



Vlaanderen  
is milieu



# Rainwater management in Flanders – preparing for the future

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VLAAMSE  
MILIEUMAATSCHAPPIJ

# Content

- ▶ Evolution legislation
- ▶ Impact rainwater management

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- ▶ Impact rainwater management

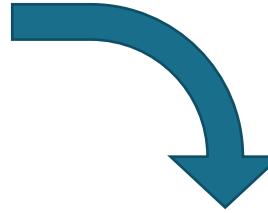
# Evolution legislation

1996 - 2004

Separate sewer system  
& Reuse



Evolution focus



Storage with limited  
discharge

2004 - 2012



Reuse and infiltration

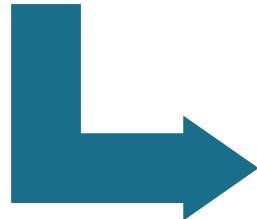
2012 - ...

# Evolution legislation

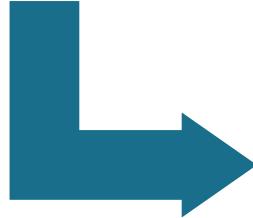


5 m<sup>3</sup> + functional reuse

## Current principles



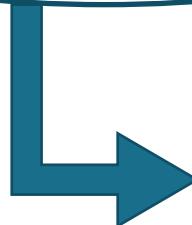
250 m<sup>3</sup>/ha  
4% infiltration surface



250 m<sup>3</sup>/ha  
20 l/s/ha

# Evolution legislation

- ▶ Public terrain – code of good practice
- ▶ Private terrain – regional ordinance
- **Principles are the same**



Water assessment: legally binding check in every permit. No negative impact on the water system allowed!

# Evolution legislation

- ▶ Basic legislation is important to implement fundamental principles
  
- ▶ Architects in Flanders
  - 93 % positive about reuse  
(0,40 % negative)
  
  - 59 % positive about infiltration  
(15% negative)



