

6 APRIL 2022 – ON LINE

ALICIA VILLAZAN CABERO
VALLADOLID CITY COUNCIL

URBAN GREENUP WEBINARS WATER INTERVENTIONS

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 730426

WATER INTERVENTIONS IN VALLADOLID

42

7

CYCLE-PEDESTRIAN GREEN PATHS

Table 4: Interventions included in each Valladolid Sub-Demo

33	RE-NATURING URBANIZATION	WATER INTERVENTIONS	SINGULAR GI	9 NON TECHNICAL INTERVENTIONS
SubDemo A	VAc1- New green cycle lane	VAc8- SUDs for green bike lane	VAc15 - Cycle-pedestrian green paths	Common non-technical interventions: VAc37, 38, 39, 40, 41 & 42
	VAc2- Planting 1,000 trees		VAc16- Smarts soils as substrate	
	VAc3- Tree shady places		VAc19- Natural pollinator's mod.	
	VAc6- 3 Green Resting areas		VAc22 - Green Noise Barriers.	
Sub-Demo B	VAc4- Shade and cooling trees	NWTP	VAc17- Smarts soils as substrate.	Common non-technical interventions: VAc37, 38, 39, 40, 41 & VAc42
			VAc20- Compacted Pollinator's mods.	
			VAc23 - Green Noise Barriers.	
			VAc24 - Vertical mobile garden.	
			VAc25 - Green Façade.	
			VAc26 - Electro-wetland Roof.	
			VAc27 - Green Covering Shelter.	
			VAc28 - Green Roof.	
			VAc29 - Green Shady Structures.	
			VAc30 - Urban Garden Bio-Filter.	
Sub-Demo C	VAc5- 250 trees to re-naturing parking	VAc9- SUDs (re-naturing parking)	VAc18 - Smarts soils as substrate	VAc34: Educational path in VAc13
		VAc13- Nat. wastewater Plant	VAc19, 21-Natural pollinator's mod.	VAc35: Educational path in VAc11
		VAc10- Rain gardens	VAc20 - Compacted Pollinator's mod.	VAc36 - Urban Farming Educational activities.
		VAc12– Green filter area		
	VAc7- Urban Carbon Sink	VAc11- Floodable Park	VAc31 - Urban orchards	Common non-technical interventions: VAc37, 38, 39, 40, 41 & VAc42
		VAc14- Parking Green Pavement	VAc32 - Urban Agriculture.	
			VAc33 - Small-scale urban livestock.	

