



*Chagrin River Watershed Partners, Inc*

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**Chagrin River Watershed Partners, Inc.  
Adoption Process for Best Land-Use Regulations**



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CRWP is a non-profit technical organization formed by the townships, villages, cities, counties, and park districts of the Chagrin watershed to develop and implement innovative solutions to address current, and minimize new, flooding, erosion, and water quality costs and to control the increasing infrastructure costs associated with urban/suburban development. CRWP provides Members with advice and assistance on zoning and subdivision regulations, implementation of these regulations, development plan review, and other best practice implementation at Member direction.



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## **INTRODUCTION**

Chagrin River Watershed Partners, Inc. (CRWP) works with interested Members to adopt and implement model regulations for riparian and wetland setbacks, conservation development districts, and comprehensive stormwater management for water quality and quantity. Adoption of these regulations provides local governments tools to maintain stream and wetland functions as land is developed, ensures site features and water quality issues are considered early in the development process, and supports stormwater management practices that minimize water quality impacts. These regulations are the most cost effective and far reaching tools available to watershed planning organizations to improve land use because once adopted, they apply uniformly to all lands in a community.

This document will review the typical adoption process for CRWP's model comprehensive stormwater management regulation and riparian setback zoning regulation or resolution in a community. The adoption process for these two model regulations can be extended to the conservation development district and wetland setback model zoning regulations, also recommended for adoption by CRWP. These steps are meant to be a guide to adoption of the model regulation(s) by a city, village, county or township where applicable. Before beginning the adoption process it is important to have a basic understanding of the authority and regulatory limitations of the community and adjust procedures as necessary to meet the needs of the community. As well, the community must ensure that the skill set and administrative capacity of staff is available to effectively implement the new policies.

All technical resources referenced in this document are listed in the last section of this document.

## **COMPREHENSIVE STORMWATER MANAGEMENT REGULATION**

CRWP has developed and maintains a comprehensive stormwater management model regulation for adoption by county, village and municipal governments. In Ohio, townships have limited authority when compared to cities and villages. They do not have the authority to adopt resolutions outside of what of the enabling statutes of the Ohio Revised Code. Many of the townships CRWP works with have adopted a water management and sediment control resolution to establish technically feasible and reasonable standards to achieve a level of water management and sediment control that will minimize damage to property and degradation of water resources and wetlands, and will promote and maintain the public health and safety. The resolution requires projects that fall under this resolution meet all requirements and recommendations for erosion and sediment control and stormwater management contained in the most recent version of the county stormwater management and sediment control regulations. However, if the county has a comprehensive stormwater management code in place, such a resolution may not be necessary, but this decision should be made in consultation with the county planning commission, county soil and water conservation district or stormwater management department, where applicable.

The model regulation development was a collaborative effort by CRWP, the Cuyahoga, Lake and Geauga Soil and Water Conservation Districts, and CRWP Member communities. In addition technical support was provided by Camp Dresser and McKee, Inc. The regulation was developed to include provisions for low impact development post-construction stormwater management best management practices (BMPs) and Ohio Environmental Protection Agency (Ohio EPA) approved practices. The regulation recommends open channels and open drainage systems under stormwater conveyance design criteria, and includes a provision for the acceptance of alternative post-construction BMPs. As well, the model regulation was developed to reflect the requirements of the Ohio EPA National Pollution Discharge Elimination System (NPDES) Construction General Permit (CGP) to address the requirements of the Ohio EPA's Phase II stormwater management program for municipal separate storm sewer system (MS4) communities. A permitted MS4 community is required to implement a stormwater management program for construction and post-construction stormwater controls that are as rigorous as the most current state CGP. Contact Ohio EPA for more information on the Phase II MS4 permit or CGP requirements. Ohio EPA reviewed



the most current model regulation (April 2009) to ensure compliance with the MS4 and CGP. The regulation includes sixteen sections documenting procedures, performance standards, and alternative stormwater management practices. See Appendix A for a complete copy of the model regulation.

### **Steps Toward Adoption**

Typically the regulation adoption process is initiated by the community's engineering department or stormwater committee, but can be initiated by council, the mayor, commissioner, trustee, or planning commission. It is important at this stage to make sure that those who will be implementing the regulation, such as the community engineer, are involved in the creation and adoption process from the beginning. Thus if the request for the regulation does not include those key individuals, they should be included into the process.

#### Tailor Model Regulation to the Community

Upon request from the community a draft regulation is provided for review with initial tailoring to the community's current procedure. This includes replacing the placeholder text with current information. A small amount of review of a community's regulations may be required to fill in these areas. Any area that is not able to be filled in should be highlighted along with any notes or decision points. Notes and decision points need to be clearly identified using symbols, such as ☞ or be in bold text and highlighted. These areas will be discussion items during the initial review and will require decisions by the staff implementing the regulation.

#### Initial Review of Regulation

The initial review and meeting with the engineer, stormwater committee, or other applicable persons or parties will include a complete review of the regulation and address its background and any questions. The initial dialogue with the community will provide an opportunity to understand their plan review and approval process for development and redevelopment projects in the community. The initial review will highlight any necessary changes to procedure or standards in the regulation language that need to be tailored to the community.

The regulation review and changes are an important step in the adoption process of the regulation by the community. It should not be rushed and may take more than one draft and meeting to revise the language to meet the community's standards. This process may also require review to other sections of the community regulations to determine if there are any indirect or housekeeping amendments that are required as a result of this new or updated regulation.

#### Review by Law Director

The final draft regulation must be reviewed by the community law director or county prosecutor. Any changes recommended by the law director should be reviewed by the engineering department and implementation staff and agreed upon prior to their incorporation into the regulation's final language.

#### Recommend for Adoption

The regulation in its final draft is then recommended for adoption to the governing legislative body, such as city council or county commissioners. This may need to occur in an official format through a committee meeting or relevant staff. It will be at the discretion of the community as to how they want to make the recommendation for adoption of the regulation based on their standard adoption process.

#### Presentation to Legislative Body

A full presentation of the final draft regulation to the legislative body is optional, and should be done upon request of the community. In many situations it is not seen as necessary, because the



comprehensive stormwater management regulation is technical in nature and does not include controversial topics. The presentation can be used to provide information on the regulation and how it benefits the community, protects health and human safety, and meets state or federal requirements. The presentation is not meant to review the entire regulation in detail but provide an overview and explain how it fits into the current review process for development projects. The presentation can be used to answer residents' questions if there is local interest in the regulation adoption.

#### Regulation Readings and Adoption

The process for adoption is dependant upon the community. Many will go through the process of conducting three full readings before voting and approval. It should be left to the discretion of the community as to how they want to move through the process.

#### Ongoing Implementation Support

The regulation should be regularly reviewed and updated to meet changes in state or local regulations and keep performance standards current. This can be included in the community's scheduled review of their comprehensive land use plan. CRWP updated the model regulation in 2008 to meet the terms of updated state regulations, and have assisted Member communities with the review and incorporation of the new language into their current regulation.

It is also important to provide continued education and implementation assistance for the regulation. With this in mind, CRWP has developed a model inspection and maintenance agreement, *Funding the Long-Term Operation and Maintenance of Stormwater Best Management Practices* (2008), and *Floodplain Restoration and Stormwater Management: Guidance and Case Study* (2009). These documents have been made available to our Members and are presented on the CRWP website for review by communities across Ohio. CRWP also provides plan review assistance to communities. The review process is complementary to their standard review process, but provides the community with additional resources to ensure projects adhere to their standards and provide the best stormwater management possible.

### **RIPARIAN SETBACK REGULATION**

Riparian setbacks are a zoning tool a county, municipality or township can use to maintain riparian functions as communities grow and land is developed. See Appendix B and C for a complete copy of the regulation and resolution. In the Chagrin River watershed and nationwide, communities recognize the need for riparian setbacks as a preventative tool to minimize encroachment on stream channels while providing a cost-effective alternative that minimizes the need for stormwater infrastructure and engineered solutions to flooding, erosion, and water quality problems.

Riparian setback regulations facilitate a uniform approach to riparian management in a community. A regulation or resolution establishing a riparian setback must be justifiable in terms of its protection of public health and safety; designed with an awareness of the impacts on individual properties; and implemented with public support and understanding of what the regulation does, and more importantly what it does not accomplish.

To maximize the low-cost benefits of riparian setbacks, communities should protect riparian areas through local regulations. These regulations must be properly designed and implemented and insure long-term setback maintenance. Working with Cuyahoga, Lake, and Geauga County Soil and Water Conservation Districts, and the Geauga and Lake County Planning Commissions, CRWP developed and maintains a Riparian Setback Model Regulation for county and municipality adoption and a model zoning resolution for township adoption. The model regulation and resolution are based on the public health and safety services of riparian areas including flood control, erosion control, and water quality protection. The





models establish minimum setback widths to control the location of soil disturbance on a parcel. A key feature of the riparian setback model is the emphasis on providing flexibility in other setbacks, such as side, rear, and front yard setbacks, to enable landowners to place their development as far out of riparian setback as possible while still developing their property. The recommended setback widths in the model range from 25 to 300 feet on either side of a watercourse as measured from the ordinary high water mark. These minimum setbacks are extended to the full extent of the Federal Emergency Management Agency's Flood Insurance Rate Map (FIRM) designated 100-year floodplain and to encompass riparian wetlands in the minimum setback. The model also details suggested permitted and prohibited structures and uses and includes provisions to address non-conformities and to grant variances when necessary to permit development.

The CRWP minimum setbacks are consistent with setback widths adopted around the country as well as state and federal guidelines for riparian buffers and stream management zones. The recommended widths represent a prudent balance between community values of maximizing riparian services and minimizing the restrictions on beneficial uses of property. CRWP's riparian setback model recommends minimum setback widths of 25, 75, 120, or 300 feet on either side of a river or stream dependant on the drainage area, the larger the drainage area the larger the setback width. Over 50 communities across Northeast Ohio have followed these recommended minimum widths and they are supported by natural resource management professionals as effective minimum widths for riparian protection. As a result, Northeast Ohio has seen a uniform approach to riparian setback implementation.

### **Steps Toward Adoption**

The following steps provide a general outline for the adoption of a riparian setback regulation for a county, municipality or township. It is important to include the staff and boards that will be involved with the implementation of the setback code in the adoption process. This can include the elected leaders, planning and zoning board, building or zoning inspector, legal department or community engineer. It is also to the benefit of the community to include supporting agencies or departments that can aid in the education and adoption of the regulation. This may include the engineering, planning and zoning departments and commissions, zoning or building inspectors, the local soil and water conservation district, or other relevant technical support. Initial education of the regulation and how it is implemented is critical to the ultimate adoption by the elected officials.

### **Tailor Draft Regulation for Community**

Upon request from the community, a draft regulation and map outlining the community's riparian areas, and basic riparian statistics are provided for review. The model regulation requires initial tailoring of language to reflect the community's current procedures. This includes replacing the placeholder text with current information. Any area that is not able to be customized should be highlighted along with any notes or decision points. Notes and decision points need to be clearly identified using symbols, such as ☞, be in bold text and highlighted. These areas will be discussion items during the initial regulation review and will require decisions by staff implementing the regulation.

The draft riparian setback map may be developed to accompany the regulation and is typically referenced in the regulation language as a guide. The map is developed using available geographic information system data on the community's streams, flood plain, wetland and parcels.

CRWP typically provides a summary of the riparian setback statistics for internal review during the adoption process. The statistics include the following information:

- Total number of parcels in the community
- Number and percent of parcels with a riparian setback



- Number and percent of parcels and acreage with riparian setbacks, not including community or park owned properties, and properties subject to conservation easements
- Number of structures in community
- Number and percent of total structures existing in proposed riparian setback
- Number of structures in the 100 year floodplain/floodway, if applicable
- Build-out parcels with a riparian setback delineated on the parcel based on the applicable community zoning.

The statistics help a community see how many parcels are affected, how many non-conforming structures will be created, and the amount of riparian setback areas already protected by parks or easements. The break down of the parcel build out allows a community to illustrate that there are still riparian areas that are likely to be affected by future development. All of the information provided is for internal use prior to the first meeting and review of the regulation and not for public distribution.

#### Introduction to riparian setback zoning

This introduction meeting will include a presentation to the attendants and review of the regulation components. This meeting can be with council, trustees, commissioners, planning or zoning commission, or at one-on-one meeting with the community engineer, a council member, commissioner or trustee, or planning or zoning commission member. This meeting should include staff that will be involved with the implementation of the regulation and supporting agencies and departments. It is important to use the supporting agencies to assist with the education and adoption of the zoning regulation.

The goal of this meeting is to introduce the concept of riparian setbacks, explain why a zoning regulation of this nature provides human health and safety benefits to the community and the residents, and review the basic components of the regulation and how it is implemented. The following list outlines key points of information that need to be included in a presentation. See Appendix E for an example presentation.

- Background on the benefits of such a regulation, highlighting the impacts of land use change, such as flooding on property. It is very important to have local examples including pictures of these impacts.
- Any federal, state or local regulations that lend to adoption of the regulation – such as mandated stormwater management programs.
- What are riparian setbacks and what does the regulation do as a zoning tool?
- What do riparian setbacks look like in the community?
  - Draft riparian setback map
  - Community riparian setback statistics
- Regulation implementation
  - Variance procedures and considerations
  - Non-conforming structures

#### Map and Regulation Revisions

The riparian setback map becomes the guide for the regulation implementation and is referenced in the regulation language, thus it is important that the community review the guidance map. Suggested revisions will arise during the presentation stage described above. It will be important to fix areas that are not correctly represented, as stated in the regulation language. On-site conditions will prevail if there is a question about a riparian area or stream, but the map is a guide that needs to accurately reflect the stream system based on the best local data available.

As with the map, potential revisions to regulation language may arise. This is the opportunity to make those changes or updates. In some instances the community may want to change the riparian setback widths or remove or change language in the regulation. If changes are suggested for setback widths, the





technical advisors can point out to those involved that the current widths in the regulation are scientifically justified based on the best technical and scientific data available. CRWP developed *Riparian Setbacks: Technical Information for Decision Makers*, 2006, to provide documentation to support the setback widths. However, it is ultimately the decision of the community. To date three communities had adopted widths different from the model regulation. Later, the Village of Bentleyville revised their code to match the CRWP model. Chagrin Falls Village established a setback only for the main channel of the Chagrin River and can extend the setback width to include steep slopes, wetland, flood plain, and wooded areas. The Village of Hunting Valley has considered adding a 25 foot setback for small streams, but will maintain their current widths of 75 feet and 300 feet on larger streams.

This review process may also require review to other sections of the community regulations to determine if there are any indirect or housekeeping amendments that are required as a result of this new or updated regulation.

#### Intra Community Education and Training

At this stage in the adoption process it can be useful to provide the staff responsible for implementing the regulation with training opportunities. The training should be conducted by someone with the experience to implement the regulation. Supporting local and state agencies may be able to provide this level of expertise if the community staff. The training information should include the plan review process with examples of site layout, variance process and non-conforming structures, and a property site visit to show direct implementation. This type of training can help resolve concerns or questions that are brought up during the initial regulation and map review. Though education and training will continue after the adoption of the regulation, starting early will help staff develop a level of comfort with the regulation.

#### Review by Law Director

The final draft regulation must be reviewed by the community law director or county prosecutor. Any changes recommended by the law director should be reviewed by the engineering department and implementation staff and agreed upon prior to their incorporation into the regulation's final language.

#### Recommend for Adoption

The regulation in its final draft is then recommended for adoption to the governing legislative body, such as city or village council, township trustees or county commissioners. This may need to occur in an official format through a committee meeting or relevant staff. It will be at the discretion of the community as to how they want to make the recommendation for adoption of the regulation based on their standard adoption process. In Ohio townships, the zoning amendments are required to be reviewed by the county planning commission. Subsequent approval procedures are detailed in Ohio Revised Code Section 519, see appendix D for a summary of the resolution approval process.

#### Regulation Readings and Adoption

The process for adoption is dependant upon the community. Many will go through the process of conducting three full readings before voting and approval. It should be left to the discretion of the community as to how they want to move through the process.

#### Public Education

If the regulation is drawing a lot of public interest it is important to allow for education opportunities. This will permit residents the opportunity to ask questions and allow the community to provide information on the benefits and public health and safety concerns the regulation addresses. It can be worthwhile to present background information at a public meeting.



In some instances it may be beneficial to deal with residents' questions or concerns on a case by case basis. If a particular property is raising a question, it may be beneficial to meet with the resident and review how the regulation would affect their property, or even conduct a site visit to discuss the effects of the regulation. Any meeting with residents should include technical support staff or a supporting agency. CRWP has used this approach to discuss riparian setback zoning in a public forum. As well CRWP has developed two supporting documents to help further answer questions or concerns a community or resident may pose.

- Why Riparian Setbacks?, January 2006
- Riparian Setback: Why that Width?, 2001

#### Ongoing Implementation Support

It is an ongoing process to keep communities informed of changes, updates, and specific sections of the regulation that may require more development. The language will have to be regularly reviewed and updated to meet changes in state or local regulations and keep performance standards current. This can be included in the communities scheduled review of their comprehensive land use plan. It is also important to provide continued education to the community on the implementation of the regulation and address questions as they arise. CRWP has had great success providing technical assistance to communities. This support ranges from answering implementation question over the phone, providing on-site assistance with the identification of streams, setback widths, and group workshops that include elected officials and staff. As the implementation staff grows more comfortable with the regulation, technical needs will reduce.

#### **LESSONS LEARNED**

Over the course of 13 years CRWP has worked with its Members to tailor, adopt and implement the recommended model regulations. Through this work CRWP learned several lessons on how to make the process more successful.

1. Political support of the regulation is necessary for adoption. If the support from elected officials and community staff is not present, it may indicate that more education is necessary before moving forward with adoption.
2. Those tasked with implementing the regulation must be involved in the regulation review, revision and adoption. If the implementers are not comfortable with the regulation language or how it is to be carried out, additional education or implementation support is needed
3. Identify who will be available to provide technical support to the implementation staff. This can be support from within or through outside technical staff such as the local soil and water conservation district.
4. Scientific justification for standards must be available. Providing the scientific background for proposed standards will strengthen the argument for adoption and provide answers to many community and resident questions.
5. Be ready to answer commonly asked questions such as:
  - *Why is regulation necessary?* It is good to show local examples of flooding, and erosion to present to residents and elected officials.
  - *How are pre-existing buildings or structures affected by the riparian and wetland setback regulations?* Preexisting buildings that encroach on the riparian and wetland setbacks are considered an existing use and can be maintained. If the property owner wants to expand the use further into the riparian or wetland setback a variance would be necessary.
  - *How does the riparian setback regulation affect landscaping along the stream?* If the community includes landscaping provisions in the regulation, a landscaping plan would be required. This condition is only activated if future landscaping activities will remove natural vegetation in the



setback area. It is important to note that townships do not typically include the landscape provision in the riparian and wetland setback resolutions.