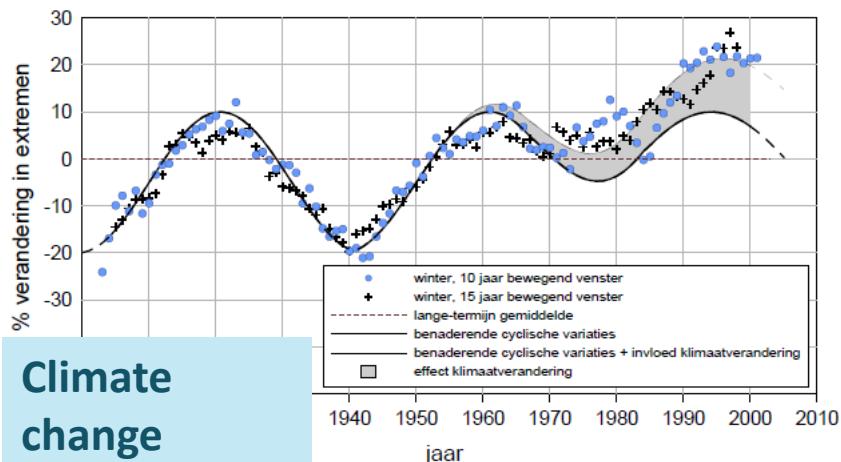
# Content

- ▶ Evolution legislation
- ▶ Impact rainwater management

# Impact rainwater management



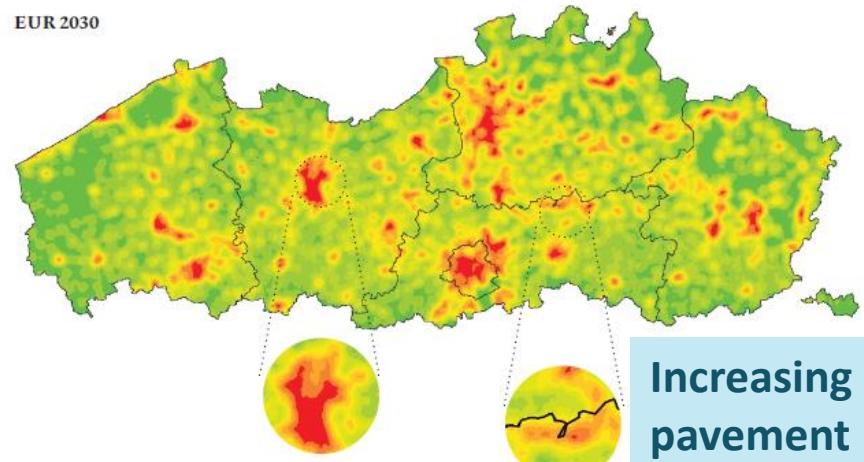
Peak flows



Climate  
change



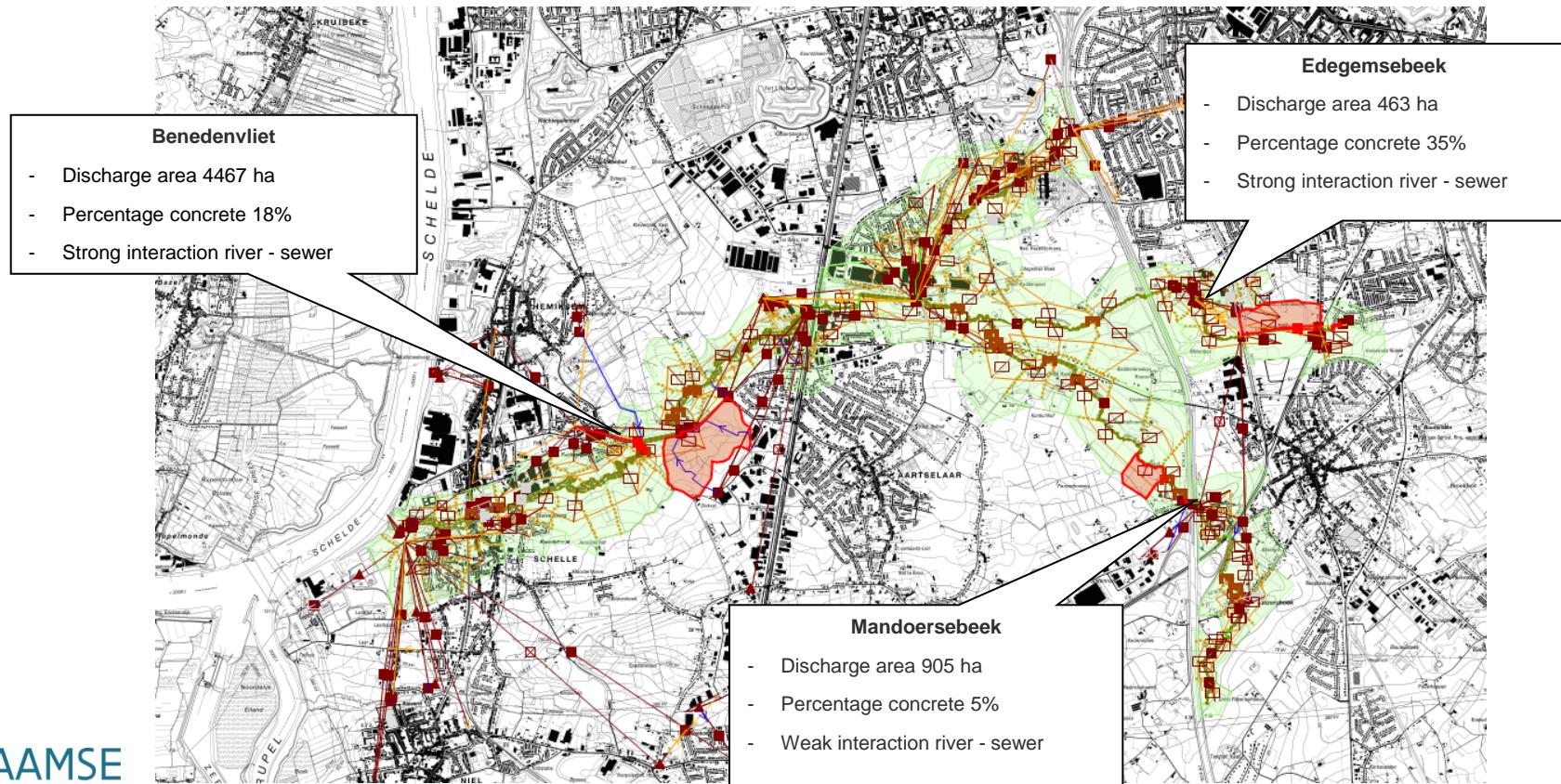
