

Seven Oaks Pond Flood Prevention Project

City of Manchester, MO

The Seven Oaks Subdivision Pond is located in the City of Manchester, on a tributary in the Grand Glaize Watershed. The tributary begins upstream at two concrete pipe outfalls and empties into the Seven Oaks Pond via a concrete pipe culvert under Kinsale Drive, an entrance street to the subdivision. Intuition & Logic was hired by the City to evaluate ways to relieve flooding near the intersection of Kinsale Drive and Dougherty Ferry Road, a four-lane arterial road.



Currently, stormwater backs up behind the culvert under Kinsale Drive, flooding residential property upstream of the pond. The City had planned to replace the upstream culvert with one that will pass the 100-year flow. However, after analyzing pond hydrology, it was discovered that the culvert draining the Seven Oaks Pond under Dougherty Ferry Road did not have the capacity to pass the 100-year flow. Therefore, additional water coming to the pond via an improved culvert under Kinsale would force the pond to overtop its spillway into a ditch along Dougherty Ferry, merely transferring the flooding problem from one location to the next.



Intuition & Logic developed several alternatives to alleviate flooding, including the addition of a bypass culvert or converting the existing pond to a dry detention pond. After considering all viable alternatives, the preferred solution was to replace the existing culvert under Kinsale, add a new riser and outlet pipe for the Seven Oaks Pond, and bore a 60" pipe under Dougherty Ferry Road parallel to the existing 4 x 6 culvert to pass the 100-year flow. This would effectively lower the existing pond elevation approximately 2-feet, providing needed detention capacity and alleviating flooding at Kinsale Drive and Dougherty Ferry Road. In addition, a planting plan of indigenous Missouri wetland and wet-mesic vegetation was developed to revegetate the pond fringe area exposed by lowering the pond water surface.