

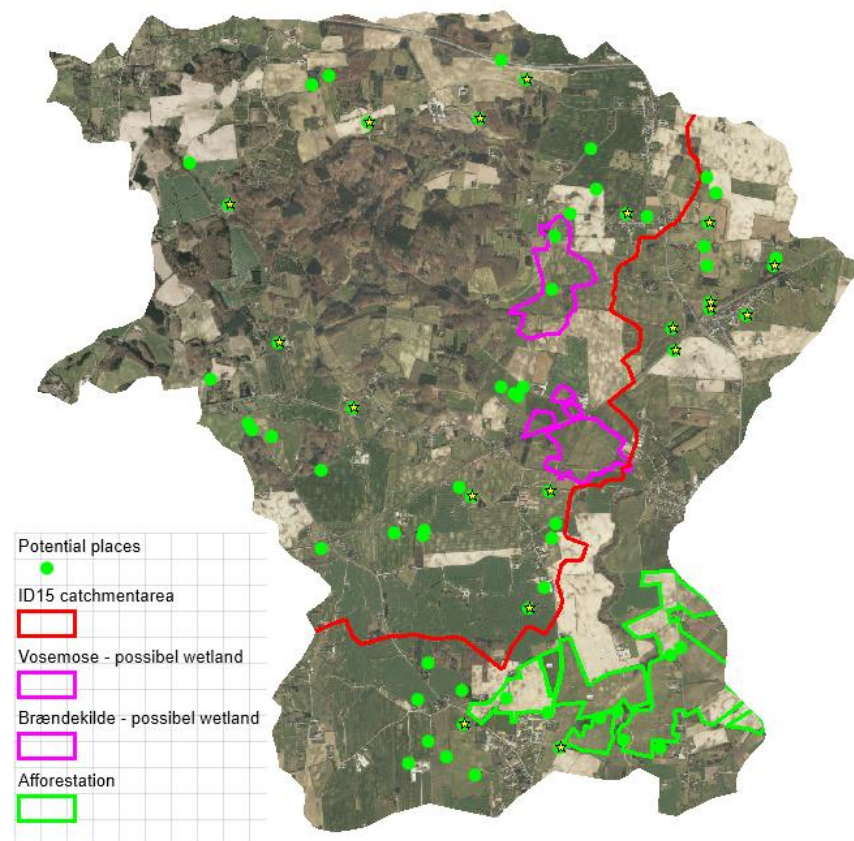


**Environmental measures
with N & P effect in 2 ID 15
catchments at Funen –
focus on the economy**

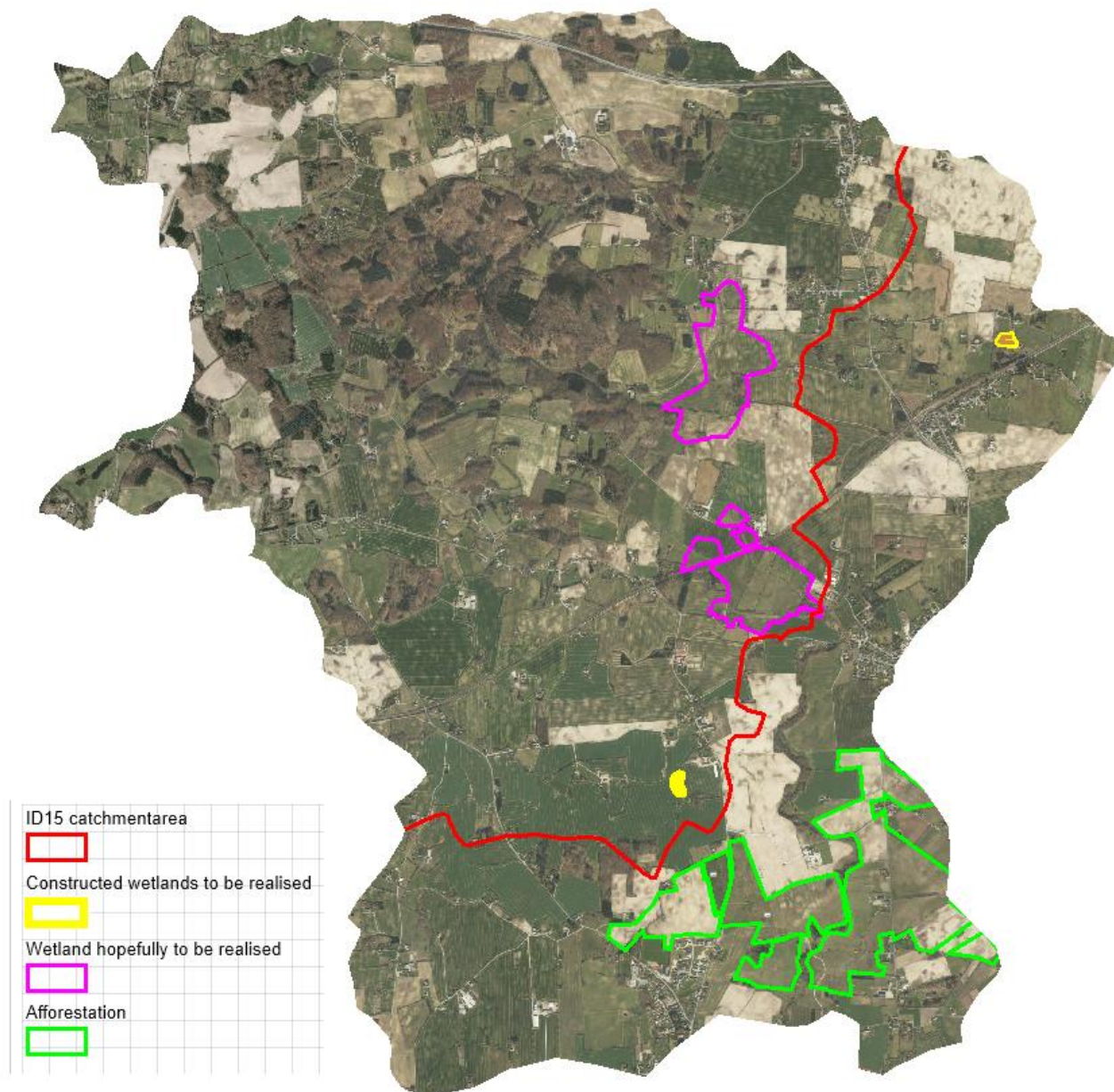
Disposition

- 1. The project**
- 2. How to estimate the total costs in the two ID15-catchment areas**
 - A. Constructed wetlands**
 - B. Wetlands**
 - C. Afforestation**
- 3. Summing up**

