



STORMWATER
LANDSCAPE
MAINTENANCE
Training Program

Brought to you by the White River Alliance & the following cities:

Noblesville • Carmel • Cicero • Fishers • Westfield

• Zionsville • Hamilton County • Pendleton • McCordsville



A PROGRAM FOR HOAs, HOA MANAGEMENT COMPANIES, LANDSCAPE COMPANIES, & DEVELOPERS

Post-Construction Maintenance, Inspection, and Regulatory Issues 101

PROGRAM AGENDA

1. State of the Waters
2. Stormwater Infrastructure: Gray vs. Green
3. You Bought a Utility
4. Using Native Plants in the Landscape
5. Installation and Maintenance
6. Lunch & Learn: Let's Talk about Lawns
7. Pond Maintenance

Federal and State Regulations “Clean Water Act”

Circa 2004

New construction projects shall provide treatment to their stormwater runoff

- A. Grey Infrastructure (BMP)
- B. Green Infrastructure (BMP)



How about
some
Fact Sheets
to help
with this
topic?!

HEY, YOU
BOUGHT A
UTILITY!

Regulatory stuff

You have a part in compliance with Federal, State, and local laws.



IDEM Requires Local Oversight of Stormwater Management

IDEM requires Cities, Towns & Counties to;

- A. Map & track each BMP installed
- B. Ensure routine maintenance is performed **BY THE OWNER** to safeguard proper function of the BMP.



WHAT??!!

Who Does the Maintenance?

Maintenance, Inspection, and Reporting/Documentation...
that's YOU!



I DO?

WHAT??!!

Don't worry you
have an Operation
& Maintenance
Manual



Detention Pond Operation, Maintenance, and Management Inspection Checklist

Project: _____

Location: _____

Date: _____ Time: _____

Inspector: _____ Title: _____

Signature: _____

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
1. Embankment and emergency spillway		
Healthy vegetation with at least 85% ground cover.		
No signs of erosion on embankment.		
No animal burrows.		
Embankment is free of cracking, bulging, or sliding.		
Embankment is free of woody vegetation.		
Embankment is free of leaks or seeps		
Emergency spillway is clear of obstructions.		
Vertical/horizontal alignment of top of dam "As-Built"		
2. Riser and principal spillway		
Low flow outlet free of obstruction.		
Trash rack is not blocked or damaged.		
Riser is free of excessive sediment buildup		
Outlet pipe is in good condition.		
Control valve is operational		
Outfall channels are stable and free of scouring.		

Green Infrastructure INSPECTIONS

Post-Construction BMP Inspection Checklist _____ Detention pond

Detention Pond Operation, Maintenance, and Management Inspection Checklist

Project: _____
 Location: _____
 Date: _____ Time: _____
 Inspector: _____ Title: _____
 Signature: _____

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Control valve is operational		
Outfall channels are stable and free of scouring.		

- Identify items that are Unsatisfactory or Marginal
- Schedule appropriate maintenance or corrective action for unsatisfactory
- Re-Inspect and Document that the BMP is back in compliance
- Submit Annual Reports to Local Jurisdiction



