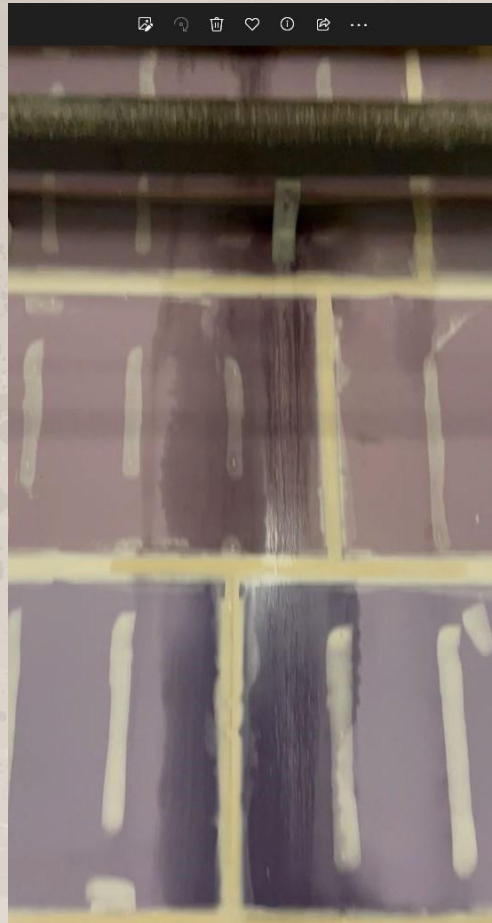


Photo 5 - Water on wall between east & west wing

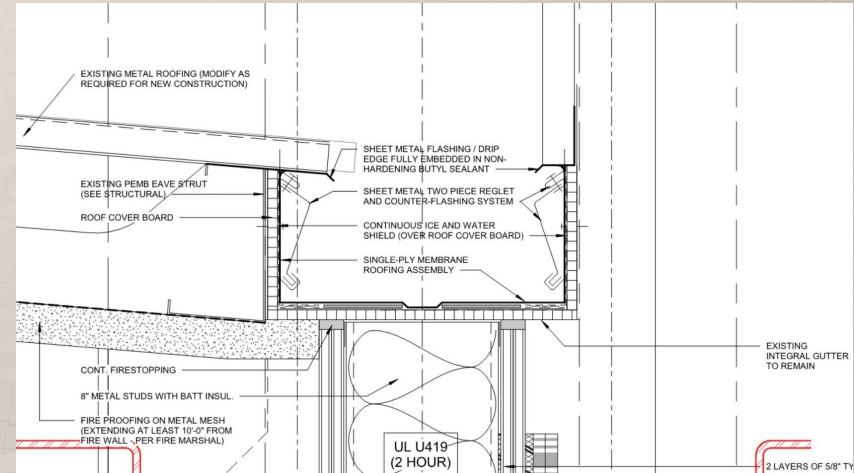


Photo 6 - Bull head tee at location 3

11:34:24 AM / 04-04-2023

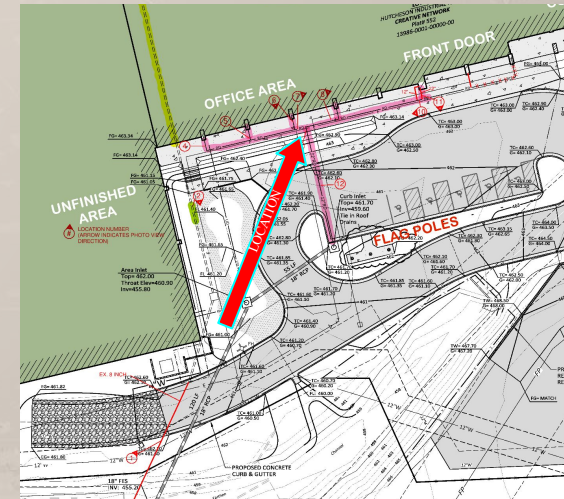


Photo 7 - Bull head tee at location 7

01:23:01 PM / 04-04-2023

