

Riparian Areas & Setbacks

A guide promoting the use of natural resources in storm water management



Riparian Areas

What are riparian areas and why are they important?

A riparian area is the naturally vegetated land that runs adjacent to a stream or river which floods periodically. Regardless of stream size or flow, riparian areas provide the following functions:

- ❧ Reduce flood impacts by absorbing peak flows and regulating the velocity of floodwaters;
- ❧ Assist in stabilizing the banks of streams and rivers which helps prevent bank erosion;
- ❧ Reduce pollutants by filtering and settling pollutants from storm water runoff;
- ❧ Provide habitat to a wide array of wildlife; and
- ❧ Contribute to the scenic beauty and recreational opportunities of the area.

What are riparian setbacks?

The need for riparian setbacks arose from the natural tendency of stream channels to meander or change shape and location over time. These dynamic processes are accelerated through the development of urban and suburban watersheds (drainage areas) where the volume and velocity of storm water runoff increases because impervious surfaces, such as concrete and roof tops, prevent it from soaking into the ground. The high velocity of increased storm water volume tears away at stream banks, sending your backyard (and often what is built on it) downstream. Storm water runoff also picks up and carries pollutants on its way to local streams, rivers, and lakes. This type of pollution is known as nonpoint source pollution.

Why do we need riparian setbacks?

One of the most effective ways to protect our riparian areas is to establish riparian setbacks. Riparian setbacks are a zoning tool that communities use to maintain flooding, prevent erosion, protect property and maintain water quality. They are similar to side and front yard setbacks as they control the location of construction and related soil disturbing activities. Riparian setbacks do not make lots unbuildable and are only applied when a zoning certificate is necessary.



Healthy riparian areas afford a number of benefits including their ability to absorb flood water, provide bank stabilization, provide habitat and add to the scenic beauty of a community.

Over the years, many riparian landowners have experienced property damage from flooding and/or loss of land from stream bank erosion. Often, the problems have arisen from structures being built too close to a watercourse. Riparian setbacks offer a viable solution since they provide room along streams to slow the velocity of floodwaters and to store the overflows while allowing them to meander. The setbacks also allow the riparian area to filter pollutants from storm water.

Riparian setbacks provide the uniformity and consistency needed to successfully manage riparian areas throughout the Great Lakes Watershed, while affording protection to riparian areas that return benefits to all community residents.

Benefits of Riparian Setbacks

The benefits of riparian setbacks include, but are not limited to:

Economic Improvements

Riparian setbacks sustain or increase property values by helping to keep community costs low, reducing infrastructure costs and decreasing reliance on engineered solutions. The overall costs associated with the protection of riparian areas are typically less expensive than restoration projects needed to repair damage from flooding. Riparian setbacks are also aesthetically pleasing and preserve land characteristics such as lot size, shape, and integrity.

Physical Improvements

Riparian setbacks help restore and maintain the physical, chemical, and biological integrity of the water resources they protect by reducing flooding, erosion, and property loss.

Recognition of Good Stewardship

Communities choosing to incorporate Best Management Practices such as riparian setbacks into law are being acknowledged for their efforts, especially by neighboring communities downstream.

Satisfies Requirements of the Ohio EPA

Riparian setbacks are tools that help to satisfy current and upcoming requirements for municipalities and townships to improve the quality of storm water entering our waterways.



"In the end, our society will be defined not by what we create, but by what we refuse to destroy."

- John Sawhill

Riparian Setbacks

How are riparian setbacks established?

Riparian setback widths are determined by the size of the drainage area of the stream. These setback widths also account for a stream's natural tendency to meander. A riparian setback, when sized and vegetated properly, allows room for riparian areas to disperse the volume and erosive force of floodwaters.

Riparian setback widths are measured from the ordinary high water mark of a watercourse. The location of the ordinary high water mark is determined in the field. Organizations such as Geauga Soil and Water Conservation District (SWCD) and the Ohio Department of Natural Resources are available to landowners and communities to delineate the ordinary high water mark on a watercourse or a parcel. However, in considering implementation of riparian setback regulations, communities and landowners need a general idea of the location of the ordinary high water mark.

What is the ordinary high water mark and how is it determined?

The ordinary high water mark is the point on a stream bank to which the presence and action of surface water is so continuous as to leave a mark which clearly demonstrates that morphological features and natural vegetation are distinctly different from upland areas. The ordinary high water mark is also referred to as the active channel.