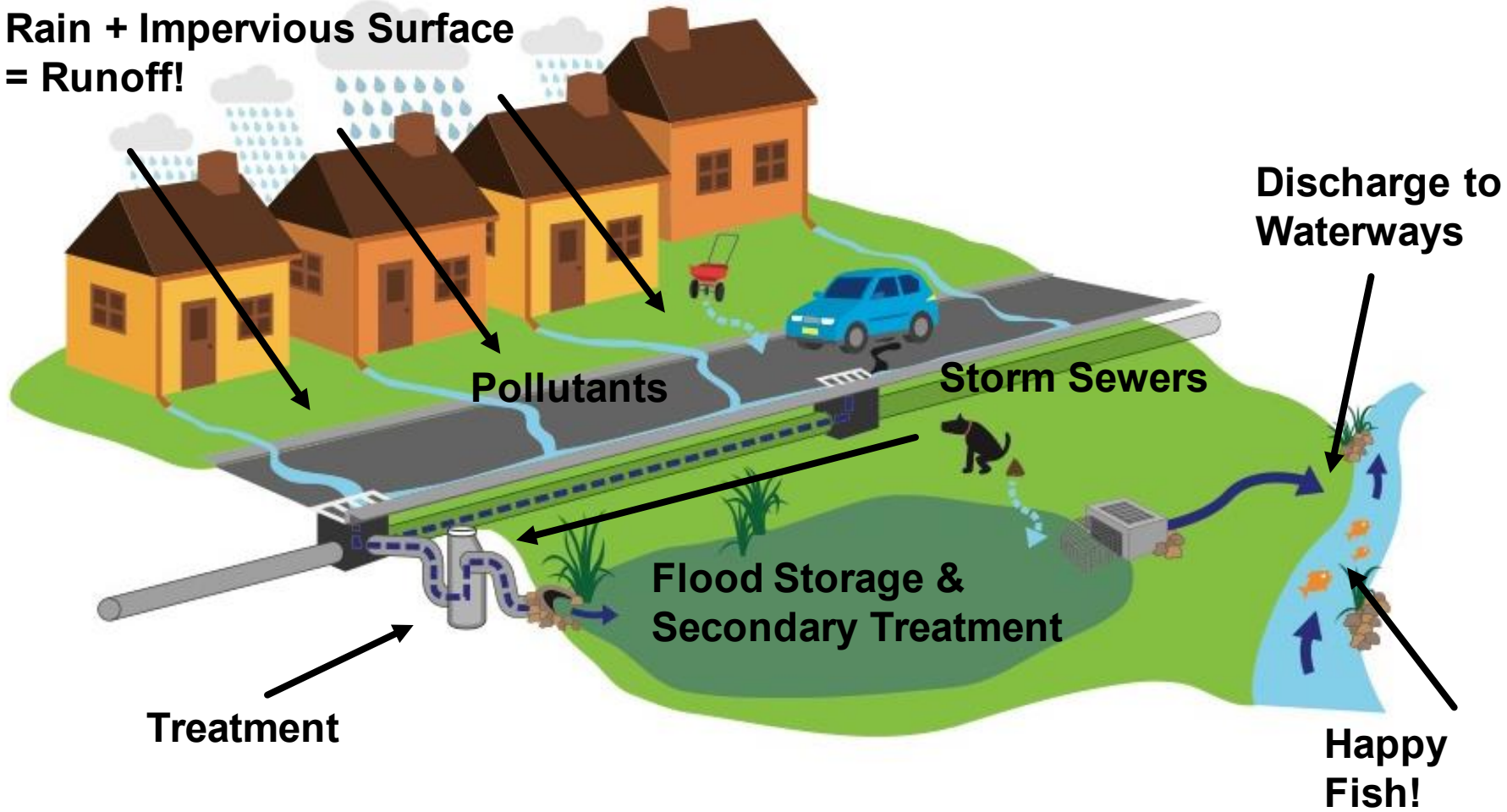
Got it?

WHAT??!!

Ok let's go to
the basics...

PIPES TO POND - HOW IT WORKS

Rain + Impervious Surface
= Runoff!



PIPES TO P
PUTTING T

To Provide Access to Underground Infrastructure for Maintenance and Repair!



