

Testimony Submitted by Franco Montalto, P.E. Ph.D.

Eastwick Flood Hearings

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Philadelphia PA

I submit this testimony in reference to the potential stormwater/flooding impacts of a 722 unit residential development proposed on 35 acres of land owned by Philadelphia Redevelopment Authority in the Eastwick section of Philadelphia. The proposed development site is located at the end of Lindberg Boulevard opposite the John Heinz National Wildlife Refuge. The developer is the Korman Company. From review of publically available aerial photography, the site's existing land cover appears to consist of both eastern deciduous forest and grassy fields. Eastwick is separately sewerred section of the City of Philadelphia.

In preparing this testimony, I walked the existing public streets surrounding the proposed development, and reviewed a number of documents including the "Site Rendering" prepared by Pennoni Associates and dated 3/21/12, a map entitled "Flood Plain Evaluation Mapping" prepared by Boucher and James and dated 7/11/12, a Mapping Analysis of the Eastwick Section of Philadelphia prepared on February 16, 2001 by the Philadelphia District of the Army Corps of Engineers, among other publically available documents.

Without any controls on stormwater, urban development projects such as this one that involve the addition of significant areas of roofs, streets, parking stalls and lawn to a space that was previously in an un- or under-developed state will result in an increase in the rate and volume of stormwater runoff leaving the site. If the rate of runoff leaving the site exceeds the conveyance capacity of the local drainage network (irrespective of whether the site is served by an engineered drainage system featuring grates, catchbasins, and culverts, or a natural one consisting of creeks and streams) the runoff could theoretically back up onto the site and cause flooding.

However, because the proposed development involves an earth disturbance in excess of 15,000 square feet, per Section 14-1603.1 of the Philadelphia Code, stormwater discharges from the site would by law be regulated under the Philadelphia Water Department's stormwater code. For the development to be permitted, a Post-construction Stormwater Management Plan would need to be approved by the City as a condition for issuing the building permit. Development of this plan would undoubtedly require a variety of studies and investigations so as to ensure that the new development not compromise local water quality, create the potential for erosion in the water bodies receiving any runoff generated from the site, or worsen local flooding conditions.

Without any conceptual plan for the site, or any survey documenting the existing drainage infrastructure in the vicinity of the site, at this time it is impossible to determine exactly which

studies PWD might require. However, based on previous experience, I believe that in all likelihood include the following studies would be required by PWD (as a minimum):

- **Drainage Study:** An assessment of current drainage conditions on the site along with the predicted hydrologic response of the site under a variety of different storm conditions (e.g. storms with return periods up to 100 years). Given the site's complex history, this study would likely involving identifying whether and how the site itself is currently drained, and where the pipes that catchbasins and other pipes in the surrounding streets convey stormwater. The study would also document base and wet weather flow rates in these pipes under both pre- and post- development conditions. It would also characterize local groundwater elevations, document the depth and texture of all local soils and fill, and require that a detailed topographic and utility survey be performed.
- **Water Quality Study:** A study either explaining where and how the first inch of runoff will be infiltrated within the 35 acre development site, or justifying the issuing of a waiver of that requirement of the stormwater code. Because the site is located in a flood-prone coastal region of the City where groundwater tables are generally high, in all likelihood a waiver of the infiltration requirements would be requested by the developer. In that case, per the Stormwater Code, the developer would be required to design a treatment system equipped with a slow release to ensure that pollutants entrained in the site runoff are not transport to the receiving water body (as identified during the drainage study). This treatment system would need to be integrated into the design of the site itself, and be safe itself from flooding so as to ensure sustained performance.
- **Channel Protection Study:** The purpose of this study would be to investigate whether this new development would increase the rate of flow in the drainage network serving the area. As mentioned above, without proper controls on stormwater, urbanization generally increases the rate of runoff during wet weather events (over the pre-development condition), and this can lead to erosion. PWD would likely require the developer to develop site stormwater controls ensuring that the project would not increase flowrates in any of the drainage channels or conduits that will receive the runoff generated from the post-development condition. The study would need to consider different tidal conditions, and the effect of all new or old hydraulic appurtenances (e.g. pumping stations, valves, regulators, etc) within the relevant drainage infrastructure, as identified during the drainage study.

In addition, because of the significant hydrologic alterations implied by the proposed development, its impact on State protected, threatened and endangered species would also likely need to be assessed at some point in the process. This **Habitat Impacts Study** would include a Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review, and also likely involve an assessment as to whether endangered, threatened, or protected species are using the site under current pre-developed conditions. In a published interview with Gary Stolz, Manager of the John Heinz Wildlife Refuge by Kellie Patrick Gates on June 11, 2012, Mr. Stolz cited leopard frogs, red belly turtles, least bittern, and marsh wrens as among the many special

concern species currently utilizing the refuge property. Since wildlife are not confined by property borders, it is likely that similar species are to be found on the Korman tract, though only a wildlife study could confirm this finding. Depending on the drainage configuration of the site, as will be revealed during the drainage study, it is also possible that modification of the Korman tract would alter hydrologic- and therefore also the habitat conditions within the Refuge itself. Assessing these impacts requires a comprehensive habitat study.

Conclusion:

Given local stormwater regulations and site context, the developer will in all likelihood be required by PWD to perform a number of different kinds of studies to prove without a reasonable doubt that the proposed new development will not compromise water quality, erode channels, or worsen the local flooding conditions. These studies will require a significant commitment - in the form of time and money - on the part of both the developer (who needs to perform the studies) and PWD who must review them. By contrast, if the same size development were proposed for a higher elevation, non-coastal site elsewhere in Philadelphia, the permitting phase of the project would likely be completed for a fraction of the resources required for the Eastwick location. An alternate location would also avoid the potential for habitat impacts at the John Heinz Wildlife Refuge, one of only about 500 such refuges in the United States, and the only one located in an urban setting.