SUDS

ELECTRO-WETLAND

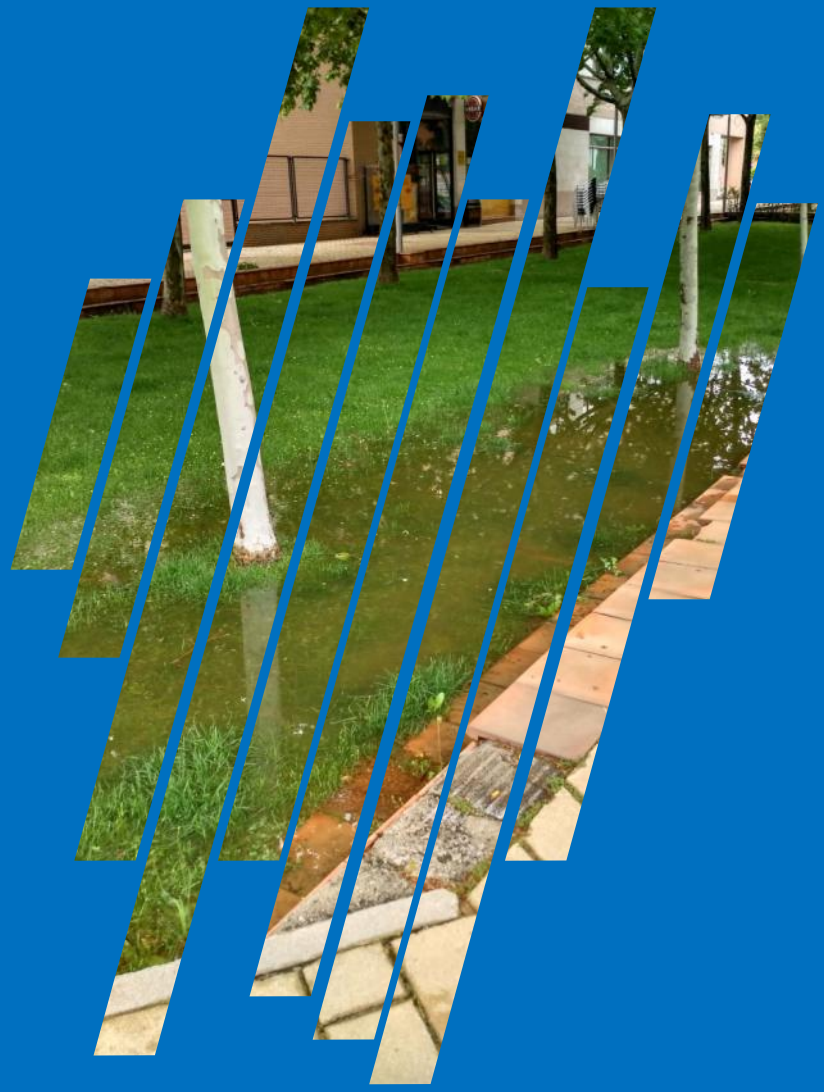
FLOODABLE PARK

URBAN GREEN UP

AGENDA

- SUDS
- CYCLE-PEDESTRIAN GREEN PATHS
- NATURAL WASTEWATER TREATMENT PLANT
- ELECTRO-WETLAND
- FLOODABLE PARK

SUDS



FUNDACIÓN PÚBLICA ANDALUZA
CENTRO DE LAS NUEVAS TECNOLOGÍAS DEL AGUA (CENTA)
Consejería de Agricultura, Ganadería, Pesca y Desarrollo Sostenible

URBAN GREEN

VAc8-9-10-14 SUDS

LOCATIONS AND TYPE OF SUDs

- **Rain garden (C)** in the green areas of the Stadium car parking.
- **Retention basin (D)** in the roundabout of access to the parking.
- **Green parking pavement (E)** in the non-asphalted car parking in the gardens of the municipal Auditorium.

Storage volume SUDs

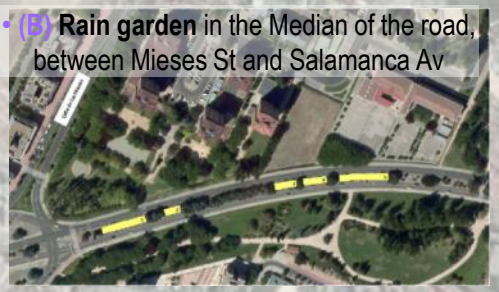
ACTUACIÓN	V_{SUDS} (m3)
A	44.64
B	157.43
C	90.54
D	131.38
E	44.47


VAc10 – rain garden


VAc9 - rondabout

TYPE: RAIN GARDEN, DETENTION BASIN

- **(B) Rain garden** in the Median of the road, between Mieses St and Salamanca Av



TYPE: RAIN GARDEN

- **(A) SUDs- Green lateral median** between IVECO roundabout and Paseo Juan Carlos I (close to the Civil Guard Hearquarters)

