

# Maintenance Plan

4/9/2008

## for the Drainage Control System at The Willows at Upriver

Owners of homes and/or lots within The Willows at Upriver will become members of The Willows at Upriver Homeowners' Association. The surface water drainage facilities located within The Willows at Upriver are for the use of the members of The Willows at Upriver Homeowners' Association on an equal basis, subject to the provisions promulgated by the Association in the *Declaration of Covenants, Conditions and Restrictions of The Willows at Upriver*. It shall be the responsibility of the Association to inspect and maintain the stormwater drainage system serving the included properties as per the maintenance schedule outlined herein.

### Facilities Inventory:

The plat listed above contains the following stormwater drainage facilities:

	Catch Basins and Inlets	Access Manholes	Drywells	Pipe, LF (approx.)	Ponding Areas
The Willows at Upriver	16	0	5	560	5

### Maintenance of Drainage Facilities:

Maintenance procedures for the stormwater drainage facilities are described on the following pages. Refer to the *Stormwater Drainage Plan* map sheets for the locations of the drainage facilities.

- Drywells

Remove grate and inspect drywell for sediment or debris buildup twice per year (e.g. in the spring and autumn). Sediment and debris must be removed before buildup reaches the invert of the lowest slot out of the drywell.

Check annually for structural damage to the frame, risers, top slab, walls or bottom of the drywell. The frame should sit flush on the top slab or riser. Any separation of 3/4" or greater should be adjusted and repaired. The top slab, risers, and the walls and floor of the drywell should be free of cracks, to maintain structural integrity and to assure that flows stay contained and sediments are kept out. The drywell should be replaced or repaired to design standards if it has settled more than 1".

Repairs should be made to cracks as follows:

- any cracks wider than  $\frac{1}{4}$ " in the top slab or risers
- any cracks wider than  $\frac{1}{2}$ " and longer than 3 feet in the drywell walls or floor
- if there is any evidence of sediment entering through a crack

If the maintenance person judges the structure is unsound due to cracks or any other problem, the drywell should be replaced or repaired to design standards. The life expectancy of drywells is generally at least 20 years.

- Pipes and other Conveyance Systems

1. Pipes shall be cleared of accumulated sediment or debris that exceeds 20% of the diameter of the pipe. Any vegetation that reduces the free movement of water through the pipe shall be removed. Inspect pipes annually (where possible) for any damage or deformation, and repair or replace pipe as necessary to maintain flow characteristics. Repair or replace pipes having any dent or deformation that reduces the cross-sectional area of the pipe by more than 20%. Maintain sufficient cover over pipes to provide protection from structural damage.
2. Open ditches, berms, culverts and other surface drainageways shall be kept clear of trash and debris. Inspect ditches, berms and culverts monthly, remove accumulated sediment that exceeds 20% of the design depth, and regrade as necessary so that the ditch, berm or culvert matches design specifications and retains full functionality. Any vegetation that reduces the free movement of water through a drainageway shall be removed. Inspect ditches for erosion damage, especially after storms, and repair or regrade drainageways as necessary to maintain flow characteristics and design specifications.
  1. Rock rip rap or channel linings should be inspected monthly and after large storms for any missing or misplaced rocks, and replaced or repaired as necessary. Soil should not be visible beneath the rock lining.

- Ponds "A" – "E"

The Ponds for The Willows at Upriver are permanent facilities to treat runoff from adjacent public streets, private driveways and on-site runoff.

The sod will be placed in the pond and shall be kept at less than 24" in height, and any noxious weeds shall be removed. Any accumulation of sediment, debris or oils should be removed.

Visually inspect monthly to watch for signs of erosion or other degradation of the pond and its side slopes. Rock rip-rap at the outlets should be inspected after all large storms for any missing or misplaced rocks, and repaired as necessary. Soil should not be visible beneath the rock rip rap.