PIPES TO POND - SWALES



**Concrete Lined
(No infiltration or "Treatment")**

swale



**Decorative (Dry Creek Bed)
Check for Easement Restrictions!**

Ponds - Wet and Dry



FOREBAYS AND SEDIMENT PRETREATMENT

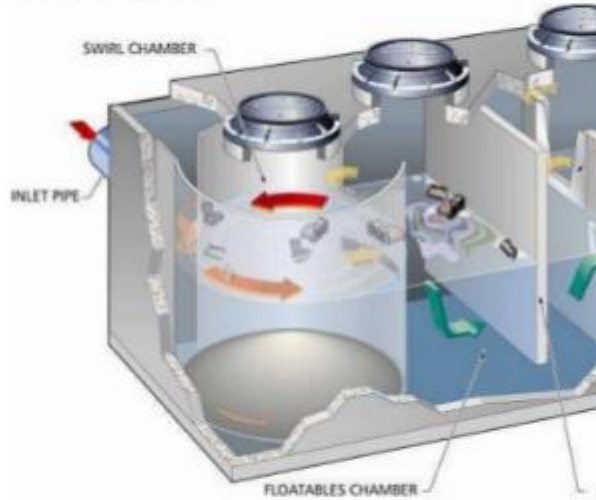


PIPES TO POND - MECHANICAL UNITS



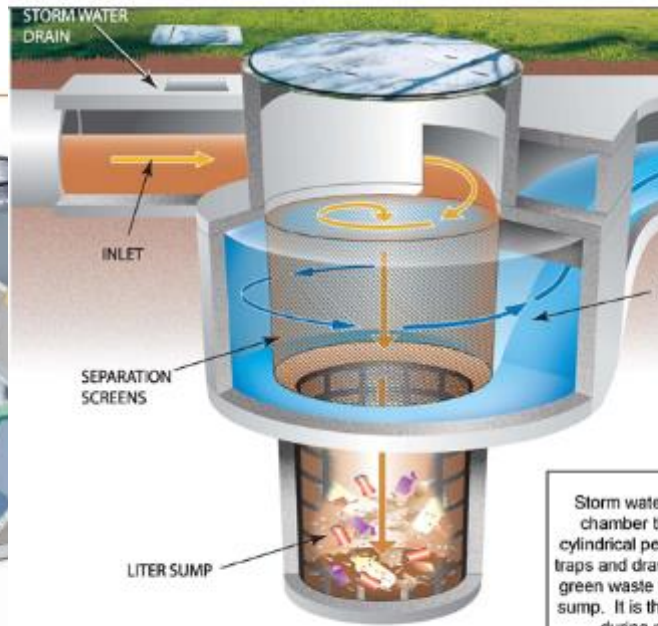
VORTECHS

Vortech's System

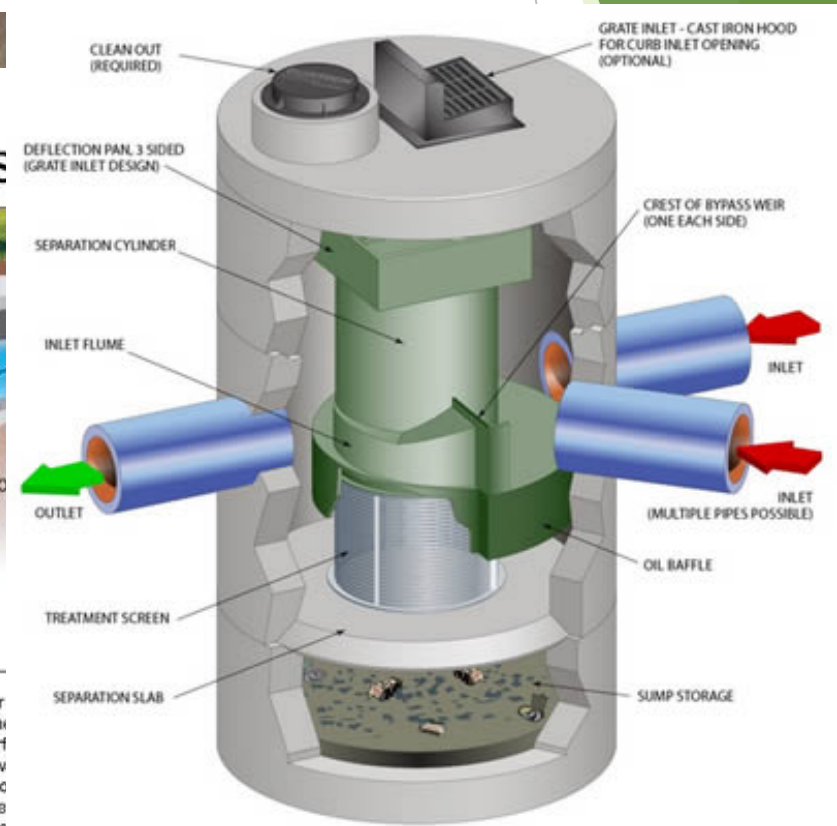


STORMWATER MANAGEMENT
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Vortex Separation System



Storm water chamber the cylindrical perforated traps and draw green waste to sump. It is the during no maintenance cleaning.



PIPES TO POND - MECHANICAL UNITS



PIPES TO POND: MECHANICAL UNIT INSPECTION



PIPES TO POND: MECHANICAL UNIT INSPECTION



PIPES TO POND: MECHANICAL UNIT REPAIR



Let's Move on
to Advanced
Topics

WHAT??!!

NON-TRADITIONAL STORMWATER MANAGEMENT

Green Infrastructure = Plants & Pervious Surfaces

WHAT??!!

Wait til I show
you a treatment
train...