TYPO: GREEN ROAD MEDIAN

C/ Padre José Acosta

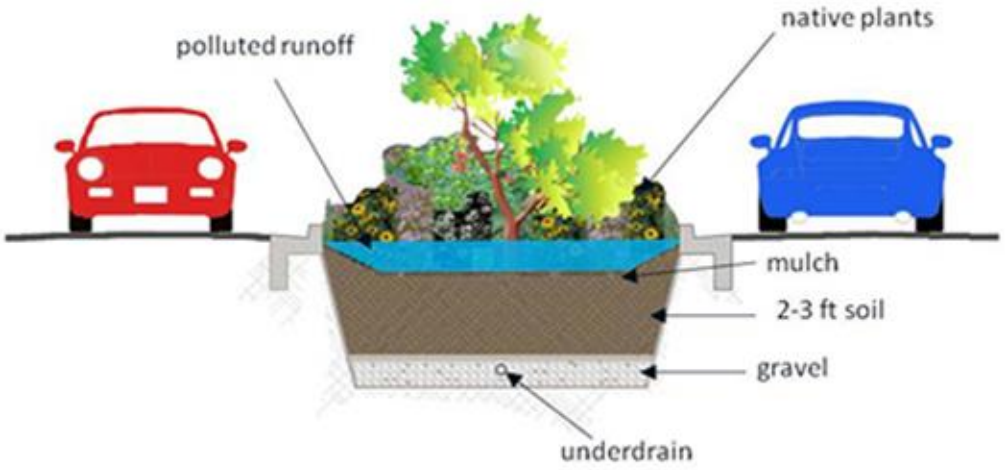
Av. De Soria

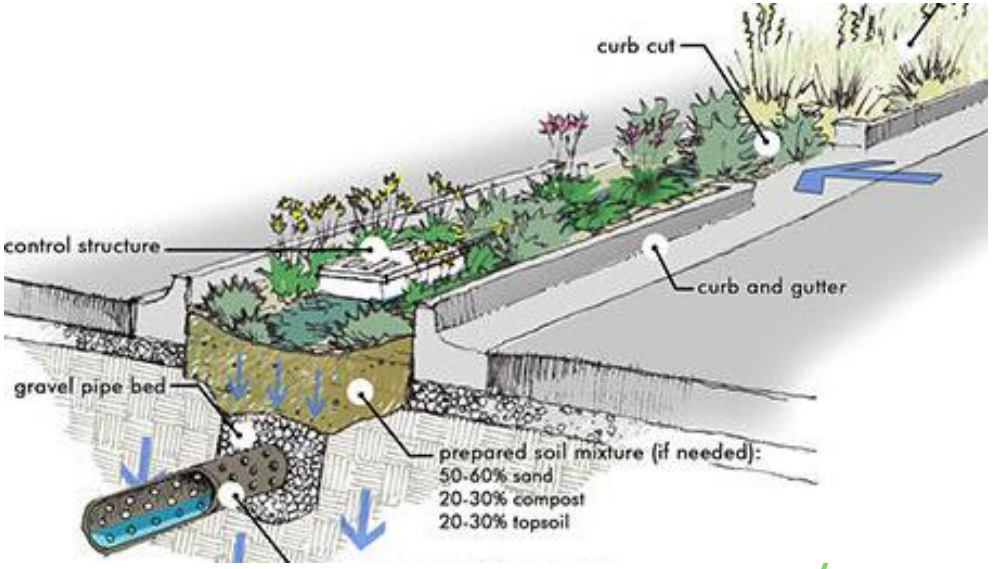
Estadio Municipal

TYPE: GREEN PARKING PAVEMENT


VAc14 – Green parking pavements

SUDs Sustainable urban drainage systems (SUDs)





C1 RENATURING PARKING

New models of renaturing urban areas

VAc9 SUDS FOR RENATURING PARKING

LOCATION: ZORRILLA STADIUM CAR PARKING
TYPEs: ROUNDABOUT DETENTION BASIN

VAc9 Roundabout detention basin in Football stadium parking access

AREA (m2) UNIT	OBJECTIVE
DETENTION BASIN 440 m2 INFILTRATION WELL 1 unit	•30% in runoff reduction •≥235 m3/year of water removed from the water treatment system

VAc10 RAIN GARDEN

LOCATION: ZORRILLA STADIUM CAR PARKING

TYPE: RAIN GARDEN (VAc10)

AREA (m2)	OBJECTIVE
RAIN GARDEN 1,000 m2	●30% in runoff reduction ●≥321 m3/year of water removed from the water treatment system

