



CLEAR CREEK NEWS

AN IOWA WATERSHED APPROACH PROJECT



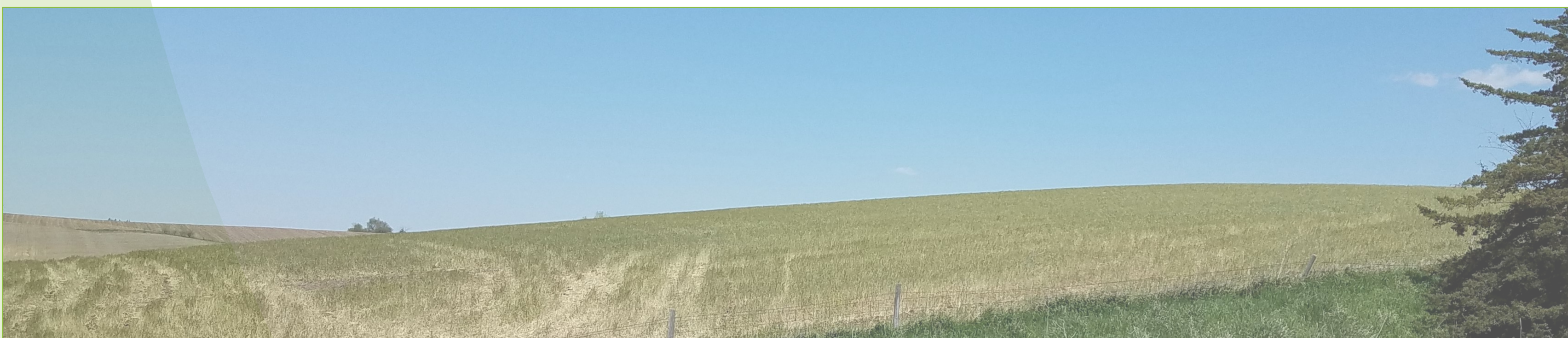
Project Update

In 2016 the State of Iowa secured a \$96.7M federal FEMA Disaster Resilience Grant issued through Housing and Urban Development (HUD) to address flooding issues throughout the state.

The Clear Creek Watershed has \$3 million to construct projects in target areas within the boundaries of the watershed. To see if a project you would like to install is cost-sharable through the project, come to the office, call, or visit our website to view the list of practices we cost-share: www.clearcreekwatershedcoalition.org/practices-cost-shared--application.html

Cost share is now 90% of the after survey construction estimate!

All programs offered through the Johnson County SWCD and USDA-NRCS are offered on a nondiscriminatory basis with-out regard to race, color, national origin, sex, religion, age, disability, political beliefs, marital status, or handicap.



Clear Creek Watershed—Upcoming Events

Clear Creek Watershed Coalition — Quarterly meeting
January 16th, 2019
 5:00—6:00 pm

Join the Clear Creek Watershed Coalition and Iowa Watershed Approach partners for our quarterly meeting. This is an opportunity to be involved in the activities of the IWA and ask questions about the program. Meetings are open to the public. For more information contact John Rathbun: 319-499-4835 or john.rathbun@ia.nacdnet.net

Clear Creek—Stream Health & Recreation
January 16th, 2019
 6:00 pm to 8:00 pm
 Coralville City Hall

Educational and **public feed back** meeting. Experts will discuss factors that impact stream health. HR Green will present results of Stream Restoration Design work for a portion of Clear Creek. Johnson County Conservation will present the restoration work that has taken place at FW Kent Park. Our watershed management planner, East Central Iowa Council of Governments will seek **your ideas and opinions about potential future trails in the watershed**. Good food and lite refreshments provided.

Clear Creek Watershed—**2019**
Dates & Focus to be determined

Educational and practice specific meetings or field days. Let us know what you want to learn!
 319-499-4835
john.rathbun@ia.nacdnet.net

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We have been meeting, discussing & planning.....

Over the past year we have met on site with 39 different landowners who are interested in constructing projects! **This is a testament to Clear Creek watershed's dedicated community members who care about their land and their neighbors.** There is still room for **your project** to improve Clear Creek's flood resilience!

We have limited time to construct projects. Success of this project will ultimately be up to watershed residents like you who step up and come together to make lasting improvements toward our communities flood resilience.

Many projects are already in the works, but more will need to be installed to have a significant impact. If you believe your land has potential for projects feel free to contact me to set up an appointment for a site visit and consultation.