Discharge of  
sewer systems



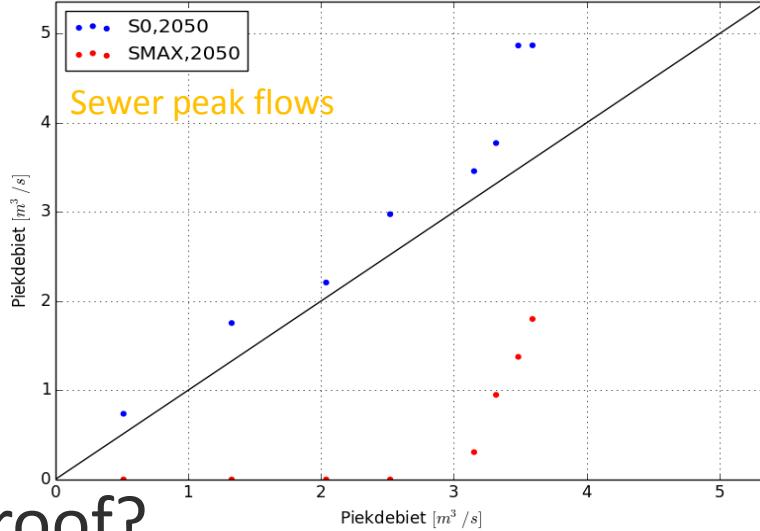
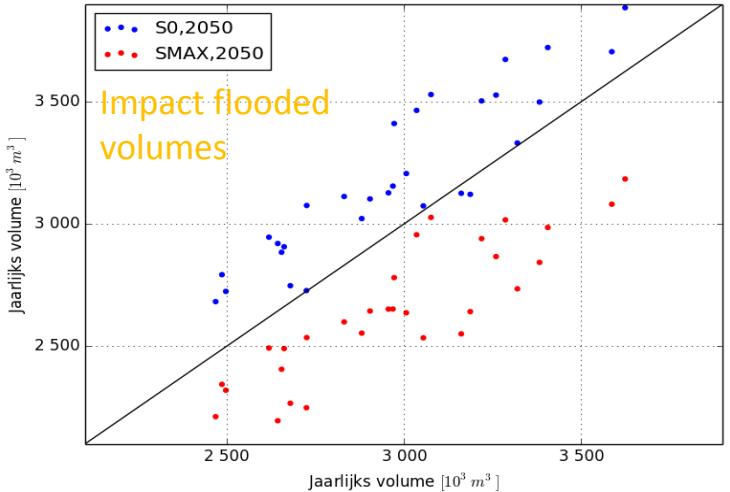
Increasing  
pavement

# Impact rainwater management

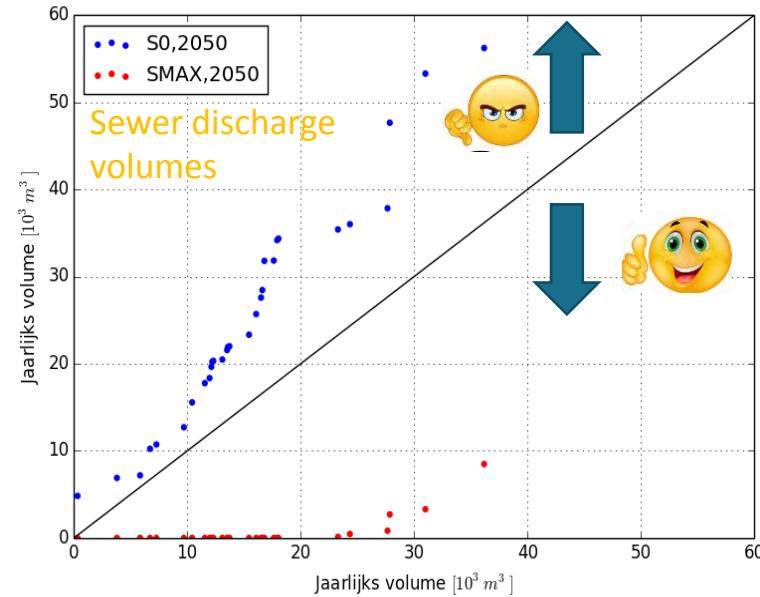
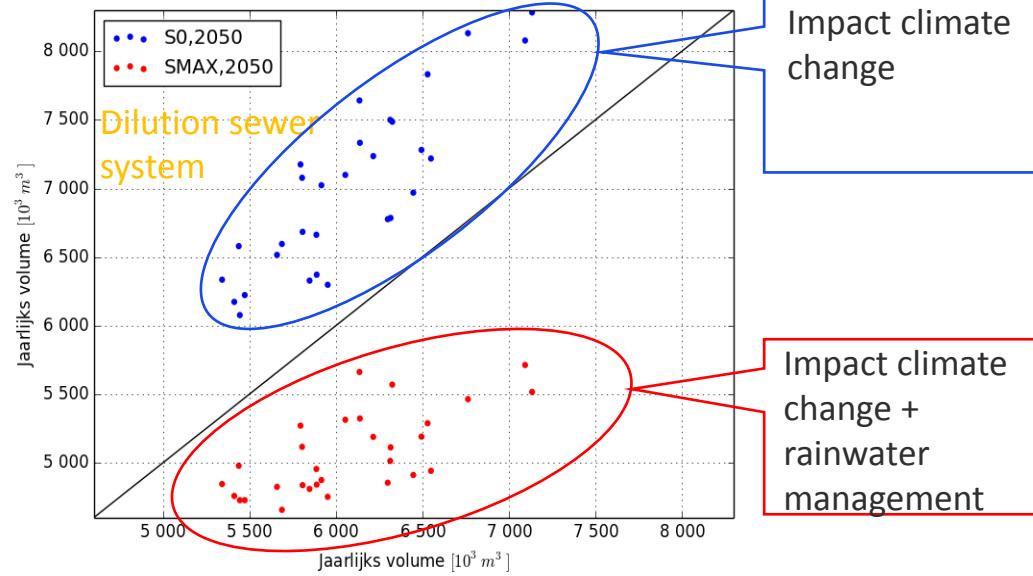
## ► Model area