The project area



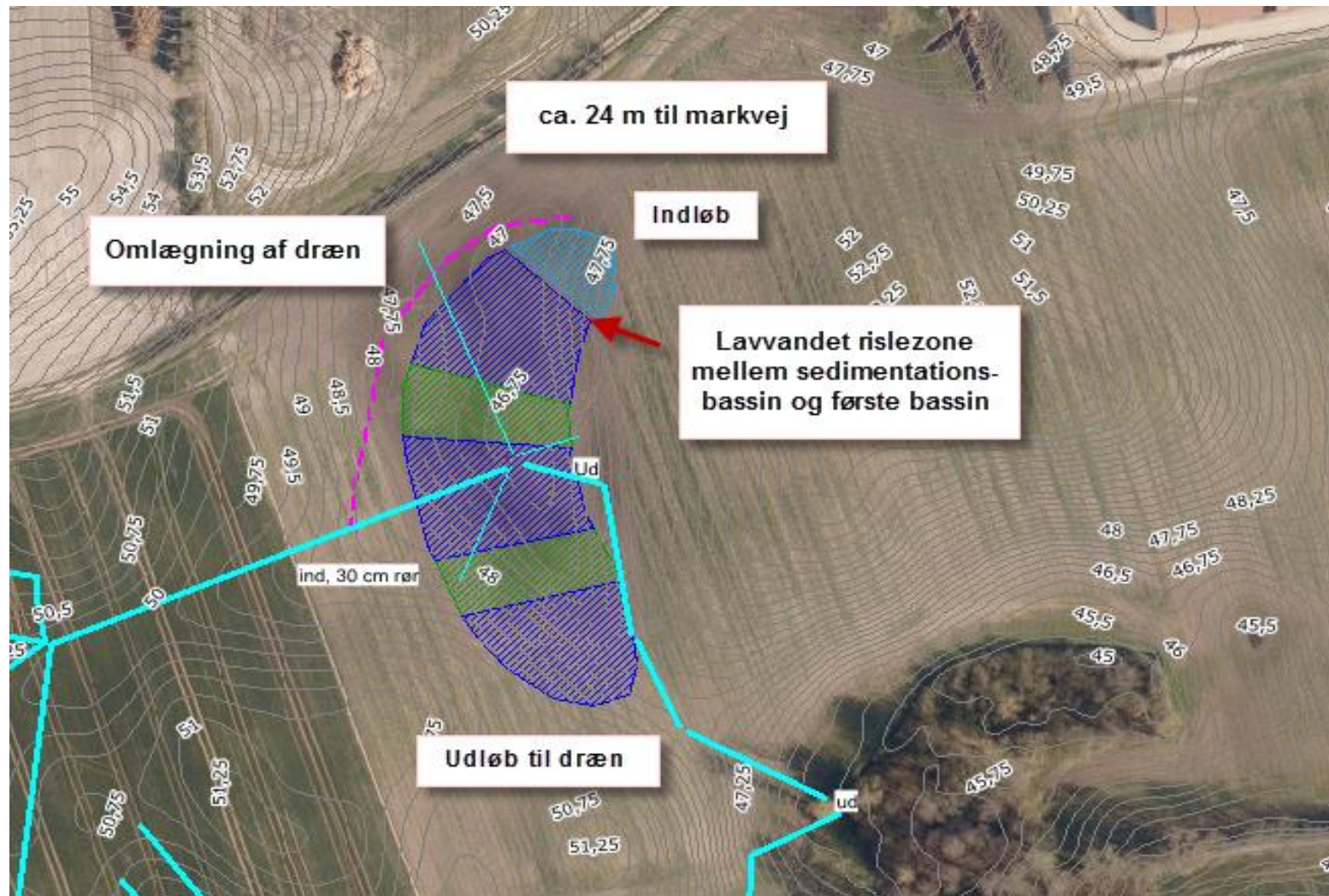
Projects being realised



Projects being realised



Projects being realised



Objective causes that stop projects

- Too little farmed land in rotation in the drainage area – the requirement is 80 % of the drainage area in order to be able to apply for grants.
- The place where the farmer wants to make a measure is not suitable as defined by the state, so he won't be allowed to make a measure on that spot.
- Lack of liquidity. Although the landowners/farmers receive 50 % of the grant before they have had the expenses not everybody has the liquidity to spend money on the costs of establishing the constructed wetland.
- The drains lie too deep, so a pump is necessary.
Many farmers are not so keen to use a pump unless they obtain better drained fields at the same time. They don't want to have to pay the operating costs of the pump for the next 10 years, if it is only for the sake of the constructed wetland.
- The drain is not a drain, but a piped stream which means, that some municipalities will not allow us to lead the water through a constructed wetland.

We intend to have a focusmeeting about the farmers view on the measures 3/11.

A straight stream, deepened – seem artificial



Pump needed



Figuring out costs of constructed wetlands – theoretical places

A precondition for figuring out the costs of constructed wetlands is:

The farmers will not pay more for the constructed wetland, than they receive from the State as subsidy for the project.

