

This alternative creates a unique park facility that will be the first of its kind in Italy. Water flows integrate this park with the surrounding residential and industrial areas. Visitors to the new Roncagette Park will have the opportunity to take an educational journey, following the flows of water through the landscape and gaining an understanding of the need for clean water and the processes by which water can be transformed and used. With water as the central theme, this scenario proposes to clean polluted water, create and enhance wildlife habitat, provide public recreational spaces, and offer a unique educational experience.

## CLEANING WATER IN RONCAJETTE PARK

### Initial Treatment

Creating a clean and ecologically healthy river system in Roncagette Park begins to the north of the park with the treatment of Padova's sanitary wastewater and stormwater. To eliminate a major source of pollution in the Roncagette Canal, the water from the Fossetta Canal is captured and treated. The process begins as the untreated water is piped from north ZIP beneath the Piovego Canal and into a new underground wastewater treatment facility at the northern portion of the park.

A grouping of small grassy hills forms a new public park on top of the subterranean wastewater plant; this space offers views along the canal and a resting place for passersby who are using the park's bicycle trails. In addition, this area forms the primary northern entrance to a linear wetland treatment park located along the eastern edge of the larger Roncagette Park. The new facility provides primary and secondary wastewater treatment before discharging the water into the constructed wetland system for tertiary and polishing treatment.

### WETLANDS (LINEAR PARK)

The proposed constructed wetland system presents a distinctive combination of naturalistic and stylized areas, which combine to provide both a tertiary water treatment system and a visitor-friendly linear park. The elliptical vegetated pools house the various stages of polishing, with water becoming increasingly cleaner and clearer as it flows south. The boundaries of the wetland system are contained entirely within ZIP's property lines and follow the general route of the existing levees of the Fossetta Canal until its confluence with the Roncagette Canal in the central zone of the park.

A separate constructed wetland system is located to the northwest of the Roncagette Park site, along the course of the Roncagette Canal before it crosses the San Gregorio Canal and flows into the park. This system targets pollutants in urban stormwater runoff. It includes a series of weirs to dissipate flows and allow settling of sediments, wetland vegetation to uptake and filter nutrients and heavy metals, and enough capacity to be used for flood control when necessary. Once the Roncagette Canal enters the park, it joins the polished water from the Fossetta; this combined flow then passes through the next sequence in the wetland system, which has been constructed within the existing floodplain of the Roncagette. The design allows for the merging of the two waterways while leaving the historic levee system intact.

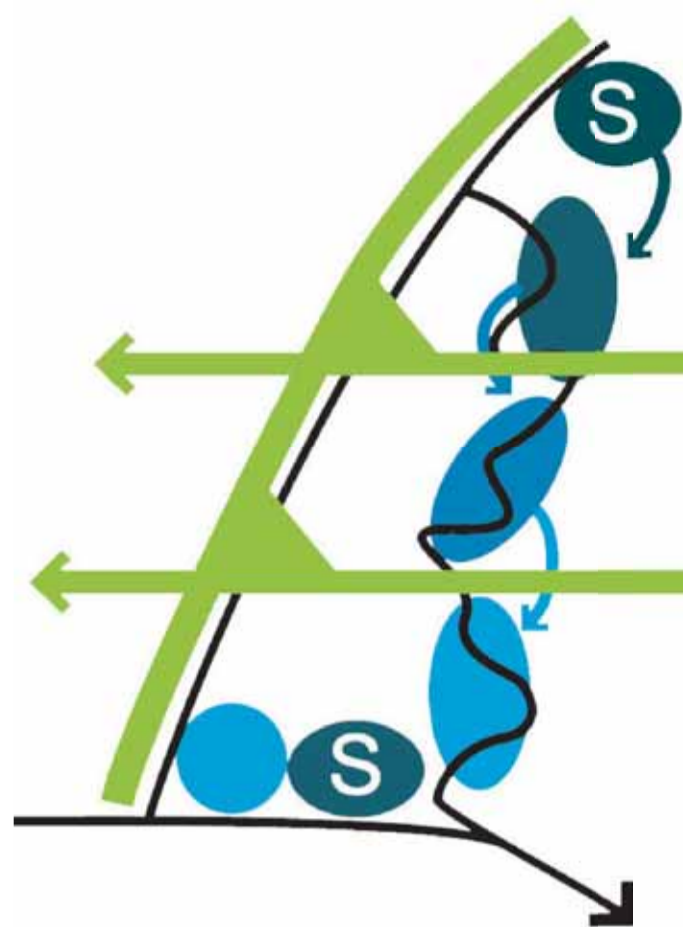
A network of paths for people follows the water's path. The new pedestrian and bicycle circulation system through the wetlands is an elevated path created by the filling and phytoremediation of the contaminated sediments within the existing Roncagette Canal. Along this path are several observation decks that serve as both viewing platforms and didactic educational stops along the water's journey. The path is characterized by aesthetic features such as thick stone walls, native vegetation, gravel pathways, and wooden decks. The experience of walking along and within this unique wetland system becomes a sequence of comfortable spaces where visitors can come in any season to look, relax, and learn.