I look forward to meeting with you, on your land to see how we can come together to continue improving our watershed for future generations.

CONTACT:

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 Johnson County SWCD | 51 Escort Ln. | Iowa City, IA 52240
 Phone: (319) 499-4835 | Email: john.rathbun@ia.nacdnet.net

Check out these websites to learn more about the project:
www.clearcreekwatershedcoalition.org
www.facebook.com/ClearCreekWatershed/
www.iowawatershedapproach.org/

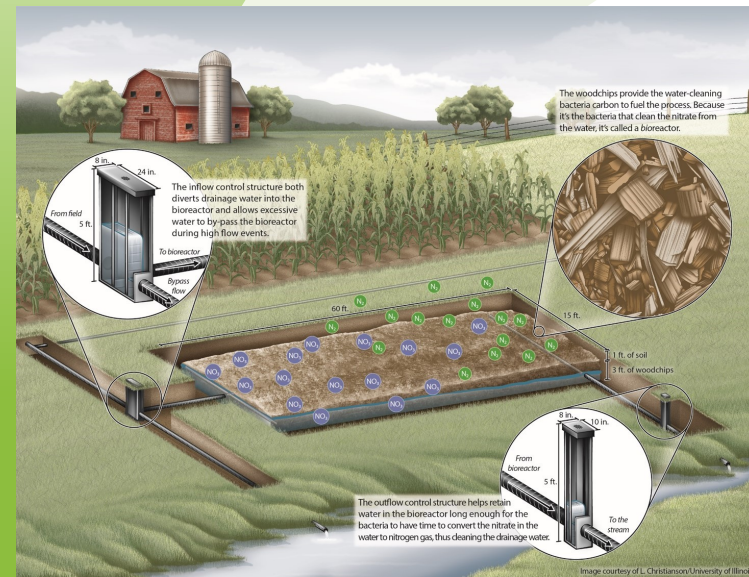


19
 of your neighbors
 have projects
 in the works!



Practice Focus—Denitrifying Bioreactors & Saturated Buffers.

These two practices help to decrease the amount of nitrogen delivered to Clear Creek and of course further down-stream. They each use natural processes to change, use or convert nitrate (NO₃⁻) and reduce nutrients in our water. Both are situated at the edge of your field and treat drainage (tile) water.

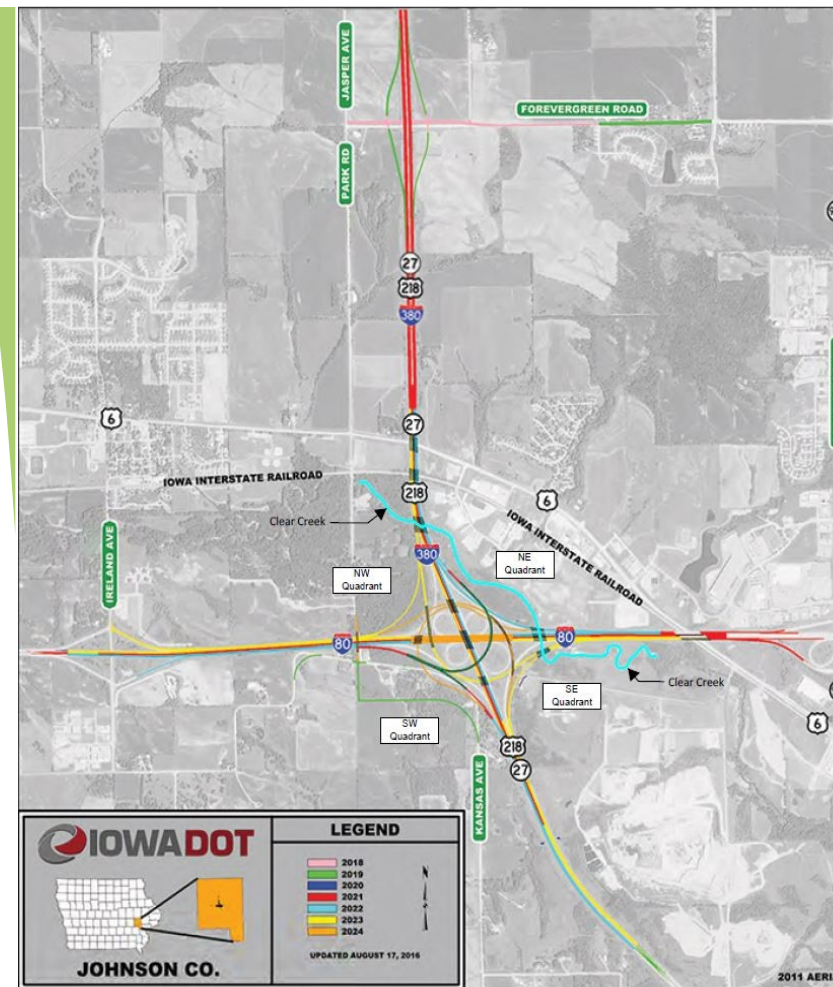


Bioreactors: How do bioreactors work?