- *How do you measure the setback widths along slopes?* On a slope the setback width can be measured using a plan view as a straight distance from the bank back. In the field a survey pole may be necessary to get the appropriate distance measured. Where steep slopes are present, it is important to make sure the riparian setback regulation works with any regulation that deals with construction on slopes.
- *What is the coordination between the US Army Corps of Engineers (ACOE) and Ohio EPA?* Neither the comprehensive stormwater management, nor the riparian or wetland setback regulations exempt a property owner from obtaining the necessary permits from the ACOE or Ohio EPA for construction, or disturbances to rivers or wetlands. For both regulations the property owner is required to show proof of permits from all regulatory agencies prior to the community approving a permit or variance. Acquisition of a federal or state permit does not exempt the property owner from the requirements set forth in the regulation, and additional authorization from the local community may still be required.
- *How does the riparian setback regulation affect property values?* In 2006 CRWP worked with Cleveland State University, Maxine Goodman Levine College of Urban Affairs to analyze the impact of riparian and wetland setbacks on the value of parcels in communities where riparian and wetland setback zoning has been implemented for a minimum of 2 years. Based on the analysis property values were not impacted by riparian or wetland setbacks. See the Resource section of this document for additional information on the *Hedonic Analysis of Riparian/Wetland Setback* report.

CRWP has tried to address these questions and others in a series of riparian and wetlands setback technical support documents. See the Resources section of this report for a comprehensive list of supporting documents.

## **STATUS**

Using the process outlined above CRWP, in partnership with local soil and water conservation districts and county planning commissions, has successfully assisted Members with the adoption and implementation of the following model regulations.

- Comprehensive Stormwater Management adopted by 23 Member representing 72% of the watershed
- Riparian and Wetland Setback adopted by 14 Members representing 44% of the watershed.

This success can be attributed to using the steps outlined above, tailoring the process and regulations to meet communities' needs, and ongoing technical assistance with regulation implementation.



## **RESOURCES**

*Comprehensive Stormwater Management Model Ordinance*

[http://www.crowp.org/model\\_ordinances/stormwater\\_management\\_model.htm](http://www.crowp.org/model_ordinances/stormwater_management_model.htm)

*Community Riparian & Wetland Guidance*

[http://www.crowp.org/pdf\\_files/riparian\\_wetlands\\_guide\\_book.pdf](http://www.crowp.org/pdf_files/riparian_wetlands_guide_book.pdf)

*Conservation Development District Model Regulation*

[http://www.crowp.org/LID/conservation\\_development.htm](http://www.crowp.org/LID/conservation_development.htm)

*Hedonic Analysis of Riparian/Wetland Setbacks, 2006*

[http://www.crowp.org/Projects/crowp\\_lepf\\_project.htm](http://www.crowp.org/Projects/crowp_lepf_project.htm)

*Riparian Setback: Why that Width?, 2001*

[http://www.crowp.org/pdf\\_files/riparian\\_setbacks\\_why\\_that\\_width.pdf](http://www.crowp.org/pdf_files/riparian_setbacks_why_that_width.pdf)

*Riparian Setbacks: Technical Information for Decision Makers, 2006*

[http://www.crowp.org/pdf\\_files/riparian\\_setback\\_paper\\_jan\\_2006.pdf](http://www.crowp.org/pdf_files/riparian_setback_paper_jan_2006.pdf)

*Wetland Setback Model Regulation*

[http://www.crowp.org/model\\_ordinances/wetland\\_setback\\_model.htm](http://www.crowp.org/model_ordinances/wetland_setback_model.htm)

*Why Riparian Setbacks?, January 2006*

[http://www.crowp.org/pdf\\_files/why\\_riparian\\_setbacks\\_jan\\_2006.pdf](http://www.crowp.org/pdf_files/why_riparian_setbacks_jan_2006.pdf)



## APPENDIX A: COMPREHENSIVE STORM WATER MANAGEMENT MODEL REGULATION

### **PLEASE NOTE**

This model was developed to assist communities in implementing practices to control water quantity as well as protect water quality.

This model was reviewed by Ohio EPA and complies with Ohio EPA's Phase II Storm Water Management requirements for post-construction storm water management under Minimum Control Measure #5. This model was updated to reflect changes to Ohio EPA's post-construction storm water requirements in Ohio EPA Permit #OHC000003 effective April 21, 2008.

Phase II designated communities must implement ordinances for erosion and sediment control, and storm water management. This model ordinance only addresses post-construction storm water quality and quantity management. CRWP and partners have developed a separate model ordinance for erosion and sediment control. The storm water management model is drafted with the assumption that communities also adopt the erosion and sediment control ordinance.

All areas highlighted in ***bold/italics*** must be adjusted for your community. For example, the Community Engineer is identified throughout as a responsible party and your storm water administrator, service director, or other staff may actually perform these duties.

This model is a collaborative effort of CRWP, the Cuyahoga SWCD, Lake County SWCD, Geauga SWCD, and CRWP member communities. Additional technical support was provided by John Aldrich, Camp Dresser and McKee, Inc.

**WHEREAS**, flooding is a significant threat to property and public health and safety and storm water management lessens flood damage by reducing and holding runoff and releasing it slowly; and,

**WHEREAS**, streambank erosion is a significant threat to property and public health and safety and storm water management slows runoff and reduces its erosive force; and,

**WHEREAS**, insufficient control of storm water can result in significant damage to receiving water resources, impairing the capacity of these areas to sustain aquatic systems and their associated aquatic life use designations; and,

**WHEREAS**, land development projects and associated increases in impervious cover alter the hydrologic response of local watersheds and increase storm water runoff rates and volumes, flooding, stream channel erosion, and sediment transport and deposition; and,

**WHEREAS**, storm water runoff contributes to increased quantities of pollutants to water resources; and,

**WHEREAS**, storm water runoff, stream channel erosion, and nonpoint source pollution can be controlled and minimized through the regulation of runoff from land development projects; and,

**WHEREAS**, there are watershed-wide efforts to reduce flooding, erosion, and water quality problems in the ***[rivers to which community drains]*** and to protect and enhance the water resources of the ***[rivers to which community drains]***; and,



**WHEREAS**, the *[community]* finds that the lands and waters within its borders are finite natural resources and that their quality is of primary importance in promoting and maintaining public health and safety within its borders; and,

**WHEREAS**, the *[community]* desires to establish standards, principles, and procedures for the regulation of soil disturbing activities that may increase flooding and erosion and may cause adverse impacts to water resources, resulting from storm water runoff; and,

**WHEREAS**, the *[community]* is a member of the *[watershed organizations or utilities in which the community is participating]* and recognizes its obligation as a part of these *[watersheds/organizations]* to manage storm water within its borders; and

**WHEREAS**, 40 C.F.R. Parts 9, 122, 123, and 124, and Ohio Administrative Code 3745-39 require designated communities, including the *[community]* to develop a Storm Water Management Program that, among other components, requires the *[community]* to implement standards, principles, and procedures to regulate the quality of storm water runoff during and after soil disturbing activities; and,

**WHEREAS**, Article XVIII, Section 3 of the Ohio Constitution grants municipalities the legal authority to exercise all powers of local self-government and to adopt and enforce within their limits such local police, sanitary, and other similar regulations, as are not in conflict with general laws.

**NOW, THEREFORE, BE IT ORDAINED** by the Council of the *[community]*, County of *[county]*, State of Ohio, that:

**SECTION 1:** Codified Ordinance *Chapter XXXX Storm Water Management*, is hereby adopted to read in total as follows:

**CHAPTER XXXX  
COMPREHENSIVE STORM WATER MANAGEMENT**

**XXXX.01      PURPOSE AND SCOPE**

- A.      The purpose of this regulation is to establish technically feasible and economically reasonable storm water management standards to achieve a level of storm water quality and quantity control that will minimize damage to property and degradation of water resources and will promote and maintain the health, safety, and welfare of the citizens of the *[community]*:
- B.      This regulation requires owners who develop or re-develop their property within the *[community]* to:
  - 1.      Control storm water runoff from their property and ensure that all storm water management practices are properly designed, constructed, and maintained.
  - 2.      Reduce water quality impacts to receiving water resources that may be caused by new development or redevelopment activities.
  - 3.      Control the volume, rate, and quality of storm water runoff originating from their property so that surface water and ground water are protected and flooding and erosion potential are not increased.





4. Minimize the need to construct, repair, and replace subsurface storm drain systems.
  5. Preserve natural infiltration and ground water recharge, and maintain subsurface flow that replenishes water resources, except in slippage prone soils.
  6. Incorporate storm water quality and quantity controls into site planning and design at the earliest possible stage in the development process.
  7. Reduce the expense of remedial projects needed to address problems caused by inadequate storm water management.
  8. Maximize use of storm water management practices that serve multiple purposes including, but not limited to, flood control, erosion control, fire protection, water quality protection, recreation, and habitat preservation.
  9. Design sites to minimize the number of stream crossings and the width of associated disturbance in order to minimize the *[community]* future expenses related to the maintenance and repair of stream crossings.
  10. Maintain, promote, and re-establish conditions necessary for naturally occurring stream processes that assimilate pollutants, attenuate flood flows, and provide a healthy water resource.
- C. This regulation shall apply to all parcels used or being developed, either wholly or partially, for new or relocated projects involving highways and roads; subdivisions or larger common plans of development; industrial, commercial, institutional, or residential projects; building activities on farms; redevelopment activities; grading; and all other uses that are not specifically exempted in Section XXXX.01.
- D. Public entities, including the State of Ohio, *[county]* County, and the *[community]* shall comply with this regulation for roadway projects initiated after March 10, 2006 and, to the maximum extent practicable, for projects initiated before that time.
- E. This regulation does not apply to activities regulated by, and in compliance with, the Ohio Agricultural Sediment Pollution Abatement Rules.
- F. This regulation does not require a Comprehensive Storm Water Management Plan for linear construction projects, such as pipeline or utility line installation, that do not result in the installation of impervious surface as determined by the *[community engineer]*. Such projects must be designed to minimize the number of stream crossings and the width of disturbance. Linear construction projects must comply with the requirements of Chapter XXXX Erosion and Sediment Control.

#### XXXX.02 DEFINITIONS

For the purpose of this regulation, the following terms shall have the meaning herein indicated:

- A. ACRE: A measurement of area equaling 43,560 square feet.
- B. AS-BUILT SURVEY: A survey shown on a plan or drawing prepared by a Registered Surveyor



indicating the actual dimensions, elevations, and locations of any structures, underground utilities, swales, detention facilities, and sewage treatment facilities after construction has been completed.

- C. BEST MANAGEMENT PRACTICES (BMPs): Schedule of activities, prohibitions of practices, operation and maintenance procedures, treatment requirements, and other practices to reduce the pollution of water resources and to control storm water volume and rate.
- D. CLEAN WATER ACT: Pub. L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, Pub. L. 97-117, and Pub. L. 100-4, 33 U.S.C. 1251 et. seq. Referred to as the Federal Water Pollution Control Act or the Federal Water Pollution Control Act Amendments of 1972.
- E. COMMUNITY: The *[community]*, its designated representatives, boards, or commissions.
- F. COMPREHENSIVE STORM WATER MANAGEMENT PLAN: The written document and plans meeting the requirements of this regulation that sets forth the plans and practices to minimize storm water runoff from a development area, to safely convey or temporarily store and release post-development runoff at an allowable rate to minimize flooding and stream bank erosion, and to protect or improve storm water quality and stream channels.
- G. CRITICAL STORM: A storm that is calculated by means of the percentage increase in volume of runoff by a proposed development area. The critical storm is used to calculate the maximum allowable storm water discharge rate from a developed site.
- H. DETENTION FACILITY: A basin, pond, oversized pipe, or other structure that reduces the peak flow rate of storm water leaving the facility by temporarily storing a portion of the storm water entering the facility.
- I. DEVELOPMENT AREA: A parcel or contiguous parcels owned by one person or persons, or operated as one development unit, and used or being developed for commercial, industrial, residential, institutional, or other construction or alteration that changes runoff characteristics.
- J. DEVELOPMENT DRAINAGE AREA: A combination of each hydraulically unique watershed with individual outlet points on the development area.
- K. DISTURBED AREA: An area of land subject to erosion due to the removal of vegetative cover and/or soil disturbing activities.
- L. DRAINAGE: The removal of excess surface water or groundwater from land by surface or subsurface drains.
- M. EROSION: The process by which the land surface is worn away by the action of wind, water, ice, gravity, or any combination of those forces.
- N. EXTENDED CONVEYANCE: A storm water management practice that replaces and/or enhances traditional open or closed storm drainage conduits by retarding flow, promoting percolation of runoff into the soil, and filtering pollutants during the storm water quality event.
- O. EXTENDED DETENTION: A storm water management practice that replaces and/or enhances



traditional detention facilities by releasing the runoff collected during the storm water quality event over at least 24 to 48 hours, retarding flow and allowing pollutants to settle within the facility.

- P. FINAL STABILIZATION: All soil disturbing activities at the site have been completed and a uniform perennial vegetative cover with a density of at least 80% coverage for the area has been established or equivalent stabilization practices, such as the use of mulches or geotextiles, have been employed.
- Q. GRADING: The process in which the topography of the land is altered to a new slope.
- R. HYDROLOGIC UNIT CODE: a cataloging system developed by the United States Geological Survey and the Natural Resource Conservation Service to identify watersheds in the United States.
- S. IMPERVIOUS COVER: Any surface that cannot effectively absorb or infiltrate water. This may include roads, streets, parking lots, rooftops, sidewalks, and other areas not covered by vegetation.
- T. INFILTRATION: A storm water management practice that does not discharge to a water resource during the storm water quality event, requiring collected runoff to either infiltrate into the groundwater and/or be consumed by evapotranspiration, thereby retaining storm water pollutants in the facility.
- U. LARGER COMMON PLAN OF DEVELOPMENT: A contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under one plan.
- V. MAXIMUM EXTENT PRACTICABLE: The level of pollutant reduction that operators of small municipal separate storm sewer systems regulated under 40 C.F.R. Parts 9, 122, 123, and 124, referred to as NPDES Storm Water Phase II, must meet.
- W. NPDES: National Pollutant Discharge Elimination System. A regulatory program in the Federal Clean Water Act that prohibits the discharge of pollutants into surface waters of the United States without a permit.
- X. NONSTRUCTURAL STORM WATER MANAGEMENT PRACTICE: Storm water runoff control and treatment techniques that use natural practices to control runoff and/or reduce pollution levels.
- Y. POST-DEVELOPMENT: The conditions that exist following the completion of soil disturbing activity in terms of topography, vegetation, land use, and the rate, volume, quality, or direction of storm water runoff.
- Z. PRE-CONSTRUCTION MEETING: Meeting prior to construction between all parties associated with the construction of the project including government agencies, contractors and owners to review agency requirements and plans as approved and submitted.
- AA. PRE-DEVELOPMENT: The conditions that exist prior to the initiation of soil disturbing activity



in terms of topography, vegetation, land use, and the rate, volume, quality, or direction of storm water runoff.

- BB. PROFESSIONAL ENGINEER: A Professional Engineer registered in the State of Ohio with specific education and experience in water resources engineering, acting in conformance with the Code of Ethics of the Ohio State Board of Registration for Engineers and Surveyors.
- CC. REDEVELOPMENT: A construction project on land where impervious cover has previously been developed and where the new land use will not increase the runoff coefficient. If the new land use will increase the runoff coefficient, then the project is considered to be a new development project rather than a redevelopment project. (Refer to Table 1 in Section XXXX.09)
- DD. RIPARIAN AREA: Land adjacent to any brook, creek, river, or stream having a defined bed and bank that, if appropriately sized, helps to stabilize streambanks, limit erosion, reduce flood size flows, and/or filter and settle out runoff pollutants, or performs other functions consistent with the purposes of this regulation.
- EE. RIPARIAN AND WETLAND SETBACK: The real property adjacent to a water resource on which soil disturbing activities are limited, all as defined by the *[community's riparian and wetland setback regulation]*.
- FF. RUNOFF: The portion of rainfall, melted snow, or irrigation water that flows across the ground surface and is eventually returned to water resources.
- GG. SEDIMENT: The soils or other surface materials that can be transported or deposited by the action of wind, water, ice, or gravity as a product of erosion.
- HH. SEDIMENTATION: The deposition of sediment in water resources.
- II. SITE OWNER/OPERATOR: Any individual, corporation, firm, trust, commission, board, public or private partnership, joint venture, agency, unincorporated association, municipal corporation, county or state agency, the federal government, other legal entity, or an agent thereof that is responsible for the overall construction site.
- JJ. SOIL DISTURBING ACTIVITY: Clearing, grading, excavating, filling, or other alteration of the earth's surface where natural or human made ground cover is destroyed and that may result in, or contribute to, increased storm water quantity and/or decreased storm water quality.
- KK. STABILIZATION: The use of Best Management Practices that reduce or prevent soil erosion by storm water runoff, trench dewatering, wind, ice, gravity, or a combination thereof.
- LL. STRUCTURAL STORM WATER MANAGEMENT PRACTICE: Any constructed facility, structure, or device that provides storage, conveyance, and/or treatment of storm water runoff.
- MM. SURFACE WATERS OF THE STATE: All streams, lakes, reservoirs, marshes, wetlands, or other waterways situated wholly or partly within the boundaries of the state, except those private waters which do not combine or affect a junction with surface water. Waters defined as sewerage systems, treatment works or disposal systems in Section 6111.01 of the Ohio Revised Code are not included.



- NN. **TOTAL MAXIMUM DAILY LOAD:** The sum of the existing and/or projected point source, nonpoint source, and background loads for a pollutant to a specified watershed, water body, or water body segment. A TMDL sets and allocates the maximum amount of a pollutant that may be introduced into the water and still ensures attainment and maintenance of water quality standards.
- OO. **WATER QUALITY VOLUME:** The volume of runoff from a contributing watershed that must be captured and treated, equivalent to the maximized capture volume as defined in the American Society of Civil Engineers (ASCE) Manual and Report on Engineering Practice No. 87 and Water Environment Federation Manual of Practice No. 23 titled *Urban Runoff Quality Management*.
- PP. **WATER RESOURCE:** Any public or private body of water; including wetlands; the area within the ordinary high water level of lakes and ponds; as well as the area within the ordinary high water level of any brook, creek, river, or stream having a defined bed and bank (either natural or artificial) which confines and conducts continuous or intermittent flow.
- QQ. **WATER RESOURCE CROSSING:** Any bridge, box, arch, culvert, truss, or other type of structure intended to convey people, animals, vehicles, or materials from one side of a watercourse to another. This does not include private, non-commercial footbridges or pole mounted aerial electric or telecommunication lines, nor does it include below grade utility lines.
- RR. **WATERSHED:** The total drainage area contributing storm water runoff to a single point.
- SS. **WETLAND:** Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas (40 CFR 232, as amended).

#### **XXXX.03      DISCLAIMER OF LIABILITY**

- A. Compliance with the provisions of this regulation shall not relieve any person from responsibility for damage to any person otherwise imposed by law. The provisions of this regulation are promulgated to promote the health, safety, and welfare of the public and are not designed for the benefit of any individual or any particular parcel of property.
- B. By approving a Comprehensive Storm Water Management Plan under this regulation, the **[community]** does not accept responsibility for the design, installation, and operation and maintenance of storm water management practices.

#### **XXXX.04      CONFLICTS, SEVERABILITY, NUISANCES & RESPONSIBILITY**

- A. Where this regulation is in conflict with other provisions of law or ordinance, the most restrictive provisions, as determined by the **[community engineer]**, shall prevail.
- B. If any clause, section, or provision of this regulation is declared invalid or unconstitutional by a court of competent jurisdiction, the validity of the remainder shall not be affected thereby.



- C. This regulation shall not be construed as authorizing any person to maintain a nuisance on their property, and compliance with the provisions of this regulation shall not be a defense in any action to abate such a nuisance.
- D. Failure of the *[community]* to observe or recognize hazardous or unsightly conditions or to recommend corrective measures shall not relieve the site owner from the responsibility for the condition or damage resulting therefrom, and shall not result in the *[community]*, its officers, employees, or agents being responsible for any condition or damage resulting therefrom.