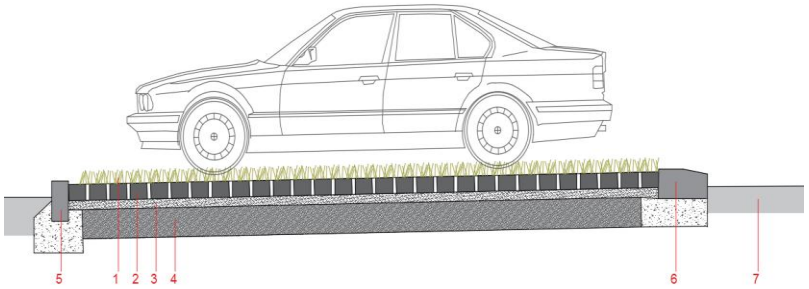
C1 RENATURING PARKING

New models of renaturing urban areas

Ayuntamiento de Valladolid

VAc14-
Parking green pavements

Prefabricated concrete block



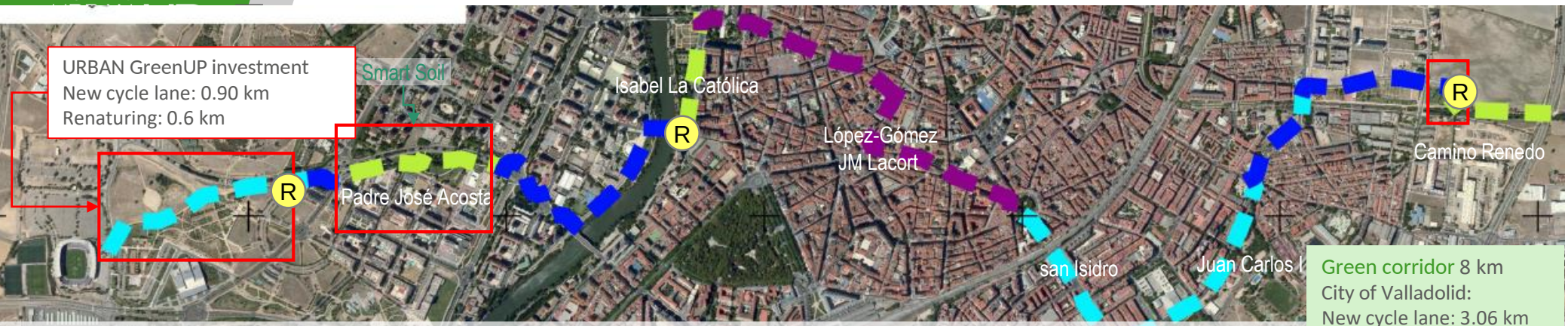
VAc15 Cyclo-pedestrian green paths

- *Permeable pavements.*
- *Along the Green Corridor*

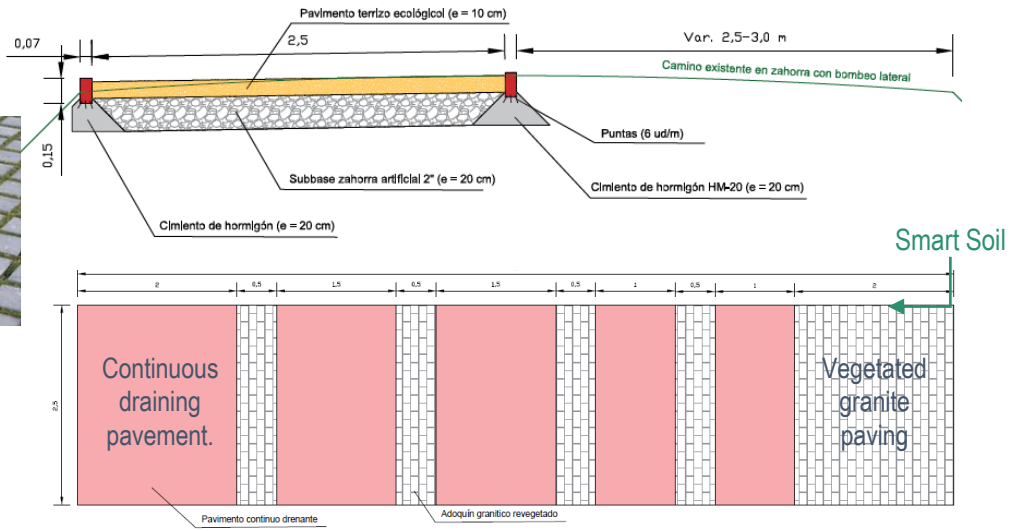
Interventions (8):
VAc1, VAc15,
VAc6,
VAc20, VAc19, VAc21,
VAc7, VAc35.

RENATURING CYCLE LANE: GREEN CORRIDOR

- *Green corridor: 8 km of renatured cycle lane from West to East*
- *New green cycle lane implemented in Valladolid by the City Council from 2017-2021.*
- *URBAN GreenUP budget: Intervention in the West and East of the Green corridor.*



VAc1 New green cycle lane and renaturing existing bike lanes



VAc15 Cycle-pedestrian green paths

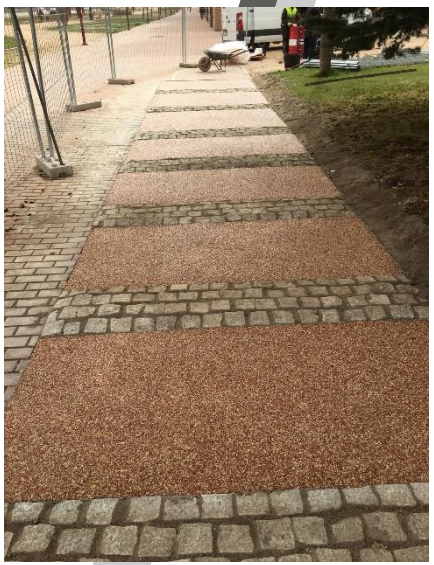
Ayuntamiento de Valladolid
ZENIT INGENIERÍA

Vac1-VAc15 RENATURING CYCLE LANE: GREEN CORRIDOR

- *Green corridor: 8 km of renatured cycle lane from West to East (under construction _oct 2021-may 2022)*

Ayuntamiento de Valladolid

VAc15



Cycle-pedestrian green paths
In Salamanca Avenue (W-Center)
(Feb 2022)

VAc1

Cycle lane & green paths

West of the Green Corridor (cycle lane) in the Football Std (Feb 2022)