# Impact rainwater management



Are we future proof?



# Impact rainwater management

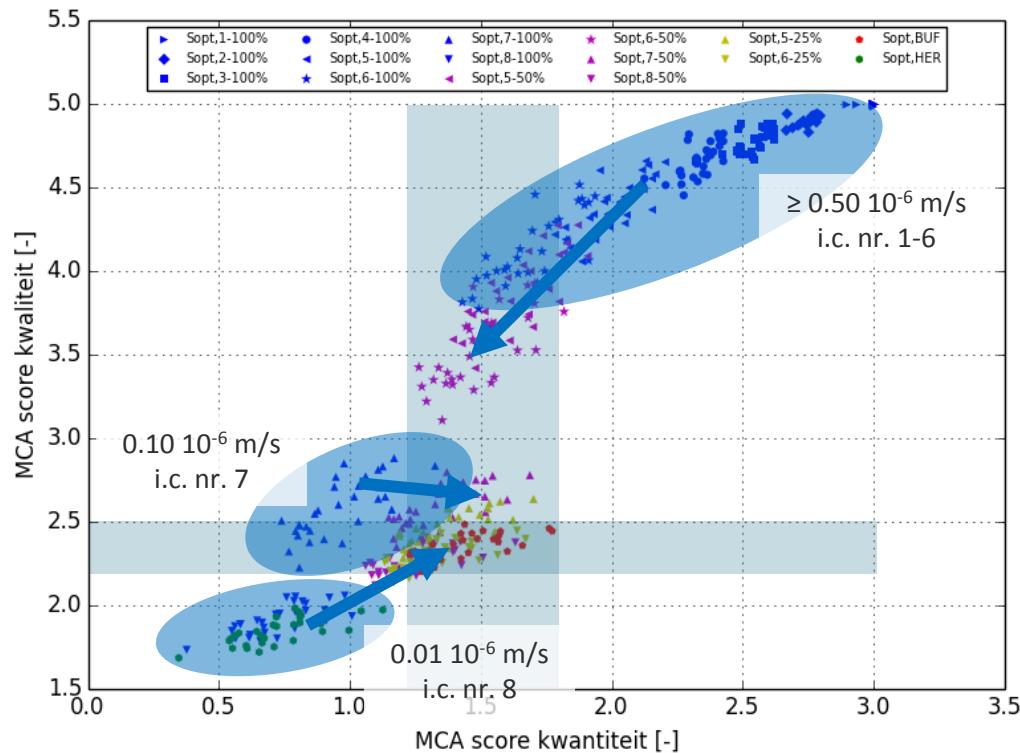
- ▶ Infiltration is important.
  - But is it always the best choice?
  - What about water quantity/safety and quality?
  - Model runs with a range of infiltration capacities.