#### **XXXX.05 DEVELOPMENT OF COMPREHENSIVE STORM WATER MANAGEMENT PLANS**

- A. This regulation requires that a Comprehensive Storm Water Management Plan be developed and implemented for soil disturbing activities disturbing one (1) or more acres of total land, or less than one (1) acre if part of a larger common plan of development or sale disturbing one (1) or more acres of total land, and on which any regulated activity of Section XXXX.01 (C) is proposed.
- B. The *[community]* shall administer this regulation, shall be responsible for determination of compliance with this regulation, and shall issue notices and orders as may be necessary. The *[community]* may consult with the *[county]* SWCD, private engineers, storm water districts, or other technical experts in reviewing the Comprehensive Storm Water Management Plan.

#### **XXXX.06 APPLICATION PROCEDURES**

- A. Pre-Application Meeting: The applicant shall attend a Pre-Application Meeting with the *[community engineer]* to discuss the proposed project, review the requirements of this regulation, identify unique aspects of the project that must be addressed during the review process, and establish a preliminary review and approval schedule.
- B. Preliminary Comprehensive Storm Water Management Plan: The applicant shall submit two (2) sets of a Preliminary Comprehensive Storm Water Management Plan (Preliminary Plan) and the applicable fees to the *[community engineer]* and/or the *[storm water administrator]*. The Preliminary Plan shall show the proposed property boundaries, setbacks, dedicated open space, public roads, water resources, storm water control facilities, and easements in sufficient detail and engineering analysis to allow the *[community engineer]* to determine if the site is laid out in a manner that meets the intent of this regulation and if the proposed storm water management practices are capable of controlling runoff from the site in compliance with this regulation. The applicant shall submit two (2) sets of the Preliminary Plan and applicable fees as follows:
  - 1. For subdivisions: In conjunction with the submission of the preliminary subdivision plan.
  - 2. For other construction projects: In conjunction with the application for a zoning permit.
  - 3. For general clearing projects: In conjunction with the application for a zoning permit.
- C. Final Comprehensive Storm Water Management Plan: The applicant shall submit two (2) sets of a Final Comprehensive Storm Water Management Plan (Final Plan) and the applicable fees to the *[community engineer]* and/or the *[storm water administrator]* in conjunction with the submittal





of the final plat, improvement plans, or application for a building or zoning permit for the site. The Final Plan shall meet the requirements of Section XXXX.08 and shall be approved by the *[community engineer]* prior to approval of the final plat and/or before issuance of a *[zoning permit by the Zoning Inspector]* or *[building permit by the Building Inspector]*.

- D. Review and Comment: The *[community engineer]* and/or the *[storm water administrator]* shall review the Preliminary and Final Plans submitted, and shall approve or return for revisions with comments and recommendations for revisions. A Preliminary or Final Plan rejected because of deficiencies shall receive a narrative report stating specific problems and the procedures for filing a revised Preliminary or Final Plan.
- E. Approval Necessary: Land clearing and soil-disturbing activities shall not begin and zoning and/or building permits shall not be issued without an approved Comprehensive Storm Water Management Plan.
- F. Valid for Two Years: Approvals issued in accordance with this regulation shall remain valid for two (2) years from the date of approval.

#### **XXXX.07 COMPLIANCE WITH STATE AND FEDERAL REGULATIONS**

Approvals issued in accordance with this regulation do not relieve the applicant of responsibility for obtaining all other necessary permits and/or approvals from other federal, state, and/or county agencies. If requirements vary, the most restrictive shall prevail. These permits may include, but are not limited to, those listed below. Applicants are required to show proof of compliance with these regulations before the *[community]* will issue a building or zoning permit.

- A. Ohio EPA NPDES Permits authorizing storm water discharges associated with construction activity or the most current version thereof: Proof of compliance with these requirements shall be the applicant's Notice of Intent (NOI) number from Ohio EPA, a copy of the Ohio EPA Director's Authorization Letter for the NPDES Permit, or a letter from the site owner certifying and explaining why the NPDES Permit is not applicable.
- B. Section 401 of the Clean Water Act: Proof of compliance shall be a copy of the Ohio EPA Water Quality Certification application tracking number, public notice, project approval, or a letter from the site owner certifying that a qualified professional has surveyed the site and determined that Section 401 of the Clean Water Act is not applicable. Wetlands, and other waters of the United States, shall be delineated by protocols accepted by the U.S. Army Corps of Engineers at the time of application of this regulation.
- C. Ohio EPA Isolated Wetland Permit: Proof of compliance shall be a copy of Ohio EPA's Isolated Wetland Permit application tracking number, public notice, project approval, or a letter from the site owner certifying that a qualified professional has surveyed the site and determined that Ohio EPA's Isolated Wetlands Permit is not applicable. Isolated wetlands shall be delineated by protocols accepted by the U.S. Army Corps of Engineers at the time of application of this regulation.
- D. Section 404 of the Clean Water Act: Proof of compliance shall be a copy of the U.S. Army Corps of Engineers Individual Permit application, public notice, or project approval, if an Individual Permit is required for the development project. If an Individual Permit is not required, the site owner shall



submit proof of compliance with the U.S. Army Corps of Engineer's Nationwide Permit Program. This shall include one of the following:

1. A letter from the site owner certifying that a qualified professional has surveyed the site and determined that Section 404 of the Clean Water Act is not applicable.
  2. A site plan showing that any proposed fill of waters of the United States conforms to the general and special conditions specified in the applicable Nationwide Permit. Wetlands, and other waters of the United States, shall be delineated by protocols accepted by the U.S. Army Corps of Engineers at the time of application of this regulation.
- E. Ohio Dam Safety Law: Proof of compliance shall be a copy of the ODNR Division of Water permit application tracking number, a copy of the project approval letter from the ODNR Division of Water, or a letter from the site owner certifying and explaining why the Ohio Dam Safety Law is not applicable.

#### **XXXX.08      COMPREHENSIVE STORM WATER MANAGEMENT PLANS**

- A. Comprehensive Storm Water Management Plan Required: The applicant shall develop a Comprehensive Storm Water Management Plan describing how the quantity and quality of storm water will be managed after construction is complete for every discharge from the site and/or into a water resource. The Plan will illustrate the type, location, and dimensions of every structural and non-structural storm water management practice incorporated into the site design, and the rationale for their selection. The rationale must address how these storm water management practices will address flooding within the site as well as flooding that may be caused by the development upstream and downstream of the site. The rationale will also describe how the storm water management practices minimize impacts to the physical, chemical, and biological characteristics of on-site and downstream water resources and, if necessary, correct current degradation of water resources that is occurring or take measures to prevent predictable degradation of water resources.
- B. Preparation by Professional Engineer: The Comprehensive Storm Water Management Plan shall be prepared by a registered professional engineer and include supporting calculations, plan sheets, and design details. To the extent necessary, as determined by the *[community engineer]*, a site survey shall be performed by a Registered Professional Surveyor to establish boundary lines, measurements, or land surfaces.
- C. Community Procedures: The *[community engineer]* shall prepare and maintain procedures providing specific criteria and guidance to be followed when designing the storm water management system for the site. These procedures may be updated from time to time, at the discretion of the *[community engineer]* based on improvements in engineering, science, monitoring, and local maintenance experience. The *[community engineer]* shall make the final determination of whether the practices proposed in the Comprehensive Storm Water Management Plan meet the requirements of this regulation. The *[community engineer]* may also maintain a list of acceptable Best Management Practices that meet the criteria of this regulation to be used in the *[Community]*.
- D. Contents of Comprehensive Storm Water Management Plan: The Comprehensive Storm Water Management Plan shall contain an application, narrative report, construction site plan sheets, a



long-term Inspection and Maintenance Agreement, and a site description with the following information provided:

1. Site description:

- a. A description of the nature and type of the construction activity (e.g. residential, shopping mall, highway, etc.).
- b. Total area of the site and the area of the site that is expected to be disturbed (i.e. grubbing, clearing, excavation, filling or grading, including off-site borrow areas).
- c. A description of prior land uses at the site.
- d. An estimate of the impervious area and percent of imperviousness created by the soil-disturbing activity at the beginning and at the conclusion of the project.
- e. Existing data describing the soils throughout the site, including the soil series and association, hydrologic soil group, porosity, infiltration characteristics, depth to groundwater, depth to bedrock, and any impermeable layers.
- f. If available, the quality of any known pollutant discharge from the site such as that which may result from previous contamination caused by prior land uses.
- g. The location and name of the immediate water resource(s) and the first subsequent water resource(s).
- h. The aerial (plan view) extent and description of water resources at or near the site that will be disturbed or will receive discharges from the project.
- i. Describe the current condition of water resources including the vertical stability of stream channels and indications of channel incision that may be responsible for current or future sources of high sediment loading or loss of channel stability.

2. Site map showing:

- a. Limits of soil-disturbing activity on the site.
- b. Soils types for the entire site, including locations of unstable or highly erodible soils.
- c. Existing and proposed one-foot (1') contours. This must include a delineation of drainage watersheds expected before, during, and after major grading activities as well as the size of each drainage watershed in acres.
- d. Water resource locations including springs, wetlands, streams, lakes, water wells, and associated setbacks on or within 200 feet of the site, including the boundaries of wetlands or streams and first subsequent named receiving water(s) the applicant intends to fill or relocate for which the applicant is seeking approval



from the Army Corps of Engineers and/or Ohio EPA.

- e. Existing and planned locations of buildings, roads, parking facilities, and utilities.
- f. The location of any in-stream activities including stream crossings.
3. Contact information: Company name and contact information as well as contact name, addresses, and phone numbers for the following:
  - a. The Professional Engineer who prepared the Comprehensive Storm Water Management Plan.
  - b. The site owner.
4. Phase, if applicable, of the overall development plan.
5. List of subplot numbers if project is a subdivision.
6. Ohio EPA NPDES Permit Number and other applicable state and federal permit numbers, if available, or status of various permitting requirements if final approvals have not been received.
7. Location, including complete site address and subplot number if applicable.
8. Location of any easements or other restrictions placed on the use of the property.
9. A site plan sheet showing:
  - a. The location of each proposed post-construction storm water management practice.
  - b. The geographic coordinates of the site AND each proposed practice in North American Datum Ohio State Plan North.

It is preferred that the entire site be shown on one plan sheet to allow a complete view of the site during plan review. If a smaller scale is used to accomplish this, separate sheets providing an enlarged view of areas on individual sheets should also be provided.

10. An Inspection and Maintenance Agreement. The Inspection and Maintenance Agreement required for storm water management practices under this regulation shall be a stand alone document between the [community] and the applicant and shall contain the following information and provisions:
  - a. The location of each storm water management practice, including those practices permitted to be located in, or within 50 feet of, water resources, and identification of the drainage area served by each storm water management practice.
  - b. A schedule for regular maintenance for each aspect of the storm water management system and description of routine and non-routine maintenance



tasks to ensure continued performance of the system as is detailed in the approved Comprehensive Storm Water Management Plan. This schedule may include additional standards, as required by the *[community]* Engineer, to ensure continued performance of storm water management practices permitted to be located in, or within 50 feet of, water resources.

- c. The location and documentation of all access and maintenance easements on the property.
- d. Identification of the landowner(s), organization, or municipality responsible for long-term maintenance, including repairs, of the storm water management practices.
- e. The landowner(s), organization, or municipality shall maintain storm water management practices in accordance with this regulation.
- f. The *[community]* has the authority to enter upon the property to conduct inspections as necessary to verify that the storm water management practices are being maintained and operated in accordance with this regulation.
- g. The *[community]* shall maintain public records of the results of site inspections, shall inform the landowner(s), organization, or municipality responsible for maintenance of the inspection results, and shall specifically indicate any corrective actions required to bring the storm water practices into proper working condition.
- h. If the *[community]* notifies the landowner(s), organization, or municipality responsible for maintenance of the maintenance problems that require correction, the specific corrective actions shall be taken within a reasonable time frame as determined by the *[community]*.
- i. The *[community]* is authorized to enter upon the property and to perform the corrective actions identified in the inspection report if the landowner(s), organization, or municipality responsible for maintenance does not make the required corrections in the specified time period. The *[community]* shall be reimbursed by the landowner(s), organization, or municipality responsible for maintenance for all expenses incurred within 10 days of receipt of invoice from the *[community]*.
- j. The method of funding long-term maintenance and inspections of all storm water management practices.
- k. A release of the *[community]* from all damages, accidents, casualties, occurrences, or claims that might arise or be asserted against the *[community]* from the construction, presence, existence, or maintenance of the storm water management practices.

Alteration or termination of these stipulations is prohibited. The applicant must provide a draft of this Inspection and Maintenance Agreement as part of the Comprehensive Storm



Water Management Plan submittal. Once a draft is approved, a recorded copy of the Agreement must be submitted to the [community] to receive final inspection approval of the site.

***Note: Please review the above requirements for Inspection and Maintenance Agreements to ensure they are acceptable to your community. Please also review the coordination of these requirements with provisions for Easements to storm water management practices in Section XXXX.11 and Ownership of storm water management practices in Section XXXX.09 (A)(8)***

11. Calculations required: The applicant shall submit calculations for projected storm water runoff flows, volumes, and timing into and through all storm water management practices for flood control, channel protection, water quality, and the condition of the habitat, stability, and incision of each water resource and its the floodplain, as required in Section XXXX.09 of this regulation. These submittals shall be completed for both pre- and post-development land use conditions and shall include the underlying assumptions and hydrologic and hydraulic methods and parameters used for these calculations. The applicant shall also include critical storm determination and demonstrate that the runoff from upper watershed areas have been considered in the calculations.
12. List of all contractors and subcontractors before construction: Prior to construction or before the pre-construction meeting, provide the list of all contractors and subcontractors names, addresses, and phones involved with the implementation of the Comprehensive Storm Water Management Plan including a written document containing signatures of all parties as proof of acknowledgment that they have reviewed and understand the requirements and responsibilities of the Comprehensive Storm Water Management Plan.
13. Existing and proposed drainage patterns: The location and description of existing and proposed drainage patterns and storm water management practices, including any related storm water management practices beyond the development area and the larger common development area.
14. For each storm water management practice to be employed on the development area, include the following:
  - a. Location and size, including detail drawings, maintenance requirements during and after construction, and design calculations, all where applicable.
  - b. Final site conditions including storm water inlets and permanent nonstructural and structural storm water management practices. Details of storm water management practices shall be drawn to scale and shall show volumes and sizes of contributing drainage areas.
  - c. Any other structural and/or non-structural storm water management practices necessary to meet the design criteria in this regulation and any supplemental information requested by the [community engineer].

#### **XXXX.09 PERFORMANCE STANDARDS**

- A. General: The storm water system, including storm water management practices for storage,





treatment and control, and conveyance facilities, shall be designed to prevent structure flooding during the 100-year, 24-hour storm event; to maintain predevelopment runoff patterns, flows, and volumes; and to meet the following criteria:

1. Integrated practices that address degradation of water resources. The storm water management practices shall function as an integrated system that controls flooding and minimizes the degradation of the physical, biological, and chemical integrity of the water resources receiving storm water discharges from the site. Acceptable practices shall:
  - a. Not disturb riparian areas, unless the disturbance is intended to support a watercourse restoration project and complies with Section XXXX *[community's riparian setback requirements]*.
  - b. Maintain predevelopment hydrology and groundwater recharge on as much of the site as practicable.
  - c. Only install new impervious surfaces and compact soils where necessary to support the future land use.
  - d. Compensate for increased runoff volumes caused by new impervious surfaces and soil compaction by reducing storm water peak flows to less than predevelopment levels.

Storm water management practices that meet the criteria in this regulation, and additional criteria required by the *[community engineer]*, shall comply with this regulation.

2. Practices designed for final use: Storm water management practices shall be designed to achieve the storm water management objectives of this regulation, to be compatible with the proposed post-construction use of the site, to protect the public health, safety, and welfare, and to function safely with minimal maintenance.
3. Storm water management for all lots: Areas developed for a subdivision, as defined in Chapter XXXX *[community subdivision code]*, shall provide storm water management and water quality controls for the development of all subdivided lots. This shall include provisions for lot grading and drainage that prevent structure flooding during the 100-year, 24-hour storm; and maintain, to the extent practicable, the pre-development runoff patterns, volumes, and peaks from the lot.
4. Storm water facilities in water resources: Storm water management practices and related activities shall not be constructed in water resources unless the applicant shows proof of compliance with all appropriate permits from the Ohio EPA, the U.S. Army Corps, and other applicable federal, state, and local agencies as required in Section XXXX.07 of this regulation, and the activity is in compliance with Chapter XXXX *[community's erosion and sediment control requirements]* and Chapter XXXX *[community's riparian setback requirements]*, all as determined by the *[community engineer]*.
5. Storm water ponds and surface conveyance channels: All storm water pond and surface conveyance designs must provide a minimum of one (1) foot freeboard above the projected peak stage within the facility during the 100-year, 24-hour storm. When



designing storm water ponds and conveyance channels, the applicant shall consider public safety as a design factor and alternative designs must be implemented where site limitations would preclude a safe design.

6. Exemption: The site where soil-disturbing activities are conducted shall be exempt from the requirements of Section XXXX.09 if it can be shown to the satisfaction of the *[community engineer]* that the site is part of a larger common plan of development where the storm water management requirements for the site are provided by an existing storm water management practice, or if the storm water management requirements for the site are provided by practices defined in a regional or local storm water management plan approved by the *[community engineer]*.
7. Maintenance: All storm water management practices shall be maintained in accordance with Inspection and Maintenance Agreements approved by the *[community engineer]* as detailed in Section XXXX.08.
8. Ownership: Unless otherwise required by the *[community]*, storm water management practices serving multiple lots in subdivisions shall be on a separate lot held and maintained by an entity of common ownership or, if compensated by the property owners, by the *[community]*. Storm water management practices serving single lots shall be placed on these lots, protected within an easement, and maintained by the property owner.
9. Preservation of Existing Natural Drainage. Practices that preserve and/or improve the existing natural drainage shall be used to the maximum extent practicable. Such practices may include minimizing site grading and compaction; protecting and/or restoring water resources, riparian areas, and existing vegetation; and maintaining unconcentrated storm water runoff to and through these areas.
10. Preservation of Wetland Hydrology: Concentrated storm water runoff from BMPs to wetlands shall be converted to diffuse flow before the runoff enters a wetland in order to protect the natural hydrology, hydroperiod, and wetland flora. The flow shall be released such that no erosion occurs down slope. Practices such as level spreaders, vegetative buffers, infiltration basins, conservation of forest covers, and the preservation of intermittent streams, depressions, and drainage corridors may be used to maintain the wetland hydrology.

If the applicant proposes to discharge to natural wetlands, a hydrological analysis shall be performed to demonstrate that the proposed discharge matches the pre-development hydroperiods and hydrodynamics.

