

Date	7-5-2023 Rev 7-7-2023
To	Kelly Wisnefske, Town Administrator, Town of Clayton
From	Matt Stephan, P.E.
Subject	Scholar Ridge Estates – Phase 1 – Engineering Review

Cedar Corporation was asked to provide an engineering review for the above referenced project regarding Sanitary Sewer, Watermain, Stormwater Management, Grading, and Erosion Control.

Items reviewed are unstamped plans dated June, 2023 and Stormwater Management Plan dated April 26, 2023, both prepared by McMahon Associates, Inc.

We offer the following comments regarding our review:

WATERMAIN:

Watermain is called off on CTH “II” for the top of the pipe to be 6.5-feet below the center line of the road. If standard ditches are present along CTH “II”, hydrant leads will have between 4 and 4.5-feet of cover. Additionally, when rural roadways are reconstructed to urban sections (as areas become more and more urbanized) the roadway is typically lowered eliminating ditches, which would result in the mainline watermain to have reduced cover. We recommend the watermain located in CTH “II” right-of-way be lowered at least 1-foot to provide more cover over hydrant leads and cover in the future if CTH “II” is ever reconstructed as an urban section. Insulation over the hydrant leads should be required at ditch crossings even if the main is lowered.

It appears there is a high point in the watermain at approximate station 62+80 CTH “II”. This high point should be shifted to the location of the hydrant at station 62+20. We also recommend that hydrant tees on a 16-inch main at high points be installed at a 45-degree angle from horizontal with a 45-degree bend attached to the tee to assist in removal of air trapped in the 16-inch main during flushing.

Watermain through the development is called off as top of main to be 6.5-foot below centerline elevation. This will result in approximately 4-foot of cover over hydrant leads and water services at the location of the ditch flowline. We recommend minimum of 4-inches of insulation over all hydrants and water services through ditches and the modification of the water service detail showing the water service dipping down at ditch lines.

Curb stops through the development are shown 12-feet outside of the right-of-way. We

recommend curb stops be located at the right-of-way line.

Many communities require a culvert be installed in ditches at hydrants such that water utility staff and fire personnel do not have to cross through ditches to access hydrants. We would recommend a 10-foot long culvert be installed at all hydrants located behind ditch flowlines.

A flushing device is required at the end of the 8-inch watermain stub located at station 35+60 Marlo Ave.

There is a high point in the watermain at approximate station 37+20 Marlo Ave. We recommend watermain be designed to move the highpoint to a hydrant tee for ease of flushing out trapped air.

We recommend adding a valve and restraining the last 40-feet of watermain at the east end of St. Thomas Lane for the ease in future extension.

Watermain on sheets 18 and 19 is all shown with less than 6.5-foot of cover from the proposed centerline profile. Adjust watermain in profile to provide a minimum of 6.5-foot of cover.

Watermain on sheet 17 from station 68+20 to Station 71+40 is shown with less than 6.5-foot of cover from the proposed centerline profile. Adjust watermain in profile to provide a minimum of 6.5-foot of cover.

There is a high point in the watermain at approximate station 67+50 St. Norbert Drive. We recommend watermain be designed to move the highpoint to a hydrant tee for ease of flushing out trapped air or add or move a hydrant to the high point.

A flushing device is required at the end of the 8-inch watermain stub located at station 39+00 Lawrence Lane.

Watermain on Lawrence Lane from station 40+78 to Station 50+00 is shown with less than 6.5-foot of cover from the proposed centerline profile. Adjust watermain in profile to provide a minimum of 6.5-foot of cover.

Watermain in the Lawrence Court is shown with 5-foot of cover from the tee to the hydrant. Adjust watermain in profile to provide a minimum of 6.5-foot of cover.

Please provide a copy of the DNR watermain submittal and approval when received to our office for our records.

We recommend that joint restraint vs blocking and buttress' be used on watermain bends and fittings. Much of the watermain trench walls will be disturbed during the installation of deep sanitary sewer.

SANITARY SEWER:

We note no drop of elevation across manholes from upstream to downstream.

Please provide service area maps, flow calculations, and design depth calculations for our records.

Sanitary sewer main between MH 17 and MH 18 runs underneath the right-of-way line. We recommend the main be adjusted to be at least 10-feet in the right-of-way such that utilities located in the utility easement will not be impacted by future sanitary sewer work / maintenance.

We recommend a greater separation than 8-foot where possible due to the depth of the sanitary sewer in Marlo Ave.

Marker posts should be installed at the end of sanitary sewer laterals and should be called off on the lateral detail.

ROADWAY, GRADING, STORMWATER:

We recommend the road be constructed to the Town's standard:

Upper Layer: 6" of $\frac{3}{4}$ " dense graded base course

Lower Layer: 15" of 2-1/2 breaker run, or 3" dense graded base course material

Provide either geotextile fabric or geogrid.

Call off on the plans that the perforated drain tile shall be surrounded by four inches of $\frac{3}{4}$ " clear crushed stone, and topped with 6" of topsoil.

Call off on the plans that the connections of drain tile below paved areas shall be Schedule 40 PVC.

Show on plans where drain tile will connect to either storm structures, culverts, or where they will discharge.

Recommend installation of temporary sediment traps to prevent siltation of the permanent stormwater detention facilities.

Please provide any culvert sizing calculations and call off required culvert sizes for proposed driveways that will be located within dedicated road right-of-way.

We recommend the bottom of the outlet structures be 4-feet below normal water level to prevent the structure from frost heave.

We have several questions regarding runoff curve numbers in the stormwater report that will be discussed with the design engineer for clarification.

Provide section details for the 8-foot wide trail including details of trail – driveway crossings and trail - roadway crossings.
