Project Description:

With plans to build an environmentally friendly retirement home, our clients were drawn to the property unaware of its extreme drainage and flooding issues. Visiting the property on even the lightest of rain events resulted in sheets of water crossing and pooling throughout the yard.

In collaboration with our site engineer and house architect we restricted the residence and terraces to the one high point of the property, while focusing our efforts on the flooding and drainage issues. Researching the history of the area, we discovered a 1955 culvert that diverted an adjacent river in order to build the surrounding subdivision. The culvert was poorly maintained and failing miserably.

As the project Landscape Architect, we had little confidence in the future maintenance of this off-site culvert. It was time to take matters into our own hands. Our objective was to recreate the natural flow of the previously diverted river. By mimicking the stone patterns of the adjacent land trust conservation area, we designed a riverbed through the property. Surrounding the house and exterior terraces, it connected the adjacent system, providing an overflow wetland area for major storm flooding events.

Throughout the process our clients gained a greater appreciation of the ecological system being restored. What began as a hurdle to overcome, ultimately determined the framework for our design. As naturalists, they welcomed the addition of our nontraditional design approach and embraced the inclusion of a diverse native planting palette with year-round enjoyment.
Reclaiming The Natural River Flow by Louis Fusco Landscape Architects

Site Map – Goodwives River historic and current hydraulic functions
Landscape Architect’s site history research provided the framework for the total site development.

**Landscape Architectural Design - Built Works, Residential**

**Goodwives River historic and current hydraulic functions**

**Project Site**

**Goodwives River flow pre. 1955**
Natural River flow feeding into lower woodland & wetland area.

**1960’s Sub-division Development**
Directly impacts the natural river flow.

**1955 DPW culvert & piping installation channelizing the river**
While channelizing the river benefited the subdivision development, the lack of ongoing culvert maintenance resulted in storm overflow and sheet drainage across the neighboring properties, flooding out the project site.

**Ex. Flood plains & adjacent wetland**
Project site proposed mitigation to direct, capture and slow storm flow, replacing existing lawn areas with appropriate wetland plantings.

**Adjacent conservation area & wetland**
Proposed on-site measures have reduced adjacent area flooding and wash outs, allowing native conservation planting to reestablish, vegetating eroded soil areas.
Mapping the existing site flooding patterns established the framework for our naturally designed riverbed and adjacent mitigation plantings.
The existing flat lawn expanses exasperated the site flooding. Site contouring allowed us to create a functional stream bed of native river rock, reestablishing the natural river flow. The right photo above was taken during one of the first rains after construction and during planting.
The house terrace garden provides year-round viewing opportunity from the main interior living areas, while serving as a porous connection between the residence and adjacent mitigation corridor.
Elevated Entry: Small retaining walls create an elevated plinth for the house and front entry above adjacent flood plain area.
Steppingstone walks and pathways were intentionally designed and extensively planted to minimize lot coverage and runoff potential.
Details: In lieu of expansive hardscape areas, we reduced to their basic functional needs, lining dry set steppingstone walks with native sedges, and trading the traditional front entry bluestone walk for a patterned patchwork framed by sedum.
Planting Scheme: We are now entering phase II plantings where the last lawn areas will be transferred into meadows and sedges. Seasonal planting interests provides our botanical loving client with the multi-dimensional natural landscape she desired.
Conservation Area Stream Inspiration: The adjacent conservation area (left side photo) was the riverbed inspiration for our newly designed drainage way.
Steppingstones through sedum provide access to the front planting beds.
Stream Bed: Initial installation of the riverbed where it connects to the neighboring properties and redirects flow in both directions around the residence. The framework is in place for nature to reclaim its path.