



Donald Pennington Land Use Planners

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Freedom Township Planning Commission
11508 Pleasant Lake Road
Manchester, MI 48158 (via email)

Subject: Local regulatory elements for an anaerobic digester facility.

Dear planning commissioners:

We have attached for reference our previous correspondence to the Township Supervisor related to an informal enquiry in March of 2023 from a civil engineering firm about potential development of an anaerobic digester facility on the Horning Farm. This correspondence provides more background on anaerobic digesters and applicable Zoning Ordinance standards. At present, an anaerobic digester facility could only be considered for approval as an “*Intensive Industrial Operation*,” which is an allowable conditional use in the I-1 zoning district, subject to the specific standards of Section 5.502 (Intensive Industrial Operations) and the general standards of Section 16.04 (Standards for Conditional Use Approval). Both are attached for reference.

The following is a list of potential impacts and hazards associated with anaerobic digesters:

1. Non-agricultural food waste and PFAS/microplastic contamination
2. Non-agricultural truck traffic
3. Safe storage of chemicals
4. Burning off or cleaning of “dirty” methane gas
5. Odors
6. Toxic gas emission hazards
7. Fire and explosion hazards
8. Safety of lagoon storage
9. Pollution of groundwater
10. Pollution of surfacewater
11. Use of groundwater resources for digester operations
12. Build-up of toxic levels of metals, ammonia, or acids from certain chemical processes
13. Management of solid waste and liquid waste storage
14. Potential for conversion of cropland farm products (grass, rye, etc.) to fuel digester input
15. Safe maintenance and cleaning of digester facilities
16. Impact on the intended character and appearance of the Township’s agricultural areas as expressed in the adopted Township Master Plan.
17. _____
18. _____

Some of the above-listed impacts and hazards are subject to regulation under federal and state environmental laws (see Section 5.502.A.), but the Township's Zoning Ordinance standards will still provide important protections outside of the areas regulated by other agencies.

Options to consider as part of any proposed Zoning Ordinance amendment include:

1. **Consider adding Anaerobic Digester as an allowable use subject to Conditional Use Permit and site plan approval in the I-1 (Industrial-Research) District**, subject to the requirements of Section 5.502 (Intensive Industrial Operations).
2. **Consider adding Farm-based Anaerobic Digester as an allowable use subject to Conditional Use Permit and site plan approval in the AR (Agricultural-Resource) District**, subject to specific standards:
 - a. The anaerobic digester is limited to an accessory use to a principal commercial agricultural operation on the same lot. This could include a lot area limitation for the facility.
 - b. Prohibition against importation of non-agricultural food waste.
 - c. Prohibition against importation of off-site agricultural waste, with the exception of importation from non-contiguous farmland leased or owned by the owner of the anaerobic digester facility site.
 - d. Require an Impact Assessment, similar to that required for Intensive Industrial Operations (Section 5.502.B.).
3. **Consider expanding the Impact Assessment requirements of Section 5.502 (Intensive Industrial Operations)** to include the more specific list of impacts and hazards noted above. Many of the impacts and hazards associated with anaerobic digesters would also apply to other intensive industrial operations.
4. **Consider requiring minimum setback distances from streams, lakes, county drains, and private/agricultural drain tile to minimize surfacewater contamination hazards.**

Final observations.

As a land use that has potential to be established in the Township, it is reasonable to consider an amendment to the Zoning Ordinance to specifically add anaerobic digesters as a lawful land use in one or more of the zoning districts subject to specific standards and limitations. However, we would also note that the existing Ordinance's requirements for intensive industrial operations are adequate in their current form to provide protection and require mitigation of potential impacts if an anaerobic digester facility were to be proposed for development today.

Anaerobic digesters are expensive to establish, challenging to operate, and a potential source of significant adverse impacts and hazards for the operator, nearby properties and land uses, and the Township as a whole. They are also not all that environmentally-friendly when the full scope of potential impacts are considered. While the shifting winds of public policy currently favor these facilities, it is possible that they could just as quickly fall out of favor with future changes in political leadership at the state or national level.

Respectfully submitted,
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Township Planning Consultant