



GENESEE COUNTY DRAIN COMMISSIONER'S OFFICE

-DIVISION OF
SURFACE WATER MANAGEMENT

G-4608 BEECHER ROAD, FLINT, MI 48532
PHONE (810) 732-1590 FAX (810) 732-1474

JEFFREY WRIGHT
COMMISSIONER

31 August 2026

Reference: Culvers-Vienna; PID: 18-16-400-013
Matt Cole
Roosien & Associates
5055 Plainfield Ave NE, Suite A
Grand Rapids, MI 49525

Dear Mr. Cole

We have reviewed the site plan for this proposed project. We cannot approve the storm water plan for the following reasons:

- It appears, according my software, soil conditions may allow for infiltration. **Infiltration (or percolation) testing in the area of the proposed pond is needed to determine the infiltration rate. Please provide.** If Channel Protection volume of water can be infiltrated, please design accordingly. If it cannot, this volume of water will need to be held on site for a minimum of 48-hours and released at a discharge rate lower than the 2-year storm discharge from the site.
- Please review the design. The area that you are going to discharge is not an acceptable outlet. **An acceptable outlet** is a natural watercourse, county drain, county road ditch, or a regulated wetland with an outlet under MDEQ control.
- This office now requires water treatment and channel protection. Please refer to Requirements A and B of our design standards on our webpage at <http://gcdcswm.com/standards/> for required information.
- Detention pond design is insufficient for 80%TSS removal as it does not allow the sediment to settle into an elevation below the orifice. This office requires the sump volume to be $\geq 20\%$ of the WQV. Please provide contour elevations (in the proposed detention basin) and pond table.
- Please review the calculations for the required storage volume (Flood protection Requirement). The Run-off coefficients this office accepts are:

	C-factor
Flat undeveloped land, non-wooded:	0.25
Woodland and sloped undeveloped land:	0.30
Parks, cemeteries, grass:	0.35
Gravel:	0.85
Impervious:	0.95
- This office no longer accepts standpipes as the restriction from a detention basin. A recommended outlet structure can be found on our web page at <http://www.gcdcswm.com/standards> (please find attached to this email the suggested outlet control structure design)
- Please show on the plans where the overflow spillway is located.
- The height of the spillway that is shown on your calculations doesn't match with the height that is shown on the cross-section (Sheet C501).
- This office requires storm pipes to be designed to carry the 10-year storm event under gravity flow conditions and have a velocity greater than 2 feet per second to provide for self-cleaning. Please review the pipe calculations.

- The operation and maintenance information should specify at what depth accumulated sediments should be removed for the site's BMP's.

If you have questions or comments, please feel free to contact our office.

Thank you.

Sincerely,

Vasileios Mylonas

Vasileios Mylonas

Civil Engineer

cc: GQI0831(18-16)

Vienna Township Building Department

GCRC (email)

Plans Drawn Date: 07/20/2026



GENESEE COUNTY DRAIN COMMISSIONER'S OFFICE

-DIVISION OF SURFACE WATER MANAGEMENT

JEFFREY WRIGHT
COMMISSIONER

G-4608 BEECHER ROAD, FLINT, MI 48532

PHONE (810) 732-1590 FAX (810) 732-1474

STORM WATER REVIEW SUBMITTAL FORM

RECEIVED
AUG 17 2026

Project Name: Culvers - Vienna BY:
Parcel Number(s): 18-16-400-013
Address: 4010 W Vienna Rd, Clio MI 48420

Name Submitting: Matt Cole
Party Submitting: Roosien & Associates E-mail: matt@roosien-assoc.com
Mailing Address: 5055 Plainfield Ave NE, Suite A
City, State Zip: Grand Rapids, MI 49525
Phone Number: 616-361-7220

Type (Check all that apply):

Commercial: ☒

Road: ☐

New Construction: ☒

Residential: ☐

Utility: ☐

Redevelopment: ☐

Description:

Construction of a 4,360 sft quick service restaurant with drive through and appurtenances.