The subsidies can be seen on the next powerpoint

The subsidies for constructed wetlands, 2020

	Basic grants (Euro), 1 € = 7,45 kr.	Price per sqm. water, (€)
Mandatory parts	20.000	5,10
Establishment of a pump	9.262	1,21
Planting plants	369	0,13
Making a path	1.074	-
Expences for construction consultancy	1.779	-
Authority permits	832	-
Archaeological preliminary investigations	1.584	0,34

Exampel of calculation – location number 83.729

Calculation:

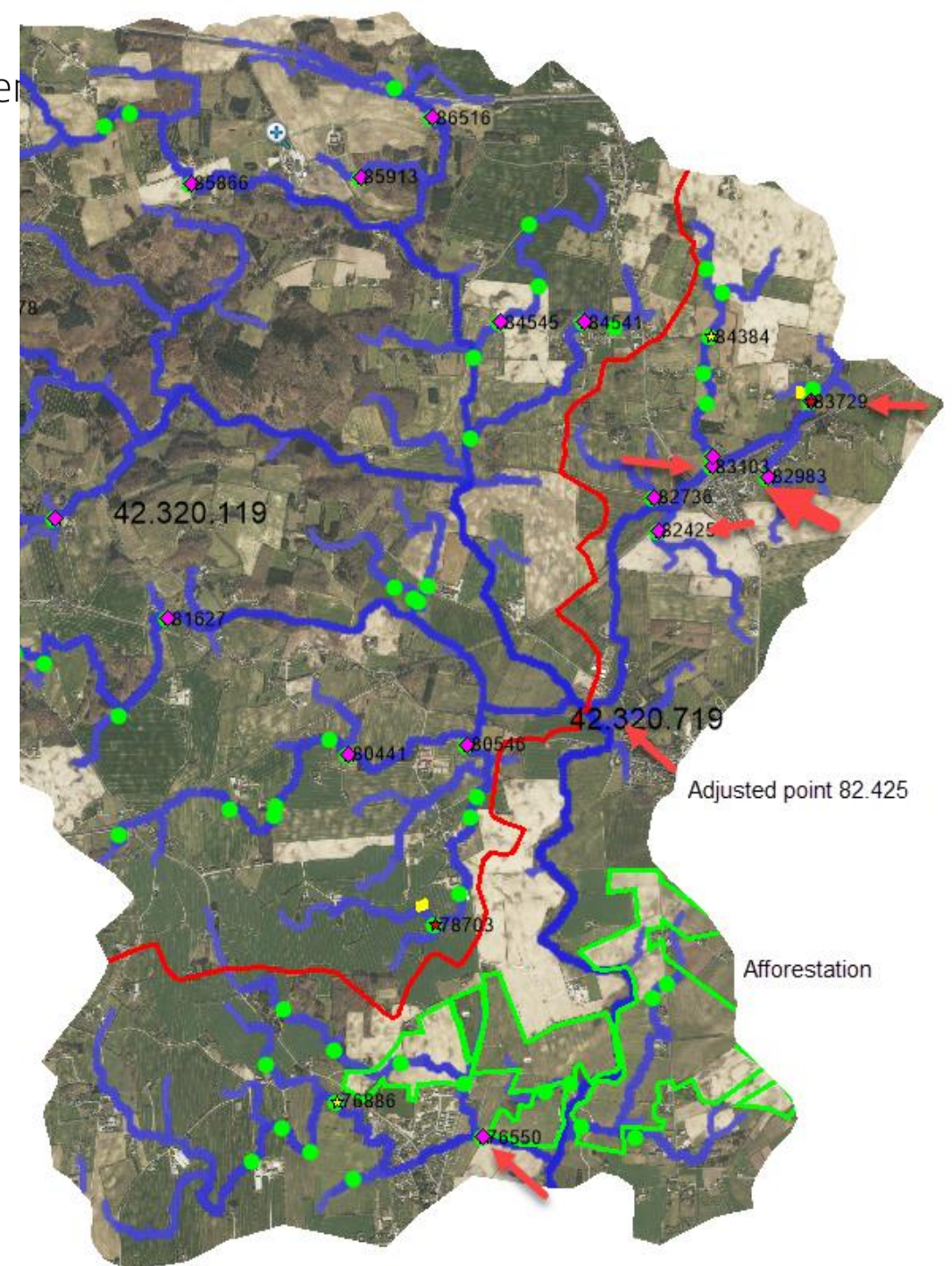
Area of the constructed wetland: 5.500 sqm

