

Drainage Issues/Possible Steps to resolve

Barby Lane Issue: Basin and pipe undersized for this area. Flooding occurs in moderate to heavy rains.

Solution: Current system is undersized for contributing area. Solution in three-parts/phases:

- (1) Remove and replace existing system between 6921 and 6915 Barby – system replacement to be upsized (TBD);
- (2) Add a drainage basin and piping at intersection of Indian and Barby;
- (3) Add another basin and piping in the vicinity of Warren Park Road and Barby.

City Engineers are working with Duke Energy to determine if a new basin and pipe can be installed in their utility easement between 7009 and 7015 Barby. Surveying started to determine placement of new systems. If the new basin cannot be done in this location (TBD), the basin may be placed on Warren Park Road and runoff will be piped back to the Daetwyler swales.

City Engineers are developing plans to add a basin on SW corner of Indian and run pipe across Indian to take runoff north to canal.

Stafford/Pam: Heavy flooding in intersection. Slow to drain.

Solution: City Engineers to provide sketches for drainage solutions with opinion of costs. There may be potential to provide a solution in phases.

City to clean/camera underdrain to determine functionality.

Potential remediation efforts were discussed that included:

- Adding clean-outs every 150-200 feet to underdrain.
- Excavate swales on N side of 1639 Pam to 1728 Stafford. Inspect underdrain. Add stone around underdrain.
- Install 18" or larger perforated pipes (depending on depth) to connect with underdrain or have solid pipe 24" or larger connected to underdrain. Add sod.
- Install drainage basins at intersection. Run pipe from E basin to W basin.
- Add cleanouts to underdrain on Pam at 1639 Pam (S of driveway); 1645 Pam @ 60-feet S of driveway and basin at 1705 Pam. Clean underdrain.
- Excavate swale @ 1639 Pam and first 100 feet S of 1645 Pam and install 24" pipes as above.

Colleen/Dewayne: Moderate flooding. Swales overgrown; water sits in driveway channels.

Solution: Recondition swales by removing sod and excavating dirt/muck to deepen channel. Add new sod.

Clean channel across Dewayne.

Public Works maintenance project. City Engineers on stand-by/hold.

1631 Wind Willow: Swales don't drain; water sits in driveway channels.

Solution: Excavate to expose underdrain @ 1649 Wind Willow. Inspect for damage. If damaged repair and charge property owner. If intact, install small catch basins (Home Depot) and connect to underdrain at 1631 Wind Willow (E side of driveway); W property line at 1643 Wind Willow; and 1649 Wind Willow (W side of driveway).

Excavated the area to recondition the swale. Area now drains. **Project is closed.** City will monitor the area.

St. Partin Place: Swales overgrown; water sits in driveway channels.

Solution: Recondition swales @ 6403 to 6427; 6416 to property line between 6428 and 6504. St. Partin by removing sod and excavating dirt/muck to deepen channel. Add new sod.

Install new basin and pipe at 6504 St. Partin. City Engineers are developing plans.

City is working with OC Utilities to have them place a new curb in the area to direct drainage.

City removed large oak tree in the swale at 6504 St. Partin and reconditioned the swale. No evidence of flooding in this area since. **This part of the project is closed.**

Jade Circle/LCS: Swales overgrown; water sits in driveway channels. Pipe collapse near Ming Dr.

Solution: Find all clean-outs in LCS and mark lids (w/metal bands) for future location.

Reconditioned swales at 5293-5275 Jade. Driveways now drain.

For others in LCS follow same procedures for reconditioning swales and adding small basins.

Pipe near Ming Drive was relined. **Project closed.**

Sol/Playa/Kendra: Major flooding and road destruction

Solution: Rebuild the road base. Add new underdrains and new material to aid in drainage. Engineer estimate is \$440,000.

City Engineers are developing plans.

St. Moritz: Pipe Collapse **Pipe has been lined. Project Closed**

Solution: Line Pipe (See Granite Proposal).

Daetwyler/Seminole: Moderate flooding. Water runs N on Daetwyler and SE on Seminole.

Solution: The City worked with Orange County to contour Seminole N side ROW for better flow into Warren Park swale. Seminole now drains in the swale. City will maintain the ROW. **This part of the project is closed.**

City plans to install basin at the SW corner of the Daetwyler/Seminole Intersection to capture runoff flowing north along the sidewalk. Install a pipe across Seminole and install bubbler at Warren Park swale so water from Daetwyler flows into swale at SW corner of Warren Park.

City Engineers are developing a drainage plan.

Hafley Ditch: Slow draining. Constant overgrowth

Solution: Excavate and line N-S channel and E-W channel with pipe; Or Excavate N-S channel and add concrete blanket (see attached); keep E-W ditch clean (depending on cost line ditch with fiber blanket and rock.

Decision was made at this time to control the vegetation in the ditch. **Project considered closed.** City will continue to monitor and when needed remove overgrowth along and in the entire ditch.