A woodchip bioreactor is made by routing tile drainage water

through a buried trench filled with woodchips. Woodchip bioreactors also are known as denitrification bioreactors, a name that is slightly more descriptive of what is happening inside the trench (bioreactor). Denitrification is the conversion of nitrate to nitrogen gas. This is done by bacteria which live in soils all over the world and in the bioreactor. These “good” bacteria, use the carbon in the woodchips as food and use the nitrate as part of their respiration process. These bacteria also can breathe oxygen, so it’s important to provide low oxygen conditions inside the bioreactor by keeping the wood chips wet with slowly moving tile water. This helps ensure that the bacteria utilize the greatest amount of nitrate. Water control structures are important parts of the bioreactor design, normally there are two and each structure plays a different role. The inflow control structure is responsible for routing water into the bioreactor and allows excessive water to by-pass the bioreactor during high flow periods. The outflow control structure helps to regulate the water level in the bioreactor so the water remains in the bioreactor long enough for the bacteria to have time to remove nitrate from the water before it leaves but not so long that the water becomes stagnant. These structures use gates or stop logs that are placed in the structure to increase the amount of water routed into the reactor (inflow structure) or increase the retention time of the water in the bioreactor (outflow structure). Likewise, these gates also can be removed to decrease the amount of water treated and decrease the retention time.

Paraphrased from & for more in-depth information: Christianson, Laura E. and Helmers, Matthew J., "Woodchip Bioreactors for Nitrate in Agricultural Drainage" (2011). Agriculture and Environment Extension Publications. 85. http://lib.dr.iastate.edu/extension_ag_pubs/85



I-80/I-380 Interchange Schedule

July 2018 through 2019 -

- Clearing and grubbing as needed for grading.
- Continued utility relocations.
- Grading in the southwest quadrant (including relocated county roads, bridge approach embankments).
- Grading in the northeast quadrant; bridge approach embankment.
- Begin construction on the eastbound to northbound and on the eastbound to southbound bridges. These bridges are planned to be completed in two years.
- Nighttime shoulder strengthening and widening work may begin. This is preliminary work needed for traffic staging.
- Depending on funding availability, additional bridges may be advanced into this year.

Forevergreen Road interchange construction continues and is completed in the fall of 2019.

July 2019 through 2020 -

- Clearing and grubbing as needed for grading.
- Grading occurs project wide outside of the existing pavement.
- Begin construction on some of the I-380 median bridges.
- Nighttime shoulder strengthening and widening work to prepare for future traffic shifts and future staging.
- Depending on funding availability, additional bridges may be advanced into this year.

If you want to keep up with the schedule you can view it online at: <https://iowadot.gov/i80-i380/project-schedule>

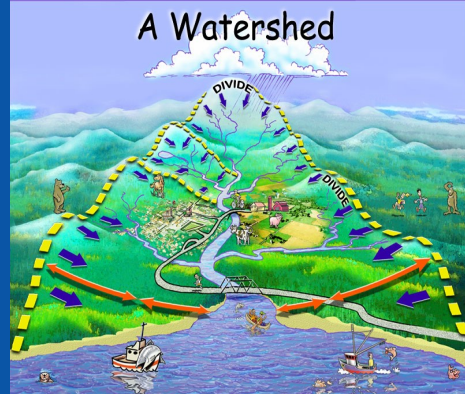
The Iowa Watershed Approach (IWA)



It may not be possible to completely stop floods, but a collaborative effort in the state of Iowa is working to help communities better understand and reduce their flood risk.

