

McCordsville

ESTD  1988

INDIANA

June 6, 2023

Memo to Public Works
Town of McCordsville

Champion Lake Sanitary Sewer Service
Greg Chester, 5918 W 700 North, Sewer Request

Background

A request for sanitary sewer service was made by Greg Chester at 5918 W 700 North. The reason for the request was because of a failing septic system. The failed septic requires Mr. Chester to have the septic tank pumped approximately every ten days.

Initial conclusions

The Sanitary Sewer Master Plan directs flows along the gravity sewer along Mt Comfort to the McCordsville Elementary School Lift Station. A few alternatives methods of collection were reviewed and are listed below. The alternatives considered also took into consideration the future service of the remaining homes in Champion Lake. There are sixteen existing homes in Champion Lake with one already with gravity sewer service from the line along Mt. Comfort. The methods considered included: traditional open cut gravity sewer, a hybrid of directional drill gravity and open cut, pipe bursting, and a low pressure system.

Options

The options considered immediate service for Mr. Chester and long-term service for all homes in Champion Lake. The existing utilities, including a recently installed water line on the western most 4 lots along 700 North, did restrict the potential alignments. Easements will be required for all the options discussed below. Budget costs are listed for the more likely options after the initial evaluation.

- *Open cut 8" gravity from Mt Comfort*

An open cut installation of an 8" gravity sewer extension from the manhole along Mt Comfort serving Mr. Chester and the two homes to the west would be the traditional method of service. A negative to the traditional method would be the open cut of Mt Comfort Road would require the road to be closed for several days impacting an arterial road. The repair of the open cut would be a long-term maintenance concern as settling of the trench and the asphalt repair would not be permanently repaired until a settling period was allowed along with a resurfacing of Mt. Comfort. The open cut would also have to cut through the landscaped mound of Champion Lake and remove several trees along 700 N. The removal of the trees would increase the acquisition costs of the easement.

McCordsville

ESTD  1988

INDIANA

- *Directional drill 1.25" low-pressure force main for single home service*

A low-pressure system just serving Mr. Chester's home with a 1.25" force main was considered. This has the benefit of providing immediate relief to Mr. Chester. It would not provide service to any of the other Champion Lake homes. The money spent would not benefit any other property owner or the utility.

- *Directional drill 1.25" & 3" low-pressure force mains for single home service with future service for Champion Lake*

A low-pressure system serving Mr. Chester's home with a 1.25" force main with a 3" force main for future connections was considered. This has the benefit of providing immediate relief to Mr. Chester while allowing for future service to other Champion Lake homes. The 3" line would be stopped at Mr. Chester's home with the ability to extend it further east in the future. Construction cost is \$50,000.

- *Pipe bursting existing 8" PVC drain*

Pipe bursting the existing 8" PVC drain line and pulling a replacement drain along with a low-pressure force main was considered. This option avoids utility conflicts by utilizing an existing route. The negatives are that it requires a very specialized contractor that would increase the cost. It would also require televising of the existing line to locate any connection points that would have to be re-connected after the pipe bursting. It would also put the low pressure force main in close proximity to the drain line. Future connections might damage the drain line.

- *Directional drill 8" gravity sewer*

Directional drill an 8" gravity sewer from the existing manhole along Mt Comfort Road eliminates the down sides of the open cut installation. However, using directional drilling as the installation method requires the pipe to be installed at a much greater slope than open cut. It would lose a significant amount of the elevation that could be used to serve more Champion Lake homes. Only nine of the 16 Champion Lake homes could be served from the Mt Comfort gravity sewer. The remaining six homes would need to be served by an alternate route. The alternate route could be either a low-pressure system or a gravity sewer extended from a future manhole installed with the Gatherings at Aurora (Snider property) development. If the first run of 415' was bored, it would allow for service of the first three lots including Mr. Chester. This would fulfill the immediate need. There is a water line installation along the south side of 700 North for the first four western most lots. The water line then crosses 700 North to run along the school parcel on the north side of 700 North. The water in combination with other utilities limits the suitable location to directionally drill the gravity line. If the proposed gravity line was installed south of the water line, it would avoid conflicts with other utilities. The gravity line would be approximately 8 to 12' deep while the fingers for the septic systems would be about 3.5' deep. But there is a chance the construction impacts the septic fields of the first two homes. If it did, it would force a connection. Construction cost is \$175,000.

- *Open cut extension of the gravity sewer above another 864'*

A gravity sewer extension from the end of the directional drilled gravity sewer would extend service for an additional six homes or 864'. The alignment would be able to shift once past the point where the water line crosses to the north side of 700 North. But the open cut installation would likely impact the existing finger

McCordsville

ESTD  1988

INDIANA

systems of the existing homes. It might force connections for some or all of the Champion Lake homes along this gravity line. The remaining six homes east of the last manhole would have to be served from the future manhole mentioned in the above section. Construction cost is \$340,000.

- *Low pressure sanitary service for all of Champion Lake*

A low-pressure system serving Mr. Chester's home with a 1.25" force main with a 3" force main for future connections was considered. This has the benefit of providing immediate relief to Mr. Chester while allowing for future service to other Champion Lake homes. The larger line would extend to the east to the last lot in Champion Lake. The force main could also be installed at a depth that would make damage to the existing fingers of the septic systems less likely. This would allow a delayed connection approach for the other Champion Lake homes.

Conclusions and Recommendations

The gravity costs were generally higher than the low-pressure system costs. The directional drill of the 415' of 8" gravity line was \$175,000. The next 864' was another \$340,000. This is significantly more than a low-pressure system installation and does not serve all of Champion Lake. Another gravity line would need to be extended from a future manhole to the east.

An initial phase of low-pressure system install to get service to Mr. Chester and include a future 3" line has a construction cost of \$50,000. If the line is extended to service all of Champion Lake, the construction cost is \$150,000 for both phases. There would be some savings by engineering and permitting in one phase. It would also allow the town to come up with a single connection cost for all Champion Lake homes. This would provide consistency and a fairer approach for their participation level once it is set. I recommend the town pursue engineering and soliciting bids to construct a low-pressure system to service all of Champion Lake.

If you have any questions, please contact me.

Sincerely,



Mark J. Witsman, P.E.
Town of McCordsville

cc:

T:\Engineering\Projects\1001 Wastewater Utility\Champion Lake\Greg Chester\Champion Lake Sewer Memo 06052023.docx