In addition to offering improved water quality, recreational opportunities, and educational values, the constructed wetland system provides new large areas for flood control and an enhanced habitat for native wildlife, including migratory birds and fish. The benefits of this design spread beyond the park's boundaries: the views to and from ZIP and Padova will be greatly improved.

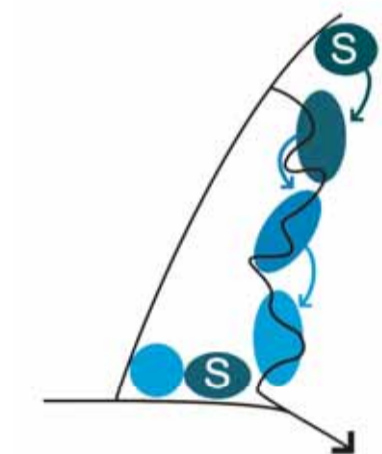
### FUNCTION AND DESIGN

The wetland is divided into three general zones:

1. Elliptical wetland cells are all situated at or above the existing ground level and are contained by thick stone masonry walls. These structures include settling ponds and deep water marshes. Water flowing into these cells will remain in this first northern zone for a total of three to four days. The passage of water from one cell to the next is marked by a series of filtration devices. The elevated pedestrian path offers views of the elliptical treatment cells, which range in height from 1 to 3 meters.
2. Marshes are formed by the creation of vegetated islands in the more naturalistic areas of the shallow wetland zone. Water remains within the marshes for two to three days. They are located and designed in a manner that conserves and protects existing patches of mature trees to create a more diverse landscape and habitat. Earth excavated from the perimeter of these islands is used to fill the existing Roncagette Canal bed and form the substrate for phytoremediation. Water from the upstream deep marsh cells is then piped into the shallow marsh, flooding to the edges of the islands and forming the soils for wetland vegetation growth in the next stage of treatment. The elevated path bisects the marsh and provides access to a number of the islands.
3. Polishing ponds are the final stage of the treatment, where the high-quality water from the upstream wetlands resides for one to two more days. These long, narrow, deep-water segments of the wetland system feature a series of cascades, celebrating the clean water before it is redirected into the Roncagette Canal and beyond the park site. These parallel ponds have tall, dense vegetation planted between them; retaining walls secure their shape. In addition, a portion of the volume of water coming from the polishing ponds is used for a new aquatic center and for small water features in the southern developments around the existing Lagoon Model.



