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# MEMORANDUM

**TO:** FILE

**FROM:** Aaron K. Guazzaloca

**DATE:** January 12, 2024

**SUBJECT:** Taylor Street Well - Site Layout & Stormwater Management Alternatives Analysis

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The proposed layout of the Taylor Street Well access road and stormwater management design was chosen in an effort to reduce the amount of tree clearing required for construction of the site, to reduce environmental impacts, mitigate the potential for increased stormwater run-off, as well as lowering construction costs.

Early in the design process, utilizing the existing site topography to minimize disturbance was identified as the primary factor in determining how the roadway would need to be located and designed. In addition to the roadway, the placement of stormwater facilities would also greatly affect the overall site disturbance and impacts.

During an analysis of hydraulic and hydrologic conditions present on site, an area of depressed topography was identified where a significant portion of stormwater runoff from the wooded site drains towards and collects prior to discharging northward towards the bordering vegetated wetland. This area was identified as the best possible location for the placement of a stormwater basin, as the existing topography creates some semblance of a natural basin, which would minimize the amount of grading required to design a stormwater feature. The design of a basin at this location would only require the creation of a berm across the existing low-lying area, which greatly reduces the number of trees that would need to be cut for this purpose.

An alternative location for the proposed roadway, utilizing the existing dirt access road to the north side of this depression was also investigated. Placing the proposed access road at this location presents several challenges however and would result in greater environmental impacts due to less-than-ideal topography in this area and the proximity of it to the BVW. The existing dirt road would not be adequate to provide safe access to the well site for the necessary vehicles and equipment and would require substantial improvements to both the width and profile of the road. These improvements would result in a significant increase in site grading (both cuts and fills), and the roadway would also need to be partially located on top of the existing depression which would not allow the design to utilize the natural terrain

to minimize site disturbance. This would result in overall greater impacts to the amount of site disturbance, and the number of trees which would need to be removed.

As a result, the decision was made to locate the proposed roadway to the south of the natural depression where the existing topography can be best utilized to minimize disturbance, reduce grading, and minimize changes to natural drainage patterns. As an additional benefit, the location of the existing dirt access road can be restored to natural conditions and planted with trees to offset the environmental impacts within the adjacent project area.