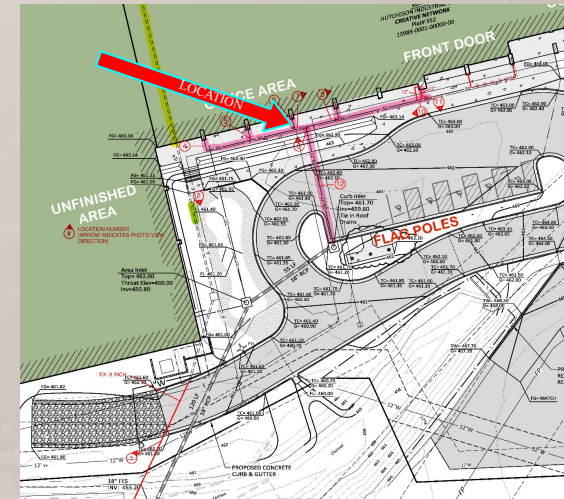


Photo 8 - Bull head tee at location 10

08:55:19 AM / 04-07-2023

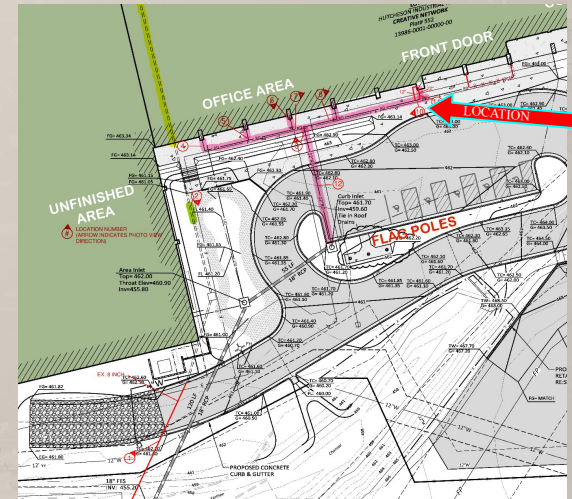


Photo 9 - 4" corrugated penetrating 12" corrugated at location 8

01:18:01 PM / 04-04-2023

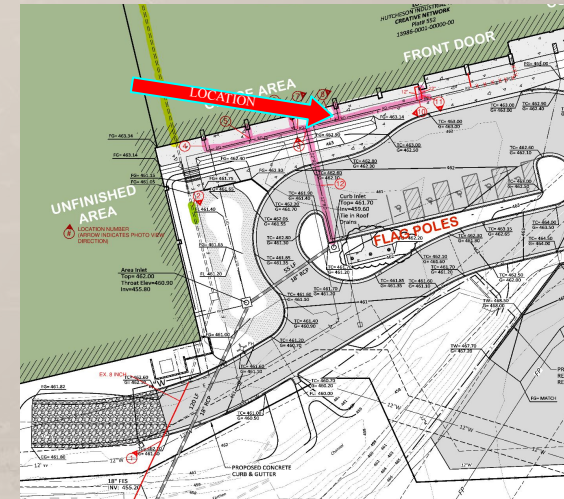
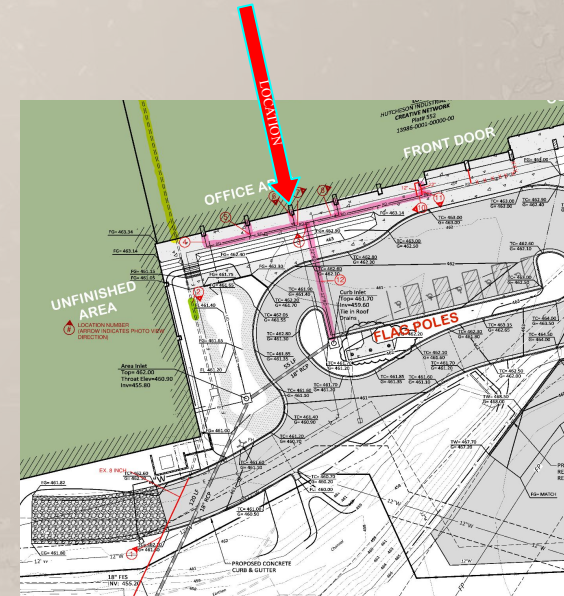