C2 SUSTAINABLE PARK-
NATURAL WASTEWATER TREATMENT PLANT

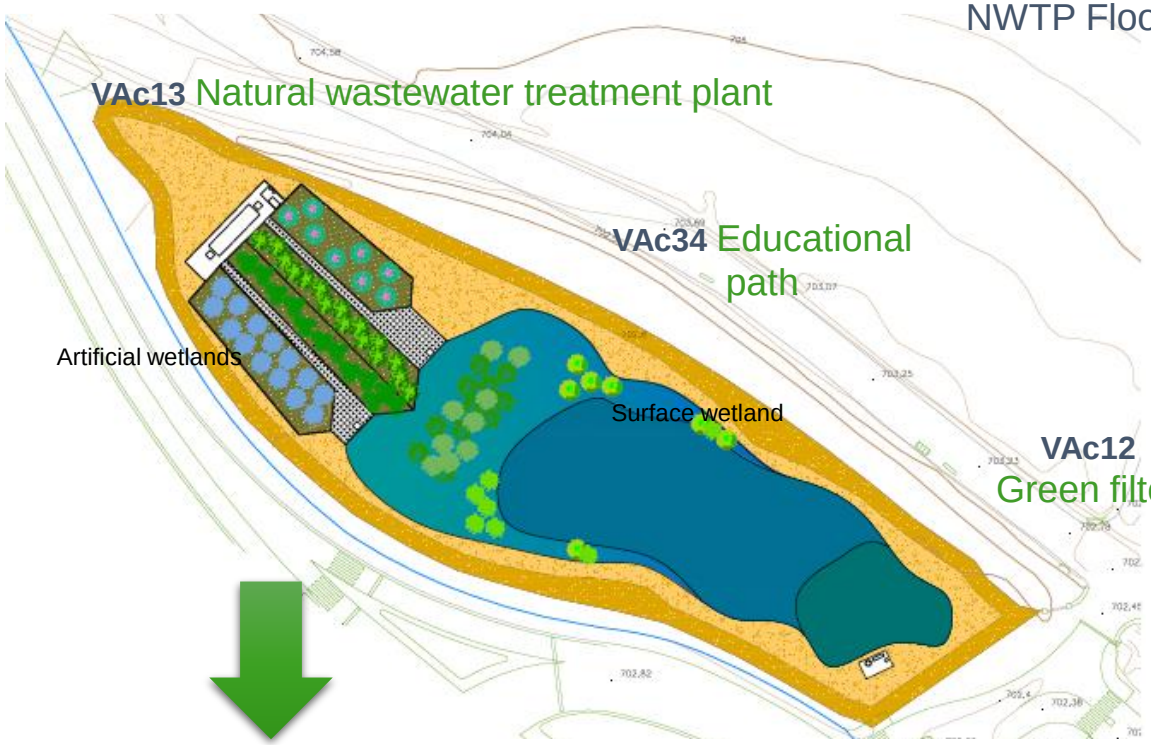
- *Technical design in progress.*

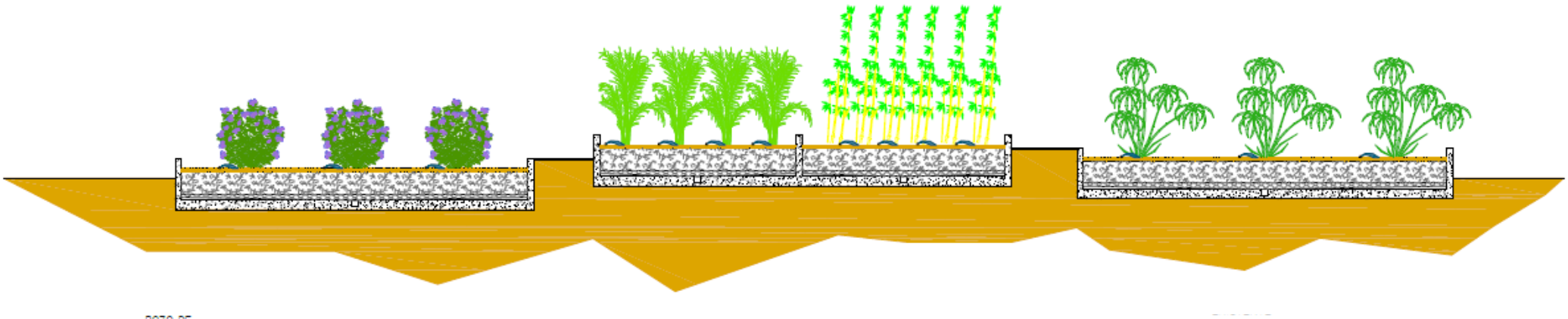
Vac13 NATURAL WASTEWATER TREATMENT PLANT