When delineating the high water mark you will want to look for several indicators that mark an obvious transition between stream bed and bank. Indicators include aquatic vegetation, such as sedges, cattails, and terrestrial vegetation, such as perennial grasses and woody shrubs. In addition to vegetative indicators, you will also want to look for gravel on the stream bed and/or an erosion scour line. The indicators will appear parallel to the water's surface and will persist for several meters upstream and downstream. If the ordinary high water mark does not appear on the side of the stream you are surveying, identify the indicators on the opposite bank and use a string level to mark the location on your bank.



Ordinary High Water Mark

The ordinary high water mark on this section of the Chagrin River is clear at the point where the gravel meets terrestrial grasses along the stream bank.

Recommended minimum riparian setbacks

There are a range of recommended setback widths based on the desired function of a riparian area. The minimum setback widths listed below are consistent with setback widths adopted and recommended in Geauga County and are consistent with state and federal guidelines for riparian buffers and stream management zones. The recommended widths are consistent with the basic information required for their implementation and represent a prudent balance between community values of maximizing riparian services and minimizing the restrictions on beneficial uses of property.

Geauga County's suggested minimum setback widths are as follows:

- ☞ 25 feet on each side of all streams draining an area greater than 0.05 square miles (32 acres) and up to 0.5 square miles (320 acres).
- ☞ 75 feet on each side of all streams draining an area greater than 0.5 square miles (320 acres) and less than 20 square miles (12,800 acres).
- ☞ 120 feet on each side of all streams draining an area greater than 20 square miles (12,800 acres) but less than 300 square miles (192,000 acres).
- ☞ If the 100-year flood plain is wider than the designated setback, the setback width will increase to meet the 100 year floodplain.
- ☞ Setback widths will increase in areas where steep slopes affect both the safety of proposed structures and the water quality of the stream.
- ☞ Where connected wetlands are present, setback widths will increase to extend beyond their boundaries to ensure protection. In Geauga County, these setback widths are as follows: 50 feet extending beyond the outermost boundary of a category 3 wetland, 30 feet extending beyond the boundary of a category 2 wetland, and no additional setback are required beyond the outermost boundary of a category 1 wetland.



Riparian setbacks create a prudent balance between community values as they maximize riparian services while minimizing restrictions on beneficial property use.

Riparian Setback Regulations

Implementing riparian setback regulations

To maximize the benefits of riparian setbacks, communities should protect riparian areas through local regulations. These regulations must be properly designed and implemented to insure long-term setback maintenance. Model ordinances for riparian setbacks are available through the Geauga County Planning Commission. These models help local decision makers create riparian setback regulations suited for their community. The steps listed below are guidelines that should be considered throughout the process of adopting riparian setback regulations.

- ☞ Update community comprehensive or land use plan to include documentation of the flood control, erosion control, and water protection services offered by local riparian areas. This could include mapping and other inventories of the community's streams, wetlands, and open spaces as well as documentation of past storm water problems related to loss of riparian functions from development.
- ☞ Review available models as well as adopted regulations from communities that have already implemented riparian setback legislation. It is important for communities in Northeast Ohio to note that while there are several models available for riparian setbacks, these models are essentially the same. Start with the model recommended by the organization assisting with your community process.
- ☞ Tailor the model to community norms. Throughout this process, follow community standard practices for regulation review, public hearing, and adoption. Provide opportunities or public education on the need for riparian setback zoning at regularly scheduled Planning and Zoning Commission, Village/City Council, and/or Township Trustee meetings.
- ☞ Work with the Geauga SWCD and/or the Geauga County Planning Commission for technical support and to develop a guide riparian setback map. Having such a map of the potential setbacks in your community will enable Zoning and Planning Commissions to review the number and type of parcels covered and the extent of the proposed riparian setback.
- ☞ Adopt riparian setback zoning regulations with support of Planning and Zoning Commission, Village/City Council, and/or Township Trustees.



Riparian setbacks allow room for streams to meander, thus avoiding potential property damage to structures located adjacent to the stream corridor.

Planning construction on all lots with riparian setbacks

Communities implementing riparian setback regulations will follow the planning construction sequence listed below:

Contact local zoning inspector to determine riparian and wetland setback requirements in addition to side, front, and back yard setback requirements.