Photo 10 - Poor connection 4" pvc to 4" corrugated at location 6

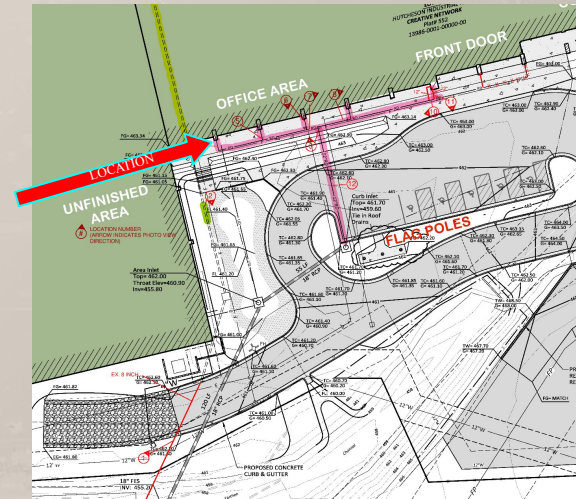
01:16:13 PM / 04-04-2023



4" Downspout Connection - Post report investigation



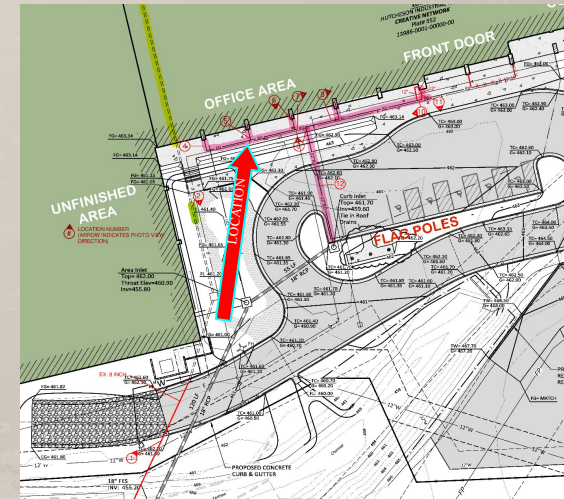
- Connection from 4" downspout to the 12" trunk line



4" Downspout Connection - Post report investigation



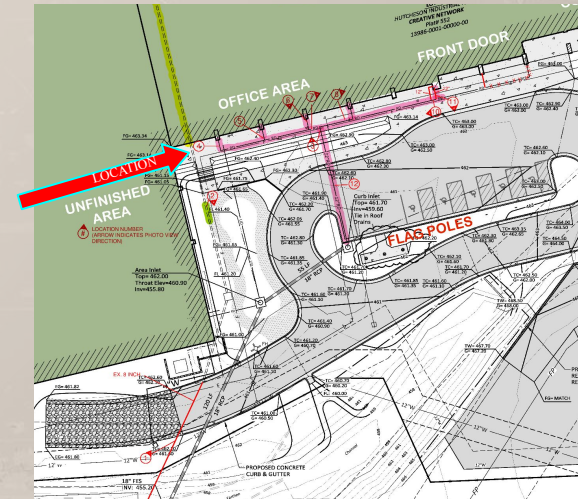
- Not a water tight connection
- 4" has negative slope towards building.



Existing 10" Roof Drainage Pipe - Post report investigation



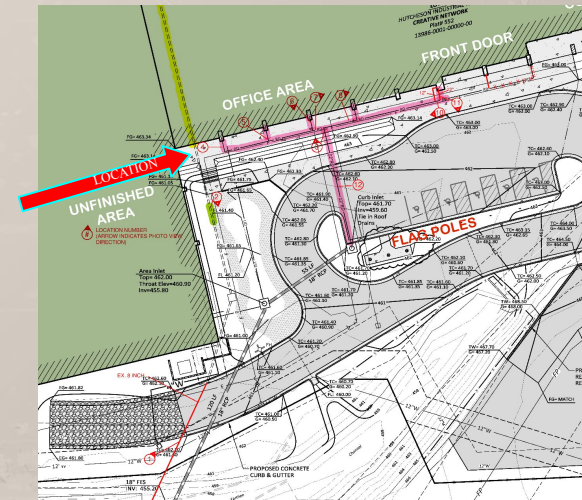
- Damage to existing 10" roof drainage pipe
- Reinforcement wire under the concrete and not embedded within the concrete



Existing 10" Roof Drainage Pipe - Post report investigation



- Existing pipe transitions from 10" to 8"
- Downsizing the pipe restricts water flow from facility/roof
- There is piping under the slab that has only been investigated by a camera (interior)



Summary

- **There are holes in the existing drainage system right next to the building**
- **The existing drainage system was downsized from a 10 inch to an 8 inch**
- **Note that the connections from 4 inch to 12 inch are not standard or properly sealed**

Recommendations

- **Recommend to abandon existing below slab drainpipe. Reroute roof drains between east and west buildings to exposed drainage at ceiling and take south to ditch**
- **Rework the below grade roof drain piping on the south side of the east wing to allow adequate relief of the drainage**

THANK YOU