FUNDACIÓN CENTRO DE LAS NUEVAS TECNOLOGÍAS DEL AGUA

Vac13 NATURAL WASTEWATER TREATMENT PLANT

NWTP Floor plan

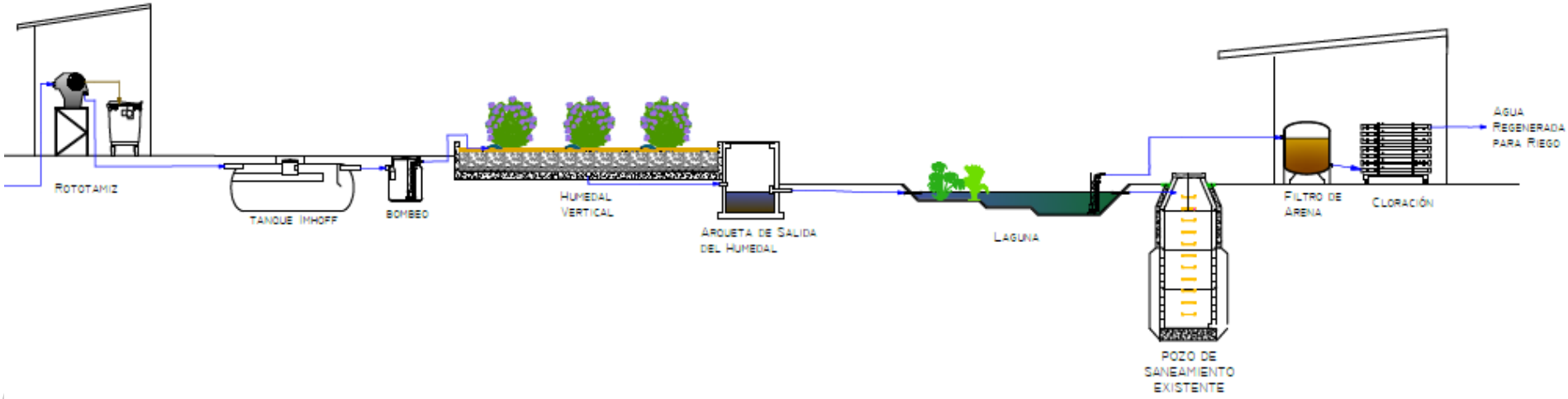




Elevation plan of the vertical wetlands

Vac13 NATURAL WASTEWATER TREATMENT PLANT

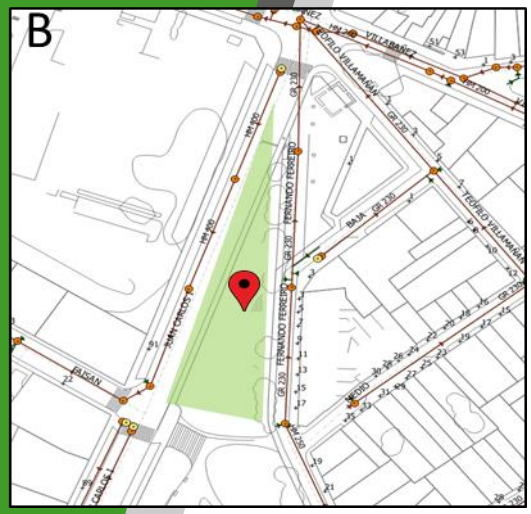
TECHNICAL SPECIFICATIONS

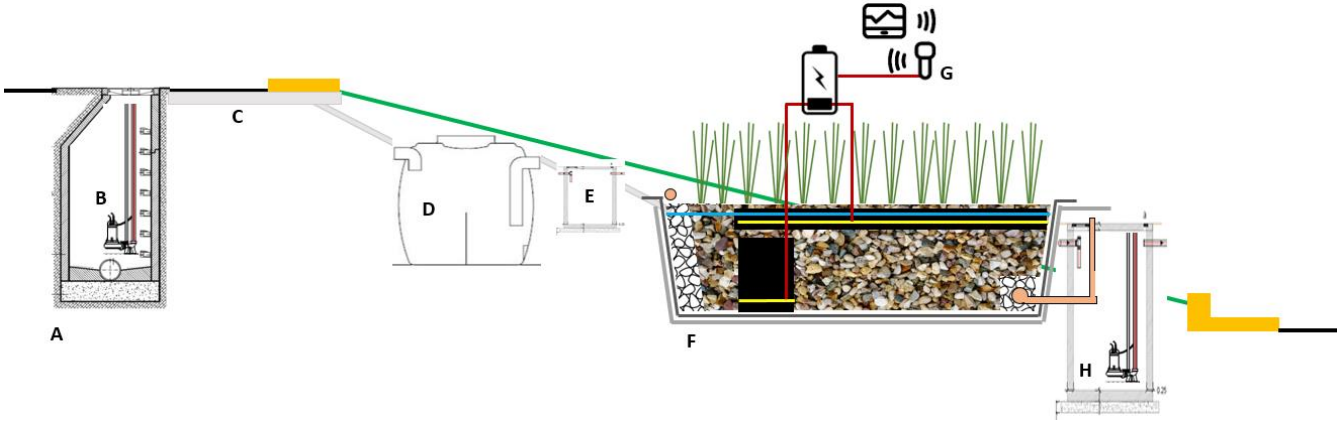


ELECTRO WETLAND

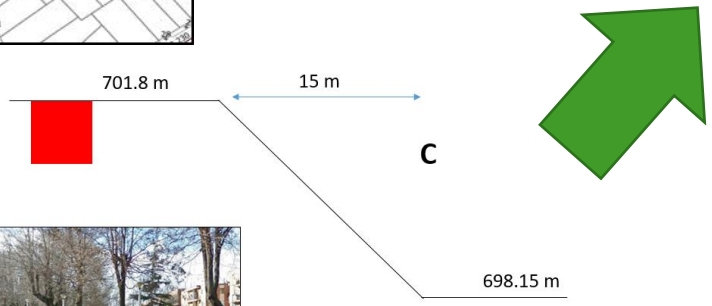
LEI ELECTRO WETLAND

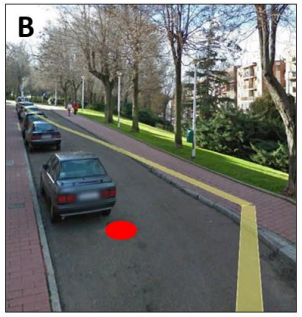
VAc26 Electro wetland



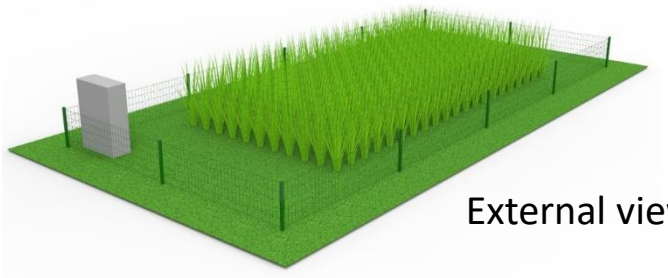


Conceptual drawing of an Electrowetland



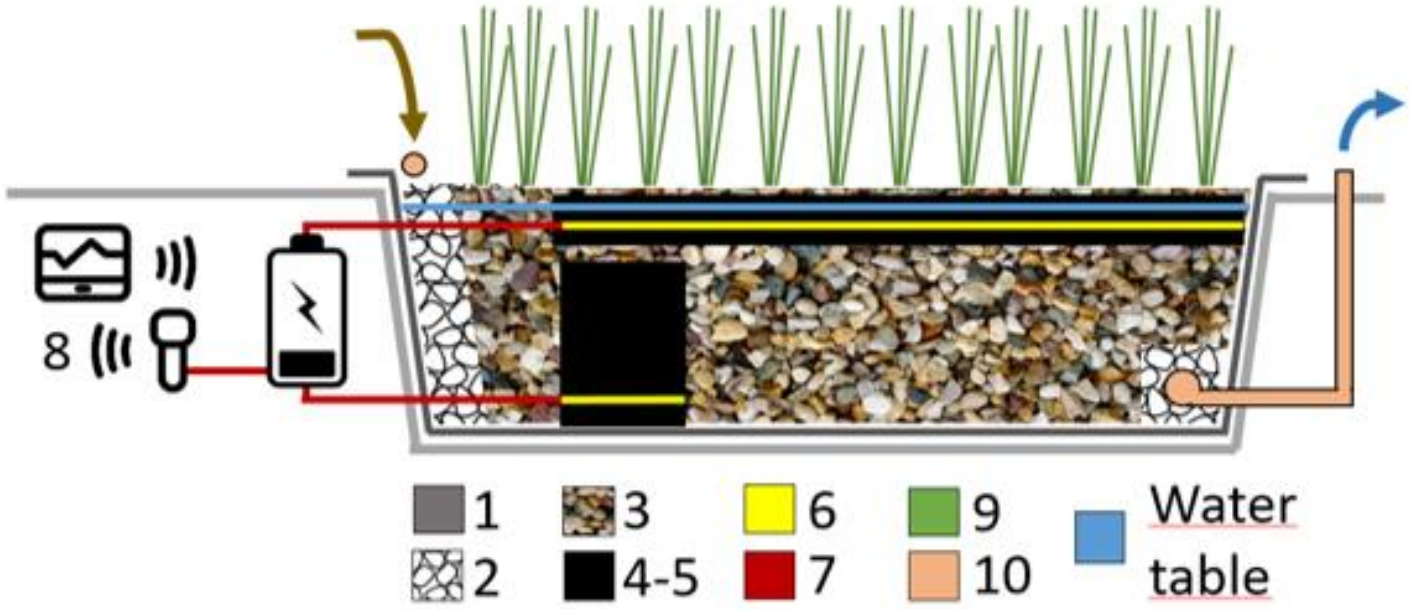


Location: Fernando Ferreiro St



External view

VAc26 Electro-wetland



Conceptual drawing of an Electrowetland.
(1) Waterproof liner; (2) Coarse gravel; (3) Treatment bed, fine gravel; (4-5) Conductive granular material for the anode and the cathode electrodes; (6) Current collectors; (7) External circuit; (8) Energy harvesting and sensoring systems; (9) Aquatic plants; (10) Inlet and outlet piping.

VAc26 Electro-wetland

During the construction phase

Wetland Waterproof Vessel (50 m2)

- *Agreement LEITAT - Valladolid City Council. Signed on January 2021.*
- *LEI constructed the EW. Local construction company (Herzaco).*
- *Fully implemented in July 2021.*

Stakeholders - Internal works meeting (June 2021)

Planting the wetland

Waste water inlet well

Remote automatic control system and electrical system (LEITAT)

VAc26 Electro-wetland

Implementation

EW in Fernando Ferreiro St (Patricia Park)

Re-naturalized slope

Water inlet through gravel.