Nr	1	2	3	4	5	6	7	8
Infiltratiecap. [10 <sup>-6</sup> m/s]	22.00	8.90	3.50	1.80	0.80	0.50	0.10	0.01

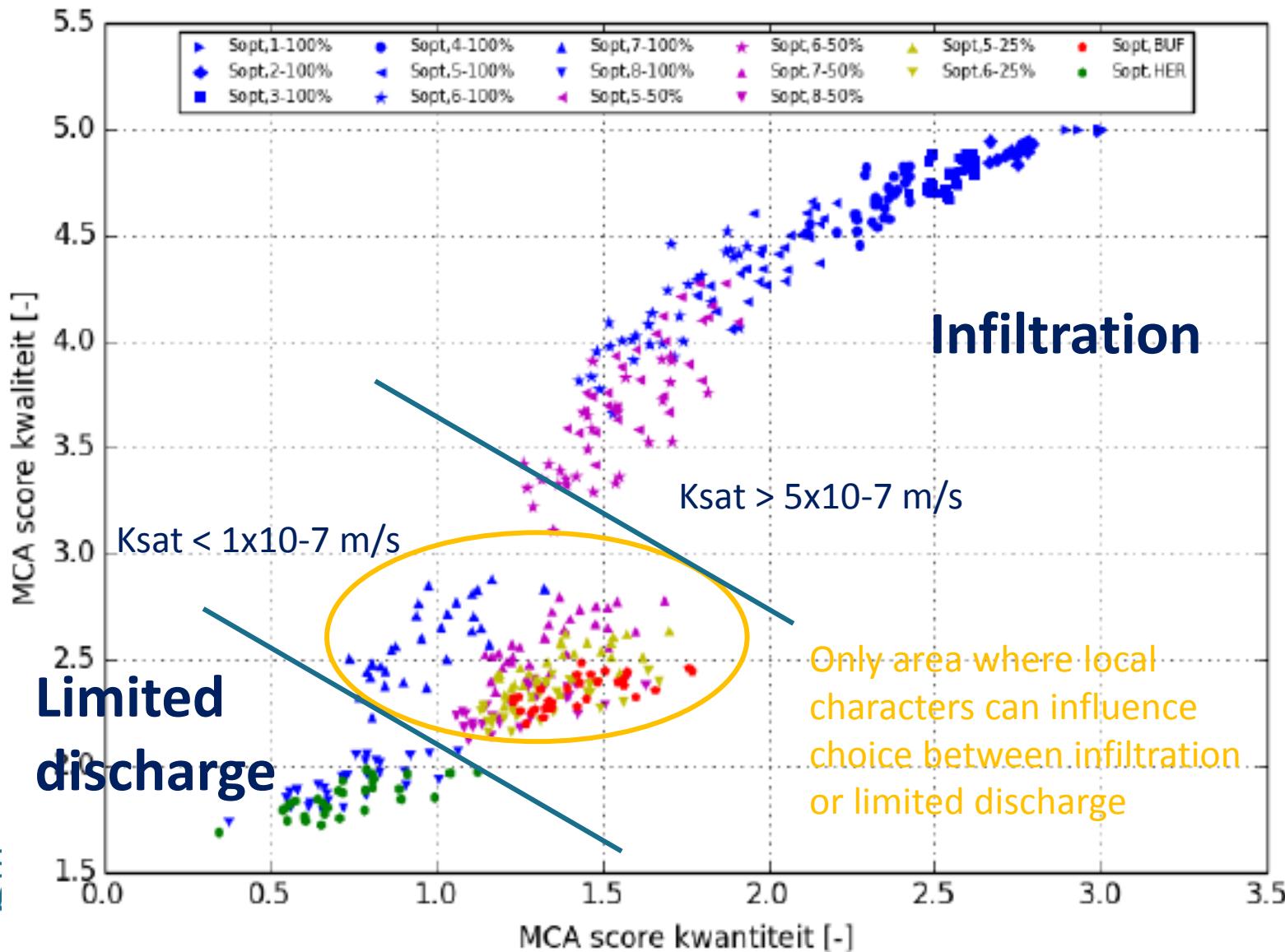


# Impact rainwater management

- ▶ What to choose? Impact on quantity and quality.



# Impact rainwater management



# Impact rainwater management

## ► Conclusion

- We are future proof!
- Rainwater management/infiltration has massive impact on:
  - × Sewer peak flows
  - × Sewer discharge volumes
  - × Flooded areas
  - × Reduction in dilution

# Impact rainwater management

## ► Conclusion

- Threshold to choose for infiltration lower than expected
- Infiltration also has other positive impacts
  - × Heat islands
  - × Groundwater recharge
  - × ...

# Impact rainwater management

- ▶ Rainwater management can't solve all the problems!!



- ▶ Lower the risk by constructing in an adaptive way to prevent damage if things go wrong

# Meer info

- ▶ [www.vmm.be](http://www.vmm.be)
- ▶ Direct link for the infiltration study  
<https://www.vmm.be/publicaties/opstellen-van-richtlijnen-voormeten-van-infiltratiecapaciteit-en-modelmatig-onderbouwen-voordimensionering-van-infiltratievoorzieningen>

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