

Briarwood Detention Pond Repairs

October 15, 2015

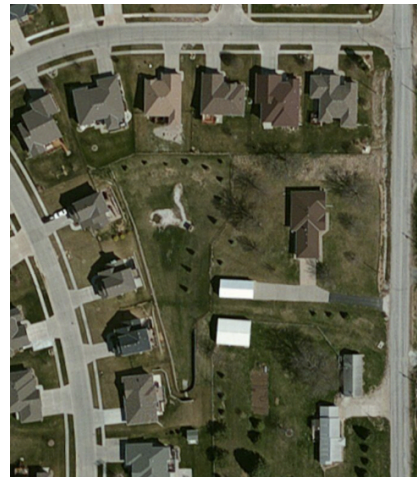
The preliminary estimate for engineering and construction to repair the damaged South Detention Pond structures is \$11,000. This document provides a brief description of the Briarwood Detention Ponds location, purpose and current Issues.

LOCATION:

There are 2 detention ponds located on the east side of the Briarwood development near State Orchard Road. The North Pond is located on the west side of State Orchard Rd, east of the north end of Aster Circle, south the north Briarwood boundary. The South Pond is located east of Tipton Dr. and South of Briarwood Dr. near the south Briarwood boundary.



North Detention Pond



South Detention Pond

PURPOSE:

The detention ponds were designed and constructed as part of the initial Briarwood development to collect storm water runoff and provide a controlled rate of release downstream. When streets, driveways, sidewalks and roofs are added to farmland, the amount of rain absorbed is less and the amount and rate of runoff is increased. Controlled release structures are designed and required to minimize flooding and excessive erosion downstream.



North Pond From State Orchard Road



South Detention Pond

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The pond volume is designed to detain the estimated largest 100-year rainfall down pour, and then provide a slow release. If the actual rate of rainfall and runoff exceeds the design, the discharge structure is designed to allow an increase in the release rate to prevent failing the berm around the pond. In addition, the south pond has a small section lower than the remaining part of the berm to provide a spillway where the overflow drainage would be directed to the historically natural drain area.

Maintenance of the ponds requires that if the minimum volume is compromised due to excessive sediment buildup, the bottom of the pond must be excavated to regain the required volume.



North Pond Discharge Structure



Collapsed Inlet South Pond

CURRENT ISSUES:

Sediment has accumulated over the almost 15 years since construction, especially around the inlet discharge pipes on the South Pond. The sediment has increased to the bottom of the pipe, the pipe support has been eroded, a section of pipe has tilted, and the resulting water jet erodes a hole leaving a pool of water. The hole and retained water fills with algae which becomes odorous in the summer months and a potential insect-breeding place.

The majority of the existing sediment is believed to have accumulated during the early years of Briarwood development, before the streets, driveways, roofs and grass covered the open ground. Consequently, once repaired, the structure should last longer than 15 years.

While the minimum volume has not been compromised, construction will be required to remove excess sediment, provide a suitable discharge pipe support, replace the damaged discharge pipe section, and replace the discharge energy absorbing "scour hole" structure.