Electro-wetland
Blue-Green area 50 m²

- *Implemented in July 2021.*

A poster illustrates the system from above

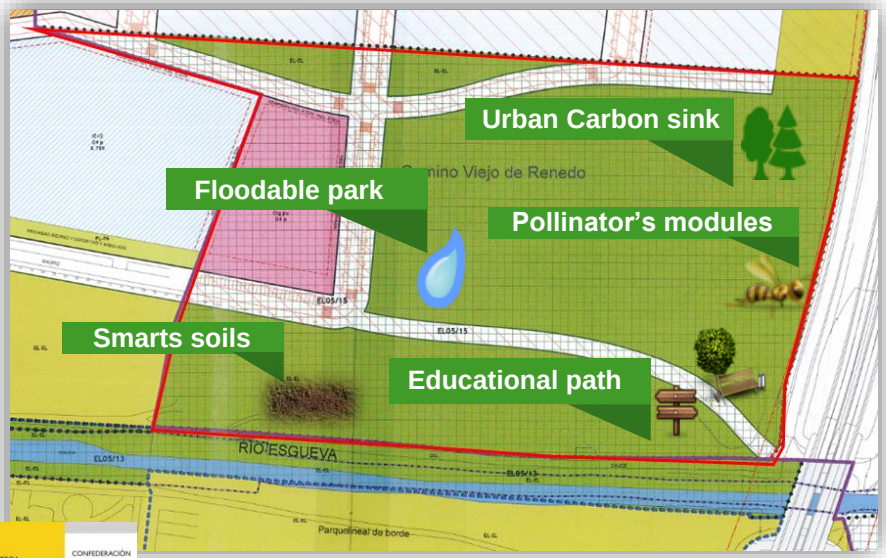
Phragmites australis growing.

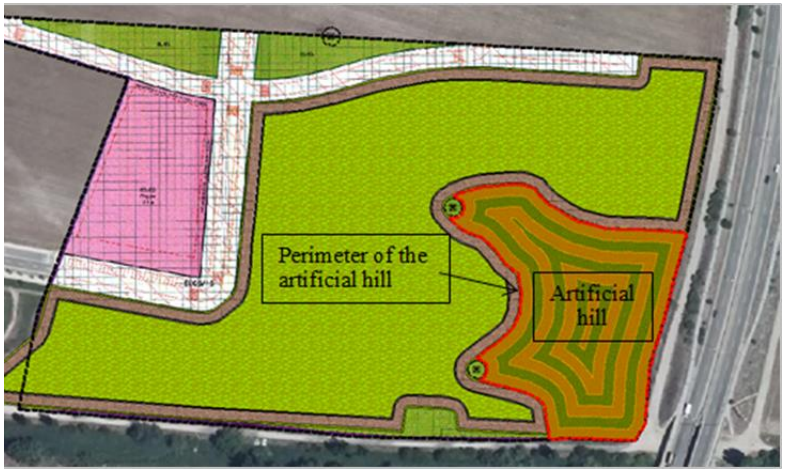
Guided visit to politicians (Mayor, Councillors of Innovation and Public Space) (Sep 21)

C3 – FLOODABLE PARK

for the Esgueva river in Valladolid municipality

VAc11 – Floodable park





River Duero basin

VAc11 – Floodable park

DEVIATIONS AFFECTING WORK PLAN

- FINAL CONCLUSIONS:

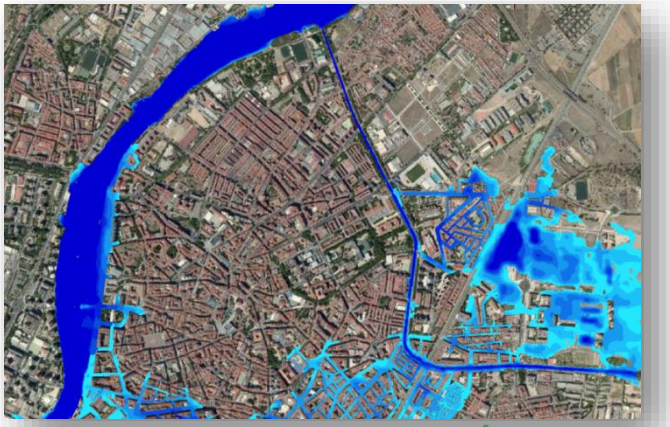
- **Geological site conditions make completely necessary to waterproof the surface of the pond in order to safeguard nearby constructions and infrastructures.**

- **Waterproofing the pond turns the floodable park into a hard intervention, which does not fit with the objectives and KPI´s set for this project.**

- **Moreover, in order not to overcome the available budget, storage volume is decreased to 4,278.41 m³. With such a low storage capacity, no flood abatement is produced. There is also no reduction in time to peak flow.**

- **Alternative locations for the floodable park were, then sought. However, there was no other available plot within the Valladolid urban area fulfilling the requirements.**

Finally, Duero River Basin Authority (CHD), as the public body in charge of flood risk management within the Duero river basin district, reached the conclusion that the implementation of the floodable park is unfeasible according to the technical studies carried out.



www.valladolidadelante.es
@INNOLID
@VLDAdelante
@VLDAdelante

THANK YOU
FOR YOUR ATTENTION

VALLADOLID CITY COUNCIL

ALICIA VILLAZAN CABERO
avillazan@ava.es

WP2 VALLADOLID DEMONSTRATION TEAM