Blue Mistflower (*Eupatorium coelestinum*)

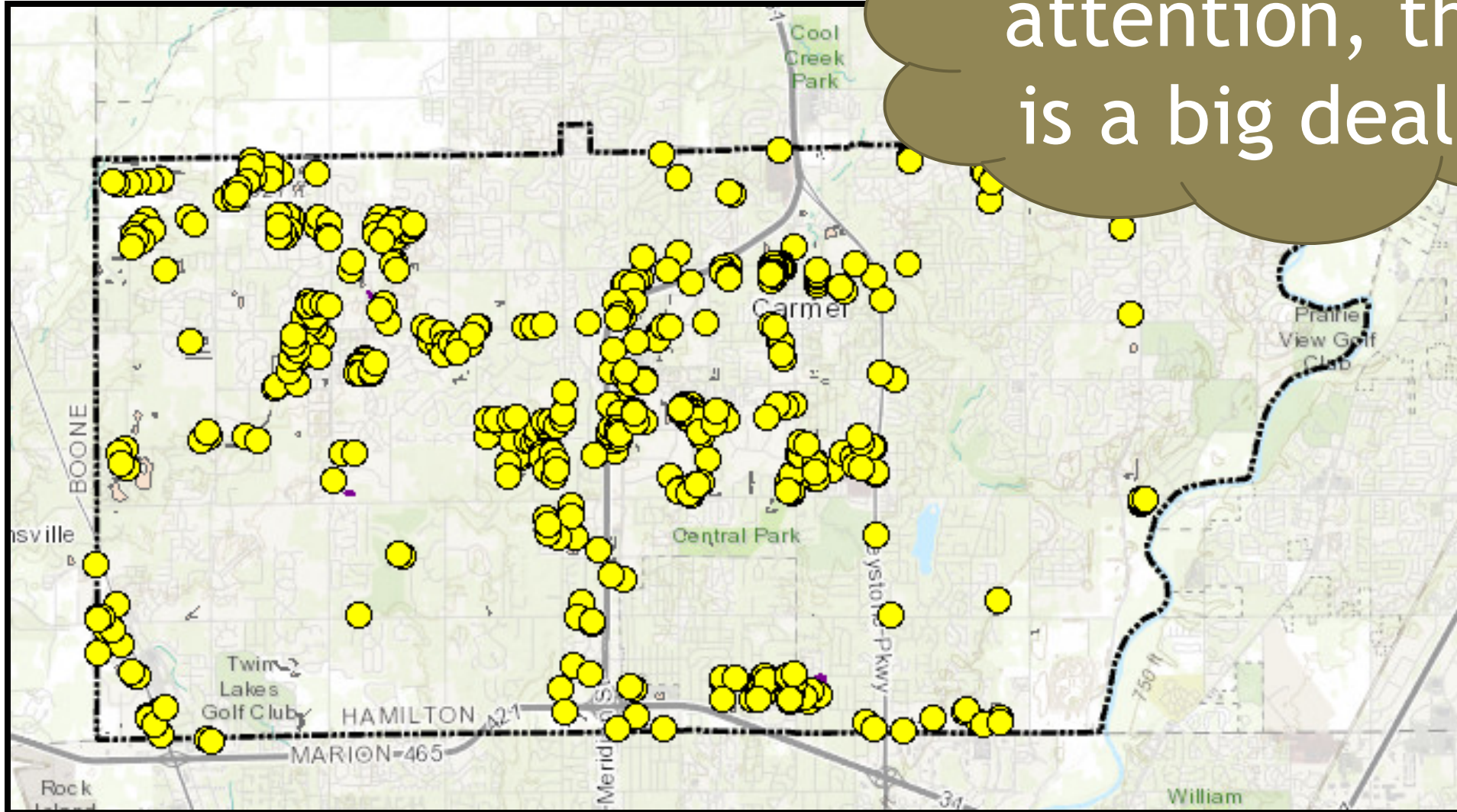
- ▶ Moist Soil
- ▶ Best in partial shade
- ▶ Around 2 feet in height
- ▶ Excellent for attracting butterflies
- ▶ Spread vigorously by rhizomes
- ▶ May be too aggressive for small rain gardens

You're gonna love
the Blue
Mistflower!



Over 1000 BMPS in CARMEL

Hey, pay attention, this is a big deal...



HOW MUCH WATER IS THE SITE GENERATING? STORM SIZE

Storm Size (In a day)

- ▶ Water Quality = 2 year (1" rain)
- ▶ Conveyance System = 10 year (4" rain)
- ▶ Flood Control = 100 year (7" rain)



WHY DOES THE POND FILL UP?

WHAT??!!

- ▶ Flood control and water quality
- ▶ Inflow Versus Outflow
 - ▶ Water leaves the pond at the same time it comes into the pond.
- ▶ Release Rates
 - ▶ Water comes into pond much faster than it can leave the pond per local ordinances
 - ▶ The release rate of the pond is controlled by the outlet control structure of the pond.



7"

Nevermind
let's move
on...

