

**Date:** April 14, 2020

**To:** Planning & Zoning Commission

**From:** Caleb Thornhill, P.E., Director of Engineering  
Alison Smith, P.E., Senior Engineer  
Rachel Patterson, Director of Environmental Health and Sustainability  
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**Subject: Detention Pond Function Related to Zoning Case 2019-20**

Per the City of Plano Storm Drainage Manual, proposed stormwater discharge or runoff from a site must not exceed the calculated discharge from existing conditions. In other words, the current stormwater discharge cannot be exceeded by any redevelopment or new development. There are several options to mitigate the impacts of increased runoff due to site development.

When development causes an increase in discharge, an on-site detention facility can be considered. One example of an on-site detention facility is a detention pond. A detention pond is an excavated area that stores stormwater runoff for a limited period of time depending on the storm event. A detention pond is designed in such that no permanent water is to remain within the pond. They are sometimes referred to as “dry ponds” or “dry detention basins” since they are typically empty except during rain events. Designing a “dry pond” properly will prevent the area from becoming a mosquito breeding ground.

Detention ponds are sized to temporarily store the stormwater runoff required to prevent localized flooding. Detaining this runoff allows for the downstream storm drain system to “catch up” to the rain event and eventually accept the discharge from the detention pond. The detention pond will be designed to discharge at an acceptable rate that the downstream system can accept.

Detention ponds require routine maintenance to function as designed. The City of Plano requires detention pond embankments to have a 10-foot crown width with a maintenance ramp of at least 10 feet wide and a maximum slope of 15%. The bottom of detention ponds have a minimum grade of 1% to reduce standing water and sediment accumulation. The area needs to be mowed routinely to control vegetation. Any accumulated sediment or debris must be removed and disposed of properly. Lastly, the outlet control structure needs to be inspected to ensure it is in good working order and is unobstructed from trash and debris. Routine maintenance is crucial to keeping a properly functioning detention pond and preventing standing water, and the city's Property Standards division can take enforcement action when maintenance is not being performed as required.

The complaints from the zoning case were forwarded to the Environmental Health and Sustainability Department. The department has not had a standing water complaint at this property since 2003. If a future complaint was received, staff would determine whether mosquito larval activity was present and require application of larvicide to control mosquito breeding. Progressive enforcement is an option should compliance become a challenge.

Pending the outcome of this zoning case and contract, the Preston Meadow Lutheran Church will sell the portion of their lot with the detention pond to the owner of Preston Meadow Office Park Addition, Block 1, Lot 4, currently the Collin County Association of Realtors (CCAR). The detention pond will need to be re-sized to accommodate the new development CCAR has planned for the expansion of their lot, and the owner will be responsible for ongoing maintenance of this detention facility.