- B. Storm Water Conveyance Design Criteria: All storm water management practices shall be designed to convey storm water to allow for the maximum removal of pollutants and reduction in flow velocities. This shall include but not be limited to:
  1. Stream relocation or enclosure: The *[community engineer]* may allow the enclosure or relocation of water resources only if the applicant shows proof of compliance with all appropriate permits from the Ohio EPA, the U.S. Army Corps, and other applicable federal, state, and local agencies as required in Section XXXX.07 of this regulation, and



the activity is in compliance with Section XXXX *[community's erosion and sediment control requirements]* and Section XXXX *[community's riparian setback requirements]*, all as determined by the *[community engineer]*. At a minimum, stream relocation designs must show how the project will minimize changes to the vertical stability, floodplain form, channel form, and habitat of upstream and downstream channels on and off the property

2. Off-site storm water discharges: Off-site storm water runoff that discharges to or across the applicant's development site shall be conveyed through the storm water conveyance system planned for the development site at its existing peak flow rates during each design storm. Off-site flows shall be diverted around storm water quality control facilities or, if this is not possible, the storm water quality control facility shall be sized to treat the off-site flow. Comprehensive Storm Water Management Plans will not be approved until it is demonstrated to the satisfaction of the *[community engineer]* that off-site runoff will be adequately conveyed through the development site in a manner that does not exacerbate upstream or downstream flooding and erosion.
3. Sheet flow. The site shall be graded in a manner that maintains sheet flow over as large an area as possible. The maximum area of sheet flow shall be determined based on the slope, the uniformity of site grading, and the use of easements or other legally-binding mechanisms that prohibit re-grading and/or the placement of structures within sheet flow areas. In no case shall the sheet flow length be longer than 300 feet, nor shall a sheet flow area exceed 1.5 acres. Flow shall be directed into an open channel, storm sewer, or other storm water management practice from areas too long and/or too large to maintain sheet flow, all as determined by the *[community engineer]*.
4. Open channels: Unless otherwise allowed by the *[community engineer]*, drainage tributary to storm water management practices shall be provided by an open channel with landscaped banks and designed to carry the 10-year, 24-hour storm water runoff from upstream contributory areas.
5. Open drainage systems: Open drainage systems shall be preferred on all new development sites to convey storm water where feasible. Storm sewer systems shall be allowed only when the site cannot be developed at densities allowed under *[community]* zoning or where the use of an open drainage system affects public health or safety, all as determined by the *[community engineer]*. The following criteria shall be used to design storm sewer systems when necessary:

**NOTE:** *The following sections are typical storm water conveyance design criteria. Either use these criteria or include the pertinent sections of your existing storm water conveyance design criteria.*

- a. Storm sewers shall be designed such that they do not surcharge from runoff caused by the 5-year, 24-hour storm, and that the hydraulic grade line of the storm sewer stays below the gutter flow line of the overlying roadway, or below the top of drainage structures outside the roadway during a 10-year, 24-hour storm. The system shall be designed to meet these requirements when conveying the flows from the contributory area within the proposed development and existing flows from offsite areas that are upstream from the development.



- b. The minimum inside diameter of pipe to be used in public storm sewer systems is 12 inches. Smaller pipe sizes may be used in private systems, subject to the approval of the *[community engineer]*.
  - c. All storm sewer systems shall be designed taking into consideration the tailwater of the receiving facility or water resource. The tailwater elevation used shall be based on the design storm frequency. The hydraulic grade line for the storm sewer system shall be computed with consideration for the energy losses associated with entrance into and exit from the system, friction through the system, and turbulence in the individual manholes, catch basins, and junctions within the system.
  - d. The inverts of all curb inlets, manholes, yard inlets, and other structures shall be formed and channelized to minimize the incidence of quiescent standing water where mosquitoes may breed.
  - e. Headwalls shall be required at all storm sewer inlets or outlets to and from open channels or lakes.
6. Water Resource Crossings. The following criteria shall be used to design structures that cross a water resource in the *[community]*:
- a. Water resource crossings other than bridges shall be designed to convey the stream's flow for the minimum 25-year, 24-hour storm.
  - b. Bridges, open bottom arch or spans are the preferred crossing technique and shall be considered in the planning phase of the development. Bridges and open spans should be considered for all State Scenic Rivers, coldwater habitat, exceptional warmwater habitat, seasonal salmonid habitat streams, and Class III headwater streams. The footers or piers for these bridges and open spans shall not be constructed below the ordinary high water mark.
  - c. If a culvert or other closed bottom crossing is used, twenty-five (25) percent of the cross-sectional area or a minimum of 1 foot of box culverts and pipe arches must be embedded below the channel bed.
  - d. The minimum inside diameter of pipes to be used for crossings shall be 12 inches.
  - e. The maximum slope allowable shall be a slope that produces a 10-fps velocity within the culvert barrel under design flow conditions. Erosion protection and/or energy dissipaters shall be required to properly control entrance and outlet velocities.
  - f. All culvert installations shall be designed with consideration for the tailwater of the receiving facility or water resource. The tailwater elevation used shall be based on the design storm frequency.
  - g. Headwalls shall be required at all culvert inlets or outlets to and from open



channels or lakes.

- h. Streams with a drainage area of 5 square miles or larger shall incorporate floodplain culverts at the bankfull elevation to restrict head loss differences across the crossing so as to cause no rise in the 100-year storm event.
  - i. Bridges shall be designed such that the hydraulic profile through a bridge shall be below the bottom chord of the bridge for either the 100-year, 24-hour storm, or the 100-year flood elevation as determined by FEMA, whichever is more restrictive.
- 7. Overland flooding: Overland flood routing paths shall be used to convey storm water runoff from the 100-year, 24-hour storm event to an adequate receiving water resource or storm water management practice such that the runoff is contained within the drainage easement for the flood routing path and does not cause flooding of buildings or related structures. The peak 100-year water surface elevation along flood routing paths shall be at least one foot below the finished grade elevation at the structure. When designing the flood routing paths, the conveyance capacity of the site's storm sewers shall be taken into consideration.
- 8. Compensatory flood storage mitigation: In order to preserve floodplain storage volumes and thereby avoid increases in water surface elevations, any filling within floodplains approved by the [Community] must be compensated by removing an equivalent volume of material. First consideration for the location(s) of compensatory floodplain volumes should be given to areas where the stream channel will have immediate access to the new floodplain within the limits of the development site. Consideration will also be given to enlarging existing or proposed retention basins to compensate for floodplain fill if justified by a hydraulic analysis of the contributing watershed. Unless otherwise permitted by the [Community], reductions in volume due to floodplain fills must be mitigated within the legal boundaries of the development. Embankment slopes used in compensatory storage areas must reasonably conform to the natural slopes adjacent to the disturbed area. The use of vertical retaining structures is specifically prohibited.

***NOTE: The Section #8 above should be coordinated with the community's riparian setback ordinance. The requirement for compensatory floodplain storage is only in effect when the riparian setback does not include the entire 100-year floodplain, when the community grants a variance that allows filling in the floodplain due to site constraints, or when the Community Engineer determines that stream or floodplain restoration is needed to meet the objectives of this regulation.***

- 9. Velocity dissipation: Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall to provide non-erosive flow velocity from the structure to a water resource so that the natural physical and biological characteristics and functions of the water resource are maintained and protected.
- C. Storm Water Quality Control:
- 1. Direct runoff to a BMP: The site shall be designed to direct runoff to one or more of the following storm water management practices. These practices are listed in Table 2 of this



regulation and shall be designed to meet the following general performance standards:

- a. Extended conveyance facilities that slow the rate of storm water runoff; filter and biodegrade pollutants in storm water; promote infiltration and evapotranspiration of storm water; and discharge the controlled runoff to a water resource.
- b. Extended detention facilities that detain storm water; settle or filter particulate pollutants; and release the controlled storm water to a water resource.
- c. Infiltration facilities that retain storm water; promote settling, filtering, and biodegradation of pollutants; and infiltrate captured storm water into the ground. The *[community engineer]* may require a soil engineering report to be prepared for the site to demonstrate that any proposed infiltration facilities meet these performance standards.
- d. For sites less than five (5) acres, but greater than one (1) acre and not part of a common plan of development, where (1) or more acres are disturbed, the *[community engineer]* may approve other BMPs if the applicant demonstrates to the *[community engineer's]* satisfaction that these BMPs meet the objectives of this regulation as stated in Section XXXX.09.C.6.
- e. For sites greater than five (5) acres, or less than five (5) acres but part of a larger common plan of development or sale which will disturb five (5) or more acres, the *[community engineer]* may approve other BMPs if the applicant demonstrates to the *[community engineer's]* satisfaction that these BMPs meet the objectives of this regulation as stated in Section XXXX.09.C.6, and has prior written approval from the Ohio EPA.
- f. For the construction of new roads and roadway improvement projects by public entities (i.e. the state, counties, townships, cities, or villages), the *[community engineer]* may approve BMPs not included in Table 2 of this regulation, but must show compliance with the current version of the Ohio Departments of Transportations "Location and Design Manual, Volume Two Drainage Design".

**NOTE: In Section (2) below the size of the water quality volume (WQv) orifice can be limited to 2.5 inches in extended detention ponds when drainage areas are too small to allow a practical WQv orifice size.**

2. Criteria applying to all storm water management practices. Practices chosen must be sized to treat the water quality volume (WQv) and to ensure compliance with Ohio Water Quality Standards (OAC Chapter 3745-1).
  - a. The WQv shall be equal to the volume of runoff from a 0.75 inch rainfall event and shall be determined according to one of the following methods:
    - (1) Through a site hydrologic study approved by the *[community engineer]* that uses continuous hydrologic simulation; site-specific hydrologic parameters, including impervious area, soil infiltration characteristics, slope, and surface routing characteristics; proposed best management





practices controlling the amount and/or timing of runoff from the site; and local long-term hourly records, or

- (2) Using the following equation:

$$WQ_v = C \cdot P \cdot A / 12$$

where terms have the following meanings:

$WQ_v$  = water quality volume in acre-feet

$C$  = runoff coefficient appropriate for storms less than 1 in.

$P$  = 0.75 inch precipitation depth

$A$  = area draining into the storm water practice, in acres.

Runoff coefficients required by the Ohio Environmental Protection Agency (Ohio EPA) for use in determining the water quality volume can be determined using the list in Table 1 or using the following equation to calculate the runoff coefficient, if the applicant can demonstrate that appropriate controls are in place to limit the proposed impervious area of the development:

$$C = 0.858i^3 - 0.78i^2 + 0.774i + 0.04, \text{ where:}$$

$i$  = fraction of the drainage area that is impervious

**Table 1: Runoff Coefficients Based on the Type of Land Use**

Land Use	Runoff Coefficient
Industrial & Commercial	0.8
High Density Residential (>8 dwellings/acre)	0.5
Medium Density Residential (4 to 8 dwellings/acre)	0.4
Low Density Residential (<4 dwellings/acre)	0.3
Open Space and Recreational Areas	0.2
Where land use will be mixed, the runoff coefficient should be calculated using a weighted average. For example, if 60% of the contributing drainage area to the storm water treatment structure is Low Density Residential, 30% is High Density Residential, and 10% is Open Space, the runoff coefficient is calculated as follows $(0.6)(0.3) + (0.3)(0.5) + (0.1)(0.2) = (0.35)$	

- b. An additional volume equal to 20% of the  $WQ_v$  shall be incorporated into the storm water practice for sediment storage. This volume shall be incorporated into the sections of storm water practices where pollutants will accumulate.
- c. Storm water quality management practices shall be designed such that the drain time is long enough to provide treatment and protect against downstream bank erosion, but short enough to provide storage available for successive rainfall events as defined in Table 2.

**Table 2: Draw Down Times for Storm Water Management Practices**

Best Management Practice	Drain Time of $WQ_v$
Infiltration Facilities*	24 - 48 hours
Extended Conveyance Facilities (Vegetated Swales, Filter Strips)	24 hours



<ul style="list-style-type: none"> <li>Vegetated Filter Strip with Berm</li> <li>Enhanced Water Quality Swale</li> <li>Flow Through Design</li> </ul>	24 hours **
Extended Detention Facilities <ul style="list-style-type: none"> <li>Extended Dry Detention Basins***</li> <li>Wet Detention Basins +</li> <li>Pocket Wetland^</li> <li>Constructed Wetlands (above permanent pool)</li> <li>Bioretention*</li> <li>Sand and other Media Filtration</li> </ul>	48 hours 24 hours 24 hours 24 hours 40 hours 40 hours
<p>* The WQv shall completely infiltrate within 48 hours so there is no standing or residual water pool.</p> <p>** Sized to pass a hydrograph with a volume equal to the WQv, a duration of 2 hours, peak rainfall intensity of 1 inch/hour at a depth of no more than 3 inches and have a minimum hydraulic residence time of 5 minutes. The use of this criterion is limited to sites where the total area disturbed is 5 acres or less. Prior approval from the [Community Engineer] is necessary to use this practice. For sites greater than five (5) acres or less than five (5) acres but part of a larger common plan of development or sale which will disturb five (5) or more acres, prior written approval is required from the Ohio EPA.</p> <p>*** The use of a forebay and micropool is required on all extended dry detention basins. Each is to be sized at a minimum 10% of the WQv.</p> <p>+Provide both a permanent pool and an extended detention volume above the permanent pool, each sized with at least 0.75*WQv.</p> <p>^Pocket wetland must have a wet pool equal to the WQv, with 25% of the WQv in a pool and 75% in marshes. The EDV above the permanent pool must be equal to the WQv.</p>	

**NOTE: This table is similar to that found in the Ohio EPA Construction General Permit. It has been re-ordered to match CRWP's recommended BMP categories and additional description of the "drain time" for vegetated swales and filter strips has been added. The "Flow Through Design" BMP is an Ohio EPA alternative practice and does require additional approvals from the Community Engineer and Ohio EPA depending the development site size, and can be removed from the table if necessary.**

- d. Each practice shall be designed to facilitate sediment removal, vegetation management, debris control, and other maintenance activities defined in the Inspection and Maintenance Agreement for the site.
3. Additional criteria applying to infiltration facilities.
  - a. Infiltration facilities shall only be allowed if the soils of the facility fall within hydrologic soil groups A or B, if the seasonal high water table is at least three (3) feet below the final grade elevation, and any underlying bedrock is at least six feet below the final grade elevation.
  - b. All runoff directed into an infiltration basin must first flow through a pretreatment practice such as a grass channel or filter strip to remove coarser sediments that could cause a loss of infiltration capacity.
  - c. During construction, all runoff from disturbed areas of the site shall be diverted away from the proposed infiltration basin site. No construction equipment shall be allowed within the infiltration basin site to avoid soil compaction.
4. Additional criteria applying to extended conveyance facilities.



- a. Facilities shall be lined with fine turf-forming, flood tolerant grasses.
  - b. Facilities designed according to the extended conveyance detention design drain time shall:
    - (1) Not be located in areas where the depth to bedrock and/or seasonal high water table is less than 3 feet below the final grade elevation.
    - (2) Only be allowed where the underlying soil consists of hydrologic soil group (HSG) A or B, unless the underlying soil is replaced by at least a 2.5 foot deep layer of soil amendment with a permeability equivalent to a HSG A or B soil and an underdrain system is provided.
  - c. Facilities designed according to the flow through design drain time shall:
    - (1) Only be allowed on sites where:
      - a. The total area disturbed is 5 acres or less
      - b. The discharge rate from the BMP will have negligible hydrologic impacts to received waters as described in Chapter XXXX.09.C. 6.b.
      - c. Prior written approval is given by the [community engineer]; and
      - d. For sites greater than five (5) acres or less than five (5) acres but part of a larger common plan of development or sale which will disturb five (5) or more acres, prior written approval has been given by the Ohio EPA.
    - (2) Be designed to slow and filter runoff flowing through the turf grasses with a maximum depth of flow no greater than 3 inches.
    - (3) Be designed to have a minimum hydraulic residence time of 5 minutes.
  - d. Concentrated runoff shall be converted to sheet flow, or a diffuse flow using a plunge pool, flow diffuser or level spreader, before entering an extended conveyance facility designed according to the flow through drain time.
5. Additional criteria for extended detention facilities:
- a. The outlet shall be designed to not release more than the first half of the water quality volume in less than 1/3<sup>rd</sup> of the drain time. A valve shall be provided to drain any permanent pool volume for removal of accumulated sediments. The outlet shall be designed to minimize clogging, vandalism, maintenance, and promote the capture of floatable pollutants.
  - b. The basin design shall incorporate the following features to maximize multiple uses, aesthetics, safety, and maintainability:
    - (1) Basin side slopes above the permanent pool shall have a run to rise ratio of 4:1 or flatter.



- (2) The perimeter of all permanent pool areas deeper than 4 feet shall be surrounded by an aquatic bench that extends at least 8 feet and no more than 15 feet outward from the normal water edge. The 8 feet wide portion of the aquatic bench closest to the shoreline shall have an average depth of 6 inches below the permanent pool to promote the growth of aquatic vegetation. The remainder of the aquatic bench shall be no more than 15 inches below the permanent pool to minimize drowning risk to individuals who accidentally or intentionally enter the basin, and to limit growth of dense vegetation in a manner that allows waves and mosquito predators to pass through the vegetation. The maximum slope of the aquatic bench shall be 10 (H) to 1 (V). The aquatic bench shall be planted with hearty plants comparable to wetland vegetation that are able to withstand prolonged inundation.
- (3) A forebay designed to allow larger sediment particles to settle shall be placed at basin inlets. The forebay and micropool volume shall be equal to at least 10% of the water quality volume (WQv).

**Note: The section below identifies the criteria that are currently be used by the Ohio EPA to assess the equivalency of alternative practices that are not listed in Table 2. This section can be modified to meet the needs of the Community.**

6. **Criteria for the Acceptance of Alternative post-construction BMPs:** The applicant may request approval from the **[community engineer]** for the use of alternative structural post-construction BMPs if the applicant shows to the satisfaction of the **[community engineer]** that these BMPs are equivalent in pollutant removal and runoff flow/volume reduction effectiveness to those listed in Table 2. If the site is greater than five (5) acres, or less than five (5) acres but part of a larger common plan of development or sale which will disturb five (5) or more acres, prior approval from the Ohio EPA is necessary. To demonstrate the equivalency, the applicant must show:
  - a. The alternative BMP has a minimum total suspended solid (TSS) removal efficiency of 80 percent, using the Level II Technology Acceptance Reciprocity Partnership (TARP) testing protocol.
  - b. The water quality volume discharge rate from the selected BMP is reduced to prevent stream bed erosion, unless there will be negligible hydrologic impact to the receiving surface water of the State. The discharge rate from the BMP will have negligible impacts if the applicant can demonstrate one of the following conditions:
    - (1) The entire water quality volume is recharged to groundwater.
    - (2) The development will create less than one acre of impervious surface.
    - (3) The development project is a redevelopment project with an ultra-urban setting, such as a downtown area, or on a site where 100 percent of the project area is already impervious surface and the storm water discharge is directed into an existing storm sewer system.



- (4) The storm water drainage system of the development discharges directly into a large river of fourth order or greater or to a lake, and where the development area is less than 5 percent of the water area upstream of the development site, unless a Total Maximum Daily Load (TMDL) has identified water quality problems in the receiving surface water of the State.