Price mandatory parts (digging) + pump + planting in low-watered bassins + advisory assistance while digging + archaeological feasibility studies

$$(20.000 + 5.500 \cdot 5,1) + (9.262 + 5.500 \cdot 1,21) + (369 + 5.500 \cdot 0,13) + 1779 + (1584 + 5.500 \cdot 0,34) = 70.275 \text{ Euro}$$

Possible constructed wetlands – theoretically – and area of afforestation in ID15 42.320.719

→ : Points at the potential places, where
the cost is calculated
The other spots are irrelevant in this
connection.



Estimated costs in on of the catchmentareas – 42.320.719

Location number	Catchment In hectare	Constr. wetl, area - sqm	N-effect, kg N/year	Total cost of the measure in Euro (1 Euro=7,45 dk)
83.729	55	5.500	284	70.275
82.983	21	2.100	123	47.228
83.103	92	9.200	481	95.356
82.736	42	4.200	201	61.463
82425, adjusted	87	8.700	366	91.966
76550, adjusted	247	24.700	1.023	200.423
Total	544	54.400	2.478	566.711

The total projectareas is estimated to 1,75 % of the catchments, which is 9,5 hectares or 60.000 € as a one-time compensation

ID15 nr. 42.320.119 – constructed wetlands - projects to be realised

Location number	Catchment	Constr. Wetl, area - sqm	N-effect	Total cost of the measure in Euro (1 Euro=7,45 dk)
	In hectare			
84.451	53	5.300	194	67.839
79.069	43	4.300	253	46.738
Total	96	9.600	447	114.577



Expences for wetland

Largest part of the expences to wetlands is constituted by compensation to the farmers.

Wetland	Expected costs, €	Calc. N-effect	€/kg N
Brændekilde, 30 hectares	1.113.318	2.100	530
Vosemose, 33 hectares	791.427	2.677	296

Expences for afforestation

Area: app. 145 ha

Price is not known.

The costs to afforestation may based on a project in Svendborg be calculated to 3.816.292 € (around 26.300 € /hectare) (<https://naturstyrelsen.dk/nyheder/2020/september/ny-stor-skov-paa-vej-til-fynboerne/>)