Across the state, the Iowa Watershed Approach (IWA) is working with landowners and other stakeholders to implement watershed projects at 90% cost-share to reduce flooding and improve water quality. The IWA is a five-year project to minimize flood risk in Iowa that began in 2016. The IWA aims to bring Iowans together to address the factors that contribute to floods, and in the process to also increase rural and urban resilience to flooding. This approach builds upon other statewide programs in Iowa designed to reduce flooding and improve water quality, such as the Iowa Flood Mitigation Program and the Iowa Nutrient Reduction Strategy.

To learn more about the IWA check out: www.iowawatershedapproach.org



moves to larger and larger water bodies. Watersheds follow the land and extend across county, state and national boundaries.

Watersheds, sometimes called basins, describe land area at different scales. Watersheds are nested, larger watersheds are made up from many smaller watersheds. Clear Creek is a part of the Iowa River Watershed which is a part of the Mississippi River Watershed (or basin), which is a part of the Gulf of Mexico Watershed.

No matter where you live, you live in a watershed.

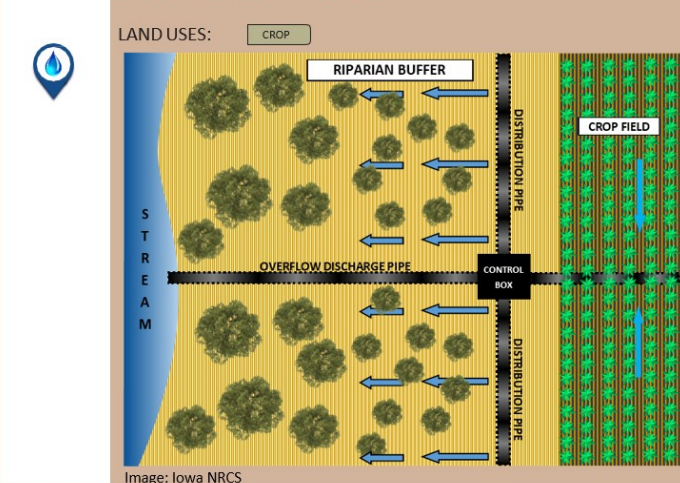
As you can see above, there can be many types of land uses within a given watershed. Differences in land use can have significant impacts on how fast water flows off the landscape. Adding conservation practices and water retention structures in a watershed will reduce the time it takes for water to leave the landscape, reducing occurrences of flash flooding and improving water quality.

Focusing conservation efforts at a watershed level have shown to be an effective method for successful implementation with measurable results.

What is a Watershed?

A watershed is the land area that drains to a particular body of water such as a stream, pond, lake, wetland, river or ocean. Ridges and high points form the boundaries of watersheds; draws and valleys collect and transport precipitation into streams, ponds then river systems and eventually water

34 Saturated Buffer



Saturated Buffers: What is a Saturated Buffer?

A saturated buffer is an edge-of-field conservation practice that removes nitrate from subsurface tile drainage water before it enters ditches, streams, and other surface waters. When properly sited and installed, a saturated buffer will remove nitrate whenever the tile is flowing and requires little annual maintenance to ensure effective operation. The basic components of a saturated buffer are a non-perforated tile outlet pipe, a water control structure, a perforated distribution pipe, and a vegetated buffer (see illustration). The water control structure is installed along the tile outlet pipe

and within the buffer. The distribution pipes are connected to the water control structure and installed within the buffer roughly parallel to the stream at a shallow depth below the ground surface. When the saturated buffer is operating, the water control structure directs a portion of the subsurface tile drainage water into the buffer rather than discharging directly to surface water. The water control structure raises the water level creating pressure that allows the diverted water to fill the distribution pipe and slowly push its way through the buffer’s subsoil and into the stream. While moving to the stream, the nitrate contained within the water is either removed by denitrification, a soil microbial process that converts nitrate to harmless nitrogen gas or is taken up by actively growing vegetation within the buffer and incorporated into the plant biomass. To prevent the reduction of drainage within the cropped area, the water control structure is designed to allow any drainage water that exceeds the buffer’s treatment capacity to bypass the system and exit through the regular tile outlet.

Excerpted from & for more in-depth information: Tom Isenhardt, Dan Jaynes, Ben Reinhart, Chris Hay, Stephen Jacquemin, Jeppe Kjaersgaard, Kelly Nelson, Nathan Utt, “Questions and Answers about Saturated Buffers for the Midwest” (2018). <https://store.extension.iastate.edu/product/15479>

All projects are voluntary. Design & cost obligations will be determined before a landowner is committed to anything. Keep in mind, no single practice will be the cure-all. It will take a community effort between many landowners for project success.