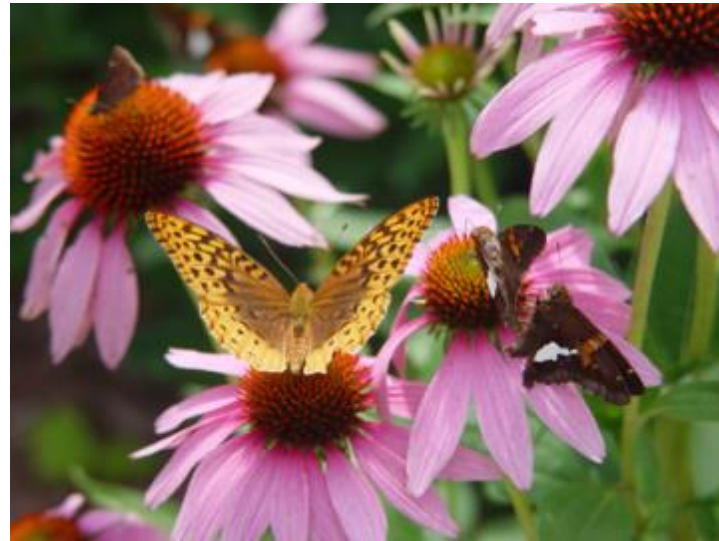
Native plants are a new aesthetic



HOW TO OVERCOME OBSTACLES

There are four basic strategies to helping improve public acceptance of native plantings:

- ▶ Massing and rhythm
- ▶ Keep it flowering
- ▶ Choose the right plants
- ▶ Control the edges
- ▶ **IT'S ALL SUBJECTIVE**



CALL THEM TO ACTION PERSONALLY!



Sustainable Solutions
Require Many People
& Many Landscapes

“WE NEED YOU TO DO
YOUR PART...
now is the time for
widespread landscape and
social change!”

RESOURCES FOR THE INDIVIDUAL RESIDENT



INDIANA



[NATIVE PLANTS & POLLINATORS](#)

[LAWN FERTILIZER](#)

[WATERFOWL MANAGEMENT](#)

[PET POO](#)

[MORE PLEDGES](#) ▼

[Who Else Is Doing It?](#)

[Runoff Impacts](#)

[Rain Gardens](#)

[Shorelines](#)

[Pollinators](#)

[FAQs](#)

[Take a Pledge](#)

Their DEEP ROOTS help rain soak into the ground...

replenishing GROUND WATER and reducing FLOODING

YOU CAN MAKE A DIFFERENCE!



Make a Difference
TAKE A PLEDGE

WHO ELSE IS PLEDGING?



POLLINATORS



RAIN GARDENS



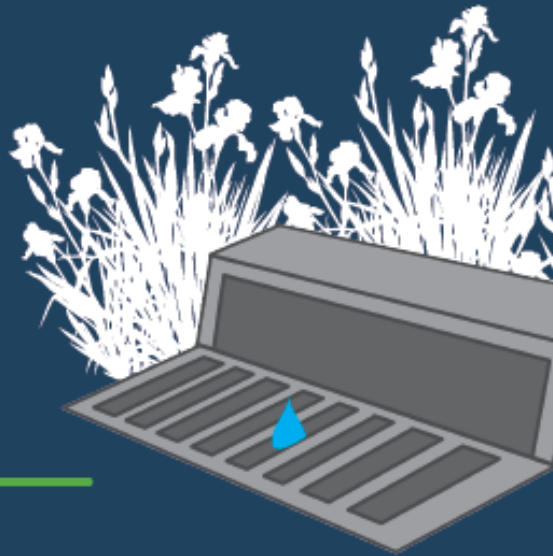
SHORELINES

Native shoreline plantings are relatively new ideas. Because of this, it takes a little more work to plan and install them compared to more traditional shoreline management. However, this site will help

Provide them a manual for all the stuff they didn't hear or want to remember...

YOUR STORMWATER LANDSCAPE

An introduction on the purpose and care of stormwater-related installations for Homeowners Associations and their maintenance providers



The White River Alliance
1052 Woodlawn Avenue
Indianapolis, IN 46203
dewh@riveralliance.org

Carmel - Gosport - Riley
McCordsville - Noblesville

YOUR STORMWATER POND

An introduction on the purpose and care of stormwater ponds for Homeowners Associations and their maintenance providers



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1052 Woodlawn Avenue
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In partnership with
Carmel - Clarksville - Fishers - Hamilton County - McCordsville
Noblesville - Pendleton - Westfield - Zionsville

QUESTIONS?



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