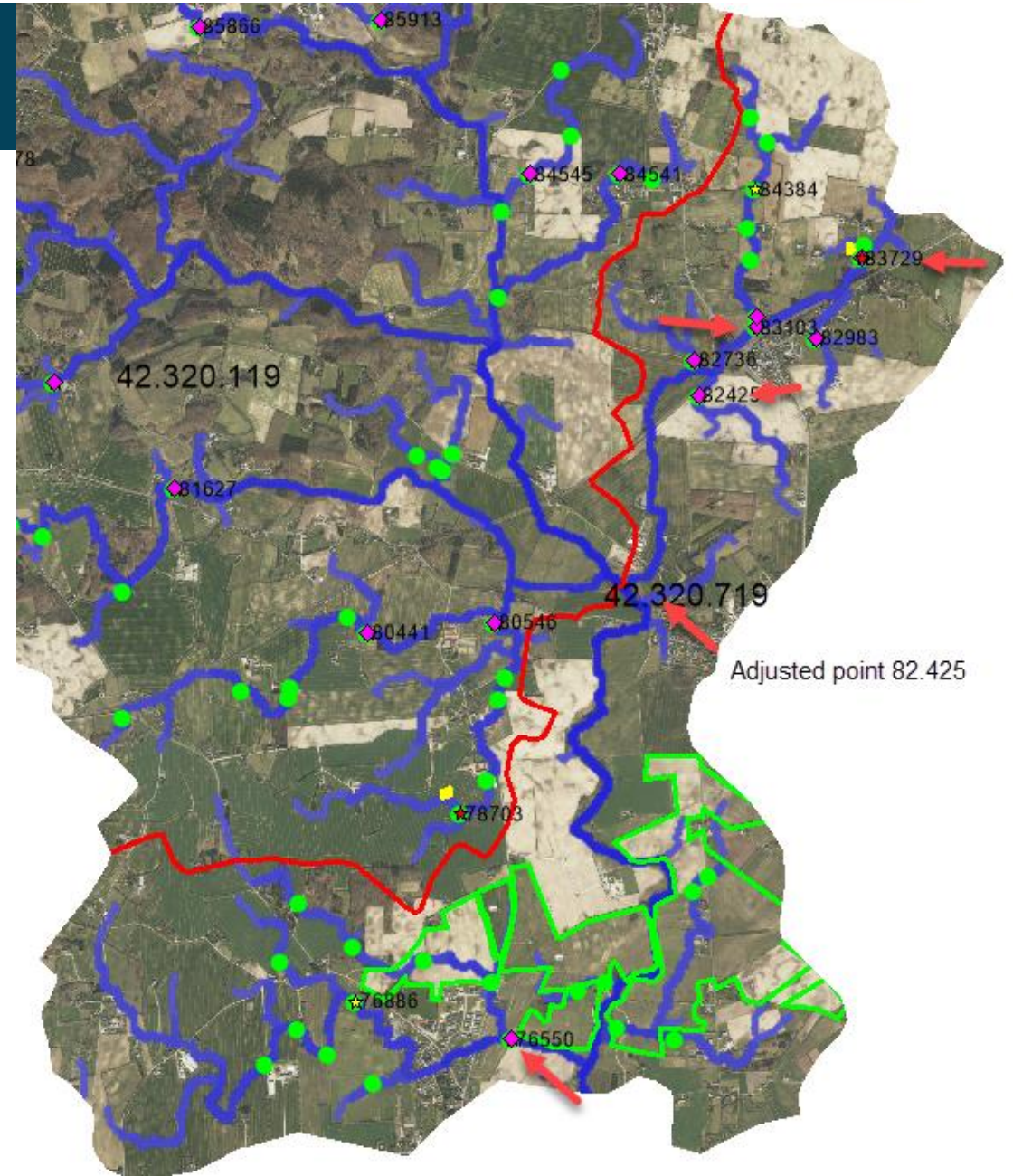
The costs is regulated to a lower level based on the expected land price in the two areas.

Catchmentarea 42.320.719

Theoretically 6 constructed wetlands.

Green fields: 145 ha afforestation is being realized.

Being realized in cooperation between Odense and Assens municipalities, Hedeselskabet and Vandcenter Syd (distribute water in Odense and are responsible for handling sewage in Odense and the municipality of Nordfyn)