Evaluate site conditions including existing riparian and wetland areas, contour lines, vegetation, and drainage patterns.

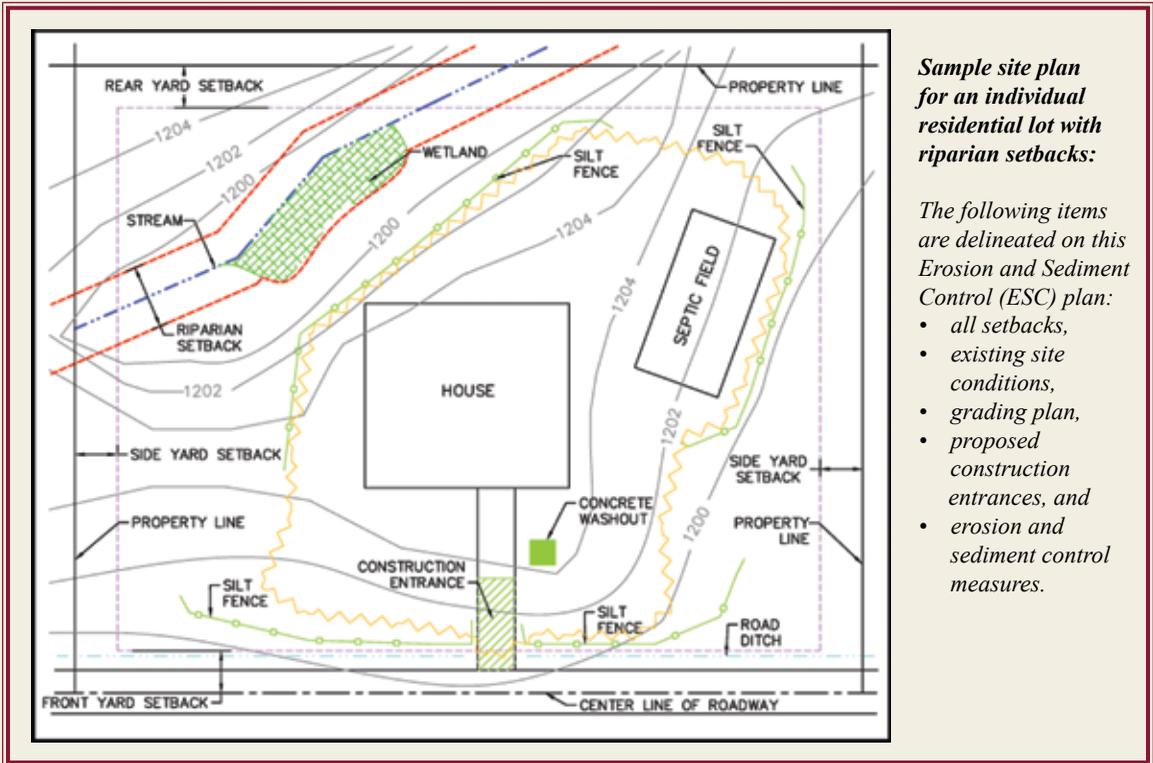
Design structures and driveways to the existing site based on your site evaluation. Conform structures and driveways to site, do not conform site to structures and driveways.

Obtain driveway permit by contacting the appropriate local agency.

Prepare an Erosion and Sediment Control (ESC) Plan to protect natural resources during the construction process. The following items need to be delineated on the (ESC) plan: riparian, front, side, and back yard setbacks, existing site conditions, grading plan, proposed construction, and erosion and sediment control measures. A sample plan is detailed below.

Obtain septic or sewer permit by contacting the appropriate local agency.

Obtain building permit by contacting either the city or county building department.



Sample site plan for an individual residential lot with riparian setbacks:

The following items are delineated on this Erosion and Sediment Control (ESC) plan:

- all setbacks,
- existing site conditions,
- grading plan,
- proposed construction entrances, and
- erosion and sediment control measures.

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Geauga Soil and Water Conservation District

"To conserve, protect, and enhance the resources of Geauga County by providing leadership, education, and assistance to all."

*14269 Claridon-Troy Road
PO Box 410*

Burton, Ohio 44021

Ph. 440.834.1122

Fax 440.834.0316

E-mail: gswcd@geaugaswcd.com

Web address: <http://www.geaugaswcd.com>

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