



TETRA TECH

June 3, 2016

Mr. Howard Fink
Northfield Township Manager
8350 Main Street
Whitmore Lake, MI

**Re: Biltmore Development Requested Master Plan Amendment
Sewer Capacity Opinion**

Dear Mr. Fink:

We understand that the Biltmore Development, LLC has petitioned to change the Township's master plan in the area of Whitmore Lake and Northfield Church Road to create a land use of medium density residential. The Township Planning Commission has requested the Township Manager to obtain a report outlining the ability of the Township to provide sanitary sewer service to this development. This letter is prepared to summarize Tetra Tech's opinion on this subject.

BACKGROUND

Tetra Tech understands the following about the application:

- o Location – Near Whitmore Lake Road and Northfield Church Road
- o Land Use Requested – Medium Density Residential (MDR)
- o Size – 420 to 460 acres

We understand that a land use change in the master plan would result in more area than quoted above being changed so that the land use from this area would be contiguous to similar land uses. The Township Planner has determined that up to 623 acres could be revised with 499 of those acres being developable.

The Township Planner has stated that as many as 2,500 dwelling units could be created from this land use change. For the purpose of this analysis, Tetra Tech has reviewed the impacts of between 1,000 and 2,500 residential equivalent units (REUs).

SEWER SYSTEM

The land in question is located in the very southern portion of the Township. The Township's wastewater treatment plant is located north of the Township within Green Oak Township. Therefore, the wastewater needs to be conveyed a long distance before reaching the wastewater treatment plant.

The nearest existing sewer is located west of US-23 and immediately south of North Territorial Road. This sewer is served by the North Territorial Pump Station located on the eastern side of US-23. Tetra Tech's recent trunk sewer analysis concluded that there was 1,251 REUs of capacity remaining in the existing station. Therefore, the low end of the range of 1,000 REUs may be accommodated but the high end of 2,500 REUs could not be accommodated.

Tetra Tech

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WASTEWATER TREATMENT PLANT

The wastewater treatment plant (WWTP) has a rated capacity of 1.3 mgd and average flows of 0.7 to 0.9 mgd which vary seasonally. Therefore, approximately 0.4 mgd of capacity remains during the high seasons. Using the Township’s standard of 260 gal/cap/day, the dry weather flow from the new development would range from 0.26 mgd to 0.65 mgd. This analysis indicates that the wastewater treatment plant can accommodate the low end of the development range (1,000 REUs) during dry weather. However, the wastewater treatment plant cannot accommodate the high end of the development range (2,500 REUs) during dry weather.

During wet weather, the Township WWTP experiences peak flows up to and surpassing 3 mgd. During these times, the wastewater plant cannot fully treat the peak flow through all processes. Therefore, during wet weather, the WWTP can only accommodate a modest amount of additional connections.

Peak flows from new development will be higher than average flows. Assuming a ratio of peak to average of 4, the proposed land use change could add a peak flow of approximately 1 mgd to 2.6 mgd during wet weather. It is Tetra Tech’s opinion that 1 mgd or more of added peak flow cannot be reliably treated by the WWTP during wet weather.

CONCLUSION

WWTP capacity during wet weather is the limiting factor in determining sewer/treatment capacity for southern part of Northfield Township. The WWTP does not have the capacity to accept wastewater from a development resulting from the proposed master plan amendment. The sewer system will also be a restricting factor for the higher levels of development analyzed.

We trust that this letter adequately addresses your request of Tetra Tech. We are happy to present this letter to a future meeting of the Planning Commission.

Sincerely,

Brian M. Rubel, P.E.
Vice President