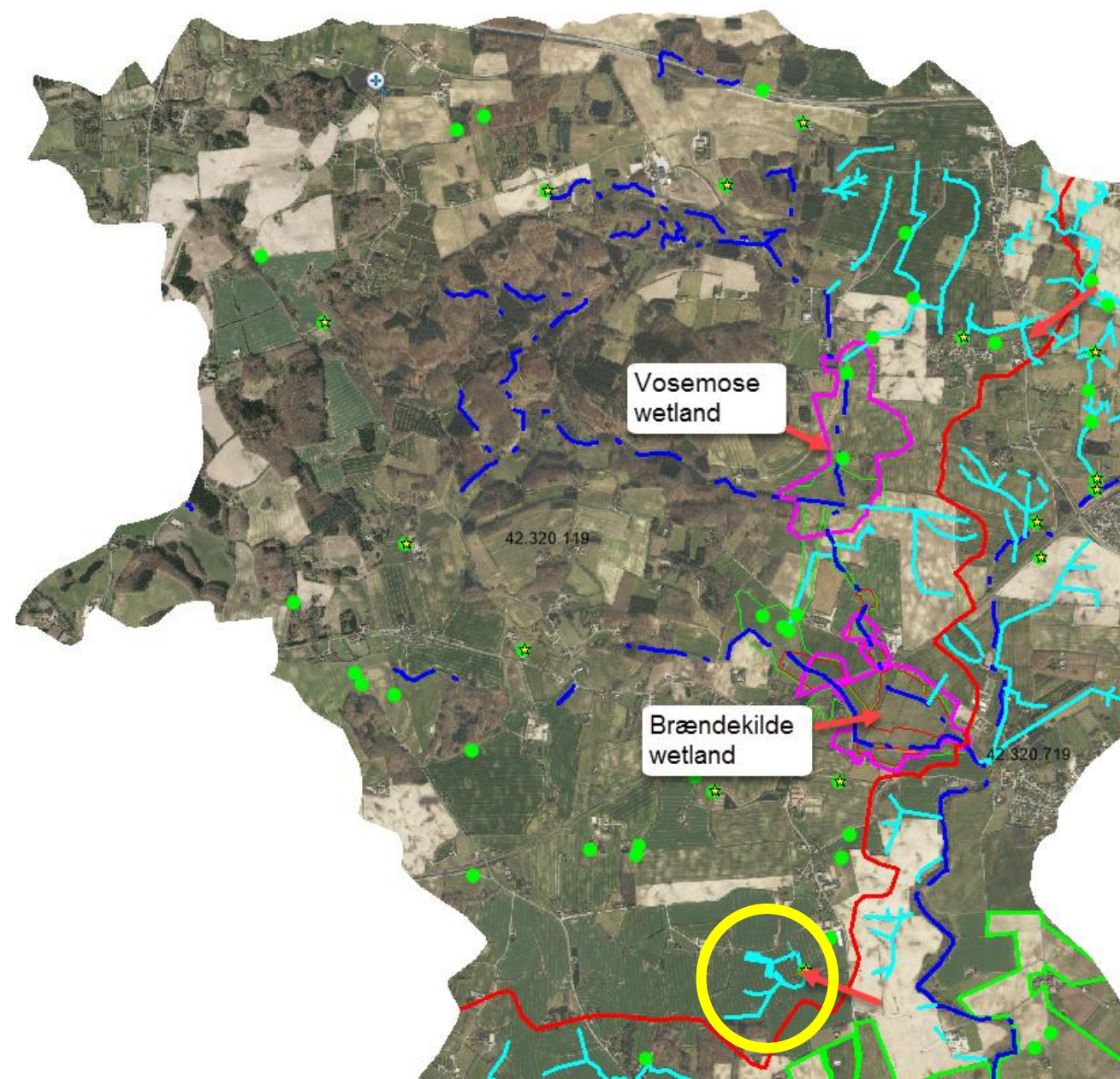
Estimated costs in one of the catchmentareas – 42.320.719

Environmental measure	Costs, €	N-effect, kg N/year	Costs per kg N, €
Constructed wetland, theoretically	626.700	2.478	253
Afforestation	3.816.300	6.424	594
Total	4.443.000	8.902	500

Catchmentarea 42.320.119


Municipality of Odense is working on realizing two wetlands

1 constructed wetland is expected to be realized next year



Estimated costs in on of the catchmentareas – 42.320.119

Environmental measure	Costs, €	N-effect, kg N/year	Costs per kg N, €
Constructed wetland to be realised	47.000	253	230
Wetlands, Brændekilde	1.113.000	2.100	530
Wetland, Vosemose	791.000	2.677	296
Total	1.962.000	5.030	390

An aerial photograph of a water treatment facility situated in a green, hilly landscape. The facility consists of several rectangular and circular concrete basins. The water in the basins is murky brown, indicating sediment or organic matter. A dirt road runs along the right side of the basins, and a small stream or ditch is visible at the bottom right. The surrounding area is covered in lush green grass and some trees.

Questions????????