D. Storm Water Quantity Control: The Comprehensive Storm Water Management Plan shall describe how the proposed storm water management practices are designed to meet the following requirements for storm water quantity control for each watershed in the development:

1. The peak discharge rate of runoff from the Critical Storm and all more frequent storms occurring under post-development conditions shall not exceed the peak discharge rate of runoff from a 1-year, 24-hour storm occurring on the same development drainage area under pre-development conditions.
2. Storms of less frequent occurrence (longer return periods) than the Critical Storm, up to the 100-year, 24-hour storm shall have peak runoff discharge rates no greater than the peak runoff rates from equivalent size storms under pre-development conditions. The 1, 2, 5, 10, 25, 50, and 100-year storms shall be considered in designing a facility to meet this requirement.
3. The Critical Storm for each specific development drainage area shall be determined as follows:
  - a. Determine, using a curve number-based hydrologic method that generates hydrographs, or other hydrologic method approved by the *[community engineer]*, the total volume (acre-feet) of runoff from a 1-year, 24-hour storm occurring on the development drainage area before and after development. These calculations shall meet the following standards:
    - (1) Calculations shall include the lot coverage assumptions used for full build out as proposed.
    - (2) Calculations shall be based on the entire contributing watershed to the development area.
    - (3) Curve numbers for the pre-development condition must reflect the average type of land use over the past 10 years and not only the current land use.
    - (4) To account for future post-construction improvements to the site, calculations shall assume an impervious surface such as asphalt or concrete for all parking areas and driveways, regardless of the surface proposed in the site description.
  - b. From the volume determined in Section XXXX.09(D)(3)(a), determine the percent increase in volume of runoff due to development. Using the percentage,



select the 24-hour Critical Storm from Table 3.

**Table 3: 24-Hour Critical Storm**

If the Percentage of Increase in Volume of Runoff is:		The Critical Storm will be:
Equal to or Greater Than:	and Less Than:	
----	10	1 year
10	20	2 year
20	50	5 year
50	100	10 year
100	250	25 year
250	500	50 year
500	---	100 year
For example, if the percent increase between the pre- and post-development runoff volume for a 1-year storm is 35%, the Critical Storm is a 5-year storm. The peak discharge rate of runoff for all storms up to this frequency shall be controlled so as not to exceed the peak discharge rate from the 1-year frequency storm under pre-development conditions in the development drainage area. The post-development runoff from all less frequent storms need only be controlled to meet pre-development peak discharge rates for each of those same storms.		

- E. **Storm Water Management on Redevelopment Projects:** Comprehensive Storm Water Management Plans for redevelopment projects shall reduce existing site impervious areas by at least 20 percent. A one-for-one credit towards the 20 percent net reduction of impervious area can be obtained through the use of pervious pavement and/or green roofs.
- Where site conditions prevent the reduction of impervious area, stormwater management practices shall be implemented to provide storm water quality control facilities for at least 20 percent of the site's impervious area.
  - When a combination of impervious area reduction and storm water quality control facilities are used, the combined area shall equal or exceed 20 percent of the site.
  - Where projects are a combination of new development and redevelopment, the total water quality volume that must be treated shall be calculated by a weighted average based on acreage, with the new development at 100 percent water quality volume and redevelopment at 20 percent.
  - Where conditions prevent impervious area reduction or on-site stormwater management for redevelopment projects, practical alternatives as detailed in Section XXXX.10 may be approved by the *[Community Engineer]*.

#### XXXX.10 ALTERNATIVE ACTIONS





- A. When the *[community]* determines that site constraints compromise the intent of this regulation, off-site alternatives may be used that result in an improvement of water quality and a reduction of storm water quantity. Such alternatives shall meet the following standards:
1. Shall achieve the same level of storm water quantity and quality control that would be achieved by the on-site controls required under this regulation.
  2. Implemented in the same Hydrologic Unit Code (HUC) 14 watershed unit as the proposed development project.
  3. The mitigation ratio of the water quality volume is 1.5 to 1 or the water quality volume at the point of retrofit, whichever is greater.
  4. An inspection and maintenance agreement as described in Chapter XXXX.08.D.10 is established to ensure operations and treatment in perpetuity.
  5. Obtain prior written approval from Ohio EPA.
- B. Alternative actions may include, but are not limited to the following. All alternative actions shall be approved by the *[community engineer]*:
1. Fees, in an amount specified by the *[community]* to be applied to community-wide storm water management practices.
  2. Implementation of off-site storm water management practices and/or the retrofit of an existing practice to increase quality and quantity control.
  3. Stream, floodplain, or wetland restoration.
  4. Acquisition or conservation easements on protected open space significantly contributing to storm water control such as wetland complexes.

#### XXXX.11 EASEMENTS

Access to storm water management practices as required by the *[community engineer]* for inspections and maintenance shall be secured by easements. The following conditions shall apply to all easements:

- A. Easements shall be included in the Inspection and Maintenance Agreement submitted with the Comprehensive Storm Water Management Plan.
- B. Easements shall be approved by the *[community]* prior to approval of a final plat and shall be recorded with the *[county]* Auditor and on all property deeds.
- C. Unless otherwise required by the *[community engineer]*, access easements between a public right-of-way and all storm water management practices shall be no less than 25-feet wide. The easement shall also incorporate the entire practice plus an additional 25-foot wide band around the perimeter of the storm water management practice.



- D. The easement shall be graded and/or stabilized as necessary to allow maintenance equipment to access and manipulate around and within each facility, as defined in the Inspection and Maintenance Agreement for the site.
- E. Easements to structural storm water management practices shall be restricted against the construction therein of buildings, fences, walls, and other structures that may obstruct the free flow of storm water and the passage of inspectors and maintenance equipment; and against the changing of final grade from that described by the final grading plan approved by the *[community]*. Any re-grading and/or obstruction placed within a maintenance easement may be removed by the *[community]* at the property owners' expense.

#### **XXXX.12 MAINTENANCE AND FINAL INSPECTION APPROVAL**

To receive final inspection and acceptance of any project, or portion thereof, the following must be completed and provided to the *[community engineer]*:

- A. Final stabilization must be achieved and all permanent storm water management practices must be installed and made functional, as determined by the *[community engineer]* and per the approved Comprehensive Storm Water Management Plan.
- B. An As-Built Certification, including a Survey and Inspection, must be sealed, signed and dated by a Professional Engineer and a Professional Surveyor with a statement certifying that the storm water management practices, as designed and installed, meet the requirements of the Comprehensive Storm Water Management Plan approved by the *[community engineer]*. In evaluating this certification, the *[community engineer]* may require the submission of a new set of storm water practice calculations if he/she determines that the design was altered significantly from the approved Comprehensive Storm Water Management Plan. The As-Built Survey must provide the location, dimensions, and bearing of such practices and include the entity responsible for long-term maintenance as detailed in the Inspection and Maintenance Agreement.
- C. A copy of the complete and recorded Inspection and Maintenance Agreement as specified in Section XXXX.08 must be provided to the *[community engineer]*.

#### **XXXX.13 ON-GOING INSPECTIONS**

The *[community]* shall inspect storm water management practices periodically. Upon finding a malfunction or other need for maintenance, the *[community]* shall provide written notification to the responsible party, as detailed in the Inspection and Maintenance Agreement, of the need for maintenance. Upon notification, the responsible party shall have *five (5) working days*, or other mutually agreed upon time, to make repairs or submit a plan with detailed action items and established timelines. Should repairs not be made within this time, or a plan approved by the *[community engineer]* for these repairs not be in place, the *[community]* may undertake the necessary repairs and assess the responsible party.

#### **XXXX.14 FEES**

The Comprehensive Storm Water Management Plan review, filing, and inspection fee is part of a complete submittal and is required to be submitted to the *[community]* before the review process begins. The *[community engineer]* shall establish a fee schedule based upon the actual estimated cost for providing these services.



#### **XXXX.15 BOND**

- A. If a Comprehensive Storm Water Management Plan is required by this regulation, soil-disturbing activities shall not be permitted until a cash bond *of 5% of the total project cost*, has been deposited with the *[community]* Finance Department. This bond shall be posted for the *[community]* to perform the obligations otherwise to be performed by the owner of the development area as stated in this regulation and to allow all work to be performed as needed in the event that the applicant fails to comply with the provisions of this regulation. The stormwater bond will be returned, less *[community]* administrative fees as detailed in Chapter XXXX of the *[community]* Codified Ordinances, when the following three criteria are met:
1. After 80% of the lots of the project have been complete or 100% of the total project has been permanently stabilized or three (3) years from the time of permanent stabilization have passed.
  2. An As Built Inspection of all water quality practices is conducted by the *[community engineer]*.
  3. A Inspection and Maintenance Agreement signed by the developer, the contractor, the *[community]*, and the private owner or homeowners association who will take long term responsibility for these BMPs, is accepted by the *[community engineer]*.
- C. Once these criteria are met, the applicant shall be reimbursed all bond monies that were not used for any part of the project. If all of these criteria are not met after three years of permanent stabilization of the site, the *[community]* may use the bond monies to fix any outstanding issues with all storm water management structures on the site and the remainder of the bond shall be given to the private lot owner/ homeowners association for the purpose of long term maintenance of the project.

#### **XXXX.16 INSTALLATION OF WATER QUALITY BEST MANAGEMENT PRACTICES**

The applicant may not direct runoff through any water quality structures or portions thereof that would be degraded by construction site sediment until the entire area tributary to the structure has reached final stabilization as determined by the *[community engineer]*. This occurs after the completion of the final grade at the site, after all of the utilities are installed, and the site is subsequently stabilized with vegetation or other appropriate methods. The developer must provide documentation acceptable to the *[community engineer]* to demonstrate that the site is completely stabilized. Upon this proof of compliance, the water quality structure(s) may be completed and placed into service. Upon completion of installation of these practices, all disturbed areas and/or exposed soils caused by the installation of these practices must be stabilized within 2 days.

#### **XXXX.17 VIOLATIONS**

No person shall violate or cause or knowingly permit to be violated any of the provisions of this regulation, or fail to comply with any of such provisions or with any lawful requirements of any public authority made pursuant to this regulation, or knowingly use or cause or permit the use of any lands in violation of this regulation or in violation of any permit granted under this regulation.



**XXXX.18 APPEALS**

Any person aggrieved by any order, requirement, determination, or any other action or inaction by the *[community]* in relation to this regulation may appeal to the court of common pleas. Such an appeal shall be made in conformity with *[insert appropriate Ohio Revised Code sections]*. Written notice of appeal shall be served on the *[community]*.

**XXXX.99 PENALTY**

- A. Any person, firm, entity or corporation; including but not limited to, the owner of the property, his agents and assigns, occupant, property manager, and any contractor or subcontractor who violates or fails to comply with any provision of this regulation is guilty of a misdemeanor of the third degree and shall be fined no more than five hundred dollars (\$500.00) or imprisoned for no more than sixty (60) days, or both, for each offense. A separate offense shall be deemed committed each day during or on which a violation or noncompliance occurs or continues.
- B. The imposition of any other penalties provided herein shall not preclude the *[community]* instituting an appropriate action or proceeding in a Court of proper jurisdiction to prevent an unlawful development, or to restrain, correct, or abate a violation, or to require compliance with the provisions of this regulation or other applicable laws, ordinances, rules, or regulations, or the orders of the *[community]*.



## APPENDIX B: ESTABLISHMENT OF RIPARIAN SETBACKS MODEL REGULATION FOR THE MUNICIPALITIES

### PLEASE NOTE

- The following model riparian setback ordinance is recommended as part of a community's storm water management program for flood control, erosion control, and water quality protection.
- This model ordinance **MUST BE TAILORED TO THE SPECIFIC NEEDS OF EACH COMMUNITY**. Text throughout the model indicates decision points with a ☞ symbol. It is also **IMPORTANT THAT COMMUNITIES DEVELOP A MAP OF POTENTIAL RIPARIAN SETBACKS**. Please contact CRWP for assistance in tailoring this model to your community's needs and in developing such maps.
- Throughout this model duties are assigned to the "Community." These should be assigned to specific staff and departments.

**WHEREAS**, flooding is a significant threat to property and public health and safety, and vegetated riparian areas lessen the damage from flooding by slowing the water velocity, enabling water to soak into the ground, and by providing temporary storage of overbank flood flow; and,

**WHEREAS**, streambank erosion is a significant threat to property and public health and safety, and vegetated riparian areas stabilize streambanks and provide resistance to erosive forces both within streams and on adjacent lands; and,

**WHEREAS**, the protection of riparian areas results in the presence of plants best suited to each individual environment along a stream, with proven capability for survival and regeneration at no cost; and,

**WHEREAS**, vegetated riparian areas filter and trap sediments, chemicals, salts, septic discharge, and other pollutants from runoff and floodwaters, thus protecting surface and ground water quality; and,

**WHEREAS**, vegetated riparian areas can provide a dense tree canopy that helps to maintain and improve the stability of watercourse temperatures, thus protecting aquatic ecosystems, and helps to reduce the presence of aquatic nuisance species; and,

**WHEREAS**, the protection of riparian areas can result in a diverse and interconnected riparian corridor that provides habitat to a wide array of wildlife; and,

**WHEREAS**, the woody debris from fallen, damaged, and cut trees increases flood levels and damage to bridges in *[community]* and neighboring communities; and,

**WHEREAS**, sedimentation of eroded soil adversely affects aquatic communities and incurs removal costs to downstream communities; and,

**WHEREAS**, there are watershed-wide efforts to minimize flooding and streambank erosion in the *[watersheds to which community belongs]* watersheds and to protect and enhance the water resources of the *[major watercourses to which community drains]* and its tributaries and *[community]* recognizes its obligation as a part of these watersheds to minimize flooding and streambank erosion by controlling runoff within its borders; and,



**WHEREAS**, the *[state scenic rivers if applicable]*, including that portion which flows through the *[community]*, has been designated as an “Ohio Scenic River” in recognition of the fact that its watershed harbors an extraordinary array of wildlife, including fish, freshwater mussels, birds, mammals, reptiles, and amphibians; and,

☞ ***This whereas clause should only be used in INCORPORATED communities establishing riparian setbacks along designated Ohio Scenic Rivers.***

**WHEREAS**, the Chagrin River Watershed Partners, Inc.; the Cuyahoga Soil and Water Conservation District; the Geauga Soil and Water Conservation District; the Lake County Soil and Water Conservation District; the Natural Resource Conservation Service of the U.S. Department of Agriculture; the Northeast Ohio Areawide Coordinating Agency; the Ohio Department of Natural Resources, Division of Natural Areas and Preserves; the Ohio Environmental Protection Agency; and the U.S. Environmental Protection Agency recommend riparian setbacks as a valuable tool in an overall management program for flood risk reduction, erosion control, water quality control, and aquatic habitat protection; and,

**WHEREAS**, studies undertaken by, and reviewed by, the Ohio Environmental Protection Agency and other independent scientific bodies recommend the minimum widths for riparian setbacks; and,

**WHEREAS**, the Council of the *[community]* has reviewed and adopted the recommendations of the above government agencies, and the Council finds that in order to minimize encroachment on watercourses and the need for costly engineering solutions to protect structures and reduce property damage and threats to the safety of watershed residents; to protect and enhance the scenic beauty of the *[community]*; and to preserve the character of the *[community]*, the quality of life of the residents of the *[community]*, and corresponding property values, it is necessary and appropriate to regulate structures and uses within a riparian setback along the banks of designated watercourses in the *[community]*; and,

**WHEREAS**, Article XVIII, Section 3 of the Ohio Constitution grants municipalities the legal authority to adopt land use and control measures for promoting the peace, health, safety, and general welfare of its citizens; and,

**WHEREAS**, 40 C.F.R. Parts 9, 122, 123, and 124, referred to as NPDES Stormwater Phase II, require designated communities, including *[community]*, to develop a Stormwater Management Program to address the quality of stormwater runoff during and after soil disturbing activities.

☞ ***Remove this whereas clause if your community is not designated under the NPDES Phase II regulation.***

**NOW, THEREFORE, BE IT ORDAINED** by the Council of the *[community]*, County of *[county]*, State of Ohio, that:

**SECTION 1:** Codified Ordinance *Chapter XXXX Riparian Setbacks*, is hereby adopted to read in total as follows:

## **CHAPTER XXXX RIPARIAN SETBACKS**

### **XXXX.01 PURPOSE AND SCOPE**





- A. It is hereby determined that the system of rivers, streams, and other natural watercourses within the *[community]* contributes to the health, safety, and general welfare of the residents of the *[community]*. The specific purpose and intent of this regulation is to regulate uses and developments within riparian setbacks that would impair the ability of riparian areas to:
- Reduce flood impacts by absorbing peak flows, slowing the velocity of flood waters, and regulating base flow.
  - Assist stabilizing the banks of watercourses to reduce woody debris from fallen or damaged trees, streambank erosion, and the downstream transport of sediments eroded from watercourse banks.
  - Reduce pollutants in watercourses during periods of high flows by filtering, settling, and transforming pollutants already present in watercourses.
  - Reduce pollutants in watercourses by filtering, settling, and transforming pollutants in runoff before they enter watercourses.
  - Provide watercourse habitats with shade and food.
  - Reduce the presence of aquatic nuisance species to maintain a diverse aquatic system.
  - Provide habitat to a wide array of wildlife by maintaining diverse and connected riparian vegetation.
  - Benefit the *[community]* by minimizing encroachment on watercourse channels and the need for costly engineering solutions such as gabion baskets and rip rap to protect structures and reduce property damage and threats to the safety of watershed residents; and by contributing to the scenic beauty and environment of the *[community]*, and thereby preserving the character of the *[community]*, the quality of life of the residents of the *[community]*, and corresponding property values.
- B. The following regulation has been enacted to protect and enhance these functions of riparian areas by providing reasonable controls governing structures and uses within a riparian setback along designated watercourses in the *[community]*.

#### **XXXX.02      APPLICABILITY, COMPLIANCE & VIOLATIONS**

- A. This regulation shall apply to all zoning districts.
- B. This regulation shall apply to all structures and uses on lands containing a designated watercourse as defined in this regulation, except as provided herein.
- C. No approvals or permits shall be issued by the *[community]* without full compliance with the terms of this regulation.

#### **XXXX.03      CONFLICTS WITH OTHER REGULATIONS & SEVERABILITY**

- A. Where this regulation imposes a greater restriction upon land than is imposed or required by any other provision of law, regulation, contract, or deed, the provisions of this regulation shall



control.

- B. This regulation shall not limit or restrict the application of other provisions of law, regulation, contract, or deed, or the legal remedies available thereunder, except as provided in **Section XXXX.03 (A)** of this regulation.
- C. If any clause, section, or provision of this regulation is declared invalid or unconstitutional by a court of competent jurisdiction, validity of the remainder shall not be affected thereby.

#### **XXXX.04 DEFINITIONS**

For the purpose of this regulation, the following terms shall have the meaning herein indicated:

- A. **COMMUNITY:** Throughout this regulation, this shall refer to the *[community]* or its designated representatives, boards, or commissions.
- B. **DAMAGED OR DISEASED TREES:** Trees that have split trunks; broken tops; heart rot; insect or fungus problems that will lead to imminent death; undercut root systems that put the tree in imminent danger of falling; lean as a result of root failure that puts the tree in imminent danger of falling; or any other condition that puts the tree in imminent danger of being uprooted or falling into or along a watercourse or onto a structure.
- C. **DESIGNATED WATERCOURSE:** A watercourse within the *[community]* that is in conformity with the criteria set forth in this regulation.
- D. **FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA):** The agency with overall responsibility for administering the National Flood Insurance Program.
- E. **IMPERVIOUS COVER:** Any paved, hardened, or structural surface regardless of its composition including but not limited to buildings, roads, driveways, parking lots, loading/unloading areas, decks, patios, and swimming pools.
- F. **IN-LINE POND:** A permanent pool of water created by impounding a designated watercourse.
- G. **NOXIOUS WEED:** Any plant species defined by the Ohio Department of Agriculture as a “noxious weed” and listed as such by the Department. For the purposes of this regulation, the most recent version of this list at the time of application of this regulation shall prevail.
- H. **100-YEAR FLOODPLAIN:** Any land susceptible to being inundated by water from a base flood. The base flood is the flood that has a one percent or greater chance of being equaled or exceeded in any given year.
- I. **OHIO ENVIRONMENTAL PROTECTION AGENCY:** Referred throughout this regulation as the “Ohio EPA.”
- J. **ORDINARY HIGH WATER MARK:** The point of the bank or shore to which the presence and action of surface water is so continuous as to leave a district marked by erosion, destruction or prevention of woody terrestrial vegetation, predominance of aquatic vegetation, or other easily recognized characteristic. The ordinary high water mark defines the bed of a watercourse.