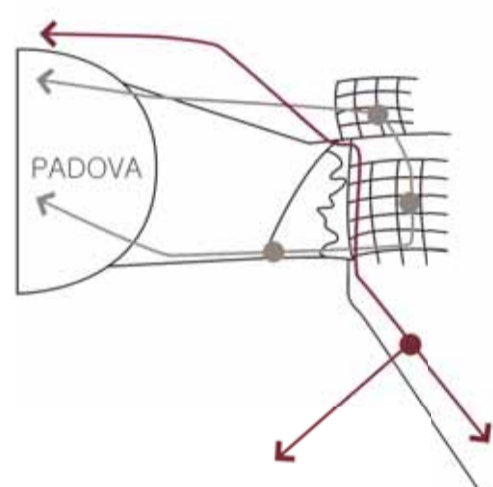
concept



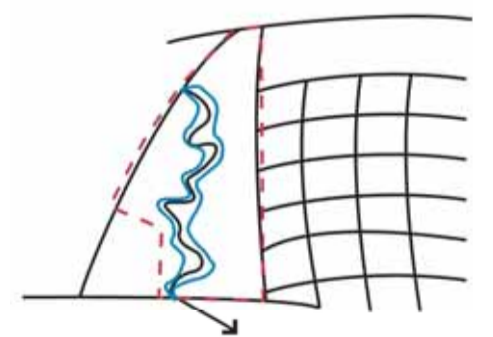
water quality



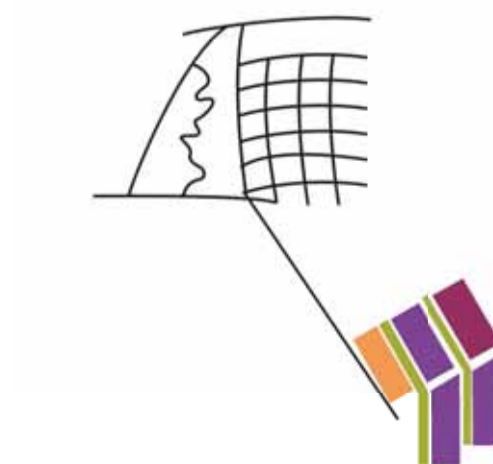
road access



regional transportation



border boundaries

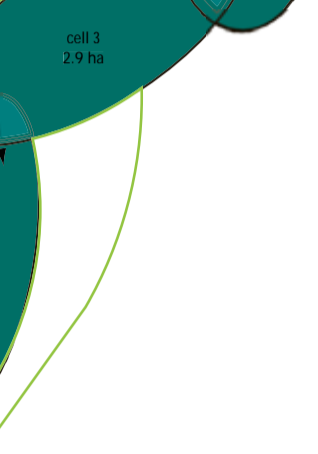
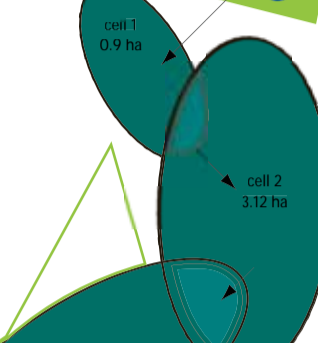
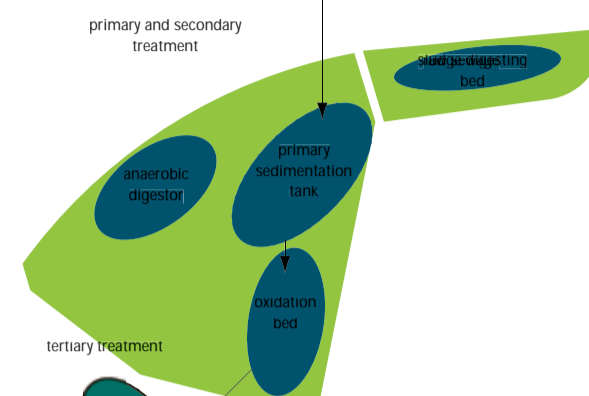


ZIP expansion



tertiary treatment: wetland plants and soil filter microorganisms and digest nutrients

## underground sewage treatment

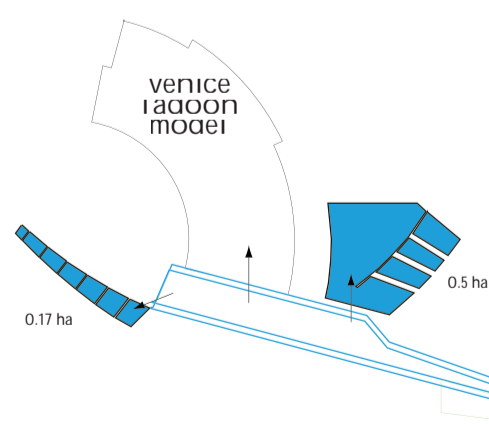


shallow marsh: aerobic biological treatment in enhancement marsh conservation islands protect existing trees serves as space for wildlife habitat and water storage

shallow marsh submerged vegetation

deep marsh

riverine marsh



riverine marsh: final filtration and disinfection occurs in deep polishing ponds

## EDUCATION

The southern portion of the park culminates in a celebration of clean water, highlighting the educational aspects of the wetland system by utilizing the fresh water in a variety of creative and useful ways. This scenario also includes the conversion of the Venice Lagoon Model into a museum.

The southern park region functions as a link between the existing sewage treatment facility and a new University research center, with pedestrian paths running through the wetland. While not open to automobile traffic, the elevated paths along the filled Roncagette Canal are wide enough to accommodate small tour buses, school vans, emergency, and maintenance vehicles. Structured educational activities occur within the new University buildings in this area as well. These campus buildings are interspersed with open spaces, including recreational fields, reflecting pools, and forested areas. The southern park zone becomes an entrance for visitors arriving from the south.

The wetland system unifies the spaces between the hilly northeast park atop the sewage treatment plant and the southwest Lagoon Model.

The Venice Lagoon Model and the University facilities are likely to attract many visitors. To enhance the experience of these spaces, and attract even more people, this area of the site also contains an aquatic center that includes four swimming pools to serve both competitive and leisure swimmers, a cabana structure, a new hotel, and small-scale commercial development to serve visitors.

## OUTSIDE THE SYSTEM: THE WEST EDGE

Several areas east of the San Gregorio levees and south of Isola di Terranegra are appropriated for recreational fields and forests. This is part of an overall minimalist approach to other areas of the park that contrasts with the complexity of the wetland system. The aim is to enhance the current athletic and recreational uses by widening the existing levees at strategic locations. This creates elevated banks along the east-west pedestrian connections through the park in order to accommodate space for fields, athletic courts, and resting/seating spaces.

## PARKING AND ENTRY

All new east-west circulation is for pedestrians and bicycle only. Visitors arriving by car approach via the ring road at the periphery of the park. All parking lies outside the formal boundary of the park, partially as on-street parking and the remainder dispersed in small lots of fewer than 100 cars per lot. A wide elevated road built between the easternmost levee and the rail right-of-way provides fast and easy park access, as well as extra on-street parking.

The western side of the park is limited to pedestrian access: seven bridges (five of which are pedestrian and bicycle only) cross the San Gregorio Canal. The bridges we are adding are pedestrian only, with one exception in the south that allows automobiles. Parking to the west of the park is located only on the western side of the San Gregorio Canal, in a design that pairs recreational fields and parking. All parking areas are constructed using permeable paving, reducing stormwater runoff and helping to keep the water clean in the Roncagette Park.