Problem Statement
Grace United Methodist Church, located at 615 North 22nd Street in Lafayette, Indiana, is experiencing issues with their parking lot regarding the management of rainwater. They experience heavy flooding and erosion and currently only have a small drain at the low point of the lot to deal with the problem. The Church experiences erosion due to the concentration of water from the downsputs of the roof (Fig. 1), flooding at the entrance of the education building after rain (Fig. 2), and single outlet drain in the northwest corner which consistently gets blocked by leaves and other debris (Fig. 3).

Alternative Solutions
• Instead of the outlet redesign, the team initially designed a bioswale to run the entire length of the northern driveway. However, there are electrical poles about 100 feet from the original drain, so this was not a feasible construction option.
• The team also considered a large infiltration basin, but we would not be able to adhere to the 10-foot property line setback with this design.
• A cistern was considered but rejected as justified below.

Project Schedule

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Societal Impact
This design, along with the other two projects at Grace Methodist Church, was filed for a grant application with the Wabash River Enhancement Corporation (WREC). In compliance with the proposal, this design will help improve local water quality and can serve as an educational opportunity for the neighboring intermediate school.