- K. **RIPARIAN AREA:** Land adjacent to watercourses that, if appropriately sized, helps to stabilize streambanks, limit erosion, reduce flood size flows, and/or filter and settle out runoff pollutants, or performs other functions consistent with the purposes of this regulation.
- L. **RIPARIAN SETBACK:** The real property adjacent to a designated watercourse located in the area defined by the criteria set forth in this regulation.
- M. **SOIL AND WATER CONSERVATION DISTRICT:** An entity organized under Chapter 1515 of the Ohio Revised Code referring to either the Soil and Water Conservation District Board or its designated employee(s), hereinafter referred to as *[county]* SWCD.
- N. **SOIL DISTURBING ACTIVITY:** Clearing, grading, excavating, filling, or other alteration of the earth's surface where natural or human made ground cover is destroyed and which may result in, or contribute to, erosion and sediment pollution.
- O. **SUBSTANTIAL DAMAGE:** Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would be equal to, or would exceed, 50% of the market value of the structure before the damage occurred.
- P. **WATERCOURSE:** Any brook, channel, creek, river, or stream having banks, a defined bed, and a definite direction of flow, either continuously or intermittently flowing.
- Q. **WETLAND:** Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas. (40 CFR 232, as amended).

**XXXX.05 ESTABLISHMENT OF DESIGNATED WATERCOURSES AND RIPARIAN SETBACKS**

- A. Designated watercourses shall include those watercourses meeting any ONE of the following criteria:
  - 1. All watercourses draining an area greater than ½ square mile, OR
  - 2. All watercourses draining an area less than ½ square mile and having a defined bed and bank. In determining if watercourses have a defined bed and bank, the *[community]* may consult with a representative of the *[county]* SWCD or other technical experts as necessary. Any costs associated with such consultations may be assessed to the applicant.
- B. Riparian setbacks on designated watercourses are established as follows:
  - A minimum of 300 feet on either side of all watercourses draining an area greater than 300 square miles.
  - A minimum of 120 feet on either side of all watercourses draining an area greater than 20 square miles and up to 300 square miles.
  - A minimum of 75 feet on either side of all watercourses draining an area greater than ½ square



mile and up to 20 square miles.

A minimum of 25 feet on either side of all watercourses draining an area less than ½ square mile and having a defined bed and bank as determined by the *[community]* in *Section XXXX.05* of this regulation.

- C. Riparian Setback Guide Map. The *[community]* shall create a guide map identifying designated watercourses and their riparian setbacks. Said guide map is attached hereto and made part of this regulation and is identified as Exhibit A. The following shall apply to the Riparian Setback Guide Map:

1. It shall be used as a reference document and the information contained therein shall be believed to be accurate.
2. It shall be a guide only.



*Communities should add the following disclaimer language to this map. “This map was prepared as a Riparian Setback Map by the [community] in accordance with Section XXXX.05 of Chapter XXXX. [Community] digital data is a representation of recorded plats, surveys, deeds, and other collected information for use within a Geographic Information System for purposes of analysis. These and other digital data do not replace or modify land surveys, deeds, and/or other legal instruments defining land ownership or use. The [community] assumes no legal responsibility for this information.”*

3. Nothing herein shall prevent the *[community]* from amending the Riparian Setback Guide Map from time to time as may be necessary.
4. If any discrepancy is found between the Riparian Setback Guide Map and this regulation, the criteria set forth in *Section XXXX.05 (A) and (B)* shall prevail.

- D. The following conditions shall apply in riparian setbacks:

Riparian setbacks shall be measured in a horizontal direction outward from the ordinary high water mark of each designated watercourse, except for in-line ponds as addressed in Section XXXX.05.

Except as otherwise provided in this regulation, riparian setbacks shall be preserved in their natural state.

Where the 100-year floodplain is wider than a minimum riparian setback on either or both sides of a designated watercourse, the minimum riparian setback shall be extended to the outer edge of the 100-year floodplain. The 100-year floodplain shall be defined by FEMA. If a FEMA defined floodplain does not exist for a designated watercourse, the *[community]* may require a site-specific floodplain delineation in conformance with standard engineering practices and approved by the *[community]*. Any costs associated with reviewing this site-specific floodplain delineation may be assessed to the applicant.



*In many communities, extension of the riparian setback to the outer edge of the 100-year floodplain will represent a stronger standard than that found in a community’s Flood Damage Prevention Ordinance as required for participation in the National Flood Insurance Program*



*(NFIP). The standards required by NFIP are MINIMUM STANDARDS and communities are encouraged by FEMA and the ODNR Floodplain Management Division to enact stronger standards. A Riparian Setback Ordinance is such a standard.*

☞ *The building standards set forth in a community's Flood Damage Prevention Ordinance may be used to guide variances granted in the riparian setback.*

Where a wetland is identified within a minimum riparian setback, the minimum riparian setback width shall be extended to the outermost boundary of the wetland. ***In addition, wetlands within riparian setbacks shall be protected to the extent detailed in the Community's Wetland Setback Ordinance (cite appropriate code if Community has adopted such an ordinance).*** Wetlands shall be delineated through a site survey prepared by a qualified wetlands professional retained by the landowner using delineation protocols accepted by the U.S. Army Corps of Engineers at the time an application is made under this regulation. Any costs associated with reviewing these delineations may be assessed by the *[community]* to the applicant.

☞ *Expansion of the riparian setback to include wetlands will help to maintain the functions of the riparian area. However, because wetlands provide flood control, erosion control, and water quality protection regardless of location, CRWP recommends that communities adopt a separate Wetland Setback Ordinance. Please contact CRWP for a copy of the Wetland Setback Model.*

The minimum riparian setback on an in-line pond existing at the time of application of this regulation shall be measured from the ordinary high water mark of the designated watercourse as it enters said pond and through the impoundment along the centerline of the designated watercourse as it flows through the in-line pond. Riparian setbacks on in-line ponds existing at the time an application is made under this regulation shall be expanded to include wetlands and floodplains as detailed in Section XXXX.05. The creation of new in-line impoundments shall not be permitted under these regulations.

#### **XXXX.06 APPLICATIONS AND SITE PLANS**


☞ *The following application and site plan requirements are one suggested option for communities to implement riparian setbacks. The goal of these requirements is that riparian setbacks be considered early in the site design process and be shown on all applicable documents. The assumption inherent in this section is that the information required is necessary for other components of the development process and generally already required. Communities implementing riparian setbacks through this model must review Section XXXX.06 and tailor to their internal procedures and requirements. CRWP is available to provide alternative language for this section.*

- A. The applicant shall be responsible for delineating riparian setbacks as required by this regulation and shall identify such setbacks on a site plan included with all subdivision plans, land development plans, and/or zoning permit applications submitted to the *[community]*. The site plan shall be prepared by a professional engineer, surveyor, landscape architect, or such other qualified professional as determined by the *[community]* and shall be based on a survey of the affected land. Two (2) copies of the site plan shall be submitted. The site plans shall include the following information:



1. The boundaries of the lot with dimensions.
  2. The locations of all designated watercourses.
  3. The limits, with dimensions, of the riparian setbacks.
  4. The existing topography at intervals of two (2) feet.
  5. The location and dimensions of any proposed structures or uses, including proposed soil disturbance, in relationship to all designated watercourses.
  6. North arrow, scale, date, and stamp bearing the name and registration number of the qualified professional who prepared the site plan.
  7. Other such information as may be necessary for the *[community]* to ensure compliance with this regulation.
- B. The *[community]* may, in reviewing the site plan, consult with the *[county]* SWCD or other such experts. Any costs associated with this review may be assessed to the applicant.
- C. If soil disturbing activities will occur within 50 feet of the outer boundary of the applicable riparian setback as specified in this regulation, the riparian setback shall be clearly identified by the applicant on site with construction fencing as shown on the site plan. Such identification shall be completed prior to the initiation of any soil disturbing activities and shall be maintained throughout soil disturbing activities.
- D. No approvals or permits shall be issued by the *[community]* prior to identification of riparian setbacks on the affected land in conformance with this regulation.

#### XXXX.07 USES PERMITTED IN RIPARIAN SETBACKS

 *Communities should review, and modify as necessary, the following lists of permitted and prohibited uses for consistency with existing codes and community concerns.*

- A. By Right Uses Without a Permit. Open space uses that are passive in character shall be permitted in riparian setbacks, including, but not limited to, those listed in this regulation. No use permitted under this regulation shall be construed as allowing trespass on privately held lands.
1. Recreational Activity. Hiking, fishing, hunting, picnicking, and similar passive recreational uses, as permitted by federal, state, and local laws.
  2. Removal of Damaged or Diseased Trees. Damaged or diseased trees may be removed.
  3. Revegetation and/or Reforestation. Riparian setbacks may be revegetated and/or reforested with native, noninvasive plant species.
- B. By Conditional Use Permit Granted by the **Planning and Zoning Commission**: When granting Conditional Use Permits for the following uses, the **Planning and Zoning Commission** may, for good cause, attach such conditions as it deems appropriate. Permits issued under this regulation are issued to the applicant only, shall not be transferred, and shall be void if not implemented within one (1) year of issuance.
1. Crossings: Crossings of designated watercourses through riparian setbacks with roads, driveways, easements, bridges, culverts, utility service lines, or other means may be permitted provided such crossings minimize disturbance in riparian setbacks and mitigate any necessary disturbances. Such crossings shall only be undertaken upon approval of a





Crossing Plan by the **Planning and Zoning Commission**. Any costs associated with review of Crossing Plans may be assessed to the applicant.

If work will occur below the ordinary high water mark of the designated watercourse, proof of compliance with the applicable conditions of a US Army Corps of Engineers Section 404 Permit (either a Nationwide Permit, including the Ohio State Certification Special Conditions and Limitations, or an Individual Permit, including Ohio 401 water quality certification), shall also be provided to the **[community]**. Proof of compliance shall be the following:

- a. A site plan showing that any proposed crossing conforms to the general and special conditions of the applicable Nationwide Permit, or
- b. A copy of the authorization letter from the U.S. Army Corps of Engineers approving activities under the applicable Nationwide Permit, or
- c. A copy of the authorization letter from the U.S. Army Corps of Engineers approving activities under an Individual Permit.

2. **Streambank Stabilization Projects.** Streambank stabilization projects along designated watercourses may be allowed, provided that such measures are ecologically compatible and substantially utilize natural materials and native plant species to the maximum extent practicable. Such streambank stabilization measures shall only be undertaken upon approval of a Streambank Stabilization Plan by the **Planning and Zoning Commission**. Any costs associated with review of Streambank Stabilization Plans may be assessed to the applicant.

If streambank stabilization work is proposed below the ordinary high water mark of the designated watercourse, proof of compliance with the applicable conditions of a US Army Corps of Engineers Section 404 Permit (either a Nationwide Permit, including the Ohio State Certification Special Conditions and Limitations, or an Individual Permit, including Ohio 401 water quality certification) shall be provided to the **[community]**. Proof of compliance shall be the following:

- a. A site plan showing that any proposed crossing conforms to the general and special conditions of the applicable Nationwide Permit, or
- b. A copy of the authorization letter from the U.S. Army Corps of Engineers approving activities under the applicable Nationwide Permit, or,
- c. A copy of the authorization letter from the U.S. Army Corps of Engineers approving activities under an Individual Permit.

3. **Landscaping:** The removal of natural vegetation within a riparian setback and the subsequent cultivation of lawns, landscaping, shrubbery, or trees may be allowed provided that such cultivation is done in conformance with a Landscaping Plan approved by the **Planning and Zoning Commission**. Any costs associated with review of Landscaping Plans may be assessed to the applicant. Landscaping Plans shall meet the following criteria:



- a. Maintain trees in the riparian setback larger than nine (9) inches in caliper (diameter) as measured fifty-four inches above the ground to the maximum extent practicable.
- b. Maintain trees, shrubbery, and other non-lawn, woody vegetation in the riparian setback to the maximum extent practicable.

#### XXXX.08 USES PROHIBITED IN RIPARIAN SETBACKS

Any use not authorized under this regulation shall be prohibited in riparian setbacks. By way of example, the following uses are specifically prohibited, however, prohibited uses are not limited to those examples listed here:

- A. Construction. There shall be no buildings or structures of any kind.
- B. Dredging or Dumping. There shall be no drilling, filling, dredging, or dumping of soil, spoils, liquid, or solid materials, except for noncommercial composting of uncontaminated natural materials and except as permitted under this regulation.
- C. Fences and Walls: There shall be no fences or walls, except as permitted under this regulation.
- D. Roads or Driveways. There shall be no roads or driveways, except as permitted under this regulation.
- E. Disturbance of Natural Vegetation: There shall be no disturbance of natural vegetation within riparian setbacks except for the following:
  1. Maintenance of lawns, landscaping, shrubbery, or trees existing at the time of passage of this regulation.
  2. Cultivation of lawns, landscaping, shrubbery, or trees in accordance with an approved Landscaping Plan submitted in conformance with this regulation.
  3. Conservation measures designed to remove damaged or diseased trees or to control noxious weeds or invasive species.
- F. Parking Spaces or Lots and Loading/Unloading Spaces for Vehicles: There shall be no parking spaces, parking lots, or loading/unloading spaces.
- G. New Surface and/or Subsurface Sewage Disposal or Treatment Areas. Riparian setbacks shall not be used for the disposal or treatment of sewage, except as necessary to repair or replace an existing home sewage disposal system and in accordance with recommendations of the [county] Board of Health.

#### XXXX.09 NON-CONFORMING STRUCTURES OR USES IN RIPARIAN SETBACKS


☞ *Communities may want to remove this section if non-conforming structures and uses are addressed elsewhere in their codes.*

- A. A non-conforming use, existing at the time of passage of this regulation and within a



- riparian setback, that is not permitted under this regulation may be continued but shall not be changed or enlarged unless changed to a use permitted under this regulation.
- B. A non-conforming structure, existing at the time of passage of this regulation and within a riparian setback, that is not permitted under this regulation may be continued but shall not have the existing building footprint or roofline expanded or enlarged.
- C. A non-conforming structure or use, existing at the time of passage of this regulation and within a riparian setback, that has substantial damage and that is discontinued, terminated, or abandoned for a period of six (6) months or more may not be revived, restored, or re-established.

#### **XXXX.10 VARIANCES WITHIN RIPARIAN SETBACKS**

-  *Sections XXXX.10 and XXXX.11 assign the authority to review and grant variances in the riparian setback to the Planning and Zoning Commission (P&Z), a role traditionally filled by the Board of Zoning Appeals. This role for the P&Z, developed by the City of Kirtland, is recommended because P&Z will be the body developing the riparian setback ordinance and recommending it to Council. Through this process of ordinance development, the members of P&Z become familiar with the intent of riparian setbacks, the technical issues involved, and the importance of adjusting other setbacks, such as side yard and rear yard, to ensure buildability while maintaining riparian areas. For this reason, the members of P&Z may be better able to grant reasonable riparian setback variances. Communities should consult their law director regarding this modification of authorities.*
- A. The **Planning and Zoning Commission** may grant a variance to this regulation as provided herein. In granting a variance, the following conditions shall apply:
1. In determining whether there is unnecessary hardship with respect to the use of a property or practical difficulty with respect to maintaining the riparian setback as established in this regulation, such as to justify the granting of a variance, the **Planning and Zoning Commission** shall consider the potential harm or reduction in riparian functions that may be caused by a proposed structure or use.
  2. The **Planning and Zoning Commission** may not authorize any structure or use in a Zoning District other than those authorized in the Zoning Code.
  3. Variances shall be void if not implemented within one (1) year of the date of issuance.
- B. In making a determination under **Section XXXX.10 (A)** of this regulation, the **Planning and Zoning Commission** may consider the following:
1. The natural vegetation of the property as well as the percentage of the parcel that is in the 100-year floodplain. The criteria of **Chapter XXXX Flood Damage Prevention** may be used as guidance when granting variances in the 100-year



floodplain.

2. The extent to which the requested variance impairs the flood control, erosion control, water quality protection, or other functions of the riparian setback. This determination shall be based on sufficient technical and scientific data.
  3. The degree of hardship, with respect to the use of a property or the degree of practical difficulty with respect to maintaining the riparian setback as established in this regulation, placed on the landowner by this regulation and the availability of alternatives to the proposed structure or use.
  4. Soil-disturbing activities permitted in the riparian setback through variances should be implemented to minimize clearing to the extent possible and to include Best Management Practices necessary to minimize erosion and control sediment.
  5. The presence of significant impervious cover, or smooth vegetation such as maintained lawns, in the riparian setback compromises its benefits to the **[community]**. Variances should not be granted for asphalt or concrete paving in the riparian setback. Variances may be granted for gravel driveways when necessary.
  6. Whether a property, otherwise buildable under the ordinances of the **[community]**, will be made unbuildable because of this regulation.
- C. In order to maintain the riparian setback to the maximum extent practicable, the **Planning and Zoning Commission** may consider granting variances to other area or setback requirements imposed on a property by the Zoning Code. These may include, but are not limited to, parking requirements, requirements for the shape, size, or design of buildings, or front, rear, or side lot setbacks.
- D. In granting a variance under this regulation, the **Planning and Zoning Commission**, for good cause, may impose such conditions that it deems appropriate to maintain the purposes of this regulation and to mitigate any necessary impacts in the riparian setbacks permitted by variance. In determining appropriate mitigation, the **Planning and Zoning Commission** may consult with the **[community]** Engineer or other agencies including **[county]** SWCD.

#### **XXXX.11 PROCEDURES FOR VARIANCES & APPEALS**

- A. Any applicant seeking a variance to the conditions imposed under this regulation or an appeal to an administrative decision made under this regulation, other than a decision by the **Planning and Zoning Commission**, may apply to or appeal to the **Planning and Zoning Commission**. The following conditions shall apply:
1. When filing an application for an appeal to an administrative decision, the applicant shall file a notice of appeal specifying the grounds therefor with the administrative official within **20 days** of the administrative official's decision.



Upon determining that the application is complete and upon receipt of the required fee of **\$100**, the administrative official shall transmit to the ***Planning and Zoning Commission*** the application and a transcript constituting the record from which the administrative decision subject to appeal was based. This transmission shall occur no less than fourteen (14) days prior to a regularly scheduled meeting of the ***Planning and Zoning Commission*** in order to be placed on the agenda for that meeting.