Is Submission Required

Does site drain to County Drain or Road Commission system? ☐ Yes ☒ No

Is submission required by local Municipality? ☒ Yes ☐ No

Is this a Plat or Mobile Home Park? ☐ Yes ☒ No

Is plan required to be submitted for your NPDES permit? This permit is issued to Municipalities and Schools by EGLE. ☐ Yes ☒ No

If you answered yes to any continue below. If you still plan to submit to office please continue below to determine if you must meet Genesee County Standards.

Acreage Disturbed (acres): 2.3

Is Disturbed Area > 1 acres? ☒ Yes ☐ No

Amount New Impervious (acres): 1.89

Is Impervious < 1 and > 0.5 acres? ☐ Yes ☒ No

Is site part of a larger development with > 0.5 Acre of Impervious: ☐ Yes ☒ No

Did you answer yes to any of the acreage questions above? ☒ Yes ☐ No

If yes than your site must meet Genesee County Standards for Storm Water Management please submit this completed form and 1 site plan to 4608 Beecher Road, Flint, MI 48532 for review and approval.

Design Criteria

Part A Sediment Treatment

Using statewide analysis by region for the 90-percent annual non-exceedance storms that is summarized in the March 24 2006 MDEQ memo. (Genesee County is considered to be part of the Detroit Metro Area for calculating runoff) A copy of this memo is available on the Drain Commissioner's website. www.gcdcswm.com

Impervious Area(acres)*:	<u>1.89</u>	$R_v = 0.05 + 0.009(\text{Imp})$	<u>0.43</u>
Tributary Area(acres):	<u>4.45</u>	P = 0.9 inches for "Detroit Metro" area	
Percent Impervious(Imp):	<u>42%</u>	$WQV = \frac{P * R_v * A(\text{ft}^2)}{12}$	<u>6,273</u> ✓ correct

*For redevelopment if pavement is milled and resurfaced sediment control is not required. If parking lots are redesigned sediment control will be required.

This volume of water needs to be treated for minimum of 80% TSS removal. Describe the methods that will be used to meet this goal.

Retain and infiltrate.

Part B Channel Protection

Channel Protection protects resource impairment from flow volume and rate increase during low flow events. This can be done using any of the following methods:

- Computing Flood Discharges for Small Ungaged Watersheds
- TR55
- HEC-RAS
- HEC-HMS
- USEPA SWMM

A sample spreadsheet has been provided on our website along with a chart of additional CN coefficients that can be used.

This water is to be infiltrated or evaporated from the site. Please explain how this will be accomplished. If soil conditions will not allow for infiltration please provide documentation this volume of water will need to be held on site for a minimum of 48 hr and released and a discharge rate lower than the 2-year storm discharge from the site.

Infiltration Rate of Property: 0.6 to 20 in/hr Depth of ground water: More than 80 inch
> 10 in/hr very high > 72" deep

Retain and infiltrate.

Part C Flood Protection

Genesee County requires that the 100-year storm event be handled by the detention system. Because of the soil types retention basin are not allowed. All volumes will be checked using the rational method. Engineers are required to find the time at which the basin will reach max volume. If multiple ponds add additional sheets

Tributary Area (acres) = 4.45
 $C_{weighted} =$ 0.44
 $Q_a = A * 0.2 =$ 0.89
 $V_{required} =$ 17,774

$V_{pond} =$ 30,840
 $HWL =$ 700
 $Freeboard =$ 1

Predevelopment
 $C_w =$ 0.3
 $Q_a =$ 0.89
 $V =$ 10,262

Redevelopment
Post Development
 $C_w =$ 0.44
 $Q_a =$ 0.89
 $V =$ 17,774

Detention Pond
Design
 $C_w =$ 0.44
 $Q_a =$ 0.89
 $V =$ 30,840

Additional Notes

Please see attached storm water report.

Please use Rainfall Intensity - Frequency Curves found on page 12 of the Design Parameters for I

Part D Operation and Maintenance

Please provide documentation on the plans or as a supplement on Yearly and Long term operation and maintenance on all BMPs used to comply with this approval.

Office use only:

☒ Discharge to an MS4? Owner: GCRC

Site Plan Number: 04506

Approved: ☐ Yes ☒ No

Reviewed for Post Construction: ☐ Yes ☒ No