2. When applying for a variance, the applicant shall file a variance request with the ***Planning and Zoning Commission***.
  3. Applications for appeals or variances made under this regulation shall contain the following information:
    - a. The name, address, and telephone number of the applicant;
    - b. Proof of ownership or authorization to represent the property owner.
    - c. The location of the property, including street address and permanent parcel number.
    - d. The current zoning of the property.
    - e. A description of the project for which the appeal or variance is sought.
    - f. A description of the administrative decision being appealed or the conditions of the regulation from which a variance is sought.
    - g. Names and addresses of each property owner within 500 feet as shown in the current records of the ***[county]*** Auditor typed on gummed labels.
  4. Applications for variances or appeals of administrative decisions shall not be resubmitted to the ***Planning and Zoning Commission*** within one (1) year of the date of a final decision by the ***Planning and Zoning Commission*** on the original application, unless the applicant shows the ***Planning and Zoning Commission*** either of the following:
    - a. Newly discovered evidence that could not have been presented with the original submission, or
    - b. Evidence of a substantial change in circumstances since the time of the original submission.
- B. A decision by the ***Planning and Zoning Commission*** in response to an application for a variance request or an appeal of an administrative decision filed pursuant to this regulation shall be final.



**XXXX.12 INSPECTION OF RIPARIAN SETBACKS**

The identification of riparian setbacks shall be inspected by the *[community]*:

- A. Prior to soil disturbing activities authorized under this regulation. The applicant shall provide the *[community]* with at least two (2) working days written notice prior to starting such soil disturbing activities.
- B. Any time evidence is brought to the attention of the *[community]* that uses or structures are occurring that may reasonably be expected to violate the provisions of this regulation.

**XXXX.99 PENALTY**

- A. Any person who shall violate any section of this regulation shall be guilty of a misdemeanor of first degree and, upon conviction thereof, shall be subject to punishment as provided in *Chapter XXXX* and shall be required to restore the riparian setback through a restoration plan approved by the *Planning and Zoning Commission*.
- B. The imposition of any other penalties provided herein shall not preclude the *[community]* from instituting an appropriate action or proceeding in a Court of proper jurisdiction to prevent an unlawful development, or to restrain, correct, or abate a violation, or to require compliance with the provisions of this regulation or other applicable laws, ordinances, rules, or regulations, or the orders of the *[community]* Zoning Inspector.





**APPENDIX C: ESTABLISHMENT OF RIPARIAN SETBACKS  
MODEL TOWNSHIP RESOLUTION**

***Section 1500.0***

***Purpose and Intent***

- A. The specific purpose and intent of these regulations is to regulate the location of buildings, structures, uses, and related soil disturbing activities within riparian setback areas that would impair the ability of these areas to:

***Note: The township should also cite documentation in support of these regulations, available from the XXXX, in its minutes during the zoning amendment process.***

1. Preserve and conserve the quality and free flowing condition of designated watercourses in the interest of promoting and protecting public health and safety.
  2. Reduce flood impacts by absorbing peak flows, slowing the velocity of flood waters, and regulating base flow.
  3. Assist in stabilizing the banks of designated watercourses to reduce woody debris from fallen or damaged trees, stream bank erosion, and the downstream transport of sediments eroded from such watercourse banks.
  4. Reduce pollutants in designated watercourses during periods of high flows by filtering, settling, and transforming pollutants already present in such watercourses.
  5. Reduce pollutants in designated watercourses by filtering, settling, and transforming pollutants in runoff before they enter such watercourses.
  6. Provide designated watercourse habitats with shade and food.
  7. Reduce the presence of aquatic nuisance species to maintain a diverse aquatic system.
  8. Provide riparian habitat with a wide array of wildlife by maintaining diverse and connected riparian vegetation.
  9. Minimize encroachment on designated watercourses and limiting the potential need for invasive measures that may otherwise be necessary to protect buildings, structures, and uses as well as to reduce the damage to real property and threats to public health and safety within the affected watershed.
- B. These regulations have been enacted to protect and enhance the functions of riparian areas by providing reasonable controls governing buildings, structures, uses, and related soil disturbing activities within a riparian setback along designated watercourses in the township.



Due to the importance of properly functioning riparian areas, minimum riparian setbacks may be given preference over minimum front, side, or rear yard setbacks as specified in this resolution in the consideration of an appeal for a variance by the board of zoning appeals.

- C. These regulations have been enacted in compliance with the \_\_\_\_\_ Township Phase II Stormwater Management Program, adopted \_\_\_\_\_, 200 \_\_\_\_\_, as required by 40 C.F.R. Parts 9, 122, 123, and 124.

***Note: Paragraph "C" applies only to those townships within the EPA Phase II Storm Water Management Program.***

**Section 1501.0                      Applicability**

- A. These regulations shall only apply when the following two (2) conditions are met:
1. Soil disturbing activities regulated by this resolution are those proposed in, or within 50 feet of, a riparian setback as set forth in these regulations, and
  2. A zoning certificate or conditional zoning certificate is required or necessary.
- B. These regulations shall apply to all zoning districts.
- C. The regulations set forth herein shall apply to all buildings, structures, uses, and related soil disturbing activities on a lot containing a designated watercourse, except as otherwise provided herein.
- D. The use of any building, structure or lot lawfully existing prior to the effective date of these regulations may be continued, subject to the provisions of Article IX, Nonconforming Buildings, Structures, and Uses.
- E. The repair, maintenance, extension, replacement, restoration, reconstruction or substitution of a building, structure or use lawfully existing prior to the effective date of these regulations may be continued or completed, subject to the provisions of Article IX, Nonconforming Buildings, Structures, and Uses.
- F. No zoning certificate or conditional zoning certificate shall be issued for any building, structure or use on a lot containing, wholly or partly, a designated watercourse except in conformity with the regulations set forth herein.

**Section 1502.0                      Definitions**

For the purpose of these regulations, the following terms shall have the meanings as provided herein.

- A. ***"Damaged or Diseased Trees"*** means trees that have split trunks; broken tops; heart rot; insect or fungus problems that will lead to imminent death; undercut root systems that put the



tree in imminent danger of falling; lean as a result of root failure that puts the tree in imminent danger of falling; or any other condition that puts the tree in imminent danger of being uprooted or falling into or along a watercourse or onto a building or a structure.

- B. ***“Designated Watercourse”*** means a river or stream within a township that is in conformity with the criteria set forth in these regulations.
- C. ***“Federal Emergency Management Agency (FEMA)”*** means the agency with overall responsibility for administering the National Flood Insurance Program.
- D. ***“Impervious cover”*** means any paved, hardened or structural surface regardless of its composition including (but not limited to) buildings, roads, driveways, parking lots, loading/unloading spaces, decks, patios, and swimming pools.
- E. ***“In-Line pond”*** means a permanent pool of water created by impounding a designated watercourse.
- F. ***“Land Development Activity”*** means any change to the surface area of a lot including (but not limited to) clearing, grubbing, stripping, removal of vegetation, dredging, grading, excavating, cut and fill, construction of buildings or structures, paving, and any other installation of impervious cover.
- G. ***“Ohio Environmental Protection Agency”*** means the governmental agency referred to herein as the Ohio EPA.
- H. ***“One Hundred Year Floodplain”*** means any land susceptible to being inundated by water from a base flood. The base flood is the flood that has a one percent or greater chance of being equaled or exceeded in any given year. The one hundred year floodplain shall be identified by the Federal Emergency Management Agency maps of the township.
- I. ***“Ordinary High Water Mark”*** means the point of the bank to which the presence and action of surface water is so continuous as to leave an area marked by erosion, destruction or prevention of woody terrestrial vegetation, predominance of aquatic vegetation or other easily recognized characteristic. The ordinary high water mark defines the bed and bank of a watercourse.
- J. ***“Riparian Area”*** means naturally vegetated land adjacent to designated watercourses that, if appropriately sized, helps to stabilize streambanks, limit erosion, reduce flood size flows and/or filter and settle out runoff pollutants or performs other functions consistent with the purposes of these regulations.
- K. ***“Riparian Setback”*** means the real property adjacent to a designated watercourse located within the area defined by the criteria set forth in these regulations.
- L. ***“Soil and Water Conservation District (SWCD)”*** means the *[County]*, Ohio Soil and Water Conservation District, organized under Chapter 1515 of the Ohio Revised Code, including the Board of Supervisors and its designated employees.



- M. **“Soil Disturbing Activity”** means clearing, grading, excavating, filling or other alteration of the earth’s surface where natural or human made ground cover is destroyed and which may result in, or contribute to, erosion and sediment pollution.
- N. **“Waste Water Treatment Plant (WWTP)”** means a facility at the end of a sanitary collection system, which processes the influent waste and discharges water to a receiving stream, treated to the standards of the Ohio EPA.
- O. **“Watercourse”** means any brook, channel, creek, river, or stream, either continuous or intermittent, having an established, and defined bed and bank, as determined by the ordinary high water mark, and definite direction of flow.
- P. **“Wetland”** means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas. (40 C.F.R. 232, as amended).
- Q. **“Wetlands, Category 1”** means a low quality wetlands classification as defined in Ohio Administrative Code (OAC) Rule 3745-1-54(C) of the Ohio EPA.
- R. **“Wetlands, Category 2”** means a medium quality wetlands classification as defined in Ohio Administrative Code (OAC) Rule 3745-1-54(C) of the Ohio EPA.
- S. **“Wetlands, Category 3”** means a high quality wetlands classification as defined in Ohio Administrative Code (OAC) Rule 3745-1-54(C) of the Ohio EPA.

***Section 1503.0 Establishment of Designated Watercourses and Riparian Setbacks***

- A. A designated watercourse shall include one or more of the following criteria.
  - 1. All watercourses draining an area equal to or greater than one-half (0.5) square mile, or
  - 2. All watercourses draining an area less than one-half (0.5) square mile and having a defined bed and bank. In determining if watercourses have a defined bed and bank, the zoning inspector may consult with representatives of the **[County]** SWCD or other technical experts.
- B. Riparian setbacks on designated watercourses shall be established as follows.
  - 1. A minimum of 120 feet on each side of all designated watercourses draining an area equal to or greater than 20 square miles.
  - 2. A minimum of 75 feet on each side of all designated watercourses draining an area equal to or greater than one-half (0.5) square mile and up to 20 square miles.
  - 3. A minimum of 25 feet on each side of all designated watercourses draining an area less



than one-half (0.5) square mile and having a defined bed and bank as determined in these regulations.

C. The following regulations shall apply to riparian setbacks.

1. Riparian setbacks shall be measured in a horizontal direction outward from the ordinary high water mark of a designated watercourse, except for existing in-line ponds as addressed in Section 1503.0(C)(5).
2. Except as otherwise provided in this regulation, riparian setbacks shall be preserved in their natural state.
3. Where the one hundred year floodplain is wider than the minimum riparian setback on either or both sides of a designated watercourse, the minimum riparian setback shall be extended to include the outermost boundary of the one hundred year floodplain as delineated on the flood hazard boundary map(s) for the affected area provided by FEMA.
4. Where a wetland is wider than the minimum riparian setback on either or both sides of a designated watercourse, the minimum riparian setback shall be extended to include the outermost boundary of the wetland, plus the following additional setback widths based upon the particular wetland category. Wetlands shall be delineated through a site survey prepared by a qualified wetlands professional retained by the lot owner using delineation protocols accepted by the U.S. Army Corps of Engineers at the time an application is made under these regulations. Such delineation is a requirement of the U.S. Army Corps of Engineers and the Ohio Environmental Protection Agency.
  - a. An additional minimum setback of 50 feet extending beyond the outermost boundary of a category 3 wetlands.
  - b. An additional minimum setback of 30 feet extending beyond the outermost boundary of a category 2 wetlands.
  - c. No additional setback shall be required beyond the outermost boundary of a category 1 wetlands.
5. The minimum riparian setback on an in-line pond existing at the time an application for a zoning certificate or a conditional zoning certificate is made under this resolution shall be measured from the ordinary high water mark of the designated watercourse as it enters said pond and through the impoundment along the centerline of the designated watercourse as it flows through the in-line pond. Riparian setbacks on in-line ponds existing at the time an application is made under this resolution shall be expanded to include wetlands and floodplains as detailed in Section 1503.0(C)(3) and (4). The creation of new in-line ponds shall not be permitted under this resolution.

**Section 1504.0**

***Riparian Setback Guide Map***

- A. The township shall create a guide map identifying designated watercourses and their riparian



setbacks. Said guide map is attached hereto and made a part of this regulation and is identified as Exhibit “A.” The riparian setback guide map may be utilized as a guide or reference document by the zoning inspector and the board of zoning appeals in determining when the riparian setback applies.

**Note: The riparian setback map may be prepared by the Planning Commission for the Township.**

- B. Nothing herein shall prevent the township from amending the riparian setback guide map from time to time as may be necessary.
- C. If any discrepancy is found between the riparian setback guide map and these regulations, or if any discrepancy is found between existing site conditions and the riparian setback guide map, the criteria set forth in Section 1503.0 shall prevail.

***Section 1505.0***

***Applications and Site Plan***

**Note: The riparian setback must be shown on zoning applications and site plans to ensure that both the landowner and the Township understand the extent and location of this area. This section provides two options for Townships to meet this goal. Option 1 is recommended if your community does not have a separate section in the Zoning Resolution specifying the content of a zoning application. Option 2 is available for those communities that delineate submittal requirements in their zoning resolution.**

***Option 1 for Section 1505.0:***

When making an application for a zoning certificate or a conditional zoning certificate for a building, structure or use regulated by this resolution and proposing soil disturbing activities regulated herein, or within 50 feet of, a riparian setback, the owner shall be responsible for identifying riparian setbacks as required by these regulations and shall indicate such setbacks on a site plan submitted to the zoning inspector. The site plan shall be prepared by a professional engineer, surveyor, soils scientist, landscape architect or such other qualified individual and shall be based upon a survey of the affected lot. Six (6) copies of the site plan shall be submitted. In addition to the requirements set forth in this resolution for a zoning certificate or a conditional zoning certificate, the owner shall provide the following information to the zoning inspector.

- A. A site plan depicting the following if applicable:
  - 1. The boundaries of the lot with dimensions.
  - 2. The location of all designated watercourses.
  - 3. The limits, with dimensions, of the riparian setback.
  - 4. The existing topography at intervals of two feet.
  - 5. The location and dimensions of any existing and proposed buildings, structures, and uses in relationship to all designated watercourses.



6. The description and location, with dimensions plus a calculation of the total area, of all land development activities, soil disturbance, and impervious cover.
  7. The description and depiction of all erosion and sedimentation controls plus all stormwater management controls, including all temporary and permanent best management practices.
  8. If the lot included in the site plan is a part of a platted and recorded subdivision, the riparian setback shall be as shown on said plat.
  9. North arrow, scale, date, and stamp bearing the name and registration number of the professional consultant who prepared the plan shall be provided.
- B. Such other supplementary information as may be necessary for the zoning inspector or the board of zoning appeals to ensure compliance with the provisions of these regulations.
- C. If land development or soil disturbing activities will occur within 50 feet of the outer boundary of the applicable riparian setback as specified in these regulations, then prior to the initiation of any land development or soil disturbing activities, the riparian setback shall be clearly delineated on the affected lot by the owner with construction fencing as shown on the site plan and shall be maintained on the lot until the completion of such development or disturbance activities.

⇒ ***Option 2 for Section 1505.0 (A): Use Only if Specific Submittal Requirements Such as Those in Option 1 are Elsewhere in Community's Zoning Regulations.***

- A. When making an application for a zoning certificate or a conditional zoning certificate for a building, structure, or use regulated by this resolution and proposing soil disturbing activities regulated herein, or within 50 feet of, a riparian setback, the owner shall be responsible for identifying riparian setbacks as required by these regulations and shall indicate such setbacks on all site plans submitted to the zoning inspector. The zoning inspector, may, in reviewing the site plan, consult with the [County] SWCD or such other experts retained by the Board of Township Trustees.
- B. If land development or soil disturbing activities will occur within 50 feet of the outer boundary of the applicable riparian setback as specified in these regulations, then prior to the initiation of any land development or soil disturbing activities, the riparian setback shall be clearly delineated on the affected lot by the owner with construction fencing as shown on the site plan and shall be maintained on the lot until the completion of such development or disturbance activities.

**Section 1506.0                      Permitted Buildings, Structures and Uses Within a Riparian Setback Without a Zoning Certificate**

The following buildings, structures, uses, and related soil disturbing activities may be permitted within a riparian setback without a zoning certificate. Other uses not requiring a zoning certificate or conditional zoning certificate under this resolution may also permitted in the riparian setback.

- A. Recreational Activities: Fishing, hunting, picnicking, picnic tables, trails, walkways, and





paths for nonmotorized vehicles constructed of pervious materials.

- B. Removal of Damaged or Diseased Trees: Damaged or diseased trees and other associated debris may be removed.
- C. Maintenance and Repairs: Maintenance and repair on lawfully existing buildings, structures, and uses; roads; driveways; bridges; culverts; trails; walkways; paths; wastewater treatment plants and appurtenances; water wells; water treatment plants and appurtenances; storm sewers; and on-site sewage systems.
- D. Maintenance and Cultivation of Lawns and Landscaping: The maintenance of existing, and the cultivation of new, lawns, landscaping, shrubbery, and trees.
- E. Water Supply Wells: Water supply wells subject to the regulations enforced by the [County] County General Health District or the Ohio EPA.
- F. Open Space: Passive open space to preserve the riparian setback area in its natural state.
- G. Composting: Composting of natural materials from the affected lot, not for commercial retail sale or use.
- H. On-site Sewage Systems and Waste Water Treatment Plants: On-site sewage systems and waste water treatment plants and appurtenances subject to the applicable regulations enforced by the [County] County General Health District or the Ohio EPA. Proof of compliance with such regulations shall be required.

**Section 1507.0**

***Permitted Buildings, Structures and Uses Within a Riparian Setback  
With a Zoning Certificate***

The following buildings, structures, and uses may be permitted within a riparian setback, subject to the approval of an application for a zoning certificate by the zoning inspector and in accordance with the following regulations and such other applicable regulations contained in this zoning resolution.

- A. Crossings: Crossings of designated watercourses through riparian setbacks with roads, driveways, easements, bridges, culverts, utility service lines (including sanitary sewer, water, septic system, storm sewer, electric, natural gas, telephone, and cable for television and other digital transmission), or other means may be permitted, subject to the other regulations contained in this resolution and the regulations enforced by the [County] SWCD and the [County] County Engineer. If work will occur below the ordinary high water mark of the designated watercourse, proof of compliance with the applicable conditions of a U.S. Army Corps of Engineers Section 404 Permit (either a Nationwide Permit, including the Ohio State Certification Special Conditions and Limitations, or an Individual Permit, including Ohio 401 water quality certification), shall also be provided to the Zoning Inspector. Proof of compliance shall be the following:

1. A site plan showing that any proposed crossing conforms to the general and special



- conditions of the applicable Nationwide Permit, or
2. A copy of the authorization letter from the U.S. Army Corps of Engineers approving the activities under the applicable Nationwide Permit, or
  3. A copy of the authorization letter from the U.S. Army Corps of Engineers approving activities under an Individual Permit.
- B. Streambank Stabilization Projects: Streambank stabilization projects along designated watercourses, subject to other regulations contained in this resolution and the regulations enforced by the [County] SWCD. If streambank stabilization work is proposed below the ordinary high water mark of a designated watercourse, proof of compliance with the applicable conditions of U.S. Army Corps of Engineers Section 404 Permit (either a Nationwide Permit 13, including the Ohio State Certification Special Conditions and Limitations, or an Individual Permit, including Ohio 401 water quality certification), shall be provided to the Zoning Inspector. Proof of compliance shall be the following:
1. A site plan showing that any proposed crossing conforms to the general and special conditions of Nationwide Permit 13, or
  2. A copy of the authorization letter from the U.S. Army Corps of Engineers approving activities under Nationwide Permit 13, or
  3. A copy of the authorization letter from the U.S. Army Corps of Engineers approving activities under an Individual Permit.
- C. Signs: Signs in accordance with this zoning resolution.
- D. Fences and walls: Fences and walls in accordance with this zoning resolution.
- E. Boat ramps, decks, and docks.

**Section 1508.0                      *Buildings, Structures and Uses Prohibited Within a Riparian Setback***

Any building, structure, use, or related soil disturbing activity not permitted under this resolution shall be prohibited within a riparian setback. The following buildings, structures, and uses are specifically prohibited.

- A. Construction: There shall be no buildings, structures, uses, or related soil disturbing activities of any kind except as permitted under these regulations.
- B. Parking Spaces or Lots and Loading/Unloading Spaces for Vehicles: There shall be no parking spaces, parking lots, loading/unloading spaces, or related soil disturbing activities.
- C. Roads and Driveways: There shall be no roads or driveways except as permitted under these regulations.



***Section 1509.0            Inspections of Riparian Setbacks***

The zoning inspector shall inspect the delineation of riparian setbacks.

- A. The owner shall notify the zoning inspector at least \_\_\_\_\_ working days prior to the initiation of any construction, land development or soil disturbing activities on a lot.
- B. The zoning inspector, with prior notice and the authorization of the owner, may enter the affected lot from time to time to conduct on-site inspections to ensure compliance with these regulations.



**APPENDIX D: OHIO TOWNSHIP ZONING AMENDMENT PROCEDURE**

1. Initiate Amendment: Application by property owner or lessee motion by township zoning commission resolution by the board of township trustees.
2. The township zoning commission sets date of public hearing not less than 20 nor more than 40 days from data of initiation.
3. The township zoning commission transmits a copy of the text and map of the amendment to the county planning commission within 5 days.
4. The township zoning commission places a legal notice on the amendment in a newspaper of general circulation not less than 10 days prior to the public hearing, if the amendment intends to rezone 10 or fewer lots, then a notice must be mailed to adjacent property owners as well.
5. The county planning commission reviews amendments and offers its formal recommendation to the township zoning commission.
6. The township zoning commission holds a public hearing and considers the recommendations of the county planning commission.
7. The township zoning commission closes the public hearing and must vote to recommend approval, denial, or approval of some modification of the amendment within 30 days after the public hearing.
8. The township zoning commission submits its recommendation on the amendment, application or resolution, text and map, and recommendation of the county planning commission to the board of township trustees.
9. Upon receipt, the board of township trustees must set a public hearing data not more than 30 days from the date of receipt of the zoning commission's recommendation on the amendment.
10. The board of township trustees places a legal notice in a newspaper of general circulation not less than 10 days prior to the public hearing.
11. The board of township trustees holds the public hearing, reviews the recommendations of the county planning commission and the township zoning commission.
12. The board of township trustees closes the public hearing and within 20 days must vote to adopt or deny the recommendation of the township zoning commission, or adopt some modification thereof. If the recommendation of the township zoning commission is denied or modified, a majority vote of the board is required.
13. The amendment, if adopted, shall become effective in 30 days after the date of adoption unless a referendum petition is presented to the board of township trustees within 30 day time period.



14. If the petition is validated by the county board of elections, the amendment shall not take effect until, the results of the election have been certified by the county board of elections and a majority of the votes are cast in favor of the amendment.
15. Within 5 working days after an amendment's effective date, copies thereof shall be filed by the board of township trustees with the county recorder and the county planning commission office.
16. Ohio Revised Code 519.122 provides that no action challenging the validity of a zoning resolution or of any amendment thereof because of a procedural error in the adoption of the resolution or amendment shall be brought more than 2 years after the adoption of the resolution or amendment.

*Prepared by: Geauga County Planning Commission, October 2008. This summary is not meant to replace Ohio Revised Code 519.12*



**APPENDIX E: SAMPLE RIPARIAN SETBACK REGULATION PRESENTATION**

The logo is a circular emblem with a green outer ring. Inside the ring, there are stylized, overlapping green and blue wavy lines that suggest a river or a watershed. The text is centered over this graphic.

# **Chagrin River Watershed Partners, Inc.**

## **Zoning for Riparian Setbacks**

**Kyle Dreyfuss-Wells**  
(440) 975-3870, [kdw@crwp.org](mailto:kdw@crwp.org)  
[www.crwp.org](http://www.crwp.org)

**Village of Bentleyville  
Utilities Committee**

The background image shows a calm river or stream. The water is dark and reflects the overcast sky. The banks are covered with fallen brown leaves and some green vegetation. Bare trees are visible in the background, suggesting a late autumn or winter setting.

### **Riparian Setbacks**

- **Chagrin River Watershed Partners, Inc.**
- **Impacts of Land Use Change**
- **Ohio EPA Phase II Requirements**
- **Proposed Riparian Setback Zoning**





## ***Chagrin River Watershed Partners***

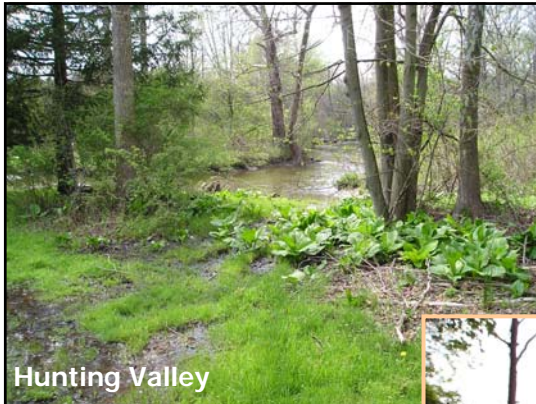
- Formed in 1996 by watershed communities. Supported by member dues and grants.
- Work directly with 34 cities, villages, counties, townships, and park districts to minimize flooding and erosion as communities grow. Save \$\$.
- Majority of members required to comply with Ohio Environmental Protection Agency's storm water management rules. Assist with compliance.

## **Flooding, Erosion, and Water Quality Problems:** **The Impacts of Land Use Change**

- Increase in impervious cover.
- Loss of floodplain storage.
- Increase in flooding, erosion, and water quality problems.
- Increase in infrastructure costs and resident complaints.

*More cost effective to **prevent** problems than to **fix** problems.*

**Riparian areas, streams  
& wetlands.....**



Hunting Valley

**Sinks for storm  
water and its  
pollutants**

**Free flood and  
erosion control &  
water quality  
protection**



Chardon

**Replace with  
impervious surfaces**

**Source of storm  
water & pollutants**





Bainbridge

### Flooding

- ✓ More storm water
- ✓ Fewer "sinks"

### Erosion

- ✓ Property damage
- ✓ Sedimentation



Willoughby Hills

## **CRWP Recommends that Communities Have....**

- Comprehensive planning
- Open space acquisition/mitigation
- ZONING FOR RIPARIAN SETBACKS
- Erosion and sediment control
- Comprehensive storm water management
- Conservation development



# Ohio EPA Storm Water Management Requirements

## *Phase II*

### NPDES Phase II Requirements

■ **Communities regulated:** Owners of Separate Storm Sewer Systems in Urbanized Areas.

■ **Storm Water Management Program (SWMP):**  
Address Six Minimum Control Measures:

- Public Education & Outreach
- Public Involvement & Participation
- Illicit Discharge Detection & Elimination
- Construction Site Runoff Control

**Village  
Submitted  
SWMP in  
March 2003**

➤ **Post Construction Runoff Control: Riparian setbacks among the best prevention focused tools for post construction storm water management**

- Pollution Prevention on Community Operations

## Riparian Setbacks

- **Zoning tool** to limit development within specific distances of streams and **maintain services of riparian areas**.
- Similar to front and side yard setbacks.
- Do not make lots "unbuildable".
- **Control location** of soil disturbing activities during construction and other activities regulated by zoning.



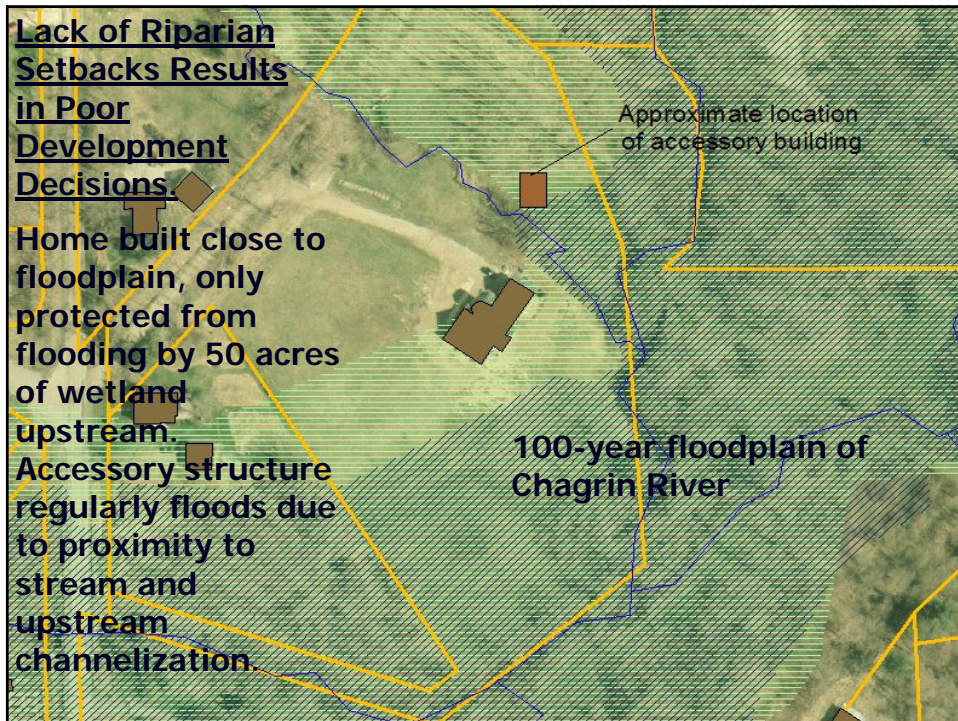
### Lack of Riparian Setbacks Results in Poor Development Decisions.

Home built close to floodplain, only protected from flooding by 50 acres of wetland upstream.

Accessory structure regularly floods due to proximity to stream and upstream channelization.

Approximate location of accessory building

100-year floodplain of Chagrin River









Traditional development subdivides ALL available land & resources.

**Russell Township Subdivision**

184 acres in 37 lots

5 acre minimum lots

## **Model Riparian Setback Ordinance**

- Based on public health and safety services of riparian areas.
- Developed with regional and national technical advisors.
- Minimum setbacks to control LOCATION of development.
- Details permitted & prohibited structures and uses, non-conformities, and variances.
- 25, 75, or 120 foot setbacks depending on drainage area.

**Majority of Bentleyville setbacks would be 25 or 75 feet.**

**Goal is to flex side, front, and rear setbacks to maintain riparian setbacks.**

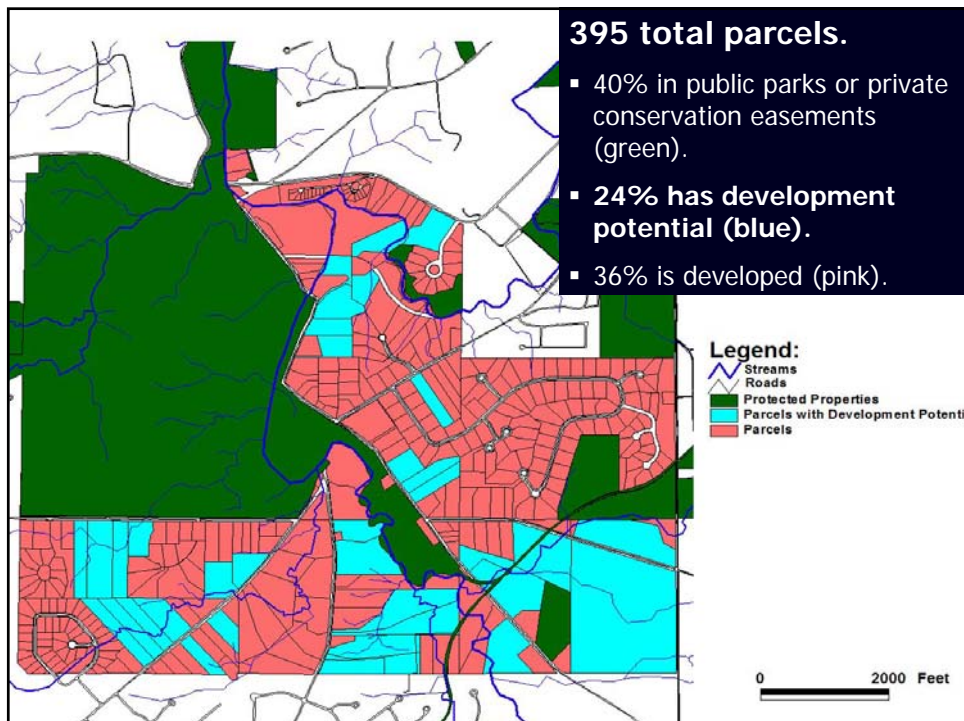


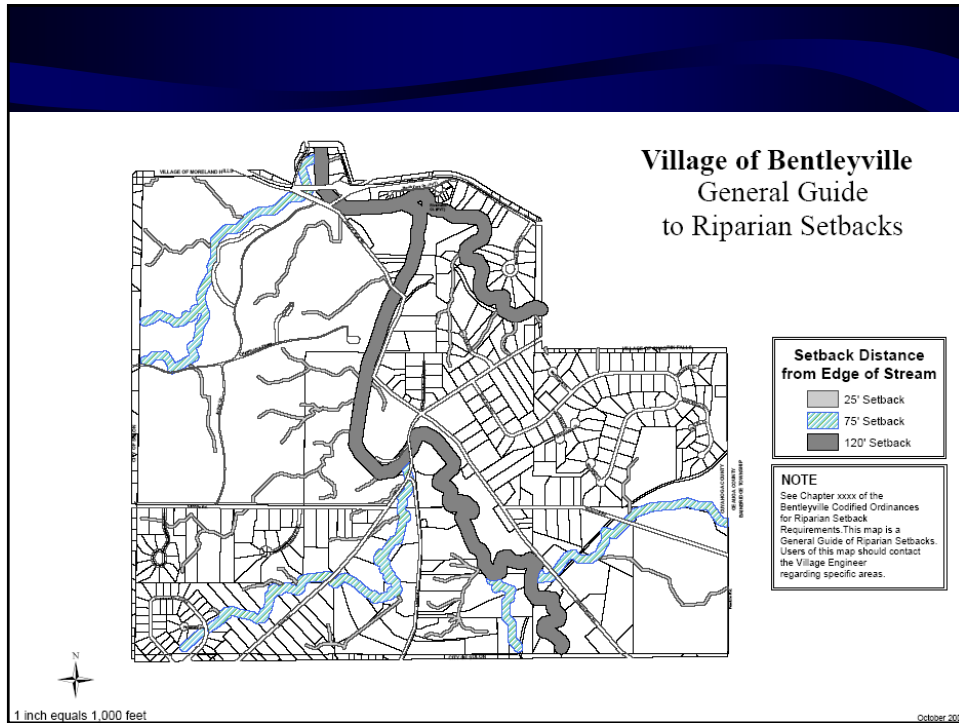
## Riparian Setbacks in Northeast Ohio

- Aurora
- Auburn
- Bainbridge
- Chagrin Falls
- Hunting Valley
- Kirtland
- Lake County
- Orange Village
- Woodmere
- Summit County
- Six Summit Cty Townships
- Five Summit Cty municipalities
- Phase II members



**Under consideration in  
Willoughby Hills and  
Moreland Hills**





**395 total parcels. 38% with potential riparian setback.**

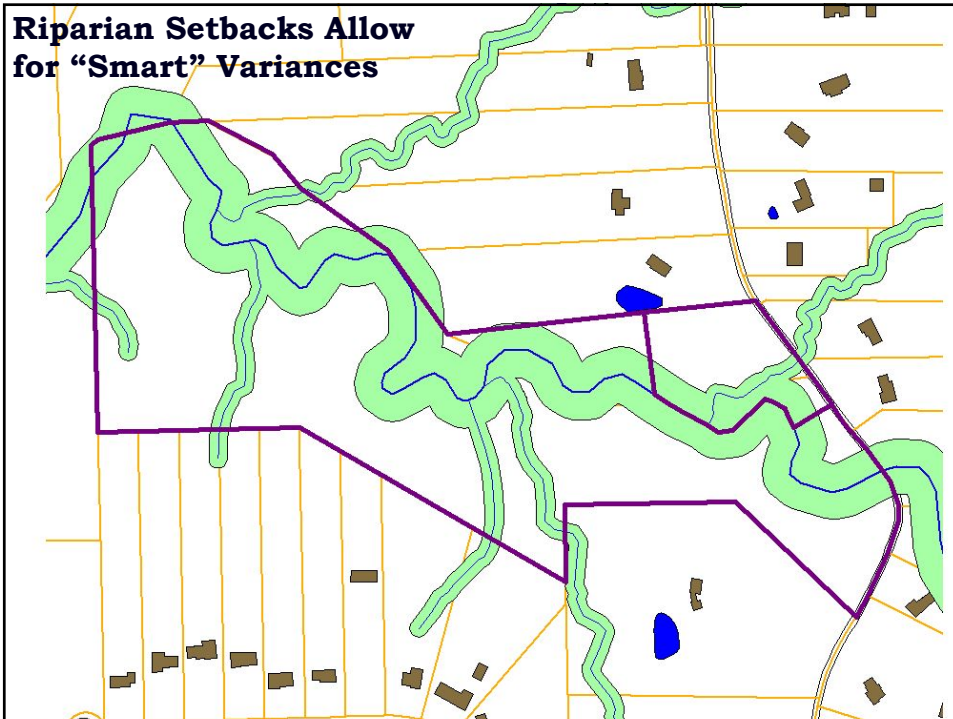
151 parcels with riparian setback **on some portion.**

- \* 21 protected by Metroparks or easements
- \* 99 build out
- \* **31 or 8% have development potential**

Majority of the 8% with riparian setback AND development potential have 25 foot or 75 foot riparian setback.

## Variances & Riparian Setbacks

- Community's existing variance code applies.
- Provide variances to other setbacks first.
- Riparian setback regulations are a tool to assist community and landowners in finding the best location for development.
- Model regulation includes preference for riparian setback over front and side yard setbacks.



## Non-Conforming Structures & Riparian Setbacks

- Community's existing regulations for non-conforming structures and uses apply.
- No limitations on maintaining and repairing structures near streams.
- No limitations on ability to expand structures near streams, provided not further into the riparian setback.
- Variance necessary if proposing to expand structure closer to a stream.

## Why Riparian Setback Zoning?

- **Maintain services:** Setbacks are a zoning tool to maintain the ability of riparian areas to control flooding, limit stream bank erosion, and reduce water pollution.
- **Lower costs:** Setbacks keep homes, infrastructure and other property out of the path of ever-changing streams.
  - Reduce public safety concerns.
  - Reduce need for costly stream bank stabilization.



## Why Riparian Setback Zoning?

- **Storm water management:** Setbacks are a non-structural storm water Best Management Practice.
- **Only happens at the local level:** Ohio EPA, US Army Corps of Engineers, County Planning Commission, and Soil and Water Conservation District are NOT responsible for maintaining your community's riparian areas.

